WESTON SOLUTIONS, INC.

PO# 0094759

STANDARD LEVEL IV
REPORT OF ANALYSIS

WORK ORDER #17-07082-OR

September 14, 2017

EBERLINE ANALYTICAL/OAK RIDGE LABORATORY
OAK RIDGE, TN

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Eberline Services – Oak Ridge Laboratory

LABORATORY DATA SUPPORT CHECKLIST

MP-001-3

Eberline Services Work Order # 17-07082

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	SEB	Sample Log-In
		8-16-17	NZ	Data Compilation
		8/16/17	[illegible]	First Technical Data Review
		8/18/17	[illegible]	Second Technical Data Review
		9/6/17	[illegible]	Data Entry/Electronic Deliverable
		9/6/17	[illegible]	Case Narrative
		09/13/17	[illegible]	Electronic Deliverable Proof
		9/13/17	[illegible]	Samples Analyzed within Holding Time Yes? [X] No? [ ]
		9/13/17	[illegible]	QA/QC Review
				Client in Possession of Data Electronic or Hard Copy
				Invoiced by Laboratory

Technical/Clerical Corrections, Signatures Needed, Problems, Etc	Date/Initials

Date package approved by: [illegible] [illegible] 9/13/17

Laboratory Manager Date

Copy No. _____

SECTION I

CHAIN OF CUSTODY

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

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

17-07082
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-S003-3036-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	10:32	1	16 oz Poly Jar	N	1017.2 g
	HTC-A01-S003-3642-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	10:29	1	16 oz Poly Jar	N	935.7 g
	HTC-A01-S003-4248-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	10:26	1	16 oz Poly Jar	N	860.7 g
	HTC-A01-S004-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	14:21	1	16 oz Poly Jar	N	805.0 g
	HTC-A01-S004-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	14:18	1	16 oz Poly Jar	N	998.4 g
	HTC-A01-S004-1218-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	14:15	1	16 oz Poly Jar	N	985.4 g
	HTC-A01-S004-1824-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	14:12	1	16 oz Poly Jar	N	818.4 g
	HTC-A01-S004-2430-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	14:09	1	16 oz Poly Jar	N	957.7 g
	HTC-A01-S004-3036-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	14:06	1	16 oz Poly Jar	N	793.1 g
	HTC-A01-S004-3642-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	14:03	1	16 oz Poly Jar	N	920.7 g
	HTC-A01-S004-4248-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	14:00	1	16 oz Poly Jar	N	883.0 g
	HTC-A01-S005-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	10:01	1	16 oz Poly Jar	N	867.9 g
4,5,6	HTC-A01-S005-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	09:58	1	16 oz Poly Jar	Y	833.8 g
7	HTC-A01-S005-0612-02	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	09:58	1	16 oz Poly Jar	N	811.8 g
8	HTC-A01-S005-1218-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	09:55	1	16 oz Poly Jar	N	950.0 g
9	HTC-A01-S005-1824-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	09:52	1	16 oz Poly Jar	N	985.3 g
10	HTC-A01-S005-2430-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	09:49	1	16 oz Poly Jar	N	808.8 g
11	HTC-A01-S005-3036-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	09:46	1	16 oz Poly Jar	N	1024.4 g
12	HTC-A01-S005-3642-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	09:43	1	16 oz Poly Jar	N	1080.9 g
13	HTC-A01-S005-4248-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	09:40	1	16 oz Poly Jar	N	973.2 g
14	HTC-A01-S006-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	17:06	1	16 oz Poly Jar	N	891.6 g
15	HTC-A01-S006-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	17:03	1	16 oz Poly Jar	N	940.2 g

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

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

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

17-07082
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
16	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
17	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
18	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
19	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
20	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
	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
	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	

9000

EBERLINE SERVICES Oak Ridge Laboratory	Internal Chain of Custody	Work Order #	17-07082
		Lab Deadline	8/9/2017
		Analysis	UUISO - Level 4
		Sample Matrix	Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
Report on dry weight basis.	04	31	L1.4
	05	41	L1.4
	06	41	L1.4
	07	29	L1.4
	08	36	L1.4
	09	39	L1.4
	10	38	L1.4
	11	34	L1.4
	12	41	L1.4
Fraction 05 is MS of fraction 04. Fraction 06 is MSD of fraction 04.	13	30	L1.4
	14	32	L1.4
	15	40	L1.4
	16	44	L1.4
	17	37	L1.4
	18	48	L1.4
	19	39	L1.4
	20	45	L1.4

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1200	Kay Saj	7-24-17
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 0930	Kay Saj	7-25-17
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1000	[illegible]	7/31/17
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8/1/17 1055
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8-2-17 1050
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8-4-17 1022
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8/11 1000
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KB	8/14/17 1809
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		

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EBERLINE SERVICES Oak Ridge Laboratory	Internal Chain of Custody	Work Order #	17-07082
		Lab Deadline	8/9/2017
		Analysis	ThISO - Level 4
		Sample Matrix	Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
Report on dry weight basis.	04	31	L1.4
	05	41	L1.4
	06	41	L1.4
	07	29	L1.4
	08	36	L1.4
	09	39	L1.4
	10	38	L1.4
	11	34	L1.4
	12	41	L1.4
Fraction 05 is MS of fraction 04. Fraction 06 is MSD of fraction 04.	13	30	L1.4
	14	32	L1.4
	15	40	L1.4
	16	44	L1.4
	17	37	L1.4
	18	48	L1.4
	19	39	L1.4
	20	45	L1.4

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1200	[illegible]	7-24-17
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 8930	[illegible]	7-25-17
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	7-31-17
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8/1/17 1050
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8-2-17 1150
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8-15-17 0948
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	0948
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KB 8/15/17	1520
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		

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EBERLINE ANALYTICAL Oak Ridge Laboratory	Internal Chain of Custody	Work Order #	17-07082
		Lab Deadline	See Comments
		Analysis	Gamma - Level 4
		Sample Matrix	SO

Comments
Re-Analysis: 2Fractions 04 & 07-20 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.
~~Original Lab Deadline: 08/15/17~~ Ey 07/18/17 ~~Rerun Lab Deadline: 08/15/17 Fractions 04 & 07-20 only: Quick Count Report Ac228, Bi212/214, Cs137, K40, Pa234m, Pb212/214, Ra224, Ra226 from 186 keV peak, Ra228 from Ac228, Tl208, Th234 & positives. Report on "AS IS" basis~~

Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
04	31	L1.4
07	29	L1.4
08	36	L1.4
09	39	L1.4
10	38	L1.4
11	34	L1.4
12	41	L1.4
13	30	L1.4
14	32	L1.4
15	40	L1.4
16	44	L1.4
17	37	L1.4
18	48	L1.4
19	39	L1.4
20	45	L1.4

	Location (circle one)					Technician Initials	
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1200	[illegible]	7-24-17
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 0930	[illegible]	7-25-17
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 0930	[illegible]	7/25
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KB	8/15/17 1407
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		

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SECTION II

SAMPLE ACKNOWLEDGEMENT

Client Name	Contract/PO	Project Type	Date Received	Required Turnaround Days	Eberline Services Work Order
Weston Solutions, Inc.	0094759	Environmental	07/18/2017	28	17-07082
Project Name	**Client WO**	**Sample Disp**	**Lab Deadline**	**Internal Deadline**	**Client Deadline**
94759	Case #445	H	08/09/2017	08/14/2017	08/15/2017

Internal ID	Client ID	Sample Date	Matrix	Storage	Gamma	ThISO	UUISO																					Ttl
01	LCS	07/18/17	SO	L1.4	X	X	X																					3
02	BLANK	07/18/17	SO	L1.4	X	X	X																					3
03	DUP	07/18/17	SO	L1.4	X	X	X																					3
04	HTC-A01-S005-0612-01	05/13/17 09:58	SO	L1.4	X	X	X																					3
05	HTC-A01-S005-0612-01 MS	05/13/17 09:58	SO	L1.4		X	X																					2
06	HTC-A01-S005-0612-01 MSD	05/13/17 09:58	SO	L1.4		X	X																					2
07	HTC-A01-S005-0612-02	05/13/17 09:58	SO	L1.4	X	X	X																					3
08	HTC-A01-S005-1218-01	05/13/17 09:55	SO	L1.4	X	X	X																					3
09	HTC-A01-S005-1824-01	05/13/17 09:52	SO	L1.4	X	X	X																					3
10	HTC-A01-S005-2430-01	05/13/17 09:49	SO	L1.4	X	X	X																					3
11	HTC-A01-S005-3036-01	05/13/17 09:46	SO	L1.4	X	X	X																					3
12	HTC-A01-S005-3642-01	05/13/17 09:43	SO	L1.4	X	X	X																					3
13	HTC-A01-S005-4248-01	05/13/17 09:40	SO	L1.4	X	X	X																					3
14	HTC-A01-S006-0006-01	05/13/17 17:06	SO	L1.4	X	X	X																					3
15	HTC-A01-S006-0612-01	05/13/17 17:03	SO	L1.4	X	X	X																					3
16	HTC-A01-S006-1218-01	05/13/17 17:00	SO	L1.4	X	X	X																					3
17	HTC-A01-S006-1824-01	05/13/17 16:57	SO	L1.4	X	X	X																					3
18	HTC-A01-S006-2430-01	05/13/17 16:54	SO	L1.4	X	X	X																					3
19	HTC-A01-S006-3036-01	05/13/17 16:51	SO	L1.4	X	X	X																					3
20	HTC-A01-S006-3642-01	05/13/17 16:48	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

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Eberline Services – Oak Ridge Laboratory

SAMPLE RECEIPT CHECKLIST
MP-001-2

WORK ORDER # 17-07082

SAMPLE MATRIX/MATRICES: (CIRCLE ONE OR BOTH)

AQUEOUS NON-AQUEOUS

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

WERE SAMPLES:

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

WERE CHAIN OF CUSTODY SEALS:

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

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

REMARKS: _____

SIGNATURE: [signature] DATE: 7-18-17

SECTION III

CASE NARRATIVE

EBERLINE SERVICES

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

EBS-OR-42655

September 14, 2017

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

CASE NARRATIVE
Work Order # 17-07082-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-S005-0612-01	17-07082-04	HTC-A01-S005-4248-01	17-07082-13
HTC-A01-S005-0612-01 MS	17-07082-05	HTC-A01-S006-0006-01	17-07082-14
HTC-A01-S005-0612-01 MSD	17-07082-06	HTC-A01-S006-0612-01	17-07082-15
HTC-A01-S005-0612-02	17-07082-07	HTC-A01-S006-1218-01	17-07082-16
HTC-A01-S005-1218-01	17-07082-08	HTC-A01-S006-1824-01	17-07082-17
HTC-A01-S005-1824-01	17-07082-09	HTC-A01-S006-2430-01	17-07082-18
HTC-A01-S005-2430-01	17-07082-10	HTC-A01-S006-3036-01	17-07082-19
HTC-A01-S005-3036-01	17-07082-11	HTC-A01-S006-3642-01	17-07082-20
HTC-A01-S005-3642-01	17-07082-12		

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 duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Uranium-235/236 and Uranium-238 duplicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Uranium-234 and Uranium-238 laboratory control sample demonstrated an acceptable percent recovery. Results for the Uranium-234 and Uranium-238 matrix spike and matrix spike duplicate demonstrated an acceptable percent recovery.

ISOTOPIC THORIUM

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

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

GAMMA SPECTROSCOPY

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

ANALYTICAL RESULTS CONTINUED

GAMMA SPECTROSCOPY CONTINUED

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

CERTIFICATION OF ACCURACY

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

M.R. McDougall
Laboratory Manager

Date: 9/14/2017

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

SECTION IV

ANALYTICAL RESULTS SUMMARY

Eberline Analytical
Final Report of Analysis

Report To:

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

Work Order Details:

SDG:	**17-07082**
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											
17-07082-01	LCS	KNOWN	07/18/17 00:00	7/18/2017	8/15/2017	17-07082	Cobalt-60	EPA 901.1 Modified	1.35E+02	5.27E+00			pCi/g
17-07082-01	LCS	KNOWN	07/18/17 00:00	7/18/2017	8/15/2017	17-07082	Cesium-137	EPA 901.1 Modified	8.44E+01	3.38E+00			pCi/g
17-07082-01	LCS	SPIKE	07/18/17 00:00	7/18/2017	8/15/2017	17-07082	Cobalt-60	EPA 901.1 Modified	1.30E+02	7.68E+00	1.02E+01	1.03E+00	pCi/g
17-07082-01	LCS	SPIKE	07/18/17 00:00	7/18/2017	8/15/2017	17-07082	Cesium-137	EPA 901.1 Modified	8.38E+01	8.90E+00	9.88E+00	1.19E+00	pCi/g
17-07082-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/15/2017	17-07082	Actinium-228	EPA 901.1 Modified	6.38E-02	6.81E-02	6.82E-02	1.41E-01	pCi/g
17-07082-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/15/2017	17-07082	Bismuth-212	EPA 901.1 Modified	-8.01E-02	1.98E-01	1.98E-01	2.72E-01	pCi/g
17-07082-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/15/2017	17-07082	Cesium-137	EPA 901.1 Modified	5.34E-03	2.04E-02	2.04E-02	3.57E-02	pCi/g
17-07082-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/15/2017	17-07082	Potassium-40	EPA 901.1 Modified	-1.36E-02	2.02E-01	2.02E-01	3.26E-01	pCi/g
17-07082-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/15/2017	17-07082	Protactinium-234m	EPA 901.1 Modified	1.10E+00	2.15E+00	2.15E+00	4.17E+00	pCi/g
17-07082-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/15/2017	17-07082	Lead-212	EPA 901.1 Modified	2.07E-02	3.18E-02	3.18E-02	5.24E-02	pCi/g
17-07082-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/15/2017	17-07082	Radium-224	EPA 901.1 Modified	3.82E-01	3.59E-01	3.59E-01	6.14E-01	pCi/g
17-07082-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/15/2017	17-07082	Radium-226	EPA 901.1 Modified	-3.93E-02	5.27E-02	5.28E-02	7.06E-02	pCi/g
17-07082-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/15/2017	17-07082	Radium-228	EPA 901.1 Modified	6.38E-02	6.81E-02	6.82E-02	1.41E-01	pCi/g
17-07082-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/15/2017	17-07082	Thorium-234	EPA 901.1 Modified	7.13E-01	4.69E-01	4.71E-01	7.02E-01	pCi/g
17-07082-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/15/2017	17-07082	Thallium-208	EPA 901.1 Modified	9.41E-04	6.74E-02	6.74E-02	1.08E-01	pCi/g
17-07082-03	DUP	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Actinium-228	EPA 901.1 Modified	1.40E+00	3.09E-01	3.18E-01	5.66E-01	pCi/g
17-07082-03	DUP	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Bismuth-212	EPA 901.1 Modified	2.58E-01	8.58E-01	8.58E-01	1.24E+00	pCi/g
17-07082-03	DUP	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Cesium-137	EPA 901.1 Modified	1.40E-01	7.80E-02	7.83E-02	1.79E-01	pCi/g
17-07082-03	DUP	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Potassium-40	EPA 901.1 Modified	2.07E+01	3.07E+00	3.24E+00	2.57E+00	pCi/g
17-07082-03	DUP	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Protactinium-234m	EPA 901.1 Modified	1.80E-01	7.32E+00	7.32E+00	1.66E+01	pCi/g
17-07082-03	DUP	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Lead-212	EPA 901.1 Modified	1.42E+00	2.10E-01	2.22E-01	3.01E-01	pCi/g
17-07082-03	DUP	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Radium-224	EPA 901.1 Modified	1.73E+01	2.42E+00	2.58E+00	3.73E+00	pCi/g
17-07082-03	DUP	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Radium-226	EPA 901.1 Modified	2.01E+00	3.10E-01	3.27E-01	3.51E-01	pCi/g
17-07082-03	DUP	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Radium-228	EPA 901.1 Modified	1.40E+00	3.09E-01	3.18E-01	5.66E-01	pCi/g
17-07082-03	DUP	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Thorium-234	EPA 901.1 Modified	3.23E+00	2.73E+00	2.73E+00	4.55E+00	pCi/g
17-07082-03	DUP	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Thallium-208	EPA 901.1 Modified	1.42E+00	2.92E-01	3.01E-01	7.60E-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:	**17-07082**
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
17-07082-04	DO	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Actinium-228	EPA 901.1 Modified	1.43E+00	4.07E-01	4.14E-01	8.87E-01	pCi/g
17-07082-04	DO	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Bismuth-212	EPA 901.1 Modified	3.75E-01	8.53E-01	8.53E-01	1.25E+00	pCi/g
17-07082-04	DO	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Cesium-137	EPA 901.1 Modified	8.38E-03	1.12E-01	1.12E-01	1.57E-01	pCi/g
17-07082-04	DO	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Potassium-40	EPA 901.1 Modified	2.30E+01	2.99E+00	3.22E+00	1.21E+00	pCi/g
17-07082-04	DO	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Protactinium-234m	EPA 901.1 Modified	7.10E+00	1.08E+01	1.08E+01	1.68E+01	pCi/g
17-07082-04	DO	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Lead-212	EPA 901.1 Modified	1.25E+00	2.03E-01	2.13E-01	4.25E-01	pCi/g
17-07082-04	DO	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Radium-224	EPA 901.1 Modified	1.59E+01	2.36E+00	2.49E+00	3.66E+00	pCi/g
17-07082-04	DO	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Radium-226	EPA 901.1 Modified	2.06E+00	3.15E-01	3.32E-01	3.99E-01	pCi/g
17-07082-04	DO	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Radium-228	EPA 901.1 Modified	1.43E+00	4.07E-01	4.14E-01	8.87E-01	pCi/g
17-07082-04	DO	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Thorium-234	EPA 901.1 Modified	1.39E+00	1.67E+00	1.67E+00	2.80E+00	pCi/g
17-07082-04	DO	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Thallium-208	EPA 901.1 Modified	1.19E+00	2.68E-01	2.75E-01	3.25E-01	pCi/g
17-07082-07	TRG	HTC-A01-S005-0612-02	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Actinium-228	EPA 901.1 Modified	1.54E+00	2.40E-01	2.53E-01	4.36E-01	pCi/g
17-07082-07	TRG	HTC-A01-S005-0612-02	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Bismuth-212	EPA 901.1 Modified	1.40E+00	5.34E-01	5.39E-01	7.74E-01	pCi/g
17-07082-07	TRG	HTC-A01-S005-0612-02	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Cesium-137	EPA 901.1 Modified	-2.04E-03	4.51E-02	4.51E-02	8.82E-02	pCi/g
17-07082-07	TRG	HTC-A01-S005-0612-02	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Potassium-40	EPA 901.1 Modified	2.55E+01	2.73E+00	3.03E+00	1.51E+00	pCi/g
17-07082-07	TRG	HTC-A01-S005-0612-02	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Protactinium-234m	EPA 901.1 Modified	-5.01E-01	6.50E+00	6.50E+00	9.56E+00	pCi/g
17-07082-07	TRG	HTC-A01-S005-0612-02	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Lead-212	EPA 901.1 Modified	1.55E+00	1.76E-01	1.93E-01	3.23E-01	pCi/g
17-07082-07	TRG	HTC-A01-S005-0612-02	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Radium-224	EPA 901.1 Modified	6.81E+00	1.35E+00	1.39E+00	3.65E+00	pCi/g
17-07082-07	TRG	HTC-A01-S005-0612-02	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Radium-226	EPA 901.1 Modified	2.56E+00	2.65E-01	2.96E-01	2.63E-01	pCi/g
17-07082-07	TRG	HTC-A01-S005-0612-02	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Radium-228	EPA 901.1 Modified	1.54E+00	2.40E-01	2.53E-01	4.36E-01	pCi/g
17-07082-07	TRG	HTC-A01-S005-0612-02	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Thorium-234	EPA 901.1 Modified	3.19E+00	1.53E+00	1.54E+00	2.47E+00	pCi/g
17-07082-07	TRG	HTC-A01-S005-0612-02	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Thallium-208	EPA 901.1 Modified	1.27E+00	1.80E-01	1.92E-01	2.21E-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
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Eberline Analytical
Final Report of Analysis

Report To:

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

Work Order Details:

SDG:	**17-07082**
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
17-07082-08	TRG	HTC-A01-S005-1218-01	05/13/17 09:55	7/18/2017	8/15/2017	17-07082	Actinium-228	EPA 901.1 Modified	1.34E+00	2.26E-01	2.36E-01	7.11E-01	pCi/g
17-07082-08	TRG	HTC-A01-S005-1218-01	05/13/17 09:55	7/18/2017	8/15/2017	17-07082	Bismuth-212	EPA 901.1 Modified	6.77E-01	6.13E-01	6.14E-01	1.01E+00	pCi/g
17-07082-08	TRG	HTC-A01-S005-1218-01	05/13/17 09:55	7/18/2017	8/15/2017	17-07082	Cesium-137	EPA 901.1 Modified	1.68E-02	6.03E-02	6.03E-02	9.46E-02	pCi/g
17-07082-08	TRG	HTC-A01-S005-1218-01	05/13/17 09:55	7/18/2017	8/15/2017	17-07082	Potassium-40	EPA 901.1 Modified	1.92E+01	2.33E+00	2.53E+00	1.21E+00	pCi/g
17-07082-08	TRG	HTC-A01-S005-1218-01	05/13/17 09:55	7/18/2017	8/15/2017	17-07082	Protactinium-234m	EPA 901.1 Modified	9.15E+00	5.50E+00	5.52E+00	1.05E+01	pCi/g
17-07082-08	TRG	HTC-A01-S005-1218-01	05/13/17 09:55	7/18/2017	8/15/2017	17-07082	Lead-212	EPA 901.1 Modified	1.31E+00	1.58E-01	1.72E-01	2.15E-01	pCi/g
17-07082-08	TRG	HTC-A01-S005-1218-01	05/13/17 09:55	7/18/2017	8/15/2017	17-07082	Radium-224	EPA 901.1 Modified	1.74E+01	2.07E+00	2.25E+00	3.03E+00	pCi/g
17-07082-08	TRG	HTC-A01-S005-1218-01	05/13/17 09:55	7/18/2017	8/15/2017	17-07082	Radium-226	EPA 901.1 Modified	1.13E+00	1.73E-01	1.82E-01	2.34E-01	pCi/g
17-07082-08	TRG	HTC-A01-S005-1218-01	05/13/17 09:55	7/18/2017	8/15/2017	17-07082	Radium-228	EPA 901.1 Modified	1.34E+00	2.26E-01	2.36E-01	7.11E-01	pCi/g
17-07082-08	TRG	HTC-A01-S005-1218-01	05/13/17 09:55	7/18/2017	8/15/2017	17-07082	Thorium-234	EPA 901.1 Modified	2.44E+00	1.66E+00	1.67E+00	2.75E+00	pCi/g
17-07082-08	TRG	HTC-A01-S005-1218-01	05/13/17 09:55	7/18/2017	8/15/2017	17-07082	Thallium-208	EPA 901.1 Modified	1.04E+00	1.81E-01	1.89E-01	3.87E-02	pCi/g
17-07082-09	TRG	HTC-A01-S005-1824-01	05/13/17 09:52	7/18/2017	8/15/2017	17-07082	Actinium-228	EPA 901.1 Modified	1.16E+00	1.71E-01	1.81E-01	2.67E-01	pCi/g
17-07082-09	TRG	HTC-A01-S005-1824-01	05/13/17 09:52	7/18/2017	8/15/2017	17-07082	Bismuth-212	EPA 901.1 Modified	1.14E+00	4.34E-01	4.38E-01	7.50E-01	pCi/g
17-07082-09	TRG	HTC-A01-S005-1824-01	05/13/17 09:52	7/18/2017	8/15/2017	17-07082	Cesium-137	EPA 901.1 Modified	1.44E-02	4.48E-02	4.48E-02	7.02E-02	pCi/g
17-07082-09	TRG	HTC-A01-S005-1824-01	05/13/17 09:52	7/18/2017	8/15/2017	17-07082	Potassium-40	EPA 901.1 Modified	2.31E+01	2.50E+00	2.77E+00	1.22E+00	pCi/g
17-07082-09	TRG	HTC-A01-S005-1824-01	05/13/17 09:52	7/18/2017	8/15/2017	17-07082	Protactinium-234m	EPA 901.1 Modified	1.01E+00	5.05E+00	5.05E+00	7.86E+00	pCi/g
17-07082-09	TRG	HTC-A01-S005-1824-01	05/13/17 09:52	7/18/2017	8/15/2017	17-07082	Lead-212	EPA 901.1 Modified	1.21E+00	1.42E-01	1.55E-01	2.15E-01	pCi/g
17-07082-09	TRG	HTC-A01-S005-1824-01	05/13/17 09:52	7/18/2017	8/15/2017	17-07082	Radium-224	EPA 901.1 Modified	3.09E+00	1.20E+00	1.21E+00	2.42E+00	pCi/g
17-07082-09	TRG	HTC-A01-S005-1824-01	05/13/17 09:52	7/18/2017	8/15/2017	17-07082	Radium-226	EPA 901.1 Modified	1.12E+00	1.51E-01	1.62E-01	2.12E-01	pCi/g
17-07082-09	TRG	HTC-A01-S005-1824-01	05/13/17 09:52	7/18/2017	8/15/2017	17-07082	Radium-228	EPA 901.1 Modified	1.16E+00	1.71E-01	1.81E-01	2.67E-01	pCi/g
17-07082-09	TRG	HTC-A01-S005-1824-01	05/13/17 09:52	7/18/2017	8/15/2017	17-07082	Thorium-234	EPA 901.1 Modified	2.32E+00	1.14E+00	1.14E+00	1.55E+00	pCi/g
17-07082-09	TRG	HTC-A01-S005-1824-01	05/13/17 09:52	7/18/2017	8/15/2017	17-07082	Thallium-208	EPA 901.1 Modified	1.21E+00	1.67E-01	1.78E-01	1.09E-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

0020

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:	**17-07082**
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
17-07082-10	TRG	HTC-A01-S005-2430-01	05/13/17 09:49	7/18/2017	8/15/2017	17-07082	Actinium-228	EPA 901.1 Modified	1.39E+00	2.49E-01	2.59E-01	3.75E-01	pCi/g
17-07082-10	TRG	HTC-A01-S005-2430-01	05/13/17 09:49	7/18/2017	8/15/2017	17-07082	Bismuth-212	EPA 901.1 Modified	3.41E-01	5.02E-01	5.02E-01	8.23E-01	pCi/g
17-07082-10	TRG	HTC-A01-S005-2430-01	05/13/17 09:49	7/18/2017	8/15/2017	17-07082	Cesium-137	EPA 901.1 Modified	7.99E-03	6.33E-02	6.33E-02	9.81E-02	pCi/g
17-07082-10	TRG	HTC-A01-S005-2430-01	05/13/17 09:49	7/18/2017	8/15/2017	17-07082	Potassium-40	EPA 901.1 Modified	2.09E+01	2.52E+00	2.74E+00	1.01E+00	pCi/g
17-07082-10	TRG	HTC-A01-S005-2430-01	05/13/17 09:49	7/18/2017	8/15/2017	17-07082	Protactinium-234m	EPA 901.1 Modified	4.46E+00	6.56E+00	6.56E+00	1.11E+01	pCi/g
17-07082-10	TRG	HTC-A01-S005-2430-01	05/13/17 09:49	7/18/2017	8/15/2017	17-07082	Lead-212	EPA 901.1 Modified	1.34E+00	1.72E-01	1.86E-01	2.38E-01	pCi/g
17-07082-10	TRG	HTC-A01-S005-2430-01	05/13/17 09:49	7/18/2017	8/15/2017	17-07082	Radium-224	EPA 901.1 Modified	1.72E+01	2.12E+00	2.30E+00	3.21E+00	pCi/g
17-07082-10	TRG	HTC-A01-S005-2430-01	05/13/17 09:49	7/18/2017	8/15/2017	17-07082	Radium-226	EPA 901.1 Modified	8.10E-01	2.00E-01	2.04E-01	3.52E-01	pCi/g
17-07082-10	TRG	HTC-A01-S005-2430-01	05/13/17 09:49	7/18/2017	8/15/2017	17-07082	Radium-228	EPA 901.1 Modified	1.39E+00	2.49E-01	2.59E-01	3.75E-01	pCi/g
17-07082-10	TRG	HTC-A01-S005-2430-01	05/13/17 09:49	7/18/2017	8/15/2017	17-07082	Thorium-234	EPA 901.1 Modified	1.74E+00	1.40E+00	1.40E+00	1.89E+00	pCi/g
17-07082-10	TRG	HTC-A01-S005-2430-01	05/13/17 09:49	7/18/2017	8/15/2017	17-07082	Thallium-208	EPA 901.1 Modified	1.10E+00	1.96E-01	2.04E-01	1.18E-01	pCi/g
17-07082-11	TRG	HTC-A01-S005-3036-01	05/13/17 09:46	7/18/2017	8/15/2017	17-07082	Actinium-228	EPA 901.1 Modified	1.18E+00	2.69E-01	2.76E-01	8.15E-01	pCi/g
17-07082-11	TRG	HTC-A01-S005-3036-01	05/13/17 09:46	7/18/2017	8/15/2017	17-07082	Bismuth-212	EPA 901.1 Modified	3.84E-01	7.30E-01	7.31E-01	1.08E+00	pCi/g
17-07082-11	TRG	HTC-A01-S005-3036-01	05/13/17 09:46	7/18/2017	8/15/2017	17-07082	Cesium-137	EPA 901.1 Modified	-4.29E-02	8.99E-02	9.00E-02	1.17E-01	pCi/g
17-07082-11	TRG	HTC-A01-S005-3036-01	05/13/17 09:46	7/18/2017	8/15/2017	17-07082	Potassium-40	EPA 901.1 Modified	2.08E+01	2.67E+00	2.87E+00	1.08E+00	pCi/g
17-07082-11	TRG	HTC-A01-S005-3036-01	05/13/17 09:46	7/18/2017	8/15/2017	17-07082	Protactinium-234m	EPA 901.1 Modified	5.40E+00	8.94E+00	8.95E+00	1.39E+01	pCi/g
17-07082-11	TRG	HTC-A01-S005-3036-01	05/13/17 09:46	7/18/2017	8/15/2017	17-07082	Lead-212	EPA 901.1 Modified	1.07E+00	1.56E-01	1.65E-01	2.79E-01	pCi/g
17-07082-11	TRG	HTC-A01-S005-3036-01	05/13/17 09:46	7/18/2017	8/15/2017	17-07082	Radium-224	EPA 901.1 Modified	4.06E+00	1.54E+00	1.55E+00	3.16E+00	pCi/g
17-07082-11	TRG	HTC-A01-S005-3036-01	05/13/17 09:46	7/18/2017	8/15/2017	17-07082	Radium-226	EPA 901.1 Modified	1.04E+00	2.17E-01	2.24E-01	2.74E-01	pCi/g
17-07082-11	TRG	HTC-A01-S005-3036-01	05/13/17 09:46	7/18/2017	8/15/2017	17-07082	Radium-228	EPA 901.1 Modified	1.18E+00	2.69E-01	2.76E-01	8.15E-01	pCi/g
17-07082-11	TRG	HTC-A01-S005-3036-01	05/13/17 09:46	7/18/2017	8/15/2017	17-07082	Thorium-234	EPA 901.1 Modified	1.24E+00	1.46E+00	1.46E+00	2.44E+00	pCi/g
17-07082-11	TRG	HTC-A01-S005-3036-01	05/13/17 09:46	7/18/2017	8/15/2017	17-07082	Thallium-208	EPA 901.1 Modified	1.20E+00	2.57E-01	2.65E-01	6.53E-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:	**17-07082**
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
17-07082-12	TRG	HTC-A01-S005-3642-01	05/13/17 09:43	7/18/2017	8/15/2017	17-07082	Actinium-228	EPA 901.1 Modified	1.16E+00	1.83E-01	1.93E-01	3.29E-01	pCi/g
17-07082-12	TRG	HTC-A01-S005-3642-01	05/13/17 09:43	7/18/2017	8/15/2017	17-07082	Bismuth-212	EPA 901.1 Modified	9.03E-01	4.12E-01	4.14E-01	6.51E-01	pCi/g
17-07082-12	TRG	HTC-A01-S005-3642-01	05/13/17 09:43	7/18/2017	8/15/2017	17-07082	Cesium-137	EPA 901.1 Modified	5.67E-03	4.61E-02	4.61E-02	7.07E-02	pCi/g
17-07082-12	TRG	HTC-A01-S005-3642-01	05/13/17 09:43	7/18/2017	8/15/2017	17-07082	Potassium-40	EPA 901.1 Modified	2.30E+01	2.45E+00	2.72E+00	9.54E-01	pCi/g
17-07082-12	TRG	HTC-A01-S005-3642-01	05/13/17 09:43	7/18/2017	8/15/2017	17-07082	Protactinium-234m	EPA 901.1 Modified	-3.57E+00	5.35E+00	5.36E+00	7.36E+00	pCi/g
17-07082-12	TRG	HTC-A01-S005-3642-01	05/13/17 09:43	7/18/2017	8/15/2017	17-07082	Lead-212	EPA 901.1 Modified	1.38E+00	1.49E-01	1.65E-01	2.04E-01	pCi/g
17-07082-12	TRG	HTC-A01-S005-3642-01	05/13/17 09:43	7/18/2017	8/15/2017	17-07082	Radium-224	EPA 901.1 Modified	2.84E+00	1.22E+00	1.23E+00	2.28E+00	pCi/g
17-07082-12	TRG	HTC-A01-S005-3642-01	05/13/17 09:43	7/18/2017	8/15/2017	17-07082	Radium-226	EPA 901.1 Modified	1.03E+00	1.43E-01	1.53E-01	1.56E-01	pCi/g
17-07082-12	TRG	HTC-A01-S005-3642-01	05/13/17 09:43	7/18/2017	8/15/2017	17-07082	Radium-228	EPA 901.1 Modified	1.16E+00	1.83E-01	1.93E-01	3.29E-01	pCi/g
17-07082-12	TRG	HTC-A01-S005-3642-01	05/13/17 09:43	7/18/2017	8/15/2017	17-07082	Thorium-234	EPA 901.1 Modified	1.25E+00	1.01E+00	1.01E+00	1.67E+00	pCi/g
17-07082-12	TRG	HTC-A01-S005-3642-01	05/13/17 09:43	7/18/2017	8/15/2017	17-07082	Thallium-208	EPA 901.1 Modified	1.12E+00	1.53E-01	1.63E-01	1.99E-01	pCi/g
17-07082-13	TRG	HTC-A01-S005-4248-01	05/13/17 09:40	7/18/2017	8/15/2017	17-07082	Actinium-228	EPA 901.1 Modified	1.35E+00	2.68E-01	2.77E-01	6.23E-01	pCi/g
17-07082-13	TRG	HTC-A01-S005-4248-01	05/13/17 09:40	7/18/2017	8/15/2017	17-07082	Bismuth-212	EPA 901.1 Modified	1.15E+00	4.92E-01	4.96E-01	7.85E-01	pCi/g
17-07082-13	TRG	HTC-A01-S005-4248-01	05/13/17 09:40	7/18/2017	8/15/2017	17-07082	Cesium-137	EPA 901.1 Modified	5.90E-02	6.68E-02	6.68E-02	1.09E-01	pCi/g
17-07082-13	TRG	HTC-A01-S005-4248-01	05/13/17 09:40	7/18/2017	8/15/2017	17-07082	Potassium-40	EPA 901.1 Modified	2.07E+01	2.48E+00	2.69E+00	1.25E+00	pCi/g
17-07082-13	TRG	HTC-A01-S005-4248-01	05/13/17 09:40	7/18/2017	8/15/2017	17-07082	Protactinium-234m	EPA 901.1 Modified	6.19E+00	5.23E+00	5.24E+00	8.34E+00	pCi/g
17-07082-13	TRG	HTC-A01-S005-4248-01	05/13/17 09:40	7/18/2017	8/15/2017	17-07082	Lead-212	EPA 901.1 Modified	1.27E+00	1.62E-01	1.75E-01	2.33E-01	pCi/g
17-07082-13	TRG	HTC-A01-S005-4248-01	05/13/17 09:40	7/18/2017	8/15/2017	17-07082	Radium-224	EPA 901.1 Modified	1.78E+01	2.14E+00	2.32E+00	3.11E+00	pCi/g
17-07082-13	TRG	HTC-A01-S005-4248-01	05/13/17 09:40	7/18/2017	8/15/2017	17-07082	Radium-226	EPA 901.1 Modified	1.19E+00	1.64E-01	1.75E-01	3.28E-01	pCi/g
17-07082-13	TRG	HTC-A01-S005-4248-01	05/13/17 09:40	7/18/2017	8/15/2017	17-07082	Radium-228	EPA 901.1 Modified	1.35E+00	2.68E-01	2.77E-01	6.23E-01	pCi/g
17-07082-13	TRG	HTC-A01-S005-4248-01	05/13/17 09:40	7/18/2017	8/15/2017	17-07082	Thorium-234	EPA 901.1 Modified	1.87E+00	1.34E+00	1.35E+00	1.80E+00	pCi/g
17-07082-13	TRG	HTC-A01-S005-4248-01	05/13/17 09:40	7/18/2017	8/15/2017	17-07082	Thallium-208	EPA 901.1 Modified	1.07E+00	2.01E-01	2.08E-01	2.03E-01	pCi/g

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

EBERLINE SERVICES

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

Eberline Analytical
Final Report of Analysis

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

Work Order Details:	
SDG:	17-07082
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
17-07082-14	TRG	HTC-A01-S006-0006-01	05/13/17 17:06	7/18/2017	8/15/2017	17-07082	Actinium-228	EPA 901.1 Modified	1.20E+00	3.52E-01	3.57E-01	7.45E-01	pCi/g
17-07082-14	TRG	HTC-A01-S006-0006-01	05/13/17 17:06	7/18/2017	8/15/2017	17-07082	Bismuth-212	EPA 901.1 Modified	1.46E+00	9.78E-01	9.81E-01	1.56E+00	pCi/g
17-07082-14	TRG	HTC-A01-S006-0006-01	05/13/17 17:06	7/18/2017	8/15/2017	17-07082	Cesium-137	EPA 901.1 Modified	8.75E-02	9.30E-02	9.31E-02	1.54E-01	pCi/g
17-07082-14	TRG	HTC-A01-S006-0006-01	05/13/17 17:06	7/18/2017	8/15/2017	17-07082	Potassium-40	EPA 901.1 Modified	2.19E+01	2.88E+00	3.09E+00	1.34E+00	pCi/g
17-07082-14	TRG	HTC-A01-S006-0006-01	05/13/17 17:06	7/18/2017	8/15/2017	17-07082	Protactinium-234m	EPA 901.1 Modified	9.77E+00	8.38E+00	8.39E+00	1.44E+01	pCi/g
17-07082-14	TRG	HTC-A01-S006-0006-01	05/13/17 17:06	7/18/2017	8/15/2017	17-07082	Lead-212	EPA 901.1 Modified	1.16E+00	1.68E-01	1.78E-01	2.91E-01	pCi/g
17-07082-14	TRG	HTC-A01-S006-0006-01	05/13/17 17:06	7/18/2017	8/15/2017	17-07082	Radium-224	EPA 901.1 Modified	1.44E+01	2.08E+00	2.21E+00	3.29E+00	pCi/g
17-07082-14	TRG	HTC-A01-S006-0006-01	05/13/17 17:06	7/18/2017	8/15/2017	17-07082	Radium-226	EPA 901.1 Modified	9.43E-01	1.96E-01	2.02E-01	2.51E-01	pCi/g
17-07082-14	TRG	HTC-A01-S006-0006-01	05/13/17 17:06	7/18/2017	8/15/2017	17-07082	Radium-228	EPA 901.1 Modified	1.20E+00	3.52E-01	3.57E-01	7.45E-01	pCi/g
17-07082-14	TRG	HTC-A01-S006-0006-01	05/13/17 17:06	7/18/2017	8/15/2017	17-07082	Thorium-234	EPA 901.1 Modified	1.45E+00	1.63E+00	1.63E+00	2.73E+00	pCi/g
17-07082-14	TRG	HTC-A01-S006-0006-01	05/13/17 17:06	7/18/2017	8/15/2017	17-07082	Thallium-208	EPA 901.1 Modified	1.21E+00	2.91E-01	2.98E-01	3.40E-01	pCi/g
17-07082-15	TRG	HTC-A01-S006-0612-01	05/13/17 17:03	7/18/2017	8/15/2017	17-07082	Actinium-228	EPA 901.1 Modified	1.09E+00	1.70E-01	1.79E-01	3.20E-01	pCi/g
17-07082-15	TRG	HTC-A01-S006-0612-01	05/13/17 17:03	7/18/2017	8/15/2017	17-07082	Bismuth-212	EPA 901.1 Modified	7.56E-01	3.88E-01	3.90E-01	6.60E-01	pCi/g
17-07082-15	TRG	HTC-A01-S006-0612-01	05/13/17 17:03	7/18/2017	8/15/2017	17-07082	Cesium-137	EPA 901.1 Modified	5.15E-02	5.24E-02	5.24E-02	8.34E-02	pCi/g
17-07082-15	TRG	HTC-A01-S006-0612-01	05/13/17 17:03	7/18/2017	8/15/2017	17-07082	Potassium-40	EPA 901.1 Modified	2.24E+01	2.36E+00	2.63E+00	8.75E-01	pCi/g
17-07082-15	TRG	HTC-A01-S006-0612-01	05/13/17 17:03	7/18/2017	8/15/2017	17-07082	Protactinium-234m	EPA 901.1 Modified	6.94E-01	5.11E+00	5.11E+00	7.90E+00	pCi/g
17-07082-15	TRG	HTC-A01-S006-0612-01	05/13/17 17:03	7/18/2017	8/15/2017	17-07082	Lead-212	EPA 901.1 Modified	1.24E+00	1.41E-01	1.54E-01	1.83E-01	pCi/g
17-07082-15	TRG	HTC-A01-S006-0612-01	05/13/17 17:03	7/18/2017	8/15/2017	17-07082	Radium-224	EPA 901.1 Modified	3.94E+00	1.27E+00	1.28E+00	2.09E+00	pCi/g
17-07082-15	TRG	HTC-A01-S006-0612-01	05/13/17 17:03	7/18/2017	8/15/2017	17-07082	Radium-226	EPA 901.1 Modified	1.08E+00	1.43E-01	1.53E-01	4.34E-02	pCi/g
17-07082-15	TRG	HTC-A01-S006-0612-01	05/13/17 17:03	7/18/2017	8/15/2017	17-07082	Radium-228	EPA 901.1 Modified	1.09E+00	1.70E-01	1.79E-01	3.20E-01	pCi/g
17-07082-15	TRG	HTC-A01-S006-0612-01	05/13/17 17:03	7/18/2017	8/15/2017	17-07082	Thorium-234	EPA 901.1 Modified	1.04E+00	1.12E+00	1.12E+00	1.87E+00	pCi/g
17-07082-15	TRG	HTC-A01-S006-0612-01	05/13/17 17:03	7/18/2017	8/15/2017	17-07082	Thallium-208	EPA 901.1 Modified	1.04E+00	1.54E-01	1.63E-01	1.08E-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:	**17-07082**
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
17-07082-16	TRG	HTC-A01-S006-1218-01	05/13/17 17:00	7/18/2017	8/15/2017	17-07082	Actinium-228	EPA 901.1 Modified	8.02E-01	2.15E-01	2.19E-01	3.98E-01	pCi/g
17-07082-16	TRG	HTC-A01-S006-1218-01	05/13/17 17:00	7/18/2017	8/15/2017	17-07082	Bismuth-212	EPA 901.1 Modified	2.98E-01	4.70E-01	4.70E-01	7.66E-01	pCi/g
17-07082-16	TRG	HTC-A01-S006-1218-01	05/13/17 17:00	7/18/2017	8/15/2017	17-07082	Cesium-137	EPA 901.1 Modified	7.01E-02	6.06E-02	6.07E-02	9.87E-02	pCi/g
17-07082-16	TRG	HTC-A01-S006-1218-01	05/13/17 17:00	7/18/2017	8/15/2017	17-07082	Potassium-40	EPA 901.1 Modified	2.03E+01	2.45E+00	2.67E+00	1.27E+00	pCi/g
17-07082-16	TRG	HTC-A01-S006-1218-01	05/13/17 17:00	7/18/2017	8/15/2017	17-07082	Protactinium-234m	EPA 901.1 Modified	2.55E+00	6.31E+00	6.31E+00	1.02E+01	pCi/g
17-07082-16	TRG	HTC-A01-S006-1218-01	05/13/17 17:00	7/18/2017	8/15/2017	17-07082	Lead-212	EPA 901.1 Modified	1.17E+00	1.55E-01	1.66E-01	2.06E-01	pCi/g
17-07082-16	TRG	HTC-A01-S006-1218-01	05/13/17 17:00	7/18/2017	8/15/2017	17-07082	Radium-224	EPA 901.1 Modified	1.55E+01	1.92E+00	2.08E+00	2.91E+00	pCi/g
17-07082-16	TRG	HTC-A01-S006-1218-01	05/13/17 17:00	7/18/2017	8/15/2017	17-07082	Radium-226	EPA 901.1 Modified	1.03E+00	1.53E-01	1.62E-01	2.61E-01	pCi/g
17-07082-16	TRG	HTC-A01-S006-1218-01	05/13/17 17:00	7/18/2017	8/15/2017	17-07082	Radium-228	EPA 901.1 Modified	8.02E-01	2.15E-01	2.19E-01	3.98E-01	pCi/g
17-07082-16	TRG	HTC-A01-S006-1218-01	05/13/17 17:00	7/18/2017	8/15/2017	17-07082	Thorium-234	EPA 901.1 Modified	1.59E+00	1.22E+00	1.22E+00	1.64E+00	pCi/g
17-07082-16	TRG	HTC-A01-S006-1218-01	05/13/17 17:00	7/18/2017	8/15/2017	17-07082	Thallium-208	EPA 901.1 Modified	8.72E-01	1.70E-01	1.76E-01	1.08E-01	pCi/g
17-07082-17	TRG	HTC-A01-S006-1824-01	05/13/17 16:57	7/18/2017	8/15/2017	17-07082	Actinium-228	EPA 901.1 Modified	1.37E+00	3.16E-01	3.24E-01	6.91E-01	pCi/g
17-07082-17	TRG	HTC-A01-S006-1824-01	05/13/17 16:57	7/18/2017	8/15/2017	17-07082	Bismuth-212	EPA 901.1 Modified	9.70E-01	6.66E-01	6.68E-01	1.05E+00	pCi/g
17-07082-17	TRG	HTC-A01-S006-1824-01	05/13/17 16:57	7/18/2017	8/15/2017	17-07082	Cesium-137	EPA 901.1 Modified	-1.87E-03	9.74E-02	9.74E-02	1.35E-01	pCi/g
17-07082-17	TRG	HTC-A01-S006-1824-01	05/13/17 16:57	7/18/2017	8/15/2017	17-07082	Potassium-40	EPA 901.1 Modified	2.20E+01	2.82E+00	3.04E+00	1.28E+00	pCi/g
17-07082-17	TRG	HTC-A01-S006-1824-01	05/13/17 16:57	7/18/2017	8/15/2017	17-07082	Protactinium-234m	EPA 901.1 Modified	6.49E-01	1.09E+01	1.09E+01	1.54E+01	pCi/g
17-07082-17	TRG	HTC-A01-S006-1824-01	05/13/17 16:57	7/18/2017	8/15/2017	17-07082	Lead-212	EPA 901.1 Modified	1.25E+00	1.74E-01	1.86E-01	3.60E-01	pCi/g
17-07082-17	TRG	HTC-A01-S006-1824-01	05/13/17 16:57	7/18/2017	8/15/2017	17-07082	Radium-224	EPA 901.1 Modified	1.62E+01	2.16E+00	2.32E+00	3.29E+00	pCi/g
17-07082-17	TRG	HTC-A01-S006-1824-01	05/13/17 16:57	7/18/2017	8/15/2017	17-07082	Radium-226	EPA 901.1 Modified	1.21E+00	2.27E-01	2.36E-01	9.69E-02	pCi/g
17-07082-17	TRG	HTC-A01-S006-1824-01	05/13/17 16:57	7/18/2017	8/15/2017	17-07082	Radium-228	EPA 901.1 Modified	1.37E+00	3.16E-01	3.24E-01	6.91E-01	pCi/g
17-07082-17	TRG	HTC-A01-S006-1824-01	05/13/17 16:57	7/18/2017	8/15/2017	17-07082	Thorium-234	EPA 901.1 Modified	2.44E+00	1.74E+00	1.75E+00	2.88E+00	pCi/g
17-07082-17	TRG	HTC-A01-S006-1824-01	05/13/17 16:57	7/18/2017	8/15/2017	17-07082	Thallium-208	EPA 901.1 Modified	1.12E+00	2.43E-01	2.50E-01	6.67E-02	pCi/g

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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:	**17-07082**
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
17-07082-18	TRG	HTC-A01-S006-2430-01	05/13/17 16:54	7/18/2017	8/15/2017	17-07082	Actinium-228	EPA 901.1 Modified	9.52E-01	1.81E-01	1.87E-01	3.80E-01	pCi/g
17-07082-18	TRG	HTC-A01-S006-2430-01	05/13/17 16:54	7/18/2017	8/15/2017	17-07082	Bismuth-212	EPA 901.1 Modified	6.07E-01	4.04E-01	4.05E-01	6.43E-01	pCi/g
17-07082-18	TRG	HTC-A01-S006-2430-01	05/13/17 16:54	7/18/2017	8/15/2017	17-07082	Cesium-137	EPA 901.1 Modified	1.40E-01	6.18E-02	6.22E-02	9.33E-02	pCi/g
17-07082-18	TRG	HTC-A01-S006-2430-01	05/13/17 16:54	7/18/2017	8/15/2017	17-07082	Potassium-40	EPA 901.1 Modified	2.01E+01	2.19E+00	2.42E+00	9.13E-01	pCi/g
17-07082-18	TRG	HTC-A01-S006-2430-01	05/13/17 16:54	7/18/2017	8/15/2017	17-07082	Protactinium-234m	EPA 901.1 Modified	4.39E+00	4.50E+00	4.50E+00	7.65E+00	pCi/g
17-07082-18	TRG	HTC-A01-S006-2430-01	05/13/17 16:54	7/18/2017	8/15/2017	17-07082	Lead-212	EPA 901.1 Modified	1.13E+00	1.29E-01	1.42E-01	2.06E-01	pCi/g
17-07082-18	TRG	HTC-A01-S006-2430-01	05/13/17 16:54	7/18/2017	8/15/2017	17-07082	Radium-224	EPA 901.1 Modified	3.65E+00	1.27E+00	1.29E+00	2.37E+00	pCi/g
17-07082-18	TRG	HTC-A01-S006-2430-01	05/13/17 16:54	7/18/2017	8/15/2017	17-07082	Radium-226	EPA 901.1 Modified	1.04E+00	1.50E-01	1.59E-01	2.09E-01	pCi/g
17-07082-18	TRG	HTC-A01-S006-2430-01	05/13/17 16:54	7/18/2017	8/15/2017	17-07082	Radium-228	EPA 901.1 Modified	9.52E-01	1.81E-01	1.87E-01	3.80E-01	pCi/g
17-07082-18	TRG	HTC-A01-S006-2430-01	05/13/17 16:54	7/18/2017	8/15/2017	17-07082	Thorium-234	EPA 901.1 Modified	1.82E+00	1.06E+00	1.06E+00	1.45E+00	pCi/g
17-07082-18	TRG	HTC-A01-S006-2430-01	05/13/17 16:54	7/18/2017	8/15/2017	17-07082	Thallium-208	EPA 901.1 Modified	1.11E+00	1.61E-01	1.70E-01	2.23E-01	pCi/g
17-07082-19	TRG	HTC-A01-S006-3036-01	05/13/17 16:51	7/18/2017	8/15/2017	17-07082	Actinium-228	EPA 901.1 Modified	1.21E+00	2.48E-01	2.56E-01	6.19E-01	pCi/g
17-07082-19	TRG	HTC-A01-S006-3036-01	05/13/17 16:51	7/18/2017	8/15/2017	17-07082	Bismuth-212	EPA 901.1 Modified	1.02E+00	5.59E-01	5.62E-01	8.68E-01	pCi/g
17-07082-19	TRG	HTC-A01-S006-3036-01	05/13/17 16:51	7/18/2017	8/15/2017	17-07082	Cesium-137	EPA 901.1 Modified	1.03E-01	6.24E-02	6.26E-02	1.38E-01	pCi/g
17-07082-19	TRG	HTC-A01-S006-3036-01	05/13/17 16:51	7/18/2017	8/15/2017	17-07082	Potassium-40	EPA 901.1 Modified	1.83E+01	2.26E+00	2.45E+00	1.16E+00	pCi/g
17-07082-19	TRG	HTC-A01-S006-3036-01	05/13/17 16:51	7/18/2017	8/15/2017	17-07082	Protactinium-234m	EPA 901.1 Modified	1.42E+00	6.83E+00	6.83E+00	1.07E+01	pCi/g
17-07082-19	TRG	HTC-A01-S006-3036-01	05/13/17 16:51	7/18/2017	8/15/2017	17-07082	Lead-212	EPA 901.1 Modified	1.49E+00	2.05E-01	2.18E-01	2.35E-01	pCi/g
17-07082-19	TRG	HTC-A01-S006-3036-01	05/13/17 16:51	7/18/2017	8/15/2017	17-07082	Radium-224	EPA 901.1 Modified	1.71E+01	2.05E+00	2.23E+00	3.02E+00	pCi/g
17-07082-19	TRG	HTC-A01-S006-3036-01	05/13/17 16:51	7/18/2017	8/15/2017	17-07082	Radium-226	EPA 901.1 Modified	1.05E+00	1.64E-01	1.72E-01	2.10E-01	pCi/g
17-07082-19	TRG	HTC-A01-S006-3036-01	05/13/17 16:51	7/18/2017	8/15/2017	17-07082	Radium-228	EPA 901.1 Modified	1.21E+00	2.48E-01	2.56E-01	6.19E-01	pCi/g
17-07082-19	TRG	HTC-A01-S006-3036-01	05/13/17 16:51	7/18/2017	8/15/2017	17-07082	Thorium-234	EPA 901.1 Modified	8.77E-01	1.24E+00	1.24E+00	1.64E+00	pCi/g
17-07082-19	TRG	HTC-A01-S006-3036-01	05/13/17 16:51	7/18/2017	8/15/2017	17-07082	Thallium-208	EPA 901.1 Modified	1.37E+00	2.68E-01	2.77E-01	4.75E-01	pCi/g

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Eberline Analytical
Final Report of Analysis

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

Work Order Details:

SDG:	**17-07082**
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
17-07082-20	TRG	HTC-A01-S006-3642-01	05/13/17 16:48	7/18/2017	8/15/2017	17-07082	Actinium-228	EPA 901.1 Modified	1.11E+00	2.77E-01	2.83E-01	5.74E-01	pCi/g
17-07082-20	TRG	HTC-A01-S006-3642-01	05/13/17 16:48	7/18/2017	8/15/2017	17-07082	Bismuth-212	EPA 901.1 Modified	5.13E-01	7.10E-01	7.11E-01	1.07E+00	pCi/g
17-07082-20	TRG	HTC-A01-S006-3642-01	05/13/17 16:48	7/18/2017	8/15/2017	17-07082	Cesium-137	EPA 901.1 Modified	9.68E-02	9.09E-02	9.10E-02	1.41E-01	pCi/g
17-07082-20	TRG	HTC-A01-S006-3642-01	05/13/17 16:48	7/18/2017	8/15/2017	17-07082	Potassium-40	EPA 901.1 Modified	1.66E+01	2.36E+00	2.51E+00	1.46E+00	pCi/g
17-07082-20	TRG	HTC-A01-S006-3642-01	05/13/17 16:48	7/18/2017	8/15/2017	17-07082	Protactinium-234m	EPA 901.1 Modified	1.05E+01	7.75E+00	7.76E+00	1.35E+01	pCi/g
17-07082-20	TRG	HTC-A01-S006-3642-01	05/13/17 16:48	7/18/2017	8/15/2017	17-07082	Lead-212	EPA 901.1 Modified	1.40E+00	2.14E-01	2.26E-01	2.58E-01	pCi/g
17-07082-20	TRG	HTC-A01-S006-3642-01	05/13/17 16:48	7/18/2017	8/15/2017	17-07082	Radium-224	EPA 901.1 Modified	1.44E+01	2.00E+00	2.13E+00	3.09E+00	pCi/g
17-07082-20	TRG	HTC-A01-S006-3642-01	05/13/17 16:48	7/18/2017	8/15/2017	17-07082	Radium-226	EPA 901.1 Modified	9.82E-01	2.16E-01	2.21E-01	3.30E-01	pCi/g
17-07082-20	TRG	HTC-A01-S006-3642-01	05/13/17 16:48	7/18/2017	8/15/2017	17-07082	Radium-228	EPA 901.1 Modified	1.11E+00	2.77E-01	2.83E-01	5.74E-01	pCi/g
17-07082-20	TRG	HTC-A01-S006-3642-01	05/13/17 16:48	7/18/2017	8/15/2017	17-07082	Thorium-234	EPA 901.1 Modified	1.51E+00	1.28E+00	1.29E+00	1.93E+00	pCi/g
17-07082-20	TRG	HTC-A01-S006-3642-01	05/13/17 16:48	7/18/2017	8/15/2017	17-07082	Thallium-208	EPA 901.1 Modified	9.72E-01	1.97E-01	2.03E-01	6.60E-02	pCi/g
17-07082-01	LCS	KNOWN	07/18/17 00:00	7/18/2017	8/15/2017	17-07082	Thorium-228	EPA 907.0 Modified	4.80E+00	1.73E-01			pCi/g
17-07082-01	LCS	SPIKE	07/18/17 00:00	7/18/2017	8/15/2017	17-07082	Thorium-228	EPA 907.0 Modified	5.80E+00	1.61E+00	1.70E+00	2.57E-01	pCi/g
17-07082-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/15/2017	17-07082	Thorium-228	EPA 907.0 Modified	5.84E-02	6.22E-02	6.24E-02	8.62E-02	pCi/g
17-07082-03	DUP	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Thorium-228	EPA 907.0 Modified	6.89E-01	2.76E-01	2.83E-01	1.04E-01	pCi/g
17-07082-04	DMSO	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Thorium-228	EPA 907.0 Modified	6.31E-01	2.31E-01	2.38E-01	1.05E-01	pCi/g
17-07082-05	MS	HTC-A01-S005-0612-01 MS	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Thorium-228	EPA 907.0 Modified	7.93E+00	1.68E+00	1.84E+00	1.54E-01	pCi/g
17-07082-06	MSD	HTC-A01-S005-0612-01 MSD	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Thorium-228	EPA 907.0 Modified	8.54E+00	1.88E+00	2.04E+00	1.06E-01	pCi/g
17-07082-07	TRG	HTC-A01-S005-0612-02	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Thorium-228	EPA 907.0 Modified	1.36E+00	3.72E-01	3.93E-01	1.40E-01	pCi/g
17-07082-08	TRG	HTC-A01-S005-1218-01	05/13/17 09:55	7/18/2017	8/15/2017	17-07082	Thorium-228	EPA 907.0 Modified	1.02E+00	2.78E-01	2.94E-01	9.55E-02	pCi/g
17-07082-09	TRG	HTC-A01-S005-1824-01	05/13/17 09:52	7/18/2017	8/15/2017	17-07082	Thorium-228	EPA 907.0 Modified	1.13E+00	2.99E-01	3.18E-01	1.07E-01	pCi/g
17-07082-10	TRG	HTC-A01-S005-2430-01	05/13/17 09:49	7/18/2017	8/15/2017	17-07082	Thorium-228	EPA 907.0 Modified	9.61E-01	2.77E-01	2.92E-01	5.91E-02	pCi/g
17-07082-11	TRG	HTC-A01-S005-3036-01	05/13/17 09:46	7/18/2017	8/15/2017	17-07082	Thorium-228	EPA 907.0 Modified	1.24E+00	3.39E-01	3.59E-01	1.12E-01	pCi/g
17-07082-12	TRG	HTC-A01-S005-3642-01	05/13/17 09:43	7/18/2017	8/15/2017	17-07082	Thorium-228	EPA 907.0 Modified	1.21E+00	3.29E-01	3.48E-01	8.63E-02	pCi/g
17-07082-13	TRG	HTC-A01-S005-4248-01	05/13/17 09:40	7/18/2017	8/15/2017	17-07082	Thorium-228	EPA 907.0 Modified	1.17E+00	3.14E-01	3.33E-01	8.70E-02	pCi/g
17-07082-14	TRG	HTC-A01-S006-0006-01	05/13/17 17:06	7/18/2017	8/15/2017	17-07082	Thorium-228	EPA 907.0 Modified	1.09E+00	3.05E-01	3.22E-01	9.61E-02	pCi/g
17-07082-15	TRG	HTC-A01-S006-0612-01	05/13/17 17:03	7/18/2017	8/15/2017	17-07082	Thorium-228	EPA 907.0 Modified	1.10E+00	3.16E-01	3.32E-01	1.21E-01	pCi/g
17-07082-16	TRG	HTC-A01-S006-1218-01	05/13/17 17:00	7/18/2017	8/15/2017	17-07082	Thorium-228	EPA 907.0 Modified	1.15E+00	3.66E-01	3.82E-01	1.63E-01	pCi/g
17-07082-17	TRG	HTC-A01-S006-1824-01	05/13/17 16:57	7/18/2017	8/15/2017	17-07082	Thorium-228	EPA 907.0 Modified	1.31E+00	3.83E-01	4.03E-01	1.01E-01	pCi/g
17-07082-18	TRG	HTC-A01-S006-2430-01	05/13/17 16:54	7/18/2017	8/15/2017	17-07082	Thorium-228	EPA 907.0 Modified	1.12E+00	3.00E-01	3.18E-01	7.15E-02	pCi/g
17-07082-19	TRG	HTC-A01-S006-3036-01	05/13/17 16:51	7/18/2017	8/15/2017	17-07082	Thorium-228	EPA 907.0 Modified	1.10E+00	3.05E-01	3.22E-01	1.07E-01	pCi/g
17-07082-20	TRG	HTC-A01-S006-3642-01	05/13/17 16:48	7/18/2017	8/15/2017	17-07082	Thorium-228	EPA 907.0 Modified	1.28E+00	3.55E-01	3.75E-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

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EBERLINE SERVICES

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

Eberline Analytical
Final Report of Analysis

Report To:

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

Work Order Details:

SDG:	**17-07082**
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
17-07082-01	LCS	KNOWN	07/18/17 00:00	7/18/2017	8/15/2017	17-07082	Thorium-230	EPA 907.0 Modified	5.35E+00	1.45E-01			pCi/g
17-07082-01	LCS	SPIKE	07/18/17 00:00	7/18/2017	8/15/2017	17-07082	Thorium-230	EPA 907.0 Modified	6.46E+00	1.75E+00	1.92E+00	2.05E-01	pCi/g
17-07082-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/15/2017	17-07082	Thorium-230	EPA 907.0 Modified	5.65E-02	5.63E-02	5.68E-02	6.61E-02	pCi/g
17-07082-03	DUP	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Thorium-230	EPA 907.0 Modified	1.11E+00	3.64E-01	3.89E-01	1.19E-01	pCi/g
17-07082-04	DMSO	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Thorium-230	EPA 907.0 Modified	7.40E-01	2.46E-01	2.62E-01	9.98E-02	pCi/g
17-07082-05	MS	HTC-A01-S005-0612-01 MS	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Thorium-230	EPA 907.0 Modified	7.55E+00	1.59E+00	1.84E+00	9.72E-02	pCi/g
17-07082-06	MSD	HTC-A01-S005-0612-01 MSD	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Thorium-230	EPA 907.0 Modified	7.12E+00	1.58E+00	1.81E+00	1.06E-01	pCi/g
17-07082-07	TRG	HTC-A01-S005-0612-02	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Thorium-230	EPA 907.0 Modified	2.64E+00	5.88E-01	6.72E-01	9.98E-02	pCi/g
17-07082-08	TRG	HTC-A01-S005-1218-01	05/13/17 09:55	7/18/2017	8/15/2017	17-07082	Thorium-230	EPA 907.0 Modified	1.48E+00	3.47E-01	3.92E-01	6.22E-02	pCi/g
17-07082-09	TRG	HTC-A01-S005-1824-01	05/13/17 09:52	7/18/2017	8/15/2017	17-07082	Thorium-230	EPA 907.0 Modified	1.80E+00	4.01E-01	4.59E-01	7.14E-02	pCi/g
17-07082-10	TRG	HTC-A01-S005-2430-01	05/13/17 09:49	7/18/2017	8/15/2017	17-07082	Thorium-230	EPA 907.0 Modified	1.06E+00	2.88E-01	3.16E-01	8.14E-02	pCi/g
17-07082-11	TRG	HTC-A01-S005-3036-01	05/13/17 09:46	7/18/2017	8/15/2017	17-07082	Thorium-230	EPA 907.0 Modified	9.50E-01	2.74E-01	2.98E-01	7.84E-02	pCi/g
17-07082-12	TRG	HTC-A01-S005-3642-01	05/13/17 09:43	7/18/2017	8/15/2017	17-07082	Thorium-230	EPA 907.0 Modified	1.26E+00	3.29E-01	3.64E-01	7.87E-02	pCi/g
17-07082-13	TRG	HTC-A01-S005-4248-01	05/13/17 09:40	7/18/2017	8/15/2017	17-07082	Thorium-230	EPA 907.0 Modified	1.20E+00	3.09E-01	3.43E-01	6.60E-02	pCi/g
17-07082-14	TRG	HTC-A01-S006-0006-01	05/13/17 17:06	7/18/2017	8/15/2017	17-07082	Thorium-230	EPA 907.0 Modified	9.14E-01	2.62E-01	2.85E-01	6.36E-02	pCi/g
17-07082-15	TRG	HTC-A01-S006-0612-01	05/13/17 17:03	7/18/2017	8/15/2017	17-07082	Thorium-230	EPA 907.0 Modified	9.94E-01	2.84E-01	3.10E-01	8.25E-02	pCi/g
17-07082-16	TRG	HTC-A01-S006-1218-01	05/13/17 17:00	7/18/2017	8/15/2017	17-07082	Thorium-230	EPA 907.0 Modified	1.12E+00	3.49E-01	3.75E-01	1.45E-01	pCi/g
17-07082-17	TRG	HTC-A01-S006-1824-01	05/13/17 16:57	7/18/2017	8/15/2017	17-07082	Thorium-230	EPA 907.0 Modified	1.13E+00	3.39E-01	3.67E-01	1.12E-01	pCi/g
17-07082-18	TRG	HTC-A01-S006-2430-01	05/13/17 16:54	7/18/2017	8/15/2017	17-07082	Thorium-230	EPA 907.0 Modified	1.03E+00	2.73E-01	3.01E-01	6.52E-02	pCi/g
17-07082-19	TRG	HTC-A01-S006-3036-01	05/13/17 16:51	7/18/2017	8/15/2017	17-07082	Thorium-230	EPA 907.0 Modified	9.82E-01	2.73E-01	2.98E-01	6.74E-02	pCi/g
17-07082-20	TRG	HTC-A01-S006-3642-01	05/13/17 16:48	7/18/2017	8/15/2017	17-07082	Thorium-230	EPA 907.0 Modified	1.25E+00	3.38E-01	3.72E-01	8.07E-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
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Eberline Analytical
Final Report of Analysis

Report To:

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

Work Order Details:

SDG:	**17-07082**
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
17-07082-01	LCS	KNOWN	07/18/17 00:00	7/18/2017	8/15/2017	17-07082	Thorium-232	EPA 907.0 Modified	4.80E+00	1.73E-01			pCi/g
17-07082-01	LCS	SPIKE	07/18/17 00:00	7/18/2017	8/15/2017	17-07082	Thorium-232	EPA 907.0 Modified	5.63E+00	1.57E+00	1.64E+00	2.93E-01	pCi/g
17-07082-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/15/2017	17-07082	Thorium-232	EPA 907.0 Modified	-2.14E-03	2.50E-02	2.50E-02	5.24E-02	pCi/g
17-07082-03	DUP	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Thorium-232	EPA 907.0 Modified	3.73E-01	1.84E-01	1.87E-01	8.27E-02	pCi/g
17-07082-04	DMSO	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Thorium-232	EPA 907.0 Modified	3.40E-01	1.54E-01	1.57E-01	7.94E-02	pCi/g
17-07082-05	MS	HTC-A01-S005-0612-01 MS	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Thorium-232	EPA 907.0 Modified	7.68E+00	1.61E+00	1.75E+00	1.11E-01	pCi/g
17-07082-06	MSD	HTC-A01-S005-0612-01 MSD	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Thorium-232	EPA 907.0 Modified	6.35E+00	1.43E+00	1.53E+00	1.27E-01	pCi/g
17-07082-07	TRG	HTC-A01-S005-0612-02	05/13/17 09:58	7/18/2017	8/15/2017	17-07082	Thorium-232	EPA 907.0 Modified	1.02E+00	2.95E-01	3.08E-01	8.70E-02	pCi/g
17-07082-08	TRG	HTC-A01-S005-1218-01	05/13/17 09:55	7/18/2017	8/15/2017	17-07082	Thorium-232	EPA 907.0 Modified	1.06E+00	2.75E-01	2.91E-01	5.66E-02	pCi/g
17-07082-09	TRG	HTC-A01-S005-1824-01	05/13/17 09:52	7/18/2017	8/15/2017	17-07082	Thorium-232	EPA 907.0 Modified	9.31E-01	2.53E-01	2.66E-01	7.13E-02	pCi/g
17-07082-10	TRG	HTC-A01-S005-2430-01	05/13/17 09:49	7/18/2017	8/15/2017	17-07082	Thorium-232	EPA 907.0 Modified	1.13E+00	3.00E-01	3.16E-01	6.76E-02	pCi/g
17-07082-11	TRG	HTC-A01-S005-3036-01	05/13/17 09:46	7/18/2017	8/15/2017	17-07082	Thorium-232	EPA 907.0 Modified	1.21E+00	3.25E-01	3.42E-01	1.19E-01	pCi/g
17-07082-12	TRG	HTC-A01-S005-3642-01	05/13/17 09:43	7/18/2017	8/15/2017	17-07082	Thorium-232	EPA 907.0 Modified	1.24E+00	3.25E-01	3.43E-01	9.33E-02	pCi/g
17-07082-13	TRG	HTC-A01-S005-4248-01	05/13/17 09:40	7/18/2017	8/15/2017	17-07082	Thorium-232	EPA 907.0 Modified	1.06E+00	2.84E-01	2.99E-01	7.09E-02	pCi/g
17-07082-14	TRG	HTC-A01-S006-0006-01	05/13/17 17:06	7/18/2017	8/15/2017	17-07082	Thorium-232	EPA 907.0 Modified	1.18E+00	3.12E-01	3.29E-01	7.95E-02	pCi/g
17-07082-15	TRG	HTC-A01-S006-0612-01	05/13/17 17:03	7/18/2017	8/15/2017	17-07082	Thorium-232	EPA 907.0 Modified	1.04E+00	2.92E-01	3.06E-01	7.22E-02	pCi/g
17-07082-16	TRG	HTC-A01-S006-1218-01	05/13/17 17:00	7/18/2017	8/15/2017	17-07082	Thorium-232	EPA 907.0 Modified	9.58E-01	3.10E-01	3.22E-01	9.95E-02	pCi/g
17-07082-17	TRG	HTC-A01-S006-1824-01	05/13/17 16:57	7/18/2017	8/15/2017	17-07082	Thorium-232	EPA 907.0 Modified	1.18E+00	3.46E-01	3.61E-01	9.17E-02	pCi/g
17-07082-18	TRG	HTC-A01-S006-2430-01	05/13/17 16:54	7/18/2017	8/15/2017	17-07082	Thorium-232	EPA 907.0 Modified	1.08E+00	2.82E-01	2.97E-01	5.18E-02	pCi/g
17-07082-19	TRG	HTC-A01-S006-3036-01	05/13/17 16:51	7/18/2017	8/15/2017	17-07082	Thorium-232	EPA 907.0 Modified	1.03E+00	2.82E-01	2.96E-01	6.13E-02	pCi/g
17-07082-20	TRG	HTC-A01-S006-3642-01	05/13/17 16:48	7/18/2017	8/15/2017	17-07082	Thorium-232	EPA 907.0 Modified	1.25E+00	3.39E-01	3.57E-01	9.41E-02	pCi/g

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

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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:	**17-07082**
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
17-07082-01	LCS	KNOWN	07/18/17 00:00	7/18/2017	8/14/2017	17-07082	Uranium-233/234	EPA 908.0 Modified	7.34E+00	2.64E-01			pCi/g
17-07082-01	LCS	SPIKE	07/18/17 00:00	7/18/2017	8/14/2017	17-07082	Uranium-233/234	EPA 908.0 Modified	6.40E+00	8.93E-01	1.00E+00	6.10E-02	pCi/g
17-07082-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07082	Uranium-233/234	EPA 908.0 Modified	5.61E-01	1.84E-01	1.89E-01	8.16E-02	pCi/g
17-07082-03	DUP	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/14/2017	17-07082	Uranium-233/234	EPA 908.0 Modified	1.57E+00	3.70E-01	3.87E-01	1.24E-01	pCi/g
17-07082-04	DMSO	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/14/2017	17-07082	Uranium-233/234	EPA 908.0 Modified	2.04E+00	4.25E-01	4.49E-01	8.09E-02	pCi/g
17-07082-05	MS	HTC-A01-S005-0612-01 MS	05/13/17 09:58	7/18/2017	8/14/2017	17-07082	Uranium-233/234	EPA 908.0 Modified	7.45E+00	1.01E+00	1.15E+00	6.68E-02	pCi/g
17-07082-06	MSD	HTC-A01-S005-0612-01 MSD	05/13/17 09:58	7/18/2017	8/14/2017	17-07082	Uranium-233/234	EPA 908.0 Modified	8.28E+00	1.17E+00	1.31E+00	8.66E-02	pCi/g
17-07082-07	TRG	HTC-A01-S005-0612-02	05/13/17 09:58	7/18/2017	8/14/2017	17-07082	Uranium-233/234	EPA 908.0 Modified	2.73E+00	5.83E-01	6.15E-01	1.03E-01	pCi/g
17-07082-08	TRG	HTC-A01-S005-1218-01	05/13/17 09:55	7/18/2017	8/14/2017	17-07082	Uranium-233/234	EPA 908.0 Modified	1.59E+00	3.83E-01	3.99E-01	9.71E-02	pCi/g
17-07082-09	TRG	HTC-A01-S005-1824-01	05/13/17 09:52	7/18/2017	8/14/2017	17-07082	Uranium-233/234	EPA 908.0 Modified	1.32E+00	3.45E-01	3.58E-01	8.48E-02	pCi/g
17-07082-10	TRG	HTC-A01-S005-2430-01	05/13/17 09:49	7/18/2017	8/14/2017	17-07082	Uranium-233/234	EPA 908.0 Modified	1.73E+00	4.07E-01	4.26E-01	8.47E-02	pCi/g
17-07082-11	TRG	HTC-A01-S005-3036-01	05/13/17 09:46	7/18/2017	8/14/2017	17-07082	Uranium-233/234	EPA 908.0 Modified	1.41E+00	3.51E-01	3.65E-01	1.05E-01	pCi/g
17-07082-12	TRG	HTC-A01-S005-3642-01	05/13/17 09:43	7/18/2017	8/14/2017	17-07082	Uranium-233/234	EPA 908.0 Modified	1.72E+00	4.35E-01	4.52E-01	1.42E-01	pCi/g
17-07082-13	TRG	HTC-A01-S005-4248-01	05/13/17 09:40	7/18/2017	8/14/2017	17-07082	Uranium-233/234	EPA 908.0 Modified	2.08E+00	4.47E-01	4.71E-01	9.97E-02	pCi/g
17-07082-14	TRG	HTC-A01-S006-0006-01	05/13/17 17:06	7/18/2017	8/14/2017	17-07082	Uranium-233/234	EPA 908.0 Modified	1.52E+00	4.14E-01	4.28E-01	1.33E-01	pCi/g
17-07082-15	TRG	HTC-A01-S006-0612-01	05/13/17 17:03	7/18/2017	8/14/2017	17-07082	Uranium-233/234	EPA 908.0 Modified	1.79E+00	5.67E-01	5.82E-01	1.75E-01	pCi/g
17-07082-16	TRG	HTC-A01-S006-1218-01	05/13/17 17:00	7/18/2017	8/14/2017	17-07082	Uranium-233/234	EPA 908.0 Modified	1.50E+00	3.52E-01	3.68E-01	9.77E-02	pCi/g
17-07082-17	TRG	HTC-A01-S006-1824-01	05/13/17 16:57	7/18/2017	8/14/2017	17-07082	Uranium-233/234	EPA 908.0 Modified	1.50E+00	3.46E-01	3.62E-01	7.27E-02	pCi/g
17-07082-18	TRG	HTC-A01-S006-2430-01	05/13/17 16:54	7/18/2017	8/14/2017	17-07082	Uranium-233/234	EPA 908.0 Modified	1.16E+00	3.02E-01	3.13E-01	7.62E-02	pCi/g
17-07082-19	TRG	HTC-A01-S006-3036-01	05/13/17 16:51	7/18/2017	8/14/2017	17-07082	Uranium-233/234	EPA 908.0 Modified	1.77E+00	3.72E-01	3.93E-01	8.37E-02	pCi/g
17-07082-20	TRG	HTC-A01-S006-3642-01	05/13/17 16:48	7/18/2017	8/14/2017	17-07082	Uranium-233/234	EPA 908.0 Modified	1.59E+00	3.93E-01	4.09E-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

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Final Report of Analysis

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Work Order Details:

SDG:	**17-07082**
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
17-07082-01	LCS	SPIKE	07/18/17 00:00	7/18/2017	8/14/2017	17-07082	Uranium-235/236	EPA 908.0 Modified	5.92E-01	2.01E-01	2.05E-01	7.52E-02	pCi/g
17-07082-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07082	Uranium-235/236	EPA 908.0 Modified	6.15E-02	6.67E-02	6.69E-02	8.04E-02	pCi/g
17-07082-03	DUP	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/14/2017	17-07082	Uranium-235/236	EPA 908.0 Modified	2.15E-01	1.34E-01	1.35E-01	9.63E-02	pCi/g
17-07082-04	DMSO	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/14/2017	17-07082	Uranium-235/236	EPA 908.0 Modified	2.66E-01	1.48E-01	1.49E-01	1.14E-01	pCi/g
17-07082-05	MS	HTC-A01-S005-0612-01 MS	05/13/17 09:58	7/18/2017	8/14/2017	17-07082	Uranium-235/236	EPA 908.0 Modified	7.06E-01	2.23E-01	2.28E-01	9.89E-02	pCi/g
17-07082-06	MSD	HTC-A01-S005-0612-01 MSD	05/13/17 09:58	7/18/2017	8/14/2017	17-07082	Uranium-235/236	EPA 908.0 Modified	8.50E-01	2.62E-01	2.68E-01	8.53E-02	pCi/g
17-07082-07	TRG	HTC-A01-S005-0612-02	05/13/17 09:58	7/18/2017	8/14/2017	17-07082	Uranium-235/236	EPA 908.0 Modified	3.12E-01	1.77E-01	1.78E-01	1.01E-01	pCi/g
17-07082-08	TRG	HTC-A01-S005-1218-01	05/13/17 09:55	7/18/2017	8/14/2017	17-07082	Uranium-235/236	EPA 908.0 Modified	2.37E-01	1.48E-01	1.49E-01	1.27E-01	pCi/g
17-07082-09	TRG	HTC-A01-S005-1824-01	05/13/17 09:52	7/18/2017	8/14/2017	17-07082	Uranium-235/236	EPA 908.0 Modified	1.86E-01	1.31E-01	1.32E-01	1.15E-01	pCi/g
17-07082-10	TRG	HTC-A01-S005-2430-01	05/13/17 09:49	7/18/2017	8/14/2017	17-07082	Uranium-235/236	EPA 908.0 Modified	1.49E-01	1.15E-01	1.16E-01	9.12E-02	pCi/g
17-07082-11	TRG	HTC-A01-S005-3036-01	05/13/17 09:46	7/18/2017	8/14/2017	17-07082	Uranium-235/236	EPA 908.0 Modified	2.01E-01	1.30E-01	1.30E-01	8.55E-02	pCi/g
17-07082-12	TRG	HTC-A01-S005-3642-01	05/13/17 09:43	7/18/2017	8/14/2017	17-07082	Uranium-235/236	EPA 908.0 Modified	1.39E-01	1.31E-01	1.31E-01	1.69E-01	pCi/g
17-07082-13	TRG	HTC-A01-S005-4248-01	05/13/17 09:40	7/18/2017	8/14/2017	17-07082	Uranium-235/236	EPA 908.0 Modified	1.95E-01	1.30E-01	1.31E-01	1.08E-01	pCi/g
17-07082-14	TRG	HTC-A01-S006-0006-01	05/13/17 17:06	7/18/2017	8/14/2017	17-07082	Uranium-235/236	EPA 908.0 Modified	2.09E-01	1.56E-01	1.57E-01	1.57E-01	pCi/g
17-07082-15	TRG	HTC-A01-S006-0612-01	05/13/17 17:03	7/18/2017	8/14/2017	17-07082	Uranium-235/236	EPA 908.0 Modified	1.58E-01	1.64E-01	1.65E-01	1.72E-01	pCi/g
17-07082-16	TRG	HTC-A01-S006-1218-01	05/13/17 17:00	7/18/2017	8/14/2017	17-07082	Uranium-235/236	EPA 908.0 Modified	2.81E-01	1.49E-01	1.51E-01	9.15E-02	pCi/g
17-07082-17	TRG	HTC-A01-S006-1824-01	05/13/17 16:57	7/18/2017	8/14/2017	17-07082	Uranium-235/236	EPA 908.0 Modified	1.69E-01	1.18E-01	1.19E-01	1.12E-01	pCi/g
17-07082-18	TRG	HTC-A01-S006-2430-01	05/13/17 16:54	7/18/2017	8/14/2017	17-07082	Uranium-235/236	EPA 908.0 Modified	1.74E-01	1.18E-01	1.18E-01	8.21E-02	pCi/g
17-07082-19	TRG	HTC-A01-S006-3036-01	05/13/17 16:51	7/18/2017	8/14/2017	17-07082	Uranium-235/236	EPA 908.0 Modified	2.04E-01	1.19E-01	1.20E-01	7.18E-02	pCi/g
17-07082-20	TRG	HTC-A01-S006-3642-01	05/13/17 16:48	7/18/2017	8/14/2017	17-07082	Uranium-235/236	EPA 908.0 Modified	2.74E-01	1.60E-01	1.61E-01	1.15E-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

0030

EBERLINE SERVICES

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

Eberline Analytical
Final Report of Analysis

Report To:

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

Work Order Details:

SDG:	**17-07082**
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
17-07082-01	LCS	KNOWN	07/18/17 00:00	7/18/2017	8/14/2017	17-07082	Uranium-238	EPA 908.0 Modified	7.11E+00	2.56E-01			pCi/g
17-07082-01	LCS	SPIKE	07/18/17 00:00	7/18/2017	8/14/2017	17-07082	Uranium-238	EPA 908.0 Modified	6.50E+00	9.04E-01	1.02E+00	8.00E-02	pCi/g
17-07082-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07082	Uranium-238	EPA 908.0 Modified	9.27E-02	7.13E-02	7.16E-02	5.66E-02	pCi/g
17-07082-03	DUP	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/14/2017	17-07082	Uranium-238	EPA 908.0 Modified	1.53E+00	3.62E-01	3.78E-01	9.73E-02	pCi/g
17-07082-04	DMSO	HTC-A01-S005-0612-01	05/13/17 09:58	7/18/2017	8/14/2017	17-07082	Uranium-238	EPA 908.0 Modified	1.76E+00	3.84E-01	4.04E-01	8.06E-02	pCi/g
17-07082-05	MS	HTC-A01-S005-0612-01 MS	05/13/17 09:58	7/18/2017	8/14/2017	17-07082	Uranium-238	EPA 908.0 Modified	7.38E+00	1.01E+00	1.14E+00	6.06E-02	pCi/g
17-07082-06	MSD	HTC-A01-S005-0612-01 MSD	05/13/17 09:58	7/18/2017	8/14/2017	17-07082	Uranium-238	EPA 908.0 Modified	8.83E+00	1.24E+00	1.39E+00	6.01E-02	pCi/g
17-07082-07	TRG	HTC-A01-S005-0612-02	05/13/17 09:58	7/18/2017	8/14/2017	17-07082	Uranium-238	EPA 908.0 Modified	1.88E+00	4.53E-01	4.72E-01	8.18E-02	pCi/g
17-07082-08	TRG	HTC-A01-S005-1218-01	05/13/17 09:55	7/18/2017	8/14/2017	17-07082	Uranium-238	EPA 908.0 Modified	1.29E+00	3.36E-01	3.48E-01	1.03E-01	pCi/g
17-07082-09	TRG	HTC-A01-S005-1824-01	05/13/17 09:52	7/18/2017	8/14/2017	17-07082	Uranium-238	EPA 908.0 Modified	8.12E-01	2.59E-01	2.65E-01	1.06E-01	pCi/g
17-07082-10	TRG	HTC-A01-S005-2430-01	05/13/17 09:49	7/18/2017	8/14/2017	17-07082	Uranium-238	EPA 908.0 Modified	1.10E+00	3.08E-01	3.18E-01	9.26E-02	pCi/g
17-07082-11	TRG	HTC-A01-S005-3036-01	05/13/17 09:46	7/18/2017	8/14/2017	17-07082	Uranium-238	EPA 908.0 Modified	8.73E-01	2.63E-01	2.70E-01	1.09E-01	pCi/g
17-07082-12	TRG	HTC-A01-S005-3642-01	05/13/17 09:43	7/18/2017	8/14/2017	17-07082	Uranium-238	EPA 908.0 Modified	8.99E-01	2.94E-01	3.01E-01	1.46E-01	pCi/g
17-07082-13	TRG	HTC-A01-S005-4248-01	05/13/17 09:40	7/18/2017	8/14/2017	17-07082	Uranium-238	EPA 908.0 Modified	1.51E+00	3.61E-01	3.77E-01	6.92E-02	pCi/g
17-07082-14	TRG	HTC-A01-S006-0006-01	05/13/17 17:06	7/18/2017	8/14/2017	17-07082	Uranium-238	EPA 908.0 Modified	6.04E-01	2.38E-01	2.42E-01	1.01E-01	pCi/g
17-07082-15	TRG	HTC-A01-S006-0612-01	05/13/17 17:03	7/18/2017	8/14/2017	17-07082	Uranium-238	EPA 908.0 Modified	9.60E-01	3.87E-01	3.93E-01	1.39E-01	pCi/g
17-07082-16	TRG	HTC-A01-S006-1218-01	05/13/17 17:00	7/18/2017	8/14/2017	17-07082	Uranium-238	EPA 908.0 Modified	6.48E-01	2.14E-01	2.19E-01	9.73E-02	pCi/g
17-07082-17	TRG	HTC-A01-S006-1824-01	05/13/17 16:57	7/18/2017	8/14/2017	17-07082	Uranium-238	EPA 908.0 Modified	1.04E+00	2.78E-01	2.88E-01	9.07E-02	pCi/g
17-07082-18	TRG	HTC-A01-S006-2430-01	05/13/17 16:54	7/18/2017	8/14/2017	17-07082	Uranium-238	EPA 908.0 Modified	6.29E-01	2.14E-01	2.19E-01	1.09E-01	pCi/g
17-07082-19	TRG	HTC-A01-S006-3036-01	05/13/17 16:51	7/18/2017	8/14/2017	17-07082	Uranium-238	EPA 908.0 Modified	1.08E+00	2.72E-01	2.82E-01	5.80E-02	pCi/g
17-07082-20	TRG	HTC-A01-S006-3642-01	05/13/17 16:48	7/18/2017	8/14/2017	17-07082	Uranium-238	EPA 908.0 Modified	9.33E-01	2.81E-01	2.89E-01	8.47E-02	pCi/g

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

0031

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, ERIC ALLAS
QUALITY CONTROL

29 DECEMBER 1994
Date Signed

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

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

CURRENT DATE: 7/12/2017 0:00

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

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

Radionuclide: $^{234,235,238}U$ Reference Date: 1/1/1995 0:00

Certified Activity: 8.016E+00 µCi

Certified Concentration: µCi per gram

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

Chemical Composition of Standard Solution

Uranyl nitrate in dilute HNO_3

Dilution Instructions: Dilution Solvent Used: 1M HNO_3

Dilute to a volume of 1000.00 milliliters

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

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

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

Expiration Date: June 28, 2018

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

QC Approval _____ Date: 7/25/17

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

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

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

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

Chemical Composition of Standard Solution
Uranly Nitrate in 1M HNO_3

Dilution Instructions:
Dilution Solvent Used 1M HNO_3

SECONDARY VOLUMETRIC DILUTION

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

NOTES:

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

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

Isotopic ratios from manufacturer's data sheet

Expiration Date: June 28, 2018

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

QC Approval _____ Date: 7/25/17

RECORD COPY

Tracer Solution for Environmental Analysis & Disequilibrium Studies

Product Description & Measurement Certificate

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

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

Method of measurement (see reverse of this certificate)

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

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

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

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

Not measured

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

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

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

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

Approved Signatory

Roger Wiltshire

Project Ref. AE2315

Roger Wiltshire

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

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

CURRENT DATE: 11/7/2016 0:00

SOLUTION REFERENCE #: AEA/Amersham 92/232/67 SOLUTION #: U-10

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

Radionuclide: ^{232}U

Reference Date: 3/1/2000 0:00

Certified Activity: 9.760E-01 µCi

Certified Concentration: µCi per gram

Ampoule /Solution Gross: Weight, Grams

Empty Ampoule: Weight, Grams

Solution Net: Weight, Grams

Total Activity in Ampoule: 0.9760 µCi

Chemical Composition of Standard Solution

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

Dilution Instructions:

Dilution Solvent Used: 2M HNO_3

Dilute to a volume of 1000.00 milliliters

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

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

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

Expiration Date: October 7, 2017

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

QC Approval _____ Date: 11/10/16

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

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

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

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

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

Reference Date 3/1/2000 0:00

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

Dilution Instructions:

Dilution Solvent Used 2M HNO_3

SECONDARY VOLUMETRIC DILUTION

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

Final Activity Concentration: 2.1670E+01 dpm/ml

NOTES:

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

Expiration Date: October 7, 2017

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

QC Approval _____ Date: 11/10/16

Th-18

Isotope Products Laboratories
An Eckert & Ziegler Company

24937 Avenue Tibbitts
Valencia, California 91355

Tel 661•309•1010
Fax 661•257•8303

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

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

Physical Description:

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

Radioimpurities:

None detected (daughters in equilibrium)

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

Method of Calibration:

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

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

Uncertainty of Measurement:

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

Notes:

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

Quality Control — 9-Jan-02 Date Signed — IPL Ref. No.: 867-54

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

CURRENT DATE: 8/16/2017 0:00

SOLUTION REFERENCE #: IPL 867-54

SOLUTION #: Th-18

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

Radionuclide: ^{229}Th

Reference Date: 1/15/2002 0:00

Certified Activity: 1.013E+00 µCi

Certified Concentration: µCi per gram

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

Chemical Composition of Standard Solution

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

Dilution Instructions:

Dilution Solvent Used: 0.1 M HNO_3

Dilute to a volume of 1000.00 milliliters

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

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

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

Expiration Date: August 11, 2018

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

QC Approval _____ Date: 8/16/17

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

MP-009
Solution Reference # IPL 867-54

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

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

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

Reference Date 1/15/2002 0:00

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

Dilution Instructions:

Dilution Solvent Used 0.1M HNO_3

SECONDARY VOLUMETRIC DILUTION

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

Final Activity Concentration: 2.2490E+01 dpm/ml

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
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	1.976E+03	0.1	1.8	3.6	4π LS
Cd-109	88.0	4.614E+02	7.668E+04	2.837E+03	0.5	2.0	4.1	HPGe
Co-57	122.1	2.717E+02	2.240E+03	1.917E+03	0.4	1.7	3.4	HPGe
Ce-139	165.9	1.376E+02	2.655E+03	2.124E+03	0.4	1.7	3.6	HPGe
Hg-203	279.2	4.669E+01	6.005E+03	4.947E+03	0.3	1.7	3.5	HPGe
Sn-113	391.7	1.151E+02	4.528E+03	2.942E+03	0.4	1.9	3.9	HPGe
Cs-137	661.7	1.099E+04	2.219E+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			7.355E+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
17-07082	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	87.12%	15.68%	100.00%	3.60%	7.34E+00	2.64E-01	6.40E+00	1.00E+00	U-8a	3.20E+01	3.60E+00	5.09E-01
U-238	91.39%	15.64%	100.00%	3.60%	7.11E+00	2.56E-01	6.50E+00	1.02E+00	U-8a	3.10E+01	3.60E+00	5.09E-01

Matrix Spike Duplicate

8/17/18

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	2.91	75%	7.25E+00	2.61E-01	7.45E+00	1.15E+00	2.04E+00	4.49E-01	1.01E+00	U-8a	3.20E+01	3.60	5.09E-01
U-238	2.26	80%	7.02E+00	2.53E-01	7.38E+00	1.14E+00	1.76E+00	4.04E-01	1.01E+00	U-8a	3.10E+01	3.60	5.09E-01

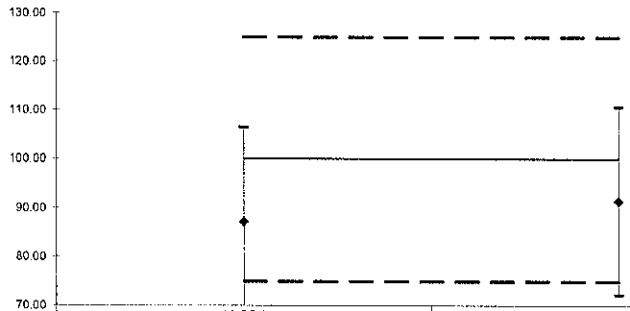
Duplicate Results / QC Summary

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	1.57	26.28	2.04E+00	4.49E-01	1.57E+00	3.87E-01	0.87	OK					OK
U-238	0.81	13.88	1.76E+00	4.04E-01	1.53E+00	3.78E-01	0.91	OK					OK
U-235	0.50	21.52	2.66E-01	1.49E-01	2.15E-01	1.35E-01		OK					OK

0050

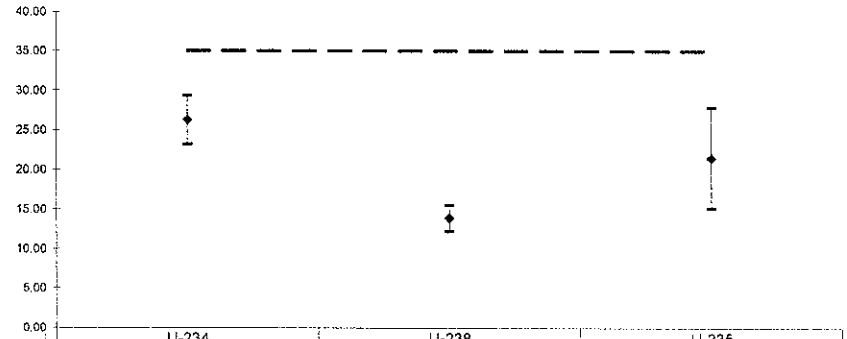
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07082	UUISO Apex	1	pCi	g	Weston Solutions, Inc.

LCS % Recovery



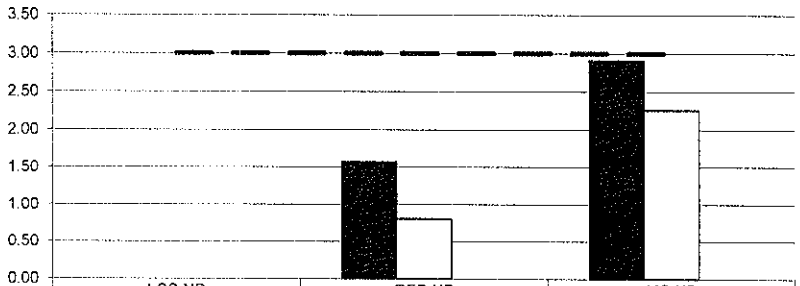
	U-234	U-238
Lower Error	67.84	72.15
Upper Error	106.41	110.63
%R	87.12	91.39
LCL	75	75
Mean	100	100
UCL	125	125

Replicate Sample RPD



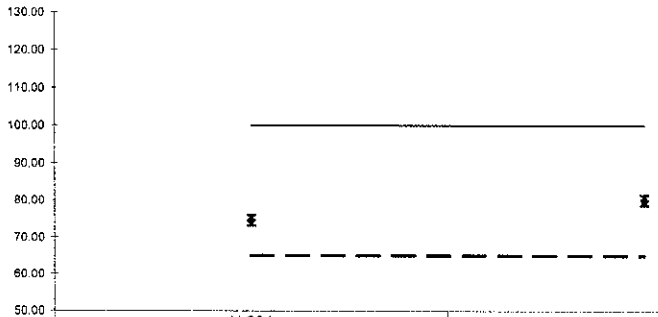
	U-234	U-238	U-235
Lower Error	29.31	15.54	27.87
Upper Error	23.24	12.23	15.17
RPD	26.28	13.88	21.52
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
U-234	0.00	1.57	2.91
U-238	0.00	0.81	2.26
	0.00	0.00	0.00
UCL	3	3	3

Matrix Spike % Recovery



	U-234	U-238
Lower Error	73.16	78.67
Upper Error	75.97	81.45
%R	74.56	80.06
LCL	65	65
Mean	100	100
UCL	135	135

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07082	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		87.12%	15.68%	100.00%	3.60%	7.34E+00	2.64E-01	6.40E+00	1.00E+00	U-8a	3.20E+01	3.60E+00	5.09E-01
U-238		91.39%	15.64%	100.00%	3.60%	7.11E+00	2.56E-01	6.50E+00	1.02E+00	U-8a	3.10E+01	3.60E+00	5.09E-01

Matrix Spike Duplicate

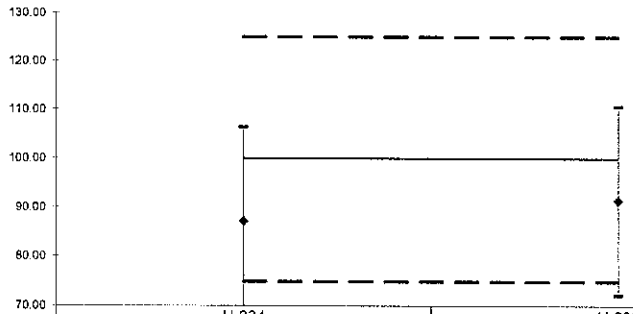
Analyte	Normalized Difference	MS Actual % Rec	Expected MS Result	Expected MS Uncert	Actual MS Result	Actual MS CSU	Sample Result	Sample CSU	Sample Aliquot	Standard ID	Standard ACT (dpm)	Standard Error %	Standard Added (g)
U-234	1.43	86%	7.25E+00	2.61E-01	8.28E+00	1.31E+00	2.04E+00	4.49E-01	1.01E+00	U-8a	3.20E+01	3.60	5.09E-01
U-238	0.06	101%	7.02E+00	2.53E-01	8.83E+00	1.39E+00	1.76E+00	4.04E-01	1.01E+00	U-8a	3.10E+01	3.60	5.09E-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	1.57	26.28	2.04E+00	4.49E-01	1.57E+00	3.87E-01	0.87	OK					OK
U-238	0.81	13.88	1.76E+00	4.04E-01	1.53E+00	3.78E-01	0.91	OK					OK
U-235	0.50	21.52	2.66E-01	1.49E-01	2.15E-01	1.35E-01		OK					OK

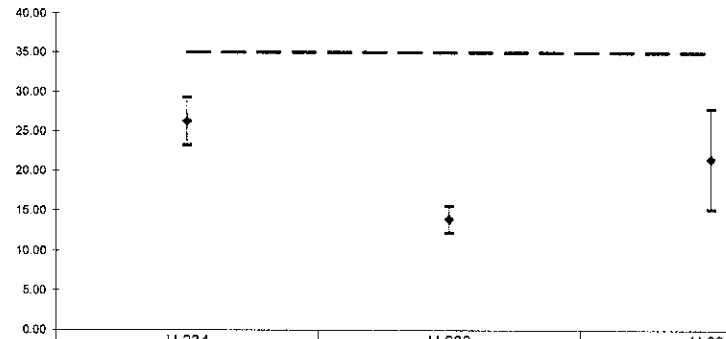
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07082	UUISO Apex	1	pCi	g	Weston Solutions, Inc.

LCS % Recovery



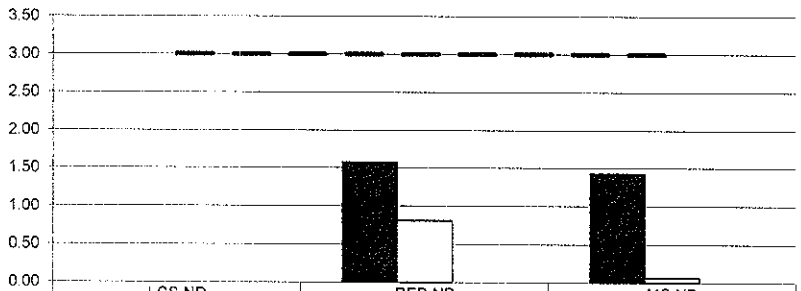
	U-234	U-238
Lower Error	67.84	72.15
Upper Error	106.41	110.63
%R	87.12	91.39
LCL	75	75
Mean	100	100
UCL	125	125

Replicate Sample RPD



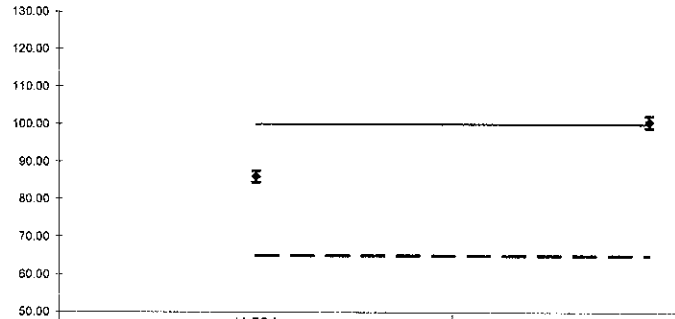
	U-234	U-238	U-235
Lower Error	29.31	15.54	27.87
Upper Error	23.24	12.23	15.17
RPD	26.28	13.88	21.52
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
U-234	0.00	1.57	1.43
U-238	0.00	0.81	0.06
	0.00	0.00	0.00
UCL	3	3	3

Matrix Spike % Recovery



	U-234	U-238
Lower Error	84.39	98.99
Upper Error	87.53	102.27
%R	85.96	100.63
LCL	65	65
Mean	100	100
UCL	135	135

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07082	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		120.79%	29.22%	100.00%	3.60%	4.80E+00	1.73E-01	5.80E+00	1.70E+00	Th-8b	1.04E+02	3.60E+00	1.03E-01
TH-230		120.74%	29.73%	100.00%	2.70%	5.35E+00	1.45E-01	6.46E+00	1.92E+00	Th-1b	2.35E+01	2.70E+00	5.05E-01
TH-232		117.14%	29.22%	100.00%	3.60%	4.80E+00	1.73E-01	5.63E+00	1.64E+00	Th-8b	1.04E+02	3.60E+00	1.03E-01

Matrix Spike

Analyte	Normalized Difference	MS Actual % Rec	Expected MS Result	Expected MS Uncert	Actual MS Result	Actual MS CSU	Sample Result	Sample CSU	Sample Aliquot	Standard ID	Standard ACT (dpm)	Standard Error %	Standard Added (g)
TH-228	0.32	104.29%	7.00E+00	2.52E-01	7.93E+00	1.84E+00	6.31E-01	2.38E-01	1.03E+00	Th-8b	1.04E+02	3.60	1.55E-01
TH-230	0.06	100.81%	6.76E+00	1.82E-01	7.55E+00	1.84E+00	7.40E-01	2.62E-01	1.03E+00	Th-1b	2.35E+01	2.70	6.57E-01
TH-232	0.38	104.88%	7.00E+00	2.52E-01	7.68E+00	1.75E+00	3.40E-01	1.57E-01	1.03E+00	Th-8b	1.04E+02	3.60	1.55E-01

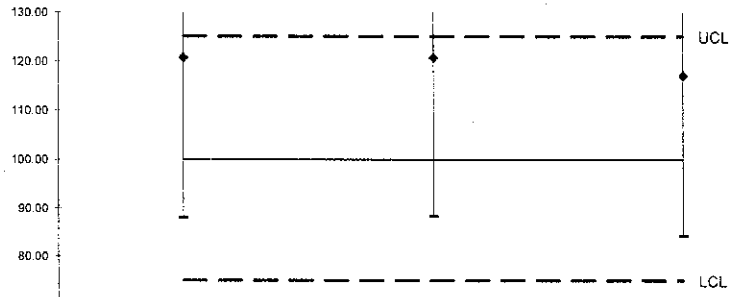
Duplicate Results / QC Summary

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	0.31	8.77	6.31E-01	2.38E-01	6.89E-01	2.83E-01	1.21	OK					OK
TH-230	1.55	40.16	7.40E-01	2.62E-01	1.11E+00	3.89E-01	1.21	OK					OK
TH-232	0.26	9.21	3.40E-01	1.57E-01	3.73E-01	1.87E-01	1.17	OK					OK

0054

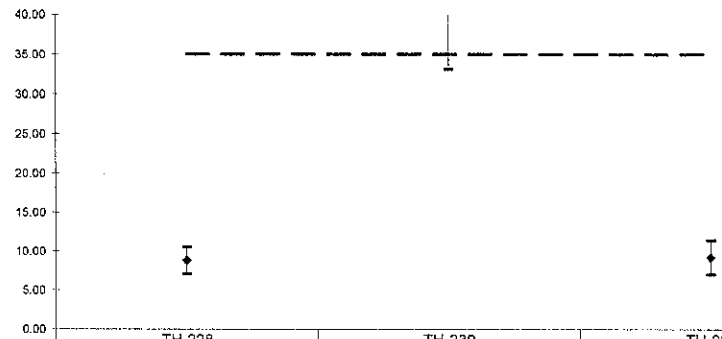
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07082	ThISO Apex	1	pCi	g	Weston Solutions, Inc.

LCS % Recovery



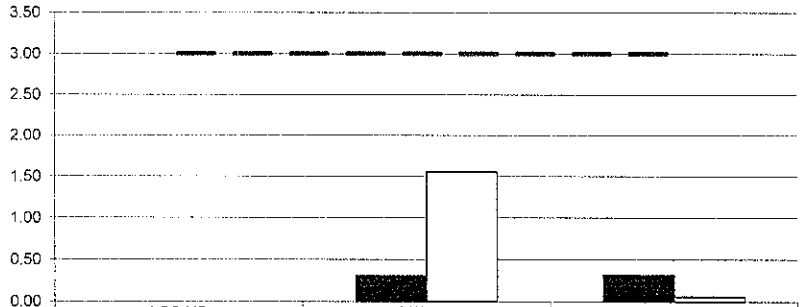
	TH-228	TH-230	TH-232
Lower Error	87.98	88.31	84.32
Upper Error	153.61	153.16	149.95
%R	120.79	120.74	117.14
LCL	75	75	75
Mean	100	100	100
UCL	125	125	125

Replicate Sample RPD



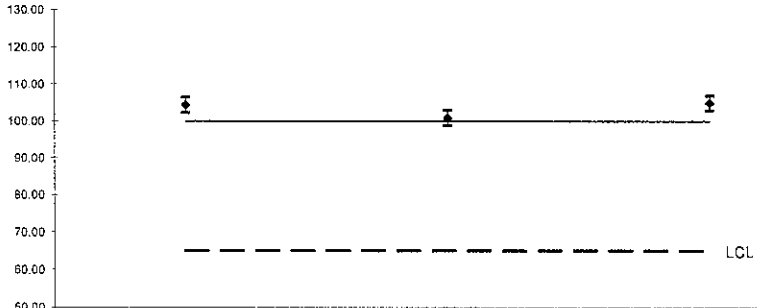
	TH-228	TH-230	TH-232
Lower Error	10.50	47.23	11.43
Upper Error	7.04	33.10	6.99
RPD	8.77	40.16	9.21
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
TH-228	0.00	0.31	0.32
TH-230	0.00	1.55	0.06
UCL	3	3	3

Matrix Spike % Recovery



	TH-228	TH-230	TH-232
Lower Error	102.20	98.78	102.88
Upper Error	106.38	102.84	106.88
%R	104.29	100.81	104.88
LCL	65	65	65
Mean	100	100	100
UCL	135	135	135

0055

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07082	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		120.79%	29.22%	100.00%	3.60%	4.80E+00	1.73E-01	5.80E+00	1.70E+00	Th-8b	1.04E+02	3.60E+00	1.03E-01
TH-230		120.74%	29.73%	100.00%	2.70%	5.35E+00	1.45E-01	6.46E+00	1.92E+00	Th-1b	2.35E+01	2.70E+00	5.05E-01
TH-232		117.14%	29.22%	100.00%	3.60%	4.80E+00	1.73E-01	5.63E+00	1.64E+00	Th-8b	1.04E+02	3.60E+00	1.03E-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	0.08	98.86%	7.13E+00	2.57E-01	7.68E+00	2.04E+00	6.31E-01	2.38E-01	1.04E+00	Th-8b	1.04E+02	3.60	1.59E-01
TH-230	0.67	108.66%	7.18E+00	1.94E-01	8.54E+00	1.81E+00	7.40E-01	2.62E-01	1.04E+00	Th-1b	2.35E+01	2.70	7.05E-01
TH-232	0.44	95.10%	7.13E+00	2.57E-01	7.12E+00	1.53E+00	3.40E-01	1.57E-01	1.04E+00	Th-8b	1.04E+02	3.60	1.59E-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	0.31	8.77	6.31E-01	2.38E-01	6.89E-01	2.83E-01	1.21	OK					OK
TH-230	1.55	40.16	7.40E-01	2.62E-01	1.11E+00	3.89E-01	1.21	OK					OK
TH-232	0.26	9.21	3.40E-01	1.57E-01	3.73E-01	1.87E-01	1.17	OK					OK

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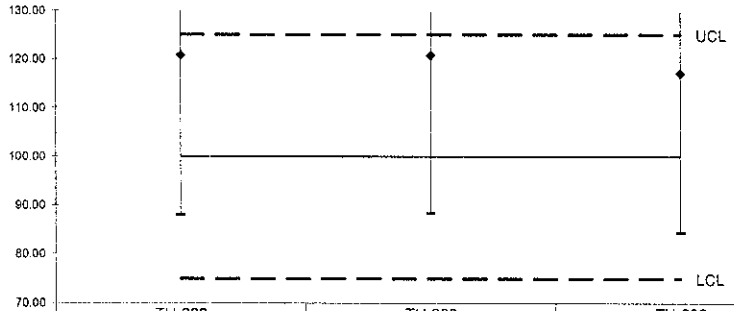
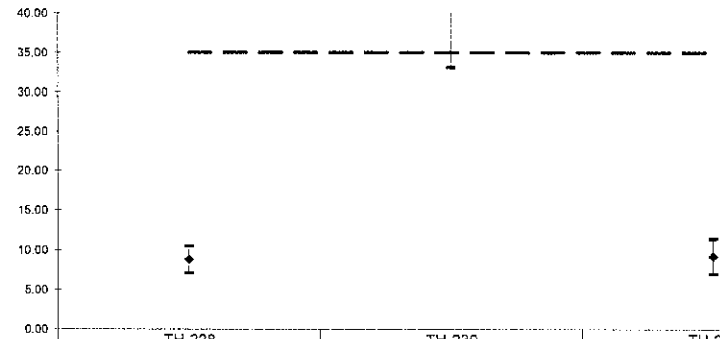
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07082	ThISO Apex	1	pCi	g	Weston Solutions, Inc.

LCS % Recovery



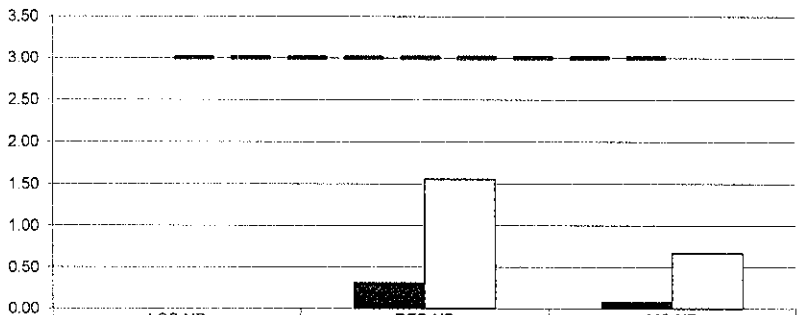
	TH-228	TH-230	TH-232
Lower Error	87.98	88.31	84.32
Upper Error	153.61	153.16	149.95
%R	120.79	120.74	117.14
LCL	75	75	75
Mean	100	100	100
UCL	125	125	125

Replicate Sample RPD



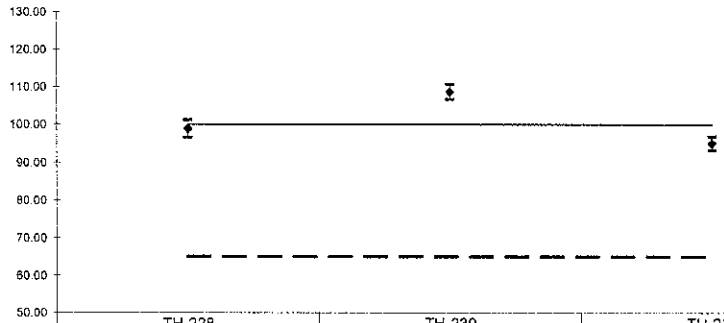
	TH-228	TH-230	TH-232
Lower Error	10.50	47.23	11.43
Upper Error	7.04	33.10	6.99
RPD	8.77	40.16	9.21
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
TH-228	0.00	0.31	0.08
TH-230	0.00	1.55	0.67
UCL	3	3	3

Matrix Spike % Recovery



	TH-228	TH-230	TH-232
Lower Error	96.56	106.66	93.31
Upper Error	101.16	110.66	96.89
%R	98.86	108.66	95.10
LCL	65	65	65
Mean	100	100	100
UCL	135	135	135

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07082	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		95.99%	7.83%	100.00%	3.89%	1.35E+02	5.27E+00	1.30E+02	1.02E+01	GAS-1402	1.35E+02	5.27E+00	7.36E+02
CS-137		99.35%	11.79%	100.00%	4.01%	8.44E+01	3.38E+00	8.38E+01	9.88E+00	GAS-1402	8.44E+01	3.38E+00	7.36E+02

Matrix Spike

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

Replicate Sample

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU
AC-228	0.13	2.44	1.43E+00	4.14E-01	1.40E+00	3.18E-01
K-40	1.00	10.67	2.30E+01	3.22E+00	2.07E+01	3.24E+00
PB-212	1.08	12.74	1.25E+00	2.13E-01	1.42E+00	2.22E-01

QC Summary

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

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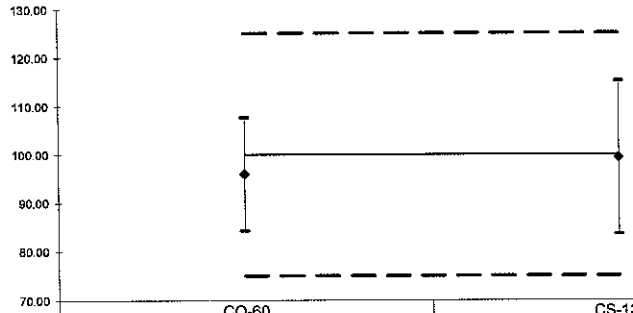
Version

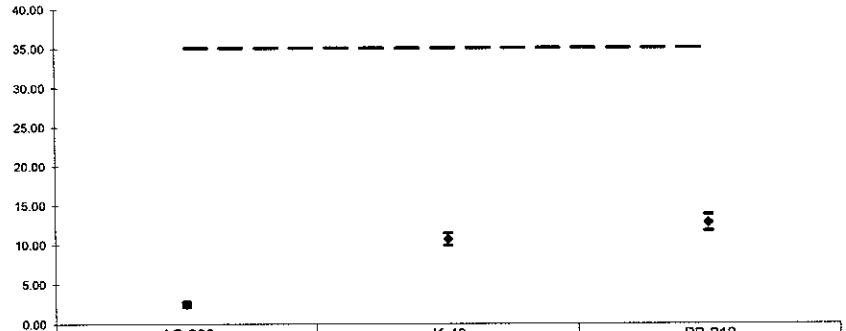
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07082	Gamma	2	pCi	g	Weston Solutions, Inc.

LCS % Recovery



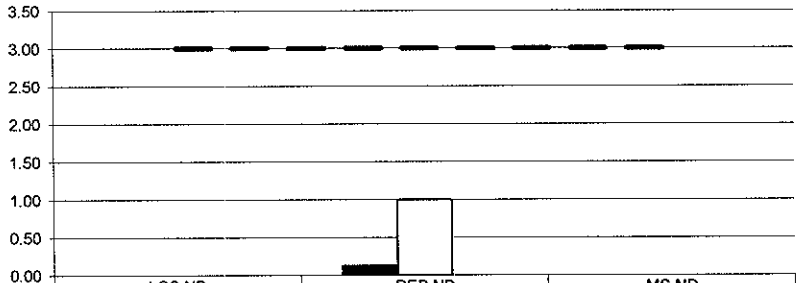
	CO-60	CS-137
Lower Error	84.27	83.55
Upper Error	107.71	115.14
%R	95.99	99.35
LCL	75	75
Mean	100	100
UCL	125	125

Replicate Sample RPD



	AC-228	K-40	PB-212
Lower Error	2.76	11.46	13.78
Upper Error	2.13	9.88	11.70
RPD	2.44	10.67	12.74
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
CO-60	0.00	0.13	0.00
CS-137	0.00	1.00	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	17-07082
Analysis Code	UUISO
Run Number	1

#	Date	Dept	User	Notes
1	08/02/17 08:12	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
8/2/17

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	17-07082
		Analysis Code	UUISO
		Run Number	1

#	Date	Dept	User	Notes
1	08/02/17 08:12	PREP	JHARVEY	ALIQUOTED AND ADDED SPIKES AND TRACERS- ADDED HF AND DRIED SAMPLES DOWN- ADDED MIXED ACIDS AND TOOK SAMPLES TO DRYNESS- SUBMITTED SAMPLES TO SEPARATIONS
2	08/11/17 16:46	CHEM	JDEMELAS	Added concentrated HCl to sample beakers and heated to dryness; Added 20 ml 8N HCL to samples and transferred to new, labeled C-Tubes, rinsing with 8N HCl to bring volume to ~35 ml; Preconditioned resin columns with 35 ml 8N HCl; Centrifuged samples and loaded onto columns; Rinsed C-Tubes with 20 ml 8N HCl, centrifuged as needed and loaded onto columns; Rinsed columns with 35 ml 8N HCl – 0.1N NH4I, 35 ml of 6.5N HCl – 0.04N HF, and 10 ml of 6.5N HCl; Eluted Uranium with 50 ml of 0.5N HCl into clean, labeled 100-ml beakers; Dried-down samples on hotplate; Dissolved samples in ~10 ml of concentrated HCl; Transferred to new, labeled C-Tubes with DI H2O. Set samples aside for later precipitation and filtering.

8/11/16

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	17-07082
Analysis Code	UUISO
Run Number	1

#	Date	Dept	User	Notes
1	08/02/17 08:12	PREP	JHARVEY	ALIQUOTED AND ADDED SPIKES AND TRACERS- ADDED HF AND DRIED SAMPLES DOWN- ADDED MIXED ACIDS AND TOOK SAMPLES TO DRYNESS- SUBMITTED SAMPLES TO SEPARATIONS
2	08/11/17 16:46	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	08/14/17 05:12	CHEM	TSMITH	Followed steps 12.1.7 to 12.4.5 in AP-005 . (Precipitated and filtered samples for Uranium)

8/14/17
JM

EBERLINE SERVICES

Reagents Used in an Analysis

Internal Work Order	
17-07082	
Analysis Code	Run
UUISO	1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
018920P	Hydrofluoric Acid	Reagent Grade	JHARVEY	8/2/2017
018971P	Nitric Acid	Reagent Grade	JHARVEY	8/2/2017
018550P	Sulfuric Acid	Reagent Grade	JHARVEY	8/2/2017
018798P	Anion Exchange Resin	Reagent Grade	JDEMELAS	8/11/2017
019164S	HCl - HF	6.5N - 0.04N	JDEMELAS	8/11/2017
019171S	HCl - NH4I	8N - 0.1M	JDEMELAS	8/11/2017
019067D01	Hydrochloric Acid	0.5N	JDEMELAS	8/11/2017
019124S	Hydrochloric Acid	6.5N	JDEMELAS	8/11/2017
019165S	Hydrochloric Acid	8N	JDEMELAS	8/11/2017
019134P	Hydrochloric Acid	Reagent Grade	JDEMELAS	8/11/2017
019145S	Carbon substrate	Solution	TSMITH	8/14/2017
019063P	Ethyl Alcohol	1	TSMITH	8/14/2017
019093P	Hydrofluoric Acid	Reagent Grade	TSMITH	8/14/2017
018890S	Neodymium Carrier	1 mg/ml	TSMITH	8/14/2017
019038P	Titanous Chloride	Reagent Grade	TSMITH	8/14/2017

Alpha #3

Date	Sample #	Client	Load Time	CT Time	Analyst	Test
8/14/17	1707078A(17-20)	Weston	1141	2h-50m	Th	KB
8/14/17	1707125A(1-4)	UCOR	1142	2h-50m	UU	KB
8/14/17	1707078A(1-16)	Weston	1144	2h-50m	UU	KB
8/14/17	1707132A(3-6)	ERA	1445	2h-50m	Rab	KB
8/14/17	1707082A(1-20)	Weston	1446	2h-50m	UU	KB

ISO-TH NOTES

EBERLINE SERVICES

Work Order Analysis Notes

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

Internal Work Order	17-07082
Analysis Code	ThISO
Run Number	1

#	Date	Dept	User	Notes
1	08/02/17 08:12	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

8/2/17

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	17-07082
		Analysis Code	ThISO
		Run Number	1

#	Date	Dept	User	Notes
1	08/02/17 08:12	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	08/14/17 17:49	CHEM	JDEMELAS	Added concentrated HNO3 to sample beakers and heated to dryness; Added 20 ml 8N HNO3 to samples and transferred to new, labeled C-Tubes, adding 8N HNO3 to bring volume to ~35 ml; Preconditioned resin columns with 50 ml 8N HNO3; Centrifuged samples as needed, and passed through columns; Rinsed C-Tubes with 20 ml 8N HNO3; Centrifuged rinsates and loaded onto columns; Rinsed columns with 40 ml 8N HNO3; Eluted Thorium with 50 ml of 8N HCl into clean, labeled 100-ml beakers; Dried-down samples on hotplate; Dissolved samples in ~10 ml of concentrated HCl; Transferred to new, labeled C-Tubes with deiononized water, bringing volume to ~15ml. Set samples aside for later precipitation and filtering.

8/14/17

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	17-07082
Analysis Code	ThISO
Run Number	1

#	Date	Dept	User	Notes
1	08/02/17 08:12	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	08/14/17 17:49	CHEM	JDEMELAS	Added concentrated HNO3 to sample beakers and heated to dryness; Added 20 ml 8N HNO3 to samples and transferred to new, labeled C-Tubes, adding 8N HNO3 to bring volume to ~35 ml; Preconditioned resin columns with 50 ml 8N HNO3; Centrifuged samples as needed, and passed through columns; Rinsed C-Tubes with 20 ml 8N HNO3; Centrifuged rinsates and loaded onto columns; Rinsed columns with 40 ml 8N HNO3; Eluted Thorium with 50 ml of 8N HCl into clean, labeled 100-ml beakers; Dried-down samples on hotplate; Dissolved samples in ~10 ml of concentrated HCl; Transferred to new, labeled C-Tubes with deiononized water, bringing volume to ~15ml. Set samples aside for later precipitation and filtering.
3	08/15/17 05:19	CHEM	TSMITH	Followed steps 12.2.5 to 12.4.5 in AP-005 . (Precipitated and filtered samples for Thorium)

8-15-17
JM

EBERLINE SERVICES

Reagents Used in an Analysis

Internal Work Order	
17-07082	
Analysis Code	Run
ThISO	1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
018920P	Hydrofluoric Acid	Reagent Grade	JHARVEY	8/2/2017
018971P	Nitric Acid	Reagent Grade	JHARVEY	8/2/2017
018550P	Sulfuric Acid	Reagent Grade	JHARVEY	8/2/2017
018798P	Anion Exchange Resin	Reagent Grade	JDEMELAS	8/14/2017
019134P	Hydrochloric Acid	Reagent Grade	JDEMELAS	8/14/2017
019074P	Nitric Acid	Reagent Grade	JDEMELAS	8/14/2017
019172S	Hydrochloric Acid	8N	JDEMELAS	8/14/2017
019170S	Nitric Acid	8N	JDEMELAS	8/14/2017
019145S	Carbon substrate	Solution	TSMITH	8/15/2017
019106S	Cerrium Carrier	0.1mg/ml	TSMITH	8/15/2017
019063P	Ethyl Alcohol	1	TSMITH	8/15/2017
019093P	Hydrofluoric Acid	Reagent Grade	TSMITH	8/15/2017

Alpha #3

Date	Sample #	Client	Load Time	CT Time	Analyst	Test
8/14/17	1707078A (17-20)	Weston	1141	2h-50	Th	KB
8/14/17	1707125A (1-4)	UCOR	1142	2h-50	UU	KB
8/14/17	1707078A (1-16)	Weston	1144	2h-50	UU	KB
8/14/17	1707132A (3-6)	ERA	1445	2h-50	Rak	KB
8/14/17	1707082A (1-20)	Weston	1446	2h-50	UU	KB
8/14/17	1708047A (1-4)	USA	1755	2h-50	Rak	KB
8/14/17	1707099A (1-7)	Accutest	1756	2h-50	Rak	KB
8/15	Daily Pulse	LAB	0517	1	MA	—
8/15	1708045A (3-5)	Smoky Mount	0851	2h-5	PuJ50	C
8/15	1708045A (1-4)	Smoky Mount	0851	2h-5	PuJ42	—
8/15	1708042A (1-4)	UCOR	0852	2h-5	UuJ50	C
8/15	1708045A (1-4)	Smoky Mount	0853	2h-5	UuJ50	—
8/15	1708047A (1-4)	USA	0854	2h-5	UuJ50	C
8/15	1707132A (1-5)	ERA	0859	2h-5	UuJ50	—
8/15/17	1707082A (1-20)	Weston	1154	2h-50	Th	KB
8/15/17	1708061A (1-4)	USA	1155	2h-50	Rak	KB

GAMMA NOTES

GE1

DATE	SAmple #	Client	Load Time	CT Time	Analysis	Tech
8/14/17	1707078-04	Weston	1326	1 hr	✓	KB
8/14/17	1707078-08	Weston	1427	1 hr	✓	KB
8/14/17	1707078-11	Weston	1529	1 hr	✓	KB
8/14/17	1707078-14	Weston	1630	1 hr	✓	KB
8/14/17	1708038-04	UCOR	1753	4 hrs	✓	KB
8/15	GAT-16	LAB	0552	15	✓	—
8/15	DeWyR	LAB	0552	15	✓	—
8/15	1707078-19	Weston	0552	[illegible]	✓	—
8/15	1707082-07	Weston	0615	[illegible]	✓	—
8/15	1707082-09	Weston	0805	[illegible]	✓	—
8/15	1707082-12	Weston	0905	[illegible]	✓	—
8/15	1708048-01	USA	1006	15	Ba	—
8/15	1707082-15	Weston	1023	[illegible]	✓	—
8/15	1708061-01	USA	1124	15	Ba	—
8/15	1707082-18	Weston	1141	[illegible]	✓	—
8/15	1707082-01	Weston	1300	3 hr	✓	—
8/15/17	1707150-01	UCOR	1241	15 min	Ba	KB

GE 3

DATE	SAmple #	Client	Load Time	CT Time	Analysis	Tech
8/11/17	1707148-08	MPA	1725	15 min	Ba	KB
8/11/17	1707148-10	MPA	1734	15 min	Ba	KB
8/11/17	1707148-12	MPA	1608	15 min	Ba	KB
8/12/17	System Blkgd	Lab	0939	24 hrs	✓	KB
8/14	GAS1602	LAB	0505	15	✓	[illegible]
8/14	Daily R	LAB	0531	15	✓	
8/14	1707077-05	Weston	0554	[illegible]	✓	—
8/14	1707077-07	Weston	0659	[illegible]	✓	—
8/14	1707077-10	Weston	0801	[illegible]	✓	[illegible]
8/14	1707077-13	Weston	0903	[illegible]	✓	
8/14	1707077-16	Weston	1006	[illegible]	✓	—
8/14	1707077-18	Weston	1108	[illegible]	✓	—
8/14/17	1707077-01	Weston	1209	30 min	✓	KB
8/14/17	1707078-01	Weston	1240	30 min	✓	KB
8/14	1707078-05	Weston	1311	[illegible]	✓	—
8/14/17	1707078-07	Weston	1411	1 hr	✓	KB
8/14/17	1707078-09	Weston	1512	1 hr	✓	KB
8/14/17	1707078-12	Weston	1613	1 hr	✓	KB
8/14/17	1707078-15	Weston	1716	1 hr	✓	KB
8/14/17	1707078-17	Weston	1818	1 hr	✓	KB
8/15	GAS1602	LAB	0512	15	✓	[illegible]
8/15	Daily R.	LAB	0532	15	✓	
8/15	1707078-20	Weston	0552	[illegible]	✓	—
8/15	1707082-08	Weston	0659	[illegible]	✓	—
8/15	1707082-10	Weston	0805	[illegible]	✓	—
8/15	1707082-13	Weston	0905	[illegible]	✓	—
8/15	1708048-02	USA	1006	15	Ba	—
8/15	1707082-16	Weston	1023	[illegible]	✓	—
8/15	1708061-02	USA	1124	15 min	Ba	—
8/15	1707082-19	Weston	1141	[illegible]	✓	[illegible]
8/15	1707082-02	Weston	1300	[illegible]	✓	—
8/15/17	1707150-02	Ulon	1241	15 min	Ba	KB

GE4

DATE	Sample #	Client	Load Time	CT Time	Analysis	Tech
8/14	1707077-06	Weston	0554	2h	✓	—
8/14	1707077-08	Weston	0659	2h	—	—
8/14	1707077-11	Weston	0801	2h	✓	✓
8/14	1707077-14	Weston	0903	2h	✓	✓
8/14	1707077-17	Weston	1006	2h	✓	—
8/14	1707077-19	Weston	1108	2h	✓	—
8/14/17	1707077-02	Weston	1209	1h	✓	KB
8/14/17	1707078-02	Weston	1309	1h	✓	KB
8/14/17	1707078-06	Weston	1410	1h	✓	KB
8/14/17	1707078-10	Weston	1512	1h	✓	KB
8/14/17	1707078-13	Weston	1613	1h	✓	KB
8/14/17	1707078-16	Weston	1714	1h	✓	KB
8/14/17	1707078-18	Weston	1818	1h	✓	KB
8/15	[illegible]	LAB	0512	15	✓	✓
8/15	[illegible]	LAB	0532	15	✓	
8/15	1707082-03	Weston	0553	2h	✓	✓
8/15	1707082-04	Weston	0659	2h	✓	✓
8/15	1707082-11	Weston	0805	2h	—	—
8/15	1707082-14	Weston	0905	2h	✓	—
8/15	1708048-03	USA	1006	15	Ba	—
8/15	1707082-17	Weston	1023	2h	✓	—
8/15	1708061-03	USA	1124	15	Ba	—
8/15	1707082-20	Weston	1141	2h	✓	—
8/15/17	1707150-03	UWR	1242	15min	Ba	KB

SECTION VIII

ANALYTICAL DATA (ISOTOPIC URANIUM)

17-07082
UUISO
Run 1

Work Order	17-07082
Analysis Code	UUISO
Run	1
Date Received	7/18/2017
Lab Deadline	8/9/2017
Client	Weston Solutions, Inc.
Project	94759
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	EPA 908.0 Modified
Instrument Type	Alpha Spectroscopy
Radiometric Tracer	U-232
Radiometric Sol#	U-10a
Tracer Act (dpm/g)	18.32
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		07/18/17 00:00	1.0000E+00
02	MBL	BLANK		07/18/17 00:00	1.0000E+00
03	DUP	HTC-A01-S005-0612-01		05/13/17 09:58	1.0123E+00
04	DMSO	HTC-A01-S005-0612-01	31	05/13/17 09:58	1.0118E+00
05	MS	HTC-A01-S005-0612-01	41	05/13/17 09:58	1.0127E+00
06	MSD	HTC-A01-S005-0612-01 MSD	41	05/13/17 09:58	1.0120E+00
07	TRG	HTC-A01-S005-0612-02	29	05/13/17 09:58	1.0389E+00
08	TRG	HTC-A01-S005-1218-01	36	05/13/17 09:55	1.0527E+00
09	TRG	HTC-A01-S005-1824-01	39	05/13/17 09:52	1.0432E+00
10	TRG	HTC-A01-S005-2430-01	38	05/13/17 09:49	1.0135E+00
11	TRG	HTC-A01-S005-3036-01	34	05/13/17 09:46	1.0834E+00
12	TRG	HTC-A01-S005-3642-01	41	05/13/17 09:43	1.0446E+00
13	TRG	HTC-A01-S005-4248-01	30	05/13/17 09:40	1.0163E+00
14	TRG	HTC-A01-S006-0006-01	32	05/13/17 17:06	1.0806E+00
15	TRG	HTC-A01-S006-0612-01	40	05/13/17 17:03	1.0019E+00
16	TRG	HTC-A01-S006-1218-01	44	05/13/17 17:00	1.0374E+00
17	TRG	HTC-A01-S006-1824-01	37	05/13/17 16:57	1.0415E+00
18	TRG	HTC-A01-S006-2430-01	48	05/13/17 16:54	1.0210E+00
19	TRG	HTC-A01-S006-3036-01	39	05/13/17 16:51	1.0724E+00
20	TRG	HTC-A01-S006-3642-01	45	05/13/17 16:48	1.0800E+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.

17-07082
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	0.6108	11.2		0.00								
02	MBL	0.6109	11.2		0.00								
03	DUP	0.6110	11.2		0.00								
04	DMSO	0.6108	11.2		0.00								
05	MS	0.6099	11.2		0.00								
06	MSD	0.6079	11.1		0.00								
07	TRG	0.6062	11.1		0.00								
08	TRG	0.6079	11.1		0.00								
09	TRG	0.6069	11.1		0.00								
10	TRG	0.6082	11.1		0.00								
11	TRG	0.6083	11.1		0.00								
12	TRG	0.6062	11.1		0.00								
13	TRG	0.6074	11.1		0.00								
14	TRG	0.6070	11.1		0.00								
15	TRG	0.6073	11.1		0.00								
16	TRG	0.6062	11.1		0.00								
17	TRG	0.6072	11.1		0.00								
18	TRG	0.6071	11.1		0.00								
19	TRG	0.6070	11.1		0.00								
20	TRG	0.6049	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.

17-07082
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			08/02/17 08:01	JHARVEY				
02	MBL			08/02/17 08:01	JHARVEY				
03	DUP			08/02/17 08:01	JHARVEY				
04	DMSO	07/25/17 07:44	KSALLINGS	08/02/17 08:01	JHARVEY				
05	MS	07/25/17 07:44	KSALLINGS	08/02/17 08:01	JHARVEY				
06	MSD	07/25/17 07:44	KSALLINGS	08/02/17 08:01	JHARVEY				
07	TRG	07/25/17 07:44	KSALLINGS	08/02/17 08:01	JHARVEY				
08	TRG	07/25/17 07:44	KSALLINGS	08/02/17 08:01	JHARVEY				
09	TRG	07/25/17 07:44	KSALLINGS	08/02/17 08:01	JHARVEY				
10	TRG	07/25/17 07:44	KSALLINGS	08/02/17 08:01	JHARVEY				
11	TRG	07/25/17 07:44	KSALLINGS	08/02/17 08:01	JHARVEY				
12	TRG	07/25/17 07:44	KSALLINGS	08/02/17 08:01	JHARVEY				
13	TRG	07/25/17 07:44	KSALLINGS	08/02/17 08:01	JHARVEY				
14	TRG	07/25/17 07:44	KSALLINGS	08/02/17 08:01	JHARVEY				
15	TRG	07/25/17 07:44	KSALLINGS	08/02/17 08:01	JHARVEY				
16	TRG	07/25/17 07:44	KSALLINGS	08/02/17 08:01	JHARVEY				
17	TRG	07/25/17 07:44	KSALLINGS	08/02/17 08:01	JHARVEY				
18	TRG	07/25/17 07:44	KSALLINGS	08/02/17 08:01	JHARVEY				
19	TRG	07/25/17 07:44	KSALLINGS	08/02/17 08:01	JHARVEY				
20	TRG	07/25/17 07:44	KSALLINGS	08/02/17 08:01	JHARVEY				

0080

* 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: 17-07082-UUISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07082
Analysis Code: UUISO
Run: 1
008

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	6.40E+00	8.93E-01	6.10E-02	7.34E+00	87.12	OK		OK	
02	U-234	MBL	BLANK	pCi/g	5.61E-01	1.84E-01	8.16E-02					OK	OK
03	U-234	DUP	HTC-A01-S005-0612-01	pCi/g	1.57E+00	3.70E-01	1.24E-01					OK	
04	U-234	DMSO	HTC-A01-S005-0612-01	pCi/g	2.04E+00	4.25E-01	8.09E-02					OK	
05	U-234	MS	HTC-A01-S005-0612-01	pCi/g	7.45E+00	1.01E+00	6.68E-02					OK	
06	U-234	MSD	HTC-A01-S005-0612-01 MSD	pCi/g	8.28E+00	1.17E+00	8.66E-02					OK	
07	U-234	TRG	HTC-A01-S005-0612-02	pCi/g	2.73E+00	5.83E-01	1.03E-01					OK	
08	U-234	TRG	HTC-A01-S005-1218-01	pCi/g	1.59E+00	3.83E-01	9.71E-02					OK	
09	U-234	TRG	HTC-A01-S005-1824-01	pCi/g	1.32E+00	3.45E-01	8.48E-02					OK	
10	U-234	TRG	HTC-A01-S005-2430-01	pCi/g	1.73E+00	4.07E-01	8.47E-02					OK	
11	U-234	TRG	HTC-A01-S005-3036-01	pCi/g	1.41E+00	3.51E-01	1.05E-01					OK	
12	U-234	TRG	HTC-A01-S005-3642-01	pCi/g	1.72E+00	4.35E-01	1.42E-01					OK	
13	U-234	TRG	HTC-A01-S005-4248-01	pCi/g	2.08E+00	4.47E-01	9.97E-02					OK	
14	U-234	TRG	HTC-A01-S006-0006-01	pCi/g	1.52E+00	4.14E-01	1.33E-01					OK	
15	U-234	TRG	HTC-A01-S006-0612-01	pCi/g	1.79E+00	5.67E-01	1.75E-01					OK	
16	U-234	TRG	HTC-A01-S006-1218-01	pCi/g	1.50E+00	3.52E-01	9.77E-02					OK	
17	U-234	TRG	HTC-A01-S006-1824-01	pCi/g	1.50E+00	3.46E-01	7.27E-02					OK	
18	U-234	TRG	HTC-A01-S006-2430-01	pCi/g	1.16E+00	3.02E-01	7.62E-02					OK	
19	U-234	TRG	HTC-A01-S006-3036-01	pCi/g	1.77E+00	3.72E-01	8.37E-02					OK	
20	U-234	TRG	HTC-A01-S006-3642-01	pCi/g	1.59E+00	3.93E-01	1.26E-01					OK	

Preliminary Data Report & Analytical Calculations
Work Order: 17-07082-UUISO-1

Client	Eberline Analytical Work Order	Analysis Code	Run
Weston Solutions, Inc.	17-07082	UUISO	1

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	U-234	LCS	07/18/17 00:00	1.00E+00	131.19	0.00	0.00			
02	U-234	MBL	07/18/17 00:00	1.00E+00	126.22	0.00	0.00			
03	U-234	DUP	05/13/17 09:58	1.01E+00	86.77	0.00	0.00			
04	U-234	DMSO	05/13/17 09:58	1.01E+00	93.81	0.00	0.00			
05	U-234	MS	05/13/17 09:58	1.01E+00	109.93	0.00	0.00			
06	U-234	MSD	05/13/17 09:58	1.01E+00	101.19	0.00	0.00			
07	U-234	TRG	05/13/17 09:58	1.04E+00	76.88	0.00	0.00			
08	U-234	TRG	05/13/17 09:55	1.05E+00	85.46	0.00	0.00			
09	U-234	TRG	05/13/17 09:52	1.04E+00	88.47	0.00	0.00			
10	U-234	TRG	05/13/17 09:49	1.01E+00	90.53	0.00	0.00			
11	U-234	TRG	05/13/17 09:46	1.08E+00	99.15	0.00	0.00			
12	U-234	TRG	05/13/17 09:43	1.04E+00	89.03	0.00	0.00			
13	U-234	TRG	05/13/17 09:40	1.02E+00	90.34	0.00	0.00			
14	U-234	TRG	05/13/17 17:06	1.08E+00	76.66	0.00	0.00			
15	U-234	TRG	05/13/17 17:03	1.00E+00	58.15	0.00	0.00			
16	U-234	TRG	05/13/17 17:00	1.04E+00	103.46	0.00	0.00			
17	U-234	TRG	05/13/17 16:57	1.04E+00	101.90	0.00	0.00			
18	U-234	TRG	05/13/17 16:54	1.02E+00	97.95	0.00	0.00			
19	U-234	TRG	05/13/17 16:51	1.07E+00	99.87	0.00	0.00			
20	U-234	TRG	05/13/17 16:48	1.08E+00	93.55	0.00	0.00			

Preliminary Data Report & Analytical Calculations
Work Order: 17-07082-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07082
Client: Weston Solutions, Inc.
0083

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	U-234	LCS	08/14/17 14:45		A_Spec	Alpha_037	170	5.02 E+02	2.00 E-03	15.9
02	U-234	MBL	08/14/17 14:45		A_Spec	Alpha_038	170	4.12 E+01	5.00 E-03	15.4
03	U-234	DUP	08/14/17 14:45		A_Spec	Alpha_039	170	9.61 E+01	1.10 E-02	18.5
04	U-234	DMSO	08/14/17 14:45		A_Spec	Alpha_040	170	1.32 E+02	3.00 E-03	18.1
05	U-234	MS	08/14/17 14:45		A_Spec	Alpha_043	170	5.85 E+02	3.00 E-03	18.7
06	U-234	MSD	08/14/17 14:45		A_Spec	Alpha_044	170	5.72 E+02	5.00 E-03	17.9
07	U-234	TRG	08/14/17 14:45		A_Spec	Alpha_045	170	1.38 E+02	3.00 E-03	16.9
08	U-234	TRG	08/14/17 14:45		A_Spec	Alpha_046	170	9.23 E+01	4.00 E-03	17.1
09	U-234	TRG	08/14/17 14:45		A_Spec	Alpha_047	170	7.47 E+01	2.00 E-03	16.2
10	U-234	TRG	08/14/17 14:45		A_Spec	Alpha_048	170	9.77 E+01	2.00 E-03	16.3
11	U-234	TRG	08/14/17 14:46		A_Spec	Alpha_049	170	8.50 E+01	6.00 E-03	14.9
12	U-234	TRG	08/14/17 14:46		A_Spec	Alpha_050	170	8.65 E+01	9.00 E-03	14.3
13	U-234	TRG	08/14/17 14:46		A_Spec	Alpha_052	170	1.25 E+02	5.00 E-03	17.4
14	U-234	TRG	08/14/17 14:46		A_Spec	Alpha_053	170	7.20 E+01	6.00 E-03	15.1
15	U-234	TRG	08/14/17 14:46		A_Spec	Alpha_054	170	5.35 E+01	3.00 E-03	13.6
16	U-234	TRG	08/14/17 14:46		A_Spec	Alpha_056	170	9.70 E+01	6.00 E-03	15.9
17	U-234	TRG	08/14/17 14:46		A_Spec	Alpha_057	170	9.87 E+01	2.00 E-03	16.5
18	U-234	TRG	08/14/17 14:46		A_Spec	Alpha_058	170	7.27 E+01	2.00 E-03	16.6
19	U-234	TRG	08/14/17 14:46		A_Spec	Alpha_059	170	1.27 E+02	0.00 E+00	17.8
20	U-234	TRG	08/14/17 14:46		A_Spec	Alpha_060	170	8.95 E+01	9.00 E-03	14.8

Eberline Analytical
Oak Ridge Laboratory

Preliminary Data Report & Analytical Calculations
Work Order: 17-07082-UUISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07082
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	6.50E+00	9.04E-01	8.00E-02	7.11E+00	91.39	OK		OK	
02	U-238	MBL	BLANK	pCi/g	9.27E-02	7.13E-02	5.66E-02					OK	OK
03	U-238	DUP	HTC-A01-S005-0612-01	pCi/g	1.53E+00	3.62E-01	9.73E-02					OK	
04	U-238	DMSO	HTC-A01-S005-0612-01	pCi/g	1.76E+00	3.84E-01	8.06E-02					OK	
05	U-238	MS	HTC-A01-S005-0612-01	pCi/g	7.38E+00	1.01E+00	6.06E-02					OK	
06	U-238	MSD	HTC-A01-S005-0612-01 MSD	pCi/g	8.83E+00	1.24E+00	6.01E-02					OK	
07	U-238	TRG	HTC-A01-S005-0612-02	pCi/g	1.88E+00	4.53E-01	8.18E-02					OK	
08	U-238	TRG	HTC-A01-S005-1218-01	pCi/g	1.29E+00	3.36E-01	1.03E-01					OK	
09	U-238	TRG	HTC-A01-S005-1824-01	pCi/g	8.12E-01	2.59E-01	1.06E-01					OK	
10	U-238	TRG	HTC-A01-S005-2430-01	pCi/g	1.10E+00	3.08E-01	9.26E-02					OK	
11	U-238	TRG	HTC-A01-S005-3036-01	pCi/g	8.73E-01	2.63E-01	1.09E-01					OK	
12	U-238	TRG	HTC-A01-S005-3642-01	pCi/g	8.99E-01	2.94E-01	1.46E-01					OK	
13	U-238	TRG	HTC-A01-S005-4248-01	pCi/g	1.51E+00	3.61E-01	6.92E-02					OK	
14	U-238	TRG	HTC-A01-S006-0006-01	pCi/g	6.04E-01	2.38E-01	1.01E-01					OK	
15	U-238	TRG	HTC-A01-S006-0612-01	pCi/g	9.60E-01	3.87E-01	1.39E-01					OK	
16	U-238	TRG	HTC-A01-S006-1218-01	pCi/g	6.48E-01	2.14E-01	9.73E-02					OK	
17	U-238	TRG	HTC-A01-S006-1824-01	pCi/g	1.04E+00	2.78E-01	9.07E-02					OK	
18	U-238	TRG	HTC-A01-S006-2430-01	pCi/g	6.29E-01	2.14E-01	1.09E-01					OK	
19	U-238	TRG	HTC-A01-S006-3036-01	pCi/g	1.08E+00	2.72E-01	5.80E-02					OK	
20	U-238	TRG	HTC-A01-S006-3642-01	pCi/g	9.33E-01	2.81E-01	8.47E-02					OK	

Preliminary Data Report & Analytical Calculations
Work Order: 17-07082-UUISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07082
Analysis Code: UUISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	U-238	LCS	07/18/17 00:00	1.00E+00	131.19	0.00	0.00			
02	U-238	MBL	07/18/17 00:00	1.00E+00	126.22	0.00	0.00			
03	U-238	DUP	05/13/17 09:58	1.01E+00	86.77	0.00	0.00			
04	U-238	DMSO	05/13/17 09:58	1.01E+00	93.81	0.00	0.00			
05	U-238	MS	05/13/17 09:58	1.01E+00	109.93	0.00	0.00			
06	U-238	MSD	05/13/17 09:58	1.01E+00	101.19	0.00	0.00			
07	U-238	TRG	05/13/17 09:58	1.04E+00	76.88	0.00	0.00			
08	U-238	TRG	05/13/17 09:55	1.05E+00	85.46	0.00	0.00			
09	U-238	TRG	05/13/17 09:52	1.04E+00	88.47	0.00	0.00			
10	U-238	TRG	05/13/17 09:49	1.01E+00	90.53	0.00	0.00			
11	U-238	TRG	05/13/17 09:46	1.08E+00	99.15	0.00	0.00			
12	U-238	TRG	05/13/17 09:43	1.04E+00	89.03	0.00	0.00			
13	U-238	TRG	05/13/17 09:40	1.02E+00	90.34	0.00	0.00			
14	U-238	TRG	05/13/17 17:06	1.08E+00	76.66	0.00	0.00			
15	U-238	TRG	05/13/17 17:03	1.00E+00	58.15	0.00	0.00			
16	U-238	TRG	05/13/17 17:00	1.04E+00	103.46	0.00	0.00			
17	U-238	TRG	05/13/17 16:57	1.04E+00	101.90	0.00	0.00			
18	U-238	TRG	05/13/17 16:54	1.02E+00	97.95	0.00	0.00			
19	U-238	TRG	05/13/17 16:51	1.07E+00	99.87	0.00	0.00			
20	U-238	TRG	05/13/17 16:48	1.08E+00	93.55	0.00	0.00			

Preliminary Data Report & Analytical Calculations
Work Order: 17-07082-UUISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07082
Analysis Code: UUISO
Run: 1
9800

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	U-238	LCS	08/14/17 14:45		A_Spec	Alpha_037	170	5.12 E+02	6.00 E-03	15.9
02	U-238	MBL	08/14/17 14:45		A_Spec	Alpha_038	170	6.83 E+00	1.00 E-03	15.4
03	U-238	DUP	08/14/17 14:45		A_Spec	Alpha_039	170	9.42 E+01	5.00 E-03	18.5
04	U-238	DMSO	08/14/17 14:45		A_Spec	Alpha_040	170	1.14 E+02	3.00 E-03	18.1
05	U-238	MS	08/14/17 14:45		A_Spec	Alpha_043	170	5.83 E+02	2.00 E-03	18.7
06	U-238	MSD	08/14/17 14:45		A_Spec	Alpha_044	170	6.13 E+02	1.00 E-03	17.9
07	U-238	TRG	08/14/17 14:45		A_Spec	Alpha_045	170	9.58 E+01	1.00 E-03	16.9
08	U-238	TRG	08/14/17 14:45		A_Spec	Alpha_046	170	7.52 E+01	5.00 E-03	17.1
09	U-238	TRG	08/14/17 14:45		A_Spec	Alpha_047	170	4.60 E+01	0.00 E+00	16.2
10	U-238	TRG	08/14/17 14:45		A_Spec	Alpha_048	170	6.25 E+01	3.00 E-03	16.3
11	U-238	TRG	08/14/17 14:46		A_Spec	Alpha_049	170	5.28 E+01	7.00 E-03	14.9
12	U-238	TRG	08/14/17 14:46		A_Spec	Alpha_050	170	4.53 E+01	1.00 E-02	14.3
13	U-238	TRG	08/14/17 14:46		A_Spec	Alpha_052	170	9.08 E+01	1.00 E-03	17.4
14	U-238	TRG	08/14/17 14:46		A_Spec	Alpha_053	170	2.87 E+01	2.00 E-03	15.1
15	U-238	TRG	08/14/17 14:46		A_Spec	Alpha_054	170	2.88 E+01	1.00 E-03	13.6
16	U-238	TRG	08/14/17 14:46		A_Spec	Alpha_056	170	4.20 E+01	6.00 E-03	15.9
17	U-238	TRG	08/14/17 14:46		A_Spec	Alpha_057	170	6.90 E+01	0.00 E+00	16.5
18	U-238	TRG	08/14/17 14:46		A_Spec	Alpha_058	170	3.96 E+01	8.00 E-03	16.6
19	U-238	TRG	08/14/17 14:46		A_Spec	Alpha_059	170	7.78 E+01	1.00 E-03	17.8
20	U-238	TRG	08/14/17 14:46		A_Spec	Alpha_060	170	5.27 E+01	2.00 E-03	14.8

Eberline Analytical
Oak Ridge Laboratory

Preliminary Data Report & Analytical Calculations

Work Order: 17-07082-UUISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07082
Analysis Code: UUISO
Run: 1
Z800

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	U-235	LCS	LCS	pCi/g	5.92E-01	2.01E-01	7.52E-02					OK	
02	U-235	MBL	BLANK	pCi/g	6.15E-02	6.67E-02	8.04E-02					OK	OK
03	U-235	DUP	HTC-A01-S005-0612-01	pCi/g	2.15E-01	1.34E-01	9.63E-02					OK	
04	U-235	DMSO	HTC-A01-S005-0612-01	pCi/g	2.66E-01	1.48E-01	1.14E-01					OK	
05	U-235	MS	HTC-A01-S005-0612-01	pCi/g	7.06E-01	2.23E-01	9.89E-02					OK	
06	U-235	MSD	HTC-A01-S005-0612-01 MSD	pCi/g	8.50E-01	2.62E-01	8.53E-02					OK	
07	U-235	TRG	HTC-A01-S005-0612-02	pCi/g	3.12E-01	1.77E-01	1.01E-01					OK	
08	U-235	TRG	HTC-A01-S005-1218-01	pCi/g	2.37E-01	1.48E-01	1.27E-01					OK	
09	U-235	TRG	HTC-A01-S005-1824-01	pCi/g	1.86E-01	1.31E-01	1.15E-01					OK	
10	U-235	TRG	HTC-A01-S005-2430-01	pCi/g	1.49E-01	1.15E-01	9.12E-02					OK	
11	U-235	TRG	HTC-A01-S005-3036-01	pCi/g	2.01E-01	1.30E-01	8.55E-02					OK	
12	U-235	TRG	HTC-A01-S005-3642-01	pCi/g	1.39E-01	1.31E-01	1.69E-01					OK	
13	U-235	TRG	HTC-A01-S005-4248-01	pCi/g	1.95E-01	1.30E-01	1.08E-01					OK	
14	U-235	TRG	HTC-A01-S006-0006-01	pCi/g	2.09E-01	1.56E-01	1.57E-01					OK	
15	U-235	TRG	HTC-A01-S006-0612-01	pCi/g	1.58E-01	1.64E-01	1.72E-01					OK	
16	U-235	TRG	HTC-A01-S006-1218-01	pCi/g	2.81E-01	1.49E-01	9.15E-02					OK	
17	U-235	TRG	HTC-A01-S006-1824-01	pCi/g	1.69E-01	1.18E-01	1.12E-01					OK	
18	U-235	TRG	HTC-A01-S006-2430-01	pCi/g	1.74E-01	1.18E-01	8.21E-02					OK	
19	U-235	TRG	HTC-A01-S006-3036-01	pCi/g	2.04E-01	1.19E-01	7.18E-02					OK	
20	U-235	TRG	HTC-A01-S006-3642-01	pCi/g	2.74E-01	1.60E-01	1.15E-01					OK	

Preliminary Data Report & Analytical Calculations

Work Order: 17-07082-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07082
Client: Weston Solutions, Inc.
8800

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	U-235	LCS	07/18/17 00:00	1.00E+00	131.19	0.00	0.00			
02	U-235	MBL	07/18/17 00:00	1.00E+00	126.22	0.00	0.00			
03	U-235	DUP	05/13/17 09:58	1.01E+00	86.77	0.00	0.00			
04	U-235	DMSO	05/13/17 09:58	1.01E+00	93.81	0.00	0.00			
05	U-235	MS	05/13/17 09:58	1.01E+00	109.93	0.00	0.00			
06	U-235	MSD	05/13/17 09:58	1.01E+00	101.19	0.00	0.00			
07	U-235	TRG	05/13/17 09:58	1.04E+00	76.88	0.00	0.00			
08	U-235	TRG	05/13/17 09:55	1.05E+00	85.46	0.00	0.00			
09	U-235	TRG	05/13/17 09:52	1.04E+00	88.47	0.00	0.00			
10	U-235	TRG	05/13/17 09:49	1.01E+00	90.53	0.00	0.00			
11	U-235	TRG	05/13/17 09:46	1.08E+00	99.15	0.00	0.00			
12	U-235	TRG	05/13/17 09:43	1.04E+00	89.03	0.00	0.00			
13	U-235	TRG	05/13/17 09:40	1.02E+00	90.34	0.00	0.00			
14	U-235	TRG	05/13/17 17:06	1.08E+00	76.66	0.00	0.00			
15	U-235	TRG	05/13/17 17:03	1.00E+00	58.15	0.00	0.00			
16	U-235	TRG	05/13/17 17:00	1.04E+00	103.46	0.00	0.00			
17	U-235	TRG	05/13/17 16:57	1.04E+00	101.90	0.00	0.00			
18	U-235	TRG	05/13/17 16:54	1.02E+00	97.95	0.00	0.00			
19	U-235	TRG	05/13/17 16:51	1.07E+00	99.87	0.00	0.00			
20	U-235	TRG	05/13/17 16:48	1.08E+00	93.55	0.00	0.00			

Preliminary Data Report & Analytical Calculations
Work Order: 17-07082-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07082
Client: Weston Solutions, Inc.
6800

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	U-235	LCS	08/14/17 14:45		A_Spec	Alpha_037	170	3.77 E+01	2.00 E-03	15.9
02	U-235	MBL	08/14/17 14:45		A_Spec	Alpha_038	170	3.66 E+00	2.00 E-03	15.4
03	U-235	DUP	08/14/17 14:45		A_Spec	Alpha_039	170	1.07 E+01	2.00 E-03	18.5
04	U-235	DMSO	08/14/17 14:45		A_Spec	Alpha_040	170	1.40 E+01	0.00 E+00	18.1
05	U-235	MS	08/14/17 14:45		A_Spec	Alpha_043	170	4.50 E+01	6.00 E-03	18.7
06	U-235	MSD	08/14/17 14:45		A_Spec	Alpha_044	170	4.77 E+01	2.00 E-03	17.9
07	U-235	TRG	08/14/17 14:45		A_Spec	Alpha_045	170	1.28 E+01	1.00 E-03	16.9
08	U-235	TRG	08/14/17 14:45		A_Spec	Alpha_046	170	1.11 E+01	5.00 E-03	17.1
09	U-235	TRG	08/14/17 14:45		A_Spec	Alpha_047	170	8.49 E+00	3.00 E-03	16.2
10	U-235	TRG	08/14/17 14:45		A_Spec	Alpha_048	170	6.83 E+00	1.00 E-03	16.3
11	U-235	TRG	08/14/17 14:46		A_Spec	Alpha_049	170	9.83 E+00	1.00 E-03	14.9
12	U-235	TRG	08/14/17 14:46		A_Spec	Alpha_050	170	5.64 E+00	8.00 E-03	14.3
13	U-235	TRG	08/14/17 14:46		A_Spec	Alpha_052	170	9.49 E+00	3.00 E-03	17.4
14	U-235	TRG	08/14/17 14:46		A_Spec	Alpha_053	170	8.00 E+00	0.00 E+00	15.1
15	U-235	TRG	08/14/17 14:46		A_Spec	Alpha_054	170	3.83 E+00	1.00 E-03	13.6
16	U-235	TRG	08/14/17 14:46		A_Spec	Alpha_056	170	1.47 E+01	2.00 E-03	15.9
17	U-235	TRG	08/14/17 14:46		A_Spec	Alpha_057	170	9.00 E+00	0.00 E+00	16.5
18	U-235	TRG	08/14/17 14:46		A_Spec	Alpha_058	170	8.83 E+00	1.00 E-03	16.6
19	U-235	TRG	08/14/17 14:46		A_Spec	Alpha_059	170	1.18 E+01	1.00 E-03	17.8
20	U-235	TRG	08/14/17 14:46		A_Spec	Alpha_060	170	1.25 E+01	3.00 E-03	14.8

Count Room Report
Client: Weston Solutions, Inc.

17-07082-UUISO-1 (pCi/g) in SO
Tracer ID: U-10a

#57-600

Internal Fraction	Sample Desc	Client ID	Sample Date	Sample Aliquot	Tracer Aliquot (g)	Tracer ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	SAF 1*	SAF 2*
01	LCS	LCS	07/18/17 00:00	1.0000	0.6108	11.1899		0.00		
02	MBL	BLANK	07/18/17 00:00	1.0000	0.6109	11.1917		0.00		
03	DUP	HTC-A01-S005-0612-01	05/13/17 09:58	1.0123	0.6110	11.1935		0.00		
04	DMSO	HTC-A01-S005-0612-01	05/13/17 09:58	1.0118	0.6108	11.1899		0.00		
05	MS	HTC-A01-S005-0612-01	05/13/17 09:58	1.0127	0.6099	11.1734		0.00		
06	MSD	HTC-A01-S005-0612-01 MSD	05/13/17 09:58	1.0120	0.6079	11.1367		0.00		
07	TRG	HTC-A01-S005-0612-02	05/13/17 09:58	1.0389	0.6062	11.1056		0.00		
08	TRG	HTC-A01-S005-1218-01	05/13/17 09:55	1.0527	0.6079	11.1367		0.00		
09	TRG	HTC-A01-S005-1824-01	05/13/17 09:52	1.0432	0.6069	11.1184		0.00		
10	TRG	HTC-A01-S005-2430-01	05/13/17 09:49	1.0135	0.6082	11.1422		0.00		
11	TRG	HTC-A01-S005-3036-01	05/13/17 09:46	1.0834	0.6083	11.1441		0.00		
12	TRG	HTC-A01-S005-3642-01	05/13/17 09:43	1.0446	0.6062	11.1056		0.00		
13	TRG	HTC-A01-S005-4248-01	05/13/17 09:40	1.0163	0.6074	11.1276		0.00		
14	TRG	HTC-A01-S006-0006-01	05/13/17 17:06	1.0806	0.6070	11.1202		0.00		
15	TRG	HTC-A01-S006-0612-01	05/13/17 17:03	1.0019	0.6073	11.1257		0.00		
16	TRG	HTC-A01-S006-1218-01	05/13/17 17:00	1.0374	0.6062	11.1056		0.00		
17	TRG	HTC-A01-S006-1824-01	05/13/17 16:57	1.0415	0.6072	11.1239		0.00		
18	TRG	HTC-A01-S006-2430-01	05/13/17 16:54	1.0210	0.6071	11.1221		0.00		
19	TRG	HTC-A01-S006-3036-01	05/13/17 16:51	1.0724	0.6070	11.1202		0.00		
20	TRG	HTC-A01-S006-3642-01	05/13/17 16:48	1.0800	0.6049	11.0818		0.00		

0600

Eberline Analytical
Oak Ridge Laboratory

Spike and Tracer Worksheet

Printed: 8/2/2017 8:01 AM

Internal Work Order	Run	Analysis Code	Date	Technician	Technician Initials	Witness Initials
17-07082	1	UUISO	8/2/2017 8:00	JHARVEY	JHH	

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	8/2/2017	0.550	0.5093	0.5093		0.5081	7.34	0.264	7.34	0.264	0.00	0.000	7.32	0.264
U-238	U-8a	31.000	8/2/2017	0.550	0.5093	0.5093		0.5081	7.11	0.256	7.11	0.256	0.00	0.000	7.10	0.255

Tracers

fraction	Isotope	Sol #	Activity dpm/g	Solution Date	Volume Used (g)	Approx Addition
01	U-232	U-10a	18.320	8/2/2017	0.6108	0.6600
02	U-232	U-10a	18.320	8/2/2017	0.6109	0.6600
03	U-232	U-10a	18.320	8/2/2017	0.6110	0.6600
04	U-232	U-10a	18.320	8/2/2017	0.6108	0.6600
05	U-232	U-10a	18.320	8/2/2017	0.6099	0.6600
06	U-232	U-10a	18.320	8/2/2017	0.6079	0.6600
07	U-232	U-10a	18.320	8/2/2017	0.6062	0.6600
08	U-232	U-10a	18.320	8/2/2017	0.6079	0.6600
09	U-232	U-10a	18.320	8/2/2017	0.6069	0.6600
10	U-232	U-10a	18.320	8/2/2017	0.6082	0.6600
11	U-232	U-10a	18.320	8/2/2017	0.6083	0.6600
12	U-232	U-10a	18.320	8/2/2017	0.6062	0.6600
13	U-232	U-10a	18.320	8/2/2017	0.6074	0.6600
14	U-232	U-10a	18.320	8/2/2017	0.6070	0.6600
15	U-232	U-10a	18.320	8/2/2017	0.6073	0.6600
16	U-232	U-10a	18.320	8/2/2017	0.6062	0.6600
17	U-232	U-10a	18.320	8/2/2017	0.6072	0.6600
18	U-232	U-10a	18.320	8/2/2017	0.6071	0.6600
19	U-232	U-10a	18.320	8/2/2017	0.6070	0.6600
20	U-232	U-10a	18.320	8/2/2017	0.6049	0.6600

Balance Printer Tapes

Tracer

0.6108 g
0.6109 g
0.6110 g
0.6108 g
0.6099 g
0.6079 g
0.6062 g
0.6079 g
0.6069 g
0.6082 g
0.6083 g
0.6062 g
0.6074 g
0.6070 g
0.6073 g
0.6062 g
0.6072 g
0.6071 g
0.6070 g
0.6049 g

LCS

0.5093 g

Matrix Spike

0.5093 g
0.5081 g

0091

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
17-07082	1	UUISO	grams	8/9/2017	JHARVEY

Lab Fraction	Weston Solutions, Inc. Client ID	Sample Type	Muffle Data Ratio Post/Pre	Dilution Data No of Dils	Dil Factor	Ratio	Aliquot Data Aliquot	Net Equiv	MS Aliquot Data Aliquot	Net Equiv	H-3 Solids Only Water Added (ml)	H3 Dist Aliq
01	LCS	LCS				1.00E+00	1.0000E+00	1.0000E+00				
02	BLANK	MBL				1.00E+00	1.0000E+00	1.0000E+00				
03	HTC-A01-S005-0612-01	DUP				1.00E+00	1.0123E+00	1.0123E+00				
04	HTC-A01-S005-0612-01	DMSO				1.00E+00	1.0118E+00	1.0118E+00				
05	HTC-A01-S005-0612-01	MS				1.00E+00	1.0127E+00	1.0127E+00				
06	HTC-A01-S005-0612-01 MSD	MSD				1.00E+00	1.0120E+00	1.0120E+00				
07	HTC-A01-S005-0612-02	TRG				1.00E+00	1.0389E+00	1.0389E+00				
08	HTC-A01-S005-1218-01	TRG				1.00E+00	1.0527E+00	1.0527E+00				
09	HTC-A01-S005-1824-01	TRG				1.00E+00	1.0432E+00	1.0432E+00				
10	HTC-A01-S005-2430-01	TRG				1.00E+00	1.0135E+00	1.0135E+00				
11	HTC-A01-S005-3036-01	TRG				1.00E+00	1.0834E+00	1.0834E+00				
12	HTC-A01-S005-3642-01	TRG				1.00E+00	1.0446E+00	1.0446E+00				
13	HTC-A01-S005-4248-01	TRG				1.00E+00	1.0163E+00	1.0163E+00				
14	HTC-A01-S006-0006-01	TRG				1.00E+00	1.0806E+00	1.0806E+00				
15	HTC-A01-S006-0612-01	TRG				1.00E+00	1.0019E+00	1.0019E+00				
16	HTC-A01-S006-1218-01	TRG				1.00E+00	1.0374E+00	1.0374E+00				
17	HTC-A01-S006-1824-01	TRG				1.00E+00	1.0415E+00	1.0415E+00				
18	HTC-A01-S006-2430-01	TRG				1.00E+00	1.0210E+00	1.0210E+00				
19	HTC-A01-S006-3036-01	TRG				1.00E+00	1.0724E+00	1.0724E+00				
20	HTC-A01-S006-3642-01	TRG				1.00E+00	1.0800E+00	1.0800E+00				

Comments	

0092

Technician: JHarvey Date: 8 2 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
17-07082	8/9/2017	7/24/2017	7/25/2017	7/26/2017	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-S005-0612-01	14.5900	839.8400	680.3700	825.2500	665.7800	19.32%	80.68%	0.0000	0.0000	
05	HTC-A01-S005-0612-01 MS	14.5700	815.1800	660.3900	800.6100	645.8200	19.33%	80.67%	0.0000	0.0000	
06	HTC-A01-S005-0612-01 MSD	14.5700	815.1800	660.3900	800.6100	645.8200	19.33%	80.67%	0.0000	0.0000	
07	HTC-A01-S005-0612-02	14.5600	818.0200	662.0600	803.4600	647.5000	19.41%	80.59%	0.0000	0.0000	
08	HTC-A01-S005-1218-01	14.5800	951.3600	778.2000	936.7800	763.6200	18.48%	81.52%	0.0000	0.0000	
09	HTC-A01-S005-1824-01	14.5600	989.1800	801.6400	974.6200	787.0800	19.24%	80.76%	0.0000	0.0000	
10	HTC-A01-S005-2430-01	14.5600	817.2600	664.2600	802.7000	649.7000	19.06%	80.94%	0.0000	0.0000	
11	HTC-A01-S005-3036-01	14.5800	1027.5200	835.8400	1012.9400	821.2600	18.92%	81.08%	0.0000	0.0000	
12	HTC-A01-S005-3642-01	14.5400	1081.6400	871.0200	1067.1000	856.4800	19.74%	80.26%	0.0000	0.0000	
13	HTC-A01-S005-4248-01	14.6100	970.4800	778.0800	955.8700	763.4700	20.13%	79.87%	0.0000	0.0000	
14	HTC-A01-S006-0006-01	14.6000	888.7800	719.5800	874.1800	704.9800	19.36%	80.64%	0.0000	0.0000	
15	HTC-A01-S006-0612-01	14.6700	940.3000	778.0500	925.6300	763.3800	17.53%	82.47%	0.0000	0.0000	
16	HTC-A01-S006-1218-01	14.6900	934.2600	788.2500	919.5700	773.5600	15.88%	84.12%	0.0000	0.0000	
17	HTC-A01-S006-1824-01	14.6500	919.2400	761.4200	904.5900	746.7700	17.45%	82.55%	0.0000	0.0000	
18	HTC-A01-S006-2430-01	14.5700	970.4000	821.0600	955.8300	806.4900	15.62%	84.38%	0.0000	0.0000	
19	HTC-A01-S006-3036-01	14.5500	890.7600	735.7800	876.2100	721.2300	17.69%	82.31%	0.0000	0.0000	
20	HTC-A01-S006-3642-01	14.5600	991.9600	816.7800	977.4000	802.2200	17.92%	82.08%	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: Kerry Sallings

Date: **Analysis: Rough Prep Logbook**

Analysis: UUISO Page No. 10142

TLB 8/17/17

Apex-Alpha™

Sample Description: SPIKE
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707082A-UU
Sample Identification: 01
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: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 8/14/2017 6:37:09 AM
Acquisition Date/Time: 8/14/2017 2:45:33 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.611 mL
Effective Efficiency: 0.2082 +/- 0.0116
Counting Efficiency: 0.1587 +/- 0.0027 on 11/18/2016 10:08:53 AM
Chem. Recovery Factor: 1.3119 +/- 0.0762

Control Certificate Name: NatU_U-8A
Chem. Recov. of Control: U-238 0.803977 +/- 0.061952
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	5.296	393.15	9.90	0.85	0.00E+000	25.4
U-234		4.749	501.66	8.75	0.34	0.00E+000	10.8
U-235		4.407	37.66	32.11	0.34	0.00E+000	3.0
U-238		4.170	511.98	8.67	1.02	0.00E+000	10.4

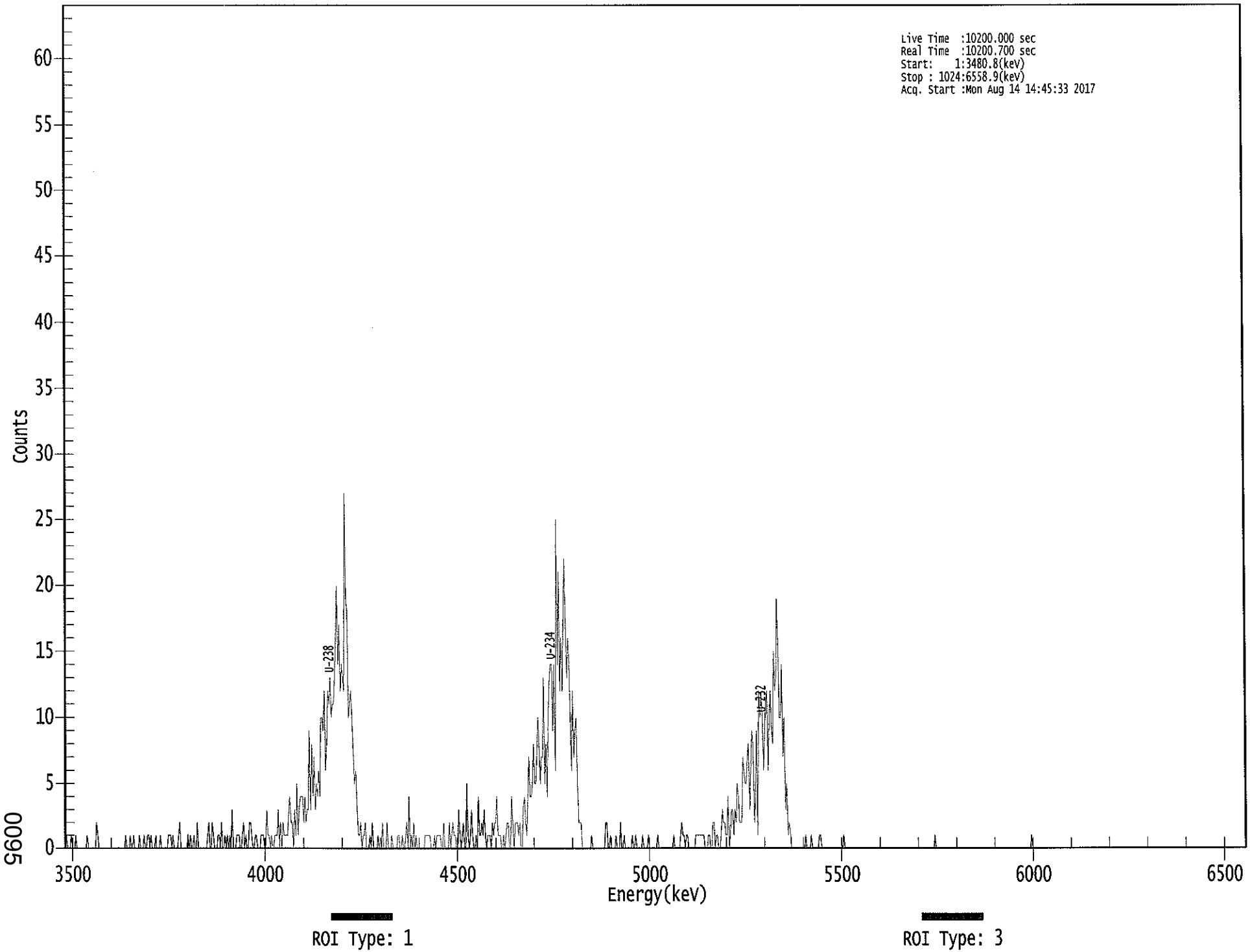
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	1.000	5302.50*	5.01E+000 +/- 5.45E-001	7.63E-002 +/- 8.30E-003
U-234	0.999	4761.50*	6.40E+000 +/- 8.93E-001	6.10E-002 +/- 6.63E-003
U-235	0.997	4385.50*	5.92E-001 +/- 2.01E-001	7.52E-002 +/- 8.18E-003
U-238	0.999	4184.40*	6.50E+000 +/- 9.04E-001	8.00E-002 +/- 8.70E-003

AG 8/15/17

0000191284.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: 10201

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

369:	0	2	1	2	2	4	1	1

Sample Title: 01

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

801:	0	0	0	0	0	0	0	0

Sample Title: 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	1	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	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™

NB 8/14/17

Sample Description: BLANK
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707082A-UU
Sample Identification: 02
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: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 8/14/2017 6:37:09 AM
Acquisition Date/Time: 8/14/2017 2:45:34 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.611 mL
Effective Efficiency: 0.1948 +/- 0.0111
Counting Efficiency: 0.1543 +/- 0.0027 on 11/18/2016 10:08:51 AM
Chem. Recovery Factor: 1.2622 +/- 0.0752

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	367.83	10.22	0.17	0.00E+000	7.0
U-234		4.726	41.15	30.92	0.85	0.00E+000	4.0
U-235		4.384	3.66	107.87	0.34	0.00E+000	3.0
U-238		4.174	6.83	76.08	0.17	0.00E+000	3.0

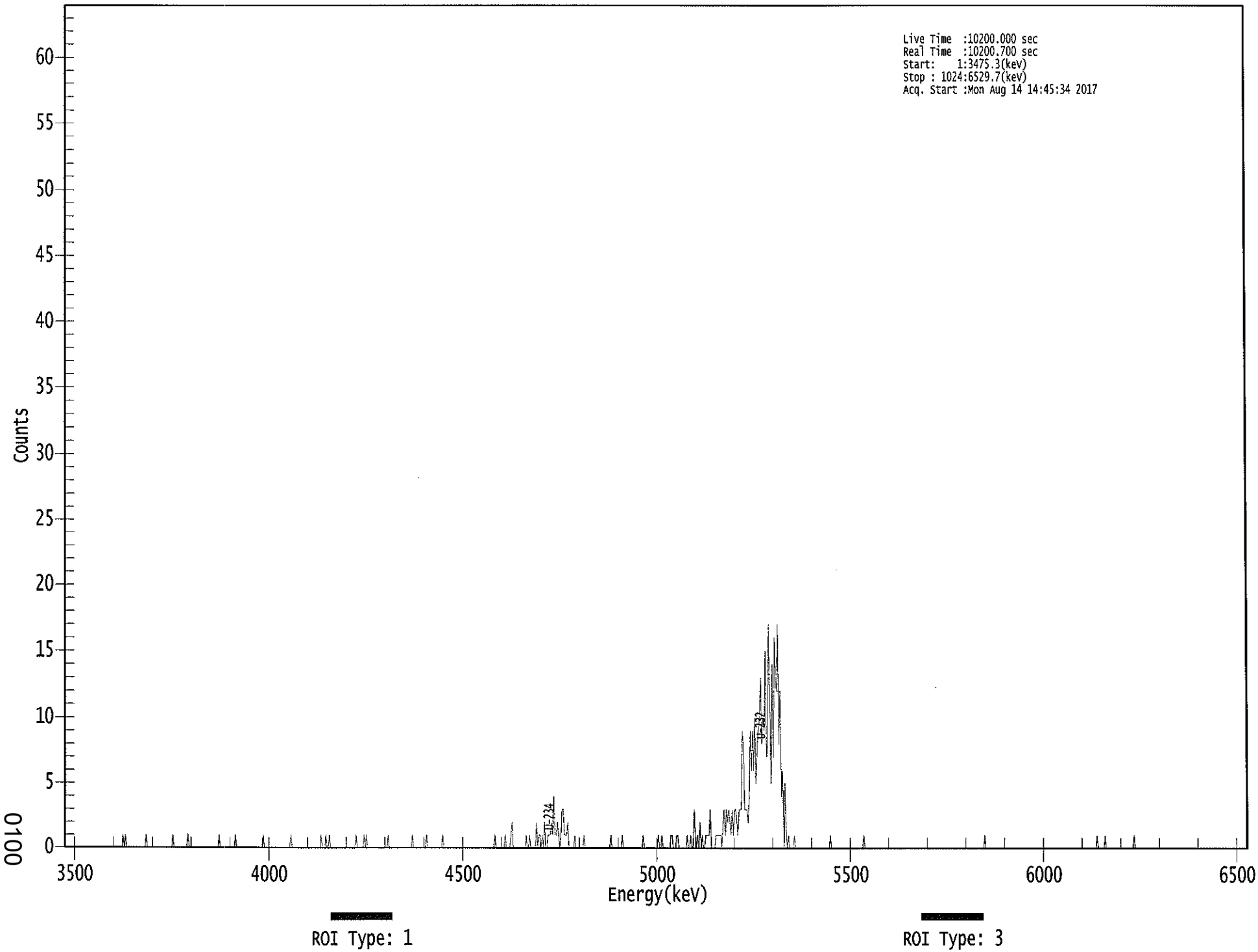
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.993	5302.50*	5.01E+000 +/- 5.60E-001	5.69E-002 +/- 6.36E-003
U-234	0.991	4761.50*	5.61E-001 +/- 1.84E-001	8.16E-002 +/- 9.12E-003
U-235	1.000	4385.50*	6.15E-002 +/- 6.67E-002	8.04E-002 +/- 8.98E-003
U-238	0.999	4184.40*	9.27E-002 +/- 7.13E-002	5.66E-002 +/- 6.33E-003

AG 8/15/17

0000191285.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: 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	1	0	1	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	1	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	1	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	0	0	1	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	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	0	0	0
193:	0	0	0	1	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	1	0	0
225:	0	1	0	0	1	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	1	0	0	0	0
257:	0	0	1	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	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:	1	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	1	0
329:	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	0
353:	0	0	0	0	0	0	0	0
361:	0	0	0	0	0	0	0	0

369:	0	0	0	1	0	0	0	0

Sample Title: 02

Channel								
377:	0	0	0	0	1	0	0	0
385:	0	1	2	0	0	0	0	0
393:	0	0	0	0	0	0	1	0
401:	0	1	0	0	0	0	0	2
409:	0	1	1	0	1	0	2	0
417:	0	1	1	1	2	1	4	1
425:	1	2	1	0	1	3	3	1
433:	1	1	2	0	0	0	0	0
441:	1	0	0	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	1
473:	0	0	0	0	0	0	0	0
481:	0	1	0	0	0	0	0	0
489:	0	0	0	0	0	0	0	0
497:	0	0	0	1	0	0	0	0
505:	0	0	0	0	0	0	0	0
513:	1	0	0	1	0	0	0	0
521:	0	0	0	1	1	0	0	0
529:	1	1	0	0	0	0	0	0
537:	0	1	0	0	1	0	0	3
545:	1	0	1	0	2	0	1	0
553:	0	1	1	1	1	3	0	0
561:	0	0	1	1	1	1	1	0
569:	2	3	1	3	2	3	2	1
577:	3	1	3	3	2	1	3	3
585:	3	9	8	3	3	3	2	4
593:	9	6	9	6	10	5	8	9
601:	10	13	8	10	9	15	7	8
609:	17	11	5	14	7	16	13	12
617:	17	8	12	4	6	0	5	1
625:	0	1	0	0	0	0	1	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	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	0	0	0
689:	0	0	1	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	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	1	0	0	0	0

801:	0	0	0	0	0	0	0	0

Sample Title: 02

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	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	1	0	0	0
897:	0	0	0	1	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	1	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	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-S005-0612-01-DUP
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707082A-UU
Sample Identification: 03
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: 1.012E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:37:09 AM
Acquisition Date/Time: 8/14/2017 2:45:36 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.611 mL
Effective Efficiency: 0.1607 +/- 0.0100
Counting Efficiency: 0.1852 +/- 0.0031 on 11/18/2016 10:08:50 AM
Chem. Recovery Factor: 0.8677 +/- 0.0559

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.260	303.45	11.31	2.55	0.00E+000	11.0
U-234		4.711	96.13	20.22	1.87	0.00E+000	4.4
U-235		4.417	10.66	61.14	0.34	0.00E+000	3.0
U-238		4.138	94.15	20.31	0.85	0.00E+000	6.3

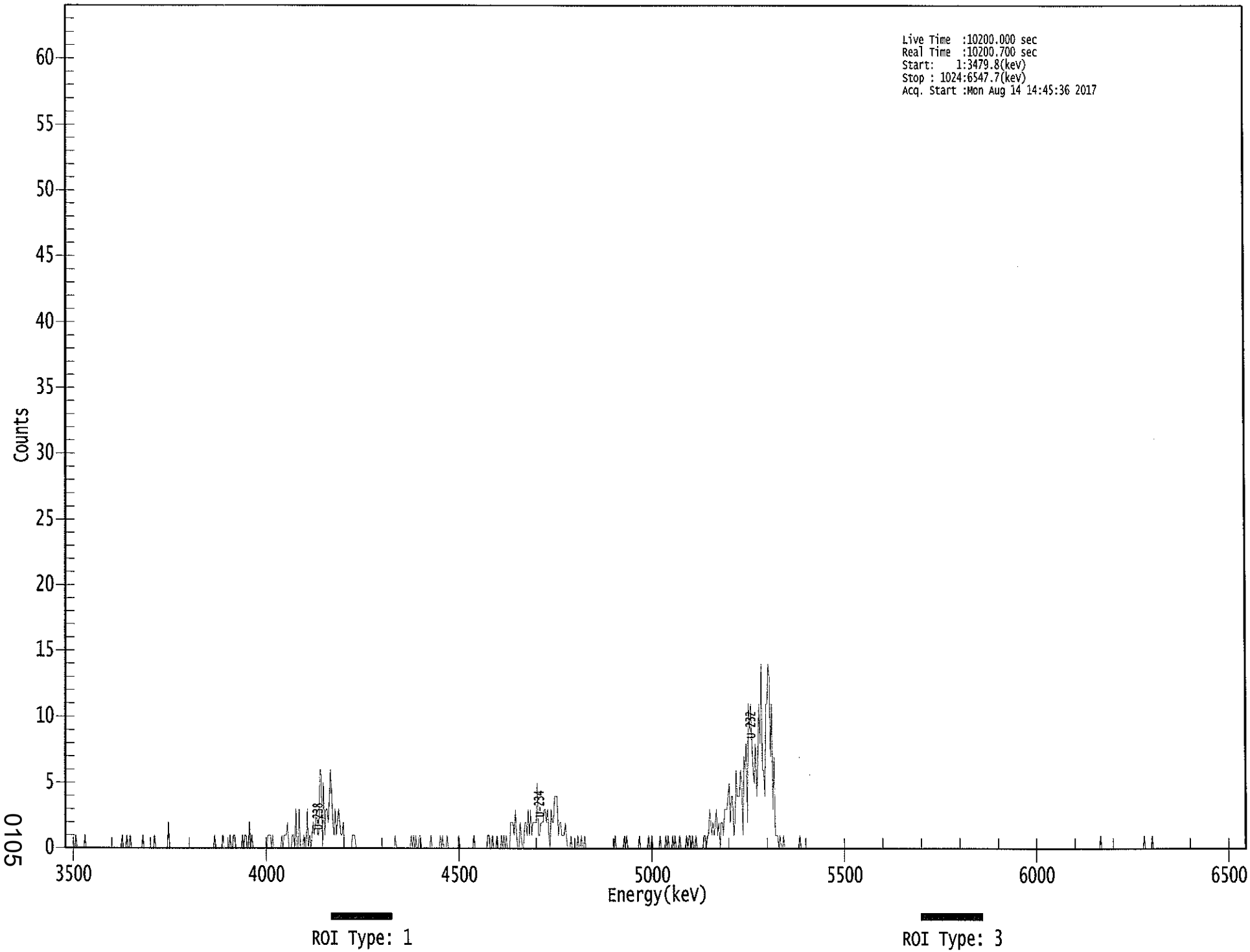
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.987	5302.50*	4.97E+000 +/- 6.05E-001	1.37E-001 +/- 1.67E-002
U-234	0.982	4761.50*	1.57E+000 +/- 3.70E-001	1.24E-001 +/- 1.50E-002
U-235	0.993	4385.50*	2.15E-001 +/- 1.34E-001	9.63E-002 +/- 1.17E-002
U-238	0.985	4184.40*	1.53E+000 +/- 3.62E-001	9.73E-002 +/- 1.18E-002

AG 8/15/17

0000191290.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: 10201

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	1	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	0	0	0	0	0	0
49:	0	1	0	0	0	1	0	0
57:	1	0	0	0	0	0	0	0
65:	0	0	0	1	0	0	0	0
73:	0	0	0	0	0	1	0	0
81:	0	0	0	0	0	0	0	0
89:	0	2	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	1	0	0	0	0	0	0
137:	1	0	0	0	0	0	1	0
145:	0	1	1	0	0	0	0	0
153:	0	1	0	1	1	0	0	2
161:	0	1	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	1
177:	1	1	0	1	0	0	0	0
185:	0	0	0	1	0	1	1	1
193:	2	0	0	0	1	1	0	3
201:	0	0	3	0	0	0	1	0
209:	0	3	0	1	0	1	2	1
217:	2	3	1	1	6	6	0	5
225:	1	3	3	2	4	6	4	2
233:	1	3	1	2	3	2	1	1
241:	2	0	0	0	0	0	0	0
249:	1	1	1	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	1	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	1	0	1	0	1
305:	0	0	1	1	0	0	0	0
313:	0	0	0	0	1	0	0	0
321:	0	0	0	0	1	0	1	0
329:	0	0	1	0	0	0	0	0
337:	0	0	0	0	1	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	1	0

369:	0	1	0	0	0	1	0	0

Sample Title: 03

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

KB 8/14/17

Apex-Alpha™

Sample Description: HTC-A01-S005-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707082A-UU
Sample Identification: 04
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: 1.012E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:37:09 AM
Acquisition Date/Time: 8/14/2017 2:45:38 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.611 mL
Effective Efficiency: 0.1701 +/- 0.0103
Counting Efficiency: 0.1813 +/- 0.0031 on 11/18/2016 10:08:48 AM
Chem. Recovery Factor: 0.9381 +/- 0.0589

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	321.15	10.95	0.85	0.00E+000	26.9
U-234		4.735	132.49	17.07	0.51	0.00E+000	4.9
U-235		4.361	14.00	54.22	0.00	0.00E+000	3.0
U-238		4.156	114.49	18.37	0.51	0.00E+000	10.6

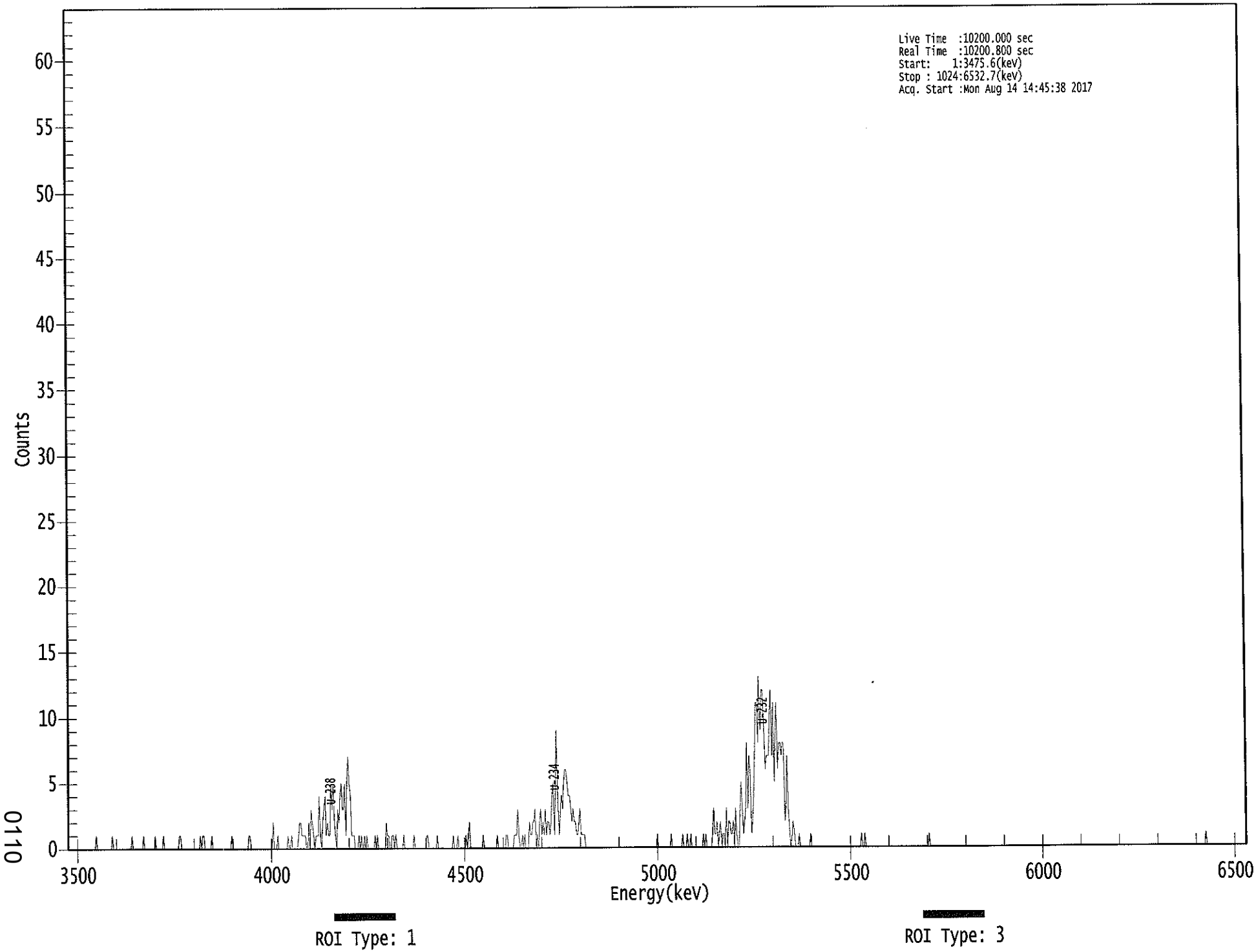
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.995	5302.50*	4.97E+000 +/- 5.88E-001	9.26E-002 +/- 1.10E-002
U-234	0.995	4761.50*	2.04E+000 +/- 4.25E-001	8.09E-002 +/- 9.59E-003
U-235	0.996	4385.50*	2.66E-001 +/- 1.48E-001	1.14E-001 +/- 1.35E-002
U-238	0.994	4184.40*	1.76E+000 +/- 3.84E-001	8.06E-002 +/- 9.55E-003

AG 8/15/17

0000191291.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: 10201

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

369:	0	0	0	1	0	0	0	0

Sample Title: 04

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

801:	0	0	0	0	0	0	0	0

Sample Title: 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	1	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

WB 8/14/17

Sample Description: HTC-A01-S005-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001913
Batch Identification: 1707082A-UU
Sample Identification: 05
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: 1.013E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:37:09 AM
Acquisition Date/Time: 8/14/2017 2:45:39 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: 0.2061 +/- 0.0115
Counting Efficiency: 0.1874 +/- 0.0032 on 11/18/2016 10:08:43 AM
Chem. Recovery Factor: 1.0993 +/- 0.0641

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	388.47	9.97	1.53	0.00E+000	16.0
U-234		4.725	585.49	8.10	0.51	0.00E+000	8.8
U-235		4.403	44.98	29.61	1.02	0.00E+000	3.0
U-238		4.139	582.66	8.12	0.34	0.00E+000	12.0

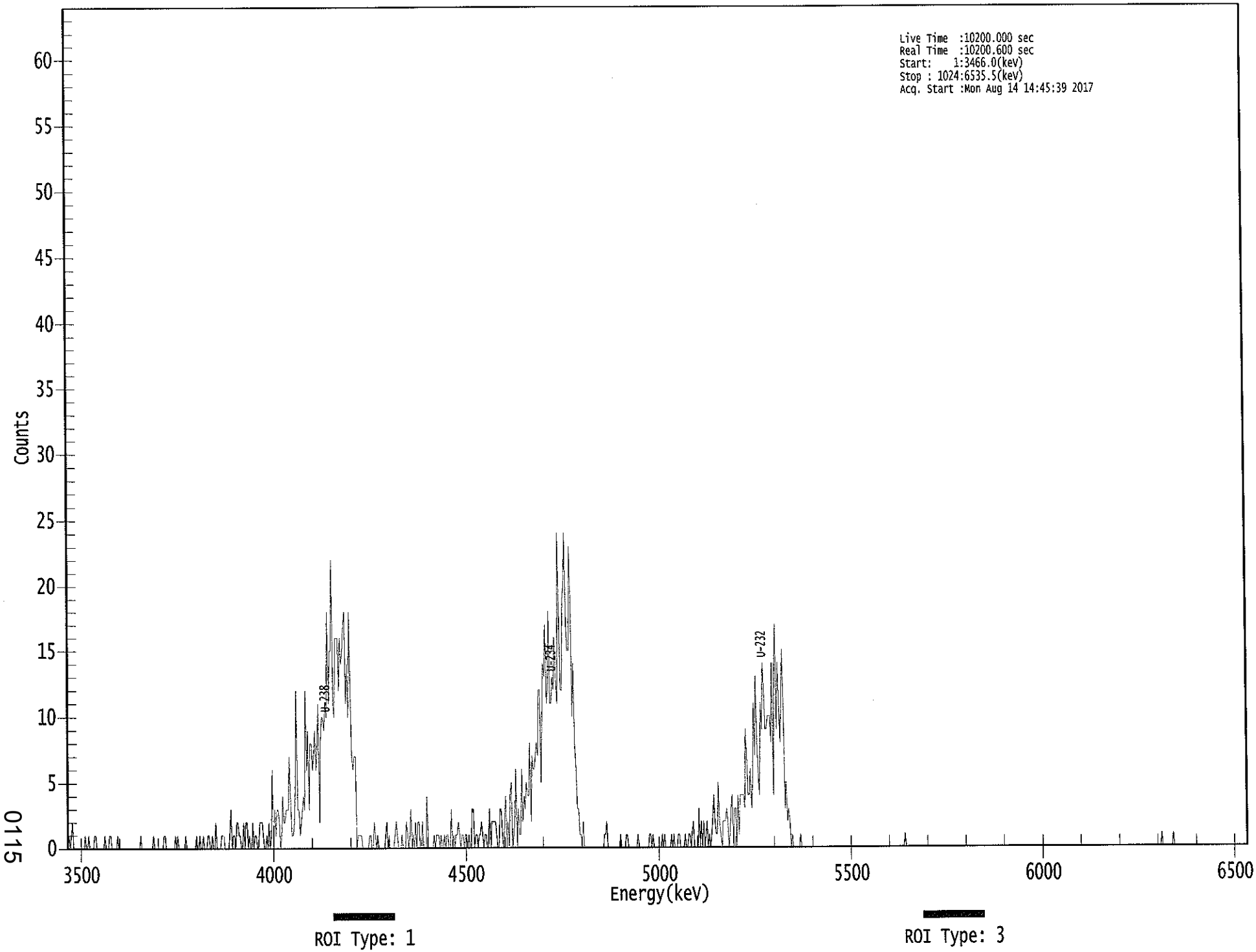
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.993	5302.50*	4.95E+000 +/- 5.42E-001	9.07E-002 +/- 9.92E-003
U-234	0.991	4761.50*	7.45E+000 +/- 1.01E+000	6.68E-002 +/- 7.30E-003
U-235	0.998	4385.50*	7.06E-001 +/- 2.23E-001	9.89E-002 +/- 1.08E-002
U-238	0.986	4184.40*	7.38E+000 +/- 1.01E+000	6.06E-002 +/- 6.63E-003

AG 8/15/17

0000191302.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: 10201

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

369:	2	2	2	1	0	0	3	3

Sample Title: 05

Channel								
377:	1	0	2	4	0	2	0	4
385:	5	0	1	2	6	0	3	1
393:	1	6	2	4	3	5	4	4
401:	8	2	7	6	6	7	8	7
409:	12	12	5	10	14	13	17	11
417:	12	18	11	11	13	12	16	13
425:	11	24	17	12	12	19	20	24
433:	17	15	15	23	19	10	14	8
441:	6	3	3	1	1	0	2	0
449:	0	0	0	0	0	0	0	0
457:	0	0	0	0	0	0	0	0
465:	1	1	2	0	0	0	0	0
473:	0	0	0	0	0	0	1	0
481:	0	0	0	1	1	0	0	0
489:	0	0	0	0	0	1	0	0
497:	0	0	0	0	0	0	0	1
505:	1	0	1	0	0	0	0	0
513:	0	0	1	0	1	0	0	0
521:	0	0	1	0	1	0	0	0
529:	1	1	0	0	0	0	1	0
537:	0	1	1	0	1	2	0	0
545:	0	0	3	0	2	0	2	0
553:	1	2	0	1	0	1	2	4
561:	2	1	1	5	2	1	0	2
569:	2	2	3	2	0	1	3	4
577:	0	3	3	0	4	1	4	4
585:	4	4	3	9	7	4	4	6
593:	3	5	11	7	13	8	5	4
601:	11	9	14	12	9	9	10	10
609:	10	8	14	4	13	17	9	14
617:	11	8	11	15	11	3	5	2
625:	3	2	0	1	0	0	0	0
633:	0	0	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	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	1	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	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	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	1	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™

Sample Description: HTC-A01-S005-0612-01 MSD
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001913
Batch Identification: 1707082A-UU
Sample Identification: 06
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: 1.012E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:37:09 AM
Acquisition Date/Time: 8/14/2017 2:45:41 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: 0.1814 +/- 0.0107
Counting Efficiency: 0.1793 +/- 0.0030 on 11/18/2016 10:08:42 AM
Chem. Recovery Factor: 1.0119 +/- 0.0620

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	340.83	10.62	0.17	0.00E+000	4.5
U-234		4.724	572.15	8.20	0.85	0.00E+000	5.5
U-235		4.400	47.66	28.51	0.34	0.00E+000	3.0
U-238		4.144	612.83	7.92	0.17	0.00E+000	5.2

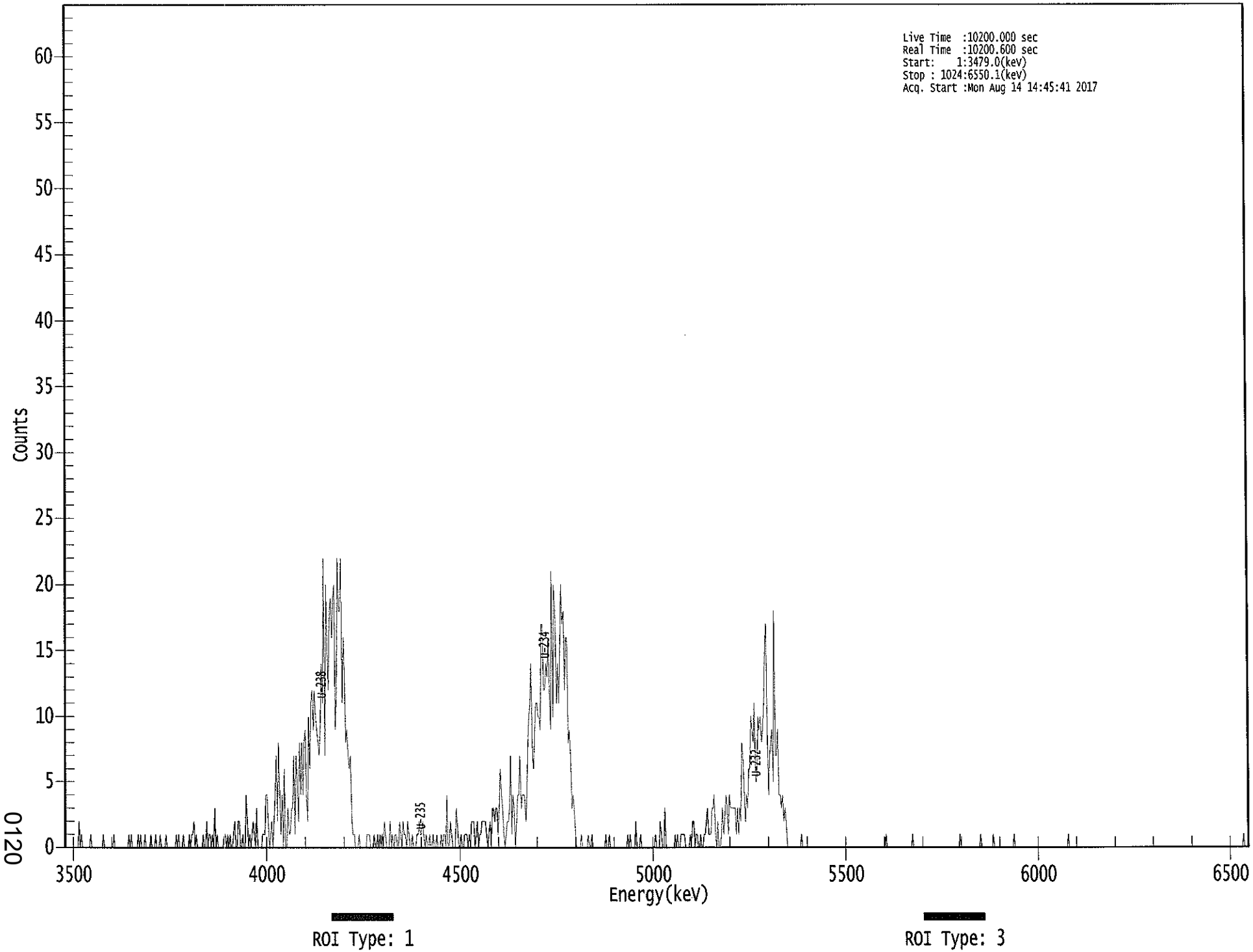
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.993	5302.50*	4.94E+000 +/- 5.70E-001	6.05E-002 +/- 6.98E-003
U-234	0.990	4761.50*	8.28E+000 +/- 1.17E+000	8.66E-002 +/- 9.99E-003
U-235	0.999	4385.50*	8.50E-001 +/- 2.62E-001	8.53E-002 +/- 9.84E-003
U-238	0.989	4184.40*	8.83E+000 +/- 1.24E+000	6.01E-002 +/- 6.93E-003

AG 8/15/17

0000191303.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: 10201

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

369:	3	3	2	3	3	1	3	6

Sample Title: 06

Channel								
377:	4	3	1	0	1	2	2	3
385:	7	1	4	3	0	2	4	4
393:	7	3	4	4	4	2	4	8
401:	10	11	14	7	6	9	11	11
409:	10	10	9	17	17	12	12	14
417:	13	16	12	9	21	10	20	18
425:	11	14	11	15	20	17	18	12
433:	16	16	8	9	7	3	4	3
441:	1	0	0	0	0	1	0	0
449:	0	0	0	1	0	0	1	0
457:	0	0	0	0	0	0	0	0
465:	0	0	1	0	0	1	0	0
473:	0	0	0	0	0	0	0	0
481:	0	0	0	0	0	1	0	1
489:	0	0	0	0	2	0	0	0
497:	1	0	0	0	0	0	0	0
505:	0	0	0	0	0	1	0	0
513:	0	2	1	0	0	3	0	0
521:	0	0	0	0	0	0	1	0
529:	1	0	0	1	1	1	1	0
537:	0	0	0	1	0	2	2	0
545:	1	1	0	0	1	0	0	1
553:	1	2	3	1	1	1	3	3
561:	4	1	0	2	0	0	1	3
569:	1	2	4	3	1	4	3	3
577:	3	3	3	1	3	1	3	2
585:	8	7	4	2	4	3	6	6
593:	10	9	8	11	5	5	10	9
601:	10	8	9	11	15	17	9	4
609:	7	8	9	5	18	7	7	9
617:	4	4	3	4	2	3	2	0
625:	0	0	0	0	0	0	0	0
633:	0	0	0	1	0	0	0	0
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	0	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	1	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	1	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	1	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	1	0
793:	0	0	0	0	0	0	0	0

801:	0	1	0	0	0	0	0	0

Sample Title: 06

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	1	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	1	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	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	1	0	0	0	0	0

Apex-Alpha™

KB 8/14/17

Sample Description: HTC-A01-S005-0612-02
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707082A-UU
Sample Identification: 07
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: 1.039E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:37:09 AM
Acquisition Date/Time: 8/14/2017 2:45:43 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: 0.1298 +/- 0.0089
Counting Efficiency: 0.1688 +/- 0.0029 on 11/18/2016 10:08:40 AM
Chem. Recovery Factor: 0.7688 +/- 0.0541

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	243.15	12.60	0.85	0.00E+000	13.5
U-234		4.728	138.49	16.69	0.51	0.00E+000	8.3
U-235		4.397	12.83	55.14	0.17	0.00E+000	3.0
U-238		4.148	95.83	20.04	0.17	0.00E+000	6.0

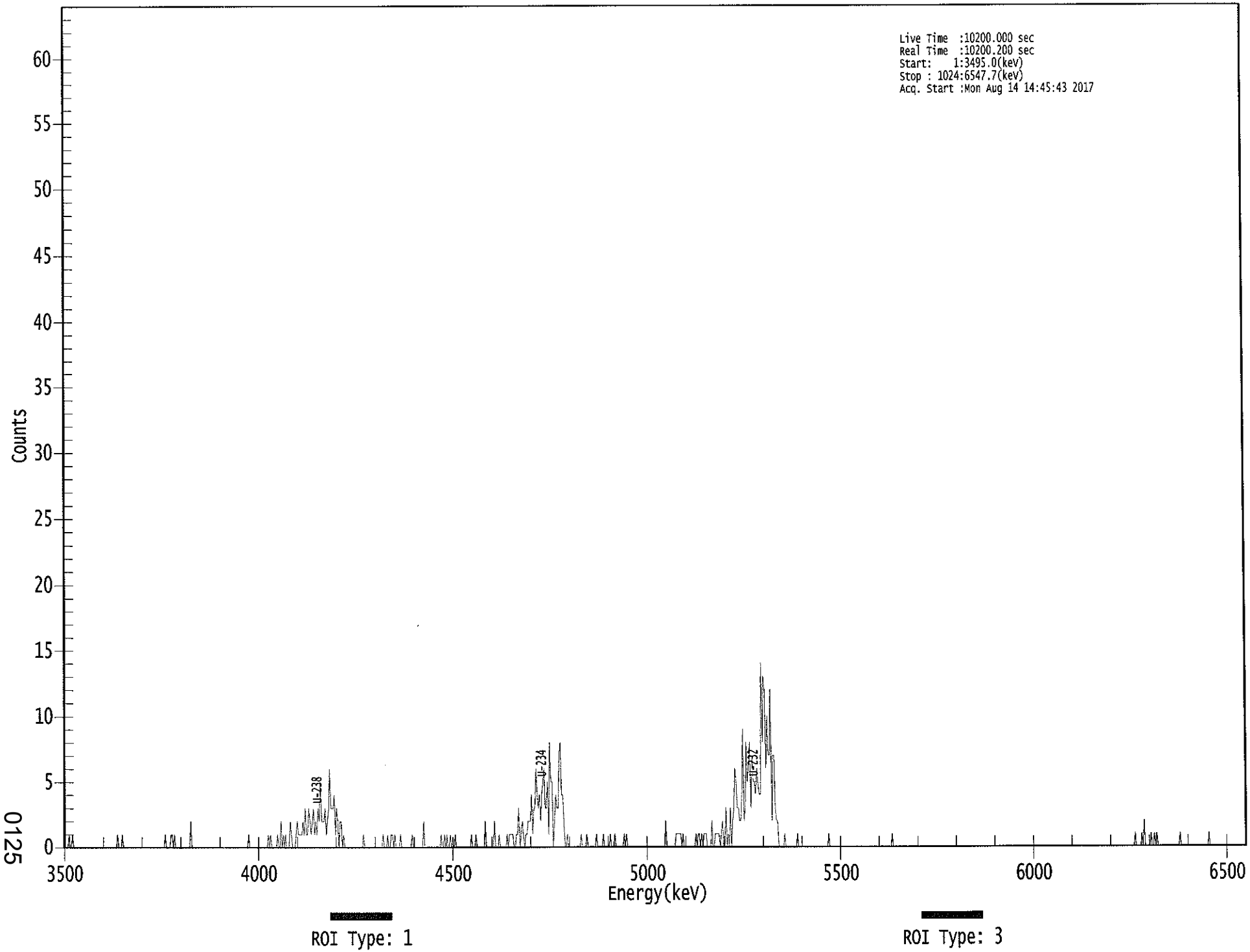
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.995	5302.50*	4.80E+000 +/- 6.42E-001	1.18E-001 +/- 1.58E-002
U-234	0.992	4761.50*	2.73E+000 +/- 5.83E-001	1.03E-001 +/- 1.38E-002
U-235	0.999	4385.50*	3.12E-001 +/- 1.77E-001	1.01E-001 +/- 1.36E-002
U-238	0.990	4184.40*	1.88E+000 +/- 4.53E-001	8.18E-002 +/- 1.09E-002

AG 8/15/17

0000191288.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	1	0	0	1
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	1	0
49:	0	0	1	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	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	1	1	0	1
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	2	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	0	0	0
153:	0	0	0	0	0	0	0	1
161:	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0
177:	1	0	1	0	0	0	0	0
185:	1	0	0	2	0	1	0	1
193:	0	0	0	2	1	0	0	0
201:	1	2	1	1	1	1	2	1
209:	3	1	1	3	2	1	2	3
217:	1	2	1	3	2	5	2	2
225:	2	3	1	2	3	6	3	3
233:	3	4	1	3	2	0	2	2
241:	0	1	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	1	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	1	0	0	0	1
281:	0	0	1	1	0	1	0	0
289:	0	0	1	0	0	0	0	0
297:	0	0	0	0	1	0	0	0
305:	0	0	0	0	0	0	2	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	1	0	0
329:	1	0	1	0	0	1	0	0
337:	0	1	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	1
353:	0	0	0	1	0	0	0	0
361:	0	0	0	2	0	0	0	0

369:	0	0	0	2	0	0	0	1

Sample Title: 07

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

801:	0	0	0	0	0	0	0	0

Sample Title: 07

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

KB 8/14/17

Apex-Alpha™

Sample Description: HTC-A01-S005-1218-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707082A-UU
Sample Identification: 08
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: 1.053E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:37:09 AM
Acquisition Date/Time: 8/14/2017 2:45:45 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: 0.1464 +/- 0.0095
Counting Efficiency: 0.1713 +/- 0.0029 on 11/18/2016 10:08:38 AM
Chem. Recovery Factor: 0.8546 +/- 0.0571

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	275.15	11.84	0.85	0.00E+000	25.1
U-234		4.727	92.32	20.49	0.68	0.00E+000	4.5
U-235		4.423	11.15	61.26	0.85	0.00E+000	4.5
U-238		4.155	75.15	22.76	0.85	0.00E+000	6.0

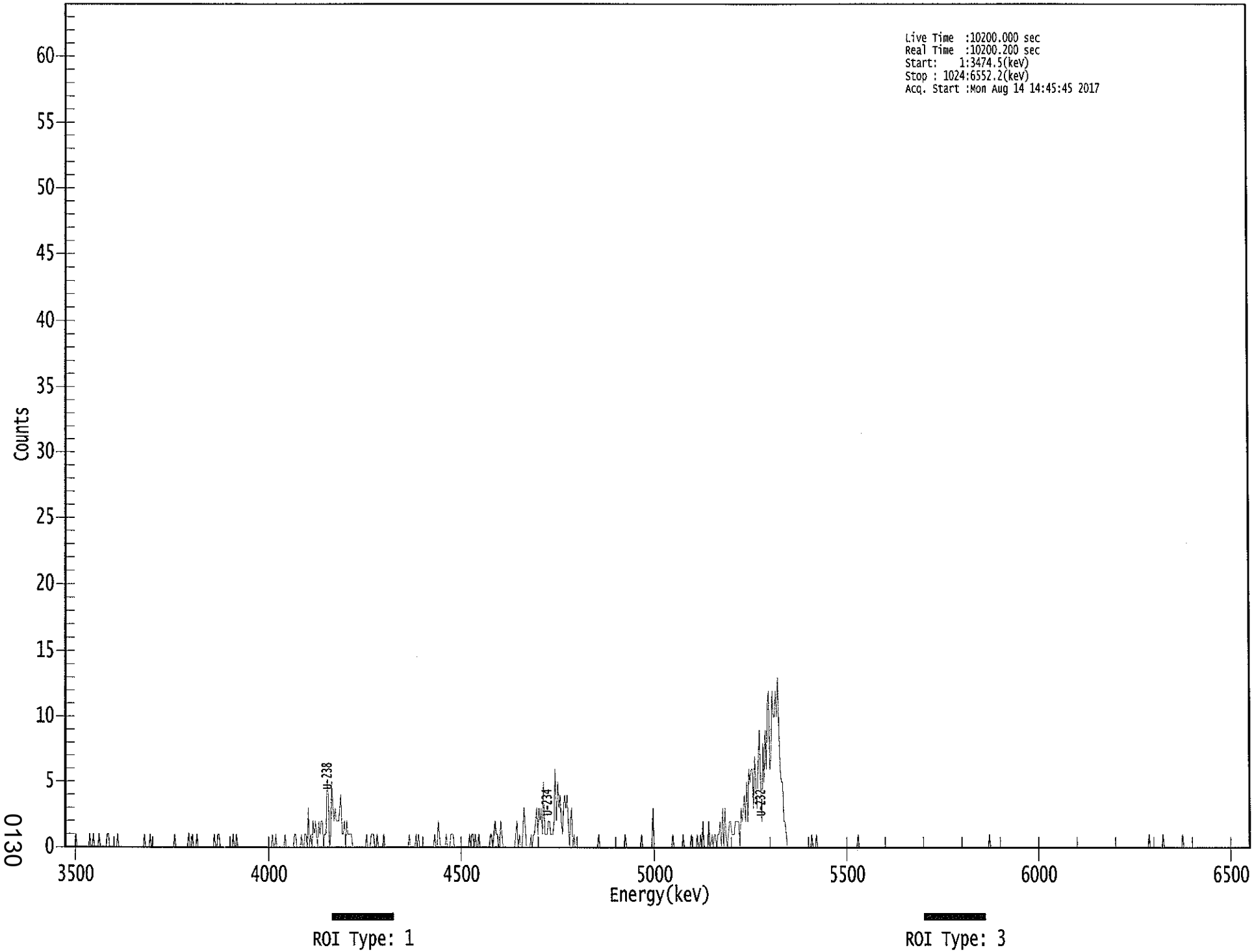
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.996	5302.50*	4.75E+000 +/- 6.02E-001	1.03E-001 +/- 1.31E-002
U-234	0.992	4761.50*	1.59E+000 +/- 3.83E-001	9.71E-002 +/- 1.23E-002
U-235	0.990	4385.50*	2.37E-001 +/- 1.48E-001	1.27E-001 +/- 1.61E-002
U-238	0.994	4184.40*	1.29E+000 +/- 3.36E-001	1.03E-001 +/- 1.30E-002

AG 8/15/17

0000191289.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	1	0	0	0	0	0	0
17:	0	0	0	0	0	1	0	0
25:	1	0	0	0	0	1	0	0
33:	0	0	0	0	1	1	0	0
41:	0	0	0	0	0	1	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	1	0	0	0
73:	0	1	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	1	0
97:	0	0	0	0	0	0	0	0
105:	0	0	1	0	0	1	0	0
113:	0	1	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	1	0	0	1	1	0	0	0
137:	0	0	0	0	0	0	0	0
145:	1	0	0	1	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	1	0	0	1	0	0
185:	0	0	0	0	0	1	0	0
193:	0	0	0	0	0	1	1	0
201:	0	0	0	1	0	0	1	1
209:	0	3	0	1	0	2	1	2
217:	1	0	2	1	2	2	0	1
225:	1	5	4	0	1	5	3	2
233:	3	2	2	2	3	4	1	1
241:	2	0	2	1	1	1	1	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	1	0	0	0	1
265:	1	1	0	0	1	0	0	0
273:	0	0	1	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	1	0	0	0	0	0	1	0
305:	1	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	1	0
321:	0	2	1	0	0	0	0	0
329:	1	0	0	0	1	1	1	0
337:	0	0	0	0	0	0	0	0
345:	0	0	0	0	1	0	1	1
353:	0	1	0	0	1	0	0	0
361:	0	0	0	0	0	0	1	1

369:	0	1	2	1	1	0	0	2

Sample Title: 08

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

801:	0	0	0	0	0	0	0	0

Sample Title: 08

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

Apex-Alpha™

JLB 8/14/17

Sample Description: HTC-A01-S005-1824-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707082A-UU
Sample Identification: 09
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.043E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:37:09 AM
Acquisition Date/Time: 8/14/2017 2:45:47 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: 0.1436 +/- 0.0094
Counting Efficiency: 0.1623 +/- 0.0028 on 11/18/2016 10:08:37 AM
Chem. Recovery Factor: 0.8847 +/- 0.0597

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	269.32	11.96	0.68	0.00E+000	18.4
U-234		4.730	74.66	22.74	0.34	0.00E+000	4.5
U-235		4.404	8.49	69.59	0.51	0.00E+000	3.0
U-238		4.132	46.00	29.21	0.00	0.00E+000	3.7

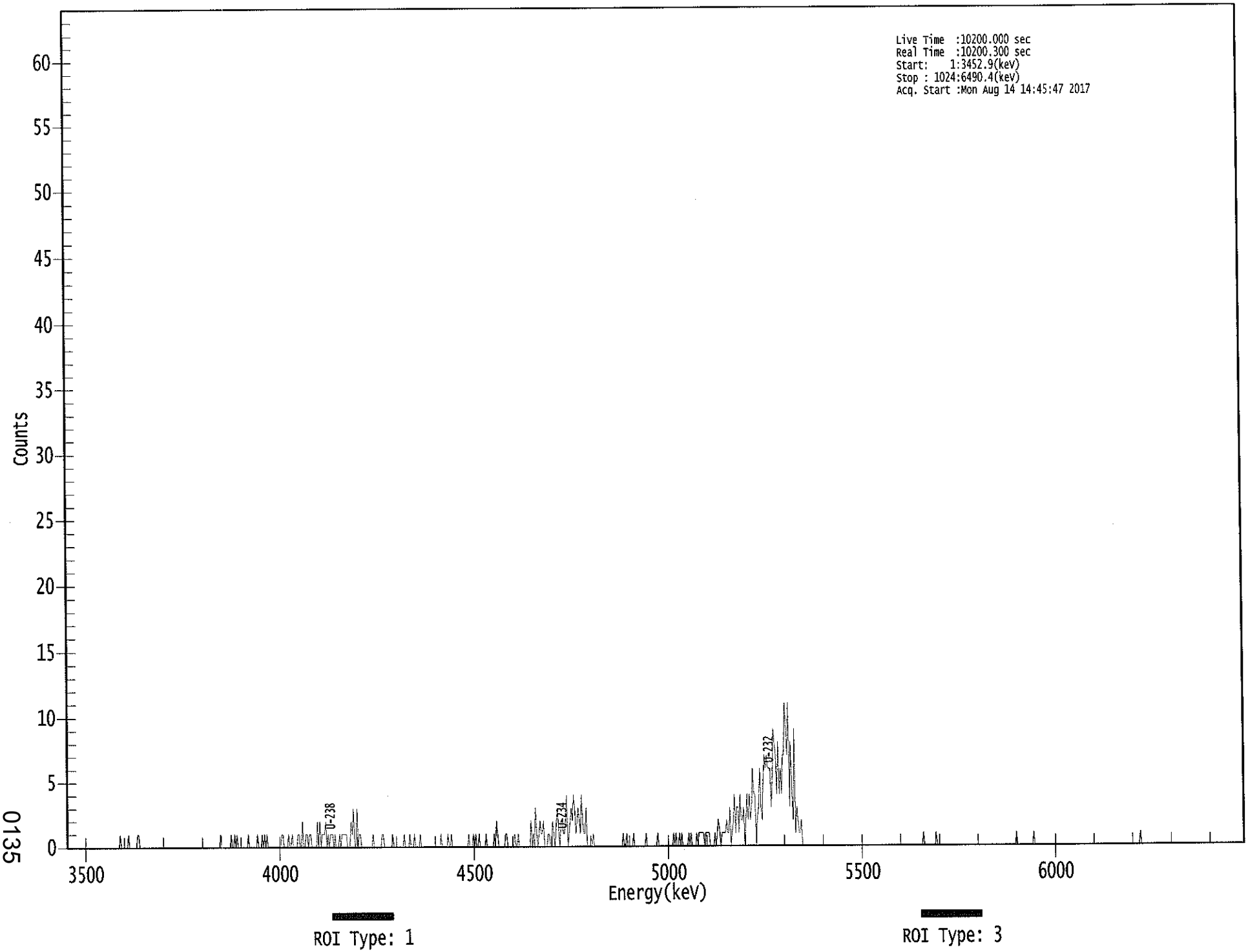
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.989	5302.50*	4.79E+000 +/- 6.12E-001	1.00E-001 +/- 1.28E-002
U-234	0.993	4761.50*	1.32E+000 +/- 3.45E-001	8.48E-002 +/- 1.08E-002
U-235	0.998	4385.50*	1.86E-001 +/- 1.31E-001	1.15E-001 +/- 1.47E-002
U-238	0.981	4184.40*	8.12E-001 +/- 2.59E-001	1.06E-001 +/- 1.35E-002

AG 8/15/17

0000191292.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: 10200

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

369:	0	0	1	0	2	1	0	0

Sample Title: 09

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

JLB 9/14/17

Sample Description: HTC-A01-S005-2430-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707082A-UU
Sample Identification: 10
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.013E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:37:09 AM
Acquisition Date/Time: 8/14/2017 2:45:49 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: 0.1479 +/- 0.0095
Counting Efficiency: 0.1633 +/- 0.0028 on 11/18/2016 10:08:35 AM
Chem. Recovery Factor: 0.9053 +/- 0.0603

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	277.98	11.78	1.02	0.00E+000	35.6
U-234		4.737	97.66	19.87	0.34	0.00E+000	9.1
U-235		4.374	6.83	76.08	0.17	0.00E+000	8.9
U-238		4.152	62.49	24.91	0.51	0.00E+000	3.0

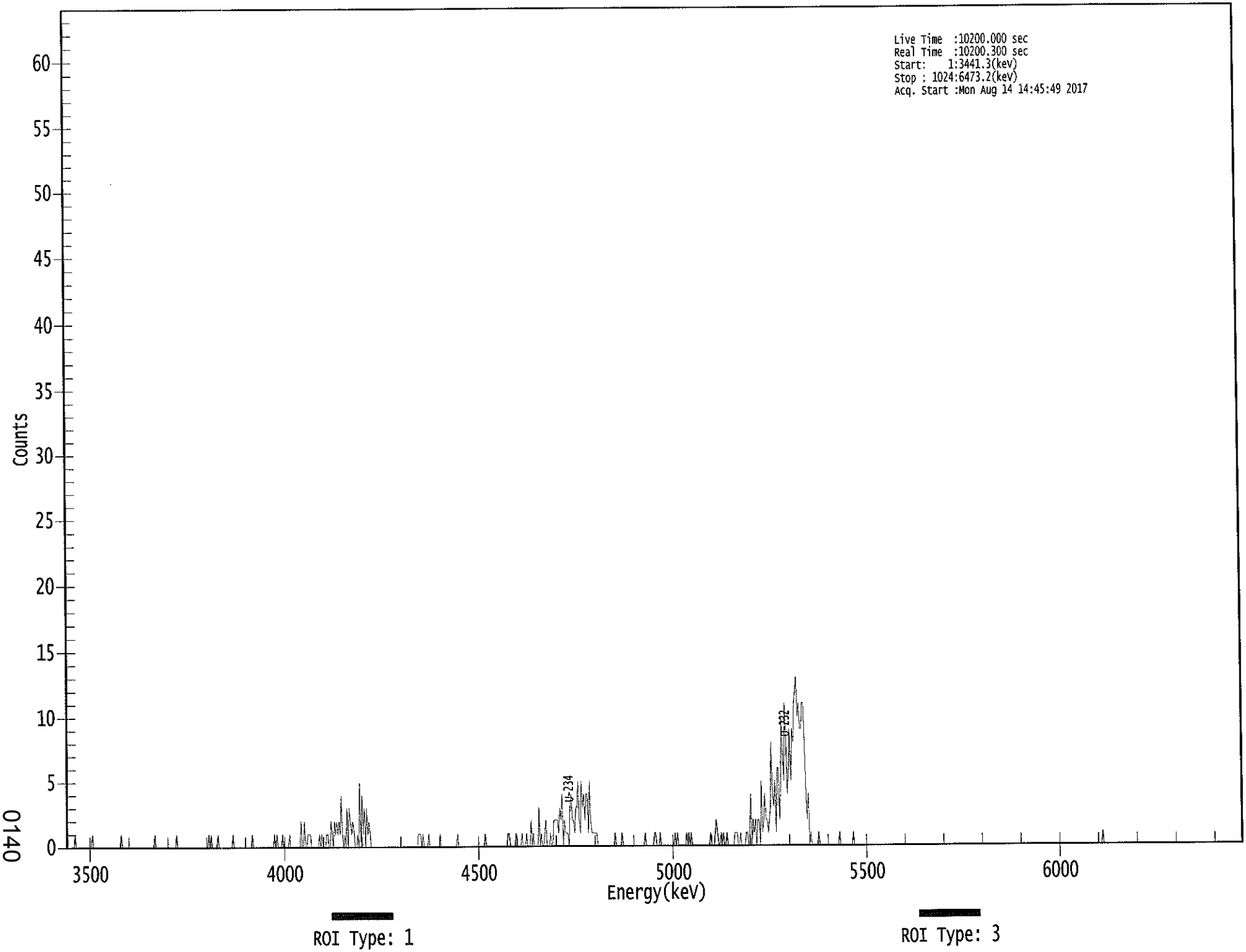
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	1.000	5302.50*	4.94E+000 +/- 6.23E-001	1.12E-001 +/- 1.41E-002
U-234	0.996	4761.50*	1.73E+000 +/- 4.07E-001	8.47E-002 +/- 1.07E-002
U-235	0.999	4385.50*	1.49E-001 +/- 1.15E-001	9.12E-002 +/- 1.15E-002
U-238	0.993	4184.40*	1.10E+000 +/- 3.08E-001	9.26E-002 +/- 1.17E-002

AG 8/15/17

0000191293.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: 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	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	1
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	1	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	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	1	0	0
129:	0	0	0	1	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	1	0	0	0	0	0	0	0
153:	0	0	0	0	0	0	0	0
161:	0	1	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0
177:	0	0	0	0	1	0	1	0
185:	0	0	0	1	0	0	0	0
193:	0	1	0	0	0	0	0	0
201:	0	0	0	2	0	0	2	0
209:	0	1	1	1	0	0	0	0
217:	0	0	0	1	0	1	0	0
225:	0	1	1	0	0	2	1	0
233:	2	1	2	1	2	1	4	1
241:	0	1	0	3	0	3	2	1
249:	2	1	0	0	1	0	5	0
257:	4	1	3	0	3	1	2	1
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	1	1	1	0	1	0	0
313:	0	0	1	0	0	0	0	0
321:	0	0	0	0	1	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	0	1	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	1	0	0	0	0

369:	0	0	0	0	0	0	0	0

Sample Title: 10

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

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

LB 8/14/17

Sample Description: HTC-A01-S005-3036-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707082A-UU
Sample Identification: 11
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.083E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:37:09 AM
Acquisition Date/Time: 8/14/2017 2:46:31 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: 0.1476 +/- 0.0095
Counting Efficiency: 0.1488 +/- 0.0026 on 11/18/2016 3:34:20 PM
Chem. Recovery Factor: 0.9915 +/- 0.0662

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	277.47	11.80	1.53	0.00E+000	10.0
U-234		4.735	84.98	21.41	1.02	0.00E+000	9.1
U-235		4.391	9.83	63.14	0.17	0.00E+000	3.0
U-238		4.140	52.81	27.32	1.19	0.00E+000	5.9

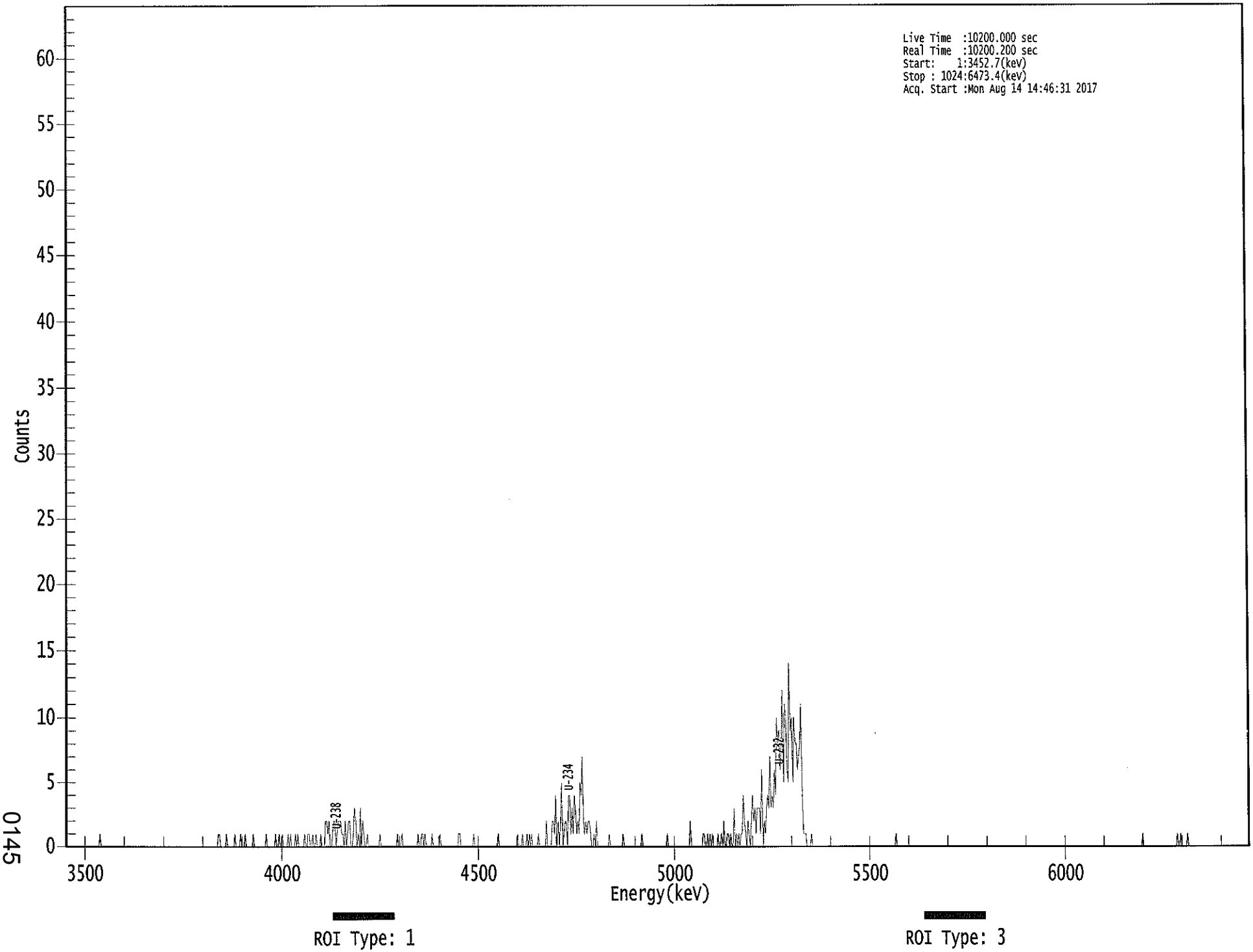
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.994	5302.50*	4.62E+000 +/- 5.84E-001	1.18E-001 +/- 1.50E-002
U-234	0.995	4761.50*	1.41E+000 +/- 3.51E-001	1.05E-001 +/- 1.32E-002
U-235	1.000	4385.50*	2.01E-001 +/- 1.30E-001	8.55E-002 +/- 1.08E-002
U-238	0.986	4184.40*	8.73E-001 +/- 2.63E-001	1.09E-001 +/- 1.38E-002

AG 8/15/17

0000191295.CNF



0145

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

Sample Title: 11

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	0	0	0	1	0	0	0

Sample Title: 11

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

801:	0	0	0	0	0	0	0	0

Sample Title: 11

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	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	1	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	1	0	0	1	0	0	0	0
969:	0	1	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	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

DB 3/14/17

Apex-Alpha™

Sample Description: HTC-A01-S005-3642-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707082A-UU
Sample Identification: 12
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.045E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:37:09 AM
Acquisition Date/Time: 8/14/2017 2:46:33 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: 0.1275 +/- 0.0088
Counting Efficiency: 0.1433 +/- 0.0025 on 11/18/2016 3:34:18 PM
Chem. Recovery Factor: 0.8903 +/- 0.0633

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.269	238.96	12.74	2.04	0.00E+000	18.7
U-234		4.730	86.47	21.29	1.53	0.00E+000	6.3
U-235		4.394	5.64	93.45	1.36	0.00E+000	3.0
U-238		4.138	45.30	29.75	1.70	0.00E+000	5.9

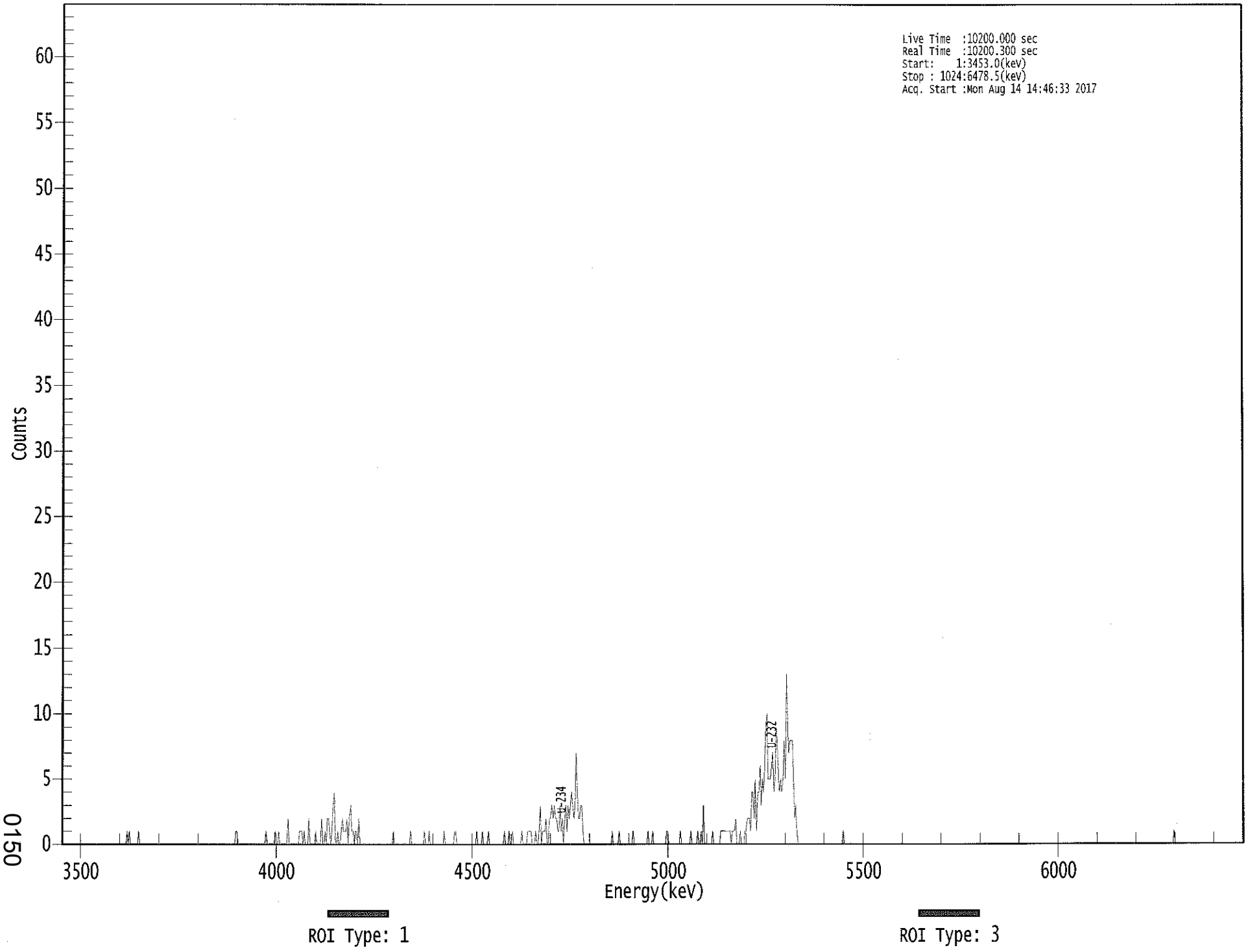
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.992	5302.50*	4.77E+000 +/- 6.45E-001	1.56E-001 +/- 2.10E-002
U-234	0.993	4761.50*	1.72E+000 +/- 4.35E-001	1.42E-001 +/- 1.91E-002
U-235	1.000	4385.50*	1.39E-001 +/- 1.31E-001	1.69E-001 +/- 2.28E-002
U-238	0.985	4184.40*	8.99E-001 +/- 2.94E-001	1.46E-001 +/- 1.97E-002

AG
8/15/17

0000191296.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: 10200

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	1	0	1	0	0	0	0	0
65:	0	0	1	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	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	1	1
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:	1	0	0	0	0	0	0	0
185:	1	0	0	1	0	0	0	0
193:	0	0	0	2	0	0	0	0
201:	0	0	0	0	0	1	1	1
209:	0	1	0	0	0	2	0	0
217:	0	0	0	1	0	0	0	0
225:	2	0	0	1	0	2	2	1
233:	0	1	3	4	0	0	1	0
241:	0	1	2	1	1	1	2	0
249:	2	3	1	1	0	1	1	0
257:	2	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	1	0
289:	0	0	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	1	0	0	0	1	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	1	0	0	0	0	0
337:	0	0	0	1	1	0	0	0
345:	0	0	0	0	0	0	0	0
353:	0	0	0	0	0	0	1	0
361:	0	0	0	1	0	0	0	0

369:	1	0	0	0	0	0	0	0

Sample Title: 12

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

801:	0	0	0	0	0	0	0	0

Sample Title: 12

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	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	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™

NB 9/14/17

Sample Description: HTC-A01-S005-4248-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707082A-UU
Sample Identification: 13
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: 1.016E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:37:09 AM
Acquisition Date/Time: 8/14/2017 2:46:40 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: 0.1570 +/- 0.0098
Counting Efficiency: 0.1737 +/- 0.0030 on 11/18/2016 3:34:15 PM
Chem. Recovery Factor: 0.9034 +/- 0.0587

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.269	294.66	11.43	0.34	0.00E+000	4.6
U-234		4.722	125.15	17.59	0.85	0.00E+000	4.3
U-235		4.396	9.49	65.59	0.51	0.00E+000	3.0
U-238		4.146	90.83	20.59	0.17	0.00E+000	7.9

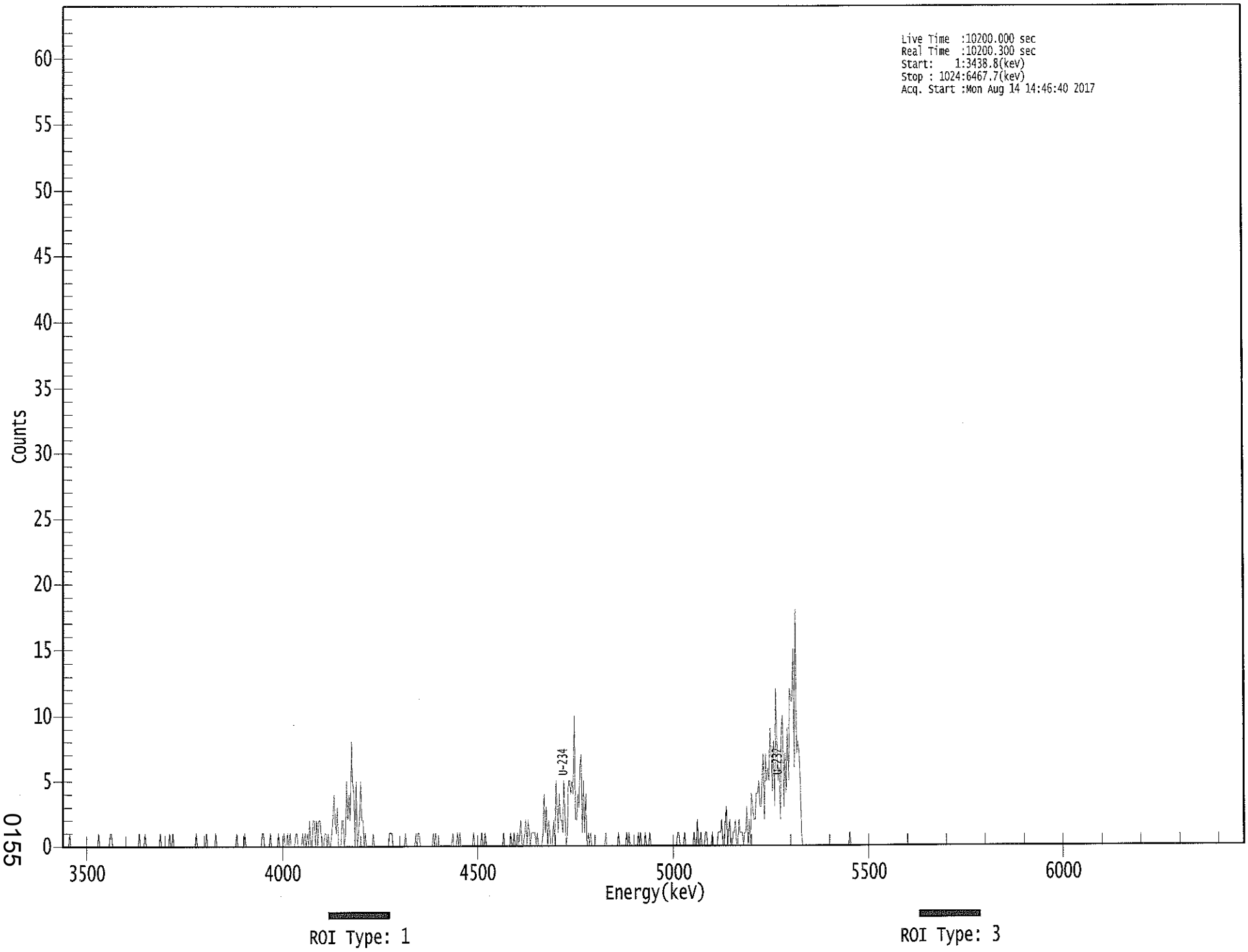
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.992	5302.50*	4.92E+000 +/- 6.04E-001	7.98E-002 +/- 9.80E-003
U-234	0.989	4761.50*	2.08E+000 +/- 4.47E-001	9.97E-002 +/- 1.22E-002
U-235	0.999	4385.50*	1.95E-001 +/- 1.30E-001	1.08E-001 +/- 1.32E-002
U-238	0.989	4184.40*	1.51E+000 +/- 3.61E-001	6.92E-002 +/- 8.50E-003

AG 8/15/17

0000191294.CNF



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

Sample Title: 13

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	0	0	0	0	0	0	0

Sample Title: 13

Channel								
377:	0	0	0	0	0	1	0	0
385:	0	0	0	1	0	0	1	0
393:	0	1	0	1	2	0	0	1
401:	2	0	2	1	0	1	1	1
409:	1	0	1	0	0	0	0	1
417:	4	1	3	0	2	1	0	0
425:	2	0	5	3	1	4	2	2
433:	1	5	2	0	1	5	5	4
441:	5	4	10	2	2	4	3	6
449:	7	1	5	1	4	0	1	0
457:	1	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:	1	0	0	0	0	0	0	1
489:	0	1	0	0	0	0	0	0
497:	0	1	0	1	0	0	0	1
505:	0	0	0	1	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	1	1	0	0	0
537:	0	1	0	0	0	0	0	0
545:	0	1	0	0	2	0	0	1
553:	0	0	0	1	1	0	0	0
561:	0	1	0	0	0	0	1	1
569:	1	2	0	0	2	3	0	1
577:	2	0	0	1	1	2	0	0
585:	2	1	1	1	0	1	1	3
593:	0	2	0	4	3	2	2	4
601:	4	5	3	3	5	7	2	7
609:	5	6	5	9	7	4	8	3
617:	12	8	5	6	2	9	10	3
625:	7	4	9	5	12	11	11	15
633:	6	18	7	8	7	5	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:	1	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	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	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

XB 8/14/17

Sample Description: HTC-A01-S006-0006-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001913
Batch Identification: 1707082A-UU
Sample Identification: 14
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: 1.081E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:37:09 AM
Acquisition Date/Time: 8/14/2017 2:46:35 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: 0.1161 +/- 0.0083
Counting Efficiency: 0.1515 +/- 0.0026 on 11/18/2016 3:34:14 PM
Chem. Recovery Factor: 0.7666 +/- 0.0565

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.292	217.83	13.29	0.17	0.00E+000	6.7
U-234		4.753	71.98	23.29	1.02	0.00E+000	6.2
U-235		4.389	8.00	73.50	0.00	0.00E+000	3.0
U-238		4.155	28.66	36.86	0.34	0.00E+000	5.2

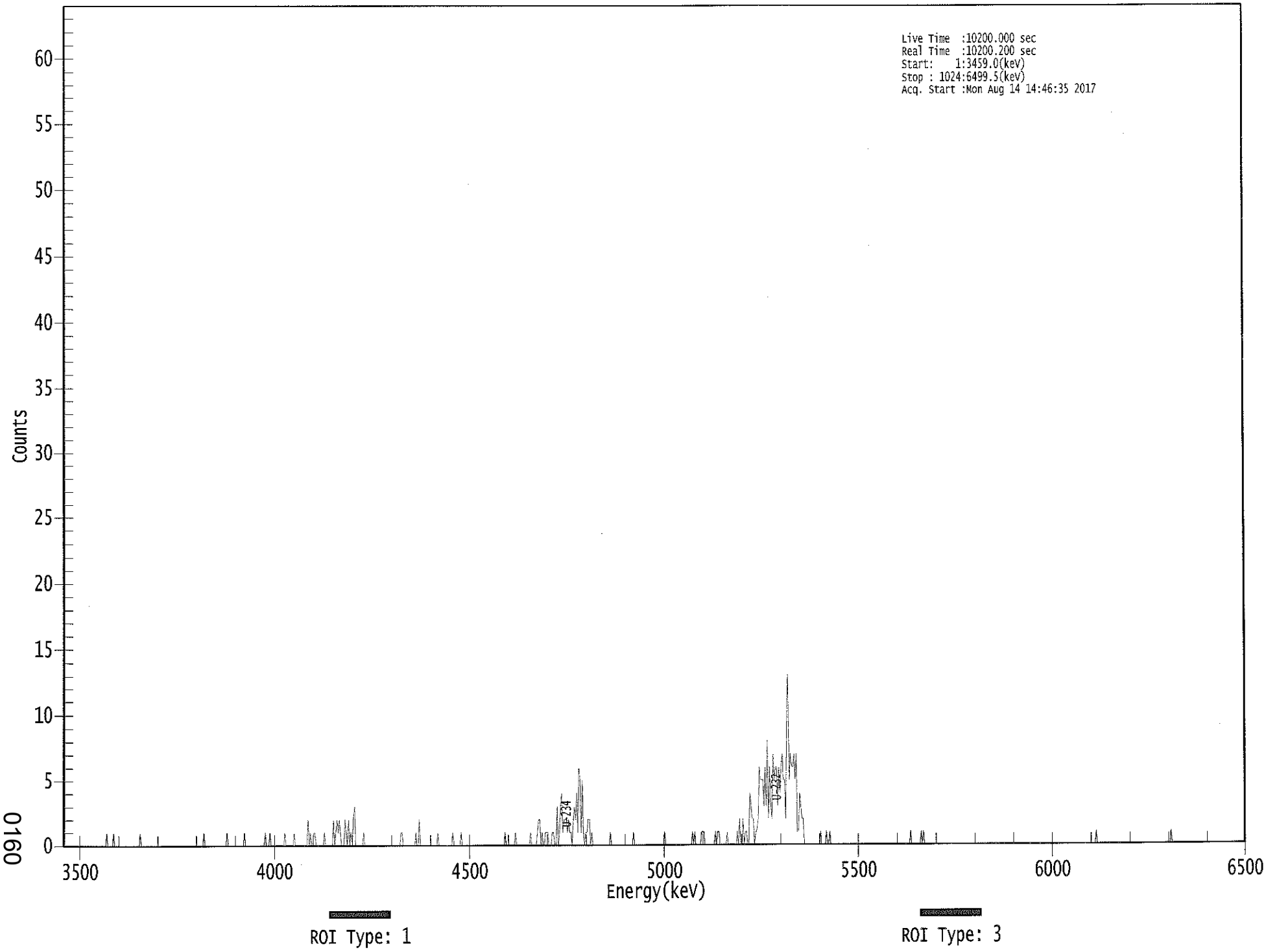
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.999	5302.50*	4.62E+000 +/- 6.48E-001	8.85E-002 +/- 1.24E-002
U-234	1.000	4761.50*	1.52E+000 +/- 4.14E-001	1.33E-001 +/- 1.87E-002
U-235	1.000	4385.50*	2.09E-001 +/- 1.56E-001	1.57E-001 +/- 2.20E-002
U-238	0.994	4184.40*	6.04E-001 +/- 2.38E-001	1.01E-001 +/- 1.41E-002

AG 8/15/17

0000191305.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: 10200

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

369:	0	0	0	0	0	0	0	0

Sample Title: 14

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

801:	0	0	0	0	0	0	0	0

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

RB 9/14/17

Apex-Alpha™

Sample Description: HTC-A01-S006-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707082A-UU
Sample Identification: 15
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: 1.002E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:37:09 AM
Acquisition Date/Time: 8/14/2017 2:46:38 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: 0.0793 +/- 0.0068
Counting Efficiency: 0.1363 +/- 0.0024 on 11/18/2016 3:34:12 PM
Chem. Recovery Factor: 0.5815 +/- 0.0508

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	5.288	148.81	16.14	1.19	0.00E+000	5.7
U-234		4.741	53.49	26.95	0.51	0.00E+000	4.9
U-235		4.384	3.83	102.72	0.17	0.00E+000	3.0
U-238		4.165	28.83	36.63	0.17	0.00E+000	3.3

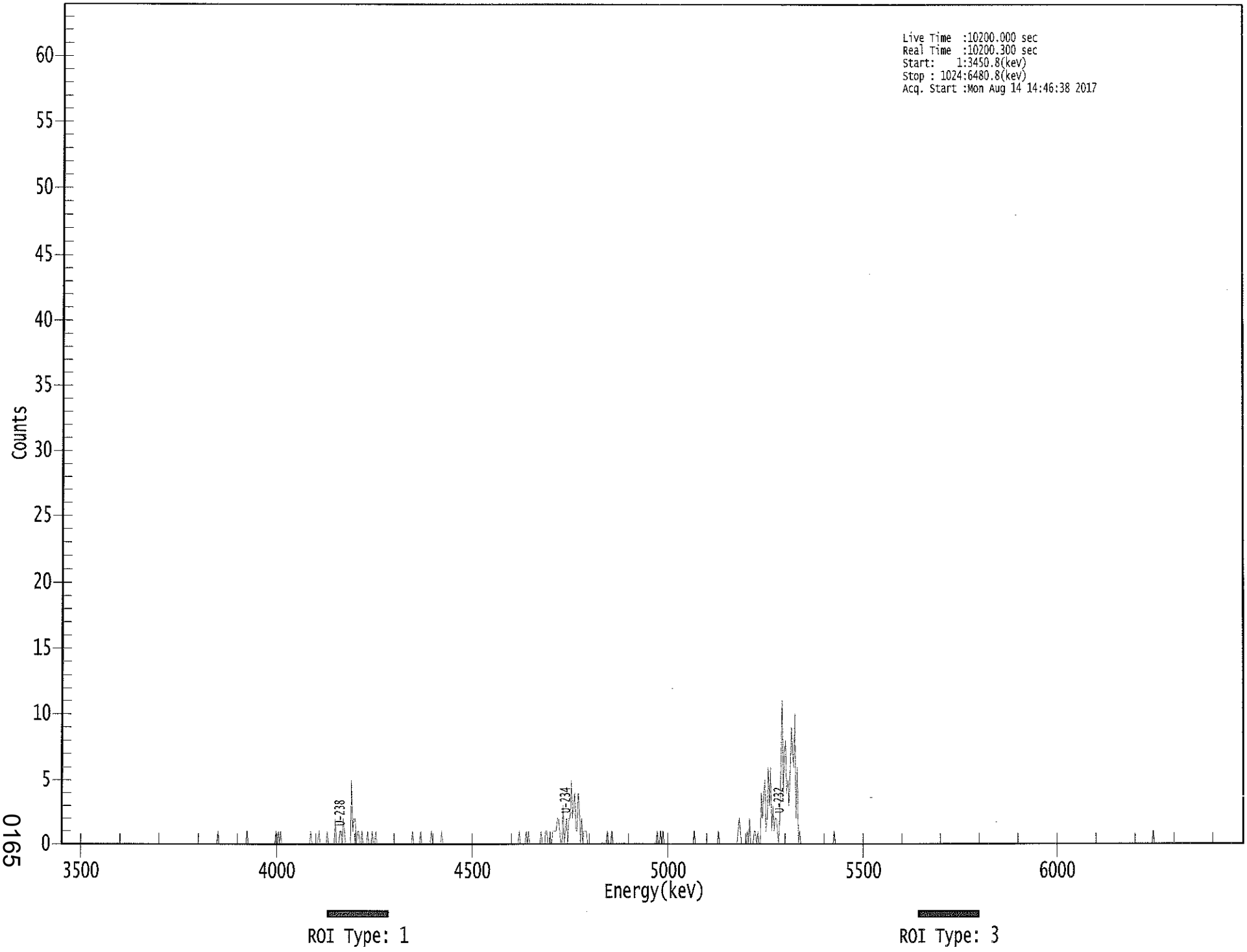
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.998	5302.50*	4.99E+000 +/- 8.36E-001	2.21E-001 +/- 3.70E-002
U-234	0.997	4761.50*	1.79E+000 +/- 5.67E-001	1.75E-001 +/- 2.94E-002
U-235	1.000	4385.50*	1.58E-001 +/- 1.64E-001	1.72E-001 +/- 2.88E-002
U-238	0.997	4184.40*	9.60E-001 +/- 3.87E-001	1.39E-001 +/- 2.33E-002

AG 8/15/17

0000191297.CNF



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

Sample Title: 15

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	0	0	0	0	0	0	0

Sample Title: 15

Channel								
377:	0	0	0	0	0	0	0	0
385:	0	0	0	0	0	0	0	0
393:	0	0	0	1	0	0	0	0
401:	0	1	0	1	0	0	0	0
409:	0	0	0	0	0	0	1	0
417:	0	0	1	1	0	0	1	0
425:	1	1	1	1	2	2	1	0
433:	0	3	0	1	2	0	2	2
441:	5	2	3	4	1	1	4	3
449:	0	2	0	1	1	1	0	0
457:	0	0	0	0	0	0	0	0
465:	0	0	0	0	0	0	0	1
473:	0	0	0	1	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	1	0	0	1	0	1
521:	0	0	0	0	0	0	0	0
529:	0	0	0	0	0	0	0	0
537:	0	0	0	0	0	0	0	0
545:	0	0	1	0	0	0	0	0
553:	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	1
569:	0	0	0	0	0	0	0	0
577:	0	0	0	0	0	0	0	0
585:	1	2	1	0	0	0	0	0
593:	1	0	2	0	0	0	1	1
601:	0	1	0	0	4	2	4	5
609:	1	2	6	3	6	1	3	1
617:	2	2	1	0	2	6	11	4
625:	7	8	4	5	3	6	9	7
633:	6	10	2	6	0	1	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	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:	1	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

UB 8/17/17

Sample Description: HTC-A01-S006-1218-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707082A-UU
Sample Identification: 16
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: 1.037E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:37:09 AM
Acquisition Date/Time: 8/14/2017 2:46:43 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: 0.1650 +/- 0.0101
Counting Efficiency: 0.1595 +/- 0.0027 on 11/18/2016 3:34:09 PM
Chem. Recovery Factor: 1.0346 +/- 0.0660

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.275	309.15	11.17	0.85	0.00E+000	33.6
U-234		4.723	96.98	20.02	1.02	0.00E+000	4.7
U-235		4.392	14.66	51.88	0.34	0.00E+000	3.0
U-238		4.154	41.98	30.68	1.02	0.00E+000	3.5

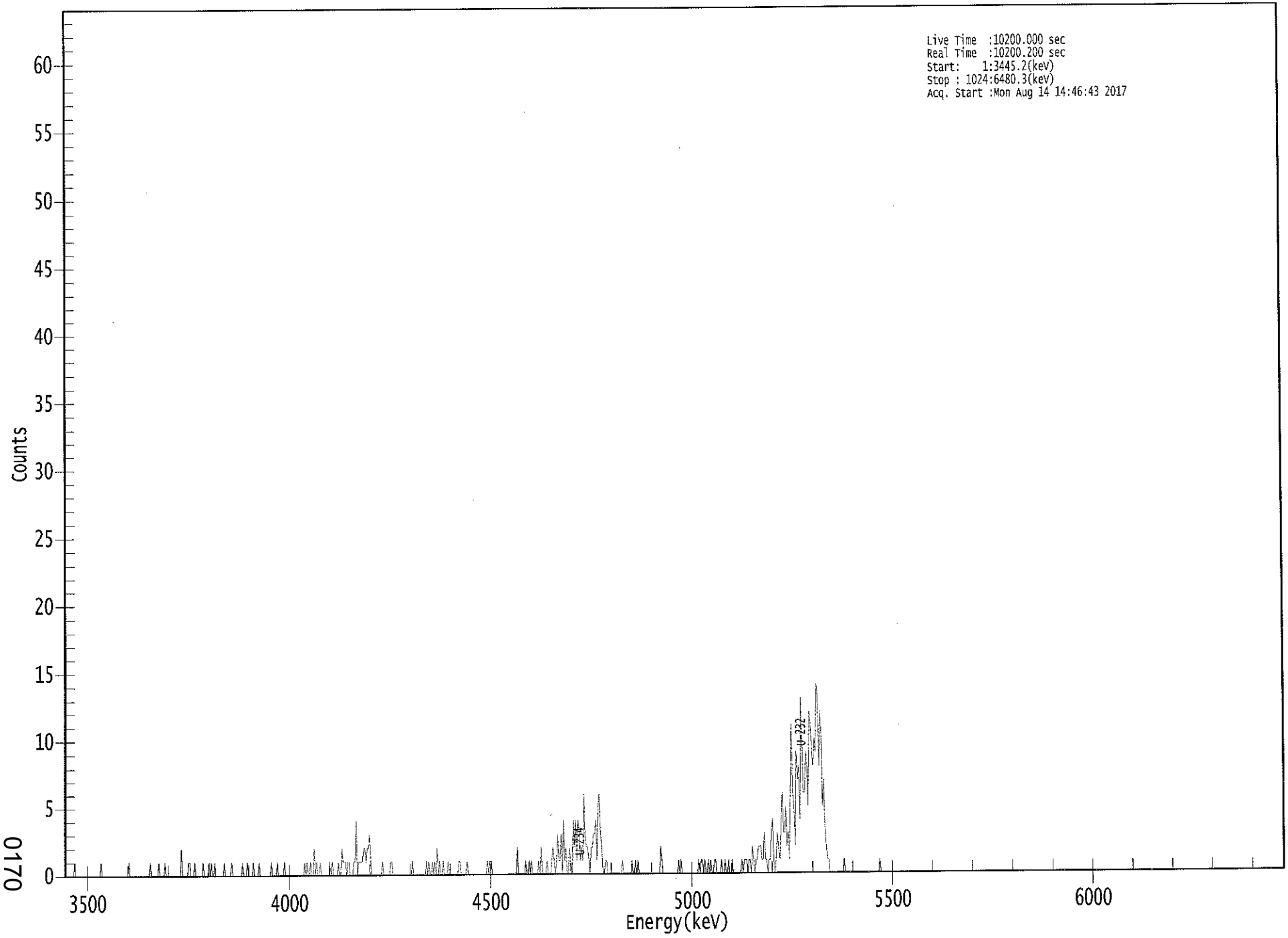
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.995	5302.50*	4.81E+000 +/- 5.79E-001	9.31E-002 +/- 1.12E-002
U-234	0.989	4761.50*	1.50E+000 +/- 3.52E-001	9.77E-002 +/- 1.18E-002
U-235	1.000	4385.50*	2.81E-001 +/- 1.49E-001	9.15E-002 +/- 1.10E-002
U-238	0.994	4184.40*	6.48E-001 +/- 2.14E-001	9.73E-002 +/- 1.17E-002

AG 8/15/17

0000191298.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: 10200

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

369:	0	0	0	0	0	0	0	0

Sample Title: 16

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

WB 9/14/17

Apex-Alpha™

Sample Description: HTC-A01-S006-1824-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001913
Batch Identification: 1707082A-UU
Sample Identification: 17
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: 1.041E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:37:09 AM
Acquisition Date/Time: 8/14/2017 2:46:26 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: 0.1678 +/- 0.0102
Counting Efficiency: 0.1646 +/- 0.0028 on 11/18/2016 3:34:08 PM
Chem. Recovery Factor: 1.0190 +/- 0.0644

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.277	314.83	11.05	0.17	0.00E+000	31.4
U-234		4.732	98.66	19.77	0.34	0.00E+000	5.5
U-235		4.421	9.00	68.87	0.00	0.00E+000	3.0
U-238		4.156	69.00	23.77	0.00	0.00E+000	4.7

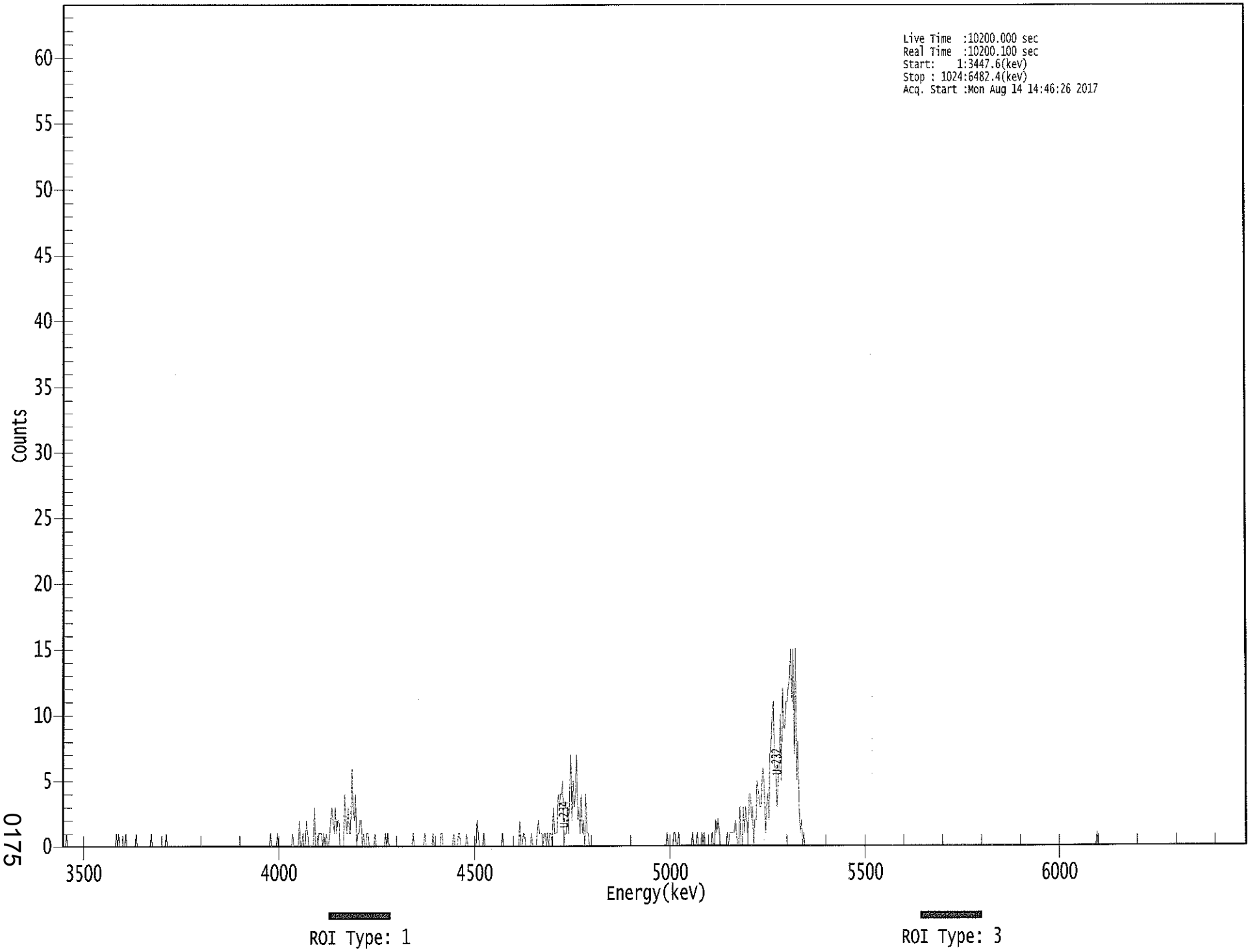
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.995	5302.50*	4.80E+000 +/- 5.73E-001	6.36E-002 +/- 7.59E-003
U-234	0.994	4761.50*	1.50E+000 +/- 3.46E-001	7.27E-002 +/- 8.67E-003
U-235	0.991	4385.50*	1.69E-001 +/- 1.18E-001	1.12E-001 +/- 1.34E-002
U-238	0.994	4184.40*	1.04E+000 +/- 2.78E-001	9.07E-002 +/- 1.08E-002

AG
8/15/17

0000191306.CNF



0175

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

369:	0	0	0	0	0	0	0	0

Sample Title: 17

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

801:	0	0	0	0	0	0	0	0

Sample Title: 17

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

Apex-Alpha™

KB 8/17/17

Sample Description: HTC-A01-S006-2430-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707082A-UU
Sample Identification: 18
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: 1.021E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:37:09 AM
Acquisition Date/Time: 8/14/2017 2:46:28 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: 0.1631 +/- 0.0101
Counting Efficiency: 0.1665 +/- 0.0028 on 11/18/2016 3:34:06 PM
Chem. Recovery Factor: 0.9795 +/- 0.0627

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	306.00	11.22	0.00	0.00E+000	27.1
U-234		4.729	72.66	23.06	0.34	0.00E+000	4.3
U-235		4.394	8.83	66.70	0.17	0.00E+000	3.0
U-238		4.146	39.64	31.75	1.36	0.00E+000	3.5

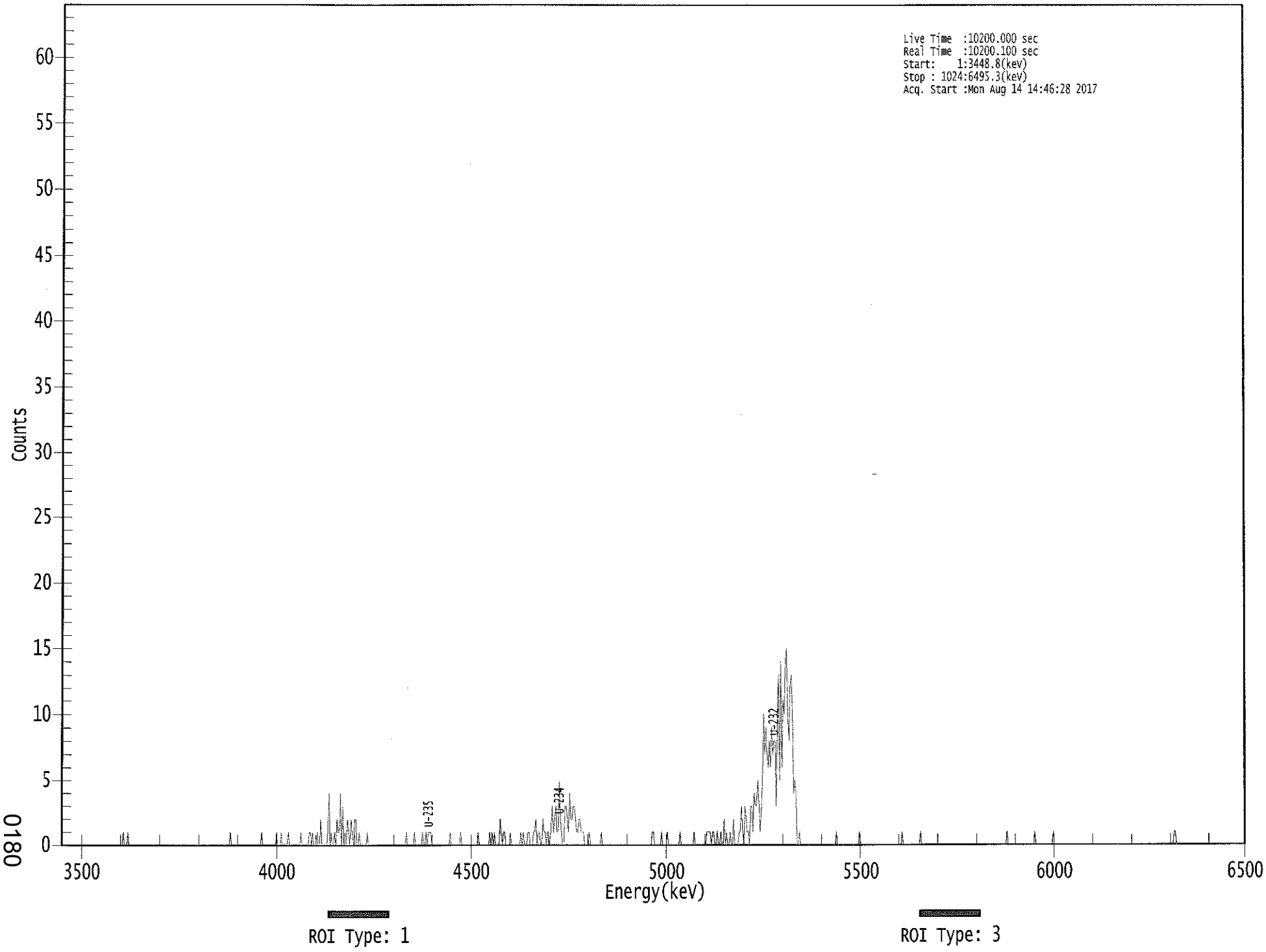
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.996	5302.50*	4.89E+000 +/- 5.92E-001	9.59E-002 +/- 1.16E-002
U-234	0.992	4761.50*	1.16E+000 +/- 3.02E-001	7.62E-002 +/- 9.22E-003
U-235	1.000	4385.50*	1.74E-001 +/- 1.18E-001	8.21E-002 +/- 9.93E-003
U-238	0.989	4184.40*	6.29E-001 +/- 2.14E-001	1.09E-001 +/- 1.32E-002

AG 8/15/17

0000191299.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: 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	1	0	0
57:	0	1	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	0	1	0	0	0	0	0	0
153:	0	0	0	0	0	0	0	0
161:	0	0	0	0	0	0	0	0
169:	0	0	0	0	1	0	0	0
177:	0	0	0	0	0	0	0	0
185:	0	1	0	0	0	1	0	0
193:	0	0	0	1	0	0	0	0
201:	0	0	0	0	0	0	1	0
209:	0	0	0	0	0	1	1	0
217:	1	0	0	0	1	0	0	2
225:	0	0	0	0	0	1	4	0
233:	1	0	0	1	0	2	1	1
241:	4	0	3	0	1	0	2	1
249:	0	2	1	0	2	2	0	0
257:	1	0	0	0	0	0	0	1
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	1	0	0	0	0	0	0
305:	1	0	0	0	0	0	0	1
313:	0	0	1	0	1	1	1	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	1
337:	0	0	0	0	0	0	0	0
345:	1	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:	0	1	0	1	0	1	0	0

Sample Title: 18

Channel								
377:	0	0	2	1	0	1	1	0
385:	0	0	0	1	0	0	0	0
393:	0	0	0	0	1	0	1	0
401:	0	0	1	1	0	0	0	1
409:	1	2	0	1	1	0	0	2
417:	1	1	0	1	1	0	1	3
425:	1	2	3	1	1	5	2	1
433:	0	0	3	3	2	1	4	2
441:	2	3	3	2	1	1	2	2
449:	1	1	1	0	0	0	0	1
457:	0	0	0	0	0	0	0	0
465:	0	1	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	0	1	1	0
513:	0	0	0	0	0	1	0	0
521:	0	0	1	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	1	0	0	0	0	0	0
553:	0	0	0	0	1	1	1	1
561:	0	1	1	0	0	1	0	0
569:	1	0	0	2	0	1	0	0
577:	1	0	0	2	0	0	0	0
585:	1	1	3	1	0	3	2	1
593:	1	0	3	3	1	4	3	3
601:	5	3	1	3	5	10	7	9
609:	7	6	8	6	9	7	8	8
617:	3	10	13	5	14	6	11	10
625:	14	15	10	8	12	13	10	4
633:	5	4	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	1	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	1	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	1	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	1	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801:	0	0	0	0	0	0	0	0

Sample Title: 18

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:	1	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	1	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	1	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

ZUB 8/14/17

Apex-Alpha™

Sample Description:	HTC-A01-S006-3036-01
Spectrum File:	\\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001913
Batch Identification:	1707082A-UU
Sample Identification:	19
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:	1.072E+000 +/- 0.000E+000 gram
Sample Date/Time:	5/13/2017 6:37:09 AM
Acquisition Date/Time:	8/14/2017 2:46:46 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:	0.1774 +/- 0.0105
Counting Efficiency:	0.1776 +/- 0.0030 on 11/18/2016 3:40:57 PM
Chem. Recovery Factor:	0.9987 +/- 0.0618
Peak Match Tolerance:	0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.276	332.83	10.75	0.17	0.00E+000	7.9
U-234		4.726	127.00	17.46	0.00	0.00E+000	10.8
U-235		4.401	11.83	57.46	0.17	0.00E+000	3.0
U-238		4.144	77.83	22.25	0.17	0.00E+000	4.1

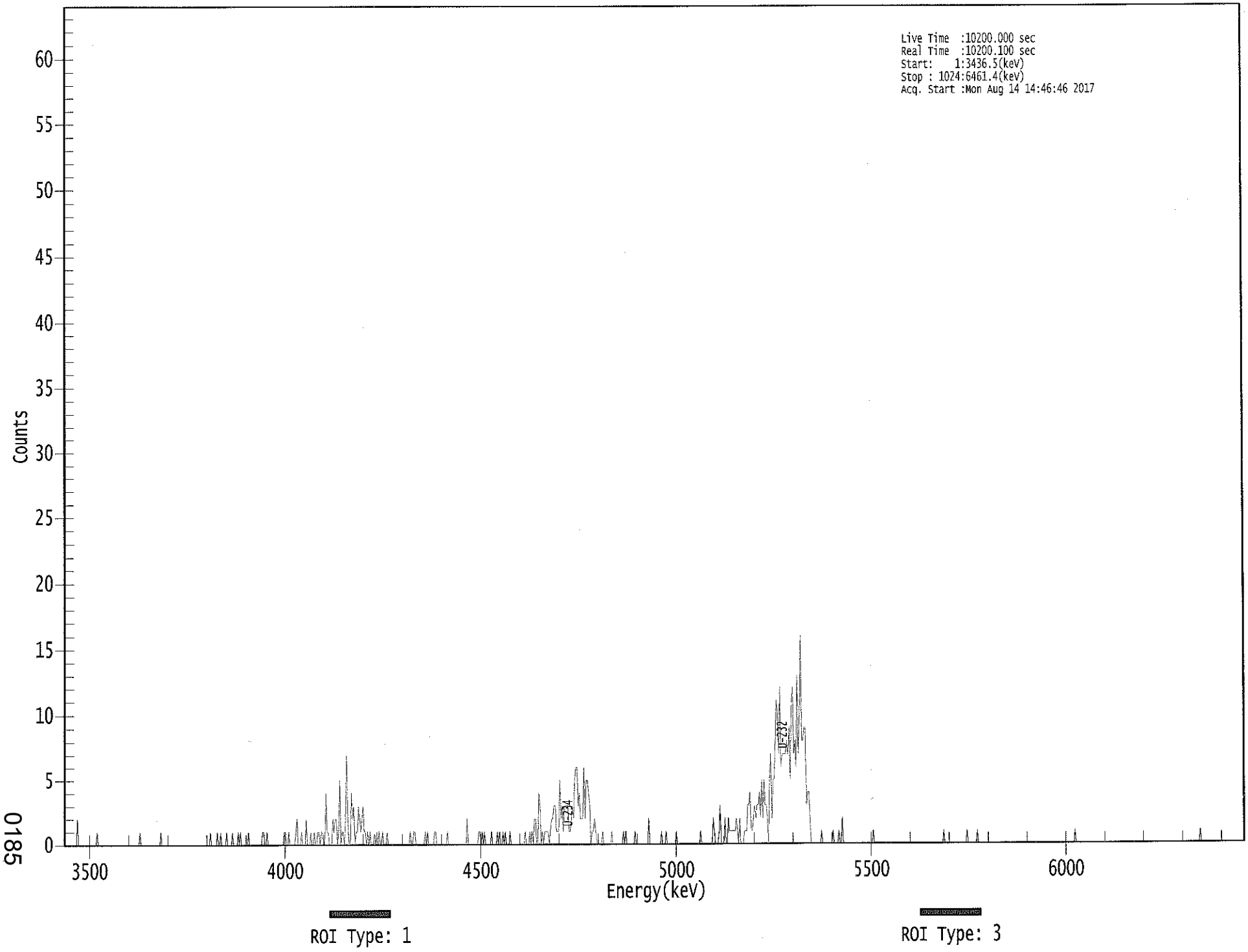
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.995	5302.50*	4.66E+000 +/- 5.43E-001	5.84E-002 +/- 6.81E-003
U-234	0.991	4761.50*	1.77E+000 +/- 3.72E-001	8.37E-002 +/- 9.75E-003
U-235	0.998	4385.50*	2.04E-001 +/- 1.19E-001	7.18E-002 +/- 8.37E-003
U-238	0.989	4184.40*	1.08E+000 +/- 2.72E-001	5.80E-002 +/- 6.76E-003

AG
8/15/17

0000191307.CNF



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

Sample Title: 19

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	1	0	0	0	0	1	0

Sample Title: 19

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

801:	0	0	0	0	0	0	0	0

Sample Title: 19

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

Apex-Alpha™

KB 8/17/17

Sample Description: HTC-A01-S006-3642-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001913
Batch Identification: 1707082A-UU
Sample Identification: 20
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: 1.080E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:37:09 AM
Acquisition Date/Time: 8/14/2017 2:46:49 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: 0.1382 +/- 0.0092
Counting Efficiency: 0.1477 +/- 0.0026 on 11/18/2016 3:34:04 PM
Chem. Recovery Factor: 0.9355 +/- 0.0644

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	258.30	12.24	1.70	0.00E+000	14.8
U-234		4.737	89.47	20.93	1.53	0.00E+000	12.2
U-235		4.417	12.49	56.77	0.51	0.00E+000	3.0
U-238		4.159	52.66	27.11	0.34	0.00E+000	3.5

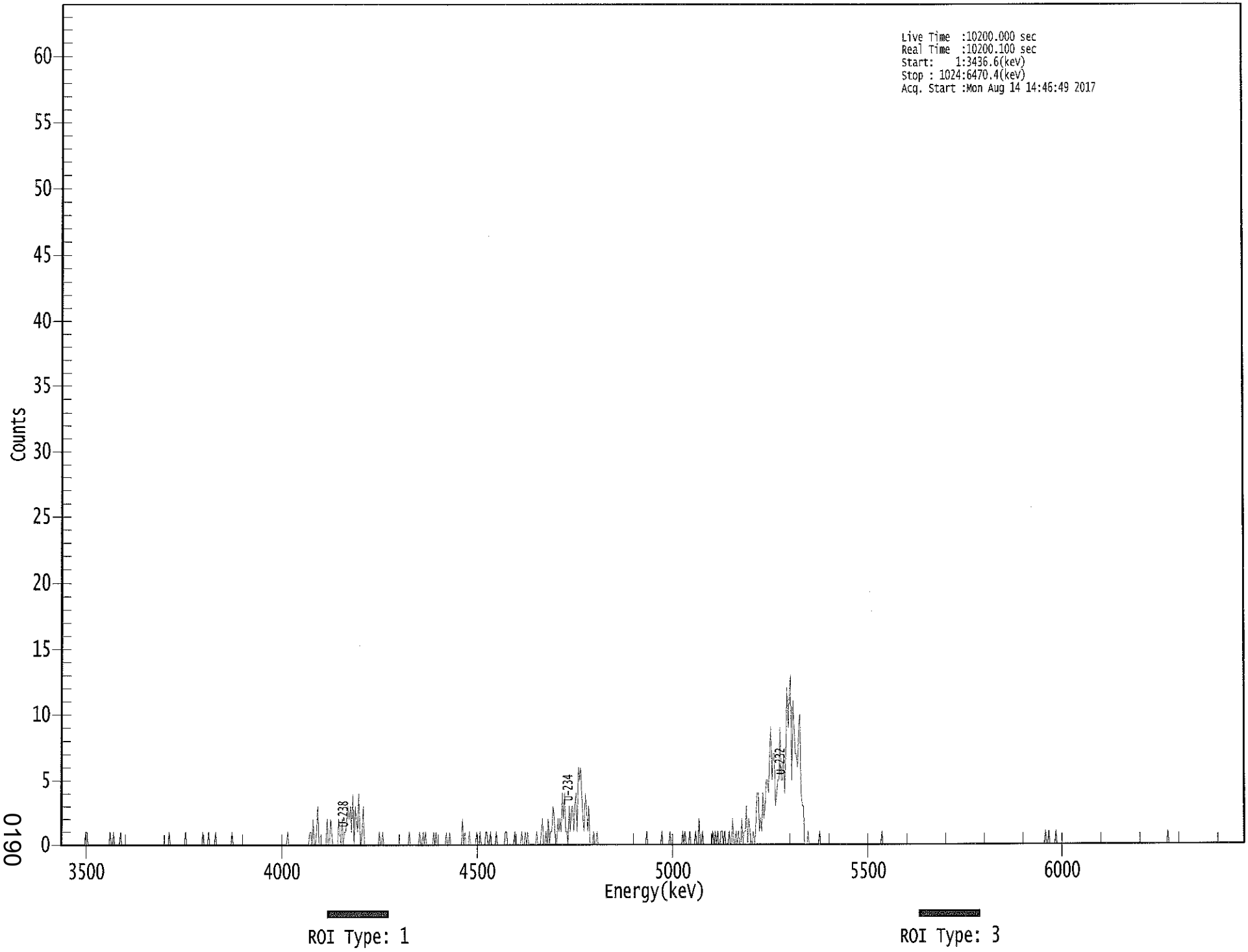
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.996	5302.50*	4.61E+000 +/- 6.01E-001	1.31E-001 +/- 1.71E-002
U-234	0.996	4761.50*	1.59E+000 +/- 3.93E-001	1.26E-001 +/- 1.65E-002
U-235	0.993	4385.50*	2.74E-001 +/- 1.60E-001	1.15E-001 +/- 1.50E-002
U-238	0.995	4184.40*	9.33E-001 +/- 2.81E-001	8.47E-002 +/- 1.11E-002

AG 8/15/17

0000191304.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	0	0	0	0	1	1	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	1	0	0
49:	0	0	0	1	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	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	1	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	1	0	0	0	0	1
129:	0	0	0	0	0	1	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	0	0	0	0	0
169:	0	0	0	0	0	0	0	0
177:	0	0	0	0	0	0	0	0
185:	0	0	0	0	0	0	0	0
193:	0	0	0	1	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	1	1
217:	0	2	0	0	1	3	0	0
225:	0	0	0	0	0	2	0	0
233:	2	1	0	0	0	0	0	2
241:	1	0	2	0	1	1	2	3
249:	2	3	1	4	0	3	2	1
257:	4	1	0	1	3	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	1	0	0	1	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	1	0	0	0
305:	0	0	0	0	0	1	0	0
313:	1	0	1	0	0	0	0	0
321:	0	1	0	1	0	0	0	0
329:	0	0	0	0	1	0	0	1
337:	0	0	0	0	0	0	0	0
345:	0	0	2	0	1	0	0	0
353:	1	0	0	0	0	0	1	0
361:	0	1	0	0	0	0	1	1

369:	0	0	1	0	0	0	0	1

Sample Title: 20

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

801:	0	0	0	0	0	0	0	0

Sample Title: 20

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

8/14/2017 6:46:52 AM

Apex-Alpha™

QA SUMMARY REPORT

Review Of QA Results - Pulser Check

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

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

8/14/2017 6:46:52 AM

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

APPROVED BY: _____

APPROVAL DATE: 8/14/17

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

17-07082
ThISO
Run 1

Work Order	17-07082
Analysis Code	ThISO
Run	1
Date Received	7/18/2017
Lab Deadline	8/9/2017
Client	Weston Solutions, Inc.
Project	94759
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	EPA 907.0 Modified
Instrument Type	Alpha Spectroscopy
Radiometric Tracer	Th-229
Radiometric Sol#	Th-18a
Tracer Act (dpm/g)	22.46
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		07/18/17 00:00	1.0000E+00
02	MBL	BLANK		07/18/17 00:00	1.0000E+00
03	DUP	HTC-A01-S005-0612-01		05/13/17 09:58	1.0393E+00
04	DMSO	HTC-A01-S005-0612-01	31	05/13/17 09:58	1.0390E+00
05	MS	HTC-A01-S005-0612-01	41	05/13/17 09:58	1.0299E+00
06	MSD	HTC-A01-S005-0612-01 MSD	41	05/13/17 09:58	1.0396E+00
07	TRG	HTC-A01-S005-0612-02	29	05/13/17 09:58	1.0049E+00
08	TRG	HTC-A01-S005-1218-01	36	05/13/17 09:55	1.0611E+00
09	TRG	HTC-A01-S005-1824-01	39	05/13/17 09:52	1.0343E+00
10	TRG	HTC-A01-S005-2430-01	38	05/13/17 09:49	1.0851E+00
11	TRG	HTC-A01-S005-3036-01	34	05/13/17 09:46	1.0123E+00
12	TRG	HTC-A01-S005-3642-01	41	05/13/17 09:43	1.0746E+00
13	TRG	HTC-A01-S005-4248-01	30	05/13/17 09:40	1.0769E+00
14	TRG	HTC-A01-S006-0006-01	32	05/13/17 17:06	1.0260E+00
15	TRG	HTC-A01-S006-0612-01	40	05/13/17 17:03	1.0701E+00
16	TRG	HTC-A01-S006-1218-01	44	05/13/17 17:00	1.0183E+00
17	TRG	HTC-A01-S006-1824-01	37	05/13/17 16:57	1.0933E+00
18	TRG	HTC-A01-S006-2430-01	48	05/13/17 16:54	1.0062E+00
19	TRG	HTC-A01-S006-3036-01	39	05/13/17 16:51	1.0826E+00
20	TRG	HTC-A01-S006-3642-01	45	05/13/17 16:48	1.0621E+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.

17-07082
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	0.4660	10.5		0.00								
02	MBL	0.2329	5.2		0.00								
03	DUP	0.2337	5.2		0.00								
04	DMSO	0.2330	5.2		0.00								
05	MS	0.2329	5.2		0.00								
06	MSD	0.2314	5.2		0.00								
07	TRG	0.2315	5.2		0.00								
08	TRG	0.2322	5.2		0.00								
09	TRG	0.2320	5.2		0.00								
10	TRG	0.2332	5.2		0.00								
11	TRG	0.2330	5.2		0.00								
12	TRG	0.2311	5.2		0.00								
13	TRG	0.2336	5.2		0.00								
14	TRG	0.2335	5.2		0.00								
15	TRG	0.2327	5.2		0.00								
16	TRG	0.2325	5.2		0.00								
17	TRG	0.2327	5.2		0.00								
18	TRG	0.2332	5.2		0.00								
19	TRG	0.2322	5.2		0.00								
20	TRG	0.2329	5.2		0.00								

0199

* 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.

17-07082
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			08/02/17 08:03	JHARVEY				
02	MBL			08/02/17 08:03	JHARVEY				
03	DUP			08/02/17 08:03	JHARVEY				
04	DMSO	07/25/17 07:44	KSALLINGS	08/02/17 08:03	JHARVEY				
05	MS	07/25/17 07:44	KSALLINGS	08/02/17 08:03	JHARVEY				
06	MSD	07/25/17 07:44	KSALLINGS	08/02/17 08:03	JHARVEY				
07	TRG	07/25/17 07:44	KSALLINGS	08/02/17 08:03	JHARVEY				
08	TRG	07/25/17 07:44	KSALLINGS	08/02/17 08:03	JHARVEY				
09	TRG	07/25/17 07:44	KSALLINGS	08/02/17 08:03	JHARVEY				
10	TRG	07/25/17 07:44	KSALLINGS	08/02/17 08:03	JHARVEY				
11	TRG	07/25/17 07:44	KSALLINGS	08/02/17 08:03	JHARVEY				
12	TRG	07/25/17 07:44	KSALLINGS	08/02/17 08:03	JHARVEY				
13	TRG	07/25/17 07:44	KSALLINGS	08/02/17 08:03	JHARVEY				
14	TRG	07/25/17 07:44	KSALLINGS	08/02/17 08:03	JHARVEY				
15	TRG	07/25/17 07:44	KSALLINGS	08/02/17 08:03	JHARVEY				
16	TRG	07/25/17 07:44	KSALLINGS	08/02/17 08:03	JHARVEY				
17	TRG	07/25/17 07:44	KSALLINGS	08/02/17 08:03	JHARVEY				
18	TRG	07/25/17 07:44	KSALLINGS	08/02/17 08:03	JHARVEY				
19	TRG	07/25/17 07:44	KSALLINGS	08/02/17 08:03	JHARVEY				
20	TRG	07/25/17 07:44	KSALLINGS	08/02/17 08:03	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: 17-07082-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07082
Client: Weston Solutions, Inc.
0201

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	5.80E+00	1.61E+00	2.57E-01	4.80E+00	120.79	OK		OK	
02	TH-228	MBL	BLANK	pCi/g	5.84E-02	6.22E-02	8.62E-02					OK	OK
03	TH-228	DUP	HTC-A01-S005-0612-01	pCi/g	6.89E-01	2.76E-01	1.04E-01					OK	
04	TH-228	DMSO	HTC-A01-S005-0612-01	pCi/g	6.31E-01	2.31E-01	1.05E-01					OK	
05	TH-228	MS	HTC-A01-S005-0612-01	pCi/g	7.93E+00	1.68E+00	1.54E-01					OK	
06	TH-228	MSD	HTC-A01-S005-0612-01 MSD	pCi/g	8.54E+00	1.88E+00	1.06E-01					OK	
07	TH-228	TRG	HTC-A01-S005-0612-02	pCi/g	1.36E+00	3.72E-01	1.40E-01					OK	
08	TH-228	TRG	HTC-A01-S005-1218-01	pCi/g	1.02E+00	2.78E-01	9.55E-02					OK	
09	TH-228	TRG	HTC-A01-S005-1824-01	pCi/g	1.13E+00	2.99E-01	1.07E-01					OK	
10	TH-228	TRG	HTC-A01-S005-2430-01	pCi/g	9.61E-01	2.77E-01	5.91E-02					OK	
11	TH-228	TRG	HTC-A01-S005-3036-01	pCi/g	1.24E+00	3.39E-01	1.12E-01					OK	
12	TH-228	TRG	HTC-A01-S005-3642-01	pCi/g	1.21E+00	3.29E-01	8.63E-02					OK	
13	TH-228	TRG	HTC-A01-S005-4248-01	pCi/g	1.17E+00	3.14E-01	8.70E-02					OK	
14	TH-228	TRG	HTC-A01-S006-0006-01	pCi/g	1.09E+00	3.05E-01	9.61E-02					OK	
15	TH-228	TRG	HTC-A01-S006-0612-01	pCi/g	1.10E+00	3.16E-01	1.21E-01					OK	
16	TH-228	TRG	HTC-A01-S006-1218-01	pCi/g	1.15E+00	3.66E-01	1.63E-01					OK	
17	TH-228	TRG	HTC-A01-S006-1824-01	pCi/g	1.31E+00	3.83E-01	1.01E-01					OK	
18	TH-228	TRG	HTC-A01-S006-2430-01	pCi/g	1.12E+00	3.00E-01	7.15E-02					OK	
19	TH-228	TRG	HTC-A01-S006-3036-01	pCi/g	1.10E+00	3.05E-01	1.07E-01					OK	
20	TH-228	TRG	HTC-A01-S006-3642-01	pCi/g	1.28E+00	3.55E-01	1.12E-01					OK	

Preliminary Data Report & Analytical Calculations
Work Order: 17-07082-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07082
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	07/18/17 00:00	1.00E+00	32.20	0.00	0.00			
02	TH-228	MBL	07/18/17 00:00	1.00E+00	122.00	0.00	0.00			
03	TH-228	DUP	05/13/17 09:58	1.04E+00	81.47	0.00	0.00			
04	TH-228	DMSO	05/13/17 09:58	1.04E+00	92.45	0.00	0.00			
05	TH-228	MS	05/13/17 09:58	1.03E+00	87.61	0.00	0.00			
06	TH-228	MSD	05/13/17 09:58	1.04E+00	82.13	0.00	0.00			
07	TH-228	TRG	05/13/17 09:58	1.00E+00	98.03	0.00	0.00			
08	TH-228	TRG	05/13/17 09:55	1.06E+00	116.42	0.00	0.00			
09	TH-228	TRG	05/13/17 09:52	1.03E+00	114.74	0.00	0.00			
10	TH-228	TRG	05/13/17 09:49	1.09E+00	105.68	0.00	0.00			
11	TH-228	TRG	05/13/17 09:46	1.01E+00	111.78	0.00	0.00			
12	TH-228	TRG	05/13/17 09:43	1.07E+00	109.67	0.00	0.00			
13	TH-228	TRG	05/13/17 09:40	1.08E+00	120.68	0.00	0.00			
14	TH-228	TRG	05/13/17 17:06	1.03E+00	119.03	0.00	0.00			
15	TH-228	TRG	05/13/17 17:03	1.07E+00	120.98	0.00	0.00			
16	TH-228	TRG	05/13/17 17:00	1.02E+00	103.01	0.00	0.00			
17	TH-228	TRG	05/13/17 16:57	1.09E+00	85.84	0.00	0.00			
18	TH-228	TRG	05/13/17 16:54	1.01E+00	140.15	0.00	0.00			
19	TH-228	TRG	05/13/17 16:51	1.08E+00	140.11	0.00	0.00			
20	TH-228	TRG	05/13/17 16:48	1.06E+00	109.53	0.00	0.00			

Preliminary Data Report & Analytical Calculations

Work Order: 17-07082-ThISO-1

Client	Eberline Analytical Work Order	Analysis Code	Run
Weston Solutions, Inc.	17-07082	ThISO	1

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-228	LCS	08/15/17 11:53		A_Spec	Alpha_033	170	1.18 E+02	3.00 E-03	16.8
02	TH-228	MBL	08/15/17 11:53		A_Spec	Alpha_034	170	4.64 E+00	8.00 E-03	17.3
03	TH-228	DUP	08/15/17 11:53		A_Spec	Alpha_035	170	3.17 E+01	2.00 E-03	15.8
04	TH-228	DMSO	08/15/17 11:53		A_Spec	Alpha_036	170	3.80 E+01	6.00 E-03	18.2
05	TH-228	MS	08/15/17 11:53		A_Spec	Alpha_037	170	3.90 E+02	1.10 E-02	15.9
06	TH-228	MSD	08/15/17 11:53		A_Spec	Alpha_038	170	3.87 E+02	2.00 E-03	15.4
07	TH-228	TRG	08/15/17 11:53		A_Spec	Alpha_039	170	8.51 E+01	1.70 E-02	18.5
08	TH-228	TRG	08/15/17 11:53		A_Spec	Alpha_040	170	7.83 E+01	1.00 E-02	18.1
09	TH-228	TRG	08/15/17 11:53		A_Spec	Alpha_043	170	8.66 E+01	1.40 E-02	18.7
10	TH-228	TRG	08/15/17 11:53		A_Spec	Alpha_044	170	6.78 E+01	1.00 E-03	17.9
11	TH-228	TRG	08/15/17 11:53		A_Spec	Alpha_045	170	8.13 E+01	1.00 E-02	16.9
12	TH-228	TRG	08/15/17 11:53		A_Spec	Alpha_046	170	8.42 E+01	5.00 E-03	17.1
13	TH-228	TRG	08/15/17 11:53		A_Spec	Alpha_047	170	8.50 E+01	6.00 E-03	16.2
14	TH-228	TRG	08/15/17 11:53		A_Spec	Alpha_048	170	7.48 E+01	7.00 E-03	16.3
15	TH-228	TRG	08/15/17 11:54		A_Spec	Alpha_049	170	7.28 E+01	1.30 E-02	14.9
16	TH-228	TRG	08/15/17 11:54		A_Spec	Alpha_050	170	5.95 E+01	1.50 E-02	14.3
17	TH-228	TRG	08/15/17 11:54		A_Spec	Alpha_052	170	7.33 E+01	4.00 E-03	17.4
18	TH-228	TRG	08/15/17 11:54		A_Spec	Alpha_053	170	8.25 E+01	3.00 E-03	15.1
19	TH-228	TRG	08/15/17 11:54		A_Spec	Alpha_054	170	7.81 E+01	1.10 E-02	13.6
20	TH-228	TRG	08/15/17 11:54		A_Spec	Alpha_056	170	8.15 E+01	9.00 E-03	15.9

0203

Preliminary Data Report & Analytical Calculations
Work Order: 17-07082-ThISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07082
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	6.46E+00	1.75E+00	2.05E-01	5.35E+00	120.74	OK		OK	
02	TH-230	MBL	BLANK	pCi/g	5.65E-02	5.63E-02	6.61E-02					OK	OK
03	TH-230	DUP	HTC-A01-S005-0612-01	pCi/g	1.11E+00	3.64E-01	1.19E-01					OK	
04	TH-230	DMSO	HTC-A01-S005-0612-01	pCi/g	7.40E-01	2.46E-01	9.98E-02					OK	
05	TH-230	MS	HTC-A01-S005-0612-01	pCi/g	7.55E+00	1.59E+00	9.72E-02					OK	
06	TH-230	MSD	HTC-A01-S005-0612-01 MSD	pCi/g	7.12E+00	1.58E+00	1.06E-01					OK	
07	TH-230	TRG	HTC-A01-S005-0612-02	pCi/g	2.64E+00	5.88E-01	9.98E-02					OK	
08	TH-230	TRG	HTC-A01-S005-1218-01	pCi/g	1.48E+00	3.47E-01	6.22E-02					OK	
09	TH-230	TRG	HTC-A01-S005-1824-01	pCi/g	1.80E+00	4.01E-01	7.14E-02					OK	
10	TH-230	TRG	HTC-A01-S005-2430-01	pCi/g	1.06E+00	2.88E-01	8.14E-02					OK	
11	TH-230	TRG	HTC-A01-S005-3036-01	pCi/g	9.50E-01	2.74E-01	7.84E-02					OK	
12	TH-230	TRG	HTC-A01-S005-3642-01	pCi/g	1.26E+00	3.29E-01	7.87E-02					OK	
13	TH-230	TRG	HTC-A01-S005-4248-01	pCi/g	1.20E+00	3.09E-01	6.60E-02					OK	
14	TH-230	TRG	HTC-A01-S006-0006-01	pCi/g	9.14E-01	2.62E-01	6.36E-02					OK	
15	TH-230	TRG	HTC-A01-S006-0612-01	pCi/g	9.94E-01	2.84E-01	8.25E-02					OK	
16	TH-230	TRG	HTC-A01-S006-1218-01	pCi/g	1.12E+00	3.49E-01	1.45E-01					OK	
17	TH-230	TRG	HTC-A01-S006-1824-01	pCi/g	1.13E+00	3.39E-01	1.12E-01					OK	
18	TH-230	TRG	HTC-A01-S006-2430-01	pCi/g	1.03E+00	2.73E-01	6.52E-02					OK	
19	TH-230	TRG	HTC-A01-S006-3036-01	pCi/g	9.82E-01	2.73E-01	6.74E-02					OK	
20	TH-230	TRG	HTC-A01-S006-3642-01	pCi/g	1.25E+00	3.38E-01	8.07E-02					OK	

0204

Preliminary Data Report & Analytical Calculations

Work Order: 17-07082-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07082
Client: Weston Solutions, Inc.
0206

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	TH-230	LCS	07/18/17 00:00	1.00E+00	32.20	0.00	0.00			
02	TH-230	MBL	07/18/17 00:00	1.00E+00	122.00	0.00	0.00			
03	TH-230	DUP	05/13/17 09:58	1.04E+00	81.47	0.00	0.00			
04	TH-230	DMSO	05/13/17 09:58	1.04E+00	92.45	0.00	0.00			
05	TH-230	MS	05/13/17 09:58	1.03E+00	87.61	0.00	0.00			
06	TH-230	MSD	05/13/17 09:58	1.04E+00	82.13	0.00	0.00			
07	TH-230	TRG	05/13/17 09:58	1.00E+00	98.03	0.00	0.00			
08	TH-230	TRG	05/13/17 09:55	1.06E+00	116.42	0.00	0.00			
09	TH-230	TRG	05/13/17 09:52	1.03E+00	114.74	0.00	0.00			
10	TH-230	TRG	05/13/17 09:49	1.09E+00	105.68	0.00	0.00			
11	TH-230	TRG	05/13/17 09:46	1.01E+00	111.78	0.00	0.00			
12	TH-230	TRG	05/13/17 09:43	1.07E+00	109.67	0.00	0.00			
13	TH-230	TRG	05/13/17 09:40	1.08E+00	120.68	0.00	0.00			
14	TH-230	TRG	05/13/17 17:06	1.03E+00	119.03	0.00	0.00			
15	TH-230	TRG	05/13/17 17:03	1.07E+00	120.98	0.00	0.00			
16	TH-230	TRG	05/13/17 17:00	1.02E+00	103.01	0.00	0.00			
17	TH-230	TRG	05/13/17 16:57	1.09E+00	85.84	0.00	0.00			
18	TH-230	TRG	05/13/17 16:54	1.01E+00	140.15	0.00	0.00			
19	TH-230	TRG	05/13/17 16:51	1.08E+00	140.11	0.00	0.00			
20	TH-230	TRG	05/13/17 16:48	1.06E+00	109.53	0.00	0.00			

Preliminary Data Report & Analytical Calculations

Work Order: 17-07082-ThISO-1

Run	Analysis Code	Eberline Analytical Work Order	Client
1	ThISO	17-07082	Weston Solutions, Inc.

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-230	LCS	08/15/17 11:53		A_Spec	Alpha_033	170	1.32 E+02	1.00 E-03	16.8
02	TH-230	MBL	08/15/17 11:53		A_Spec	Alpha_034	170	4.49 E+00	3.00 E-03	17.3
03	TH-230	DUP	08/15/17 11:53		A_Spec	Alpha_035	170	5.60 E+01	0.00 E+00	15.8
04	TH-230	DMSO	08/15/17 11:53		A_Spec	Alpha_036	170	4.88 E+01	7.00 E-03	18.2
05	TH-230	MS	08/15/17 11:53		A_Spec	Alpha_037	170	4.07 E+02	3.00 E-03	15.9
06	TH-230	MSD	08/15/17 11:53		A_Spec	Alpha_038	170	3.53 E+02	3.00 E-03	15.4
07	TH-230	TRG	08/15/17 11:53		A_Spec	Alpha_039	170	1.82 E+02	8.00 E-03	18.5
08	TH-230	TRG	08/15/17 11:53		A_Spec	Alpha_040	170	1.24 E+02	3.00 E-03	18.1
09	TH-230	TRG	08/15/17 11:53		A_Spec	Alpha_043	170	1.51 E+02	5.00 E-03	18.7
10	TH-230	TRG	08/15/17 11:53		A_Spec	Alpha_044	170	8.20 E+01	6.00 E-03	17.9
11	TH-230	TRG	08/15/17 11:53		A_Spec	Alpha_045	170	6.83 E+01	4.00 E-03	16.9
12	TH-230	TRG	08/15/17 11:53		A_Spec	Alpha_046	170	9.62 E+01	5.00 E-03	17.1
13	TH-230	TRG	08/15/17 11:53		A_Spec	Alpha_047	170	9.55 E+01	3.00 E-03	16.2
14	TH-230	TRG	08/15/17 11:53		A_Spec	Alpha_048	170	6.87 E+01	2.00 E-03	16.3
15	TH-230	TRG	08/15/17 11:54		A_Spec	Alpha_049	170	7.22 E+01	5.00 E-03	14.9
16	TH-230	TRG	08/15/17 11:54		A_Spec	Alpha_050	170	6.36 E+01	1.40 E-02	14.3
17	TH-230	TRG	08/15/17 11:54		A_Spec	Alpha_052	170	6.96 E+01	8.00 E-03	17.4
18	TH-230	TRG	08/15/17 11:54		A_Spec	Alpha_053	170	8.25 E+01	3.00 E-03	15.1
19	TH-230	TRG	08/15/17 11:54		A_Spec	Alpha_054	170	7.65 E+01	3.00 E-03	13.6
20	TH-230	TRG	08/15/17 11:54		A_Spec	Alpha_056	170	8.73 E+01	4.00 E-03	15.9

0206

Preliminary Data Report & Analytical Calculations

Work Order: 17-07082-ThISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07082
Analysis Code: ThISO
Run: 1
0207

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	5.63E+00	1.57E+00	2.93E-01	4.80E+00	117.14	OK		OK	
02	TH-232	MBL	BLANK	pCi/g	-2.14E-03	2.50E-02	5.24E-02					OK	OK
03	TH-232	DUP	HTC-A01-S005-0612-01	pCi/g	3.73E-01	1.84E-01	8.27E-02					OK	
04	TH-232	DMSO	HTC-A01-S005-0612-01	pCi/g	3.40E-01	1.54E-01	7.94E-02					OK	
05	TH-232	MS	HTC-A01-S005-0612-01	pCi/g	7.68E+00	1.61E+00	1.11E-01					OK	
06	TH-232	MSD	HTC-A01-S005-0612-01 MSD	pCi/g	6.35E+00	1.43E+00	1.27E-01					OK	
07	TH-232	TRG	HTC-A01-S005-0612-02	pCi/g	1.02E+00	2.95E-01	8.70E-02					OK	
08	TH-232	TRG	HTC-A01-S005-1218-01	pCi/g	1.06E+00	2.75E-01	5.66E-02					OK	
09	TH-232	TRG	HTC-A01-S005-1824-01	pCi/g	9.31E-01	2.53E-01	7.13E-02					OK	
10	TH-232	TRG	HTC-A01-S005-2430-01	pCi/g	1.13E+00	3.00E-01	6.76E-02					OK	
11	TH-232	TRG	HTC-A01-S005-3036-01	pCi/g	1.21E+00	3.25E-01	1.19E-01					OK	
12	TH-232	TRG	HTC-A01-S005-3642-01	pCi/g	1.24E+00	3.25E-01	9.33E-02					OK	
13	TH-232	TRG	HTC-A01-S005-4248-01	pCi/g	1.06E+00	2.84E-01	7.09E-02					OK	
14	TH-232	TRG	HTC-A01-S006-0006-01	pCi/g	1.18E+00	3.12E-01	7.95E-02					OK	
15	TH-232	TRG	HTC-A01-S006-0612-01	pCi/g	1.04E+00	2.92E-01	7.22E-02					OK	
16	TH-232	TRG	HTC-A01-S006-1218-01	pCi/g	9.58E-01	3.10E-01	9.95E-02					OK	
17	TH-232	TRG	HTC-A01-S006-1824-01	pCi/g	1.18E+00	3.46E-01	9.17E-02					OK	
18	TH-232	TRG	HTC-A01-S006-2430-01	pCi/g	1.08E+00	2.82E-01	5.18E-02					OK	
19	TH-232	TRG	HTC-A01-S006-3036-01	pCi/g	1.03E+00	2.82E-01	6.13E-02					OK	
20	TH-232	TRG	HTC-A01-S006-3642-01	pCi/g	1.25E+00	3.39E-01	9.41E-02					OK	

Preliminary Data Report & Analytical Calculations
Work Order: 17-07082-ThISO-1

Client	Eberline Analytical Work Order	Analysis Code	Run
Weston Solutions, Inc.	17-07082	ThISO	1

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	TH-232	LCS	07/18/17 00:00	1.00E+00	32.20	0.00	0.00			
02	TH-232	MBL	07/18/17 00:00	1.00E+00	122.00	0.00	0.00			
03	TH-232	DUP	05/13/17 09:58	1.04E+00	81.47	0.00	0.00			
04	TH-232	DMSO	05/13/17 09:58	1.04E+00	92.45	0.00	0.00			
05	TH-232	MS	05/13/17 09:58	1.03E+00	87.61	0.00	0.00			
06	TH-232	MSD	05/13/17 09:58	1.04E+00	82.13	0.00	0.00			
07	TH-232	TRG	05/13/17 09:58	1.00E+00	98.03	0.00	0.00			
08	TH-232	TRG	05/13/17 09:55	1.06E+00	116.42	0.00	0.00			
09	TH-232	TRG	05/13/17 09:52	1.03E+00	114.74	0.00	0.00			
10	TH-232	TRG	05/13/17 09:49	1.09E+00	105.68	0.00	0.00			
11	TH-232	TRG	05/13/17 09:46	1.01E+00	111.78	0.00	0.00			
12	TH-232	TRG	05/13/17 09:43	1.07E+00	109.67	0.00	0.00			
13	TH-232	TRG	05/13/17 09:40	1.08E+00	120.68	0.00	0.00			
14	TH-232	TRG	05/13/17 17:06	1.03E+00	119.03	0.00	0.00			
15	TH-232	TRG	05/13/17 17:03	1.07E+00	120.98	0.00	0.00			
16	TH-232	TRG	05/13/17 17:00	1.02E+00	103.01	0.00	0.00			
17	TH-232	TRG	05/13/17 16:57	1.09E+00	85.84	0.00	0.00			
18	TH-232	TRG	05/13/17 16:54	1.01E+00	140.15	0.00	0.00			
19	TH-232	TRG	05/13/17 16:51	1.08E+00	140.11	0.00	0.00			
20	TH-232	TRG	05/13/17 16:48	1.06E+00	109.53	0.00	0.00			

0208

Preliminary Data Report & Analytical Calculations

Work Order: 17-07082-ThISO-1

Client	Eberline Analytical Work Order	Analysis Code	Run
Weston Solutions, Inc.	17-07082	ThISO	1

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-232	LCS	08/15/17 11:53		A_Spec	Alpha_033	170	1.15 E+02	0.00 E+00	16.8
02	TH-232	MBL	08/15/17 11:53		A_Spec	Alpha_034	170	-1.70 E-01	1.00 E-03	17.3
03	TH-232	DUP	08/15/17 11:53		A_Spec	Alpha_035	170	1.88 E+01	1.00 E-03	15.8
04	TH-232	DMSO	08/15/17 11:53		A_Spec	Alpha_036	170	2.25 E+01	3.00 E-03	18.2
05	TH-232	MS	08/15/17 11:53		A_Spec	Alpha_037	170	4.15 E+02	5.00 E-03	15.9
06	TH-232	MSD	08/15/17 11:53		A_Spec	Alpha_038	170	3.16 E+02	6.00 E-03	15.4
07	TH-232	TRG	08/15/17 11:53		A_Spec	Alpha_039	170	7.02 E+01	5.00 E-03	18.5
08	TH-232	TRG	08/15/17 11:53		A_Spec	Alpha_040	170	8.97 E+01	2.00 E-03	18.1
09	TH-232	TRG	08/15/17 11:53		A_Spec	Alpha_043	170	7.82 E+01	5.00 E-03	18.7
10	TH-232	TRG	08/15/17 11:53		A_Spec	Alpha_044	170	8.75 E+01	3.00 E-03	17.9
11	TH-232	TRG	08/15/17 11:53		A_Spec	Alpha_045	170	8.73 E+01	1.60 E-02	16.9
12	TH-232	TRG	08/15/17 11:53		A_Spec	Alpha_046	170	9.45 E+01	9.00 E-03	17.1
13	TH-232	TRG	08/15/17 11:53		A_Spec	Alpha_047	170	8.43 E+01	4.00 E-03	16.2
14	TH-232	TRG	08/15/17 11:53		A_Spec	Alpha_048	170	8.92 E+01	5.00 E-03	16.3
15	TH-232	TRG	08/15/17 11:54		A_Spec	Alpha_049	170	7.55 E+01	3.00 E-03	14.9
16	TH-232	TRG	08/15/17 11:54		A_Spec	Alpha_050	170	5.43 E+01	4.00 E-03	14.3
17	TH-232	TRG	08/15/17 11:54		A_Spec	Alpha_052	170	7.23 E+01	4.00 E-03	17.4
18	TH-232	TRG	08/15/17 11:54		A_Spec	Alpha_053	170	8.68 E+01	1.00 E-03	15.1
19	TH-232	TRG	08/15/17 11:54		A_Spec	Alpha_054	170	8.07 E+01	2.00 E-03	13.6
20	TH-232	TRG	08/15/17 11:54		A_Spec	Alpha_056	170	8.78 E+01	7.00 E-03	15.9

0209

Count Room Report
Client: Weston Solutions, Inc.

17-07082-ThISO-1 (pCi/g) in SO
Tracer ID: Th-18a

#33-35

Internal Fraction	Sample Desc	Client ID	Sample Date	Sample Aliquot	Tracer Aliquot (g)	Tracer ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	SAF 1*	SAF 2*
01	LCS	LCS	07/18/17 00:00	1.0000	0.4660	10.4664		0.00		
02	MBL	BLANK	07/18/17 00:00	1.0000	0.2329	5.2309		0.00		
03	DUP	HTC-A01-S005-0612-01	05/13/17 09:58	1.0393	0.2337	5.2489		0.00		
04	DMSO	HTC-A01-S005-0612-01	05/13/17 09:58	1.0390	0.2330	5.2332		0.00		
05	MS	HTC-A01-S005-0612-01	05/13/17 09:58	1.0299	0.2329	5.2309		0.00		
06	MSD	HTC-A01-S005-0612-01 MSD	05/13/17 09:58	1.0396	0.2314	5.1972		0.00		
07	TRG	HTC-A01-S005-0612-02	05/13/17 09:58	1.0049	0.2315	5.1995		0.00		
08	TRG	HTC-A01-S005-1218-01	05/13/17 09:55	1.0611	0.2322	5.2152		0.00		
09	TRG	HTC-A01-S005-1824-01	05/13/17 09:52	1.0343	0.2320	5.2107		0.00		
10	TRG	HTC-A01-S005-2430-01	05/13/17 09:49	1.0851	0.2332	5.2377		0.00		
11	TRG	HTC-A01-S005-3036-01	05/13/17 09:46	1.0123	0.2330	5.2332		0.00		
12	TRG	HTC-A01-S005-3642-01	05/13/17 09:43	1.0746	0.2311	5.1905		0.00		
13	TRG	HTC-A01-S005-4248-01	05/13/17 09:40	1.0769	0.2336	5.2467		0.00		
14	TRG	HTC-A01-S006-0006-01	05/13/17 17:06	1.0260	0.2335	5.2444		0.00		
15	TRG	HTC-A01-S006-0612-01	05/13/17 17:03	1.0701	0.2327	5.2264		0.00		
16	TRG	HTC-A01-S006-1218-01	05/13/17 17:00	1.0183	0.2325	5.2220		0.00		
17	TRG	HTC-A01-S006-1824-01	05/13/17 16:57	1.0933	0.2327	5.2264		0.00		
18	TRG	HTC-A01-S006-2430-01	05/13/17 16:54	1.0062	0.2332	5.2377		0.00		
19	TRG	HTC-A01-S006-3036-01	05/13/17 16:51	1.0826	0.2322	5.2152		0.00		
20	TRG	HTC-A01-S006-3642-01	05/13/17 16:48	1.0621	0.2329	5.2309		0.00		

Eberline Analytical
Oak Ridge Laboratory

Spike and Tracer Worksheet

Printed: 8/2/2017 2:54 PM

Internal Work Order	Run	Analysis Code	Date	Technician	Technician Initials	Witness Initials
17-07082	1	ThISO	8/2/2017 14:48	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	8/2/2017	0.100	0.1030	0.1548		0.1589	4.80	0.173	7.22	0.260	0.00	0.000	7.41	0.267
Th-230	Th-1b	23.520	8/2/2017	0.500	0.5053	0.6562		0.7046	5.35	0.145	6.95	0.188	0.00	0.000	7.47	0.202
Th-232	Th-8b	103.560	8/2/2017	0.100	0.1030	0.1548		0.1589	4.80	0.173	7.22	0.260	0.00	0.000	7.41	0.267

Tracers						
fraction	Isotope	Sol #	Activity dpm/g	Solution Date	Volume Used (g)	Approx Addition
01	Th-229	Th-18a	22.460	8/2/2017	0.4660	0.2200
02	Th-229	Th-18a	22.460	8/2/2017	0.2329	0.2200
03	Th-229	Th-18a	22.460	8/2/2017	0.2337	0.2200
04	Th-229	Th-18a	22.460	8/2/2017	0.2330	0.2200
05	Th-229	Th-18a	22.460	8/2/2017	0.2329	0.2200
06	Th-229	Th-18a	22.460	8/2/2017	0.2314	0.2200
07	Th-229	Th-18a	22.460	8/2/2017	0.2315	0.2200
08	Th-229	Th-18a	22.460	8/2/2017	0.2322	0.2200
09	Th-229	Th-18a	22.460	8/2/2017	0.2320	0.2200
10	Th-229	Th-18a	22.460	8/2/2017	0.2332	0.2200
11	Th-229	Th-18a	22.460	8/2/2017	0.2330	0.2200
12	Th-229	Th-18a	22.460	8/2/2017	0.2311	0.2200
13	Th-229	Th-18a	22.460	8/2/2017	0.2336	0.2200
14	Th-229	Th-18a	22.460	8/2/2017	0.2335	0.2200
15	Th-229	Th-18a	22.460	8/2/2017	0.2327	0.2200
16	Th-229	Th-18a	22.460	8/2/2017	0.2325	0.2200
17	Th-229	Th-18a	22.460	8/2/2017	0.2327	0.2200
18	Th-229	Th-18a	22.460	8/2/2017	0.2332	0.2200
19	Th-229	Th-18a	22.460	8/2/2017	0.2322	0.2200
20	Th-229	Th-18a	22.460	8/2/2017	0.2329	0.2200

Balance Printer Tapes	
Tracer	LCS
	Matrix Spike

0211

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
17-07082	1	ThISO	grams	8/9/2017	JHARVEY

Lab Fraction	Weston Solutions, Inc. Client ID	Sample Type	Muffle Data Ratio Post/Pre	Dilution Data No of Dils	Dil Factor	Ratio	Aliquot Data Aliquot	Net Equiv	MS Aliquot Data Aliquot	Net Equiv	H-3 Solids Only Water Added (ml)	H3 Dist Aliq
01	LCS	LCS				1.00E+00	1.0000E+00	1.0000E+00				
02	BLANK	MBL				1.00E+00	1.0000E+00	1.0000E+00				
03	HTC-A01-S005-0612-01	DUP				1.00E+00	1.0393E+00	1.0393E+00				
04	HTC-A01-S005-0612-01	DMSO				1.00E+00	1.0390E+00	1.0390E+00				
05	HTC-A01-S005-0612-01	MS				1.00E+00	1.0299E+00	1.0299E+00				
06	HTC-A01-S005-0612-01 MSD	MSD				1.00E+00	1.0396E+00	1.0396E+00				
07	HTC-A01-S005-0612-02	TRG				1.00E+00	1.0049E+00	1.0049E+00				
08	HTC-A01-S005-1218-01	TRG				1.00E+00	1.0611E+00	1.0611E+00				
09	HTC-A01-S005-1824-01	TRG				1.00E+00	1.0343E+00	1.0343E+00				
10	HTC-A01-S005-2430-01	TRG				1.00E+00	1.0851E+00	1.0851E+00				
11	HTC-A01-S005-3036-01	TRG				1.00E+00	1.0123E+00	1.0123E+00				
12	HTC-A01-S005-3642-01	TRG				1.00E+00	1.0746E+00	1.0746E+00				
13	HTC-A01-S005-4248-01	TRG				1.00E+00	1.0769E+00	1.0769E+00				
14	HTC-A01-S006-0006-01	TRG				1.00E+00	1.0260E+00	1.0260E+00				
15	HTC-A01-S006-0612-01	TRG				1.00E+00	1.0701E+00	1.0701E+00				
16	HTC-A01-S006-1218-01	TRG				1.00E+00	1.0183E+00	1.0183E+00				
17	HTC-A01-S006-1824-01	TRG				1.00E+00	1.0933E+00	1.0933E+00				
18	HTC-A01-S006-2430-01	TRG				1.00E+00	1.0062E+00	1.0062E+00				
19	HTC-A01-S006-3036-01	TRG				1.00E+00	1.0826E+00	1.0826E+00				
20	HTC-A01-S006-3642-01	TRG				1.00E+00	1.0621E+00	1.0621E+00				

Comments	

0212

Technician: JHarvey Date: 8/2/17

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
17-07082	8/9/2017	7/24/2017	7/25/2017	7/26/2017	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-S005-0612-01	14.5900	839.8400	680.3700	825.2500	665.7800	19.32%	80.68%	0.0000	0.0000	
05	HTC-A01-S005-0612-01 MS	14.5700	815.1800	660.3900	800.6100	645.8200	19.33%	80.67%	0.0000	0.0000	
06	HTC-A01-S005-0612-01 MSD	14.5700	815.1800	660.3900	800.6100	645.8200	19.33%	80.67%	0.0000	0.0000	
07	HTC-A01-S005-0612-02	14.5600	818.0200	662.0600	803.4600	647.5000	19.41%	80.59%	0.0000	0.0000	
08	HTC-A01-S005-1218-01	14.5800	951.3600	778.2000	936.7800	763.6200	18.48%	81.52%	0.0000	0.0000	
09	HTC-A01-S005-1824-01	14.5600	989.1800	801.6400	974.6200	787.0800	19.24%	80.76%	0.0000	0.0000	
10	HTC-A01-S005-2430-01	14.5600	817.2600	664.2600	802.7000	649.7000	19.06%	80.94%	0.0000	0.0000	
11	HTC-A01-S005-3036-01	14.5800	1027.5200	835.8400	1012.9400	821.2600	18.92%	81.08%	0.0000	0.0000	
12	HTC-A01-S005-3642-01	14.5400	1081.6400	871.0200	1067.1000	856.4800	19.74%	80.26%	0.0000	0.0000	
13	HTC-A01-S005-4248-01	14.6100	970.4800	778.0800	955.8700	763.4700	20.13%	79.87%	0.0000	0.0000	
14	HTC-A01-S006-0006-01	14.6000	888.7800	719.5800	874.1800	704.9800	19.36%	80.64%	0.0000	0.0000	
15	HTC-A01-S006-0612-01	14.6700	940.3000	778.0500	925.6300	763.3800	17.53%	82.47%	0.0000	0.0000	
16	HTC-A01-S006-1218-01	14.6900	934.2600	788.2500	919.5700	773.5600	15.88%	84.12%	0.0000	0.0000	
17	HTC-A01-S006-1824-01	14.6500	919.2400	761.4200	904.5900	746.7700	17.45%	82.55%	0.0000	0.0000	
18	HTC-A01-S006-2430-01	14.5700	970.4000	821.0600	955.8300	806.4900	15.62%	84.38%	0.0000	0.0000	
19	HTC-A01-S006-3036-01	14.5500	890.7600	735.7800	876.2100	721.2300	17.69%	82.31%	0.0000	0.0000	
20	HTC-A01-S006-3642-01	14.5600	991.9600	816.7800	977.4000	802.2200	17.92%	82.08%	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: Kenny Sallings

Date: **Analysis: Rough Prep Logbook**

Analysis: ThISO Page No. 10142

KB 8/16/17

Apex-Alpha™

Sample Description: SPIKE
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001914
Batch Identification: 1707082A-TH
Sample Identification: 01
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: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 8/15/2017 6:21:48 AM
Acquisition Date/Time: 8/15/2017 11:53:21 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.466 mL
Effective Efficiency: 0.0541 +/- 0.0058
Counting Efficiency: 0.1681 +/- 0.0029 on 11/18/2016 10:08:33 AM
Chem. Recovery Factor: 0.3220 +/- 0.0349

Control Certificate Name: NatTh_Th-8
Chem. Recov. of Control: TH-232 1.171369 +/- 0.170151
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		5.831	7.83	70.93	0.17	0.00E+000	3.0
TH-228		5.367	118.49	18.05	0.51	0.00E+000	7.1
TH-229	T	4.845	96.32	20.05	0.68	0.00E+000	3.3
TH-230		4.623	131.83	17.08	0.17	0.00E+000	4.7
TH-232		3.955	115.00	18.36	0.00	0.00E+000	4.2

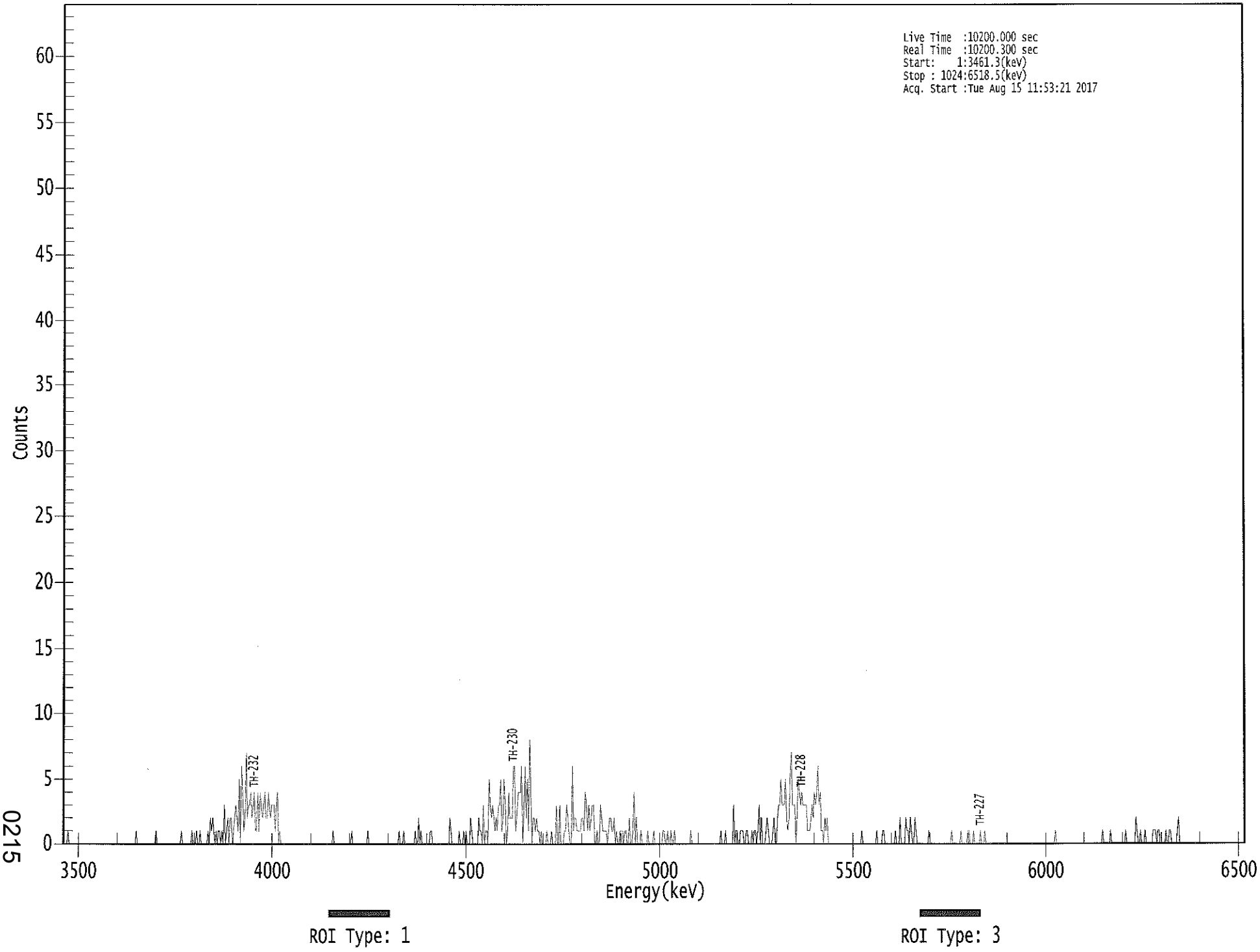
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.998	5850.00*	3.93E-001 +/- 2.91E-001	2.09E-001 +/- 4.39E-002
TH-228	0.994	5400.00*	5.80E+000 +/- 1.61E+000	2.57E-001 +/- 5.39E-002
TH-229	0.996	4872.00*	4.74E+000 +/- 9.93E-001	2.77E-001 +/- 5.81E-002
TH-230	0.988	4672.00*	6.46E+000 +/- 1.75E+000	2.05E-001 +/- 4.29E-002
TH-232	0.991	3997.00*	5.63E+000 +/- 1.57E+000	2.93E-001 +/- 6.15E-002

AG 8/16/17

0000191436.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: 10200
Elapsed Real Time: 10200

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

369:	5	3	2	3	2	1	2	1

Sample Title: 01

Channel								
377:	3	3	5	1	2	5	3	0
385:	1	4	2	2	2	6	6	1
393:	2	4	4	4	6	0	3	6
401:	2	5	1	8	4	0	2	2
409:	1	2	1	1	0	1	0	0
417:	0	0	1	0	0	0	1	0
425:	0	0	3	0	0	3	0	0
433:	0	1	1	3	2	1	0	0
441:	6	1	2	2	1	1	1	1
449:	2	2	1	4	3	1	3	1
457:	2	3	3	0	0	1	0	0
465:	3	2	1	1	1	1	0	1
473:	2	2	1	1	2	0	1	0
481:	0	1	1	1	0	1	1	0
489:	0	2	0	0	1	4	0	2
497:	0	0	0	1	0	0	0	0
505:	0	1	0	0	0	0	1	0
513:	0	0	0	0	0	0	1	1
521:	0	0	1	0	0	1	0	0
529:	1	0	0	0	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:	1	0	0	0	1	0	0	0
577:	0	0	0	3	0	1	1	0
585:	0	1	1	1	0	0	1	1
593:	0	0	0	1	0	1	1	0
601:	1	3	0	2	0	0	0	1
609:	2	1	0	0	0	1	2	0
617:	0	2	3	3	5	3	3	3
625:	5	2	1	2	5	7	3	3
633:	3	0	2	5	4	3	4	3
641:	3	3	3	1	1	1	2	3
649:	2	4	3	4	6	3	4	1
657:	1	0	2	1	2	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	1	0	0	0	0	0
697:	0	0	0	0	0	0	0	1
705:	0	0	0	0	1	1	0	0
713:	0	0	0	0	0	0	0	1
721:	0	0	0	2	0	0	0	0
729:	2	1	1	0	2	1	0	0
737:	2	1	0	0	0	0	0	0
745:	0	0	0	0	1	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	1	0	0	0	0	0	0	0
777:	1	0	0	0	0	0	1	1
785:	0	0	0	1	0	0	0	0
793:	0	1	0	0	0	1	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	1	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	1	0	0	0	0
905:	0	0	1	0	0	0	0	0
913:	0	0	0	0	0	0	0	1
921:	0	0	0	0	0	0	0	0
929:	2	1	0	0	1	0	0	0
937:	1	0	0	0	0	0	0	1
945:	1	1	0	1	1	0	0	0
953:	0	0	1	0	0	1	1	0
961:	0	0	0	0	1	2	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 8/16/17

Sample Description: BLANK
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001914
Batch Identification: 1707082A-TH
Sample Identification: 02
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: 8/15/2017 6:21:48 AM
Acquisition Date/Time: 8/15/2017 11:53:23 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.233 mL
Effective Efficiency: 0.2109 +/- 0.0168
Counting Efficiency: 0.1728 +/- 0.0029 on 11/18/2016 10:08:58 AM
Chem. Recovery Factor: 1.2200 +/- 0.0991

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.801	0.64	457.45	1.36	0.00E+000	3.0
TH-228		5.306	4.64	105.44	1.36	0.00E+000	3.0
TH-229	T	4.880	187.49	14.34	0.51	0.00E+000	4.2
TH-230		4.643	4.49	98.45	0.51	0.00E+000	3.0
TH-232		3.949	-0.17	1169.4	0.17	0.00E+000	0.0

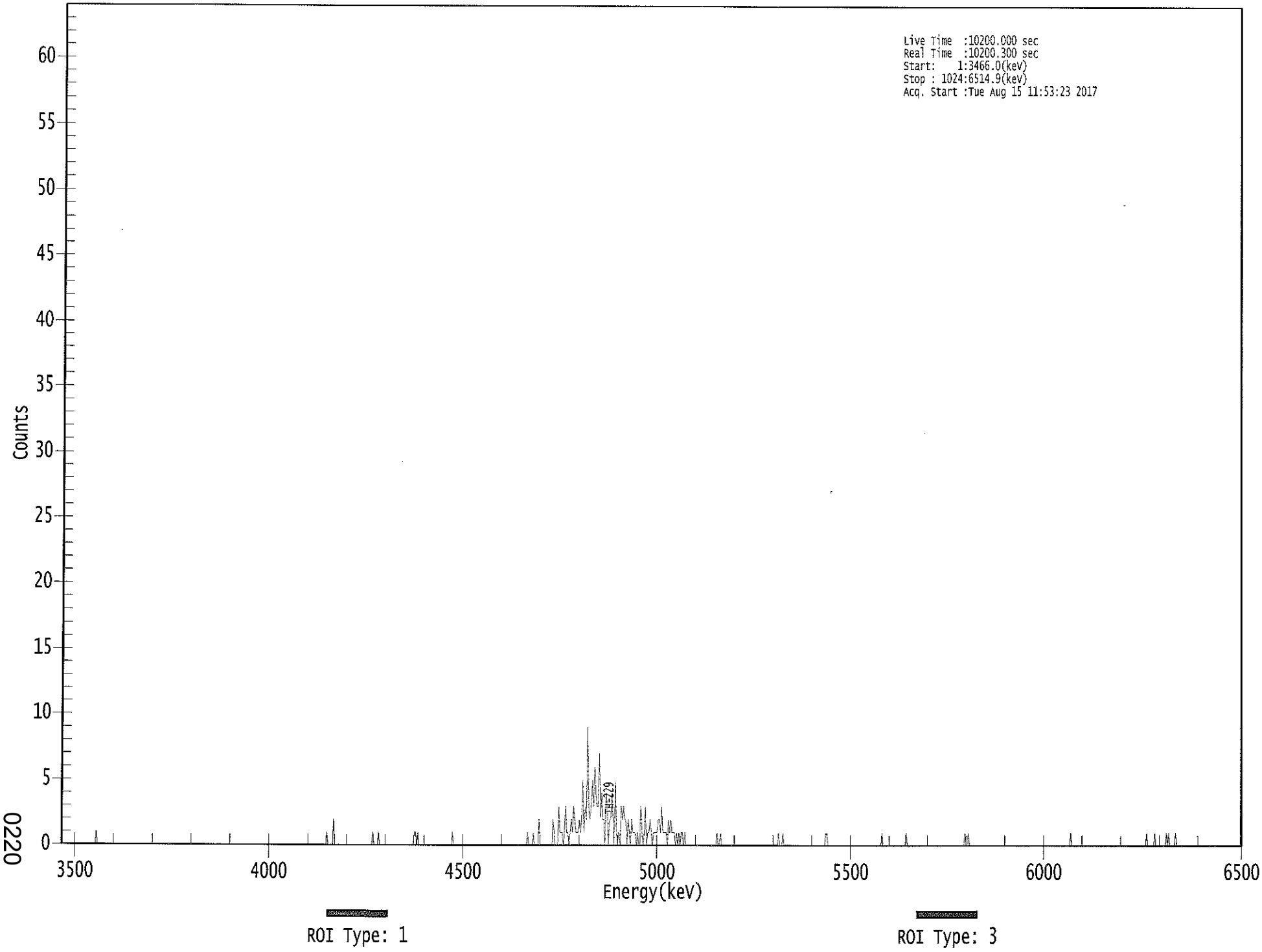
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.988	5850.00*	8.25E-003 +/- 3.78E-002	8.84E-002 +/- 1.38E-002
TH-228	0.955	5400.00*	5.84E-002 +/- 6.22E-002	8.62E-002 +/- 1.34E-002
TH-229	1.000	4872.00*	2.37E+000 +/- 3.69E-001	6.63E-002 +/- 1.03E-002
TH-230	0.996	4672.00*	5.65E-002 +/- 5.63E-002	6.61E-002 +/- 1.03E-002
TH-232	0.988	3997.00*	-2.14E-003 +/- 2.50E-002	5.24E-002 +/- 8.17E-003

AG 8/16/17

0000191419.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:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	1	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	0	0	0
153:	0	0	0	0	0	0	0	0
161:	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0
177:	0	0	0	0	0	0	0	0
185:	0	0	0	0	0	0	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	1	0	0
233:	0	0	0	2	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	1	0	0
273:	0	0	1	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	1	1	0	1	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	1	0	0	0	0	0
345:	0	0	0	0	0	0	0	0
353:	0	0	0	0	0	0	0	0
361:	0	0	0	0	0	0	0	0

369:	0	0	0	0	0	0	0	0

Sample Title: 02

Channel								
377:	0	0	0	0	0	0	0	0
385:	0	0	0	0	0	0	0	0
393:	0	0	0	0	0	0	0	0
401:	0	0	0	1	0	0	0	0
409:	1	0	0	0	0	2	0	0
417:	0	0	0	0	0	0	0	0
425:	0	2	1	0	0	0	3	1
433:	1	1	0	1	3	1	1	0
441:	1	2	1	3	2	1	1	1
449:	2	1	2	5	1	3	2	9
457:	3	2	3	5	3	6	4	3
465:	3	7	2	4	2	2	0	4
473:	3	0	2	2	4	2	0	5
481:	1	0	1	0	3	2	3	2
489:	2	0	2	1	0	2	1	1
497:	1	0	1	0	0	3	1	0
505:	1	3	0	1	1	2	1	0
513:	1	1	1	1	2	2	1	3
521:	1	1	1	1	0	2	1	2
529:	1	1	1	0	1	0	1	0
537:	1	1	0	1	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	1
569:	0	0	1	0	0	0	0	0
577:	0	0	0	0	0	0	0	0
585:	0	0	0	0	0	0	0	0
593:	0	0	0	0	0	0	0	0
601:	0	0	0	0	0	0	0	0
609:	0	0	0	0	0	0	0	0
617:	0	0	0	0	1	0	0	0
625:	1	0	0	0	0	0	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	1	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	0	1	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	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	1	0
785:	0	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: 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	1	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	1	0	0	0
945:	0	0	0	1	0	0	0	0
953:	0	0	0	0	0	1	0	1
961:	0	0	0	0	0	1	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

KP 8/15/17

Sample Description: HTC-A01-S005-0612-01-DUP
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001914
Batch Identification: 1707082A-TH
Sample Identification: 03
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: 1.039E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:21:48 AM
Acquisition Date/Time: 8/15/2017 11:53:25 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: 0.1287 +/- 0.0127
Counting Efficiency: 0.1580 +/- 0.0027 on 11/18/2016 10:08:56 AM
Chem. Recovery Factor: 0.8147 +/- 0.0814

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.870	8.32	71.13	0.68	0.00E+000	3.0
TH-228		5.395	31.66	35.05	0.34	0.00E+000	3.6
TH-229	T	4.897	114.83	18.31	0.17	0.00E+000	10.3
TH-230		4.650	56.00	26.42	0.00	0.00E+000	10.7
TH-232		3.964	18.83	45.41	0.17	0.00E+000	4.5

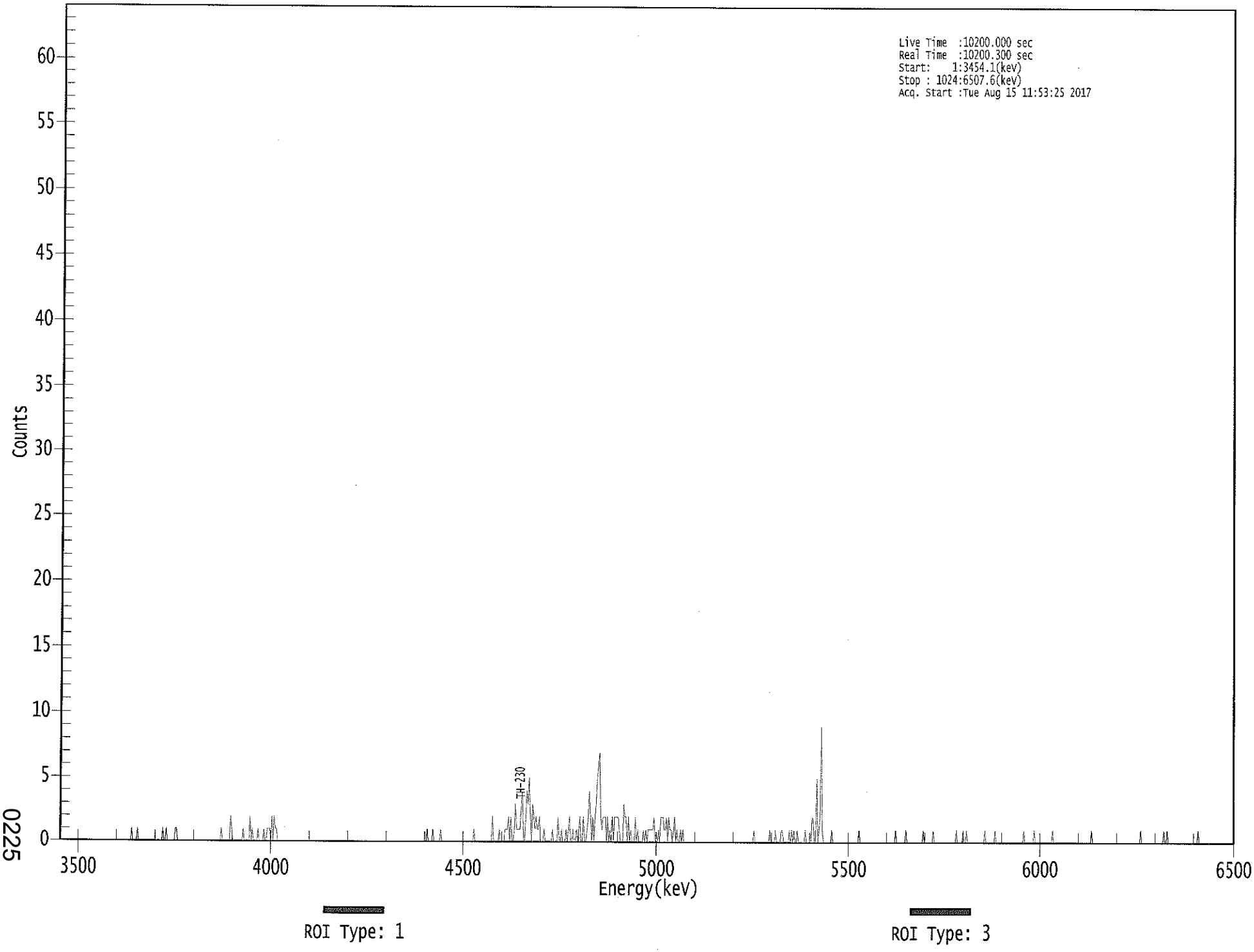
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.998	5850.00*	1.70E-001 +/- 1.26E-001	1.16E-001 +/- 2.23E-002
TH-228	1.000	5400.00*	6.89E-001 +/- 2.76E-001	1.04E-001 +/- 2.01E-002
TH-229	0.997	4872.00*	2.29E+000 +/- 4.41E-001	8.31E-002 +/- 1.60E-002
TH-230	0.997	4672.00*	1.11E+000 +/- 3.64E-001	1.19E-001 +/- 2.30E-002
TH-232	0.994	3997.00*	3.73E-001 +/- 1.84E-001	8.27E-002 +/- 1.59E-002

AG
8/16/17

0000191403.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:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	1	0
65:	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	1	0	0	1	0	0	0
97:	0	0	0	0	1	1	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	1	0	0	0
145:	0	0	0	0	2	1	0	0
153:	0	0	0	0	0	0	0	1
161:	0	0	0	0	0	2	0	1
169:	0	0	0	0	1	0	0	0
177:	0	1	0	0	1	1	1	0
185:	2	0	2	1	1	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	1
321:	0	0	0	0	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:	0	0	0	0	0	0	0	0
361:	1	0	0	0	0	0	0	0

369:	0	0	0	0	0	0	0	0

Sample Title: 03

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

801:	0	0	0	0	0	1	0	0

Sample Title: 03

Channel								
809:	0	0	0	0	0	0	1	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:	1	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	1	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	1	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	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	1	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	1
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 8/15/17

Apex-Alpha™

Sample Description: HTC-A01-S005-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001914
Batch Identification: 1707082A-TH
Sample Identification: 04
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: 1.039E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:21:48 AM
Acquisition Date/Time: 8/15/2017 11:53:26 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.233 mL
Effective Efficiency: 0.1686 +/- 0.0148
Counting Efficiency: 0.1824 +/- 0.0031 on 11/18/2016 10:08:54 AM
Chem. Recovery Factor: 0.9245 +/- 0.0825

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		5.821	5.66	85.23	0.34	0.00E+000	3.0
TH-228		5.368	37.98	32.30	1.02	0.00E+000	4.5
TH-229	T	4.874	149.98	16.07	1.02	0.00E+000	4.9
TH-230		4.640	48.81	28.45	1.19	0.00E+000	5.9
TH-232		3.975	22.49	41.87	0.51	0.00E+000	5.9

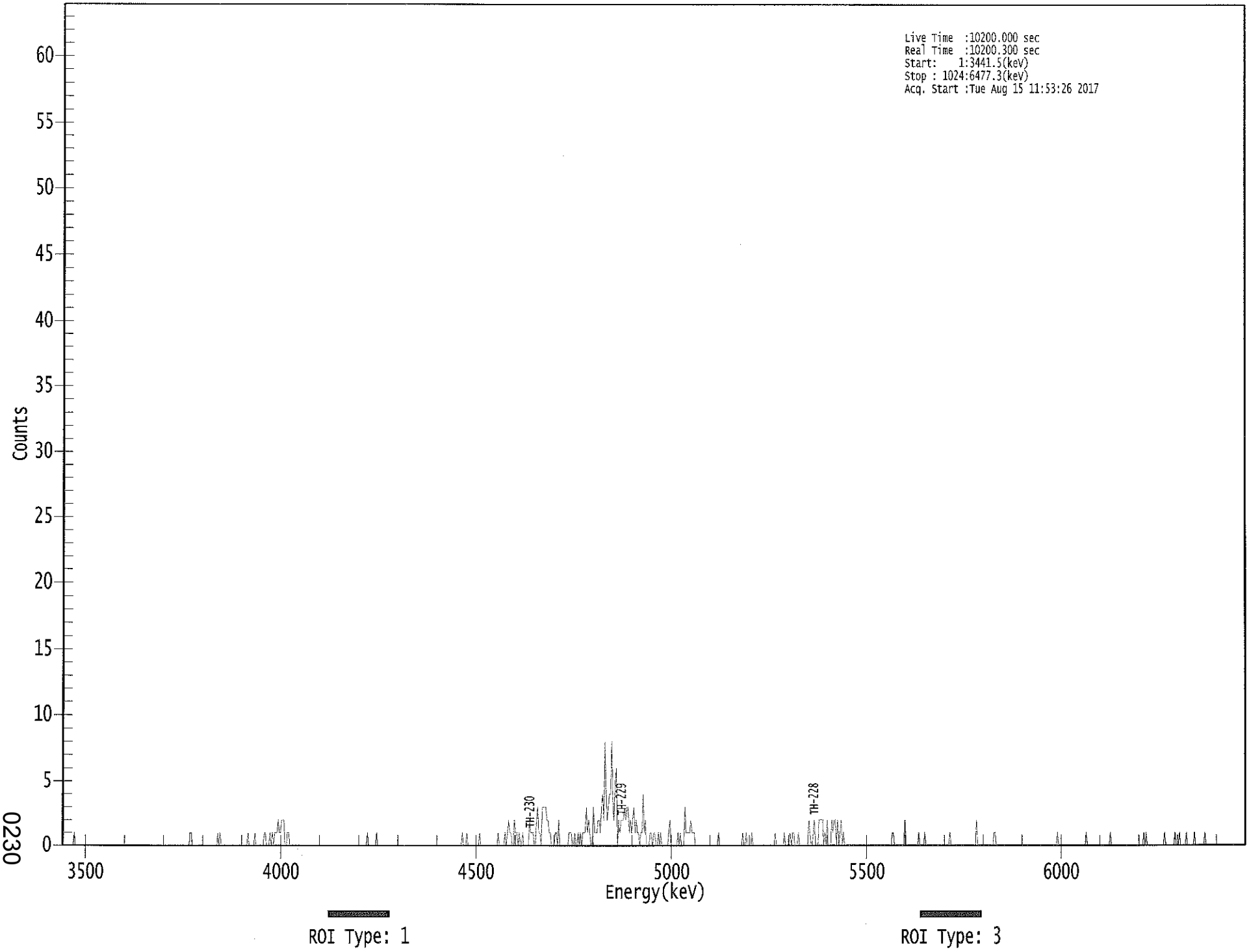
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.996	5850.00*	8.85E-002 +/- 7.70E-002	7.48E-002 +/- 1.28E-002
TH-228	0.994	5400.00*	6.31E-001 +/- 2.31E-001	1.05E-001 +/- 1.80E-002
TH-229	1.000	4872.00*	2.28E+000 +/- 3.92E-001	9.58E-002 +/- 1.64E-002
TH-230	0.995	4672.00*	7.40E-001 +/- 2.46E-001	9.98E-002 +/- 1.71E-002
TH-232	0.997	3997.00*	3.40E-001 +/- 1.54E-001	7.94E-002 +/- 1.36E-002

AG 8/16/17

0000191404.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: 10200
Elapsed Real Time: 10200

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

369:	0	0	0	0	0	0	0	0

Sample Title: 04

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

801:	0	0	0	0	1	1	0	0

Sample Title: 04

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

Apex-Alpha™

KB 8/15/17

Sample Description: HTC-A01-S005-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001914
Batch Identification: 1707082A-TH
Sample Identification: 05
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.030E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:21:48 AM
Acquisition Date/Time: 8/15/2017 11:53:28 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.233 mL
Effective Efficiency: 0.1391 +/- 0.0132
Counting Efficiency: 0.1587 +/- 0.0027 on 11/18/2016 10:08:53 AM
Chem. Recovery Factor: 0.8761 +/- 0.0848

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		5.790	30.15	36.28	0.85	0.00E+000	3.8
TH-228		5.373	390.13	9.95	1.87	0.00E+000	5.7
TH-229	T	4.890	123.66	17.65	0.34	0.00E+000	3.0
TH-230		4.643	407.49	9.72	0.51	0.00E+000	17.3
TH-232		3.972	415.15	9.63	0.85	0.00E+000	42.1

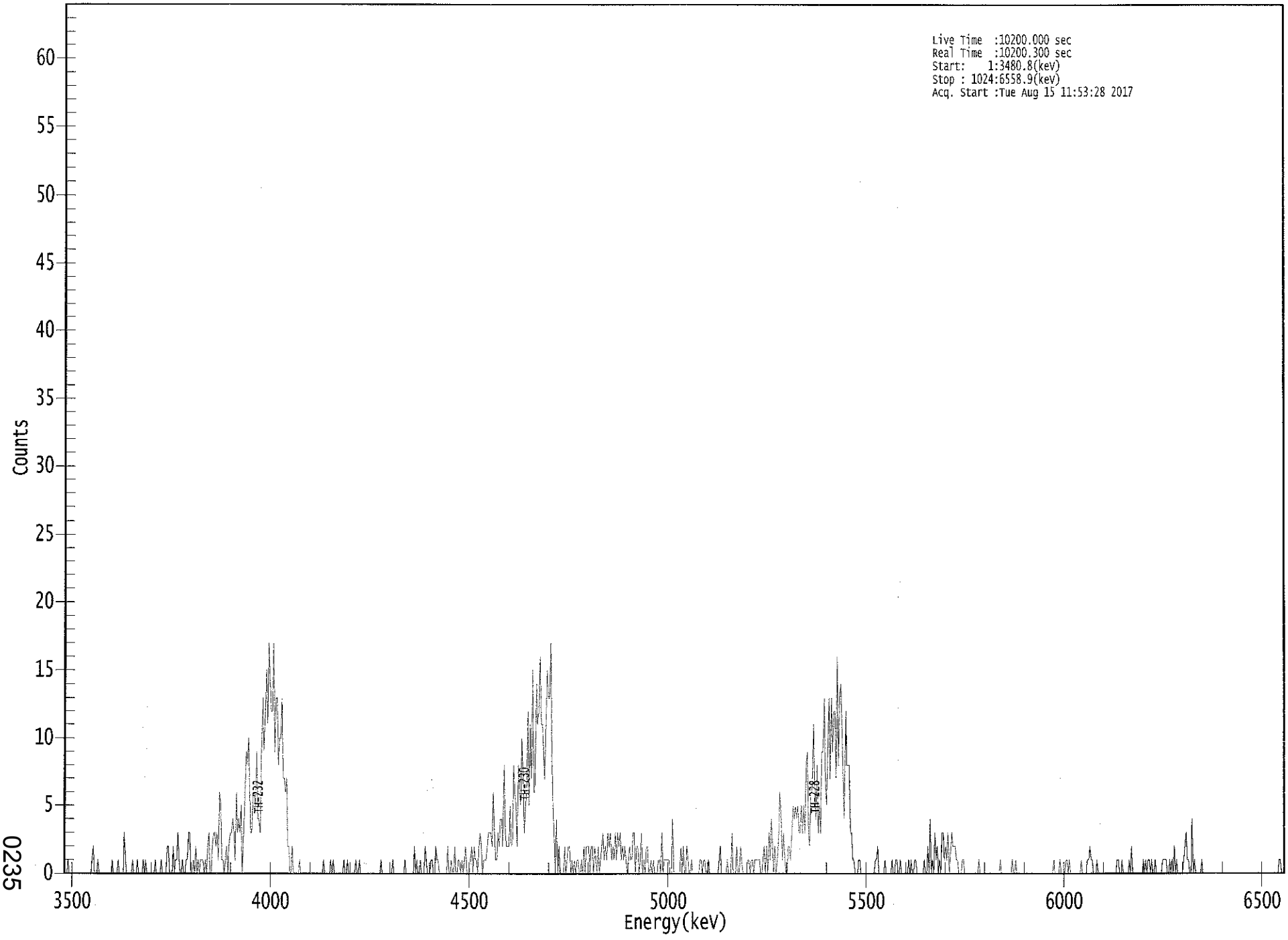
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.981	5850.00*	5.77E-001 +/- 2.35E-001	1.15E-001 +/- 2.14E-002
TH-228	0.996	5400.00*	7.93E+000 +/- 1.68E+000	1.54E-001 +/- 2.87E-002
TH-229	0.998	4872.00*	2.30E+000 +/- 4.29E-001	8.89E-002 +/- 1.66E-002
TH-230	0.996	4672.00*	7.55E+000 +/- 1.59E+000	9.72E-002 +/- 1.82E-002
TH-232	0.997	3997.00*	7.68E+000 +/- 1.61E+000	1.11E-001 +/- 2.07E-002

AG 8/16/17

0000191405.CNF



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

369:	8	3	2	2	2	5	2	2

Sample Title: 05

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

801:	0	0	0	0	0	0	0	0

Sample Title: 05

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

Apex-Alpha™

KB 8/18/17

Sample Description: HTC-A01-S005-0612-01 MSD
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001914
Batch Identification: 1707082A-TH
Sample Identification: 06
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.040E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:21:48 AM
Acquisition Date/Time: 8/15/2017 11:53:30 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.231 mL
Effective Efficiency: 0.1268 +/- 0.0127
Counting Efficiency: 0.1543 +/- 0.0027 on 11/18/2016 10:08:51 AM
Chem. Recovery Factor: 0.8213 +/- 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		5.883	16.66	48.59	0.34	0.00E+000	3.0
TH-228		5.335	386.66	9.97	0.34	0.00E+000	10.0
TH-229	T	4.896	111.98	18.62	1.02	0.00E+000	3.0
TH-230		4.598	353.49	10.43	0.51	0.00E+000	15.9
TH-232		3.929	315.98	11.05	1.02	0.00E+000	5.2

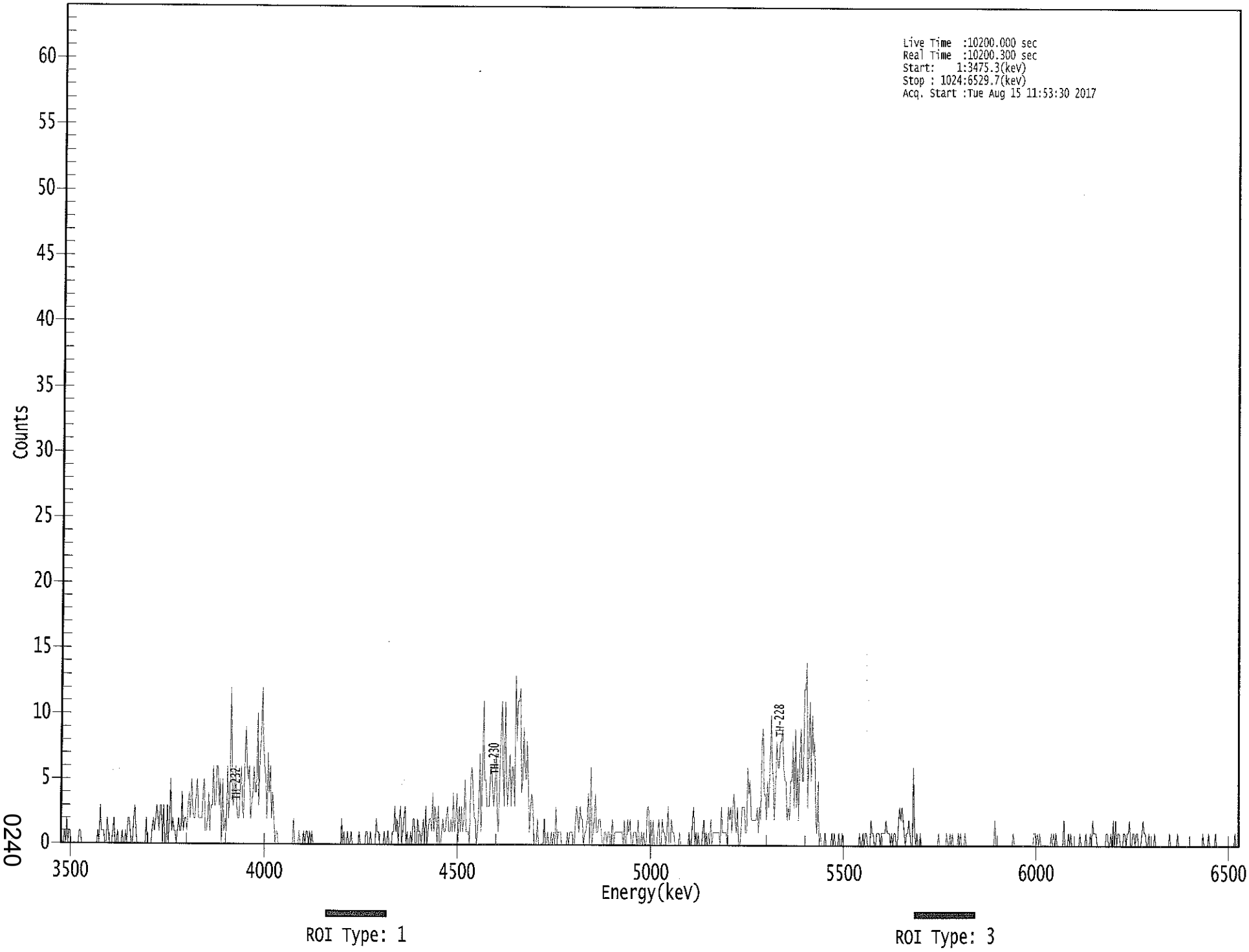
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.994	5850.00*	3.46E-001 +/- 1.81E-001	9.94E-002 +/- 1.95E-002
TH-228	0.978	5400.00*	8.54E+000 +/- 1.88E+000	1.06E-001 +/- 2.07E-002
TH-229	0.997	4872.00*	2.26E+000 +/- 4.43E-001	1.27E-001 +/- 2.49E-002
TH-230	0.972	4672.00*	7.12E+000 +/- 1.58E+000	1.06E-001 +/- 2.07E-002
TH-232	0.976	3997.00*	6.35E+000 +/- 1.43E+000	1.27E-001 +/- 2.48E-002

AG 8/16/17

0000191406.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: 10200
Elapsed Real Time: 10200

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

369:	5	3	3	3	6	6	4	3

Sample Title: 06

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

801:	0	0	0	0	0	0	0	0

Sample Title: 06

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

NB
8/15/17

Apex-Alpha™

Sample Description: HTC-A01-S005-0612-02
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001914
Batch Identification: 1707082A-TH
Sample Identification: 07
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.005E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:21:48 AM
Acquisition Date/Time: 8/15/2017 11:53:31 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.231 mL
Effective Efficiency: 0.1815 +/- 0.0155
Counting Efficiency: 0.1852 +/- 0.0031 on 11/18/2016 10:08:50 AM
Chem. Recovery Factor: 0.9803 +/- 0.0854

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	10.49	62.21	0.51	0.00E+000	3.0
TH-228		5.362	85.11	21.66	2.89	0.00E+000	12.8
TH-229	T	4.877	160.45	15.62	2.55	0.00E+000	3.8
TH-230		4.623	181.64	14.61	1.36	0.00E+000	5.4
TH-232		3.948	70.15	23.57	0.85	0.00E+000	8.0

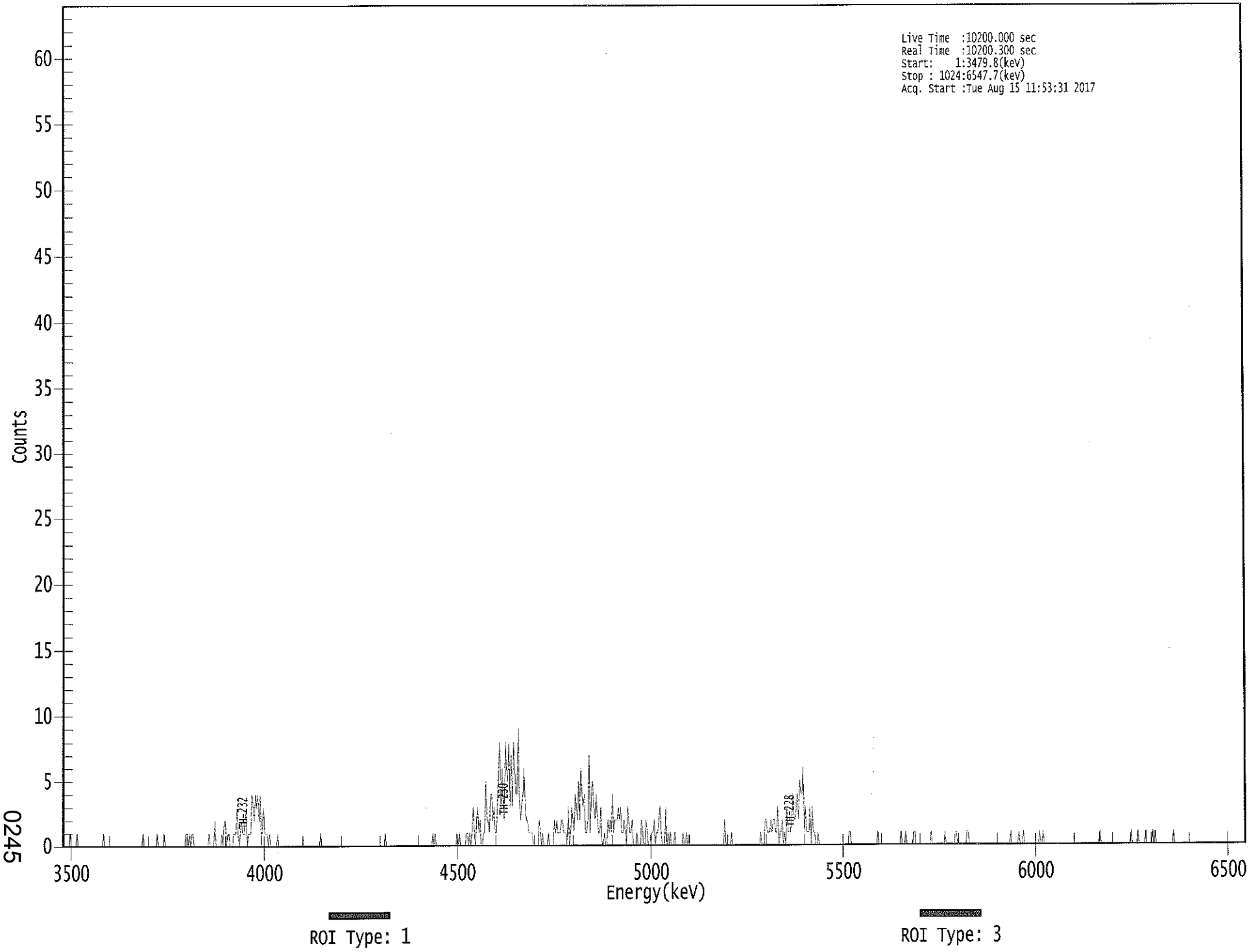
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.997	5850.00*	1.58E-001 +/- 1.02E-001	7.88E-002 +/- 1.32E-002
TH-228	0.993	5400.00*	1.36E+000 +/- 3.72E-001	1.40E-001 +/- 2.34E-002
TH-229	1.000	4872.00*	2.34E+000 +/- 3.92E-001	1.22E-001 +/- 2.05E-002
TH-230	0.988	4672.00*	2.64E+000 +/- 5.88E-001	9.98E-002 +/- 1.67E-002
TH-232	0.987	3997.00*	1.02E+000 +/- 2.95E-001	8.70E-002 +/- 1.46E-002

AG
8/16/17

0000191422.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: 10200

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

369:	1	4	4	2	3	1	1	3

Sample Title: 07

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

801:	0	0	0	0	0	0	0	0

Sample Title: 07

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

Apex-Alpha™

KB 8/15/17

Sample Description: HTC-A01-S005-1218-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001914
Batch Identification: 1707082A-TH
Sample Identification: 08
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.061E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:21:48 AM
Acquisition Date/Time: 8/15/2017 11:53:33 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.232 mL
Effective Efficiency: 0.2111 +/- 0.0168
Counting Efficiency: 0.1813 +/- 0.0031 on 11/18/2016 10:08:48 AM
Chem. Recovery Factor: 1.1642 +/- 0.0947

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.830	11.98	59.38	1.02	0.00E+000	3.0
TH-228		5.383	78.30	22.43	1.70	0.00E+000	6.7
TH-229	T	4.880	187.15	14.37	0.85	0.00E+000	5.2
TH-230		4.633	124.49	17.61	0.51	0.00E+000	3.3
TH-232		3.968	89.66	20.75	0.34	0.00E+000	4.4

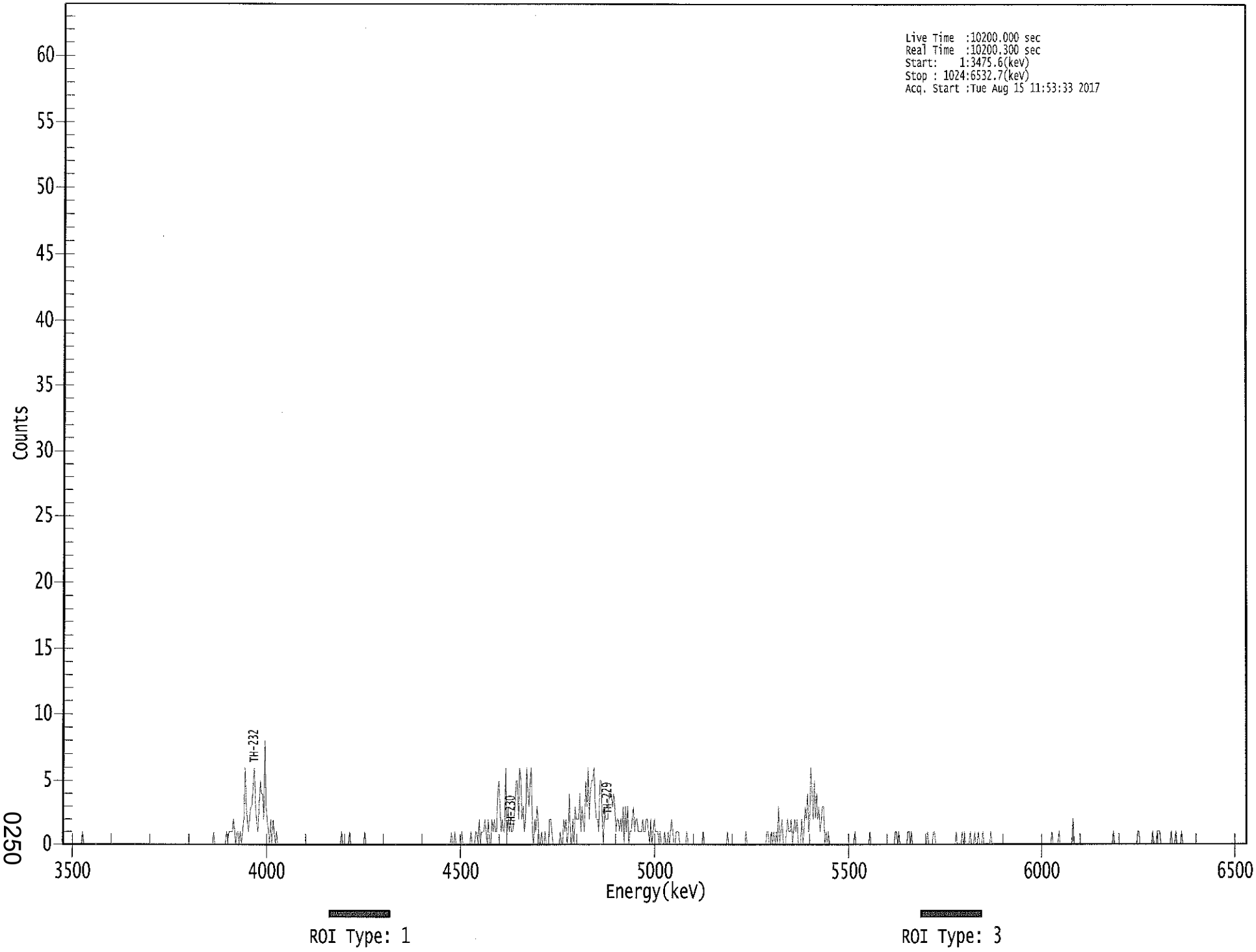
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.998	5850.00*	1.47E-001 +/- 9.00E-002	7.71E-002 +/- 1.20E-002
TH-228	0.998	5400.00*	1.02E+000 +/- 2.78E-001	9.55E-002 +/- 1.49E-002
TH-229	1.000	4872.00*	2.22E+000 +/- 3.47E-001	7.12E-002 +/- 1.11E-002
TH-230	0.992	4672.00*	1.48E+000 +/- 3.47E-001	6.22E-002 +/- 9.70E-003
TH-232	0.996	3997.00*	1.06E+000 +/- 2.75E-001	5.66E-002 +/- 8.82E-003

AG 8/16/17

0000191408.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: 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	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	1	0	0	0	0	0
137:	0	0	0	0	0	1	0	1
145:	1	1	1	2	1	0	1	1
153:	0	1	0	1	2	6	3	2
161:	1	2	3	3	5	6	3	2
169:	1	3	5	4	4	2	8	3
177:	2	1	0	2	0	2	1	0
185:	1	0	0	0	0	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	1	0	0	0	0	0	0	1
249:	0	0	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	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	1
337:	0	0	1	0	0	0	0	0
345:	1	0	0	0	0	0	0	0
353:	1	0	0	0	1	1	0	2
361:	0	1	1	1	2	1	0	2

369:	0	0	2	1	2	1	1	4

Sample Title: 08

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

801:	0	1	0	0	0	0	0	0

Sample Title: 08

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

Apex-Alpha™

KB 8/15/17

Sample Description: HTC-A01-S005-1824-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001914
Batch Identification: 1707082A-TH
Sample Identification: 09
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.034E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:21:48 AM
Acquisition Date/Time: 8/15/2017 11:53:35 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.232 mL
Effective Efficiency: 0.2151 +/- 0.0170
Counting Efficiency: 0.1874 +/- 0.0032 on 11/18/2016 10:08:43 AM
Chem. Recovery Factor: 1.1474 +/- 0.0926

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		5.771	10.98	62.28	1.02	0.00E+000	3.0
TH-228		5.378	86.62	21.40	2.38	0.00E+000	6.6
TH-229	T	4.875	190.49	14.22	0.51	0.00E+000	7.1
TH-230		4.642	151.15	15.99	0.85	0.00E+000	12.0
TH-232		3.958	78.15	22.31	0.85	0.00E+000	4.2

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.968	5850.00*	1.35E-001 +/- 8.68E-002	7.76E-002 +/- 1.20E-002
TH-228	0.997	5400.00*	1.13E+000 +/- 2.99E-001	1.07E-001 +/- 1.66E-002
TH-229	1.000	4872.00*	2.28E+000 +/- 3.53E-001	6.28E-002 +/- 9.71E-003
TH-230	0.995	4672.00*	1.80E+000 +/- 4.01E-001	7.14E-002 +/- 1.10E-002
TH-232	0.992	3997.00*	9.31E-001 +/- 2.53E-001	7.13E-002 +/- 1.10E-002

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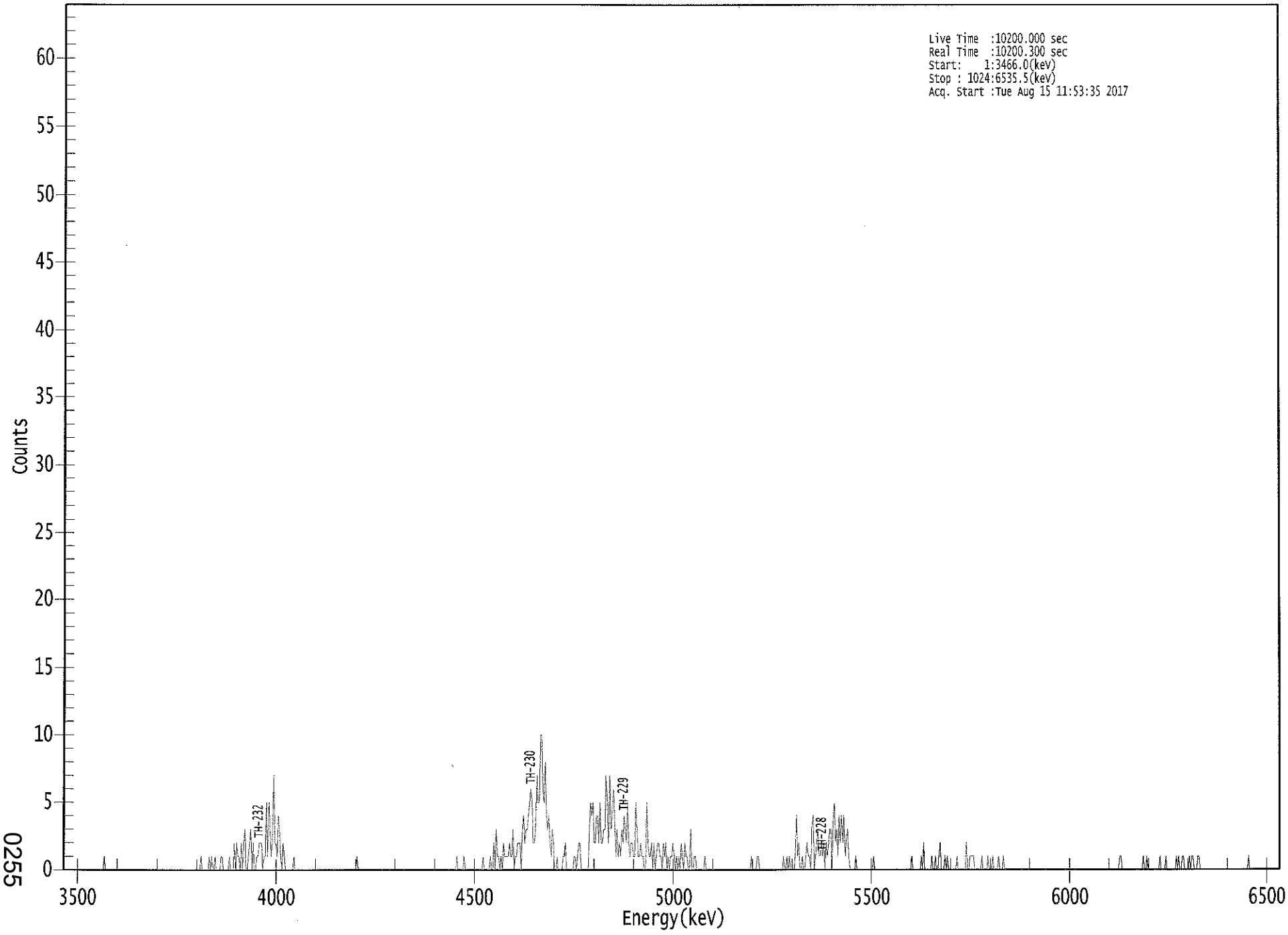
0000191420.CNF



0255

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

Sample Title: 09

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	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	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	1	0	1	0	0	1
129:	0	0	0	0	1	1	0	0
137:	0	0	0	1	0	0	0	2
145:	0	2	1	1	0	2	0	2
153:	3	0	0	1	2	3	0	2
161:	0	0	1	1	2	2	2	0
169:	1	1	5	1	5	3	1	2
177:	7	2	2	1	4	3	1	0
185:	2	1	0	0	0	0	0	0
193:	0	1	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	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	1	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	1	0	0	0	0	0
337:	1	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	0
353:	1	0	0	0	0	0	1	0
361:	0	2	0	3	1	1	0	1

369:	0	2	1	1	1	1	2	1

Sample Title: 09

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

801:	0	0	0	0	0	0	0	0

Sample Title: 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	1
889:	1	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	1	0	0	1	0
913:	0	0	0	0	0	0	0	0
921:	0	1	0	0	0	0	1	0
929:	0	0	0	0	0	0	0	1
937:	0	1	0	0	1	1	0	0
945:	0	0	1	0	1	1	0	0
953:	0	1	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	1	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

RD 8/15/17

Apex-Alpha™

Sample Description: HTC-A01-S005-2430-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001914
Batch Identification: 1707082A-TH
Sample Identification: 10
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.085E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:21:48 AM
Acquisition Date/Time: 8/15/2017 11:53:36 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.233 mL
Effective Efficiency: 0.1894 +/- 0.0157
Counting Efficiency: 0.1793 +/- 0.0030 on 11/18/2016 10:08:42 AM
Chem. Recovery Factor: 1.0568 +/- 0.0896

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.827	9.00	68.87	0.00	0.00E+000	3.0
TH-228		5.372	67.83	23.83	0.17	0.00E+000	3.6
TH-229	T	4.869	168.66	15.11	0.34	0.00E+000	7.7
TH-230		4.646	81.98	21.80	1.02	0.00E+000	9.2
TH-232		3.964	87.49	21.03	0.51	0.00E+000	4.2

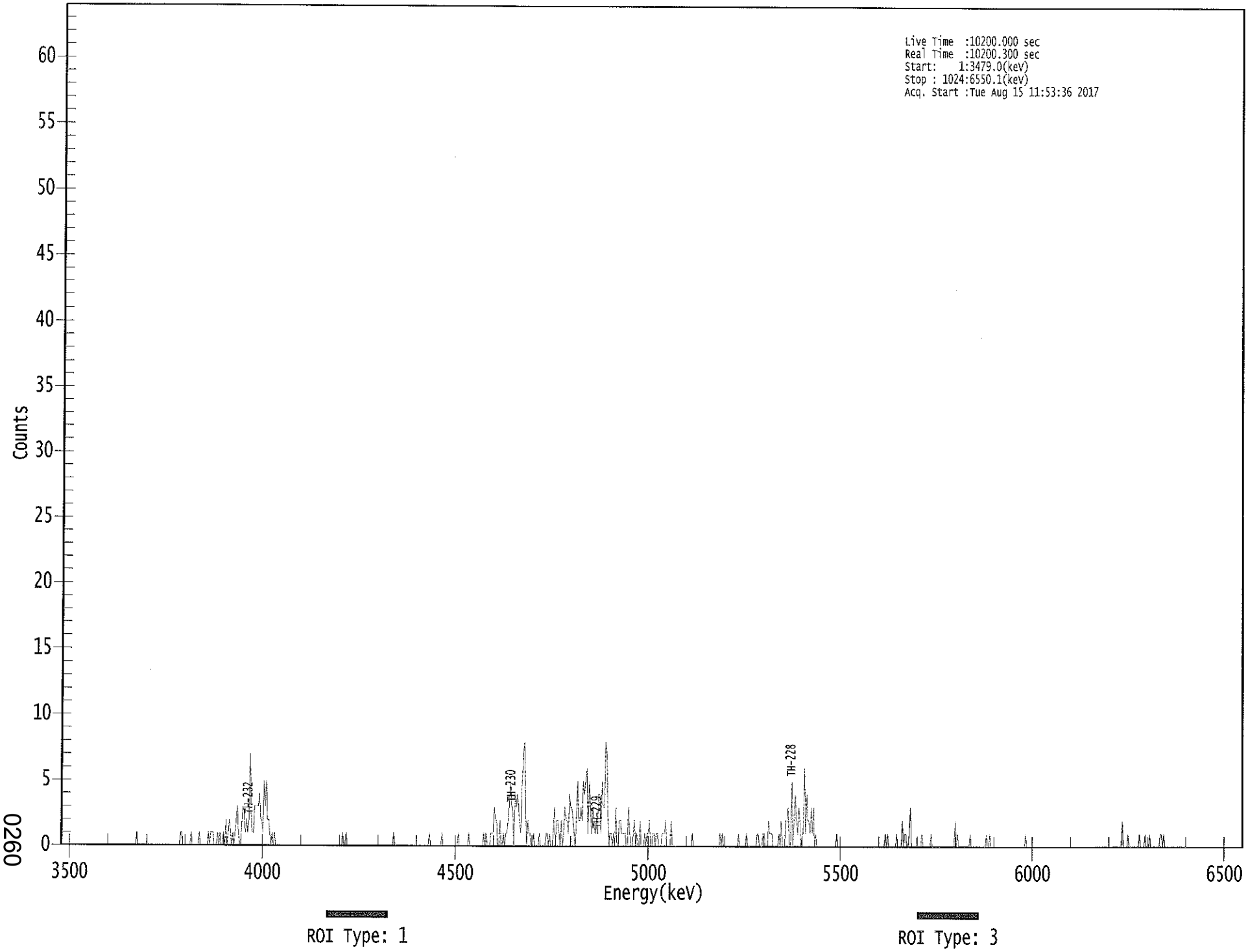
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.997	5850.00*	1.20E-001 +/- 8.49E-002	7.99E-002 +/- 1.30E-002
TH-228	0.996	5400.00*	9.61E-001 +/- 2.77E-001	5.91E-002 +/- 9.63E-003
TH-229	1.000	4872.00*	2.18E+000 +/- 3.56E-001	6.19E-002 +/- 1.01E-002
TH-230	0.996	4672.00*	1.06E+000 +/- 2.88E-001	8.14E-002 +/- 1.32E-002
TH-232	0.994	3997.00*	1.13E+000 +/- 3.00E-001	6.76E-002 +/- 1.10E-002

AG 8/16/17

0000191421.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: 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	1
105:	1	0	0	0	0	0	0	0
113:	1	0	0	0	0	0	0	1
121:	0	0	0	0	0	0	0	1
129:	0	1	1	1	0	0	0	1
137:	0	1	0	0	1	0	2	0
145:	1	2	1	0	1	0	1	2
153:	3	1	0	0	2	3	2	1
161:	2	1	2	7	2	1	1	3
169:	3	3	3	4	2	2	1	5
177:	3	5	2	2	1	0	1	0
185:	1	0	0	0	0	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	0	1	0	0	1	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	1
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	1	0
321:	0	0	0	0	0	0	0	0
329:	0	1	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	1
345:	0	0	0	0	0	0	0	0
353:	1	0	0	0	0	0	0	0
361:	0	0	0	0	0	1	0	1

369:	0	0	0	1	1	1	3	2

Sample Title: 10

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

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

Apex-Alpha™

KD 8/15/17

Sample Description: HTC-A01-S005-3036-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001914
Batch Identification: 1707082A-TH
Sample Identification: 11
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.012E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:21:48 AM
Acquisition Date/Time: 8/15/2017 11:53:38 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.233 mL
Effective Efficiency: 0.1887 +/- 0.0157
Counting Efficiency: 0.1688 +/- 0.0029 on 11/18/2016 10:08:40 AM
Chem. Recovery Factor: 1.1178 +/- 0.0950

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		5.760	0.32	646.93	0.68	0.00E+000	3.0
TH-228		5.372	81.30	22.00	1.70	0.00E+000	13.4
TH-229	T	4.867	167.83	15.14	0.17	0.00E+000	5.5
TH-230		4.632	68.32	23.85	0.68	0.00E+000	4.4
TH-232		3.969	87.28	21.36	2.72	0.00E+000	6.7

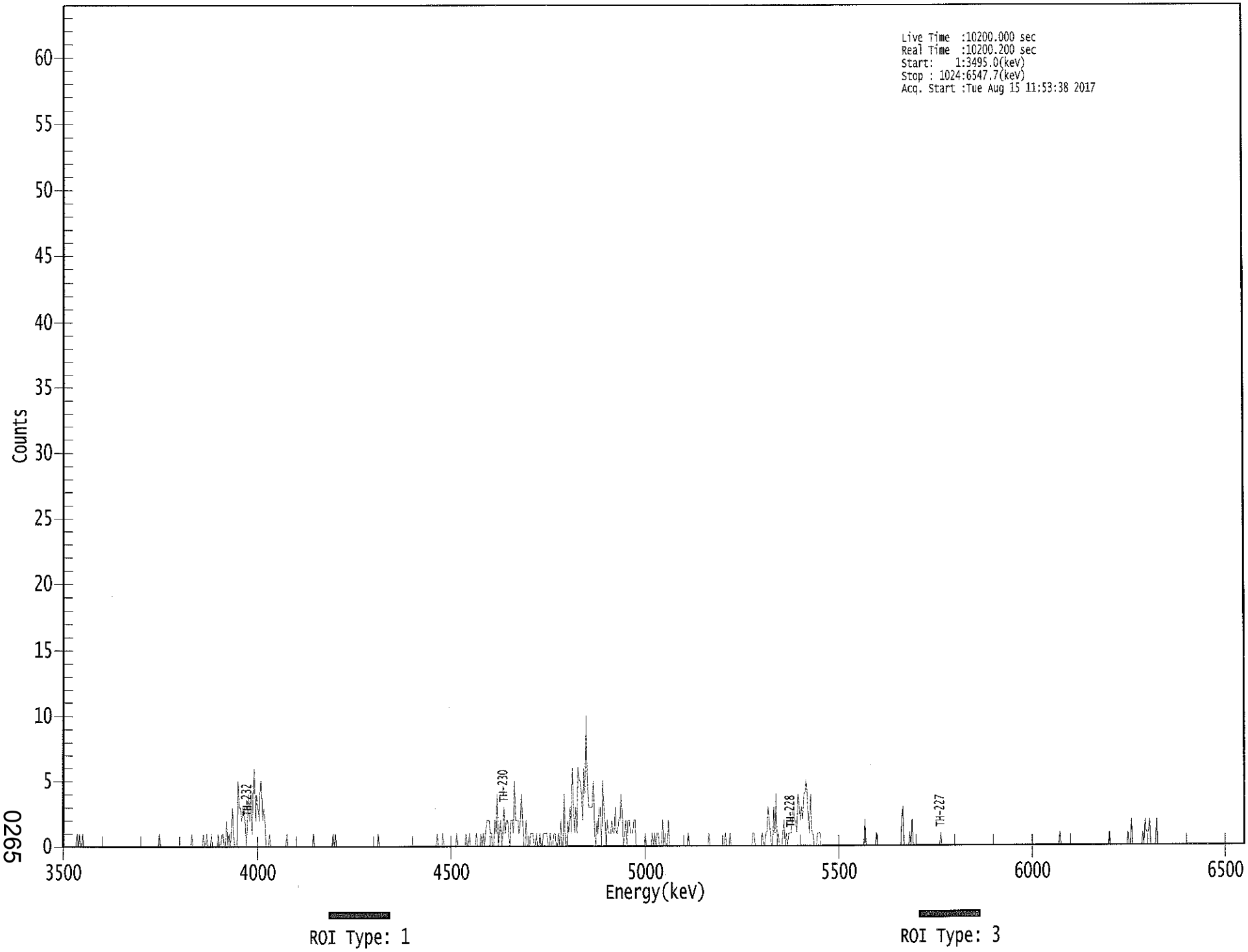
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.958	5850.00*	4.59E-003 +/- 2.97E-002	8.09E-002 +/- 1.32E-002
TH-228	0.996	5400.00*	1.24E+000 +/- 3.39E-001	1.12E-001 +/- 1.83E-002
TH-229	1.000	4872.00*	2.34E+000 +/- 3.82E-001	5.82E-002 +/- 9.49E-003
TH-230	0.992	4672.00*	9.50E-001 +/- 2.74E-001	7.84E-002 +/- 1.28E-002
TH-232	0.996	3997.00*	1.21E+000 +/- 3.25E-001	1.19E-001 +/- 1.94E-002

AG 8/16/17

0000191423.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: 10200

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

369:	2	1	1	0	0	2	1	4

Sample Title: 11

Channel								
377:	0	1	2	0	1	3	1	2
385:	2	1	0	2	2	1	5	2
393:	2	2	1	2	4	2	0	0
401:	2	0	0	0	1	1	1	0
409:	0	1	0	0	1	0	0	1
417:	1	1	1	0	0	1	0	0
425:	1	1	0	0	1	0	2	0
433:	0	4	0	0	2	1	3	1
441:	6	3	1	3	1	6	5	5
449:	4	2	6	4	10	5	3	3
457:	3	3	5	1	0	2	1	3
465:	3	0	5	3	2	0	2	1
473:	1	1	2	1	1	3	1	1
481:	2	2	4	2	0	1	2	0
489:	2	2	1	1	1	2	2	0
497:	0	0	0	0	0	0	0	1
505:	0	0	0	0	0	1	0	1
513:	0	1	1	0	0	0	2	0
521:	1	0	0	2	0	0	0	0
529:	0	0	0	0	0	0	0	0
537:	0	0	0	0	1	0	0	0
545:	0	0	0	0	0	0	0	0
553:	0	0	0	0	0	0	1	0
561:	0	0	0	0	0	0	0	0
569:	0	0	0	0	1	0	0	0
577:	1	0	0	0	0	0	0	0
585:	0	0	0	0	0	0	0	0
593:	0	0	0	0	1	1	0	0
601:	0	0	0	0	1	0	0	1
609:	1	3	2	1	0	0	3	1
617:	4	0	1	0	0	0	1	2
625:	0	1	0	1	1	1	2	3
633:	2	2	1	4	3	2	3	2
641:	4	4	5	4	2	1	4	1
649:	1	0	0	0	1	1	1	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	2	0	0
697:	0	0	0	0	0	0	0	1
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	2	3	0
729:	0	0	0	0	1	0	2	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	1
761:	0	0	0	0	0	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	1	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	1	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	1	0	0	2	0	0	0
929:	0	0	0	0	0	0	1	0
937:	2	1	1	1	2	0	0	0
945:	0	0	2	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™

RB 8/15/17

Sample Description: HTC-A01-S005-3642-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001914
Batch Identification: 1707082A-TH
Sample Identification: 12
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.075E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:21:48 AM
Acquisition Date/Time: 8/15/2017 11:53:40 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.231 mL
Effective Efficiency: 0.1879 +/- 0.0158
Counting Efficiency: 0.1713 +/- 0.0029 on 11/18/2016 10:08:38 AM
Chem. Recovery Factor: 1.0967 +/- 0.0942

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		5.870	4.49	98.45	0.51	0.00E+000	3.0
TH-228		5.379	84.15	21.49	0.85	0.00E+000	10.5
TH-229	T	4.878	165.79	15.34	2.21	0.00E+000	4.4
TH-230		4.640	96.15	20.09	0.85	0.00E+000	9.0
TH-232		3.963	94.47	20.36	1.53	0.00E+000	9.4

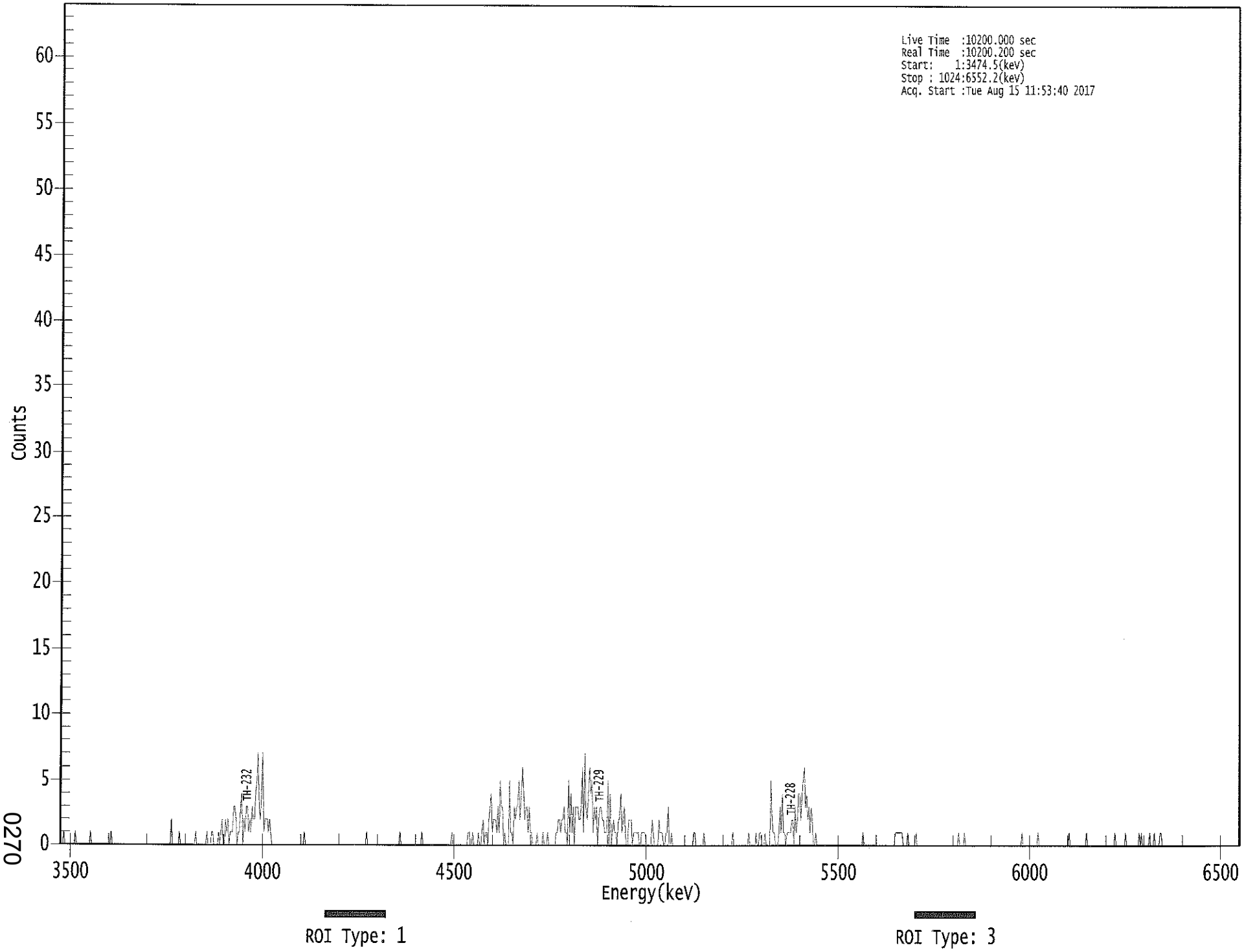
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.998	5850.00*	6.09E-002 +/- 6.08E-002	7.12E-002 +/- 1.17E-002
TH-228	0.998	5400.00*	1.21E+000 +/- 3.29E-001	8.63E-002 +/- 1.42E-002
TH-229	1.000	4872.00*	2.19E+000 +/- 3.61E-001	1.05E-001 +/- 1.74E-002
TH-230	0.995	4672.00*	1.26E+000 +/- 3.29E-001	7.87E-002 +/- 1.30E-002
TH-232	0.994	3997.00*	1.24E+000 +/- 3.25E-001	9.33E-002 +/- 1.54E-002

AG 8/16/17

0000191407.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: 10200

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

369:	1	1	0	2	3	4	1	2

Sample Title: 12

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

801:	0	0	0	0	0	0	0	0

Sample Title: 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	1	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	1
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	1	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	1	0	0	0	0	0
921:	0	0	0	1	0	0	0	0
929:	0	0	0	0	0	0	0	1
937:	0	1	0	0	0	0	0	0
945:	1	0	0	0	1	0	0	0
953:	0	1	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

YB
8/16/17

Apex-Alpha™

Sample Description: HTC-A01-S005-4248-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001914
Batch Identification: 1707082A-TH
Sample Identification: 13
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.077E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:21:48 AM
Acquisition Date/Time: 8/15/2017 11:53:42 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: 0.1958 +/- 0.0160
Counting Efficiency: 0.1623 +/- 0.0028 on 11/18/2016 10:08:37 AM
Chem. Recovery Factor: 1.2068 +/- 0.1009

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.804	11.00	61.72	0.00	0.00E+000	3.0
TH-228		5.361	84.98	21.41	1.02	0.00E+000	6.3
TH-229	T	4.864	174.66	14.85	0.34	0.00E+000	4.1
TH-230		4.626	95.49	20.12	0.51	0.00E+000	7.4
TH-232		3.957	84.32	21.45	0.68	0.00E+000	7.0

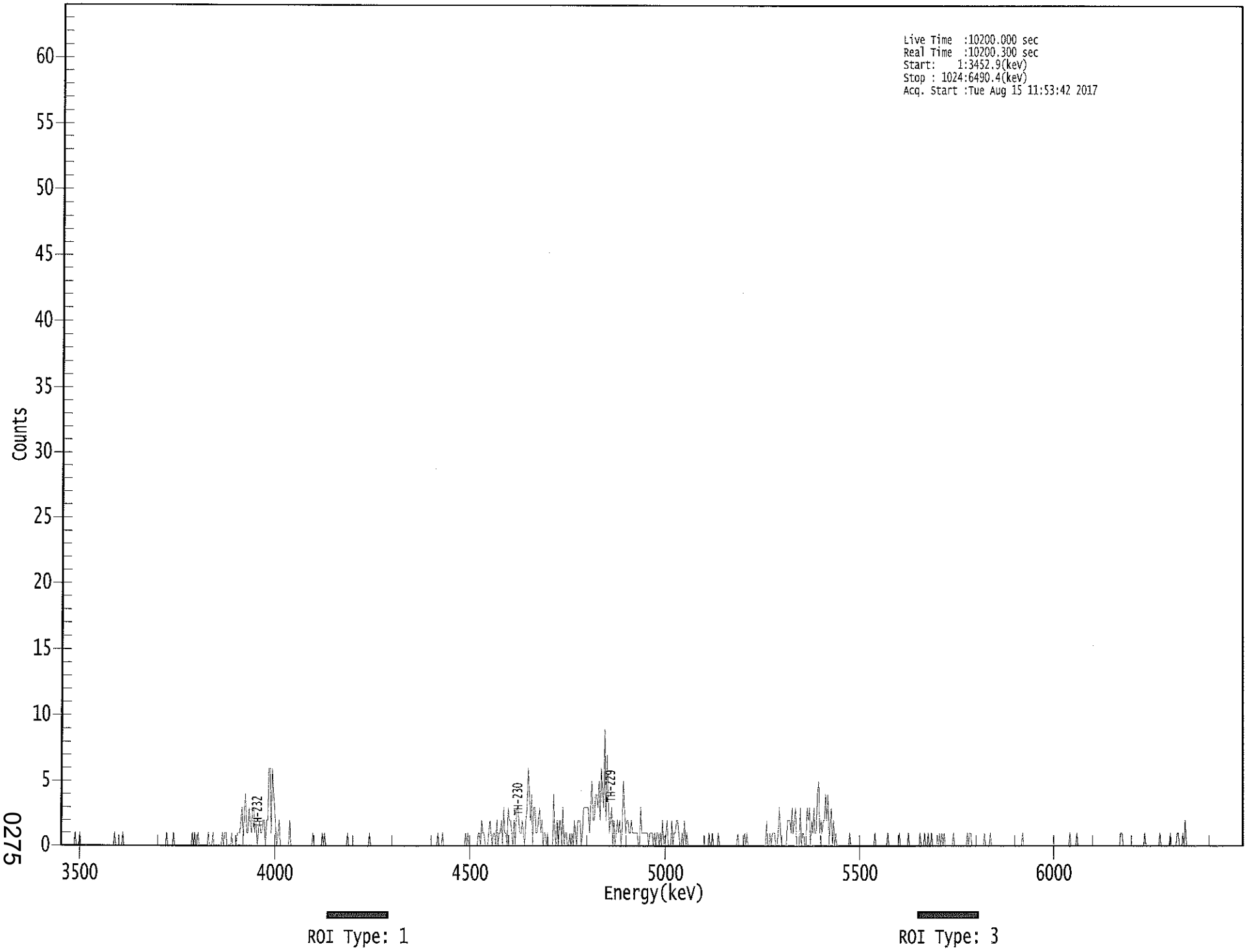
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.989	5850.00*	1.43E-001 +/- 9.11E-002	7.79E-002 +/- 1.25E-002
TH-228	0.992	5400.00*	1.17E+000 +/- 3.14E-001	8.70E-002 +/- 1.40E-002
TH-229	1.000	4872.00*	2.20E+000 +/- 3.54E-001	6.04E-002 +/- 9.68E-003
TH-230	0.989	4672.00*	1.20E+000 +/- 3.09E-001	6.60E-002 +/- 1.06E-002
TH-232	0.992	3997.00*	1.06E+000 +/- 2.84E-001	7.09E-002 +/- 1.14E-002

AG
8/16/17

0000191414.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	1	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	1	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	1	0	0	0	0
97:	0	1	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	1	0	1	0	0	1	0
121:	0	0	0	0	0	0	0	1
129:	0	0	0	1	0	0	0	0
137:	0	0	0	1	0	1	1	0
145:	0	0	0	1	0	0	0	0
153:	1	1	1	2	3	0	3	4
161:	1	1	3	2	1	3	3	1
169:	2	0	1	2	1	1	2	2
177:	0	2	2	6	6	1	6	4
185:	3	1	0	1	2	0	0	0
193:	0	0	0	0	0	2	0	0
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	1	0	1	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	1
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	1	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	1	0	0
329:	0	1	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	1	0	1
353:	0	0	0	0	0	0	0	0
361:	1	1	0	2	1	1	0	0

369:	0	1	2	1	0	1	1	0

Sample Title: 13

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

801:	0	0	0	1	0	0	0	0

Sample Title: 13

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	1
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	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	1	1	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	1	0	0	0	0	0	0
945:	0	0	0	0	0	0	1	0
953:	0	0	0	0	0	0	0	1
961:	0	0	0	0	0	1	1	0
969:	0	0	1	0	2	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™

DB 8/15/17

Sample Description: HTC-A01-S006-0006-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001914
Batch Identification: 1707082A-TH
Sample Identification: 14
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.026E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:21:48 AM
Acquisition Date/Time: 8/15/2017 11:53:45 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: 0.1944 +/- 0.0160
Counting Efficiency: 0.1633 +/- 0.0028 on 11/18/2016 10:08:35 AM
Chem. Recovery Factor: 1.1903 +/- 0.0999

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		5.886	4.49	98.45	0.51	0.00E+000	3.0
TH-228		5.385	74.81	22.87	1.19	0.00E+000	5.9
TH-229	T	4.891	173.32	14.92	0.68	0.00E+000	7.9
TH-230		4.645	68.66	23.72	0.34	0.00E+000	14.8
TH-232		3.969	89.15	20.87	0.85	0.00E+000	4.0

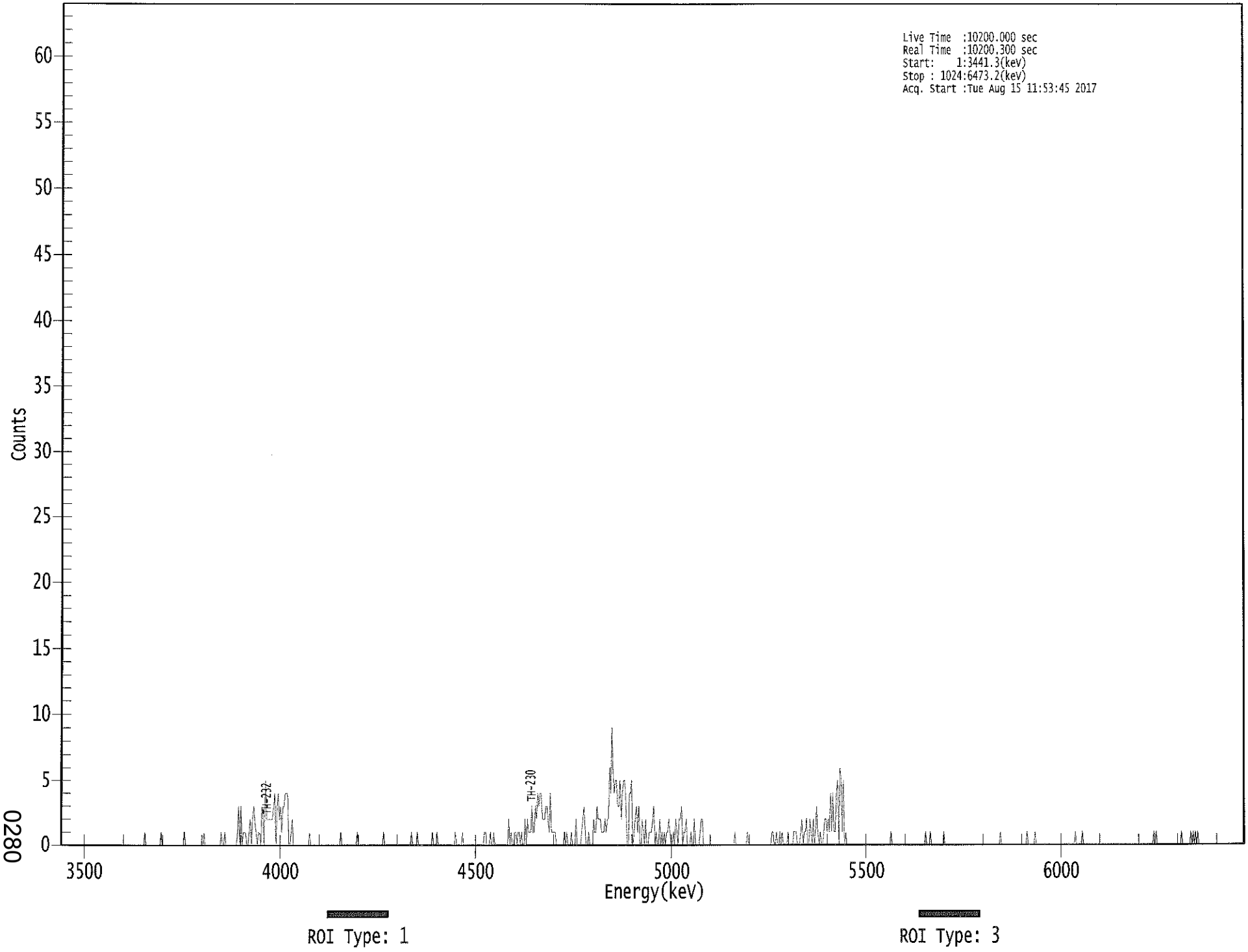
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.993	5850.00*	6.17E-002 +/- 6.15E-002	7.21E-002 +/- 1.16E-002
TH-228	0.999	5400.00*	1.09E+000 +/- 3.05E-001	9.61E-002 +/- 1.55E-002
TH-229	0.998	4872.00*	2.31E+000 +/- 3.73E-001	7.53E-002 +/- 1.21E-002
TH-230	0.996	4672.00*	9.14E-001 +/- 2.62E-001	6.36E-002 +/- 1.03E-002
TH-232	0.996	3997.00*	1.18E+000 +/- 3.12E-001	7.95E-002 +/- 1.28E-002

AG
8/16/17

0000191415.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:	1	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	1	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	1	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	0	0	0	0	0
137:	0	0	1	0	0	1	0	0
145:	0	0	0	0	0	0	0	0
153:	1	3	0	3	0	1	1	1
161:	0	0	1	2	0	2	3	2
169:	1	0	1	1	0	3	2	0
177:	5	2	2	2	2	2	2	3
185:	4	0	3	4	2	3	1	3
193:	3	4	4	4	0	0	1	2
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	1	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	1	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	1	0
305:	0	0	0	1	0	0	0	0
313:	0	0	0	0	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	0	0	1	0	0	0
345:	0	0	1	0	0	0	0	0
353:	0	0	0	0	0	0	0	0
361:	0	0	0	0	0	1	1	0

369:	0	0	1	0	0	1	0	0

Sample Title: 14

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

801:	0	0	0	0	0	0	0	0

Sample Title: 14

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

Apex-Alpha™

NB 8/15/17

Sample Description: HTC-A01-S006-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001914
Batch Identification: 1707082A-TH
Sample Identification: 15
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: 1.070E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:21:48 AM
Acquisition Date/Time: 8/15/2017 11:54:20 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.233 mL
Effective Efficiency: 0.1801 +/- 0.0153
Counting Efficiency: 0.1488 +/- 0.0026 on 11/18/2016 3:34:20 PM
Chem. Recovery Factor: 1.2098 +/- 0.1052

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		5.850	6.32	82.73	0.68	0.00E+000	3.0
TH-228		5.363	72.79	23.38	2.21	0.00E+000	5.5
TH-229	T	4.867	159.98	15.55	1.02	0.00E+000	7.4
TH-230		4.623	72.15	23.23	0.85	0.00E+000	4.3
TH-232		3.962	75.49	22.65	0.51	0.00E+000	3.7

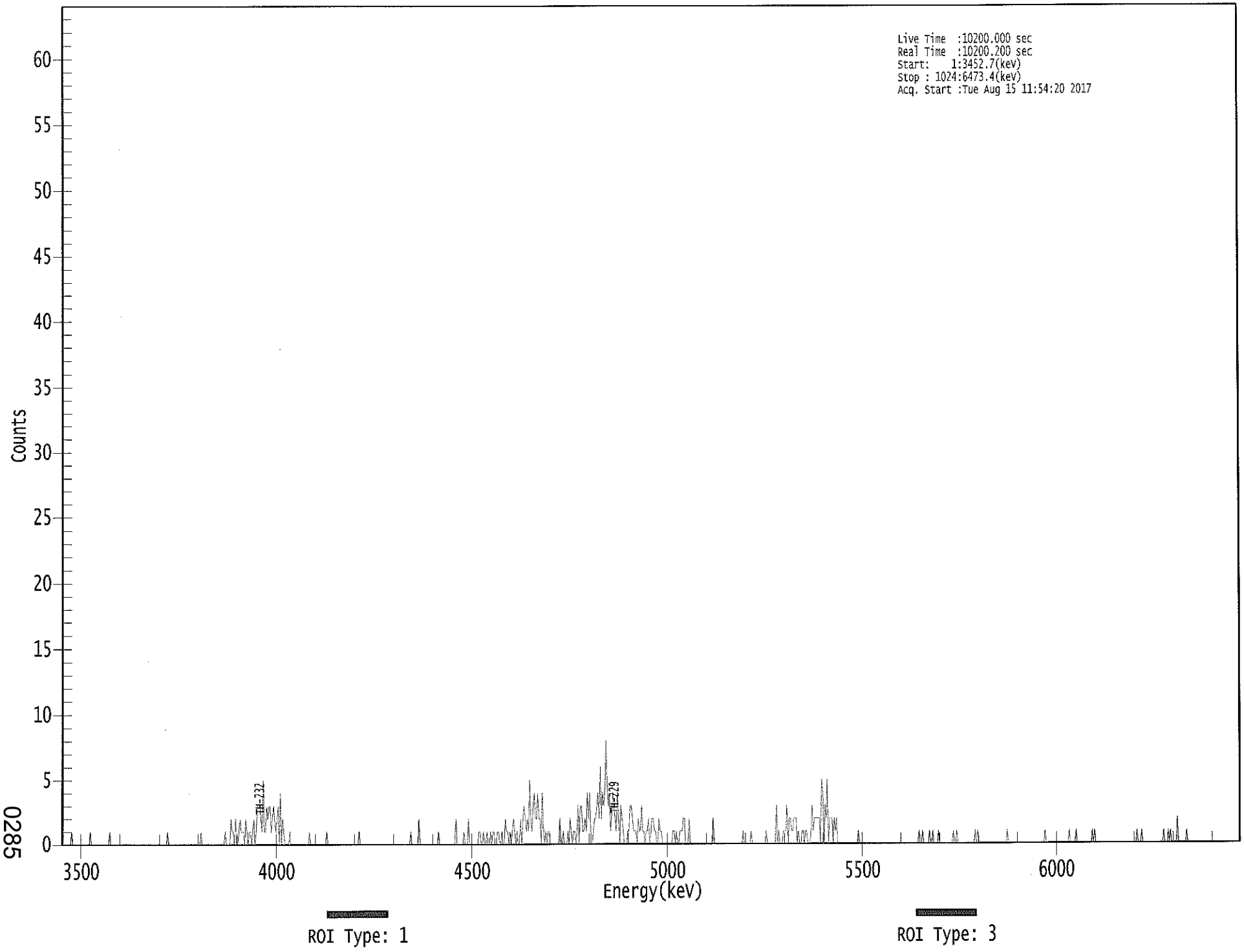
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	8.99E-002 +/- 7.58E-002	8.02E-002 +/- 1.34E-002
TH-228	0.993	5400.00*	1.10E+000 +/- 3.16E-001	1.21E-001 +/- 2.02E-002
TH-229	1.000	4872.00*	2.21E+000 +/- 3.69E-001	8.70E-002 +/- 1.45E-002
TH-230	0.987	4672.00*	9.94E-001 +/- 2.84E-001	8.25E-002 +/- 1.38E-002
TH-232	0.993	3997.00*	1.04E+000 +/- 2.92E-001	7.22E-002 +/- 1.20E-002

AG 8/16/17

0000191424.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:	1	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	1	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	1	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	1	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:	1	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	2	1	1	0	2	0
153:	0	1	2	1	1	1	0	2
161:	1	0	1	1	0	1	2	0
169:	1	3	3	3	2	1	5	1
177:	1	3	2	3	3	1	2	3
185:	2	1	2	3	0	4	0	2
193:	1	0	0	0	0	1	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	1	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	1	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	1	0
305:	0	0	0	0	0	2	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	1	0
329:	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	2	0	0
345:	0	0	0	0	1	0	0	0
353:	2	0	0	0	0	0	0	0
361:	0	1	1	0	0	1	0	0

369:	1	0	0	1	0	1	1	0

Sample Title: 15

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

801:	0	0	0	0	0	0	0	0

Sample Title: 15

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

Apex-Alpha™

WG 8/15/17

Sample Description: HTC-A01-S006-1218-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001914
Batch Identification: 1707082A-TH
Sample Identification: 16
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: 1.018E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:21:48 AM
Acquisition Date/Time: 8/15/2017 11:54:23 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.233 mL
Effective Efficiency: 0.1476 +/- 0.0137
Counting Efficiency: 0.1433 +/- 0.0025 on 11/18/2016 3:34:18 PM
Chem. Recovery Factor: 1.0301 +/- 0.0975

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		5.866	4.81	101.48	1.19	0.00E+000	3.0
TH-228		5.384	59.45	26.05	2.55	0.00E+000	4.3
TH-229	T	4.886	130.98	17.20	1.02	0.00E+000	3.7
TH-230		4.653	63.62	25.11	2.38	0.00E+000	4.7
TH-232		3.969	54.32	26.79	0.68	0.00E+000	9.6

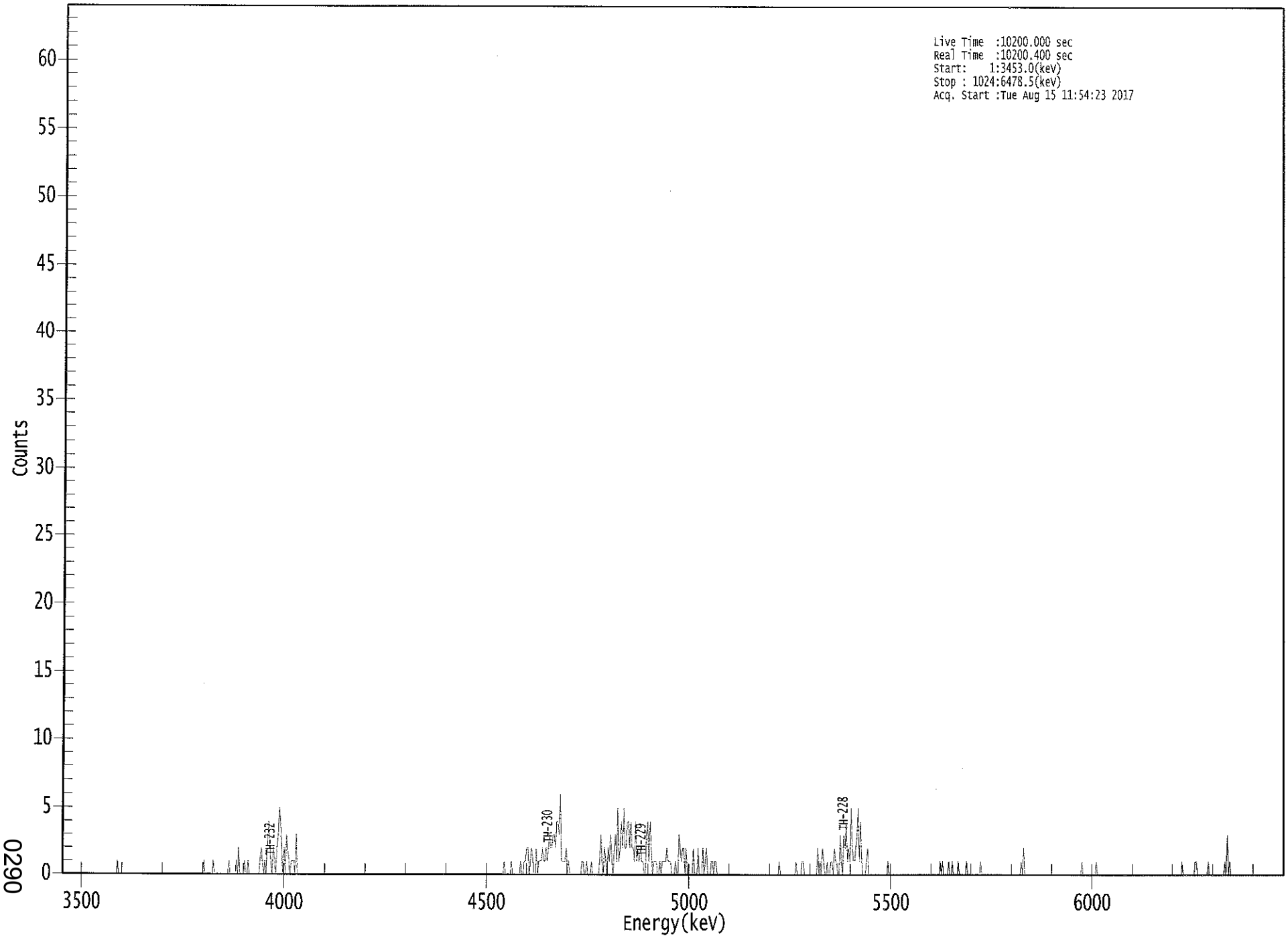
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.999	5850.00*	8.77E-002 +/- 9.04E-002	1.20E-001 +/- 2.19E-002
TH-228	0.999	5400.00*	1.15E+000 +/- 3.66E-001	1.63E-001 +/- 2.97E-002
TH-229	0.999	4872.00*	2.32E+000 +/- 4.23E-001	1.12E-001 +/- 2.04E-002
TH-230	0.998	4672.00*	1.12E+000 +/- 3.49E-001	1.45E-001 +/- 2.64E-002
TH-232	0.996	3997.00*	9.58E-001 +/- 3.10E-001	9.95E-002 +/- 1.81E-002

AG 8/16/17

0000191409.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	1	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	1	0
121:	0	0	0	0	0	0	1	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	1	0	0	0	0
145:	0	1	0	2	0	0	0	0
153:	1	0	0	1	0	0	0	0
161:	0	0	0	0	0	1	2	1
169:	0	1	0	2	4	2	1	0
177:	2	1	0	2	3	5	4	2
185:	0	2	0	3	2	1	0	1
193:	1	1	0	3	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	0
353:	0	0	0	0	0	0	0	0
361:	0	0	0	0	0	0	0	0

369:	0	1	0	0	0	0	0	1

Sample Title: 16

Channel								
377:	0	0	0	0	0	0	0	1
385:	0	0	1	1	2	2	0	1
393:	2	1	0	0	2	0	1	1
401:	1	2	1	1	2	1	2	3
409:	2	2	3	3	2	4	4	3
417:	6	1	1	1	1	2	0	1
425:	0	0	0	0	0	0	0	0
433:	0	0	1	1	0	0	1	0
441:	0	0	1	0	0	0	0	0
449:	0	1	3	1	0	2	1	0
457:	2	1	3	1	0	2	3	1
465:	5	1	2	4	2	5	2	2
473:	4	4	2	4	2	2	1	4
481:	1	2	1	2	1	1	0	0
489:	3	4	1	4	2	0	1	1
497:	1	0	0	1	0	1	1	1
505:	1	2	1	1	1	0	0	0
513:	1	0	0	3	2	1	2	2
521:	0	2	0	0	0	0	0	2
529:	0	0	0	2	0	0	0	2
537:	0	1	2	0	0	0	1	1
545:	0	1	1	0	0	0	0	0
553:	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0
569:	0	0	0	0	0	0	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	1
601:	0	0	0	0	0	0	0	0
609:	0	0	0	0	0	1	0	0
617:	0	0	1	1	0	0	0	0
625:	0	0	0	0	0	0	0	2
633:	0	1	0	2	1	0	0	1
641:	0	0	1	1	0	2	1	1
649:	0	0	3	1	0	3	2	4
657:	1	2	1	5	2	1	1	2
665:	3	5	1	4	1	0	0	0
673:	1	2	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	1	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	1	0
737:	1	0	0	0	0	1	0	0
745:	1	0	0	0	0	1	0	0
753:	0	0	0	0	1	0	0	0
761:	0	0	0	0	0	0	0	0
769:	1	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	1	0	2	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	1	0	0
857:	0	0	0	0	0	0	0	0
865:	0	1	0	0	0	0	0	0
873:	0	0	0	0	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	1	0	0	0	0	0	0
945:	0	0	0	0	1	1	0	0
953:	0	0	0	0	0	0	0	1
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	1	0	3
977:	0	1	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

KB 9/15/17

Sample Description: HTC-A01-S006-1824-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001914
Batch Identification: 1707082A-TH
Sample Identification: 17
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: 1.093E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:21:48 AM
Acquisition Date/Time: 8/15/2017 11:54:25 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.233 mL
Effective Efficiency: 0.1491 +/- 0.0138
Counting Efficiency: 0.1737 +/- 0.0030 on 11/18/2016 3:34:15 PM
Chem. Recovery Factor: 0.8584 +/- 0.0807

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.885	9.66	64.35	0.34	0.00E+000	5.9
TH-228		5.348	73.32	23.01	0.68	0.00E+000	6.2
TH-229	T	4.861	132.49	17.07	0.51	0.00E+000	6.7
TH-230		4.626	69.64	23.75	1.36	0.00E+000	3.0
TH-232		3.943	72.32	23.17	0.68	0.00E+000	4.7

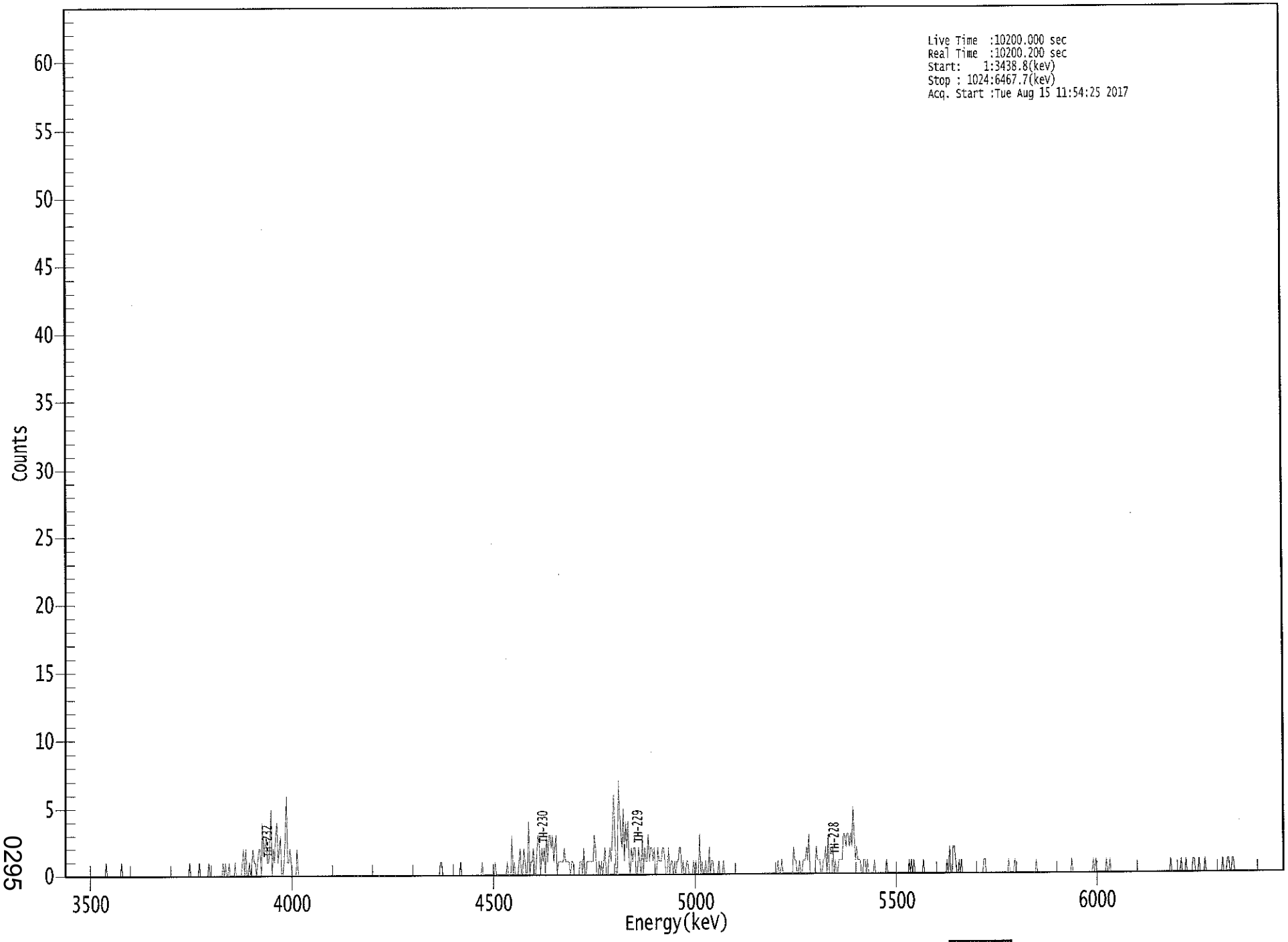
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.994	5850.00*	1.62E-001 +/- 1.09E-001	8.03E-002 +/- 1.46E-002
TH-228	0.986	5400.00*	1.31E+000 +/- 3.83E-001	1.01E-001 +/- 1.82E-002
TH-229	0.999	4872.00*	2.16E+000 +/- 3.92E-001	8.57E-002 +/- 1.55E-002
TH-230	0.989	4672.00*	1.13E+000 +/- 3.39E-001	1.12E-001 +/- 2.02E-002
TH-232	0.985	3997.00*	1.18E+000 +/- 3.46E-001	9.17E-002 +/- 1.66E-002

AG
8/16/17

0000191410.CNF



[redacted]
ROI Type: 1

[redacted]
ROI Type: 3

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

Sample Title: 17

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

801:	0	0	0	0	0	0	0	0

Sample Title: 17

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

Apex-Alpha™

NB 2/15/17

Sample Description: HTC-A01-S006-2430-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001914
Batch Identification: 1707082A-TH
Sample Identification: 18
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: 1.006E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:21:48 AM
Acquisition Date/Time: 8/15/2017 11:54:28 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.233 mL
Effective Efficiency: 0.2123 +/- 0.0168
Counting Efficiency: 0.1515 +/- 0.0026 on 11/18/2016 3:34:14 PM
Chem. Recovery Factor: 1.4015 +/- 0.1137

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		5.841	7.32	76.28	0.68	0.00E+000	3.0
TH-228		5.379	82.49	21.66	0.51	0.00E+000	5.4
TH-229	T	4.890	188.98	14.30	1.02	0.00E+000	6.6
TH-230		4.644	82.49	21.66	0.51	0.00E+000	8.7
TH-232		3.983	86.83	21.06	0.17	0.00E+000	5.2

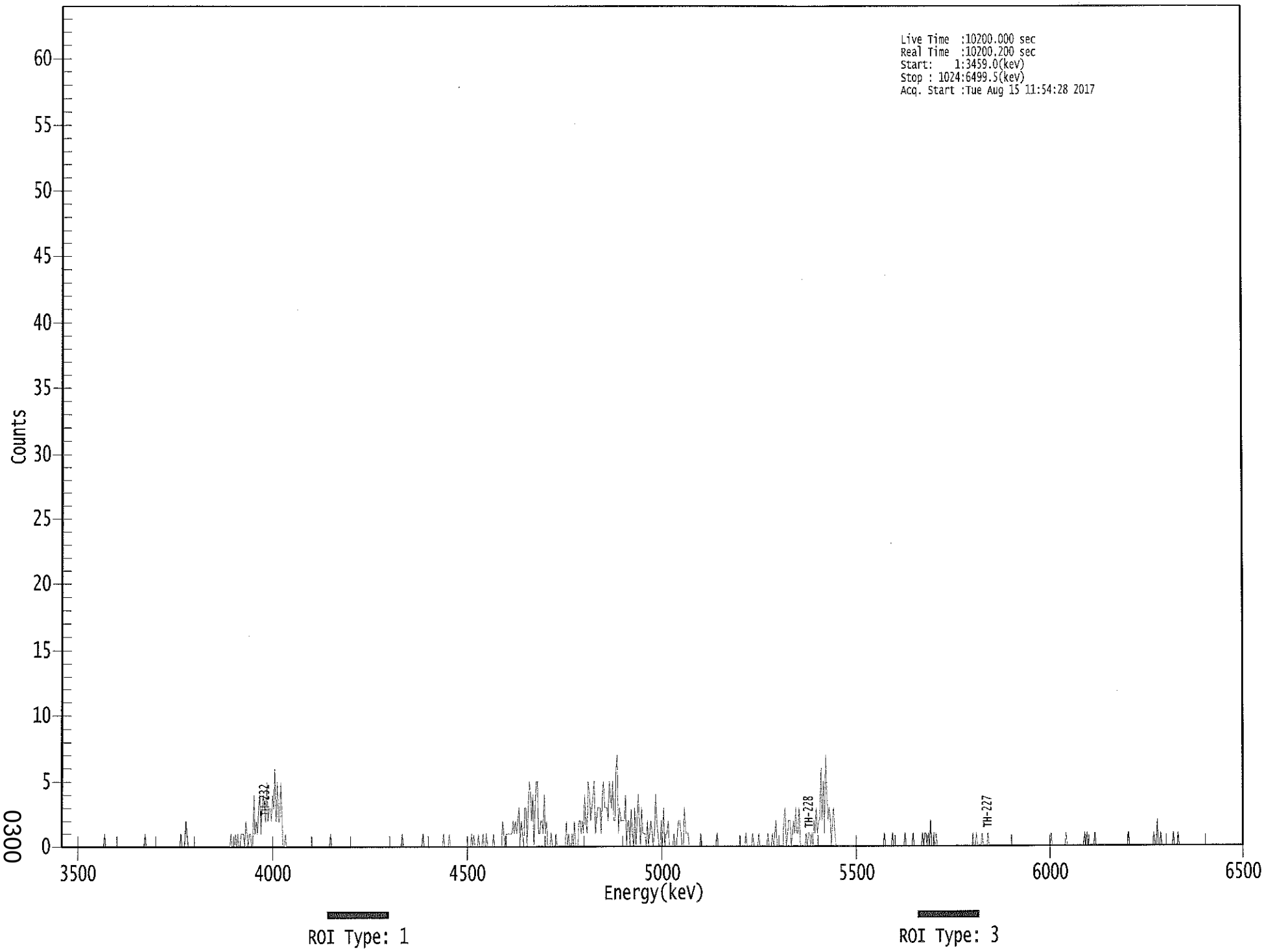
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	9.39E-002 +/- 7.31E-002	7.24E-002 +/- 1.12E-002
TH-228	0.998	5400.00*	1.12E+000 +/- 3.00E-001	7.15E-002 +/- 1.11E-002
TH-229	0.998	4872.00*	2.36E+000 +/- 3.66E-001	7.85E-002 +/- 1.22E-002
TH-230	0.996	4672.00*	1.03E+000 +/- 2.73E-001	6.52E-002 +/- 1.01E-002
TH-232	0.999	3997.00*	1.08E+000 +/- 2.82E-001	5.18E-002 +/- 8.05E-003

AG
8/16/17

0000191416.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	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	1	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	1	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	1
105:	0	0	0	2	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	0	0	0
145:	0	0	1	0	0	0	1	0
153:	1	0	0	1	1	1	0	2
161:	1	0	1	1	0	0	4	1
169:	2	1	3	4	1	3	4	3
177:	2	5	2	3	3	2	4	3
185:	6	2	5	2	2	5	3	0
193:	0	1	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0
233:	1	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	1	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	1	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	1	0	0	0	0	1
337:	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	0
353:	0	0	1	0	1	0	0	0
361:	1	0	0	0	1	0	0	1

369:	0	0	0	0	0	1	0	0

Sample Title: 18

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

801:	0	1	0	0	0	0	0	0

Sample Title: 18

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

KP 8/15/17

Apex-Alpha™

Sample Description: HTC-A01-S006-3036-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001914
Batch Identification: 1707082A-TH
Sample Identification: 19
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: 1.083E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:21:48 AM
Acquisition Date/Time: 8/15/2017 11:54:31 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.232 mL
Effective Efficiency: 0.1910 +/- 0.0159
Counting Efficiency: 0.1363 +/- 0.0024 on 11/18/2016 3:34:12 PM
Chem. Recovery Factor: 1.4011 +/- 0.1189

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.836	9.66	64.35	0.34	0.00E+000	3.0
TH-228		5.376	78.13	22.48	1.87	0.00E+000	4.0
TH-229	T	4.891	169.32	15.10	0.68	0.00E+000	3.8
TH-230		4.636	76.49	22.50	0.51	0.00E+000	4.0
TH-232		3.962	80.66	21.88	0.34	0.00E+000	6.3

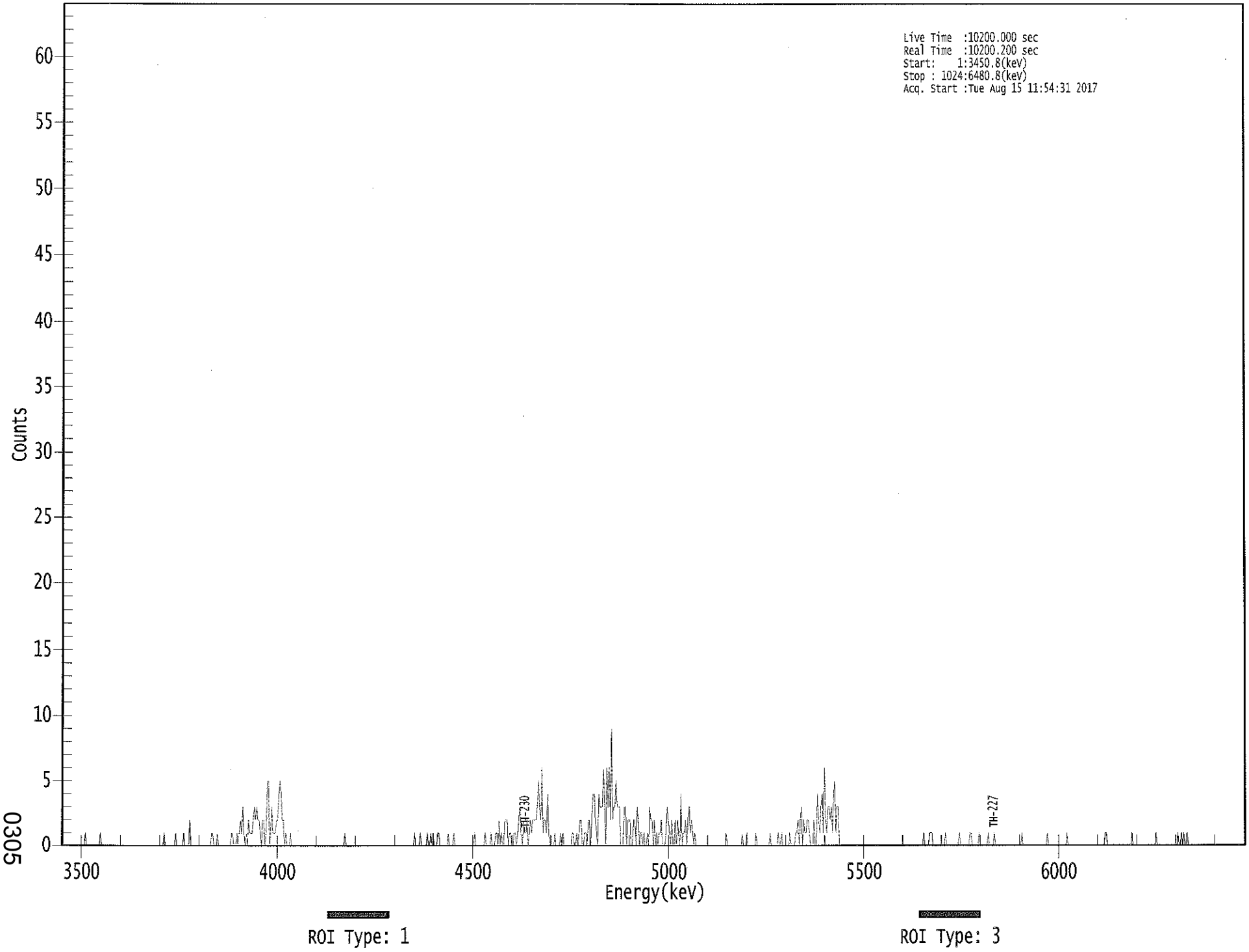
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.999	5850.00*	1.28E-001 +/- 8.50E-002	6.34E-002 +/- 1.03E-002
TH-228	0.997	5400.00*	1.10E+000 +/- 3.05E-001	1.07E-001 +/- 1.74E-002
TH-229	0.998	4872.00*	2.18E+000 +/- 3.55E-001	7.26E-002 +/- 1.18E-002
TH-230	0.993	4672.00*	9.82E-001 +/- 2.73E-001	6.74E-002 +/- 1.10E-002
TH-232	0.993	3997.00*	1.03E+000 +/- 2.82E-001	6.13E-002 +/- 9.97E-003

AG
8/16/17

0000191417.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	1	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	1	0	0	0	0	0	0
41:	0	0	0	0	0	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	1	0	0	0	0	0
105:	0	1	0	0	0	0	2	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	1	1	0	0	0	1	0
137:	0	0	0	0	0	0	0	0
145:	0	0	1	1	0	0	0	1
153:	1	1	2	1	3	1	0	1
161:	0	2	1	1	1	2	3	2
169:	3	2	2	1	0	2	2	0
177:	1	5	5	0	1	3	1	1
185:	1	2	2	4	5	4	2	2
193:	0	1	0	0	0	1	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	0	0	1	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	1	0	0	0	0	1	0	0
313:	0	0	0	1	0	0	1	0
321:	1	0	0	0	1	1	0	0
329:	0	0	0	0	0	1	0	0
337:	0	0	1	0	0	0	0	0
345:	0	0	0	0	0	0	0	0
353:	0	0	0	0	1	0	0	0
361:	0	0	0	0	0	1	0	0

369:	0	0	1	0	0	0	1	1

Sample Title: 19

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

801:	1	0	0	0	0	1	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	1	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	1	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	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	1	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	1	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	0	0	0	0	0	0	0
961:	0	0	0	0	1	0	0	1
969:	0	1	0	0	1	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

KB 8/15/17

Apex-Alpha™

Sample Description: HTC-A01-S006-3642-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001914
Batch Identification: 1707082A-TH
Sample Identification: 20
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: 1.062E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:21:48 AM
Acquisition Date/Time: 8/15/2017 11:54:34 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.233 mL
Effective Efficiency: 0.1747 +/- 0.0151
Counting Efficiency: 0.1595 +/- 0.0027 on 11/18/2016 3:34:09 PM
Chem. Recovery Factor: 1.0953 +/- 0.0966

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.839	6.64	84.69	1.36	0.00E+000	3.0
TH-228		5.382	81.47	21.95	1.53	0.00E+000	4.4
TH-229	T	4.878	155.30	15.83	1.70	0.00E+000	4.2
TH-230		4.638	87.32	21.07	0.68	0.00E+000	7.9
TH-232		3.967	87.81	21.08	1.19	0.00E+000	7.7

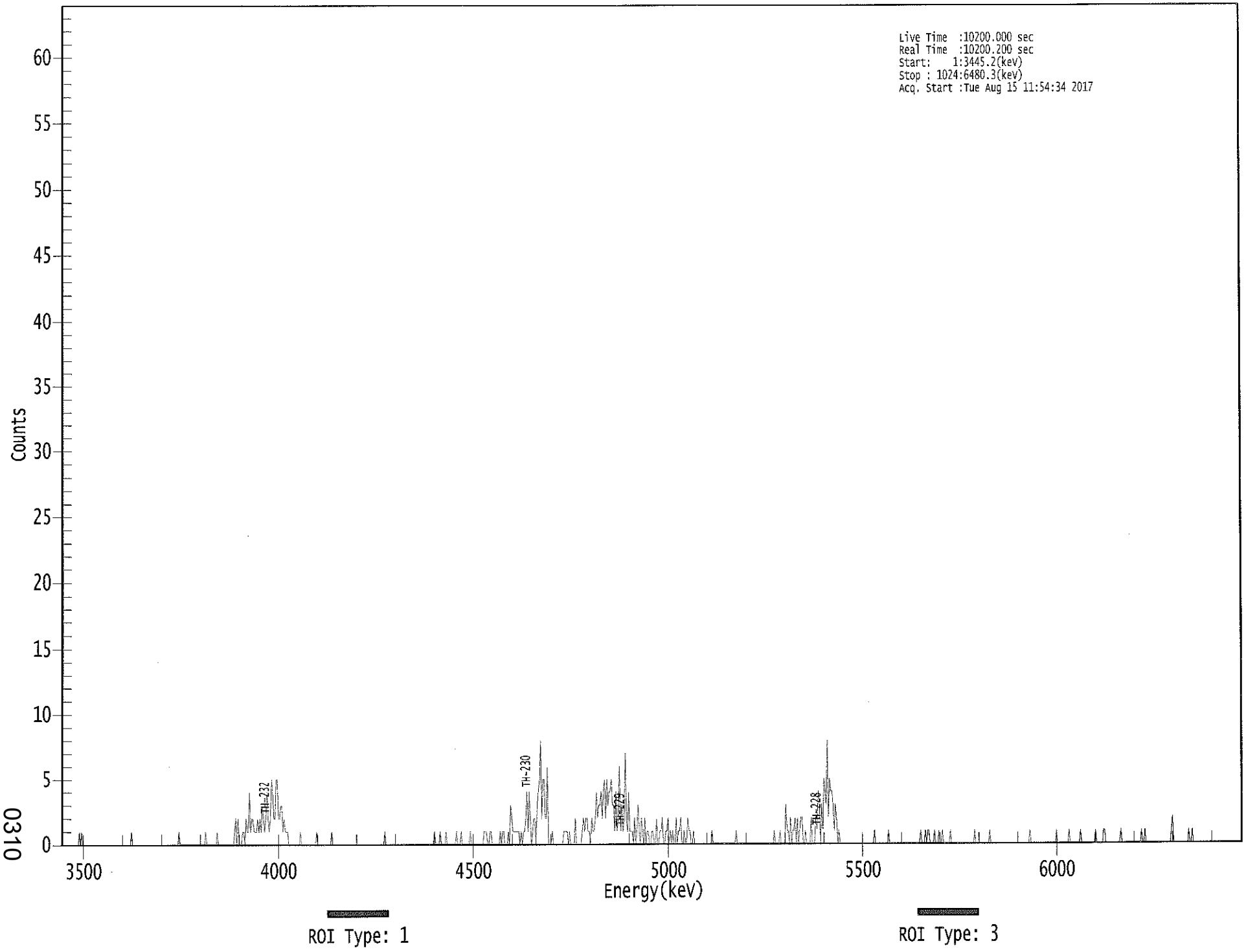
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.999	5850.00*	9.81E-002 +/- 8.47E-002	1.01E-001 +/- 1.72E-002
TH-228	0.998	5400.00*	1.28E+000 +/- 3.55E-001	1.12E-001 +/- 1.89E-002
TH-229	1.000	4872.00*	2.23E+000 +/- 3.78E-001	1.05E-001 +/- 1.79E-002
TH-230	0.994	4672.00*	1.25E+000 +/- 3.38E-001	8.07E-002 +/- 1.37E-002
TH-232	0.995	3997.00*	1.25E+000 +/- 3.39E-001	9.41E-002 +/- 1.60E-002

AG 8/16/17

0000191411.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	0
9:	0	0	0	0	0	0	0	1
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	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	1	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	1	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	1	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	1	2	0
153:	2	0	0	0	1	1	0	2
161:	1	1	4	1	2	2	1	1
169:	1	2	1	2	1	3	2	1
177:	2	4	2	1	2	5	4	2
185:	2	5	5	2	2	3	3	1
193:	2	1	1	1	0	0	0	0
201:	0	0	0	0	0	0	1	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	1	0	0	0
225:	0	0	0	0	0	0	0	0
233:	0	1	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	1
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	1	0	0	0	0	1
329:	0	0	0	0	1	0	0	0
337:	0	0	0	0	0	1	0	0
345:	0	1	0	0	0	0	0	0
353:	0	1	0	0	0	0	0	0
361:	0	0	0	0	0	1	1	1

369:	0	0	1	1	0	0	0	0

Sample Title: 20

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

801:	0	0	0	1	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	1	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	1	0	0
865:	0	0	0	0	0	0	0	0
873:	1	0	0	0	0	0	0	0
881:	0	0	1	0	0	0	0	0
889:	0	0	0	0	0	0	0	1
897:	0	0	0	0	0	0	1	1
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	1	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	1
937:	0	0	1	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	1	2	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	1	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

8/15/2017 5:32:10 AM

Apex-Alpha™

QA SUMMARY REPORT

Review Of QA Results - Pulser Check

Date : 8/15/2017
Time : 5:32:10 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_001	21f	ALL	Not Done	
Alpha_002	21f	ALL	Not Done	
Alpha_003	21f	ALL	Passed	8/15/2017 5:17:35 AM
Alpha_004	21f	ALL	Passed	8/15/2017 5:17:36 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	8/15/2017 5:17:37 AM
Alpha_011	21f	ALL	Passed	8/15/2017 5:17:38 AM
Alpha_012	21f	ALL	Passed	8/15/2017 5:17:39 AM
Alpha_013	21f	ALL	Not Done	
Alpha_014	21f	ALL	Passed	8/15/2017 5:17:40 AM
Alpha_015	21f	ALL	Not Done	
Alpha_016	21f	ALL	Not Done	
Alpha_033	Alpha Analyst100DC	ALL	Passed	8/15/2017 5:17:41 AM
Alpha_034	Alpha Analyst100DC	ALL	Passed	8/15/2017 5:17:42 AM
Alpha_035	Alpha Analyst100DC	ALL	Passed	8/15/2017 5:17:44 AM
Alpha_036	Alpha Analyst100DC	ALL	Passed	8/15/2017 5:17:45 AM
Alpha_037	Alpha Analyst100DC	ALL	Passed	8/15/2017 5:17:47 AM
Alpha_038	Alpha Analyst100DC	ALL	Passed	8/15/2017 5:17:48 AM
Alpha_039	Alpha Analyst100DC	ALL	Passed	8/15/2017 5:17:50 AM
Alpha_040	Alpha Analyst100DC	Peak FWHM	Action	8/15/2017 5:17:51 AM
Alpha_041	Alpha Analyst100DC	ALL	Passed	8/10/2017 5:44:24 AM
Alpha_042	Alpha Analyst100DC	ALL	Passed	8/10/2017 5:44:26 AM
Alpha_043	Alpha Analyst100DC	ALL	Passed	8/15/2017 5:17:53 AM
Alpha_044	Alpha Analyst100DC	ALL	Passed	8/15/2017 5:17:55 AM
Alpha_045	Alpha Analyst100DC	ALL	Passed	8/15/2017 5:17:57 AM
Alpha_046	Alpha Analyst100DC	ALL	Passed	8/15/2017 5:17:58 AM
Alpha_047	Alpha Analyst100DC	ALL	Passed	8/15/2017 5:18:00 AM
Alpha_048	Alpha Analyst100DC	ALL	Passed	8/15/2017 5:18:02 AM
Alpha_049	Alpha Analyst100DC	ALL	Passed	8/15/2017 5:18:04 AM
Alpha_050	Alpha Analyst100DC	ALL	Passed	8/15/2017 5:18:06 AM
Alpha_051	Alpha Analyst100DC	ALL	Not Done	
Alpha_052	Alpha Analyst100DC	ALL	Passed	8/15/2017 5:18:08 AM
Alpha_053	Alpha Analyst100DC	ALL	Passed	8/15/2017 5:18:10 AM
Alpha_054	Alpha Analyst100DC	ALL	Passed	8/15/2017 5:18:13 AM
Alpha_055	Alpha Analyst100DC	ALL	Not Done	
Alpha_056	Alpha Analyst100DC	ALL	Passed	8/15/2017 5:18:16 AM
Alpha_057	Alpha Analyst100DC	ALL	Passed	8/15/2017 5:18:19 AM
Alpha_058	Alpha Analyst100DC	ALL	Passed	8/15/2017 5:18:21 AM

Review of QA Results - Pulser Check

8/15/2017 5:32:10 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_059	Alpha Analyst100DC	ALL	Passed	8/15/2017 5:18:24 AM
Alpha_060	Alpha Analyst100DC	ALL	Passed	8/15/2017 5:18:27 AM

APPROVED BY: _____

APPROVAL DATE: 8/15/17

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*********************************************************************
*****          L I B R A R Y   L I S T I N G   R E P O R T        *****
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Nuclide Library Title: Thorium

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

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

* = key line

TOTALS: 5 Nuclides 5 Energy Lines

SECTION X

ANALYTICAL DATA (GAMMA SPECTROSCOPY)

Eberline Services
Oak Ridge Laboratory
Analysis Sheet

17-07082
Gamma
Run 2

Work Order	17-07082
Analysis Code	Gamma
Run	2
Date Received	7/18/2017
Lab Deadline	8/9/2017
Client	Weston Solutions, Inc.
Project	94759
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	EPA 901.1 Modified
Instrument Type	Gamma Spectroscopy
Radiometric Tracer	
Radiometric Sol#	
Tracer Act (dpm/g)	
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		07/18/17 00:00	1.0000E+00
02	MBL	BLANK		07/18/17 00:00	1.0000E+00
03	DUP	HTC-A01-S005-0612-01	31	05/13/17 09:58	5.8270E+02
04	DO	HTC-A01-S005-0612-01	31	05/13/17 09:58	5.8270E+02
07	TRG	HTC-A01-S005-0612-02	29	05/13/17 09:58	5.6277E+02
08	TRG	HTC-A01-S005-1218-01	36	05/13/17 09:55	6.5406E+02
09	TRG	HTC-A01-S005-1824-01	39	05/13/17 09:52	6.7200E+02
10	TRG	HTC-A01-S005-2430-01	38	05/13/17 09:49	5.7982E+02
11	TRG	HTC-A01-S005-3036-01	34	05/13/17 09:46	6.7788E+02
12	TRG	HTC-A01-S005-3642-01	41	05/13/17 09:43	6.7007E+02
13	TRG	HTC-A01-S005-4248-01	30	05/13/17 09:40	6.4394E+02
14	TRG	HTC-A01-S006-0006-01	32	05/13/17 17:06	6.0548E+02
15	TRG	HTC-A01-S006-0612-01	40	05/13/17 17:03	6.7723E+02
16	TRG	HTC-A01-S006-1218-01	44	05/13/17 17:00	6.3423E+02
17	TRG	HTC-A01-S006-1824-01	37	05/13/17 16:57	6.6388E+02
18	TRG	HTC-A01-S006-2430-01	48	05/13/17 16:54	6.9029E+02
19	TRG	HTC-A01-S006-3036-01	39	05/13/17 16:51	6.4573E+02
20	TRG	HTC-A01-S006-3642-01	45	05/13/17 16:48	6.7064E+02

0318

* 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.

17-07082
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								
07	TRG				0.00								
08	TRG				0.00								
09	TRG				0.00								
10	TRG				0.00								
11	TRG				0.00								
12	TRG				0.00								
13	TRG				0.00								
14	TRG				0.00								
15	TRG				0.00								
16	TRG				0.00								
17	TRG				0.00								
18	TRG				0.00								
19	TRG				0.00								
20	TRG				0.00								

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

17-07082
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	07/25/17 07:44	KSALLINGS						
07	TRG	07/25/17 07:44	KSALLINGS						
08	TRG	07/25/17 07:44	KSALLINGS						
09	TRG	07/25/17 07:44	KSALLINGS						
10	TRG	07/25/17 07:44	KSALLINGS						
11	TRG	07/25/17 07:44	KSALLINGS						
12	TRG	07/25/17 07:44	KSALLINGS						
13	TRG	07/25/17 07:44	KSALLINGS						
14	TRG	07/25/17 07:44	KSALLINGS						
15	TRG	07/25/17 07:44	KSALLINGS						
16	TRG	07/25/17 07:44	KSALLINGS						
17	TRG	07/25/17 07:44	KSALLINGS						
18	TRG	07/25/17 07:44	KSALLINGS						
19	TRG	07/25/17 07:44	KSALLINGS						
20	TRG	07/25/17 07:44	KSALLINGS						

0320

* 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: 17-07082-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	1.30E+02	7.68E+00	1.03E+00	1.35E+02	95.99	OK		07/18/17 00:00	1.00E+00	08/15/17 13:00	YES
01	CS-137	LCS	LCS	pCi/g	8.38E+01	8.90E+00	1.19E+00	8.44E+01	99.35	OK		07/18/17 00:00	1.00E+00	08/15/17 13:00	YES
02	AC-228	MBL	BLANK	pCi/g	6.38E-02	6.81E-02	1.41E-01					07/18/17 00:00	1.00E+00	08/15/17 13:00	NO
02	BI-212	MBL	BLANK	pCi/g	-8.01E-02	1.98E-01	2.72E-01					07/18/17 00:00	1.00E+00	08/15/17 13:00	NO
02	RA-226	MBL	BLANK	pCi/g	-3.93E-02	5.27E-02	7.06E-02					07/18/17 00:00	1.00E+00	08/15/17 13:00	NO
02	CS-137	MBL	BLANK	pCi/g	5.34E-03	2.04E-02	3.57E-02					07/18/17 00:00	1.00E+00	08/15/17 13:00	NO
02	K-40	MBL	BLANK	pCi/g	-1.36E-02	2.02E-01	3.26E-01					07/18/17 00:00	1.00E+00	08/15/17 13:00	NO
02	PA-234M	MBL	BLANK	pCi/g	1.10E+00	2.15E+00	4.17E+00					07/18/17 00:00	1.00E+00	08/15/17 13:00	NO
02	PB-212	MBL	BLANK	pCi/g	2.07E-02	3.18E-02	5.24E-02					07/18/17 00:00	1.00E+00	08/15/17 13:00	NO
02	RA-224	MBL	BLANK	pCi/g	3.82E-01	3.59E-01	6.14E-01					07/18/17 00:00	1.00E+00	08/15/17 13:00	NO
02	RA-228	MBL	BLANK	pCi/g	6.38E-02	6.81E-02	1.41E-01					07/18/17 00:00	1.00E+00	08/15/17 13:00	NO
02	TH-234	MBL	BLANK	pCi/g	7.13E-01	4.69E-01	7.02E-01					07/18/17 00:00	1.00E+00	08/15/17 13:00	NO
02	TL-208	MBL	BLANK	pCi/g	9.41E-04	6.74E-02	1.08E-01					07/18/17 00:00	1.00E+00	08/15/17 13:00	NO
03	AC-228	DUP	HTC-A01-S005-0612-01	pCi/g	1.40E+00	3.09E-01	5.66E-01				OK	05/13/17 09:58	5.83E+02	08/15/17 05:53	YES
03	BI-212	DUP	HTC-A01-S005-0612-01	pCi/g	2.58E-01	8.58E-01	1.24E+00					05/13/17 09:58	5.83E+02	08/15/17 05:53	NO
03	RA-226	DUP	HTC-A01-S005-0612-01	pCi/g	2.01E+00	3.10E-01	3.51E-01					05/13/17 09:58	5.83E+02	08/15/17 05:53	YES
03	CS-137	DUP	HTC-A01-S005-0612-01	pCi/g	1.40E-01	7.80E-02	1.79E-01					05/13/17 09:58	5.83E+02	08/15/17 05:53	YES
03	K-40	DUP	HTC-A01-S005-0612-01	pCi/g	2.07E+01	3.07E+00	2.57E+00				OK	05/13/17 09:58	5.83E+02	08/15/17 05:53	YES
03	PA-234M	DUP	HTC-A01-S005-0612-01	pCi/g	1.80E-01	7.32E+00	1.66E+01					05/13/17 09:58	5.83E+02	08/15/17 05:53	NO
03	PB-212	DUP	HTC-A01-S005-0612-01	pCi/g	1.42E+00	2.10E-01	3.01E-01				OK	05/13/17 09:58	5.83E+02	08/15/17 05:53	YES
03	RA-224	DUP	HTC-A01-S005-0612-01	pCi/g	1.73E+01	2.42E+00	3.73E+00					05/13/17 09:58	5.83E+02	08/15/17 05:53	NO
03	RA-228	DUP	HTC-A01-S005-0612-01	pCi/g	1.40E+00	3.09E-01	5.66E-01					05/13/17 09:58	5.83E+02	08/15/17 05:53	YES
03	TH-234	DUP	HTC-A01-S005-0612-01	pCi/g	3.23E+00	2.73E+00	4.55E+00					05/13/17 09:58	5.83E+02	08/15/17 05:53	YES
03	TL-208	DUP	HTC-A01-S005-0612-01	pCi/g	1.42E+00	2.92E-01	7.60E-02					05/13/17 09:58	5.83E+02	08/15/17 05:53	YES
04	AC-228	DO	HTC-A01-S005-0612-01	pCi/g	1.43E+00	4.07E-01	8.87E-01					05/13/17 09:58	5.83E+02	08/15/17 06:59	YES
04	BI-212	DO	HTC-A01-S005-0612-01	pCi/g	3.75E-01	8.53E-01	1.25E+00					05/13/17 09:58	5.83E+02	08/15/17 06:59	NO
04	RA-226	DO	HTC-A01-S005-0612-01	pCi/g	2.06E+00	3.15E-01	3.99E-01					05/13/17 09:58	5.83E+02	08/15/17 06:59	YES
04	CS-137	DO	HTC-A01-S005-0612-01	pCi/g	8.38E-03	1.12E-01	1.57E-01					05/13/17 09:58	5.83E+02	08/15/17 06:59	NO
04	K-40	DO	HTC-A01-S005-0612-01	pCi/g	2.30E+01	2.99E+00	1.21E+00					05/13/17 09:58	5.83E+02	08/15/17 06:59	YES
04	PA-234M	DO	HTC-A01-S005-0612-01	pCi/g	7.10E+00	1.08E+01	1.68E+01					05/13/17 09:58	5.83E+02	08/15/17 06:59	NO
04	PB-212	DO	HTC-A01-S005-0612-01	pCi/g	1.25E+00	2.03E-01	4.25E-01					05/13/17 09:58	5.83E+02	08/15/17 06:59	YES
04	RA-224	DO	HTC-A01-S005-0612-01	pCi/g	1.59E+01	2.36E+00	3.66E+00					05/13/17 09:58	5.83E+02	08/15/17 06:59	NO
04	RA-228	DO	HTC-A01-S005-0612-01	pCi/g	1.43E+00	4.07E-01	8.87E-01					05/13/17 09:58	5.83E+02	08/15/17 06:59	YES
04	TH-234	DO	HTC-A01-S005-0612-01	pCi/g	1.39E+00	1.67E+00	2.80E+00					05/13/17 09:58	5.83E+02	08/15/17 06:59	YES
04	TL-208	DO	HTC-A01-S005-0612-01	pCi/g	1.19E+00	2.68E-01	3.25E-01					05/13/17 09:58	5.83E+02	08/15/17 06:59	YES
07	AC-228	TRG	HTC-A01-S005-0612-02	pCi/g	1.54E+00	2.40E-01	4.36E-01					05/13/17 09:58	5.63E+02	08/15/17 06:58	YES
07	BI-212	TRG	HTC-A01-S005-0612-02	pCi/g	1.40E+00	5.34E-01	7.74E-01					05/13/17 09:58	5.63E+02	08/15/17 06:58	YES
07	RA-226	TRG	HTC-A01-S005-0612-02	pCi/g	2.56E+00	2.65E-01	2.63E-01					05/13/17 09:58	5.63E+02	08/15/17 06:58	YES

0321

Work Order: 17-07082-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
07	CS-137	TRG	HTC-A01-S005-0612-02	pCi/g	-2.04E-03	4.51E-02	8.82E-02					05/13/17 09:58	5.63E+02	08/15/17 06:58	NO
07	K-40	TRG	HTC-A01-S005-0612-02	pCi/g	2.55E+01	2.73E+00	1.51E+00					05/13/17 09:58	5.63E+02	08/15/17 06:58	YES
07	PA-234M	TRG	HTC-A01-S005-0612-02	pCi/g	-5.01E-01	6.50E+00	9.56E+00					05/13/17 09:58	5.63E+02	08/15/17 06:58	NO
07	PB-212	TRG	HTC-A01-S005-0612-02	pCi/g	1.55E+00	1.76E-01	3.23E-01					05/13/17 09:58	5.63E+02	08/15/17 06:58	YES
07	RA-224	TRG	HTC-A01-S005-0612-02	pCi/g	6.81E+00	1.35E+00	3.65E+00					05/13/17 09:58	5.63E+02	08/15/17 06:58	YES
07	RA-228	TRG	HTC-A01-S005-0612-02	pCi/g	1.54E+00	2.40E-01	4.36E-01					05/13/17 09:58	5.63E+02	08/15/17 06:58	YES
07	TH-234	TRG	HTC-A01-S005-0612-02	pCi/g	3.19E+00	1.53E+00	2.47E+00					05/13/17 09:58	5.63E+02	08/15/17 06:58	YES
07	TL-208	TRG	HTC-A01-S005-0612-02	pCi/g	1.27E+00	1.80E-01	2.21E-01					05/13/17 09:58	5.63E+02	08/15/17 06:58	YES
08	AC-228	TRG	HTC-A01-S005-1218-01	pCi/g	1.34E+00	2.26E-01	7.11E-01					05/13/17 09:55	6.54E+02	08/15/17 06:58	YES
08	BI-212	TRG	HTC-A01-S005-1218-01	pCi/g	6.77E-01	6.13E-01	1.01E+00					05/13/17 09:55	6.54E+02	08/15/17 06:58	YES
08	RA-226	TRG	HTC-A01-S005-1218-01	pCi/g	1.13E+00	1.73E-01	2.34E-01					05/13/17 09:55	6.54E+02	08/15/17 06:58	YES
08	CS-137	TRG	HTC-A01-S005-1218-01	pCi/g	1.68E-02	6.03E-02	9.46E-02					05/13/17 09:55	6.54E+02	08/15/17 06:58	NO
08	K-40	TRG	HTC-A01-S005-1218-01	pCi/g	1.92E+01	2.33E+00	1.21E+00					05/13/17 09:55	6.54E+02	08/15/17 06:58	YES
08	PA-234M	TRG	HTC-A01-S005-1218-01	pCi/g	9.15E+00	5.50E+00	1.05E+01					05/13/17 09:55	6.54E+02	08/15/17 06:58	NO
08	PB-212	TRG	HTC-A01-S005-1218-01	pCi/g	1.31E+00	1.58E-01	2.15E-01					05/13/17 09:55	6.54E+02	08/15/17 06:58	YES
08	RA-224	TRG	HTC-A01-S005-1218-01	pCi/g	1.74E+01	2.07E+00	3.03E+00					05/13/17 09:55	6.54E+02	08/15/17 06:58	NO
08	RA-228	TRG	HTC-A01-S005-1218-01	pCi/g	1.34E+00	2.26E-01	7.11E-01					05/13/17 09:55	6.54E+02	08/15/17 06:58	YES
08	TH-234	TRG	HTC-A01-S005-1218-01	pCi/g	2.44E+00	1.66E+00	2.75E+00					05/13/17 09:55	6.54E+02	08/15/17 06:58	YES
08	TL-208	TRG	HTC-A01-S005-1218-01	pCi/g	1.04E+00	1.81E-01	3.87E-02					05/13/17 09:55	6.54E+02	08/15/17 06:58	YES
09	AC-228	TRG	HTC-A01-S005-1824-01	pCi/g	1.16E+00	1.71E-01	2.67E-01					05/13/17 09:52	6.72E+02	08/15/17 08:04	YES
09	BI-212	TRG	HTC-A01-S005-1824-01	pCi/g	1.14E+00	4.34E-01	7.50E-01					05/13/17 09:52	6.72E+02	08/15/17 08:04	YES
09	RA-226	TRG	HTC-A01-S005-1824-01	pCi/g	1.12E+00	1.51E-01	2.12E-01					05/13/17 09:52	6.72E+02	08/15/17 08:04	YES
09	CS-137	TRG	HTC-A01-S005-1824-01	pCi/g	1.44E-02	4.48E-02	7.02E-02					05/13/17 09:52	6.72E+02	08/15/17 08:04	NO
09	K-40	TRG	HTC-A01-S005-1824-01	pCi/g	2.31E+01	2.50E+00	1.22E+00					05/13/17 09:52	6.72E+02	08/15/17 08:04	YES
09	PA-234M	TRG	HTC-A01-S005-1824-01	pCi/g	1.01E+00	5.05E+00	7.86E+00					05/13/17 09:52	6.72E+02	08/15/17 08:04	NO
09	PB-212	TRG	HTC-A01-S005-1824-01	pCi/g	1.21E+00	1.42E-01	2.15E-01					05/13/17 09:52	6.72E+02	08/15/17 08:04	YES
09	RA-224	TRG	HTC-A01-S005-1824-01	pCi/g	3.09E+00	1.20E+00	2.42E+00					05/13/17 09:52	6.72E+02	08/15/17 08:04	YES
09	RA-228	TRG	HTC-A01-S005-1824-01	pCi/g	1.16E+00	1.71E-01	2.67E-01					05/13/17 09:52	6.72E+02	08/15/17 08:04	YES
09	TH-234	TRG	HTC-A01-S005-1824-01	pCi/g	2.32E+00	1.14E+00	1.55E+00					05/13/17 09:52	6.72E+02	08/15/17 08:04	NO
09	TL-208	TRG	HTC-A01-S005-1824-01	pCi/g	1.21E+00	1.67E-01	1.09E-01					05/13/17 09:52	6.72E+02	08/15/17 08:04	YES
10	AC-228	TRG	HTC-A01-S005-2430-01	pCi/g	1.39E+00	2.49E-01	3.75E-01					05/13/17 09:49	5.80E+02	08/15/17 08:04	YES
10	BI-212	TRG	HTC-A01-S005-2430-01	pCi/g	3.41E-01	5.02E-01	8.23E-01					05/13/17 09:49	5.80E+02	08/15/17 08:04	NO
10	RA-226	TRG	HTC-A01-S005-2430-01	pCi/g	8.10E-01	2.00E-01	3.52E-01					05/13/17 09:49	5.80E+02	08/15/17 08:04	YES
10	CS-137	TRG	HTC-A01-S005-2430-01	pCi/g	7.99E-03	6.33E-02	9.81E-02					05/13/17 09:49	5.80E+02	08/15/17 08:04	NO
10	K-40	TRG	HTC-A01-S005-2430-01	pCi/g	2.09E+01	2.52E+00	1.01E+00					05/13/17 09:49	5.80E+02	08/15/17 08:04	YES
10	PA-234M	TRG	HTC-A01-S005-2430-01	pCi/g	4.46E+00	6.56E+00	1.11E+01					05/13/17 09:49	5.80E+02	08/15/17 08:04	NO
10	PB-212	TRG	HTC-A01-S005-2430-01	pCi/g	1.34E+00	1.72E-01	2.38E-01					05/13/17 09:49	5.80E+02	08/15/17 08:04	YES
10	RA-224	TRG	HTC-A01-S005-2430-01	pCi/g	1.72E+01	2.12E+00	3.21E+00					05/13/17 09:49	5.80E+02	08/15/17 08:04	NO

0322

Work Order: 17-07082-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-A01-S005-2430-01	pCi/g	1.39E+00	2.49E-01	3.75E-01					05/13/17 09:49	5.80E+02	08/15/17 08:04	YES
10	TH-234	TRG	HTC-A01-S005-2430-01	pCi/g	1.74E+00	1.40E+00	1.89E+00					05/13/17 09:49	5.80E+02	08/15/17 08:04	NO
10	TL-208	TRG	HTC-A01-S005-2430-01	pCi/g	1.10E+00	1.96E-01	1.18E-01					05/13/17 09:49	5.80E+02	08/15/17 08:04	YES
11	AC-228	TRG	HTC-A01-S005-3036-01	pCi/g	1.18E+00	2.69E-01	8.15E-01					05/13/17 09:46	6.78E+02	08/15/17 08:04	YES
11	BI-212	TRG	HTC-A01-S005-3036-01	pCi/g	3.84E-01	7.30E-01	1.08E+00					05/13/17 09:46	6.78E+02	08/15/17 08:04	NO
11	RA-226	TRG	HTC-A01-S005-3036-01	pCi/g	1.04E+00	2.17E-01	2.74E-01					05/13/17 09:46	6.78E+02	08/15/17 08:04	YES
11	CS-137	TRG	HTC-A01-S005-3036-01	pCi/g	-4.29E-02	8.99E-02	1.17E-01					05/13/17 09:46	6.78E+02	08/15/17 08:04	NO
11	K-40	TRG	HTC-A01-S005-3036-01	pCi/g	2.08E+01	2.67E+00	1.08E+00					05/13/17 09:46	6.78E+02	08/15/17 08:04	YES
11	PA-234M	TRG	HTC-A01-S005-3036-01	pCi/g	5.40E+00	8.94E+00	1.39E+01					05/13/17 09:46	6.78E+02	08/15/17 08:04	NO
11	PB-212	TRG	HTC-A01-S005-3036-01	pCi/g	1.07E+00	1.56E-01	2.79E-01					05/13/17 09:46	6.78E+02	08/15/17 08:04	YES
11	RA-224	TRG	HTC-A01-S005-3036-01	pCi/g	4.06E+00	1.54E+00	3.16E+00					05/13/17 09:46	6.78E+02	08/15/17 08:04	YES
11	RA-228	TRG	HTC-A01-S005-3036-01	pCi/g	1.18E+00	2.69E-01	8.15E-01					05/13/17 09:46	6.78E+02	08/15/17 08:04	YES
11	TH-234	TRG	HTC-A01-S005-3036-01	pCi/g	1.24E+00	1.46E+00	2.44E+00					05/13/17 09:46	6.78E+02	08/15/17 08:04	YES
11	TL-208	TRG	HTC-A01-S005-3036-01	pCi/g	1.20E+00	2.57E-01	6.53E-02					05/13/17 09:46	6.78E+02	08/15/17 08:04	YES
12	AC-228	TRG	HTC-A01-S005-3642-01	pCi/g	1.16E+00	1.83E-01	3.29E-01					05/13/17 09:43	6.70E+02	08/15/17 09:05	YES
12	BI-212	TRG	HTC-A01-S005-3642-01	pCi/g	9.03E-01	4.12E-01	6.51E-01					05/13/17 09:43	6.70E+02	08/15/17 09:05	YES
12	RA-226	TRG	HTC-A01-S005-3642-01	pCi/g	1.03E+00	1.43E-01	1.56E-01					05/13/17 09:43	6.70E+02	08/15/17 09:05	YES
12	CS-137	TRG	HTC-A01-S005-3642-01	pCi/g	5.67E-03	4.61E-02	7.07E-02					05/13/17 09:43	6.70E+02	08/15/17 09:05	NO
12	K-40	TRG	HTC-A01-S005-3642-01	pCi/g	2.30E+01	2.45E+00	9.54E-01					05/13/17 09:43	6.70E+02	08/15/17 09:05	YES
12	PA-234M	TRG	HTC-A01-S005-3642-01	pCi/g	-3.57E+00	5.35E+00	7.36E+00					05/13/17 09:43	6.70E+02	08/15/17 09:05	NO
12	PB-212	TRG	HTC-A01-S005-3642-01	pCi/g	1.38E+00	1.49E-01	2.04E-01					05/13/17 09:43	6.70E+02	08/15/17 09:05	YES
12	RA-224	TRG	HTC-A01-S005-3642-01	pCi/g	2.84E+00	1.22E+00	2.28E+00					05/13/17 09:43	6.70E+02	08/15/17 09:05	YES
12	RA-228	TRG	HTC-A01-S005-3642-01	pCi/g	1.16E+00	1.83E-01	3.29E-01					05/13/17 09:43	6.70E+02	08/15/17 09:05	YES
12	TH-234	TRG	HTC-A01-S005-3642-01	pCi/g	1.25E+00	1.01E+00	1.67E+00					05/13/17 09:43	6.70E+02	08/15/17 09:05	YES
12	TL-208	TRG	HTC-A01-S005-3642-01	pCi/g	1.12E+00	1.53E-01	1.99E-01					05/13/17 09:43	6.70E+02	08/15/17 09:05	YES
13	AC-228	TRG	HTC-A01-S005-4248-01	pCi/g	1.35E+00	2.68E-01	6.23E-01					05/13/17 09:40	6.44E+02	08/15/17 09:05	YES
13	BI-212	TRG	HTC-A01-S005-4248-01	pCi/g	1.15E+00	4.92E-01	7.85E-01					05/13/17 09:40	6.44E+02	08/15/17 09:05	YES
13	RA-226	TRG	HTC-A01-S005-4248-01	pCi/g	1.19E+00	1.64E-01	3.28E-01					05/13/17 09:40	6.44E+02	08/15/17 09:05	YES
13	CS-137	TRG	HTC-A01-S005-4248-01	pCi/g	5.90E-02	6.68E-02	1.09E-01					05/13/17 09:40	6.44E+02	08/15/17 09:05	NO
13	K-40	TRG	HTC-A01-S005-4248-01	pCi/g	2.07E+01	2.48E+00	1.25E+00					05/13/17 09:40	6.44E+02	08/15/17 09:05	YES
13	PA-234M	TRG	HTC-A01-S005-4248-01	pCi/g	6.19E+00	5.23E+00	8.34E+00					05/13/17 09:40	6.44E+02	08/15/17 09:05	YES
13	PB-212	TRG	HTC-A01-S005-4248-01	pCi/g	1.27E+00	1.62E-01	2.33E-01					05/13/17 09:40	6.44E+02	08/15/17 09:05	YES
13	RA-224	TRG	HTC-A01-S005-4248-01	pCi/g	1.78E+01	2.14E+00	3.11E+00					05/13/17 09:40	6.44E+02	08/15/17 09:05	NO
13	RA-228	TRG	HTC-A01-S005-4248-01	pCi/g	1.35E+00	2.68E-01	6.23E-01					05/13/17 09:40	6.44E+02	08/15/17 09:05	YES
13	TH-234	TRG	HTC-A01-S005-4248-01	pCi/g	1.87E+00	1.34E+00	1.80E+00					05/13/17 09:40	6.44E+02	08/15/17 09:05	NO
13	TL-208	TRG	HTC-A01-S005-4248-01	pCi/g	1.07E+00	2.01E-01	2.03E-01					05/13/17 09:40	6.44E+02	08/15/17 09:05	YES
14	AC-228	TRG	HTC-A01-S006-0006-01	pCi/g	1.20E+00	3.52E-01	7.45E-01					05/13/17 17:06	6.05E+02	08/15/17 09:05	YES
14	BI-212	TRG	HTC-A01-S006-0006-01	pCi/g	1.46E+00	9.78E-01	1.56E+00					05/13/17 17:06	6.05E+02	08/15/17 09:05	YES

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Preliminary Data Report & Analytical Calculations

Work Order: 17-07082-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-A01-S006-0006-01	pCi/g	9.43E-01	1.96E-01	2.51E-01					05/13/17 17:06	6.05E+02	08/15/17 09:05	YES
14	CS-137	TRG	HTC-A01-S006-0006-01	pCi/g	8.75E-02	9.30E-02	1.54E-01					05/13/17 17:06	6.05E+02	08/15/17 09:05	YES
14	K-40	TRG	HTC-A01-S006-0006-01	pCi/g	2.19E+01	2.88E+00	1.34E+00					05/13/17 17:06	6.05E+02	08/15/17 09:05	YES
14	PA-234M	TRG	HTC-A01-S006-0006-01	pCi/g	9.77E+00	8.38E+00	1.44E+01					05/13/17 17:06	6.05E+02	08/15/17 09:05	NO
14	PB-212	TRG	HTC-A01-S006-0006-01	pCi/g	1.16E+00	1.68E-01	2.91E-01					05/13/17 17:06	6.05E+02	08/15/17 09:05	YES
14	RA-224	TRG	HTC-A01-S006-0006-01	pCi/g	1.44E+01	2.08E+00	3.29E+00					05/13/17 17:06	6.05E+02	08/15/17 09:05	NO
14	RA-228	TRG	HTC-A01-S006-0006-01	pCi/g	1.20E+00	3.52E-01	7.45E-01					05/13/17 17:06	6.05E+02	08/15/17 09:05	YES
14	TH-234	TRG	HTC-A01-S006-0006-01	pCi/g	1.45E+00	1.63E+00	2.73E+00					05/13/17 17:06	6.05E+02	08/15/17 09:05	YES
14	TL-208	TRG	HTC-A01-S006-0006-01	pCi/g	1.21E+00	2.91E-01	3.40E-01					05/13/17 17:06	6.05E+02	08/15/17 09:05	YES
15	AC-228	TRG	HTC-A01-S006-0612-01	pCi/g	1.09E+00	1.70E-01	3.20E-01					05/13/17 17:03	6.77E+02	08/15/17 10:23	YES
15	BI-212	TRG	HTC-A01-S006-0612-01	pCi/g	7.56E-01	3.88E-01	6.60E-01					05/13/17 17:03	6.77E+02	08/15/17 10:23	YES
15	RA-226	TRG	HTC-A01-S006-0612-01	pCi/g	1.08E+00	1.43E-01	4.34E-02					05/13/17 17:03	6.77E+02	08/15/17 10:23	YES
15	CS-137	TRG	HTC-A01-S006-0612-01	pCi/g	5.15E-02	5.24E-02	8.34E-02					05/13/17 17:03	6.77E+02	08/15/17 10:23	NO
15	K-40	TRG	HTC-A01-S006-0612-01	pCi/g	2.24E+01	2.36E+00	8.75E-01					05/13/17 17:03	6.77E+02	08/15/17 10:23	YES
15	PA-234M	TRG	HTC-A01-S006-0612-01	pCi/g	6.94E-01	5.11E+00	7.90E+00					05/13/17 17:03	6.77E+02	08/15/17 10:23	NO
15	PB-212	TRG	HTC-A01-S006-0612-01	pCi/g	1.24E+00	1.41E-01	1.83E-01					05/13/17 17:03	6.77E+02	08/15/17 10:23	YES
15	RA-224	TRG	HTC-A01-S006-0612-01	pCi/g	3.94E+00	1.27E+00	2.09E+00					05/13/17 17:03	6.77E+02	08/15/17 10:23	YES
15	RA-228	TRG	HTC-A01-S006-0612-01	pCi/g	1.09E+00	1.70E-01	3.20E-01					05/13/17 17:03	6.77E+02	08/15/17 10:23	YES
15	TH-234	TRG	HTC-A01-S006-0612-01	pCi/g	1.04E+00	1.12E+00	1.87E+00					05/13/17 17:03	6.77E+02	08/15/17 10:23	YES
15	TL-208	TRG	HTC-A01-S006-0612-01	pCi/g	1.04E+00	1.54E-01	1.08E-01					05/13/17 17:03	6.77E+02	08/15/17 10:23	YES
16	AC-228	TRG	HTC-A01-S006-1218-01	pCi/g	8.02E-01	2.15E-01	3.98E-01					05/13/17 17:00	6.34E+02	08/15/17 10:23	YES
16	BI-212	TRG	HTC-A01-S006-1218-01	pCi/g	2.98E-01	4.70E-01	7.66E-01					05/13/17 17:00	6.34E+02	08/15/17 10:23	NO
16	RA-226	TRG	HTC-A01-S006-1218-01	pCi/g	1.03E+00	1.53E-01	2.61E-01					05/13/17 17:00	6.34E+02	08/15/17 10:23	YES
16	CS-137	TRG	HTC-A01-S006-1218-01	pCi/g	7.01E-02	6.06E-02	9.87E-02					05/13/17 17:00	6.34E+02	08/15/17 10:23	YES
16	K-40	TRG	HTC-A01-S006-1218-01	pCi/g	2.03E+01	2.45E+00	1.27E+00					05/13/17 17:00	6.34E+02	08/15/17 10:23	YES
16	PA-234M	TRG	HTC-A01-S006-1218-01	pCi/g	2.55E+00	6.31E+00	1.02E+01					05/13/17 17:00	6.34E+02	08/15/17 10:23	NO
16	PB-212	TRG	HTC-A01-S006-1218-01	pCi/g	1.17E+00	1.55E-01	2.06E-01					05/13/17 17:00	6.34E+02	08/15/17 10:23	YES
16	RA-224	TRG	HTC-A01-S006-1218-01	pCi/g	1.55E+01	1.92E+00	2.91E+00					05/13/17 17:00	6.34E+02	08/15/17 10:23	NO
16	RA-228	TRG	HTC-A01-S006-1218-01	pCi/g	8.02E-01	2.15E-01	3.98E-01					05/13/17 17:00	6.34E+02	08/15/17 10:23	YES
16	TH-234	TRG	HTC-A01-S006-1218-01	pCi/g	1.59E+00	1.22E+00	1.64E+00					05/13/17 17:00	6.34E+02	08/15/17 10:23	NO
16	TL-208	TRG	HTC-A01-S006-1218-01	pCi/g	8.72E-01	1.70E-01	1.08E-01					05/13/17 17:00	6.34E+02	08/15/17 10:23	YES
17	AC-228	TRG	HTC-A01-S006-1824-01	pCi/g	1.37E+00	3.16E-01	6.91E-01					05/13/17 16:57	6.64E+02	08/15/17 10:23	YES
17	BI-212	TRG	HTC-A01-S006-1824-01	pCi/g	9.70E-01	6.66E-01	1.05E+00					05/13/17 16:57	6.64E+02	08/15/17 10:23	YES
17	RA-226	TRG	HTC-A01-S006-1824-01	pCi/g	1.21E+00	2.27E-01	9.69E-02					05/13/17 16:57	6.64E+02	08/15/17 10:23	YES
17	CS-137	TRG	HTC-A01-S006-1824-01	pCi/g	-1.87E-03	9.74E-02	1.35E-01					05/13/17 16:57	6.64E+02	08/15/17 10:23	NO
17	K-40	TRG	HTC-A01-S006-1824-01	pCi/g	2.20E+01	2.82E+00	1.28E+00					05/13/17 16:57	6.64E+02	08/15/17 10:23	YES
17	PA-234M	TRG	HTC-A01-S006-1824-01	pCi/g	6.49E-01	1.09E+01	1.54E+01					05/13/17 16:57	6.64E+02	08/15/17 10:23	NO
17	PB-212	TRG	HTC-A01-S006-1824-01	pCi/g	1.25E+00	1.74E-01	3.60E-01					05/13/17 16:57	6.64E+02	08/15/17 10:23	YES

Work Order: 17-07082-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-A01-S006-1824-01	pCi/g	1.62E+01	2.16E+00	3.29E+00					05/13/17 16:57	6.64E+02	08/15/17 10:23	NO
17	RA-228	TRG	HTC-A01-S006-1824-01	pCi/g	1.37E+00	3.16E-01	6.91E-01					05/13/17 16:57	6.64E+02	08/15/17 10:23	YES
17	TH-234	TRG	HTC-A01-S006-1824-01	pCi/g	2.44E+00	1.74E+00	2.88E+00					05/13/17 16:57	6.64E+02	08/15/17 10:23	YES
17	TL-208	TRG	HTC-A01-S006-1824-01	pCi/g	1.12E+00	2.43E-01	6.67E-02					05/13/17 16:57	6.64E+02	08/15/17 10:23	YES
18	AC-228	TRG	HTC-A01-S006-2430-01	pCi/g	9.52E-01	1.81E-01	3.80E-01					05/13/17 16:54	6.90E+02	08/15/17 11:41	YES
18	BI-212	TRG	HTC-A01-S006-2430-01	pCi/g	6.07E-01	4.04E-01	6.43E-01					05/13/17 16:54	6.90E+02	08/15/17 11:41	YES
18	RA-226	TRG	HTC-A01-S006-2430-01	pCi/g	1.04E+00	1.50E-01	2.09E-01					05/13/17 16:54	6.90E+02	08/15/17 11:41	YES
18	CS-137	TRG	HTC-A01-S006-2430-01	pCi/g	1.40E-01	6.18E-02	9.33E-02					05/13/17 16:54	6.90E+02	08/15/17 11:41	YES
18	K-40	TRG	HTC-A01-S006-2430-01	pCi/g	2.01E+01	2.19E+00	9.13E-01					05/13/17 16:54	6.90E+02	08/15/17 11:41	YES
18	PA-234M	TRG	HTC-A01-S006-2430-01	pCi/g	4.39E+00	4.50E+00	7.65E+00					05/13/17 16:54	6.90E+02	08/15/17 11:41	NO
18	PB-212	TRG	HTC-A01-S006-2430-01	pCi/g	1.13E+00	1.29E-01	2.06E-01					05/13/17 16:54	6.90E+02	08/15/17 11:41	YES
18	RA-224	TRG	HTC-A01-S006-2430-01	pCi/g	3.65E+00	1.27E+00	2.37E+00					05/13/17 16:54	6.90E+02	08/15/17 11:41	YES
18	RA-228	TRG	HTC-A01-S006-2430-01	pCi/g	9.52E-01	1.81E-01	3.80E-01					05/13/17 16:54	6.90E+02	08/15/17 11:41	YES
18	TH-234	TRG	HTC-A01-S006-2430-01	pCi/g	1.82E+00	1.06E+00	1.45E+00					05/13/17 16:54	6.90E+02	08/15/17 11:41	NO
18	TL-208	TRG	HTC-A01-S006-2430-01	pCi/g	1.11E+00	1.61E-01	2.23E-01					05/13/17 16:54	6.90E+02	08/15/17 11:41	YES
19	AC-228	TRG	HTC-A01-S006-3036-01	pCi/g	1.21E+00	2.48E-01	6.19E-01					05/13/17 16:51	6.46E+02	08/15/17 11:41	YES
19	BI-212	TRG	HTC-A01-S006-3036-01	pCi/g	1.02E+00	5.59E-01	8.68E-01					05/13/17 16:51	6.46E+02	08/15/17 11:41	YES
19	RA-226	TRG	HTC-A01-S006-3036-01	pCi/g	1.05E+00	1.64E-01	2.10E-01					05/13/17 16:51	6.46E+02	08/15/17 11:41	YES
19	CS-137	TRG	HTC-A01-S006-3036-01	pCi/g	1.03E-01	6.24E-02	1.38E-01					05/13/17 16:51	6.46E+02	08/15/17 11:41	YES
19	K-40	TRG	HTC-A01-S006-3036-01	pCi/g	1.83E+01	2.26E+00	1.16E+00					05/13/17 16:51	6.46E+02	08/15/17 11:41	YES
19	PA-234M	TRG	HTC-A01-S006-3036-01	pCi/g	1.42E+00	6.83E+00	1.07E+01					05/13/17 16:51	6.46E+02	08/15/17 11:41	NO
19	PB-212	TRG	HTC-A01-S006-3036-01	pCi/g	1.49E+00	2.05E-01	2.35E-01					05/13/17 16:51	6.46E+02	08/15/17 11:41	YES
19	RA-224	TRG	HTC-A01-S006-3036-01	pCi/g	1.71E+01	2.05E+00	3.02E+00					05/13/17 16:51	6.46E+02	08/15/17 11:41	NO
19	RA-228	TRG	HTC-A01-S006-3036-01	pCi/g	1.21E+00	2.48E-01	6.19E-01					05/13/17 16:51	6.46E+02	08/15/17 11:41	YES
19	TH-234	TRG	HTC-A01-S006-3036-01	pCi/g	8.77E-01	1.24E+00	1.64E+00					05/13/17 16:51	6.46E+02	08/15/17 11:41	NO
19	TL-208	TRG	HTC-A01-S006-3036-01	pCi/g	1.37E+00	2.68E-01	4.75E-01					05/13/17 16:51	6.46E+02	08/15/17 11:41	NO
20	AC-228	TRG	HTC-A01-S006-3642-01	pCi/g	1.11E+00	2.77E-01	5.74E-01					05/13/17 16:48	6.71E+02	08/15/17 11:41	YES
20	BI-212	TRG	HTC-A01-S006-3642-01	pCi/g	5.13E-01	7.10E-01	1.07E+00					05/13/17 16:48	6.71E+02	08/15/17 11:41	NO
20	RA-226	TRG	HTC-A01-S006-3642-01	pCi/g	9.82E-01	2.16E-01	3.30E-01					05/13/17 16:48	6.71E+02	08/15/17 11:41	YES
20	CS-137	TRG	HTC-A01-S006-3642-01	pCi/g	9.68E-02	9.09E-02	1.41E-01					05/13/17 16:48	6.71E+02	08/15/17 11:41	NO
20	K-40	TRG	HTC-A01-S006-3642-01	pCi/g	1.66E+01	2.36E+00	1.46E+00					05/13/17 16:48	6.71E+02	08/15/17 11:41	YES
20	PA-234M	TRG	HTC-A01-S006-3642-01	pCi/g	1.05E+01	7.75E+00	1.35E+01					05/13/17 16:48	6.71E+02	08/15/17 11:41	NO
20	PB-212	TRG	HTC-A01-S006-3642-01	pCi/g	1.40E+00	2.14E-01	2.58E-01					05/13/17 16:48	6.71E+02	08/15/17 11:41	YES
20	RA-224	TRG	HTC-A01-S006-3642-01	pCi/g	1.44E+01	2.00E+00	3.09E+00					05/13/17 16:48	6.71E+02	08/15/17 11:41	NO
20	RA-228	TRG	HTC-A01-S006-3642-01	pCi/g	1.11E+00	2.77E-01	5.74E-01					05/13/17 16:48	6.71E+02	08/15/17 11:41	YES
20	TH-234	TRG	HTC-A01-S006-3642-01	pCi/g	1.51E+00	1.28E+00	1.93E+00					05/13/17 16:48	6.71E+02	08/15/17 11:41	NO
20	TL-208	TRG	HTC-A01-S006-3642-01	pCi/g	9.72E-01	1.97E-01	6.60E-02					05/13/17 16:48	6.71E+02	08/15/17 11:41	YES

Count Room Report
Client: Weston Solutions, Inc.

17-07082-Gamma-2 (pCi/g) in SO
Tracer ID:

Internal Fraction	Sample Desc	Client ID	Sample Date	Sample Aliquot	Tracer Aliquot (g)	Tracer ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	SAF 1*	SAF 2*
01	LCS	LCS	07/18/17 00:00	1.0000				0.00		
02	MBL	BLANK	07/18/17 00:00	1.0000				0.00		
03	DUP	HTC-A01-S005-0612-01	05/13/17 09:58	582.7000				0.00		
04	DO	HTC-A01-S005-0612-01	05/13/17 09:58	582.7000				0.00		
07	TRG	HTC-A01-S005-0612-02	05/13/17 09:58	562.7700				0.00		
08	TRG	HTC-A01-S005-1218-01	05/13/17 09:55	654.0600				0.00		
09	TRG	HTC-A01-S005-1824-01	05/13/17 09:52	672.0000				0.00		
10	TRG	HTC-A01-S005-2430-01	05/13/17 09:49	579.8200				0.00		
11	TRG	HTC-A01-S005-3036-01	05/13/17 09:46	677.8800				0.00		
12	TRG	HTC-A01-S005-3642-01	05/13/17 09:43	670.0700				0.00		
13	TRG	HTC-A01-S005-4248-01	05/13/17 09:40	643.9400				0.00		
14	TRG	HTC-A01-S006-0006-01	05/13/17 17:06	605.4800				0.00		
15	TRG	HTC-A01-S006-0612-01	05/13/17 17:03	677.2300				0.00		
16	TRG	HTC-A01-S006-1218-01	05/13/17 17:00	634.2300				0.00		
17	TRG	HTC-A01-S006-1824-01	05/13/17 16:57	663.8800				0.00		
18	TRG	HTC-A01-S006-2430-01	05/13/17 16:54	690.2900				0.00		
19	TRG	HTC-A01-S006-3036-01	05/13/17 16:51	645.7300				0.00		
20	TRG	HTC-A01-S006-3642-01	05/13/17 16:48	670.6400				0.00		

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
17-07082	2	Gamma	grams	8/9/2017	KSALLINGS

Lab Fraction	Weston Solutions, Inc. Client ID	Sample Type	Muffle Data Ratio Post/Pre	Dilution Data No of Dils	Dil Factor	Ratio	Aliquot Data Aliquot	Net Equiv	MS Aliquot Data Aliquot	Net Equiv	H-3 Solids Only Water Added (ml)	H3 Dist Aliq
01	LCS	LCS					1.0000E+00	1.0000E+00				
02	BLANK	MBL					1.0000E+00	1.0000E+00				
03	HTC-A01-S005-0612-01	DUP					5.8270E+02	5.8270E+02				
04	HTC-A01-S005-0612-01	DO					5.8270E+02	5.8270E+02				
07	HTC-A01-S005-0612-02	TRG					5.6277E+02	5.6277E+02				
08	HTC-A01-S005-1218-01	TRG					6.5406E+02	6.5406E+02				
09	HTC-A01-S005-1824-01	TRG					6.7200E+02	6.7200E+02				
10	HTC-A01-S005-2430-01	TRG					5.7982E+02	5.7982E+02				
11	HTC-A01-S005-3036-01	TRG					6.7788E+02	6.7788E+02				
12	HTC-A01-S005-3642-01	TRG					6.7007E+02	6.7007E+02				
13	HTC-A01-S005-4248-01	TRG					6.4394E+02	6.4394E+02				
14	HTC-A01-S006-0006-01	TRG					6.0548E+02	6.0548E+02				
15	HTC-A01-S006-0612-01	TRG					6.7723E+02	6.7723E+02				
16	HTC-A01-S006-1218-01	TRG					6.3423E+02	6.3423E+02				
17	HTC-A01-S006-1824-01	TRG					6.6388E+02	6.6388E+02				
18	HTC-A01-S006-2430-01	TRG					6.9029E+02	6.9029E+02				
19	HTC-A01-S006-3036-01	TRG					6.4573E+02	6.4573E+02				
20	HTC-A01-S006-3642-01	TRG					6.7064E+02	6.7064E+02				

Comments	

0327

Technician: Kenny Sallings Date: 7/25/17

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
17-07082	8/9/2017	7/24/2017	7/25/2017	7/26/2017	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-S005-0612-01	14.5900	839.8400	680.3700	825.2500	665.7800	19.32%	80.68%	0.0000	0.0000	
05	HTC-A01-S005-0612-01 MS	14.5700	815.1800	660.3900	800.6100	645.8200	19.33%	80.67%	0.0000	0.0000	
06	HTC-A01-S005-0612-01 MSD	14.5700	815.1800	660.3900	800.6100	645.8200	19.33%	80.67%	0.0000	0.0000	
07	HTC-A01-S005-0612-02	14.5600	818.0200	662.0600	803.4600	647.5000	19.41%	80.59%	0.0000	0.0000	
08	HTC-A01-S005-1218-01	14.5800	951.3600	778.2000	936.7800	763.6200	18.48%	81.52%	0.0000	0.0000	
09	HTC-A01-S005-1824-01	14.5600	989.1800	801.6400	974.6200	787.0800	19.24%	80.76%	0.0000	0.0000	
10	HTC-A01-S005-2430-01	14.5600	817.2600	664.2600	802.7000	649.7000	19.06%	80.94%	0.0000	0.0000	
11	HTC-A01-S005-3036-01	14.5800	1027.5200	835.8400	1012.9400	821.2600	18.92%	81.08%	0.0000	0.0000	
12	HTC-A01-S005-3642-01	14.5400	1081.6400	871.0200	1067.1000	856.4800	19.74%	80.26%	0.0000	0.0000	
13	HTC-A01-S005-4248-01	14.6100	970.4800	778.0800	955.8700	763.4700	20.13%	79.87%	0.0000	0.0000	
14	HTC-A01-S006-0006-01	14.6000	888.7800	719.5800	874.1800	704.9800	19.36%	80.64%	0.0000	0.0000	
15	HTC-A01-S006-0612-01	14.6700	940.3000	778.0500	925.6300	763.3800	17.53%	82.47%	0.0000	0.0000	
16	HTC-A01-S006-1218-01	14.6900	934.2600	788.2500	919.5700	773.5600	15.88%	84.12%	0.0000	0.0000	
17	HTC-A01-S006-1824-01	14.6500	919.2400	761.4200	904.5900	746.7700	17.45%	82.55%	0.0000	0.0000	
18	HTC-A01-S006-2430-01	14.5700	970.4000	821.0600	955.8300	806.4900	15.62%	84.38%	0.0000	0.0000	
19	HTC-A01-S006-3036-01	14.5500	890.7600	735.7800	876.2100	721.2300	17.69%	82.31%	0.0000	0.0000	
20	HTC-A01-S006-3642-01	14.5600	991.9600	816.7800	977.4000	802.2200	17.92%	82.08%	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. 10142

Eckert & Ziegler
Analytics

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

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

GAS-1402

98503
Sand in 16 Ounce PP Taral Jar Filled to Capacity

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

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

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

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

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

(Certificate continued on reverse side)

ANA Form005 Rev. —

ACCREDITED SOURCE CALIBRATION LABORATORY HEALTH PHYSICS SOCIETY FOUNDED 1956

Corporate Office
24937 Avenue Tibbitts Valencia, California 91355

Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia, 30318

KB 8/15/17

Apex-Gamma

Analysis Report for 1707082-01
GAS-1402

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707082-01
Sample Description	: GAS-1402
Sample Type	: SOIL
Sample Size	: 7.360E+02 grams
Facility	: Countroom
Sample Taken On	: 10/1/2014 5:44:10AM
Acquisition Started	: 8/15/2017 1:00:22PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1602
Live Time	: 1800.0 seconds
Real Time	: 1823.5 seconds
Dead Time	: 1.29 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 16 - 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	: 55265

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/16/17

Analysis Report for 1707082-01

GAS-1402

PEAK LOCATE REPORT

Peak Locate Performed on : 8/15/2017 1:30:50PM
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	21.67	22.32	0.0000	0.00
2	31.86	32.50	0.0000	0.00
3	51.71	52.32	0.0000	0.00
4	59.31	59.91	0.0000	0.00
5	63.43	64.04	0.0000	0.00
6	87.79	88.37	0.0000	0.00
7	121.90	122.44	0.0000	0.00
8	136.32	136.85	0.0000	0.00
9	165.77	166.27	0.0000	0.00
10	238.58	239.01	0.0000	0.00
11	351.31	351.62	0.0000	0.00
12	396.82	397.09	0.0000	0.00
13	450.87	451.08	0.0000	0.00
14	538.22	538.34	0.0000	0.00
15	547.20	547.31	0.0000	0.00
16	661.70	661.70	0.0000	0.00
17	665.59	665.59	0.0000	0.00
18	778.26	778.14	0.0000	0.00
19	843.99	843.81	0.0000	0.00
20	911.92	911.67	0.0000	0.00
21	1076.92	1076.51	0.0000	0.00
22	1173.51	1172.99	0.0000	0.00
23	1177.57	1177.06	0.0000	0.00
24	1332.83	1332.16	0.0000	0.00
25	1337.22	1336.55	0.0000	0.00
26	1413.73	1412.98	0.0000	0.00
27	1491.56	1490.73	0.0000	0.00
28	1498.95	1498.12	0.0000	0.00
29	1505.86	1505.02	0.0000	0.00
30	1771.20	1770.10	0.0000	0.00
31	1819.51	1818.37	0.0000	0.00
32	1836.34	1835.18	0.0000	0.00
33	1847.91	1846.74	0.0000	0.00
34	2018.47	2017.13	0.0000	0.00
35	2102.63	2101.21	0.0000	0.00
36	2164.83	2163.35	0.0000	0.00
37	2212.22	2210.70	0.0000	0.00
38	2506.24	2504.43	0.0000	0.00
39	2615.53	2613.62	0.0000	0.00

Analysis Report for 1707082-01

GAS-1402

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707082-01

GAS-1402

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 1:30:50PM

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	21.67	21 -	24	22.32	4.20E+04	746.96	1.25E+05	1.56
	2	31.86	31 -	35	32.50	1.55E+03	223.57	9.63E+03	1.83
M	3	51.71	45 -	66	52.32	1.23E+04	629.38	3.92E+04	3.79
m	4	59.31	45 -	66	59.91	9.76E+04	684.94	1.71E+04	1.76
m	5	63.43	45 -	66	64.04	1.81E+03	385.35	1.64E+04	1.83
	6	87.79	83 -	91	88.37	3.15E+04	532.52	2.45E+04	1.97
	7	121.90	118 -	126	122.44	5.41E+03	339.79	1.44E+04	1.97
	8	136.32	134 -	140	136.85	7.52E+02	241.26	1.00E+04	1.62
	9	165.77	163 -	169	166.27	5.62E+02	230.98	9.28E+03	1.91
	10	238.58	236 -	242	239.01	3.75E+02	230.05	9.33E+03	1.40
	11	351.31	349 -	355	351.62	1.65E+02	185.00	6.12E+03	1.64
	12	396.82	395 -	400	397.09	1.70E+02	161.89	5.09E+03	3.66
	13	450.87	449 -	454	451.08	1.38E+02	166.88	5.46E+03	2.60
	14	538.22	536 -	541	538.34	1.95E+02	125.00	2.95E+03	3.58
	15	547.20	544 -	550	547.31	1.36E+02	143.20	3.62E+03	1.50
M	16	661.70	655 -	670	661.70	2.96E+04	358.87	2.36E+03	1.82
m	17	665.59	655 -	670	665.59	1.04E+03	314.95	3.57E+03	2.60
	18	778.26	776 -	781	778.14	1.03E+02	111.57	2.40E+03	1.46
	19	843.99	842 -	847	843.81	1.03E+02	119.13	2.76E+03	3.04
	20	911.92	909 -	915	911.67	1.27E+02	147.94	3.88E+03	2.72
	21	1076.92	1074 -	1079	1076.51	9.51E+01	111.75	2.43E+03	1.34
M	22	1173.51	1166 -	1181	1172.99	2.55E+04	330.39	1.38E+03	2.11
m	23	1177.57	1166 -	1181	1177.06	8.53E+02	296.56	1.70E+03	2.51
M	24	1332.83	1326 -	1344	1332.16	2.34E+04	311.43	4.27E+02	2.22
m	25	1337.22	1326 -	1344	1336.55	7.61E+02	196.62	2.69E+02	2.60
	26	1413.73	1406 -	1420	1412.98	5.65E+01	50.76	2.47E+02	9.11
	27	1491.56	1486 -	1494	1490.73	3.08E+01	35.46	1.72E+02	3.18
	28	1498.95	1496 -	1500	1498.12	1.92E+01	20.78	7.76E+01	1.58
	29	1505.86	1501 -	1509	1505.02	4.15E+01	31.86	1.31E+02	6.05
	30	1771.20	1761 -	1783	1770.10	6.95E+01	60.84	2.57E+02	9.50
	31	1819.51	1815 -	1822	1818.37	3.34E+01	20.59	4.92E+01	3.38
	32	1836.34	1831 -	1840	1835.18	7.00E+01	35.50	1.40E+02	2.88
	33	1847.91	1844 -	1849	1846.74	1.99E+01	21.10	7.02E+01	3.38
	34	2018.47	2015 -	2019	2017.13	1.08E+01	13.61	3.04E+01	2.57
	35	2102.63	2099 -	2104	2101.21	1.75E+01	18.87	5.29E+01	3.08
	36	2164.83	2160 -	2167	2163.35	2.33E+01	20.78	5.73E+01	3.71
	37	2212.22	2201 -	2220	2210.70	7.32E+01	33.65	6.96E+01	16.04
	38	2506.24	2498 -	2511	2504.43	4.00E+02	41.59	1.50E+01	2.72
	39	2615.53	2609 -	2618	2613.62	1.97E+01	10.63	4.55E+00	2.35

Analysis Report for 1707082-01

GAS-1402

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 1:30:50PM

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	21.67	21 -	24	4.20E+04	746.96	1.25E+05	5.83E+02
	2	31.86	31 -	35	1.55E+03	223.57	9.63E+03	1.72E+02
M	3	51.71	45 -	66	1.23E+04	629.38	3.92E+04	3.25E+02
m	4	59.31	45 -	66	9.76E+04	684.94	1.71E+04	2.15E+02
m	5	63.43	45 -	66	1.81E+03	385.35	1.64E+04	2.11E+02
	6	87.79	83 -	91	3.15E+04	532.52	2.45E+04	3.26E+02
	7	121.90	118 -	126	5.41E+03	339.79	1.44E+04	2.52E+02
	8	136.32	134 -	140	7.52E+02	241.26	1.00E+04	1.93E+02
	9	165.77	163 -	169	5.62E+02	230.98	9.28E+03	1.86E+02
	10	238.58	236 -	242	3.75E+02	230.05	9.33E+03	1.86E+02
	11	351.31	349 -	355	1.65E+02	185.00	6.12E+03	1.51E+02
	12	396.82	395 -	400	1.70E+02	161.89	5.09E+03	1.31E+02
	13	450.87	449 -	454	1.38E+02	166.88	5.46E+03	1.36E+02
	14	538.22	536 -	541	1.95E+02	125.00	2.95E+03	1.00E+02
	15	547.20	544 -	550	1.36E+02	143.20	3.62E+03	1.16E+02
M	16	661.70	655 -	670	2.96E+04	358.87	2.36E+03	7.98E+01
m	17	665.59	655 -	670	1.04E+03	314.95	3.57E+03	9.83E+01
	18	778.26	776 -	781	1.03E+02	111.57	2.40E+03	9.02E+01
	19	843.99	842 -	847	1.03E+02	119.13	2.76E+03	9.65E+01
	20	911.92	909 -	915	1.27E+02	147.94	3.88E+03	1.20E+02
	21	1076.92	1074 -	1079	9.51E+01	111.75	2.43E+03	9.05E+01
M	22	1173.51	1166 -	1181	2.55E+04	330.39	1.38E+03	6.11E+01
m	23	1177.57	1166 -	1181	8.53E+02	296.56	1.70E+03	6.78E+01
M	24	1332.83	1326 -	1344	2.34E+04	311.43	4.27E+02	3.40E+01
m	25	1337.22	1326 -	1344	7.61E+02	196.62	2.69E+02	2.70E+01
	26	1413.73	1406 -	1420	5.65E+01	50.76	2.47E+02	3.98E+01
	27	1491.56	1486 -	1494	3.08E+01	35.46	1.72E+02	2.77E+01
	28	1498.95	1496 -	1500	1.92E+01	20.78	7.76E+01	1.55E+01
	29	1505.86	1501 -	1509	4.15E+01	31.86	1.31E+02	2.40E+01
	30	1771.20	1761 -	1783	6.95E+01	60.84	2.57E+02	1.45E+01
	31	1819.51	1815 -	1822	3.34E+01	20.59	4.92E+01	1.40E+01

Analysis Report for 1707082-01

GAS-1402

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
32	1836.34	1831 -	1840	7.00E+01	35.50	1.40E+02	2.57E+01
33	1847.91	1844 -	1849	1.99E+01	21.10	7.02E+01	1.57E+01
34	2018.47	2015 -	2019	1.08E+01	13.61	3.04E+01	9.80E+00
35	2102.63	2099 -	2104	1.75E+01	18.87	5.29E+01	1.39E+01
36	2164.83	2160 -	2167	2.33E+01	20.78	5.73E+01	1.51E+01
37	2212.22	2201 -	2220	7.32E+01	33.65	6.96E+01	2.38E+01
38	2506.24	2498 -	2511	4.00E+02	41.59	1.50E+01	9.30E+00
39	2615.53	2609 -	2618	1.97E+01	10.63	4.55E+00	4.80E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/15/2017 1:30:50PM

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	21.67	21 -	24	22.32	4.20E+04	746.96	1.25E+05	.....
	2	31.86	31 -	35	32.50	1.55E+03	223.57	9.63E+03	.....
M	3	51.71	45 -	66	52.32	1.23E+04	629.38	3.92E+04	.....
m	4	59.31	45 -	66	59.91	9.76E+04	684.94	1.71E+04	AM-241
m	5	63.43	45 -	66	64.04	1.81E+03	385.35	1.64E+04	TH-234 TH-230
	6	87.79	83 -	91	88.37	3.15E+04	532.52	2.45E+04	SN-126 CD-109 LU-176
	7	121.90	118 -	126	122.44	5.41E+03	339.79	1.44E+04	EU-152 CO-57 SE-75
	8	136.32	134 -	140	136.85	7.52E+02	241.26	1.00E+04	CO-57 SE-75
	9	165.77	163 -	169	166.27	5.62E+02	230.98	9.28E+03	CE-139
	10	238.58	236 -	242	239.01	3.75E+02	230.05	9.33E+03	PB-212
	11	351.31	349 -	355	351.62	1.65E+02	185.00	6.12E+03	PB-214
	12	396.82	395 -	400	397.09	1.70E+02	161.89	5.09E+03	.....

Analysis Report for 1707082-01

GAS-1402

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	13	450.87	449 -	454	451.08	1.38E+02	166.88	5.46E+03	.....
	14	538.22	536 -	541	538.34	1.95E+02	125.00	2.95E+03	BA-140
	15	547.20	544 -	550	547.31	1.36E+02	143.20	3.62E+03	.....
M	16	661.70	655 -	670	661.70	2.96E+04	358.87	2.36E+03	CS-137
m	17	665.59	655 -	670	665.59	1.04E+03	314.95	3.57E+03	SB-126
	18	778.26	776 -	781	778.14	1.03E+02	111.57	2.40E+03	MO-99 EU-152
	19	843.99	842 -	847	843.81	1.03E+02	119.13	2.76E+03	.....
	20	911.92	909 -	915	911.67	1.27E+02	147.94	3.88E+03	TL-204 AC-228
	21	1076.92	1074 -	1079	1076.51	9.51E+01	111.75	2.43E+03	.....
M	22	1173.51	1166 -	1181	1172.99	2.55E+04	330.39	1.38E+03	CO-60
m	23	1177.57	1166 -	1181	1177.06	8.53E+02	296.56	1.70E+03	.....
M	24	1332.83	1326 -	1344	1332.16	2.34E+04	311.43	4.27E+02	CO-60
m	25	1337.22	1326 -	1344	1336.55	7.61E+02	196.62	2.69E+02	.....
	26	1413.73	1406 -	1420	1412.98	5.65E+01	50.76	2.47E+02	.....
	27	1491.56	1486 -	1494	1490.73	3.08E+01	35.46	1.72E+02	.....
	28	1498.95	1496 -	1500	1498.12	1.92E+01	20.78	7.76E+01	.....
	29	1505.86	1501 -	1509	1505.02	4.15E+01	31.86	1.31E+02	.....
	30	1771.20	1761 -	1783	1770.10	6.95E+01	60.84	2.57E+02	CO-56
	31	1819.51	1815 -	1822	1818.37	3.34E+01	20.59	4.92E+01	.....
	32	1836.34	1831 -	1840	1835.18	7.00E+01	35.50	1.40E+02	Y-88
	33	1847.91	1844 -	1849	1846.74	1.99E+01	21.10	7.02E+01	.....
	34	2018.47	2015 -	2019	2017.13	1.08E+01	13.61	3.04E+01	.....
	35	2102.63	2099 -	2104	2101.21	1.75E+01	18.87	5.29E+01	.....
	36	2164.83	2160 -	2167	2163.35	2.33E+01	20.78	5.73E+01	.....
	37	2212.22	2201 -	2220	2210.70	7.32E+01	33.65	6.96E+01	.....
	38	2506.24	2498 -	2511	2504.43	4.00E+02	41.59	1.50E+01	.....
	39	2615.53	2609 -	2618	2613.62	1.97E+01	10.63	4.55E+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 : 8/15/2017 1:30:50PM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
1	21.67	4.20E+04	746.96	1.43E-02	2.22E-03

Analysis Report for 1707082-01

GAS-1402

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	2	31.86	1.55E+03	223.57	1.99E-02	2.22E-03
M	3	51.71	1.23E+04	629.38	2.57E-02	2.22E-03
m	4	59.31	9.76E+04	684.94	2.66E-02	2.22E-03
m	5	63.43	1.81E+03	385.35	2.70E-02	2.26E-03
	6	87.79	3.15E+04	532.52	2.74E-02	2.52E-03
	7	121.90	5.41E+03	339.79	2.58E-02	1.98E-03
	8	136.32	7.52E+02	241.26	2.49E-02	1.90E-03
	9	165.77	5.62E+02	230.98	2.30E-02	1.74E-03
	10	238.58	3.75E+02	230.05	1.89E-02	1.53E-03
	11	351.31	1.65E+02	185.00	1.46E-02	1.24E-03
	12	396.82	1.70E+02	161.89	1.33E-02	1.14E-03
	13	450.87	1.38E+02	166.88	1.21E-02	1.11E-03
	14	538.22	1.95E+02	125.00	1.06E-02	1.05E-03
	15	547.20	1.36E+02	143.20	1.05E-02	1.05E-03
M	16	661.70	2.96E+04	358.87	9.04E-03	9.72E-04
m	17	665.59	1.04E+03	314.95	9.00E-03	9.66E-04
	18	778.26	1.03E+02	111.57	7.99E-03	7.87E-04
	19	843.99	1.03E+02	119.13	7.51E-03	6.82E-04
	20	911.92	1.27E+02	147.94	7.08E-03	5.91E-04
	21	1076.92	9.51E+01	111.75	6.25E-03	5.28E-04
M	22	1173.51	2.55E+04	330.39	5.87E-03	4.91E-04
m	23	1177.57	8.53E+02	296.56	5.85E-03	4.90E-04
M	24	1332.83	2.34E+04	311.43	5.35E-03	4.54E-04
m	25	1337.22	7.61E+02	196.62	5.34E-03	4.53E-04
	26	1413.73	5.65E+01	50.76	5.13E-03	4.36E-04
	27	1491.56	3.08E+01	35.46	4.93E-03	4.18E-04
	28	1498.95	1.92E+01	20.78	4.91E-03	4.16E-04
	29	1505.86	4.15E+01	31.86	4.90E-03	4.14E-04
	30	1771.20	6.95E+01	60.84	4.36E-03	3.53E-04
	31	1819.51	3.34E+01	20.59	4.28E-03	3.42E-04
	32	1836.34	7.00E+01	35.50	4.25E-03	3.38E-04
	33	1847.91	1.99E+01	21.10	4.23E-03	3.38E-04
	34	2018.47	1.08E+01	13.61	3.98E-03	3.38E-04
	35	2102.63	1.75E+01	18.87	3.86E-03	3.38E-04
	36	2164.83	2.33E+01	20.78	3.78E-03	3.38E-04
	37	2212.22	7.32E+01	33.65	3.73E-03	3.38E-04
	38	2506.24	4.00E+02	41.59	3.41E-03	3.38E-04
	39	2615.53	1.97E+01	10.63	3.30E-03	3.38E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/15/2017 1:30:50PM

Analysis Report for 1707082-01

GAS-1402

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	21.67	4.20E+04	746.96	3.25E+02	1.22E+01	4.16E+04	7.47E+02
	2	31.86	1.55E+03	223.57	0.00E+00	0.00E+00	1.55E+03	2.24E+02
M	3	51.71	1.23E+04	629.38			1.23E+04	6.29E+02
m	4	59.31	9.76E+04	684.94	3.73E+00	1.65E+00	9.76E+04	6.85E+02
m	5	63.43	1.81E+03	385.35	4.81E+01	7.29E+00	1.76E+03	3.85E+02
	6	87.79	3.15E+04	532.52			3.15E+04	5.33E+02
	7	121.90	5.41E+03	339.79			5.41E+03	3.40E+02
	8	136.32	7.52E+02	241.26			7.52E+02	2.41E+02
	9	165.77	5.62E+02	230.98			5.62E+02	2.31E+02
	10	238.58	3.75E+02	230.05	1.03E+01	3.13E+00	3.64E+02	2.30E+02
	11	351.31	1.65E+02	185.00	1.56E+00	2.20E+00	1.64E+02	1.85E+02
	12	396.82	1.70E+02	161.89			1.70E+02	1.62E+02
	13	450.87	1.38E+02	166.88	6.92E-01	1.64E+00	1.37E+02	1.67E+02
	14	538.22	1.95E+02	125.00			1.95E+02	1.25E+02
	15	547.20	1.36E+02	143.20			1.36E+02	1.43E+02
M	16	661.70	2.96E+04	358.87			2.96E+04	3.59E+02
m	17	665.59	1.04E+03	314.95			1.04E+03	3.15E+02
	18	778.26	1.03E+02	111.57			1.03E+02	1.12E+02
	19	843.99	1.03E+02	119.13			1.03E+02	1.19E+02
	20	911.92	1.27E+02	147.94	2.57E+00	1.55E+00	1.24E+02	1.48E+02
	21	1076.92	9.51E+01	111.75			9.51E+01	1.12E+02
M	22	1173.51	2.55E+04	330.39	4.67E-01	1.19E+00	2.55E+04	3.30E+02
m	23	1177.57	8.53E+02	296.56			8.53E+02	2.97E+02
M	24	1332.83	2.34E+04	311.43	0.00E+00	0.00E+00	2.34E+04	3.11E+02
m	25	1337.22	7.61E+02	196.62			7.61E+02	1.97E+02
	26	1413.73	5.65E+01	50.76			5.65E+01	5.08E+01
	27	1491.56	3.08E+01	35.46			3.08E+01	3.55E+01
	28	1498.95	1.92E+01	20.78			1.92E+01	2.08E+01
	29	1505.86	4.15E+01	31.86			4.15E+01	3.19E+01
	30	1771.20	6.95E+01	60.84			6.95E+01	6.08E+01
	31	1819.51	3.34E+01	20.59			3.34E+01	2.06E+01
	32	1836.34	7.00E+01	35.50			7.00E+01	3.55E+01
	33	1847.91	1.99E+01	21.10			1.99E+01	2.11E+01
	34	2018.47	1.08E+01	13.61			1.08E+01	1.36E+01
	35	2102.63	1.75E+01	18.87			1.75E+01	1.89E+01
	36	2164.83	2.33E+01	20.78			2.33E+01	2.08E+01
	37	2212.22	7.32E+01	33.65			7.32E+01	3.36E+01
	38	2506.24	4.00E+02	41.59			4.00E+02	4.16E+01
	39	2615.53	1.97E+01	10.63	3.26E+00	8.06E-01	1.65E+01	1.07E+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 1707082-01

GAS-1402

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/15/2017 1:30:50PM

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	21.67	4.20E+04	746.96	3.25E+02	1.22E+01	4.16E+04	7.47E+02
	2	31.86	1.55E+03	223.57	0.00E+00	0.00E+00	1.55E+03	2.24E+02
M	3	51.71	1.23E+04	629.38			1.23E+04	6.29E+02
m	4	59.31	9.76E+04	684.94	3.73E+00	1.65E+00	9.76E+04	6.85E+02
m	5	63.43	1.81E+03	385.35	4.81E+01	7.29E+00	1.76E+03	3.85E+02
	6	87.79	3.15E+04	532.52			3.15E+04	5.33E+02
	7	121.90	5.41E+03	339.79			5.41E+03	3.40E+02
	8	136.32	7.52E+02	241.26			7.52E+02	2.41E+02
	9	165.77	5.62E+02	230.98			5.62E+02	2.31E+02
	10	238.58	3.75E+02	230.05	1.03E+01	3.13E+00	3.64E+02	2.30E+02
	11	351.31	1.65E+02	185.00	1.56E+00	2.20E+00	1.64E+02	1.85E+02
	12	396.82	1.70E+02	161.89			1.70E+02	1.62E+02
	13	450.87	1.38E+02	166.88	6.92E-01	1.64E+00	1.37E+02	1.67E+02
	14	538.22	1.95E+02	125.00			1.95E+02	1.25E+02
	15	547.20	1.36E+02	143.20			1.36E+02	1.43E+02
M	16	661.70	2.96E+04	358.87			2.96E+04	3.59E+02
m	17	665.59	1.04E+03	314.95			1.04E+03	3.15E+02
	18	778.26	1.03E+02	111.57			1.03E+02	1.12E+02
	19	843.99	1.03E+02	119.13			1.03E+02	1.19E+02
	20	911.92	1.27E+02	147.94	2.57E+00	1.55E+00	1.24E+02	1.48E+02
	21	1076.92	9.51E+01	111.75			9.51E+01	1.12E+02
M	22	1173.51	2.55E+04	330.39	4.67E-01	1.19E+00	2.55E+04	3.30E+02
m	23	1177.57	8.53E+02	296.56			8.53E+02	2.97E+02
M	24	1332.83	2.34E+04	311.43	0.00E+00	0.00E+00	2.34E+04	3.11E+02
m	25	1337.22	7.61E+02	196.62			7.61E+02	1.97E+02
	26	1413.73	5.65E+01	50.76			5.65E+01	5.08E+01
	27	1491.56	3.08E+01	35.46			3.08E+01	3.55E+01
	28	1498.95	1.92E+01	20.78			1.92E+01	2.08E+01
	29	1505.86	4.15E+01	31.86			4.15E+01	3.19E+01
	30	1771.20	6.95E+01	60.84			6.95E+01	6.08E+01
	31	1819.51	3.34E+01	20.59			3.34E+01	2.06E+01
	32	1836.34	7.00E+01	35.50			7.00E+01	3.55E+01
	33	1847.91	1.99E+01	21.10			1.99E+01	2.11E+01
	34	2018.47	1.08E+01	13.61			1.08E+01	1.36E+01
	35	2102.63	1.75E+01	18.87			1.75E+01	1.89E+01
	36	2164.83	2.33E+01	20.78			2.33E+01	2.08E+01
	37	2212.22	7.32E+01	33.65			7.32E+01	3.36E+01
	38	2506.24	4.00E+02	41.59			4.00E+02	4.16E+01
	39	2615.53	1.97E+01	10.63	3.26E+00	8.06E-01	1.65E+01	1.07E+01

Analysis Report for 1707082-01

GAS-1402

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CO-57	0.924	122.06	*	85.51	7.33E+01	7.32E+00
		136.48	*	10.60	8.52E+01	2.83E+01
CO-60	0.983	1173.22	*	100.00	1.29E+02	1.10E+01
		1332.49	*	100.00	1.30E+02	1.12E+01
CD-109	0.966	88.03	*	3.72	3.03E+03	3.35E+02
SN-126	0.992	87.57	*	37.00	6.35E+01	5.93E+00
CS-137	1.000	661.65	*	85.12	8.38E+01	9.08E+00
CE-139	0.747	165.85	*	80.35	1.22E+02	5.12E+01
PB-212	0.894	238.63	*	44.60	8.84E-01	5.62E-01
		300.09		3.41		
PB-214	0.395	295.21		19.19		
		351.92	*	37.19	6.18E-01	7.00E-01
TH-234	0.997	63.29	*	3.80	3.50E+01	8.20E+00
AM-241	0.991	59.54	*	35.90	2.09E+02	1.75E+01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 1:30:50PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Analysis Report for 1707082-01

GAS-1402

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	21.67	2.31342E+01	0.90		
	2	31.86	8.60792E-01	7.21		
M	3	51.71	6.81810E+00	2.56		
	12	396.82	9.42951E-02	47.69		
	13	450.87	7.63080E-02	60.75		
	14	538.22	1.08284E-01	32.07	Tol.	BA-140
	15	547.20	7.54786E-02	52.70		
m	17	665.59	5.75240E-01	15.21	Tol.	SB-126
	18	778.26	5.72000E-02	54.18	Tol.	MO-99 EU-152
	19	843.99	5.71109E-02	57.94		
	20	911.92	6.88673E-02	59.67	Tol.	TL-204 AC-228
	21	1076.92	5.28354E-02	58.75		
m	23	1177.57	4.74151E-01	17.37		
m	25	1337.22	4.23048E-01	12.91		
	26	1413.73	3.14012E-02	44.90		
	27	1491.56	1.71059E-02	57.59		
	28	1498.95	1.06705E-02	54.11	Sum	
	29	1505.86	2.30556E-02	38.39		
	30	1771.20	3.86279E-02	43.75	Tol.	CO-56
	31	1819.51	1.85632E-02	30.81		
	32	1836.34	3.88889E-02	25.35		
	33	1847.91	1.10657E-02	52.95		
	34	2018.47	5.99359E-03	63.08		
	35	2102.63	9.74747E-03	53.77		
	36	2164.83	1.29701E-02	44.51		
	37	2212.22	4.06662E-02	22.98		
	38	2506.24	2.22496E-01	5.19	Sum	
	39	2615.53	9.14925E-03	32.37	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 IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Analysis Report for 1707082-01

GAS-1402

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CO-57	0.92	122.06	*	85.51	7.33E+01	7.32E+00
		136.48	*	10.60	8.52E+01	2.83E+01
CO-60	0.98	1173.22	*	100.00	1.29E+02	1.10E+01
		1332.49	*	100.00	1.30E+02	1.12E+01
CD-109	0.96	88.03	*	3.72	3.03E+03	3.35E+02
SN-126	0.99	87.57	*	37.00	6.35E+01	5.93E+00
CS-137	1.00	661.65	*	85.12	8.38E+01	9.08E+00
CE-139	0.74	165.85	*	80.35	1.22E+02	5.12E+01
PB-212	0.89	238.63	*	44.60	8.84E-01	5.62E-01
		300.09		3.41		
PB-214	0.39	295.21		19.19		
		351.92	*	37.19	6.18E-01	7.00E-01
TH-234	0.99	63.29	*	3.80	3.50E+01	8.20E+00
AM-241	0.99	59.54	*	35.90	2.09E+02	1.75E+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	0.924	7.41E+01	7.10E+00	
	CO-60	0.983	1.30E+02	7.84E+00	
?	CD-109	0.966	3.03E+03	3.35E+02	
?	SN-126	0.992	6.35E+01	5.93E+00	
	CS-137	1.000	8.38E+01	9.08E+00	
	CE-139	0.747	1.22E+02	5.12E+01	
	PB-212	0.894	8.84E-01	5.62E-01	
	PB-214	0.395	6.18E-01	7.00E-01	
	TH-234	0.997	3.50E+01	8.20E+00	
	AM-241	0.991	2.09E+02	1.75E+01	

Analysis Report for 1707082-01

GAS-1402

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

Errors quoted at 2.000sigma

Analysis Report for 1707082-01

GAS-1402

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 1:30:50PM
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	21.67	2.31342E+01	0.90		
	2	31.86	8.60792E-01	7.21		
M	3	51.71	6.81810E+00	2.56		
	12	396.82	9.42951E-02	47.69		
	13	450.87	7.63080E-02	60.75		
	14	538.22	1.08284E-01	32.07	Tol.	BA-140
	15	547.20	7.54786E-02	52.70		
m	17	665.59	5.75240E-01	15.21	Tol.	SB-126
	18	778.26	5.72000E-02	54.18	Tol.	MO-99
						EU-152
	19	843.99	5.71109E-02	57.94		
	20	911.92	6.88673E-02	59.67	Tol.	TL-204
						AC-228
	21	1076.92	5.28354E-02	58.75		
m	23	1177.57	4.74151E-01	17.37		
m	25	1337.22	4.23048E-01	12.91		
	26	1413.73	3.14012E-02	44.90		
	27	1491.56	1.71059E-02	57.59		
	28	1498.95	1.06705E-02	54.11	Sum	
	29	1505.86	2.30556E-02	38.39		
	30	1771.20	3.86279E-02	43.75	Tol.	CO-56
	31	1819.51	1.85632E-02	30.81		
	32	1836.34	3.88889E-02	25.35		
	33	1847.91	1.10657E-02	52.95		
	34	2018.47	5.99359E-03	63.08		
	35	2102.63	9.74747E-03	53.77		
	36	2164.83	1.29701E-02	44.51		
	37	2212.22	4.06662E-02	22.98		
	38	2506.24	2.22496E-01	5.19	Sum	
	39	2615.53	9.14925E-03	32.37	Tol.	TL-208

Analysis Report for 1707082-01

GAS-1402

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

NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	7.56E+05	3.53E+06	3.53E+06
+		NA-22	1274.54		99.94	1.08E-01	5.54E-01	5.54E-01
+	@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@		2754.09		99.86	1.00E+26		1.00E+26
+		AL-26	1808.65		99.76	6.39E-02	1.81E-01	1.81E-01
+		K-40	1460.81		10.67	9.25E-01	1.95E+00	1.95E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	3.86E-01	3.33E-01	3.50E-01
			78.34		96.00	-9.09E-03		3.33E-01
+		SC-46	889.25		99.98	-6.35E+02	3.26E+03	3.40E+03
			1120.51		99.99	7.90E+02		3.26E+03
+		V-48	983.52		99.98	2.79E+19	1.62E+19	3.62E+19
			1312.10		97.50	-4.14E+18		1.62E+19
+		CR-51	320.08		9.83	3.35E+11	9.18E+11	9.18E+11
+		MN-54	834.83		99.97	5.41E-02	5.39E+00	5.39E+00
+		CO-56	846.75		99.96	-1.08E+02	3.46E+03	5.44E+03
			1037.75		14.03	-1.37E+04		4.24E+04
			1238.25		67.00	1.16E+03		4.56E+03
			1771.40		15.51	1.62E+03		1.25E+04
			2598.48		16.90	-2.61E+03		3.46E+03
+		CO-57	122.06	*	85.51	7.33E+01	6.87E+00	6.87E+00
			136.48	*	10.60	8.52E+01		4.41E+01
+		CO-58	810.76		99.40	-9.21E+03	1.43E+04	1.43E+04
+		FE-59	1099.22		56.50	2.84E+06	7.37E+06	1.30E+07
			1291.56		43.20	-6.54E+05		7.37E+06
+		CO-60	1173.22	*	100.00	1.29E+02	1.03E+00	1.51E+00
			1332.49	*	100.00	1.30E+02		1.03E+00
+		ZN-65	1115.52		50.75	1.46E+01	2.33E+01	2.33E+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	1.06E+04	1.86E+02	9.26E+02

Analysis Report for 1707082-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00		59.20	4.59E+02	1.86E+02	1.86E+02
		264.65		59.80	3.61E+01		2.46E+02
		279.53		25.20	4.49E+02		5.94E+02
		400.65		11.40	-1.34E+02		1.53E+03
+	RB-82	776.52		13.00	-1.25E+12	8.29E+12	8.29E+12
+	RB-83	520.41		46.00	-7.41E+02	4.12E+03	4.12E+03
		529.64		30.30	1.12E+03		6.17E+03
		552.65		16.40	1.55E+02		1.12E+04
+	KR-85	513.99		0.43	5.36E+01	1.18E+02	1.18E+02
+	SR-85	513.99		99.27	1.45E+04	3.20E+04	3.20E+04
+	Y-88	898.02		93.40	1.46E+02	2.39E+02	5.96E+02
		1836.01		99.38	3.37E+02		2.39E+02
+	MO-93	263.06		56.72	1.19E-01	2.19E-01	7.17E-01
		684.67		99.68	-8.36E-02		5.11E-01
		1477.11		99.08	8.89E-02		2.19E-01
+	NB-93M	16.57		9.43	-1.93E+01	4.39E+00	4.39E+00
+	NB-94	702.63		100.00	4.89E-02	4.32E-01	4.32E-01
		871.10		100.00	3.26E-01		5.63E-01
+	NB-95	765.79		99.81	3.00E+08	4.78E+08	4.78E+08
+	@ NB-95M	235.69		25.00	1.00E+26	1.00E+26	1.00E+26
+	ZR-95	724.18		43.70	-5.15E+04	7.16E+04	8.41E+04
		756.72		55.30	1.86E+04		7.16E+04
+	@ MO-99	181.06		6.20	1.00E+26	1.00E+26	1.00E+26
	@	739.58		12.80	1.00E+26		1.00E+26
	@	778.00		4.50	1.00E+26		1.00E+26
+	RU-103	497.08		89.00	-1.18E+07	4.93E+07	4.93E+07
+	RU-106	621.84		9.80	-3.17E+00	3.07E+01	3.07E+01
+	AG-108M	433.93		89.90	-2.30E-02	4.65E-01	4.92E-01
		614.37		90.40	-3.55E-01		4.65E-01
		722.95		90.50	-7.33E-02		4.82E-01
+	CD-109	88.03	*	3.72	3.03E+03	6.29E+01	6.29E+01
+	AG-110M	657.75		93.14	-1.07E+02	1.47E+01	2.39E+01
		677.61		10.53	-1.36E+00		7.34E+01
		706.67		16.46	1.59E+01		4.87E+01
		763.93		21.98	5.75E+00		3.89E+01
		884.67		71.63	-7.53E-01		1.47E+01
		1384.27		23.94	2.25E+00		1.63E+01
+	CD-113M	263.70		0.02	-8.46E+00	1.70E+03	1.70E+03
+	SN-113	255.12		1.93	2.67E+03	3.43E+02	8.32E+03
		391.69		64.90	7.11E+01		3.43E+02
+	TE123M	159.00		84.10	4.04E+01	1.25E+02	1.25E+02
+	SB-124	602.71		97.87	6.77E+03	6.17E+04	7.39E+04
		645.85		7.26	4.66E+05		1.05E+06
		722.78		11.10	-1.04E+05		6.83E+05
		1691.02		49.00	-3.73E+03		6.17E+04
+	I-125	35.49		6.49	1.43E+06	8.75E+05	8.75E+05
+	SB-125	176.33		6.89	3.13E+00	2.96E+00	7.37E+00
		427.89		29.33	-9.68E-01		2.96E+00

Analysis Report for 1707082-01

GAS-1402

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		SB-125	463.38		10.35	6.26E+00	2.96E+00	9.50E+00
			600.56		17.80	-1.06E+00		4.70E+00
			635.90		11.32	9.31E-01		7.70E+00
+	@	SB-126	414.70		83.30	1.00E+26	1.00E+26	1.00E+26
	@		666.33		99.60	1.00E+26		1.00E+26
	@		695.00		99.60	1.00E+26		1.00E+26
	@		720.50		53.80	1.00E+26		1.00E+26
+		SN-126	87.57	*	37.00	6.35E+01	1.32E+00	1.32E+00
+	@	SB-127	473.00		25.00	1.00E+26	1.00E+26	1.00E+26
	@		685.20		35.70	1.00E+26		1.00E+26
	@		783.80		14.70	1.00E+26		1.00E+26
+		I-129	29.78		57.00	-3.16E+00	7.11E-01	7.11E-01
			33.60		13.20	5.12E+00		2.80E+00
			39.58		7.52	-1.67E+01		4.18E+00
+	@	I-131	284.30		6.05	1.00E+26	1.00E+26	1.00E+26
	@		364.48		81.20	1.00E+26		1.00E+26
	@		636.97		7.26	1.00E+26		1.00E+26
	@		722.89		1.80	1.00E+26		1.00E+26
+	@	TE-132	49.72		13.10	1.00E+26	1.00E+26	1.00E+26
	@		228.16		88.00	1.00E+26		1.00E+26
+		BA-133	81.00		33.00	-8.26E-01	7.59E-01	1.14E+00
			302.84		17.80	-9.51E-01		2.37E+00
			356.01		60.00	2.73E-01		7.59E-01
+	@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	@	XE-133	81.00		38.00	1.00E+26	1.00E+26	1.00E+26
+		CS-134	563.23		8.38	-1.12E+00	1.10E+00	1.25E+01
			569.32		15.43	4.50E+00		6.85E+00
			604.70		97.60	-1.07E+00		1.10E+00
			795.84		85.40	1.31E-01		1.52E+00
			801.93		8.73	-4.28E+00		1.47E+01
+		CS-135	268.24		16.00	-1.11E+00	2.12E+00	2.12E+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	8.38E+01	1.19E+00	1.19E+00
+		LA-138	788.74		34.00	4.59E-01	2.93E-01	1.43E+00
			1435.80		66.00	1.61E-01		2.93E-01
+		CE-139	165.85	*	80.35	1.22E+02	8.16E+01	8.16E+01
+	@	BA-140	162.64		6.70	1.00E+26	1.00E+26	1.00E+26
	@		304.84		4.50	1.00E+26		1.00E+26

Analysis Report for 1707082-01

GAS-1402

		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	@	BA-140	423.70	3.20	1.00E+26	1.00E+26	1.00E+26
	@		437.55	2.00	1.00E+26		1.00E+26
	@		537.32	25.00	1.00E+26		1.00E+26
+	@	LA-140	328.77	20.50	1.00E+26	1.00E+26	1.00E+26
	@		487.03	45.50	1.00E+26		1.00E+26
	@		815.85	23.50	1.00E+26		1.00E+26
	@		1596.49	95.49	1.00E+26		1.00E+26
+		CE-141	145.44	48.40	2.50E+08	2.56E+09	2.56E+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	1.10E+00	2.85E+01	2.85E+01
+		PM-144	476.78	42.00	5.51E+00	3.03E+00	8.07E+00
			618.01	98.60	-8.83E-01		3.10E+00
			696.49	99.49	-2.29E+00		3.03E+00
+		PM-145	36.85	21.70	9.32E-01	8.88E-01	1.60E+00
			37.36	39.70	2.02E-02		8.88E-01
			42.30	15.10	-1.95E+00		2.64E+00
			72.40	2.31	-1.31E+01		1.49E+01
+		PM-146	453.90	39.94	-6.63E-01	1.63E+00	1.63E+00
			735.90	14.01	2.56E+00		4.59E+00
			747.13	13.10	3.06E-01		4.97E+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	2.31E+01	1.41E+00	2.02E+00
			244.69	5.40	-4.11E-01		6.30E+00
			344.27	19.13	2.35E-01		2.19E+00
			778.89	9.20	-2.98E-01		5.87E+00
			964.01	10.40	-5.76E+00		7.08E+00
			1085.78	7.22	-3.58E-01		9.78E+00
			1112.02	9.60	9.28E-01		7.34E+00
			1407.95	14.94	2.09E-01		1.41E+00
+		GD-153	97.43	31.30	-1.66E+00	1.46E+01	1.46E+01
			103.18	22.20	5.53E+00		2.06E+01
+		EU-154	123.07	40.50	1.20E+01	9.10E-01	1.09E+00
			723.30	19.70	-4.16E-01		2.74E+00
			873.19	11.50	6.72E-01		6.14E+00
			996.32	10.30	3.58E-01		7.22E+00
			1004.76	17.90	-2.39E-01		4.14E+00
			1274.45	35.50	1.77E-01		9.10E-01
+		EU-155	86.50	30.90	1.06E+02	1.64E+00	3.25E+00
			105.30	20.70	4.64E-01		1.64E+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	4.34E-02	3.64E-01	3.64E-01
			280.45	29.60	7.59E-01		1.17E+00
			410.94	11.10	1.59E+00		3.75E+00

Analysis Report for 1707082-01

GAS-1402

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		HO-166M	711.69		54.10	1.20E-01	3.64E-01	8.08E-01
+		TM-171	66.72		0.14	2.17E+02	6.64E+02	6.64E+02
+		HF-172	67.35		5.31	1.93E+01	6.16E+00	1.75E+01
			125.81		11.30	2.47E-01		6.16E+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	-3.43E+00	6.88E+00	1.82E+01
			272.11		21.20	3.58E-01		6.88E+00
+		HF-175	343.40		84.00	3.85E+03	1.40E+04	1.40E+04
+		LU-176	88.34		13.30	1.66E+02	3.22E-01	5.01E+00
			201.83		86.00	1.13E-01		3.22E-01
			306.78		94.00	-2.84E-01		3.72E-01
+		HF-181	133.02		41.70	6.23E+05	1.48E+07	1.61E+07
			345.85		17.20	-8.18E+06		5.94E+07
			482.03		82.80	1.68E+06		1.48E+07
+		TA-182	67.75		41.20	4.93E+02	4.47E+02	4.47E+02
			1121.30		34.90	-4.72E+02		8.90E+02
			1189.05		16.23	-7.22E+02		1.44E+03
			1221.41		26.98	2.86E+01		7.15E+02
			1231.02		11.44	3.38E+02		1.60E+03
+		IR-192	308.46		29.68	4.05E+03	1.82E+04	2.22E+04
			468.07		48.10	1.21E+03		1.82E+04
+		HG-203	279.19		77.30	2.02E+06	2.68E+06	2.68E+06
+		TL-204	374.74		94.11	2.70E-01	6.95E-01	6.95E-01
			899.15		99.16	3.35E-01		1.04E+00
			911.74		91.10	8.78E-01		1.15E+00
+		BI-207	569.67		97.72	1.17E-01	4.35E-01	4.35E-01
			1063.62		74.90	2.04E-04		8.27E-01
+		TL-208	583.14		30.22	6.52E-01	4.22E-01	1.37E+00
			860.37		4.48	-3.43E+00		1.21E+01
			2614.66		35.85	3.40E-01		4.22E-01
+		BI-210M	262.00		45.00	1.46E-01	7.54E-01	7.54E-01
			300.00		23.00	4.90E-01		1.54E+00
+		PB-210	46.50		4.25	-8.98E+01	1.12E+01	1.12E+01
+		PB-211	404.84		2.90	3.38E+00	1.40E+01	1.40E+01
			831.96		2.90	-3.85E+00		1.78E+01
+		BI-212	727.17		11.80	1.77E+00	3.71E+00	3.71E+00
			1620.62		2.75	-2.00E+00		5.68E+00
+		PB-212	238.63	*	44.60	8.84E-01	9.12E-01	9.12E-01
			300.09		3.41	3.30E+00		1.04E+01
+		BI-214	609.31		46.30	2.16E-02	9.05E-01	9.05E-01
			1120.29		15.10	8.93E-01		3.69E+00
			1764.49		15.80	2.03E-01		1.14E+00
			2204.22		4.98	3.57E-01		3.87E+00
+		PB-214	295.21		19.19	1.19E+00	1.15E+00	1.85E+00
			351.92	*	37.19	6.18E-01		1.15E+00
+		RN-219	401.80		6.50	1.23E+00	6.18E+00	6.18E+00

Analysis Report for 1707082-01

GAS-1402

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		RA-223	323.87		3.88	-2.29E+00	9.22E+00	9.22E+00
+		RA-224	240.98		3.95	4.78E+00	7.70E+00	7.70E+00
+	@	RA-225	40.00		31.00	1.00E+26	1.00E+26	1.00E+26
+		RA-226	186.21		3.28	1.39E+00	8.23E+00	8.23E+00
+		TH-227	50.10		8.40	2.72E+01	2.61E+00	6.64E+00
			236.00		11.50	-1.03E-01		2.61E+00
			256.20		6.30	3.18E+00		5.41E+00
+		AC-228	338.32		11.40	-7.05E-01	2.24E+00	3.16E+00
			911.07		27.70	1.70E+00		2.24E+00
			969.11		16.60	8.60E-01		3.74E+00
+		TH-230	48.44		16.90	9.69E+00	3.04E+00	3.04E+00
			62.85		4.60	-4.98E+02		1.25E+01
			67.67		0.37	9.54E+01		8.65E+01
+		PA-231	283.67		1.60	2.06E+00	1.52E+01	2.15E+01
			302.67		2.30	-6.09E+00		1.52E+01
+		TH-231	25.64		14.70	2.19E+02	5.46E+00	7.85E+00
			84.21		6.40	-4.03E+02		5.46E+00
+		PA-233	311.98		38.60	1.55E+11	4.67E+11	4.67E+11
+		PA-234	131.20		20.40	-3.65E-01	1.12E+00	1.12E+00
			733.99		8.80	-1.47E+00		5.02E+00
			946.00		12.00	-8.22E-01		5.54E+00
+		PA-234M	1001.03		0.92	-6.38E+00	6.37E+01	6.37E+01
+		TH-234	63.29	*	3.80	3.50E+01	3.05E+01	3.05E+01
+		U-235	143.76		10.50	-1.46E-01	2.24E+00	2.24E+00
			163.35		4.70	1.22E+00		5.36E+00
			205.31		4.70	-4.25E+00		5.83E+00
+		NP-237	86.50		12.60	1.74E+02	5.33E+00	5.33E+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	2.09E+02	3.29E+00	3.29E+00
+		AM-243	74.67		66.00	-4.48E-01	4.66E-01	4.66E-01
+		CM-243	209.75		3.29	7.35E-01	2.60E+00	9.24E+00
			228.14		10.60	1.71E-01		3.00E+00
			277.60		14.00	-1.92E+00		2.60E+00

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

Analysis Report for 1707082-01

GAS-1402

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	3.53E+06	3.53E+06	7.56E+05	1.75E+06
	NA-22	1274.54		99.94	5.54E-01	5.54E-01	1.08E-01	2.66E-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	1.81E-01	1.81E-01	6.39E-02	8.43E-02
	K-40	1460.81		10.67	1.95E+00	1.95E+00	9.25E-01	9.23E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	3.50E-01	3.33E-01	3.86E-01	1.74E-01
		78.34		96.00	3.33E-01		-9.09E-03	1.65E-01
	SC-46	889.25		99.98	3.40E+03	3.26E+03	-6.35E+02	1.68E+03
		1120.51		99.99	3.26E+03		7.90E+02	1.60E+03
	V-48	983.52		99.98	3.62E+19	1.62E+19	2.79E+19	1.79E+19
		1312.10		97.50	1.62E+19		-4.14E+18	7.79E+18
	CR-51	320.08		9.83	9.18E+11	9.18E+11	3.35E+11	4.55E+11
	MN-54	834.83		99.97	5.39E+00	5.39E+00	5.41E-02	2.66E+00
	CO-56	846.75		99.96	5.44E+03	3.46E+03	-1.08E+02	2.68E+03
		1037.75		14.03	4.24E+04		-1.37E+04	2.09E+04
		1238.25		67.00	4.56E+03		1.16E+03	2.21E+03
		1771.40		15.51	1.25E+04		1.62E+03	5.84E+03
		2598.48		16.90	3.46E+03		-2.61E+03	1.23E+03
+	CO-57	122.06	*	85.51	6.87E+00	6.87E+00	7.33E+01	3.41E+00
		136.48	*	10.60	4.41E+01		8.52E+01	2.19E+01
	CO-58	810.76		99.40	1.43E+04	1.43E+04	-9.21E+03	7.07E+03
	FE-59	1099.22		56.50	1.30E+07	7.37E+06	2.84E+06	6.39E+06
		1291.56		43.20	7.37E+06		-6.54E+05	3.54E+06
+	CO-60	1173.22	*	100.00	1.51E+00	1.03E+00	1.29E+02	7.48E-01
		1332.49	*	100.00	1.03E+00		1.30E+02	5.06E-01
	ZN-65	1115.52		50.75	2.33E+01	2.33E+01	1.46E+01	1.15E+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	9.26E+02	1.86E+02	1.06E+04	4.60E+02
		136.00		59.20	1.86E+02		4.59E+02	9.20E+01
		264.65		59.80	2.46E+02		3.61E+01	1.22E+02
		279.53		25.20	5.94E+02		4.49E+02	2.94E+02
		400.65		11.40	1.53E+03		-1.34E+02	7.55E+02
	RB-82	776.52		13.00	8.29E+12	8.29E+12	-1.25E+12	4.08E+12
	RB-83	520.41		46.00	4.12E+03	4.12E+03	-7.41E+02	2.03E+03
		529.64		30.30	6.17E+03		1.12E+03	3.05E+03
		552.65		16.40	1.12E+04		1.55E+02	5.52E+03
	KR-85	513.99		0.43	1.18E+02	1.18E+02	5.36E+01	5.85E+01
	SR-85	513.99		99.27	3.20E+04	3.20E+04	1.45E+04	1.58E+04

Analysis Report for 1707082-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	Y-88	898.02		93.40	5.96E+02	2.39E+02	1.46E+02	2.94E+02
		1836.01		99.38	2.39E+02		3.37E+02	1.13E+02
	MO-93	263.06		56.72	7.17E-01	2.19E-01	1.19E-01	3.55E-01
		684.67		99.68	5.11E-01		-8.36E-02	2.52E-01
		1477.11		99.08	2.19E-01		8.89E-02	1.03E-01
	NB-93M	16.57		9.43	4.39E+00	4.39E+00	-1.93E+01	2.16E+00
	NB-94	702.63		100.00	4.32E-01	4.32E-01	4.89E-02	2.13E-01
		871.10		100.00	5.63E-01		3.26E-01	2.78E-01
	NB-95	765.79		99.81	4.78E+08	4.78E+08	3.00E+08	2.35E+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	8.41E+04	7.16E+04	-5.15E+04	4.14E+04
		756.72		55.30	7.16E+04		1.86E+04	3.53E+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	4.93E+07	4.93E+07	-1.18E+07	2.44E+07
	RU-106	621.84		9.80	3.07E+01	3.07E+01	-3.17E+00	1.51E+01
	AG-108M	433.93		89.90	4.92E-01	4.65E-01	-2.30E-02	2.43E-01
		614.37		90.40	4.65E-01		-3.55E-01	2.29E-01
		722.95		90.50	4.82E-01		-7.33E-02	2.37E-01
+	CD-109	88.03	*	3.72	6.29E+01	6.29E+01	3.03E+03	3.13E+01
	AG-110M	657.75		93.14	2.39E+01	1.47E+01	-1.07E+02	1.19E+01
		677.61		10.53	7.34E+01		-1.36E+00	3.61E+01
		706.67		16.46	4.87E+01		1.59E+01	2.40E+01
		763.93		21.98	3.89E+01		5.75E+00	1.92E+01
		884.67		71.63	1.47E+01		-7.53E-01	7.28E+00
		1384.27		23.94	1.63E+01		2.25E+00	7.73E+00
	CD-113M	263.70		0.02	1.70E+03	1.70E+03	-8.46E+00	8.40E+02
	SN-113	255.12		1.93	8.32E+03	3.43E+02	2.67E+03	4.12E+03
		391.69		64.90	3.43E+02		7.11E+01	1.70E+02
	TE123M	159.00		84.10	1.25E+02	1.25E+02	4.04E+01	6.19E+01
	SB-124	602.71		97.87	7.39E+04	6.17E+04	6.77E+03	3.64E+04
		645.85		7.26	1.05E+06		4.66E+05	5.15E+05
		722.78		11.10	6.83E+05		-1.04E+05	3.37E+05
		1691.02		49.00	6.17E+04		-3.73E+03	2.86E+04
	I-125	35.49		6.49	8.75E+05	8.75E+05	1.43E+06	4.34E+05
	SB-125	176.33		6.89	7.37E+00	2.96E+00	3.13E+00	3.65E+00
		427.89		29.33	2.96E+00		-9.68E-01	1.46E+00
		463.38		10.35	9.50E+00		6.26E+00	4.70E+00
		600.56		17.80	4.70E+00		-1.06E+00	2.32E+00
		635.90		11.32	7.70E+00		9.31E-01	3.80E+00
@	SB-126	414.70		83.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		666.33		99.60	1.00E+26		1.00E+26	1.00E+20
@		695.00		99.60	1.00E+26		1.00E+26	1.00E+20
@		720.50		53.80	1.00E+26		1.00E+26	1.00E+20
+	SN-126	87.57	*	37.00	1.32E+00	1.32E+00	6.35E+01	6.56E-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	7.11E-01	7.11E-01	-3.16E+00	3.53E-01
		33.60		13.20	2.80E+00		5.12E+00	1.39E+00
		39.58		7.52	4.18E+00		-1.67E+01	2.08E+00
@	I-131	284.30		6.05	1.00E+26	1.00E+26	1.00E+26	1.00E+20

Analysis Report for 1707082-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@	I-131	364.48		81.20	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		636.97		7.26	1.00E+26		1.00E+26	1.00E+20
@		722.89		1.80	1.00E+26		1.00E+26	1.00E+20
@	TE-132	49.72		13.10	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		228.16		88.00	1.00E+26		1.00E+26	1.00E+20
	BA-133	81.00		33.00	1.14E+00	7.59E-01	-8.26E-01	5.64E-01
		302.84		17.80	2.37E+00		-9.51E-01	1.17E+00
		356.01		60.00	7.59E-01		2.73E-01	3.76E-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	1.25E+01	1.10E+00	-1.12E+00	6.17E+00
		569.32		15.43	6.85E+00		4.50E+00	3.38E+00
		604.70		97.60	1.10E+00		-1.07E+00	5.40E-01
		795.84		85.40	1.52E+00		1.31E-01	7.48E-01
		801.93		8.73	1.47E+01		-4.28E+00	7.26E+00
	CS-135	268.24		16.00	2.12E+00	2.12E+00	-1.11E+00	1.05E+00
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
@	CS-136	153.22		7.46	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		163.89		4.61	1.00E+26		1.00E+26	1.00E+20
@		176.55		13.56	1.00E+26		1.00E+26	1.00E+20
@		273.65		12.66	1.00E+26		1.00E+26	1.00E+20
@		340.57		48.50	1.00E+26		1.00E+26	1.00E+20
@		818.50		99.70	1.00E+26		1.00E+26	1.00E+20
@		1048.07		79.60	1.00E+26		1.00E+26	1.00E+20
@		1235.34		19.70	1.00E+26		1.00E+26	1.00E+20
+	CS-137	661.65	*	85.12	1.19E+00	1.19E+00	8.38E+01	5.93E-01
	LA-138	788.74		34.00	1.43E+00	2.93E-01	4.59E-01	7.04E-01
		1435.80		66.00	2.93E-01		1.61E-01	1.38E-01
+	CE-139	165.85	*	80.35	8.16E+01	8.16E+01	1.22E+02	4.05E+01
@	BA-140	162.64		6.70	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		304.84		4.50	1.00E+26		1.00E+26	1.00E+20
@		423.70		3.20	1.00E+26		1.00E+26	1.00E+20
@		437.55		2.00	1.00E+26		1.00E+26	1.00E+20
@		537.32		25.00	1.00E+26		1.00E+26	1.00E+20
@	LA-140	328.77		20.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		487.03		45.50	1.00E+26		1.00E+26	1.00E+20
@		815.85		23.50	1.00E+26		1.00E+26	1.00E+20
@		1596.49		95.49	1.00E+26		1.00E+26	1.00E+20
	CE-141	145.44		48.40	2.56E+09	2.56E+09	2.50E+08	1.27E+09
@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		293.26		42.00	1.00E+26		1.00E+26	1.00E+20
@		664.55		5.20	1.00E+26		1.00E+26	1.00E+20
	CE-144	133.54		10.80	2.85E+01	2.85E+01	1.10E+00	1.41E+01
	PM-144	476.78		42.00	8.07E+00	3.03E+00	5.51E+00	4.00E+00
		618.01		98.60	3.10E+00		-8.83E-01	1.53E+00
		696.49		99.49	3.03E+00		-2.29E+00	1.49E+00
	PM-145	36.85		21.70	1.60E+00	8.88E-01	9.32E-01	7.91E-01
		37.36		39.70	8.88E-01		2.02E-02	4.40E-01
		42.30		15.10	2.64E+00		-1.95E+00	1.31E+00
		72.40		2.31	1.49E+01		-1.31E+01	7.41E+00
	PM-146	453.90		39.94	1.63E+00	1.63E+00	-6.63E-01	8.08E-01

Analysis Report for 1707082-01

GAS-1402

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
PM-146	735.90	14.01	4.59E+00	1.63E+00	2.56E+00	2.26E+00
	747.13	13.10	4.97E+00		3.06E-01	2.45E+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	2.02E+00	1.41E+00	2.31E+01	1.00E+00
	244.69	5.40	6.30E+00		-4.11E-01	3.12E+00
	344.27	19.13	2.19E+00		2.35E-01	1.08E+00
	778.89	9.20	5.87E+00		-2.98E-01	2.89E+00
	964.01	10.40	7.08E+00		-5.76E+00	3.49E+00
	1085.78	7.22	9.78E+00		-3.58E-01	4.82E+00
	1112.02	9.60	7.34E+00		9.28E-01	3.62E+00
	1407.95	14.94	1.41E+00		2.09E-01	6.63E-01
GD-153	97.43	31.30	1.46E+01	1.46E+01	-1.66E+00	7.21E+00
	103.18	22.20	2.06E+01		5.53E+00	1.02E+01
EU-154	123.07	40.50	1.09E+00	9.10E-01	1.20E+01	5.42E-01
	723.30	19.70	2.74E+00		-4.16E-01	1.35E+00
	873.19	11.50	6.14E+00		6.72E-01	3.03E+00
	996.32	10.30	7.22E+00		3.58E-01	3.56E+00
	1004.76	17.90	4.14E+00		-2.39E-01	2.04E+00
	1274.45	35.50	9.10E-01		1.77E-01	4.38E-01
EU-155	86.50	30.90	3.25E+00	1.64E+00	1.06E+02	1.62E+00
	105.30	20.70	1.64E+00		4.64E-01	8.10E-01
@ EU-156	811.77	10.40	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1153.47	7.20	1.00E+26		1.00E+26	1.00E+20
@	1230.71	8.90	1.00E+26		1.00E+26	1.00E+20
HO-166M	184.41	72.60	3.64E-01	3.64E-01	4.34E-02	1.80E-01
	280.45	29.60	1.17E+00		7.59E-01	5.80E-01
	410.94	11.10	3.75E+00		1.59E+00	1.85E+00
	711.69	54.10	8.08E-01		1.20E-01	3.98E-01
TM-171	66.72	0.14	6.64E+02	6.64E+02	2.17E+02	3.30E+02
HF-172	67.35	5.31	1.75E+01	6.16E+00	1.93E+01	8.69E+00
	125.81	11.30	6.16E+00		2.47E-01	3.05E+00
@ LU-172	181.53	20.60	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	900.72	29.81	1.00E+26		1.00E+26	1.00E+20
@	1093.66	62.50	1.00E+26		1.00E+26	1.00E+20
LU-173	100.72	5.24	1.82E+01	6.88E+00	-3.43E+00	9.02E+00
	272.11	21.20	6.88E+00		3.58E-01	3.41E+00
HF-175	343.40	84.00	1.40E+04	1.40E+04	3.85E+03	6.95E+03
LU-176	88.34	13.30	5.01E+00	3.22E-01	1.66E+02	2.50E+00
	201.83	86.00	3.22E-01		1.13E-01	1.59E-01
	306.78	94.00	3.72E-01		-2.84E-01	1.84E-01
HF-181	133.02	41.70	1.61E+07	1.48E+07	6.23E+05	8.00E+06
	345.85	17.20	5.94E+07		-8.18E+06	2.94E+07
	482.03	82.80	1.48E+07		1.68E+06	7.33E+06
TA-182	67.75	41.20	4.47E+02	4.47E+02	4.93E+02	2.22E+02
	1121.30	34.90	8.90E+02		-4.72E+02	4.37E+02
	1189.05	16.23	1.44E+03		-7.22E+02	7.06E+02
	1221.41	26.98	7.15E+02		2.86E+01	3.47E+02
	1231.02	11.44	1.60E+03		3.38E+02	7.75E+02
IR-192	308.46	29.68	2.22E+04	1.82E+04	4.05E+03	1.10E+04
	468.07	48.10	1.82E+04		1.21E+03	9.00E+03
HG-203	279.19	77.30	2.68E+06	2.68E+06	2.02E+06	1.33E+06

Analysis Report for 1707082-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TL-204	374.74		94.11	6.95E-01	6.95E-01	2.70E-01	3.44E-01
		899.15		99.16	1.04E+00		3.35E-01	5.14E-01
		911.74		91.10	1.15E+00		8.78E-01	5.69E-01
	BI-207	569.67		97.72	4.35E-01	4.35E-01	1.17E-01	2.14E-01
		1063.62		74.90	8.27E-01		2.04E-04	4.07E-01
	TL-208	583.14		30.22	1.37E+00	4.22E-01	6.52E-01	6.78E-01
		860.37		4.48	1.21E+01		-3.43E+00	5.98E+00
		2614.66		35.85	4.22E-01		3.40E-01	1.88E-01
	BI-210M	262.00		45.00	7.54E-01	7.54E-01	1.46E-01	3.73E-01
		300.00		23.00	1.54E+00		4.90E-01	7.61E-01
	PB-210	46.50		4.25	1.12E+01	1.12E+01	-8.98E+01	5.55E+00
	PB-211	404.84		2.90	1.40E+01	1.40E+01	3.38E+00	6.95E+00
		831.96		2.90	1.78E+01		-3.85E+00	8.79E+00
	BI-212	727.17		11.80	3.71E+00	3.71E+00	1.77E+00	1.83E+00
		1620.62		2.75	5.68E+00		-2.00E+00	2.63E+00
+	PB-212	238.63	*	44.60	9.12E-01	9.12E-01	8.84E-01	4.53E-01
		300.09		3.41	1.04E+01		3.30E+00	5.13E+00
	BI-214	609.31		46.30	9.05E-01	9.05E-01	2.16E-02	4.46E-01
		1120.29		15.10	3.69E+00		8.93E-01	1.81E+00
		1764.49		15.80	1.14E+00		2.03E-01	5.28E-01
		2204.22		4.98	3.87E+00		3.57E-01	1.79E+00
+	PB-214	295.21		19.19	1.85E+00	1.15E+00	1.19E+00	9.15E-01
		351.92	*	37.19	1.15E+00		6.18E-01	5.69E-01
	RN-219	401.80		6.50	6.18E+00	6.18E+00	1.23E+00	3.06E+00
	RA-223	323.87		3.88	9.22E+00	9.22E+00	-2.29E+00	4.56E+00
	RA-224	240.98		3.95	7.70E+00	7.70E+00	4.78E+00	3.81E+00
@	RA-225	40.00		31.00	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	RA-226	186.21		3.28	8.23E+00	8.23E+00	1.39E+00	4.08E+00
	TH-227	50.10		8.40	6.64E+00	2.61E+00	2.72E+01	3.31E+00
		236.00		11.50	2.61E+00		-1.03E-01	1.29E+00
		256.20		6.30	5.41E+00		3.18E+00	2.68E+00
	AC-228	338.32		11.40	3.16E+00	2.24E+00	-7.05E-01	1.56E+00
		911.07		27.70	2.24E+00		1.70E+00	1.10E+00
		969.11		16.60	3.74E+00		8.60E-01	1.85E+00
	TH-230	48.44		16.90	3.04E+00	3.04E+00	9.69E+00	1.51E+00
		62.85		4.60	1.25E+01		-4.98E+02	6.21E+00
		67.67		0.37	8.65E+01		9.54E+01	4.30E+01
	PA-231	283.67		1.60	2.15E+01	1.52E+01	2.06E+00	1.07E+01
		302.67		2.30	1.52E+01		-6.09E+00	7.51E+00
	TH-231	25.64		14.70	7.85E+00	5.46E+00	2.19E+02	3.91E+00
		84.21		6.40	5.46E+00		-4.03E+02	2.71E+00
	PA-233	311.98		38.60	4.67E+11	4.67E+11	1.55E+11	2.31E+11
	PA-234	131.20		20.40	1.12E+00	1.12E+00	-3.65E-01	5.57E-01
		733.99		8.80	5.02E+00		-1.47E+00	2.47E+00
		946.00		12.00	5.54E+00		-8.22E-01	2.74E+00
	PA-234M	1001.03		0.92	6.37E+01	6.37E+01	-6.38E+00	3.14E+01
+	TH-234	63.29	*	3.80	3.05E+01	3.05E+01	3.50E+01	1.52E+01
	U-235	143.76		10.50	2.24E+00	2.24E+00	-1.46E-01	1.11E+00
		163.35		4.70	5.36E+00		1.22E+00	2.65E+00
		205.31		4.70	5.83E+00		-4.25E+00	2.89E+00
	NP-237	86.50		12.60	5.33E+00	5.33E+00	1.74E+02	2.66E+00
@	NP-239	106.10		22.70	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		228.18		10.70	1.00E+26		1.00E+26	1.00E+20

Analysis Report for 1707082-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@	NP-239	277.60		14.10	1.00E+26	1.00E+26	1.00E+26	1.00E+20
+	AM-241	59.54	*	35.90	3.29E+00	3.29E+00	2.09E+02	1.64E+00
	AM-243	74.67		66.00	4.66E-01	4.66E-01	-4.48E-01	2.32E-01
	CM-243	209.75		3.29	9.24E+00	2.60E+00	7.35E-01	4.58E+00
		228.14		10.60	3.00E+00		1.71E-01	1.49E+00
		277.60		14.00	2.60E+00		-1.92E+00	1.29E+00

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: GAS-1402

Elapsed Live time: 1800
Elapsed Real Time: 1823

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	1
17:	2	35	1592	2405	8180	49732	40208	6574
25:	17635	12211	3471	1341	1146	1110	978	1869
33:	1725	967	827	1008	1219	1023	940	1097
41:	1206	1366	1551	1756	1863	1915	2283	2723
49:	3764	4790	4705	4462	4362	4622	4715	4944
57:	5576	6051	18089	59228	17581	2031	2131	2458
65:	2162	1569	1699	1696	1686	1684	1576	1580
73:	1502	1548	1613	1605	1556	1688	1638	1530
81:	1543	1592	1574	1732	1806	1974	3026	15520
89:	15155	1982	1016	1173	1271	973	800	835
97:	761	838	816	784	746	785	808	819
105:	778	809	816	777	786	762	802	791
113:	773	819	788	838	828	813	857	872
121:	1082	3246	3183	923	830	813	755	783
129:	768	718	726	742	747	711	778	906
137:	1104	809	743	711	701	752	682	728
145:	698	721	748	710	713	716	683	663
153:	709	702	725	648	691	731	699	681
161:	682	682	669	695	718	931	861	658
169:	669	637	662	642	583	621	628	697
177:	665	644	676	669	659	636	684	700
185:	706	749	759	747	770	806	728	727
193:	750	747	744	755	745	716	736	702
201:	741	759	706	693	697	670	708	699
209:	714	755	738	721	748	737	819	712
217:	783	757	796	795	804	721	770	736
225:	757	748	747	712	660	763	721	702
233:	686	707	694	676	744	714	827	711
241:	698	669	636	632	648	663	665	612
249:	650	623	579	629	553	623	624	590
257:	540	601	578	565	541	546	590	589
265:	558	557	542	522	583	518	541	601
273:	558	590	503	503	541	530	560	517
281:	539	548	542	537	488	522	501	521
289:	497	475	498	514	516	540	536	551
297:	499	551	500	509	487	540	506	475
305:	461	480	514	483	496	509	515	514
313:	539	490	473	468	506	463	525	435
321:	483	446	511	468	461	464	476	467
329:	501	480	461	464	506	459	449	443
337:	434	470	465	441	427	469	475	448
345:	443	451	411	408	439	448	463	521
353:	476	435	442	452	481	471	457	448
361:	438	444	426	459	448	471	394	437

369:	488	434	421	457	439	431	478	452

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Channel								
377:	445	425	417	454	464	456	419	437
385:	439	441	420	423	432	419	480	512
393:	457	418	455	465	473	464	438	421
401:	411	432	436	464	459	439	422	455
409:	457	441	451	447	455	454	455	423
417:	427	404	432	454	431	466	461	459
425:	433	421	455	442	419	460	457	453
433:	443	499	425	473	452	467	481	491
441:	441	475	476	462	457	487	433	435
449:	477	479	486	503	469	453	455	452
457:	450	515	490	481	539	463	509	510
465:	503	517	481	482	459	461	468	465
473:	449	467	487	449	414	424	432	395
481:	383	381	401	356	365	345	372	369
489:	318	354	372	349	356	313	342	332
497:	351	352	318	323	353	311	327	331
505:	345	312	330	336	316	379	398	378
513:	318	325	318	309	331	318	300	334
521:	305	305	295	293	308	307	305	300
529:	297	315	286	271	268	275	267	258
537:	308	321	257	290	236	233	260	268
545:	251	288	324	271	285	261	249	245
553:	285	267	266	263	251	257	256	262
561:	272	266	249	265	240	246	256	268
569:	284	233	271	245	222	235	263	273
577:	251	261	247	265	270	258	302	236
585:	267	250	246	249	230	255	240	254
593:	219	253	230	248	269	228	252	272
601:	239	242	245	223	251	234	243	241
609:	285	266	240	246	268	252	230	216
617:	243	249	260	229	233	239	228	257
625:	246	237	250	257	224	252	247	230
633:	237	233	240	239	243	249	250	239
641:	237	220	233	222	236	240	268	237
649:	254	245	214	257	283	236	258	250
657:	256	318	414	1540	10233	14773	3771	523
665:	547	562	408	251	211	227	217	214
673:	214	198	230	214	214	192	211	236
681:	204	222	221	213	208	213	217	214
689:	217	222	199	223	166	196	183	201
697:	195	197	208	226	196	214	193	237
705:	221	209	223	211	208	204	199	222
713:	230	207	231	204	207	190	208	219
721:	203	189	183	210	205	209	205	219
729:	217	199	188	222	203	199	212	229
737:	213	211	237	214	179	197	217	220
745:	240	209	206	216	211	207	238	200
753:	226	207	217	231	216	210	207	237
761:	200	219	217	220	224	240	212	217
769:	202	202	192	207	195	211	215	198
777:	252	227	207	219	200	191	207	225
785:	214	212	224	253	232	193	248	227
793:	194	241	230	254	224	237	238	224

801:	220	200	218	231	242	233	235	209

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Channel								
809:	238	245	207	227	214	228	257	236
817:	237	232	231	265	262	260	240	273
825:	206	252	244	243	225	239	225	262
833:	251	215	244	240	246	256	246	262
841:	202	244	263	232	284	230	232	239
849:	243	244	246	253	232	245	248	248
857:	247	262	265	243	244	248	238	269
865:	260	236	252	221	283	258	296	257
873:	267	259	265	231	291	236	249	266
881:	264	273	293	265	263	268	249	298
889:	258	261	298	267	287	286	260	266
897:	314	341	285	249	325	280	284	302
905:	286	259	297	289	279	304	326	303
913:	298	287	269	275	297	284	302	308
921:	302	290	300	301	309	302	301	282
929:	355	328	333	319	322	309	349	366
937:	305	319	342	319	328	320	330	334
945:	322	315	352	305	313	334	332	342
953:	316	340	305	304	319	305	306	359
961:	299	291	279	288	304	297	260	316
969:	281	237	258	259	251	238	269	277
977:	264	249	233	237	238	269	240	267
985:	246	257	223	216	263	242	243	225
993:	250	251	252	244	222	221	226	238
1001:	239	234	235	223	233	235	236	234
1009:	241	243	199	262	247	229	213	224
1017:	230	224	227	234	212	221	227	231
1025:	230	225	217	193	212	227	202	223
1033:	210	199	216	220	218	214	223	212
1041:	235	221	226	219	209	210	252	214
1049:	220	233	229	205	198	217	234	206
1057:	210	217	193	205	209	204	205	227
1065:	213	198	221	202	213	194	249	225
1073:	191	193	220	219	252	211	216	205
1081:	232	217	246	234	201	211	228	212
1089:	233	217	238	210	241	222	205	224
1097:	231	237	182	215	210	238	212	216
1105:	226	235	204	216	206	215	214	229
1113:	236	193	196	214	204	177	185	164
1121:	181	153	160	128	161	147	171	149
1129:	131	140	151	139	133	148	153	135
1137:	127	128	145	136	133	144	137	128
1145:	115	149	127	149	138	133	141	137
1153:	115	96	125	132	114	132	109	94
1161:	133	123	135	117	123	126	121	123
1169:	152	243	1022	6202	11709	6119	962	355
1177:	403	339	170	94	103	107	102	96
1185:	105	89	85	93	76	81	83	86
1193:	94	81	80	86	62	72	80	65
1201:	78	52	66	71	49	63	65	49
1209:	62	61	54	51	58	64	49	69
1217:	58	60	45	59	48	57	47	65
1225:	42	51	48	58	50	52	33	51

1233:	46	40	50	53	48	31	46	32

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Channel								
1241:	34	37	36	33	27	40	33	31
1249:	29	47	30	46	24	28	32	36
1257:	38	31	37	30	31	39	24	29
1265:	29	33	35	41	34	30	28	35
1273:	26	31	18	37	33	19	30	34
1281:	35	24	29	24	33	24	44	29
1289:	26	33	29	38	34	29	28	33
1297:	29	30	32	33	24	37	34	47
1305:	26	37	37	33	22	29	36	37
1313:	20	30	29	28	33	25	30	31
1321:	37	41	49	39	53	41	39	74
1329:	166	728	4414	10085	6789	1392	287	309
1337:	245	83	35	21	16	17	16	16
1345:	16	22	21	16	16	28	10	12
1353:	16	16	20	18	22	8	24	17
1361:	22	14	16	15	9	16	13	18
1369:	14	15	10	16	9	16	7	11
1377:	12	19	17	11	18	23	13	20
1385:	14	19	15	17	19	14	22	13
1393:	13	13	13	12	11	15	9	11
1401:	21	9	14	15	10	7	10	10
1409:	23	11	13	13	14	8	9	14
1417:	17	14	10	7	9	15	12	13
1425:	14	9	14	10	11	6	12	14
1433:	9	14	14	12	13	19	7	14
1441:	13	13	19	11	11	15	13	12
1449:	11	12	9	17	9	11	11	14
1457:	11	13	12	17	23	18	14	13
1465:	10	18	10	11	7	6	8	10
1473:	9	11	11	11	9	13	15	7
1481:	10	17	13	10	12	11	12	6
1489:	14	23	14	19	11	7	9	9
1497:	11	20	13	5	9	10	16	15
1505:	14	5	13	18	7	8	14	10
1513:	11	12	9	6	8	14	11	7
1521:	12	5	7	9	14	12	8	12
1529:	10	11	11	10	6	13	7	9
1537:	11	5	13	8	12	11	8	11
1545:	16	7	10	12	12	9	16	13
1553:	11	11	8	13	10	8	7	16
1561:	10	5	11	12	13	14	7	7
1569:	16	14	10	7	9	8	9	11
1577:	7	11	16	9	5	13	9	9
1585:	12	10	16	10	9	9	8	16
1593:	5	8	11	11	6	15	10	11
1601:	12	12	6	14	10	4	4	6
1609:	4	8	9	7	10	10	2	9
1617:	7	7	7	4	12	9	4	5
1625:	18	9	6	4	7	11	9	9
1633:	9	7	10	11	10	12	11	10
1641:	8	13	8	13	5	8	13	6
1649:	12	11	5	6	9	8	5	6
1657:	10	18	4	4	9	7	7	10

1665:	9	6	7	6	6	11	6	8

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Channel								
1673:	11	9	10	7	7	11	8	11
1681:	5	7	10	15	14	12	10	13
1689:	3	9	7	6	9	5	6	6
1697:	11	11	11	10	3	14	19	6
1705:	8	5	10	5	7	4	12	8
1713:	6	8	7	9	10	8	8	10
1721:	8	6	9	8	7	14	4	11
1729:	10	6	6	12	7	4	11	7
1737:	11	11	10	12	7	7	8	8
1745:	12	8	8	9	7	7	10	5
1753:	7	8	6	9	3	4	9	4
1761:	5	3	11	17	9	10	8	9
1769:	9	9	8	15	8	11	5	12
1777:	5	10	7	8	7	10	2	11
1785:	9	4	6	10	8	9	6	9
1793:	4	6	5	4	6	7	9	8
1801:	6	6	6	4	6	8	10	8
1809:	8	8	10	6	9	3	1	4
1817:	11	12	12	7	7	4	4	6
1825:	11	6	7	5	8	7	7	10
1833:	7	24	30	29	11	10	7	5
1841:	9	8	9	7	12	12	7	15
1849:	2	7	5	13	10	8	5	10
1857:	5	7	9	9	6	9	8	6
1865:	5	9	10	4	5	4	7	2
1873:	6	11	6	4	2	9	9	3
1881:	7	7	6	10	4	5	1	2
1889:	5	6	2	11	4	6	4	5
1897:	8	6	4	7	6	4	5	7
1905:	9	6	4	7	5	8	8	6
1913:	4	14	4	5	6	9	4	9
1921:	4	6	7	5	5	7	3	11
1929:	8	3	4	6	6	4	8	7
1937:	14	8	9	8	7	10	2	7
1945:	6	7	9	6	4	6	6	5
1953:	4	7	7	4	10	5	5	9
1961:	4	8	4	9	7	3	8	3
1969:	9	6	7	7	7	8	3	5
1977:	3	4	7	5	6	6	5	7
1985:	11	8	9	12	4	8	8	6
1993:	6	11	11	9	6	8	5	2
2001:	6	2	12	5	5	8	8	9
2009:	5	8	13	6	4	5	3	8
2017:	6	9	0	5	5	3	8	4
2025:	2	13	5	4	5	4	6	1
2033:	7	3	4	4	4	6	5	8
2041:	9	4	4	6	2	7	8	3
2049:	8	1	8	8	2	9	4	3
2057:	5	9	3	7	6	2	10	5
2065:	10	3	4	8	8	4	4	2
2073:	4	5	4	4	6	6	6	3
2081:	6	7	7	4	7	7	7	6
2089:	7	7	2	5	6	2	4	5

2097:	11	9	5	13	8	10	6	2

Sample Title: GAS-1402

Channel								
2105:	4	4	2	2	3	6	7	4
2113:	3	7	6	2	6	4	4	6
2121:	10	7	8	4	5	3	8	5
2129:	5	9	4	4	3	10	6	5
2137:	3	3	7	7	4	4	5	7
2145:	5	4	7	5	5	8	2	6
2153:	8	6	4	8	1	11	3	2
2161:	4	10	9	9	8	6	4	5
2169:	6	7	5	4	2	6	4	9
2177:	4	1	1	8	6	7	5	5
2185:	5	5	2	8	3	3	1	2
2193:	3	4	5	3	5	5	4	4
2201:	0	3	5	8	8	8	9	3
2209:	3	5	7	7	4	7	7	6
2217:	5	5	7	1	2	5	6	7
2225:	5	6	4	4	7	4	4	6
2233:	3	2	7	1	9	5	1	9
2241:	3	4	6	5	4	7	6	7
2249:	6	9	4	7	5	12	7	10
2257:	6	5	3	5	9	7	5	8
2265:	6	5	8	6	3	9	6	3
2273:	5	13	5	6	6	4	5	6
2281:	5	5	6	3	7	6	2	7
2289:	6	5	4	5	8	4	8	6
2297:	5	4	3	4	2	1	3	5
2305:	2	2	5	6	3	2	0	2
2313:	2	4	3	5	1	1	3	3
2321:	2	4	5	6	3	5	3	6
2329:	4	4	2	3	2	2	3	2
2337:	3	5	2	6	5	4	3	2
2345:	5	2	3	5	6	1	4	1
2353:	1	3	0	2	3	2	0	4
2361:	2	1	4	0	3	3	4	2
2369:	3	0	1	3	4	2	1	0
2377:	5	1	4	4	3	3	1	6
2385:	0	1	1	1	2	0	2	0
2393:	1	3	1	2	1	2	0	1
2401:	0	1	4	3	2	3	0	4
2409:	2	1	1	0	0	0	0	1
2417:	2	2	1	0	1	3	1	3
2425:	0	0	1	0	0	1	1	1
2433:	3	2	0	2	1	0	0	0
2441:	1	1	1	1	0	1	3	0
2449:	1	0	0	3	2	0	1	1
2457:	1	0	1	0	3	1	1	3
2465:	1	1	3	1	0	0	3	1
2473:	0	1	2	0	3	1	0	0
2481:	0	1	0	0	0	0	2	0
2489:	0	0	1	0	4	1	4	4
2497:	0	0	2	1	8	11	64	132
2505:	112	55	10	1	5	5	2	0
2513:	1	0	0	0	0	0	0	0
2521:	0	0	0	0	0	1	0	0

2529:	0	0	0	1	1	0	0	0

Sample Title: GAS-1402

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

2961:	1	1	0	0	0	0	0	0

Sample Title: GAS-1402

Channel								
2969:	0	1	0	1	0	0	0	0
2977:	0	0	1	0	0	0	0	0
2985:	0	0	0	0	0	0	0	0
2993:	0	0	0	0	0	0	0	0
3001:	0	0	0	0	0	0	0	0
3009:	0	0	0	0	0	0	0	0
3017:	0	0	0	0	0	0	0	0
3025:	0	1	0	0	0	0	0	0
3033:	0	1	1	0	0	0	0	0
3041:	0	0	0	0	0	0	0	0
3049:	1	1	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	3	0	1	0	0
3081:	0	0	0	0	0	0	1	0
3089:	0	0	0	0	0	0	0	0
3097:	0	0	0	0	0	0	0	0
3105:	0	0	0	0	0	0	0	0
3113:	0	1	0	0	0	0	0	0
3121:	0	0	1	1	0	1	0	0
3129:	0	0	0	0	0	0	0	0
3137:	0	0	0	0	1	0	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	0	0
3185:	0	0	1	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	0	0	0	0	0	0
3217:	0	0	0	0	0	0	0	1
3225:	0	0	0	0	0	0	0	0
3233:	0	0	0	0	0	1	0	0
3241:	0	0	0	0	0	0	0	0
3249:	0	1	0	1	0	1	0	1
3257:	0	0	0	0	0	0	0	1
3265:	0	0	0	0	0	0	0	0
3273:	1	1	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:	0	0	0	0	0	0	0	0
3305:	0	0	0	0	0	0	0	1
3313:	1	0	0	0	0	0	0	0
3321:	0	0	0	0	0	0	0	0
3329:	0	0	0	0	0	0	0	0
3337:	0	0	0	0	0	0	0	0
3345:	0	0	0	0	0	0	0	0
3353:	0	0	0	1	0	0	1	0
3361:	0	0	0	0	0	0	0	0
3369:	0	0	0	0	0	0	0	1
3377:	0	0	0	0	0	1	0	0
3385:	0	0	0	1	0	0	0	0

3393:	0	0	0	1	0	0	0	0

Sample Title: GAS-1402

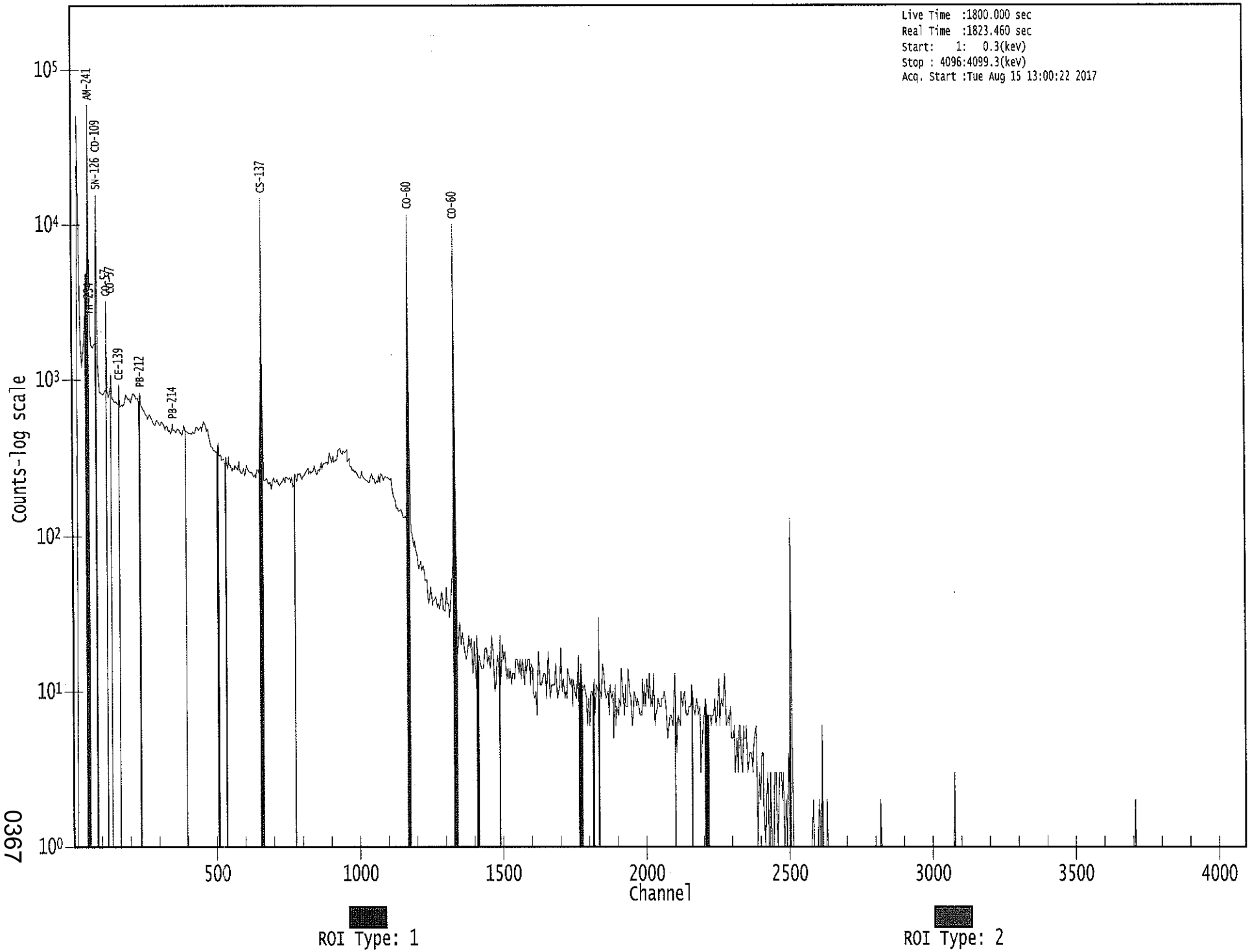
Channel								
3401:	0	0	0	0	0	0	0	1
3409:	0	0	1	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	1	0	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	1	1	0
3449:	0	0	0	1	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	1	0	1	0	1	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	1	0	0	0	0

Sample Title: GAS-1402

Channel								
3833:	0	0	0	0	0	0	0	0
3841:	0	0	0	0	0	0	0	0
3849:	0	0	0	0	0	0	0	0
3857:	1	0	0	0	0	0	0	0
3865:	0	0	0	0	0	0	0	0
3873:	0	0	0	0	0	0	0	0
3881:	0	0	0	0	0	0	0	0
3889:	0	0	0	0	0	0	0	0
3897:	1	0	0	0	0	0	0	0
3905:	0	0	0	0	0	1	0	0
3913:	0	0	1	1	0	0	0	0
3921:	0	1	0	0	0	0	0	0
3929:	0	0	0	0	0	0	0	0
3937:	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	1
3969:	0	0	0	0	0	0	0	1
3977:	0	0	0	0	0	0	0	0
3985:	0	0	1	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	0	0	0	0
4033:	0	0	0	0	0	0	0	0
4041:	0	0	0	0	0	0	0	1
4049:	0	0	1	0	0	0	0	0
4057:	0	0	0	0	0	0	0	0
4065:	0	0	0	0	0	0	0	0
4073:	0	0	0	0	0	0	0	0
4081:	0	0	0	0	0	0	1	1
4089:	0	0	0	0	0	0	0	0

0000055265.CNF



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KB 8/15/17

Apex-Gamma

Analysis Report for 1707082-02
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GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707082-02
Sample Description	: BLANK
Sample Type	: SOIL
Sample Size	: 7.834E+02 grams
Facility	: Countroom
Sample Taken On	: 8/15/2017 5:44:29AM
Acquisition Started	: 8/15/2017 1:00:37PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3607.1 seconds
Dead Time	: 0.20 %
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	: 55266

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

ACP 8/16/17

Analysis Report for 1707082-02

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PEAK LOCATE REPORT

Peak Locate Performed on : 8/15/2017 2:00:46PM
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	191.94	192.21	0.0000	0.00
2	270.72	270.95	0.0000	0.00
3	276.94	277.17	0.0000	0.00
4	514.04	514.19	0.0000	0.00
5	541.66	541.81	0.0000	0.00
6	927.41	927.43	0.0000	0.00
7	984.14	984.13	0.0000	0.00
8	1035.30	1035.28	0.0000	0.00
9	1205.28	1205.20	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707082-02

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PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 2:00:46PM

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	191.94	190 -	194	192.21	1.87E+01	19.04	6.27E+01	1.67
M	2	270.72	266 -	286	270.95	2.52E+01	17.38	5.39E+01	1.90
m	3	276.94	266 -	286	277.17	1.68E+01	17.26	3.51E+01	1.91
m	4	514.04	505 -	517	514.19	1.59E+01	16.64	1.30E+01	2.09
	5	541.66	537 -	547	541.81	2.32E+01	14.65	1.56E+01	6.69
	6	927.41	924 -	931	927.43	6.00E+00	8.49	8.00E+00	1.17
	7	984.14	981 -	986	984.13	4.58E+00	5.74	2.83E+00	2.72
	8	1035.30	1032 -	1038	1035.28	8.50E+00	7.23	3.00E+00	2.92
	9	1205.28	1201 -	1208	1205.20	7.45E+00	8.72	7.09E+00	1.83

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 2:00:46PM

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	191.94	190 -	194	1.87E+01	19.04	6.27E+01	1.39E+01
M	2	270.72	266 -	286	2.52E+01	17.38	5.39E+01	1.21E+01
m	3	276.94	266 -	286	1.68E+01	17.26	3.51E+01	9.74E+00
m	4	514.04	505 -	517	1.59E+01	16.64	1.30E+01	5.93E+00
	5	541.66	537 -	547	2.32E+01	14.65	1.56E+01	9.08E+00
	6	927.41	924 -	931	6.00E+00	8.49	8.00E+00	5.70E+00

Analysis Report for 1707082-02

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Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
7	984.14	981 -	986	4.58E+00	5.74	2.83E+00	3.15E+00
8	1035.30	1032 -	1038	8.50E+00	7.23	3.00E+00	3.51E+00
9	1205.28	1201 -	1208	7.45E+00	8.72	7.09E+00	5.59E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/15/2017 2:00:46PM

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	191.94	190 -	194	192.21	1.87E+01	19.04	6.27E+01	.....
M	2	270.72	266 -	286	270.95	2.52E+01	17.38	5.39E+01	.....
m	3	276.94	266 -	286	277.17	1.68E+01	17.26	3.51E+01	CM-243 NP-239
m	4	514.04	505 -	517	514.19	1.59E+01	16.64	1.30E+01	KR-85 SR-85
	5	541.66	537 -	547	541.81	2.32E+01	14.65	1.56E+01	.....
	6	927.41	924 -	931	927.43	6.00E+00	8.49	8.00E+00	.....
	7	984.14	981 -	986	984.13	4.58E+00	5.74	2.83E+00	V-48
	8	1035.30	1032 -	1038	1035.28	8.50E+00	7.23	3.00E+00	.....
	9	1205.28	1201 -	1208	1205.20	7.45E+00	8.72	7.09E+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 1707082-02

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PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/15/2017 2:00:46PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	191.94	1.87E+01	19.04	1.91E-02	1.52E-03
M	2	270.72	2.52E+01	17.38	1.45E-02	1.21E-03
m	3	276.94	1.68E+01	17.26	1.42E-02	1.19E-03
m	4	514.04	1.59E+01	16.64	8.21E-03	7.90E-04
	5	541.66	2.32E+01	14.65	7.83E-03	7.54E-04
	6	927.41	6.00E+00	8.49	4.85E-03	3.81E-04
	7	984.14	4.58E+00	5.74	4.60E-03	3.72E-04
	8	1035.30	8.50E+00	7.23	4.40E-03	3.64E-04
	9	1205.28	7.45E+00	8.72	3.87E-03	3.32E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/15/2017 2:00:46PM

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	191.94	1.87E+01	19.04			1.87E+01	1.90E+01
M	2	270.72	2.52E+01	17.38			2.52E+01	1.74E+01
m	3	276.94	1.68E+01	17.26			1.68E+01	1.73E+01
m	4	514.04	1.59E+01	16.64			1.59E+01	1.66E+01
	5	541.66	2.32E+01	14.65			2.32E+01	1.47E+01
	6	927.41	6.00E+00	8.49			6.00E+00	8.49E+00
	7	984.14	4.58E+00	5.74			4.58E+00	5.74E+00
	8	1035.30	8.50E+00	7.23			8.50E+00	7.23E+00
	9	1205.28	7.45E+00	8.72			7.45E+00	8.72E+00

Analysis Report for 1707082-02
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M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet
Errors quoted at 2.000sigma

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/15/2017 2:00:46PM

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	191.94	1.87E+01	19.04			1.87E+01	1.90E+01
M	2	270.72	2.52E+01	17.38			2.52E+01	1.74E+01
m	3	276.94	1.68E+01	17.26			1.68E+01	1.73E+01
m	4	514.04	1.59E+01	16.64			1.59E+01	1.66E+01
	5	541.66	2.32E+01	14.65			2.32E+01	1.47E+01
	6	927.41	6.00E+00	8.49			6.00E+00	8.49E+00
	7	984.14	4.58E+00	5.74			4.58E+00	5.74E+00
	8	1035.30	8.50E+00	7.23			8.50E+00	7.23E+00
	9	1205.28	7.45E+00	8.72			7.45E+00	8.72E+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 1707082-02

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Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
KR-85	1.000	513.99	*	0.43	4.27E+00	4.50E+00
SR-85	1.000	513.99	*	99.27	1.87E-02	1.97E-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 : 8/15/2017 2:00:46PM
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	191.94	5.18333E-03	51.02		
M	2	270.72	7.00457E-03	34.46		
m	3	276.94	4.67545E-03	51.28	Tol.	NP-239 CM-243
	5	541.66	6.44713E-03	31.57		
	6	927.41	1.66667E-03	70.71		
	7	984.14	1.27315E-03	62.67	Tol.	V-48
	8	1035.30	2.36111E-03	42.52		
	9	1205.28	2.07071E-03	58.47		

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 1707082-02

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NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
KR-85	1.00	513.99	*	0.43	4.27E+00	4.50E+00
SR-85	1.00	513.99	*	99.27	1.87E-02	1.97E-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
?	KR-85	1.000	4.27E+00	4.50E+00	
?	SR-85	1.000	1.87E-02	1.97E-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 1707082-02

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UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 2:00:46PM
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	191.94	5.18333E-03	51.02		
M	2	270.72	7.00457E-03	34.46		
m	3	276.94	4.67545E-03	51.28	Tol.	NP-239 CM-243
	5	541.66	6.44713E-03	31.57		
	6	927.41	1.66667E-03	70.71		
	7	984.14	1.27315E-03	62.67	Tol.	V-48
	8	1035.30	2.36111E-03	42.52		
	9	1205.28	2.07071E-03	58.47		

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59	10.42	2.37E-02	2.36E-01	2.36E-01
+	NA-22	1274.54	99.94	-1.30E-02	2.41E-02	2.41E-02
+	NA-24	1368.53	99.99	1.38E-02	1.70E-02	4.73E-02
		2754.09	99.86	0.00E+00		1.70E-02
+	AL-26	1808.65	99.76	0.00E+00	9.24E-03	9.24E-03
+	K-40	1460.81	10.67	-1.36E-02	3.26E-01	3.26E-01
+	AR-41	1293.64	99.16	2.94E-01	7.53E-01	7.53E-01
+	TI-44	67.88	94.40	-6.57E-03	1.93E-02	2.25E-02

Analysis Report for 1707082-02

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TI-44	78.34		96.00	5.06E-03	1.93E-02	1.93E-02
+	SC-46	889.25		99.98	1.40E-02	3.29E-02	3.72E-02
		1120.51		99.99	-3.50E-03		3.29E-02
+	V-48	983.52		99.98	3.92E-03	3.17E-02	3.17E-02
		1312.10		97.50	1.10E-02		3.32E-02
+	CR-51	320.08		9.83	3.01E-02	2.34E-01	2.34E-01
+	MN-54	834.83		99.97	-5.41E-03	2.86E-02	2.86E-02
+	CO-56	846.75		99.96	1.65E-02	3.90E-02	3.90E-02
		1037.75		14.03	1.04E-02		2.71E-01
		1238.25		67.00	-1.52E-02		4.08E-02
		1771.40		15.51	3.25E-02		2.61E-01
		2598.48		16.90	5.07E-02		2.35E-01
+	CO-57	122.06		85.51	1.09E-02	1.80E-02	1.80E-02
		136.48		10.60	-1.24E-02		1.36E-01
+	CO-58	810.76		99.40	-1.60E-03	3.09E-02	3.09E-02
+	FE-59	1099.22		56.50	-1.02E-02	4.89E-02	4.89E-02
		1291.56		43.20	2.74E-02		9.68E-02
+	CO-60	1173.22		100.00	1.82E-02	3.23E-02	4.39E-02
		1332.49		100.00	-1.11E-02		3.23E-02
+	ZN-65	1115.52		50.75	-1.42E-02	6.00E-02	6.00E-02
+	GA-67	93.31		35.70	9.90E-02	6.73E-02	6.73E-02
		208.95		2.24	-2.82E-01		8.84E-01
		300.22		16.00	2.15E-02		1.48E-01
+	SE-75	121.11		16.70	1.06E-02	2.41E-02	9.08E-02
		136.00		59.20	-4.01E-03		2.41E-02
		264.65		59.80	2.47E-03		3.68E-02
		279.53		25.20	2.14E-02		9.15E-02
		400.65		11.40	4.13E-02		2.09E-01
+	RB-82	776.52		13.00	6.50E-02	2.29E-01	2.29E-01
+	RB-83	520.41		46.00	2.57E-03	5.18E-02	5.18E-02
		529.64		30.30	2.98E-02		8.91E-02
		552.65		16.40	-1.25E-02		1.87E-01
+	KR-85	513.99	*	0.43	4.27E+00	7.54E+00	7.54E+00
+	SR-85	513.99	*	99.27	1.87E-02	3.31E-02	3.31E-02
+	Y-88	898.02		93.40	3.51E-03	2.55E-02	2.70E-02
		1836.01		99.38	-1.74E-03		2.55E-02
+	MO-93	263.06		56.72	3.69E-04	3.05E-02	3.81E-02
		684.67		99.68	2.27E-03		3.05E-02
		1477.11		99.08	-1.52E-02		3.17E-02
+	NB-93M	16.57		9.43	1.73E+01	4.16E+01	4.16E+01
+	NB-94	702.63		100.00	-1.17E-02	2.81E-02	2.81E-02
		871.10		100.00	2.04E-03		3.40E-02
+	NB-95	765.79		99.81	1.12E-02	3.49E-02	3.49E-02
+	NB-95M	235.69		25.00	-6.88E-03	9.08E-02	9.08E-02
+	ZR-95	724.18		43.70	1.88E-02	4.76E-02	7.99E-02
		756.72		55.30	-3.00E-03		4.76E-02
+	MO-99	181.06		6.20	7.60E-02	3.10E-01	3.10E-01
		739.58		12.80	1.57E-01		3.50E-01

Analysis Report for 1707082-02

BLANK

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	MO-99	778.00	4.50	1.28E-01	3.10E-01	7.69E-01
+	RU-103	497.08	89.00	2.36E-03	3.20E-02	3.20E-02
+	RU-106	621.84	9.80	-1.71E-01	2.85E-01	2.85E-01
+	AG-108M	433.93	89.90	-2.93E-03	2.84E-02	2.84E-02
		614.37	90.40	1.97E-02		4.08E-02
		722.95	90.50	1.75E-03		3.84E-02
+	CD-109	88.03	3.72	-1.70E-01	4.30E-01	4.30E-01
+	AG-110M	657.75	93.14	-7.83E-04	3.52E-02	3.52E-02
		677.61	10.53	2.30E-02		2.77E-01
		706.67	16.46	1.42E-02		1.78E-01
		763.93	21.98	3.41E-02		1.57E-01
		884.67	71.63	-5.97E-03		4.21E-02
		1384.27	23.94	-4.64E-02		1.25E-01
+	CD-113M	263.70	0.02	-8.86E+00	9.43E+01	9.43E+01
+	SN-113	255.12	1.93	-1.50E-01	3.85E-02	1.08E+00
		391.69	64.90	1.19E-02		3.85E-02
+	TE123M	159.00	84.10	-2.46E-03	1.77E-02	1.77E-02
+	SB-124	602.71	97.87	-3.82E-03	3.46E-02	3.46E-02
		645.85	7.26	3.17E-02		4.11E-01
		722.78	11.10	1.43E-02		3.14E-01
		1691.02	49.00	1.66E-02		7.98E-02
+	I-125	35.49	6.49	2.02E-01	9.71E-01	9.71E-01
+	SB-125	176.33	6.89	-2.97E-03	7.75E-02	2.34E-01
		427.89	29.33	-1.44E-02		7.75E-02
		463.38	10.35	-1.50E-02		2.57E-01
		600.56	17.80	9.99E-02		1.99E-01
		635.90	11.32	7.77E-02		2.51E-01
+	SB-126	414.70	83.30	-7.91E-04	2.73E-02	3.11E-02
		666.33	99.60	-2.30E-02		2.73E-02
		695.00	99.60	-4.11E-03		3.34E-02
		720.50	53.80	-9.18E-03		6.20E-02
+	SN-126	87.57	37.00	-1.71E-02	4.33E-02	4.33E-02
+	SB-127	473.00	25.00	4.77E-02	9.03E-02	1.08E-01
		685.20	35.70	6.74E-03		9.03E-02
		783.80	14.70	-2.87E-02		2.31E-01
+	I-129	29.78	57.00	-3.59E-02	2.05E-01	2.05E-01
		33.60	13.20	7.87E-02		5.71E-01
		39.58	7.52	2.84E-02		5.95E-01
+	I-131	284.30	6.05	-3.28E-02	2.96E-02	2.87E-01
		364.48	81.20	5.87E-03		2.96E-02
		636.97	7.26	3.76E-02		3.78E-01
		722.89	1.80	9.06E-02		1.98E+00
+	TE-132	49.72	13.10	-1.73E-01	2.57E-02	2.44E-01
		228.16	88.00	1.22E-02		2.57E-02
+	BA-133	81.00	33.00	-1.67E-02	4.00E-02	5.12E-02
		302.84	17.80	7.75E-03		1.30E-01
		356.01	60.00	-1.43E-02		4.00E-02
+	I-133	529.87	86.30	1.35E-02	4.04E-02	4.04E-02

Analysis Report for 1707082-02

BLANK

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	XE-133	81.00	38.00	-1.52E-02	4.64E-02	4.64E-02
+	CS-134	563.23	8.38	-1.31E-02	3.60E-02	3.48E-01
		569.32	15.43	-4.56E-02		1.56E-01
		604.70	97.60	8.84E-03		3.60E-02
		795.84	85.40	2.48E-03		3.67E-02
		801.93	8.73	-5.70E-03		4.01E-01
+	CS-135	268.24	16.00	9.25E-02	1.54E-01	1.54E-01
+	I-135	1131.51	22.50	5.89E-02	1.88E-01	3.32E-01
		1260.41	28.60	-6.59E-02		1.88E-01
		1678.03	9.54	-1.91E-01		7.08E-01
+	CS-136	153.22	7.46	-4.93E-03	2.87E-02	2.04E-01
		163.89	4.61	9.38E-02		3.55E-01
		176.55	13.56	-1.54E-03		1.21E-01
		273.65	12.66	-3.60E-03		1.94E-01
		340.57	48.50	1.63E-02		5.25E-02
		818.50	99.70	-1.47E-03		2.87E-02
		1048.07	79.60	4.21E-03		4.89E-02
		1235.34	19.70	-2.61E-02		1.57E-01
+	CS-137	661.65	85.12	5.34E-03	3.57E-02	3.57E-02
+	LA-138	788.74	34.00	2.27E-03	3.18E-02	8.78E-02
		1435.80	66.00	-1.08E-02		3.18E-02
+	CE-139	165.85	80.35	-4.78E-03	1.95E-02	1.95E-02
+	BA-140	162.64	6.70	5.07E-02	1.03E-01	2.36E-01
		304.84	4.50	-2.41E-01		5.13E-01
		423.70	3.20	8.04E-02		8.24E-01
		437.55	2.00	-5.14E-02		1.38E+00
		537.32	25.00	-6.18E-03		1.03E-01
+	LA-140	328.77	20.50	1.59E-02	3.97E-02	1.30E-01
		487.03	45.50	-8.88E-03		5.00E-02
		815.85	23.50	-1.15E-02		1.27E-01
		1596.49	95.49	-1.65E-03		3.97E-02
+	CE-141	145.44	48.40	-1.38E-02	2.93E-02	2.93E-02
+	CE-143	57.36	11.80	1.04E-01	5.67E-02	2.56E-01
		293.26	42.00	1.60E-03		5.67E-02
		664.55	5.20	-1.59E-01		6.49E-01
+	CE-144	133.54	10.80	6.85E-02	1.46E-01	1.46E-01
+	PM-144	476.78	42.00	1.29E-02	3.14E-02	5.97E-02
		618.01	98.60	-7.77E-04		3.14E-02
		696.49	99.49	7.72E-04		3.46E-02
+	PM-145	36.85	21.70	5.10E-03	1.29E-01	2.52E-01
		37.36	39.70	-4.08E-02		1.29E-01
		42.30	15.10	-5.05E-02		2.51E-01
		72.40	2.31	-5.01E-01		7.87E-01
+	PM-146	453.90	39.94	-5.73E-02	6.66E-02	6.66E-02
		735.90	14.01	-2.73E-03		2.65E-01
		747.13	13.10	-6.65E-02		2.08E-01
+	ND-147	91.11	28.90	2.34E-02	7.13E-02	7.13E-02
		531.02	13.10	1.40E-01		2.20E-01
+	PM-149	285.90	3.10	8.08E-02	6.86E-01	6.86E-01

Analysis Report for 1707082-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	EU-152	121.78	20.50	4.54E-02	7.50E-02	7.50E-02
		244.69	5.40	-1.81E-01		3.85E-01
		344.27	19.13	-2.86E-03		1.29E-01
		778.89	9.20	2.01E-02		3.34E-01
		964.01	10.40	4.92E-02		3.83E-01
		1085.78	7.22	-1.35E-02		4.71E-01
		1112.02	9.60	2.41E-02		3.16E-01
		1407.95	14.94	7.34E-02		2.47E-01
+	GD-153	97.43	31.30	1.38E-03	5.04E-02	5.04E-02
		103.18	22.20	-4.57E-02		5.21E-02
+	EU-154	123.07	40.50	1.28E-02	3.57E-02	3.57E-02
		723.30	19.70	8.06E-03		1.76E-01
		873.19	11.50	1.90E-02		2.72E-01
		996.32	10.30	-1.46E-01		3.24E-01
		1004.76	17.90	-9.18E-02		1.42E-01
		1274.45	35.50	-3.65E-02		6.78E-02
+	EU-155	86.50	30.90	-1.08E-03	5.21E-02	5.21E-02
		105.30	20.70	7.31E-03		6.44E-02
+	EU-156	811.77	10.40	-4.72E-02	2.72E-01	2.72E-01
		1153.47	7.20	-2.90E-01		4.04E-01
		1230.71	8.90	-4.31E-02		4.31E-01
+	HO-166M	184.41	72.60	1.50E-02	2.79E-02	2.79E-02
		280.45	29.60	6.41E-03		7.22E-02
		410.94	11.10	6.64E-02		2.31E-01
		711.69	54.10	-8.68E-03		5.25E-02
+	TM-171	66.72	0.14	2.87E-01	1.66E+01	1.66E+01
+	HF-172	67.35	5.31	-1.17E-01	1.12E-01	4.03E-01
		125.81	11.30	-7.20E-02		1.12E-01
+	LU-172	181.53	20.60	-4.49E-02	5.99E-02	8.75E-02
		900.72	29.81	-2.67E-02		8.03E-02
		1093.66	62.50	2.36E-02		5.99E-02
+	LU-173	100.72	5.24	-2.76E-02	1.07E-01	2.50E-01
		272.11	21.20	-3.74E-02		1.07E-01
+	HF-175	343.40	84.00	-6.52E-04	2.93E-02	2.93E-02
+	LU-176	88.34	13.30	-2.22E-01	2.07E-02	1.19E-01
		201.83	86.00	-6.11E-04		2.07E-02
		306.78	94.00	1.43E-02		2.57E-02
+	HF-181	133.02	41.70	-1.50E-03	3.00E-02	3.67E-02
		345.85	17.20	-6.86E-02		1.41E-01
		482.03	82.80	5.87E-03		3.00E-02
+	TA-182	67.75	41.20	-1.51E-02	5.18E-02	5.18E-02
		1121.30	34.90	1.72E-02		1.00E-01
		1189.05	16.23	3.40E-02		1.81E-01
		1221.41	26.98	4.65E-03		1.12E-01
		1231.02	11.44	-3.31E-02		3.31E-01
+	IR-192	308.46	29.68	-1.67E-02	5.49E-02	7.55E-02
		468.07	48.10	-7.52E-03		5.49E-02
+	HG-203	279.19	77.30	1.17E-02	3.02E-02	3.02E-02
+	TL-204	374.74	94.11	4.20E-03	2.09E-02	2.59E-02

Analysis Report for 1707082-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TL-204	899.15	99.16	-1.29E-02	2.09E-02	2.09E-02
		911.74	91.10	5.83E-03		3.88E-02
+	BI-207	569.67	97.72	1.51E-04	2.55E-02	2.55E-02
		1063.62	74.90	0.00E+00		3.90E-02
+	TL-208	583.14	30.22	9.41E-04	1.08E-01	1.08E-01
		860.37	4.48	6.20E-02		7.78E-01
		2614.66	35.85	1.19E-02		1.43E-01
+	BI-210M	262.00	45.00	1.20E-02	5.03E-02	5.03E-02
		300.00	23.00	1.39E-02		9.61E-02
+	PB-210	46.50	4.25	5.27E-01	8.61E-01	8.61E-01
+	PB-211	404.84	2.90	-2.47E-01	7.63E-01	7.63E-01
		831.96	2.90	-3.77E-01		8.74E-01
+	BI-212	727.17	11.80	-8.01E-02	2.72E-01	2.72E-01
		1620.62	2.75	3.42E-01		1.50E+00
+	PB-212	238.63	44.60	2.07E-02	5.24E-02	5.24E-02
		300.09	3.41	9.41E-02		6.48E-01
+	BI-214	609.31	46.30	-3.93E-02	7.06E-02	7.06E-02
		1120.29	15.10	-2.31E-02		2.17E-01
		1764.49	15.80	1.41E-02		2.28E-01
		2204.22	4.98	2.34E-01		8.41E-01
+	PB-214	295.21	19.19	-2.13E-02	7.42E-02	1.05E-01
		351.92	37.19	1.65E-02		7.42E-02
+	RN-219	401.80	6.50	1.22E-01	3.67E-01	3.67E-01
+	RA-223	323.87	3.88	-2.12E-01	5.85E-01	5.85E-01
+	RA-224	240.98	3.95	3.82E-01	6.14E-01	6.14E-01
+	RA-225	40.00	31.00	6.83E-03	1.43E-01	1.43E-01
+	RA-226	186.21	3.28	5.42E-01	6.46E-01	6.46E-01
+	TH-227	50.10	8.40	-2.50E-01	1.86E-01	3.52E-01
		236.00	11.50	-1.41E-02		1.86E-01
		256.20	6.30	3.65E-02		3.43E-01
+	AC-228	338.32	11.40	7.23E-02	1.41E-01	2.18E-01
		911.07	27.70	6.38E-02		1.41E-01
		969.11	16.60	1.24E-02		1.96E-01
+	TH-230	48.44	16.90	1.12E-01	2.01E-01	2.01E-01
		62.85	4.60	2.73E-01		5.77E-01
		67.67	0.37	-1.68E+00		5.76E+00
+	PA-231	283.67	1.60	-9.15E-01	1.00E+00	1.05E+00
		302.67	2.30	6.00E-02		1.00E+00
+	TH-231	25.64	14.70	-4.23E-02	2.57E-01	1.57E+00
		84.21	6.40	4.70E-02		2.57E-01
+	PA-233	311.98	38.60	5.96E-03	5.90E-02	5.90E-02
+	PA-234	131.20	20.40	2.42E-02	7.70E-02	7.70E-02
		733.99	8.80	1.08E-01		4.20E-01
		946.00	12.00	-4.19E-02		2.92E-01
+	PA-234M	1001.03	0.92	1.10E+00	4.17E+00	4.17E+00
+	TH-234	63.29	3.80	7.13E-01	7.02E-01	7.02E-01
+	U-235	143.76	10.50	5.16E-02	1.45E-01	1.45E-01
		163.35	4.70	9.02E-02		3.42E-01

Analysis Report for 1707082-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	U-235	205.31	4.70	6.95E-02	1.45E-01	4.38E-01
+	NP-237	86.50	12.60	-2.65E-03	1.28E-01	1.28E-01
+	NP-239	106.10	22.70	7.34E-03	6.47E-02	6.47E-02
		228.18	10.70	1.03E-01		2.17E-01
		277.60	14.10	1.73E-01		1.89E-01
+	AM-241	59.54	35.90	-2.92E-02	7.03E-02	7.03E-02
+	AM-243	74.67	66.00	1.66E-02	3.03E-02	3.03E-02
+	CM-243	209.75	3.29	-3.52E-01	1.73E-01	5.23E-01
		228.14	10.60	9.42E-02		1.99E-01
		277.60	14.00	1.58E-01		1.73E-01

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

NUCLIDE MDA REPORT

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

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	2.36E-01	2.36E-01	2.37E-02	1.04E-01
NA-22	1274.54	99.94	2.41E-02	2.41E-02	-1.30E-02	8.54E-03
NA-24	1368.53	99.99	4.73E-02	1.70E-02	1.38E-02	1.83E-02
	2754.09	99.86	1.70E-02		0.00E+00	0.00E+00
AL-26	1808.65	99.76	9.24E-03	9.24E-03	0.00E+00	0.00E+00
K-40	1460.81	10.67	3.26E-01	3.26E-01	-1.36E-02	1.26E-01
AR-41	1293.64	99.16	7.53E-01	7.53E-01	2.94E-01	3.09E-01
TI-44	67.88	94.40	2.25E-02	1.93E-02	-6.57E-03	1.07E-02
	78.34	96.00	1.93E-02		5.06E-03	9.16E-03
SC-46	889.25	99.98	3.72E-02	3.29E-02	1.40E-02	1.60E-02
	1120.51	99.99	3.29E-02		-3.50E-03	1.33E-02
V-48	983.52	99.98	3.17E-02	3.17E-02	3.92E-03	1.30E-02
	1312.10	97.50	3.32E-02		1.10E-02	1.29E-02

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CR-51	320.08		9.83	2.34E-01	2.34E-01	3.01E-02	1.06E-01
	MN-54	834.83		99.97	2.86E-02	2.86E-02	-5.41E-03	1.19E-02
	CO-56	846.75		99.96	3.90E-02	3.90E-02	1.65E-02	1.70E-02
		1037.75		14.03	2.71E-01		1.04E-02	1.15E-01
		1238.25		67.00	4.08E-02		-1.52E-02	1.53E-02
		1771.40		15.51	2.61E-01		3.25E-02	1.01E-01
		2598.48		16.90	2.35E-01		5.07E-02	8.33E-02
	CO-57	122.06		85.51	1.80E-02	1.80E-02	1.09E-02	8.41E-03
		136.48		10.60	1.36E-01		-1.24E-02	6.29E-02
	CO-58	810.76		99.40	3.09E-02	3.09E-02	-1.60E-03	1.30E-02
	FE-59	1099.22		56.50	4.89E-02	4.89E-02	-1.02E-02	1.90E-02
		1291.56		43.20	9.68E-02		2.74E-02	4.01E-02
	CO-60	1173.22		100.00	4.39E-02	3.23E-02	1.82E-02	1.87E-02
		1332.49		100.00	3.23E-02		-1.11E-02	1.25E-02
	ZN-65	1115.52		50.75	6.00E-02	6.00E-02	-1.42E-02	2.38E-02
	GA-67	93.31		35.70	6.73E-02	6.73E-02	9.90E-02	3.22E-02
		208.95		2.24	8.84E-01		-2.82E-01	4.07E-01
		300.22		16.00	1.48E-01		2.15E-02	6.75E-02
	SE-75	121.11		16.70	9.08E-02	2.41E-02	1.06E-02	4.23E-02
		136.00		59.20	2.41E-02		-4.01E-03	1.11E-02
		264.65		59.80	3.68E-02		2.47E-03	1.69E-02
		279.53		25.20	9.15E-02		2.14E-02	4.21E-02
		400.65		11.40	2.09E-01		4.13E-02	9.34E-02
	RB-82	776.52		13.00	2.29E-01	2.29E-01	6.50E-02	9.65E-02
	RB-83	520.41		46.00	5.18E-02	5.18E-02	2.57E-03	2.24E-02
		529.64		30.30	8.91E-02		2.98E-02	3.92E-02
		552.65		16.40	1.87E-01		-1.25E-02	8.31E-02
+	KR-85	513.99	*	0.43	7.54E+00	7.54E+00	4.27E+00	3.41E+00
+	SR-85	513.99	*	99.27	3.31E-02	3.31E-02	1.87E-02	1.49E-02
	Y-88	898.02		93.40	2.70E-02	2.55E-02	3.51E-03	1.07E-02
		1836.01		99.38	2.55E-02		-1.74E-03	8.07E-03
	MO-93	263.06		56.72	3.81E-02	3.05E-02	3.69E-04	1.75E-02
		684.67		99.68	3.05E-02		2.27E-03	1.32E-02
		1477.11		99.08	3.17E-02		-1.52E-02	1.19E-02
	NB-93M	16.57		9.43	4.16E+01	4.16E+01	1.73E+01	2.01E+01
	NB-94	702.63		100.00	2.81E-02	2.81E-02	-1.17E-02	1.19E-02
		871.10		100.00	3.40E-02		2.04E-03	1.44E-02
	NB-95	765.79		99.81	3.49E-02	3.49E-02	1.12E-02	1.52E-02
	NB-95M	235.69		25.00	9.08E-02	9.08E-02	-6.88E-03	4.20E-02
	ZR-95	724.18		43.70	7.99E-02	4.76E-02	1.88E-02	3.50E-02
		756.72		55.30	4.76E-02		-3.00E-03	1.97E-02
	MO-99	181.06		6.20	3.10E-01	3.10E-01	7.60E-02	1.43E-01
		739.58		12.80	3.50E-01		1.57E-01	1.56E-01
		778.00		4.50	7.69E-01		1.28E-01	3.29E-01
	RU-103	497.08		89.00	3.20E-02	3.20E-02	2.36E-03	1.43E-02
	RU-106	621.84		9.80	2.85E-01	2.85E-01	-1.71E-01	1.23E-01
	AG-108M	433.93		89.90	2.84E-02	2.84E-02	-2.93E-03	1.27E-02
		614.37		90.40	4.08E-02		1.97E-02	1.83E-02
		722.95		90.50	3.84E-02		1.75E-03	1.68E-02
	CD-109	88.03		3.72	4.30E-01	4.30E-01	-1.70E-01	2.02E-01
	AG-110M	657.75		93.14	3.52E-02	3.52E-02	-7.83E-04	1.55E-02
		677.61		10.53	2.77E-01		2.30E-02	1.19E-01
		706.67		16.46	1.78E-01		1.42E-02	7.62E-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
AG-110M	763.93	21.98	1.57E-01	3.52E-02	3.41E-02	6.84E-02
	884.67	71.63	4.21E-02		-5.97E-03	1.74E-02
	1384.27	23.94	1.25E-01		-4.64E-02	4.67E-02
CD-113M	263.70	0.02	9.43E+01	9.43E+01	-8.86E+00	4.33E+01
SN-113	255.12	1.93	1.08E+00	3.85E-02	-1.50E-01	4.97E-01
	391.69	64.90	3.85E-02		1.19E-02	1.74E-02
TE123M	159.00	84.10	1.77E-02	1.77E-02	-2.46E-03	8.16E-03
SB-124	602.71	97.87	3.46E-02	3.46E-02	-3.82E-03	1.54E-02
	645.85	7.26	4.11E-01		3.17E-02	1.79E-01
	722.78	11.10	3.14E-01		1.43E-02	1.38E-01
	1691.02	49.00	7.98E-02		1.66E-02	3.09E-02
I-125	35.49	6.49	9.71E-01	9.71E-01	2.02E-01	4.65E-01
SB-125	176.33	6.89	2.34E-01	7.75E-02	-2.97E-03	1.08E-01
	427.89	29.33	7.75E-02		-1.44E-02	3.42E-02
	463.38	10.35	2.57E-01		-1.50E-02	1.15E-01
	600.56	17.80	1.99E-01		9.99E-02	8.95E-02
	635.90	11.32	2.51E-01		7.77E-02	1.09E-01
SB-126	414.70	83.30	3.11E-02	2.73E-02	-7.91E-04	1.39E-02
	666.33	99.60	2.73E-02		-2.30E-02	1.16E-02
	695.00	99.60	3.34E-02		-4.11E-03	1.46E-02
	720.50	53.80	6.20E-02		-9.18E-03	2.70E-02
SN-126	87.57	37.00	4.33E-02	4.33E-02	-1.71E-02	2.03E-02
SB-127	473.00	25.00	1.08E-01	9.03E-02	4.77E-02	4.78E-02
	685.20	35.70	9.03E-02		6.74E-03	3.91E-02
	783.80	14.70	2.31E-01		-2.87E-02	9.91E-02
I-129	29.78	57.00	2.05E-01	2.05E-01	-3.59E-02	9.85E-02
	33.60	13.20	5.71E-01		7.87E-02	2.74E-01
	39.58	7.52	5.95E-01		2.84E-02	2.84E-01
I-131	284.30	6.05	2.87E-01	2.96E-02	-3.28E-02	1.28E-01
	364.48	81.20	2.96E-02		5.87E-03	1.34E-02
	636.97	7.26	3.78E-01		3.76E-02	1.62E-01
	722.89	1.80	1.98E+00		9.06E-02	8.69E-01
TE-132	49.72	13.10	2.44E-01	2.57E-02	-1.73E-01	1.17E-01
	228.16	88.00	2.57E-02		1.22E-02	1.19E-02
BA-133	81.00	33.00	5.12E-02	4.00E-02	-1.67E-02	2.41E-02
	302.84	17.80	1.30E-01		7.75E-03	5.94E-02
	356.01	60.00	4.00E-02		-1.43E-02	1.81E-02
I-133	529.87	86.30	4.04E-02	4.04E-02	1.35E-02	1.78E-02
XE-133	81.00	38.00	4.64E-02	4.64E-02	-1.52E-02	2.19E-02
CS-134	563.23	8.38	3.48E-01	3.60E-02	-1.31E-02	1.53E-01
	569.32	15.43	1.56E-01		-4.56E-02	6.69E-02
	604.70	97.60	3.60E-02		8.84E-03	1.61E-02
	795.84	85.40	3.67E-02		2.48E-03	1.56E-02
	801.93	8.73	4.01E-01		-5.70E-03	1.74E-01
CS-135	268.24	16.00	1.54E-01	1.54E-01	9.25E-02	7.13E-02
I-135	1131.51	22.50	3.32E-01	1.88E-01	5.89E-02	1.34E-01
	1260.41	28.60	1.88E-01		-6.59E-02	6.67E-02
	1678.03	9.54	7.08E-01		-1.91E-01	2.51E-01
CS-136	153.22	7.46	2.04E-01	2.87E-02	-4.93E-03	9.42E-02
	163.89	4.61	3.55E-01		9.38E-02	1.64E-01
	176.55	13.56	1.21E-01		-1.54E-03	5.58E-02
	273.65	12.66	1.94E-01		-3.60E-03	8.98E-02
	340.57	48.50	5.25E-02		1.63E-02	2.39E-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-136	818.50	99.70	2.87E-02	2.87E-02	-1.47E-03	1.19E-02
	1048.07	79.60	4.89E-02		4.21E-03	2.07E-02
	1235.34	19.70	1.57E-01		-2.61E-02	6.07E-02
CS-137	661.65	85.12	3.57E-02	3.57E-02	5.34E-03	1.55E-02
LA-138	788.74	34.00	8.78E-02	3.18E-02	2.27E-03	3.71E-02
	1435.80	66.00	3.18E-02		-1.08E-02	1.01E-02
CE-139	165.85	80.35	1.95E-02	1.95E-02	-4.78E-03	8.97E-03
BA-140	162.64	6.70	2.36E-01	1.03E-01	5.07E-02	1.09E-01
	304.84	4.50	5.13E-01		-2.41E-01	2.34E-01
	423.70	3.20	8.24E-01		8.04E-02	3.70E-01
	437.55	2.00	1.38E+00		-5.14E-02	6.21E-01
	537.32	25.00	1.03E-01		-6.18E-03	4.46E-02
LA-140	328.77	20.50	1.30E-01	3.97E-02	1.59E-02	5.99E-02
	487.03	45.50	5.00E-02		-8.88E-03	2.16E-02
	815.85	23.50	1.27E-01		-1.15E-02	5.34E-02
	1596.49	95.49	3.97E-02		-1.65E-03	1.54E-02
CE-141	145.44	48.40	2.93E-02	2.93E-02	-1.38E-02	1.35E-02
CE-143	57.36	11.80	2.56E-01	5.67E-02	1.04E-01	1.22E-01
	293.26	42.00	5.67E-02		1.60E-03	2.57E-02
	664.55	5.20	6.49E-01		-1.59E-01	2.79E-01
CE-144	133.54	10.80	1.46E-01	1.46E-01	6.85E-02	6.79E-02
PM-144	476.78	42.00	5.97E-02	3.14E-02	1.29E-02	2.63E-02
	618.01	98.60	3.14E-02		-7.77E-04	1.38E-02
	696.49	99.49	3.46E-02		7.72E-04	1.52E-02
PM-145	36.85	21.70	2.52E-01	1.29E-01	5.10E-03	1.20E-01
	37.36	39.70	1.29E-01		-4.08E-02	6.17E-02
	42.30	15.10	2.51E-01		-5.05E-02	1.20E-01
	72.40	2.31	7.87E-01		-5.01E-01	3.72E-01
PM-146	453.90	39.94	6.66E-02	6.66E-02	-5.73E-02	2.98E-02
	735.90	14.01	2.65E-01		-2.73E-03	1.17E-01
	747.13	13.10	2.08E-01		-6.65E-02	8.71E-02
ND-147	91.11	28.90	7.13E-02	7.13E-02	2.34E-02	3.40E-02
	531.02	13.10	2.20E-01		1.40E-01	9.74E-02
PM-149	285.90	3.10	6.86E-01	6.86E-01	8.08E-02	3.10E-01
EU-152	121.78	20.50	7.50E-02	7.50E-02	4.54E-02	3.50E-02
	244.69	5.40	3.85E-01		-1.81E-01	1.77E-01
	344.27	19.13	1.29E-01		-2.86E-03	5.86E-02
	778.89	9.20	3.34E-01		2.01E-02	1.42E-01
	964.01	10.40	3.83E-01		4.92E-02	1.65E-01
	1085.78	7.22	4.71E-01		-1.35E-02	1.93E-01
	1112.02	9.60	3.16E-01		2.41E-02	1.25E-01
	1407.95	14.94	2.47E-01		7.34E-02	9.79E-02
GD-153	97.43	31.30	5.04E-02	5.04E-02	1.38E-03	2.37E-02
	103.18	22.20	5.21E-02		-4.57E-02	2.39E-02
EU-154	123.07	40.50	3.57E-02	3.57E-02	1.28E-02	1.66E-02
	723.30	19.70	1.76E-01		8.06E-03	7.73E-02
	873.19	11.50	2.72E-01		1.90E-02	1.14E-01
	996.32	10.30	3.24E-01		-1.46E-01	1.34E-01
	1004.76	17.90	1.42E-01		-9.18E-02	5.51E-02
	1274.45	35.50	6.78E-02		-3.65E-02	2.40E-02
EU-155	86.50	30.90	5.21E-02	5.21E-02	-1.08E-03	2.45E-02
	105.30	20.70	6.44E-02		7.31E-03	2.98E-02
EU-156	811.77	10.40	2.72E-01	2.72E-01	-4.72E-02	1.13E-01

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
EU-156	1153.47	7.20	4.04E-01	2.72E-01	-2.90E-01	1.56E-01
	1230.71	8.90	4.31E-01		-4.31E-02	1.77E-01
HO-166M	184.41	72.60	2.79E-02	2.79E-02	1.50E-02	1.30E-02
	280.45	29.60	7.22E-02		6.41E-03	3.30E-02
	410.94	11.10	2.31E-01		6.64E-02	1.04E-01
	711.69	54.10	5.25E-02		-8.68E-03	2.23E-02
TM-171	66.72	0.14	1.66E+01	1.66E+01	2.87E-01	7.93E+00
HF-172	67.35	5.31	4.03E-01	1.12E-01	-1.17E-01	1.92E-01
	125.81	11.30	1.12E-01		-7.20E-02	5.14E-02
LU-172	181.53	20.60	8.75E-02	5.99E-02	-4.49E-02	4.05E-02
	900.72	29.81	8.03E-02		-2.67E-02	3.11E-02
	1093.66	62.50	5.99E-02		2.36E-02	2.48E-02
LU-173	100.72	5.24	2.50E-01	1.07E-01	-2.76E-02	1.16E-01
	272.11	21.20	1.07E-01		-3.74E-02	4.94E-02
HF-175	343.40	84.00	2.93E-02	2.93E-02	-6.52E-04	1.34E-02
LU-176	88.34	13.30	1.19E-01	2.07E-02	-2.22E-01	5.59E-02
	201.83	86.00	2.07E-02		-6.11E-04	9.54E-03
	306.78	94.00	2.57E-02		1.43E-02	1.18E-02
HF-181	133.02	41.70	3.67E-02	3.00E-02	-1.50E-03	1.71E-02
	345.85	17.20	1.41E-01		-6.86E-02	6.39E-02
	482.03	82.80	3.00E-02		5.87E-03	1.32E-02
TA-182	67.75	41.20	5.18E-02	5.18E-02	-1.51E-02	2.47E-02
	1121.30	34.90	1.00E-01		1.72E-02	4.12E-02
	1189.05	16.23	1.81E-01		3.40E-02	7.03E-02
	1221.41	26.98	1.12E-01		4.65E-03	4.33E-02
	1231.02	11.44	3.31E-01		-3.31E-02	1.36E-01
IR-192	308.46	29.68	7.55E-02	5.49E-02	-1.67E-02	3.44E-02
	468.07	48.10	5.49E-02		-7.52E-03	2.44E-02
HG-203	279.19	77.30	3.02E-02	3.02E-02	1.17E-02	1.39E-02
TL-204	374.74	94.11	2.59E-02	2.09E-02	4.20E-03	1.17E-02
	899.15	99.16	2.09E-02		-1.29E-02	7.82E-03
	911.74	91.10	3.88E-02		5.83E-03	1.65E-02
BI-207	569.67	97.72	2.55E-02	2.55E-02	1.51E-04	1.10E-02
	1063.62	74.90	3.90E-02		0.00E+00	1.55E-02
TL-208	583.14	30.22	1.08E-01	1.08E-01	9.41E-04	4.83E-02
	860.37	4.48	7.78E-01		6.20E-02	3.33E-01
	2614.66	35.85	1.43E-01		1.19E-02	5.56E-02
BI-210M	262.00	45.00	5.03E-02	5.03E-02	1.20E-02	2.32E-02
	300.00	23.00	9.61E-02		1.39E-02	4.38E-02
PB-210	46.50	4.25	8.61E-01	8.61E-01	5.27E-01	4.13E-01
PB-211	404.84	2.90	7.63E-01	7.63E-01	-2.47E-01	3.38E-01
	831.96	2.90	8.74E-01		-3.77E-01	3.53E-01
BI-212	727.17	11.80	2.72E-01	2.72E-01	-8.01E-02	1.18E-01
	1620.62	2.75	1.50E+00		3.42E-01	5.94E-01
PB-212	238.63	44.60	5.24E-02	5.24E-02	2.07E-02	2.44E-02
	300.09	3.41	6.48E-01		9.41E-02	2.95E-01
BI-214	609.31	46.30	7.06E-02	7.06E-02	-3.93E-02	3.13E-02
	1120.29	15.10	2.17E-01		-2.31E-02	8.78E-02
	1764.49	15.80	2.28E-01		1.41E-02	8.53E-02
	2204.22	4.98	8.41E-01		2.34E-01	3.15E-01
PB-214	295.21	19.19	1.05E-01	7.42E-02	-2.13E-02	4.72E-02
	351.92	37.19	7.42E-02		1.65E-02	3.41E-02
RN-219	401.80	6.50	3.67E-01	3.67E-01	1.22E-01	1.64E-01

Analysis Report for 1707082-02

BLANK

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	5.85E-01	5.85E-01	-2.12E-01	2.66E-01
RA-224	240.98	3.95	6.14E-01	6.14E-01	3.82E-01	2.87E-01
RA-225	40.00	31.00	1.43E-01	1.43E-01	6.83E-03	6.82E-02
RA-226	186.21	3.28	6.46E-01	6.46E-01	5.42E-01	3.03E-01
TH-227	50.10	8.40	3.52E-01	1.86E-01	-2.50E-01	1.68E-01
	236.00	11.50	1.86E-01		-1.41E-02	8.59E-02
	256.20	6.30	3.43E-01		3.65E-02	1.58E-01
AC-228	338.32	11.40	2.18E-01	1.41E-01	7.23E-02	9.95E-02
	911.07	27.70	1.41E-01		6.38E-02	6.12E-02
	969.11	16.60	1.96E-01		1.24E-02	8.14E-02
TH-230	48.44	16.90	2.01E-01	2.01E-01	1.12E-01	9.61E-02
	62.85	4.60	5.77E-01		2.73E-01	2.77E-01
	67.67	0.37	5.76E+00		-1.68E+00	2.74E+00
PA-231	283.67	1.60	1.05E+00	1.00E+00	-9.15E-01	4.69E-01
	302.67	2.30	1.00E+00		6.00E-02	4.59E-01
TH-231	25.64	14.70	1.57E+00	2.57E-01	-4.23E-02	7.56E-01
	84.21	6.40	2.57E-01		4.70E-02	1.21E-01
PA-233	311.98	38.60	5.90E-02	5.90E-02	5.96E-03	2.68E-02
PA-234	131.20	20.40	7.70E-02	7.70E-02	2.42E-02	3.59E-02
	733.99	8.80	4.20E-01		1.08E-01	1.85E-01
	946.00	12.00	2.92E-01		-4.19E-02	1.23E-01
PA-234M	1001.03	0.92	4.17E+00	4.17E+00	1.10E+00	1.77E+00
TH-234	63.29	3.80	7.02E-01	7.02E-01	7.13E-01	3.37E-01
U-235	143.76	10.50	1.45E-01	1.45E-01	5.16E-02	6.72E-02
	163.35	4.70	3.42E-01		9.02E-02	1.58E-01
	205.31	4.70	4.38E-01		6.95E-02	2.04E-01
NP-237	86.50	12.60	1.28E-01	1.28E-01	-2.65E-03	6.01E-02
NP-239	106.10	22.70	6.47E-02	6.47E-02	7.34E-03	3.00E-02
	228.18	10.70	2.17E-01		1.03E-01	1.01E-01
	277.60	14.10	1.89E-01		1.73E-01	8.74E-02
AM-241	59.54	35.90	7.03E-02	7.03E-02	-2.92E-02	3.36E-02
AM-243	74.67	66.00	3.03E-02	3.03E-02	1.66E-02	1.44E-02
CM-243	209.75	3.29	5.23E-01	1.73E-01	-3.52E-01	2.40E-01
	228.14	10.60	1.99E-01		9.42E-02	9.24E-02
	277.60	14.00	1.73E-01		1.58E-01	8.01E-02

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

No Action Level results available for reporting purposes.

Analysis Report for 1707082-02

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: 3607

Channel								
1:	0	0	0	0	0	0	0	0
9:	7	232	200	160	122	95	66	58
17:	65	51	49	25	42	40	43	37
25:	46	53	38	45	45	34	33	34
33:	42	37	36	28	34	33	24	27
41:	31	31	25	27	25	32	57	41
49:	29	30	22	27	28	25	27	22
57:	29	26	41	36	25	31	42	50
65:	45	29	26	30	28	21	21	10
73:	19	31	21	31	26	25	20	23
81:	18	16	16	19	20	17	17	14
89:	17	19	15	27	59	43	23	18
97:	14	15	18	15	3	6	11	12
105:	8	10	12	12	10	12	16	13
113:	16	15	12	7	10	18	12	16
121:	12	11	13	14	7	1	10	10
129:	15	11	8	12	18	11	10	12
137:	11	6	12	6	11	13	12	9
145:	14	6	8	8	10	14	14	6
153:	12	7	9	9	8	11	10	11
161:	5	10	11	8	14	8	4	13
169:	10	13	6	10	10	2	4	13
177:	9	7	13	14	10	10	7	11
185:	8	25	19	13	5	10	6	15
193:	16	3	8	5	11	9	6	7
201:	9	6	12	12	10	12	4	3
209:	8	7	9	4	5	8	6	7
217:	9	10	14	8	8	13	7	4
225:	7	4	9	11	7	11	5	6
233:	4	8	3	7	4	12	14	12
241:	9	4	9	6	4	8	7	8
249:	11	4	5	6	7	5	6	8
257:	5	6	9	8	5	8	7	4
265:	8	4	8	6	4	8	18	6
273:	2	2	6	6	12	10	7	6
281:	4	1	5	5	5	1	1	4
289:	8	1	6	7	5	4	4	4
297:	2	4	6	6	7	4	7	7
305:	3	5	6	5	8	8	1	2
313:	7	6	3	5	3	9	5	7
321:	3	3	4	5	4	6	8	6
329:	7	7	6	4	9	4	2	4
337:	5	6	6	3	7	6	4	5
345:	1	6	6	7	4	5	9	11
353:	2	5	7	3	5	4	5	3
361:	2	0	5	3	5	5	5	5

369:	4	4	3	4	5	3	7	1

Sample Title: BLANK

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

801:	3	3	2	3	1	2	3	2

Sample Title: BLANK

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

1233:	1	1	1	1	0	0	0	1

Sample Title: BLANK

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

1665:	0	0	0	0	0	0	1	1

Sample Title: BLANK

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

2097:	0	0	0	0	0	0	1	0

Sample Title: BLANK

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

2529:	0	0	0	0	0	0	0	0

Sample Title: BLANK

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

2961:	1	0	1	0	0	0	0	0

Sample Title: BLANK

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

3393:	0	0	0	0	1	0	1	0

Sample Title: BLANK

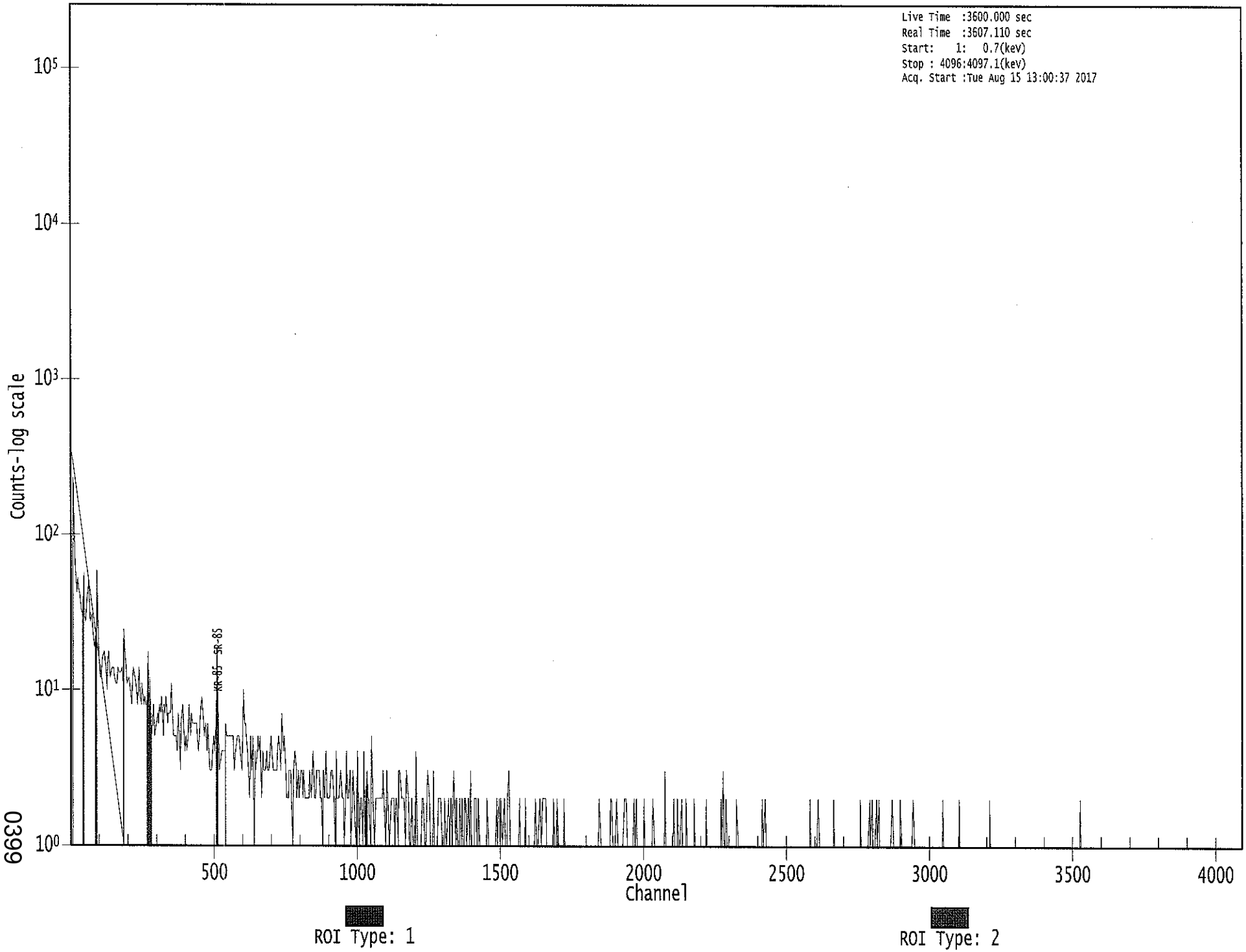
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	1	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	1	1	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	1	0	0	0
3457:	0	0	0	0	0	0	0	1
3465:	0	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	1	1	0	0	0	0	0
3489:	1	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	1	0	0	0	1	0	0

Sample Title: BLANK

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

0000055266.CNF



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Apex-Gamma

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Analysis Report for 1707082-03

HTC-A01-S005-0612-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707082-03
Sample Description	: HTC-A01-S005-0612-01
Sample Type	: SOIL
Sample Size	: 5.827E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 5:45:02AM
Acquisition Started	: 8/15/2017 5:53:25AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3602.8 seconds
Dead Time	: 0.08 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 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	: 55231

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

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Analysis Report for 1707082-03

HTC-A01-S005-0612-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/15/2017 6:53:35AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	62.62	61.67	0.0000	0.00
2	76.10	75.16	0.0000	0.00
3	84.97	84.03	0.0000	0.00
4	87.90	86.96	0.0000	0.00
5	92.66	91.73	0.0000	0.00
6	99.50	98.56	0.0000	0.00
7	185.90	185.00	0.0000	0.00
8	208.67	207.77	0.0000	0.00
9	238.87	237.98	0.0000	0.00
10	242.16	241.27	0.0000	0.00
11	269.51	268.63	0.0000	0.00
12	295.33	294.45	0.0000	0.00
13	329.57	328.70	0.0000	0.00
14	338.18	337.32	0.0000	0.00
15	351.99	351.14	0.0000	0.00
16	463.48	462.66	0.0000	0.00
17	478.31	477.51	0.0000	0.00
18	507.83	507.03	0.0000	0.00
19	511.19	510.39	0.0000	0.00
20	549.64	548.86	0.0000	0.00
21	561.94	561.17	0.0000	0.00
22	583.40	582.63	0.0000	0.00
23	609.39	608.63	0.0000	0.00
24	661.23	660.49	0.0000	0.00
25	665.67	664.93	0.0000	0.00
26	686.03	685.30	0.0000	0.00
27	705.74	705.02	0.0000	0.00
28	724.08	723.37	0.0000	0.00
29	767.99	767.30	0.0000	0.00
30	784.74	784.05	0.0000	0.00
31	798.63	797.94	0.0000	0.00
32	863.58	862.92	0.0000	0.00
33	876.85	876.20	0.0000	0.00
34	911.48	910.84	0.0000	0.00
35	934.74	934.11	0.0000	0.00
36	965.75	965.14	0.0000	0.00
37	969.61	969.00	0.0000	0.00
38	975.09	974.48	0.0000	0.00
39	980.79	980.19	0.0000	0.00
40	1009.14	1008.54	0.0000	0.00
41	1120.24	1119.69	0.0000	0.00
42	1185.61	1185.09	0.0000	0.00

Analysis Report for 1707082-03

HTC-A01-S005-0612-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1221.90	1221.40	0.0000	0.00
44	1289.96	1289.50	0.0000	0.00
45	1370.24	1369.82	0.0000	0.00
46	1383.86	1383.45	0.0000	0.00
47	1460.88	1460.50	0.0000	0.00
48	1509.88	1509.53	0.0000	0.00
49	1564.05	1563.73	0.0000	0.00
50	1608.82	1608.52	0.0000	0.00
51	1729.75	1729.52	0.0000	0.00
52	1764.75	1764.54	0.0000	0.00
53	1810.44	1810.26	0.0000	0.00
54	1846.15	1845.98	0.0000	0.00
55	2118.65	2118.64	0.0000	0.00
56	2214.19	2214.24	0.0000	0.00
57	2357.48	2357.62	0.0000	0.00
58	2376.79	2376.95	0.0000	0.00
59	2614.30	2614.62	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707082-03

HTC-A01-S005-0612-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 6:53:35AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	62.62	55 -	67	61.67	2.57E+02	174.95	3.49E+03	3.02
	2	76.10	69 -	80	75.16	1.46E+03	177.47	3.19E+03	4.06
M	3	84.97	81 -	96	84.03	1.61E+02	87.48	1.37E+03	3.20
m	4	87.90	81 -	96	86.96	3.67E+02	133.36	2.19E+03	3.33
m	5	92.66	81 -	96	91.73	4.59E+02	122.91	1.84E+03	2.99
	6	99.50	97 -	101	98.56	7.49E+01	64.88	8.58E+02	1.34
	7	185.90	181 -	189	185.00	2.89E+02	90.00	1.07E+03	2.43
	8	208.67	205 -	211	207.77	5.84E+01	66.47	7.63E+02	1.74
M	9	238.87	234 -	245	237.98	6.75E+02	83.43	6.46E+02	2.81
m	10	242.16	234 -	245	241.27	2.14E+02	83.35	6.25E+02	2.79
	11	269.51	264 -	274	268.63	1.04E+02	76.33	7.24E+02	2.64
	12	295.33	290 -	299	294.45	3.37E+02	78.02	6.82E+02	2.20
	13	329.57	325 -	332	328.70	4.40E+01	49.60	3.82E+02	4.16
	14	338.18	333 -	341	337.32	1.13E+02	59.14	4.70E+02	2.68
	15	351.99	346 -	356	351.14	5.76E+02	79.15	5.27E+02	2.56
	16	463.48	460 -	467	462.66	5.26E+01	35.27	1.73E+02	2.22
	17	478.31	474 -	481	477.51	3.11E+01	36.11	1.90E+02	3.01
M	18	507.83	503 -	513	507.03	5.82E+01	39.29	1.75E+02	2.75
m	19	511.19	503 -	513	510.39	1.00E+02	38.20	1.69E+02	2.24
	20	549.64	545 -	552	548.86	3.47E+01	29.66	1.23E+02	3.37
	21	561.94	558 -	565	561.17	3.00E+01	31.81	1.50E+02	3.68
	22	583.40	578 -	588	582.63	1.75E+02	46.79	1.99E+02	2.39
	23	609.39	605 -	615	608.63	3.70E+02	54.60	2.07E+02	2.30
M	24	661.23	657 -	667	660.49	4.63E+01	24.62	8.74E+01	2.83
m	25	665.67	657 -	667	664.93	3.05E+01	20.77	7.84E+01	2.21
	26	686.03	679 -	692	685.30	4.09E+01	44.60	2.02E+02	10.59
	27	705.74	700 -	710	705.02	5.98E+01	36.26	1.44E+02	2.10
	28	724.08	712 -	733	723.37	1.04E+02	63.16	2.74E+02	9.60
	29	767.99	763 -	771	767.30	7.05E+01	30.36	9.70E+01	2.68
	30	784.74	779 -	790	784.05	5.30E+01	34.99	1.28E+02	6.76
	31	798.63	790 -	807	797.94	6.75E+01	51.30	2.09E+02	11.25
	32	863.58	856 -	871	862.92	6.40E+01	41.18	1.44E+02	9.84
	33	876.85	873 -	880	876.20	2.31E+01	25.92	9.77E+01	1.82
	34	911.48	907 -	917	910.84	1.18E+02	33.19	8.88E+01	2.67
	35	934.74	931 -	937	934.11	2.24E+01	21.18	6.32E+01	3.40
M	36	965.75	961 -	977	965.14	2.55E+01	28.99	9.74E+01	3.59
m	37	969.61	961 -	977	969.00	5.50E+01	25.23	6.26E+01	2.45
m	38	975.09	961 -	977	974.48	2.64E+01	20.89	4.11E+01	2.97
	39	980.79	978 -	983	980.19	1.34E+01	15.36	3.72E+01	2.13
	40	1009.14	1001 -	1013	1008.54	2.92E+01	36.93	1.38E+02	3.87

Analysis Report for 1707082-03

HTC-A01-S005-0612-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1120.24	1114 -	1124	1119.69	8.24E+01	32.69	9.71E+01	2.71
42	1185.61	1179 -	1191	1185.09	4.00E+01	35.57	1.30E+02	2.29
43	1221.90	1217 -	1225	1221.40	2.35E+01	27.16	9.90E+01	2.42
44	1289.96	1286 -	1293	1289.50	2.02E+01	18.55	4.35E+01	3.78
45	1370.24	1367 -	1373	1369.82	1.59E+01	11.70	1.23E+01	3.68
46	1383.86	1374 -	1396	1383.45	5.11E+01	25.94	3.58E+01	18.89
47	1460.88	1455 -	1468	1460.50	4.08E+02	49.82	8.19E+01	2.67
48	1509.88	1500 -	1516	1509.53	1.88E+01	20.81	3.44E+01	5.51
49	1564.05	1559 -	1567	1563.73	1.50E+01	12.03	1.20E+01	1.90
50	1608.82	1601 -	1617	1608.52	2.50E+01	10.00	0.00E+00	9.87
51	1729.75	1725 -	1733	1729.52	1.16E+01	13.76	2.07E+01	3.26
52	1764.75	1760 -	1769	1764.54	5.13E+01	19.52	2.54E+01	1.60
53	1810.44	1807 -	1812	1810.26	5.64E+00	6.08	2.71E+00	2.07
54	1846.15	1843 -	1848	1845.98	1.05E+01	7.55	3.00E+00	1.18
55	2118.65	2115 -	2121	2118.64	8.30E+00	7.23	3.40E+00	3.04
56	2214.19	2210 -	2218	2214.24	9.75E+00	8.26	4.50E+00	1.58
57	2357.48	2354 -	2361	2357.62	8.67E+00	8.94	6.67E+00	3.74
58	2376.79	2371 -	2384	2376.95	1.90E+01	8.72	0.00E+00	3.81
59	2614.30	2609 -	2618	2614.62	5.50E+01	14.83	0.00E+00	3.12

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 6:53:35AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	62.62	55 -	67	2.57E+02	174.95	3.49E+03	1.41E+02
	2	76.10	69 -	80	1.46E+03	177.47	3.19E+03	1.32E+02
M	3	84.97	81 -	96	1.61E+02	87.48	1.37E+03	6.09E+01
m	4	87.90	81 -	96	3.67E+02	133.36	2.19E+03	7.70E+01
m	5	92.66	81 -	96	4.59E+02	122.91	1.84E+03	7.05E+01
	6	99.50	97 -	101	7.49E+01	64.88	8.58E+02	5.14E+01
	7	185.90	181 -	189	2.89E+02	90.00	1.07E+03	6.85E+01
	8	208.67	205 -	211	5.84E+01	66.47	7.63E+02	5.32E+01
M	9	238.87	234 -	245	6.75E+02	83.43	6.46E+02	4.18E+01

Analysis Report for 1707082-03

HTC-A01-S005-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	10	242.16	234 -	245	2.14E+02	83.35	6.25E+02	4.11E+01
	11	269.51	264 -	274	1.04E+02	76.33	7.24E+02	6.05E+01
	12	295.33	290 -	299	3.37E+02	78.02	6.82E+02	5.66E+01
	13	329.57	325 -	332	4.40E+01	49.60	3.82E+02	3.93E+01
	14	338.18	333 -	341	1.13E+02	59.14	4.70E+02	4.54E+01
	15	351.99	346 -	356	5.76E+02	79.15	5.27E+02	5.17E+01
	16	463.48	460 -	467	5.26E+01	35.27	1.73E+02	2.64E+01
	17	478.31	474 -	481	3.11E+01	36.11	1.90E+02	2.82E+01
M	18	507.83	503 -	513	5.82E+01	39.29	1.75E+02	2.18E+01
m	19	511.19	503 -	513	1.00E+02	38.20	1.69E+02	2.14E+01
	20	549.64	545 -	552	3.47E+01	29.66	1.23E+02	2.24E+01
	21	561.94	558 -	565	3.00E+01	31.81	1.50E+02	2.46E+01
	22	583.40	578 -	588	1.75E+02	46.79	1.99E+02	3.17E+01
	23	609.39	605 -	615	3.70E+02	54.60	2.07E+02	3.19E+01
M	24	661.23	657 -	667	4.63E+01	24.62	8.74E+01	1.54E+01
m	25	665.67	657 -	667	3.05E+01	20.77	7.84E+01	1.46E+01
	26	686.03	679 -	692	4.09E+01	44.60	2.02E+02	3.51E+01
	27	705.74	700 -	710	5.98E+01	36.26	1.44E+02	2.70E+01
	28	724.08	712 -	733	1.04E+02	63.16	2.74E+02	4.91E+01
	29	767.99	763 -	771	7.05E+01	30.36	9.70E+01	2.08E+01
	30	784.74	779 -	790	5.30E+01	34.99	1.28E+02	2.62E+01
	31	798.63	790 -	807	6.75E+01	51.30	2.09E+02	3.99E+01
	32	863.58	856 -	871	6.40E+01	41.18	1.44E+02	3.12E+01
	33	876.85	873 -	880	2.31E+01	25.92	9.77E+01	1.98E+01
	34	911.48	907 -	917	1.18E+02	33.19	8.88E+01	2.07E+01
	35	934.74	931 -	937	2.24E+01	21.18	6.32E+01	1.56E+01
M	36	965.75	961 -	977	2.55E+01	28.99	9.74E+01	1.62E+01
m	37	969.61	961 -	977	5.50E+01	25.23	6.26E+01	1.30E+01
m	38	975.09	961 -	977	2.64E+01	20.89	4.11E+01	1.05E+01
	39	980.79	978 -	983	1.34E+01	15.36	3.72E+01	1.11E+01
	40	1009.14	1001 -	1013	2.92E+01	36.93	1.38E+02	2.90E+01
	41	1120.24	1114 -	1124	8.24E+01	32.69	9.71E+01	2.23E+01
	42	1185.61	1179 -	1191	4.00E+01	35.57	1.30E+02	2.73E+01
	43	1221.90	1217 -	1225	2.35E+01	27.16	9.90E+01	2.09E+01
	44	1289.96	1286 -	1293	2.02E+01	18.55	4.35E+01	1.33E+01
	45	1370.24	1367 -	1373	1.59E+01	11.70	1.23E+01	7.05E+00
	46	1383.86	1374 -	1396	5.11E+01	25.94	3.58E+01	1.78E+01
	47	1460.88	1455 -	1468	4.08E+02	49.82	8.19E+01	2.40E+01
	48	1509.88	1500 -	1516	1.88E+01	20.81	3.44E+01	1.55E+01
	49	1564.05	1559 -	1567	1.50E+01	12.03	1.20E+01	7.57E+00
	50	1608.82	1601 -	1617	2.50E+01	10.00	0.00E+00	0.00E+00
	51	1729.75	1725 -	1733	1.16E+01	13.76	2.07E+01	9.82E+00
	52	1764.75	1760 -	1769	5.13E+01	19.52	2.54E+01	1.09E+01
	53	1810.44	1807 -	1812	5.64E+00	6.08	2.71E+00	3.12E+00
	54	1846.15	1843 -	1848	1.05E+01	7.55	3.00E+00	3.18E+00
	55	2118.65	2115 -	2121	8.30E+00	7.23	3.40E+00	3.59E+00
	56	2214.19	2210 -	2218	9.75E+00	8.26	4.50E+00	4.45E+00
	57	2357.48	2354 -	2361	8.67E+00	8.94	6.67E+00	5.53E+00
	58	2376.79	2371 -	2384	1.90E+01	8.72	0.00E+00	0.00E+00
	59	2614.30	2609 -	2618	5.50E+01	14.83	0.00E+00	0.00E+00

Analysis Report for 1707082-03

HTC-A01-S005-0612-01

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/15/2017 6:53:35AM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	62.62	55 -	67	61.67	2.57E+02	174.95	3.49E+03	TH-230 TH-234
	2	76.10	69 -	80	75.16	1.46E+03	177.47	3.19E+03	.....
M	3	84.97	81 -	96	84.03	1.61E+02	87.48	1.37E+03	TH-231
m	4	87.90	81 -	96	86.96	3.67E+02	133.36	2.19E+03	CD-109 SN-126 LU-176
m	5	92.66	81 -	96	91.73	4.59E+02	122.91	1.84E+03	GA-67
	6	99.50	97 -	101	98.56	7.49E+01	64.88	8.58E+02	.....
	7	185.90	181 -	189	185.00	2.89E+02	90.00	1.07E+03	RA-226
	8	208.67	205 -	211	207.77	5.84E+01	66.47	7.63E+02	GA-67
M	9	238.87	234 -	245	237.98	6.75E+02	83.43	6.46E+02	PB-212
m	10	242.16	234 -	245	241.27	2.14E+02	83.35	6.25E+02	.....
	11	269.51	264 -	274	268.63	1.04E+02	76.33	7.24E+02	.....
	12	295.33	290 -	299	294.45	3.37E+02	78.02	6.82E+02	PB-214
	13	329.57	325 -	332	328.70	4.40E+01	49.60	3.82E+02	LA-140
	14	338.18	333 -	341	337.32	1.13E+02	59.14	4.70E+02	AC-228
	15	351.99	346 -	356	351.14	5.76E+02	79.15	5.27E+02	PB-214
	16	463.48	460 -	467	462.66	5.26E+01	35.27	1.73E+02	SB-125
	17	478.31	474 -	481	477.51	3.11E+01	36.11	1.90E+02	BE-7
M	18	507.83	503 -	513	507.03	5.82E+01	39.29	1.75E+02	.....
m	19	511.19	503 -	513	510.39	1.00E+02	38.20	1.69E+02	.....
	20	549.64	545 -	552	548.86	3.47E+01	29.66	1.23E+02	.....
	21	561.94	558 -	565	561.17	3.00E+01	31.81	1.50E+02	.....
	22	583.40	578 -	588	582.63	1.75E+02	46.79	1.99E+02	TL-208
	23	609.39	605 -	615	608.63	3.70E+02	54.60	2.07E+02	BI-214
M	24	661.23	657 -	667	660.49	4.63E+01	24.62	8.74E+01	CS-137
m	25	665.67	657 -	667	664.93	3.05E+01	20.77	7.84E+01	SB-126
	26	686.03	679 -	692	685.30	4.09E+01	44.60	2.02E+02	SB-127
	27	705.74	700 -	710	705.02	5.98E+01	36.26	1.44E+02	AG-110M

Analysis Report for 1707082-03

HTC-A01-S005-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	28	724.08	712 -	733	723.37	1.04E+02	63.16	2.74E+02	ZR-95 EU-154
	29	767.99	763 -	771	767.30	7.05E+01	30.36	9.70E+01	.....
	30	784.74	779 -	790	784.05	5.30E+01	34.99	1.28E+02	SB-127
	31	798.63	790 -	807	797.94	6.75E+01	51.30	2.09E+02	.....
	32	863.58	856 -	871	862.92	6.40E+01	41.18	1.44E+02	.....
	33	876.85	873 -	880	876.20	2.31E+01	25.92	9.77E+01	.....
	34	911.48	907 -	917	910.84	1.18E+02	33.19	8.88E+01	TL-204 AC-228
	35	934.74	931 -	937	934.11	2.24E+01	21.18	6.32E+01	.....
M	36	965.75	961 -	977	965.14	2.55E+01	28.99	9.74E+01	.....
m	37	969.61	961 -	977	969.00	5.50E+01	25.23	6.26E+01	AC-228
m	38	975.09	961 -	977	974.48	2.64E+01	20.89	4.11E+01	.....
	39	980.79	978 -	983	980.19	1.34E+01	15.36	3.72E+01	.....
	40	1009.14	1001 -	1013	1008.54	2.92E+01	36.93	1.38E+02	.....
	41	1120.24	1114 -	1124	1119.69	8.24E+01	32.69	9.71E+01	BI-214 SC-46
	42	1185.61	1179 -	1191	1185.09	4.00E+01	35.57	1.30E+02	.....
	43	1221.90	1217 -	1225	1221.40	2.35E+01	27.16	9.90E+01	TA-182
	44	1289.96	1286 -	1293	1289.50	2.02E+01	18.55	4.35E+01	.....
	45	1370.24	1367 -	1373	1369.82	1.59E+01	11.70	1.23E+01	.....
	46	1383.86	1374 -	1396	1383.45	5.11E+01	25.94	3.58E+01	AG-110M
	47	1460.88	1455 -	1468	1460.50	4.08E+02	49.82	8.19E+01	K-40
	48	1509.88	1500 -	1516	1509.53	1.88E+01	20.81	3.44E+01	.....
	49	1564.05	1559 -	1567	1563.73	1.50E+01	12.03	1.20E+01	.....
	50	1608.82	1601 -	1617	1608.52	2.50E+01	10.00	0.00E+00	.....
	51	1729.75	1725 -	1733	1729.52	1.16E+01	13.76	2.07E+01	.....
	52	1764.75	1760 -	1769	1764.54	5.13E+01	19.52	2.54E+01	BI-214
	53	1810.44	1807 -	1812	1810.26	5.64E+00	6.08	2.71E+00	.....
	54	1846.15	1843 -	1848	1845.98	1.05E+01	7.55	3.00E+00	.....
	55	2118.65	2115 -	2121	2118.64	8.30E+00	7.23	3.40E+00	.....
	56	2214.19	2210 -	2218	2214.24	9.75E+00	8.26	4.50E+00	.....
	57	2357.48	2354 -	2361	2357.62	8.67E+00	8.94	6.67E+00	.....
	58	2376.79	2371 -	2384	2376.95	1.90E+01	8.72	0.00E+00	.....
	59	2614.30	2609 -	2618	2614.62	5.50E+01	14.83	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 : 8/15/2017 6:53:35AM

Analysis Report for 1707082-03

HTC-A01-S005-0612-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	62.62	2.57E+02	174.95	2.14E-02	1.63E-03
	2	76.10	1.46E+03	177.47	2.32E-02	1.91E-03
M	3	84.97	1.61E+02	87.48	2.36E-02	2.10E-03
m	4	87.90	3.67E+02	133.36	2.37E-02	2.16E-03
m	5	92.66	4.59E+02	122.91	2.37E-02	2.10E-03
	6	99.50	7.49E+01	64.88	2.35E-02	1.99E-03
	7	185.90	2.89E+02	90.00	1.69E-02	1.40E-03
	8	208.67	5.84E+01	66.47	1.54E-02	1.29E-03
M	9	238.87	6.75E+02	83.43	1.36E-02	1.14E-03
m	10	242.16	2.14E+02	83.35	1.34E-02	1.13E-03
	11	269.51	1.04E+02	76.33	1.21E-02	9.94E-04
	12	295.33	3.37E+02	78.02	1.10E-02	9.13E-04
	13	329.57	4.40E+01	49.60	9.86E-03	8.41E-04
	14	338.18	1.13E+02	59.14	9.60E-03	8.23E-04
	15	351.99	5.76E+02	79.15	9.21E-03	7.94E-04
	16	463.48	5.26E+01	35.27	6.94E-03	6.81E-04
	17	478.31	3.11E+01	36.11	6.72E-03	6.75E-04
M	18	507.83	5.82E+01	39.29	6.32E-03	6.62E-04
m	19	511.19	1.00E+02	38.20	6.28E-03	6.61E-04
	20	549.64	3.47E+01	29.66	5.84E-03	6.45E-04
	21	561.94	3.00E+01	31.81	5.71E-03	6.40E-04
	22	583.40	1.75E+02	46.79	5.50E-03	6.31E-04
	23	609.39	3.70E+02	54.60	5.27E-03	6.20E-04
M	24	661.23	4.63E+01	24.62	4.87E-03	5.99E-04
m	25	665.67	3.05E+01	20.77	4.84E-03	5.94E-04
	26	686.03	4.09E+01	44.60	4.70E-03	5.68E-04
	27	705.74	5.98E+01	36.26	4.58E-03	5.43E-04
	28	724.08	1.04E+02	63.16	4.47E-03	5.20E-04
	29	767.99	7.05E+01	30.36	4.23E-03	4.65E-04
	30	784.74	5.30E+01	34.99	4.15E-03	4.44E-04
	31	798.63	6.75E+01	51.30	4.08E-03	4.27E-04
	32	863.58	6.40E+01	41.18	3.80E-03	3.45E-04
	33	876.85	2.31E+01	25.92	3.75E-03	3.29E-04
	34	911.48	1.18E+02	33.19	3.62E-03	2.99E-04
	35	934.74	2.24E+01	21.18	3.54E-03	2.93E-04
M	36	965.75	2.55E+01	28.99	3.44E-03	2.86E-04
m	37	969.61	5.50E+01	25.23	3.42E-03	2.85E-04
m	38	975.09	2.64E+01	20.89	3.41E-03	2.84E-04
	39	980.79	1.34E+01	15.36	3.39E-03	2.83E-04
	40	1009.14	2.92E+01	36.93	3.30E-03	2.76E-04
	41	1120.24	8.24E+01	32.69	3.01E-03	2.50E-04
	42	1185.61	4.00E+01	35.57	2.87E-03	2.37E-04
	43	1221.90	2.35E+01	27.16	2.79E-03	2.34E-04
	44	1289.96	2.02E+01	18.55	2.66E-03	2.30E-04
	45	1370.24	1.59E+01	11.70	2.53E-03	2.21E-04
	46	1383.86	5.11E+01	25.94	2.50E-03	2.19E-04
	47	1460.88	4.08E+02	49.82	2.38E-03	2.08E-04
	48	1509.88	1.88E+01	20.81	2.31E-03	2.00E-04
	49	1564.05	1.50E+01	12.03	2.24E-03	1.92E-04
	50	1608.82	2.50E+01	10.00	2.18E-03	1.85E-04
	51	1729.75	1.16E+01	13.76	2.04E-03	1.67E-04
	52	1764.75	5.13E+01	19.52	2.00E-03	1.62E-04
	53	1810.44	5.64E+00	6.08	1.95E-03	1.55E-04

Analysis Report for 1707082-03

HTC-A01-S005-0612-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
54	1846.15	1.05E+01	7.55	1.91E-03	1.51E-04
55	2118.65	8.30E+00	7.23	1.65E-03	1.51E-04
56	2214.19	9.75E+00	8.26	1.57E-03	1.51E-04
57	2357.48	8.67E+00	8.94	1.46E-03	1.51E-04
58	2376.79	1.90E+01	8.72	1.45E-03	1.51E-04
59	2614.30	5.50E+01	14.83	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 : 8/15/2017 6:53:35AM

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

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	62.62	2.57E+02	174.95	5.28E+01	8.63E+00	2.04E+02	1.75E+02
	2	76.10	1.46E+03	177.47			1.46E+03	1.77E+02
M	3	84.97	1.61E+02	87.48	7.68E+00	3.13E+00	1.53E+02	8.75E+01
m	4	87.90	3.67E+02	133.36			3.67E+02	1.33E+02
m	5	92.66	4.59E+02	122.91	6.21E+01	4.71E+00	3.97E+02	1.23E+02
	6	99.50	7.49E+01	64.88			7.49E+01	6.49E+01
	7	185.90	2.89E+02	90.00	2.34E+01	8.57E+00	2.66E+02	9.04E+01
	8	208.67	5.84E+01	66.47			5.84E+01	6.65E+01
M	9	238.87	6.75E+02	83.43	8.90E+00	6.12E+00	6.66E+02	8.37E+01
m	10	242.16	2.14E+02	83.35			2.14E+02	8.34E+01
	11	269.51	1.04E+02	76.33			1.04E+02	7.63E+01
	12	295.33	3.37E+02	78.02			3.37E+02	7.80E+01
	13	329.57	4.40E+01	49.60			4.40E+01	4.96E+01
	14	338.18	1.13E+02	59.14			1.13E+02	5.91E+01
	15	351.99	5.76E+02	79.15			5.76E+02	7.91E+01
	16	463.48	5.26E+01	35.27			5.26E+01	3.53E+01
	17	478.31	3.11E+01	36.11			3.11E+01	3.61E+01
M	18	507.83	5.82E+01	39.29			5.82E+01	3.93E+01
m	19	511.19	1.00E+02	38.20	4.43E+01	4.80E+00	5.62E+01	3.85E+01
	20	549.64	3.47E+01	29.66			3.47E+01	2.97E+01
	21	561.94	3.00E+01	31.81			3.00E+01	3.18E+01
	22	583.40	1.75E+02	46.79	3.56E+00	2.78E+00	1.72E+02	4.69E+01
	23	609.39	3.70E+02	54.60			3.70E+02	5.46E+01
M	24	661.23	4.63E+01	24.62	1.65E+00	3.47E+00	4.47E+01	2.49E+01

Analysis Report for 1707082-03

HTC-A01-S005-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	25	665.67	3.05E+01	20.77			3.05E+01	2.08E+01
	26	686.03	4.09E+01	44.60			4.09E+01	4.46E+01
	27	705.74	5.98E+01	36.26			5.98E+01	3.63E+01
	28	724.08	1.04E+02	63.16			1.04E+02	6.32E+01
	29	767.99	7.05E+01	30.36			7.05E+01	3.04E+01
	30	784.74	5.30E+01	34.99			5.30E+01	3.50E+01
	31	798.63	6.75E+01	51.30			6.75E+01	5.13E+01
	32	863.58	6.40E+01	41.18			6.40E+01	4.12E+01
	33	876.85	2.31E+01	25.92			2.31E+01	2.59E+01
	34	911.48	1.18E+02	33.19			1.18E+02	3.32E+01
	35	934.74	2.24E+01	21.18			2.24E+01	2.12E+01
M	36	965.75	2.55E+01	28.99			2.55E+01	2.90E+01
m	37	969.61	5.50E+01	25.23			5.50E+01	2.52E+01
m	38	975.09	2.64E+01	20.89			2.64E+01	2.09E+01
	39	980.79	1.34E+01	15.36			1.34E+01	1.54E+01
	40	1009.14	2.92E+01	36.93			2.92E+01	3.69E+01
	41	1120.24	8.24E+01	32.69			8.24E+01	3.27E+01
	42	1185.61	4.00E+01	35.57			4.00E+01	3.56E+01
	43	1221.90	2.35E+01	27.16			2.35E+01	2.72E+01
	44	1289.96	2.02E+01	18.55			2.02E+01	1.85E+01
	45	1370.24	1.59E+01	11.70			1.59E+01	1.17E+01
	46	1383.86	5.11E+01	25.94			5.11E+01	2.59E+01
	47	1460.88	4.08E+02	49.82			4.08E+02	4.98E+01
	48	1509.88	1.88E+01	20.81			1.88E+01	2.08E+01
	49	1564.05	1.50E+01	12.03			1.50E+01	1.20E+01
	50	1608.82	2.50E+01	10.00			2.50E+01	1.00E+01
	51	1729.75	1.16E+01	13.76			1.16E+01	1.38E+01
	52	1764.75	5.13E+01	19.52			5.13E+01	1.95E+01
	53	1810.44	5.64E+00	6.08			5.64E+00	6.08E+00
	54	1846.15	1.05E+01	7.55			1.05E+01	7.55E+00
	55	2118.65	8.30E+00	7.23			8.30E+00	7.23E+00
	56	2214.19	9.75E+00	8.26			9.75E+00	8.26E+00
	57	2357.48	8.67E+00	8.94			8.67E+00	8.94E+00
	58	2376.79	1.90E+01	8.72			1.90E+01	8.72E+00
	59	2614.30	5.50E+01	14.83			5.50E+01	1.48E+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 1707082-03

HTC-A01-S005-0612-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/15/2017 6:53:35AM

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

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	62.62	2.57E+02	174.95	5.28E+01	8.63E+00	2.04E+02	1.75E+02
	2	76.10	1.46E+03	177.47			1.46E+03	1.77E+02
M	3	84.97	1.61E+02	87.48	7.68E+00	3.13E+00	1.53E+02	8.75E+01
m	4	87.90	3.67E+02	133.36			3.67E+02	1.33E+02
m	5	92.66	4.59E+02	122.91	6.21E+01	4.71E+00	3.97E+02	1.23E+02
	6	99.50	7.49E+01	64.88			7.49E+01	6.49E+01
	7	185.90	2.89E+02	90.00	2.34E+01	8.57E+00	2.66E+02	9.04E+01
	8	208.67	5.84E+01	66.47			5.84E+01	6.65E+01
M	9	238.87	6.75E+02	83.43	8.90E+00	6.12E+00	6.66E+02	8.37E+01
m	10	242.16	2.14E+02	83.35			2.14E+02	8.34E+01
	11	269.51	1.04E+02	76.33			1.04E+02	7.63E+01
	12	295.33	3.37E+02	78.02			3.37E+02	7.80E+01
	13	329.57	4.40E+01	49.60			4.40E+01	4.96E+01
	14	338.18	1.13E+02	59.14			1.13E+02	5.91E+01
	15	351.99	5.76E+02	79.15			5.76E+02	7.91E+01
	16	463.48	5.26E+01	35.27			5.26E+01	3.53E+01
	17	478.31	3.11E+01	36.11			3.11E+01	3.61E+01
M	18	507.83	5.82E+01	39.29			5.82E+01	3.93E+01
m	19	511.19	1.00E+02	38.20	4.43E+01	4.80E+00	5.62E+01	3.85E+01
	20	549.64	3.47E+01	29.66			3.47E+01	2.97E+01
	21	561.94	3.00E+01	31.81			3.00E+01	3.18E+01
	22	583.40	1.75E+02	46.79	3.56E+00	2.78E+00	1.72E+02	4.69E+01
	23	609.39	3.70E+02	54.60			3.70E+02	5.46E+01
M	24	661.23	4.63E+01	24.62	1.65E+00	3.47E+00	4.47E+01	2.49E+01
m	25	665.67	3.05E+01	20.77			3.05E+01	2.08E+01
	26	686.03	4.09E+01	44.60			4.09E+01	4.46E+01
	27	705.74	5.98E+01	36.26			5.98E+01	3.63E+01
	28	724.08	1.04E+02	63.16			1.04E+02	6.32E+01
	29	767.99	7.05E+01	30.36			7.05E+01	3.04E+01
	30	784.74	5.30E+01	34.99			5.30E+01	3.50E+01
	31	798.63	6.75E+01	51.30			6.75E+01	5.13E+01
	32	863.58	6.40E+01	41.18			6.40E+01	4.12E+01
	33	876.85	2.31E+01	25.92			2.31E+01	2.59E+01
	34	911.48	1.18E+02	33.19			1.18E+02	3.32E+01
	35	934.74	2.24E+01	21.18			2.24E+01	2.12E+01
M	36	965.75	2.55E+01	28.99			2.55E+01	2.90E+01
m	37	969.61	5.50E+01	25.23			5.50E+01	2.52E+01
m	38	975.09	2.64E+01	20.89			2.64E+01	2.09E+01
	39	980.79	1.34E+01	15.36			1.34E+01	1.54E+01
	40	1009.14	2.92E+01	36.93			2.92E+01	3.69E+01
	41	1120.24	8.24E+01	32.69			8.24E+01	3.27E+01

Analysis Report for 1707082-03

HTC-A01-S005-0612-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
42	1185.61	4.00E+01	35.57			4.00E+01	3.56E+01
43	1221.90	2.35E+01	27.16			2.35E+01	2.72E+01
44	1289.96	2.02E+01	18.55			2.02E+01	1.85E+01
45	1370.24	1.59E+01	11.70			1.59E+01	1.17E+01
46	1383.86	5.11E+01	25.94			5.11E+01	2.59E+01
47	1460.88	4.08E+02	49.82			4.08E+02	4.98E+01
48	1509.88	1.88E+01	20.81			1.88E+01	2.08E+01
49	1564.05	1.50E+01	12.03			1.50E+01	1.20E+01
50	1608.82	2.50E+01	10.00			2.50E+01	1.00E+01
51	1729.75	1.16E+01	13.76			1.16E+01	1.38E+01
52	1764.75	5.13E+01	19.52			5.13E+01	1.95E+01
53	1810.44	5.64E+00	6.08			5.64E+00	6.08E+00
54	1846.15	1.05E+01	7.55			1.05E+01	7.55E+00
55	2118.65	8.30E+00	7.23			8.30E+00	7.23E+00
56	2214.19	9.75E+00	8.26			9.75E+00	8.26E+00
57	2357.48	8.67E+00	8.94			8.67E+00	8.94E+00
58	2376.79	1.90E+01	8.72			1.90E+01	8.72E+00
59	2614.30	5.50E+01	14.83			5.50E+01	1.48E+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
BE-7	0.905	477.59	*	10.42	1.94E+00	2.26E+00
K-40	0.999	1460.81	*	10.67	2.07E+01	3.13E+00
CD-109	0.997	88.03	*	3.72	6.17E+00	2.34E+00
SN-126	0.983	87.57	*	37.00	5.39E-01	2.02E-01
CS-137	0.972	661.65	*	85.12	1.40E-01	7.96E-02
TL-208	0.869	583.14	*	30.22	1.33E+00	3.94E-01
		860.37		4.48		
		2614.66	*	35.85	1.54E+00	4.55E-01
PB-212	0.889	238.63	*	44.60	1.42E+00	2.14E-01
		300.09		3.41		
BI-214	0.935	609.31	*	46.30	1.95E+00	3.68E-01
		1120.29	*	15.10	2.33E+00	9.45E-01
		1764.49	*	15.80	2.09E+00	8.14E-01

Analysis Report for 1707082-03

HTC-A01-S005-0612-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.935	2204.22		4.98		
PB-214	0.999	295.21	*	19.19	2.05E+00	5.05E-01
		351.92	*	37.19	2.17E+00	3.51E-01
RA-226	0.985	186.21	*	3.28	6.16E+00	1.15E+01
AC-228	0.975	338.32	*	11.40	1.33E+00	7.05E-01
		911.07	*	27.70	1.51E+00	4.45E-01
		969.11	*	16.60	1.25E+00	5.81E-01
TH-234	0.931	63.29	*	3.80	3.23E+00	2.79E+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 : 8/15/2017 6:53:35AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	76.10	4.06455E-01	6.06		
M	3	84.97	4.25496E-02	28.57	Tol.	TH-231
m	5	92.66	1.10181E-01	15.50	Tol.	GA-67
	6	99.50	2.08160E-02	43.29		
	8	208.67	1.62169E-02	56.93	Tol.	GA-67
m	10	242.16	5.93187E-02	19.52		
	11	269.51	2.89384E-02	36.64		
	13	329.57	1.22193E-02	56.38	Tol.	LA-140
	16	463.48	1.46073E-02	33.54	Tol.	SB-125
M	18	507.83	1.61529E-02	33.79		
m	19	511.19	1.56054E-02	34.27		
	20	549.64	9.64410E-03	42.72		
	21	561.94	8.32143E-03	53.10		
m	25	665.67	8.47610E-03	34.04	Tol.	SB-126
	26	686.03	1.13586E-02	54.53	Tol.	SB-127
	27	705.74	1.66246E-02	30.29	Tol.	AG-110M
	28	724.08	2.89004E-02	30.35	Sum	
	29	767.99	1.95787E-02	21.53		
	30	784.74	1.47175E-02	33.02	Tol.	SB-127
	31	798.63	1.87516E-02	38.00		

Analysis Report for 1707082-03

HTC-A01-S005-0612-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	32	863.58	1.77778E-02	32.17		
	33	876.85	6.42747E-03	56.02		
	35	934.74	6.22685E-03	47.25	Sum	
M	36	965.75	7.09526E-03	56.75		
m	38	975.09	7.33290E-03	39.57	Sum	
	39	980.79	3.72396E-03	57.30		
	40	1009.14	8.11650E-03	63.19		
	42	1185.61	1.11111E-02	44.46		
	43	1221.90	6.52778E-03	57.78	Tol.	TA-182
	44	1289.96	5.61839E-03	45.85		
	45	1370.24	4.40657E-03	36.89		
	46	1383.86	1.41908E-02	25.39	Tol.	AG-110M
	48	1509.88	5.22377E-03	55.33		
	49	1564.05	4.16667E-03	40.10		
	50	1608.82	6.94444E-03	20.00		
	51	1729.75	3.23232E-03	59.11	Sum	
	53	1810.44	1.56746E-03	53.90		
	54	1846.15	2.91667E-03	35.95		
	55	2118.65	2.30556E-03	43.54		
	56	2214.19	2.70833E-03	42.37		
	57	2357.48	2.40741E-03	51.60		
	58	2376.79	5.27778E-03	22.94		

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
BE-7	0.90	477.59	*	10.42	1.94E+00	2.26E+00
K-40	0.99	1460.81	*	10.67	2.07E+01	3.13E+00
CD-109	0.99	88.03	*	3.72	6.17E+00	2.34E+00
SN-126	0.98	87.57	*	37.00	5.39E-01	2.02E-01
CS-137	0.97	661.65	*	85.12	1.40E-01	7.96E-02
TL-208	0.86	583.14	*	30.22	1.33E+00	3.94E-01

Analysis Report for 1707082-03

HTC-A01-S005-0612-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
TL-208	0.86	860.37		4.48		
		2614.66	*	35.85	1.54E+00	4.55E-01
PB-212	0.88	238.63	*	44.60	1.42E+00	2.14E-01
		300.09		3.41		
BI-214	0.93	609.31	*	46.30	1.95E+00	3.68E-01
		1120.29	*	15.10	2.33E+00	9.45E-01
		1764.49	*	15.80	2.09E+00	8.14E-01
		2204.22		4.98		
PB-214	0.99	295.21	*	19.19	2.05E+00	5.05E-01
		351.92	*	37.19	2.17E+00	3.51E-01
RA-226	0.98	186.21	*	3.28	6.16E+00	1.15E+01
AC-228	0.97	338.32	*	11.40	1.33E+00	7.05E-01
		911.07	*	27.70	1.51E+00	4.45E-01
		969.11	*	16.60	1.25E+00	5.81E-01
TH-234	0.93	63.29	*	3.80	3.23E+00	2.79E+00

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	BE-7	0.905	1.94E+00	2.26E+00	
	K-40	0.999	2.07E+01	3.13E+00	
?	CD-109	0.997	6.17E+00	2.34E+00	
?	SN-126	0.983	5.39E-01	2.02E-01	
	CS-137	0.972	1.40E-01	7.96E-02	
	TL-208	0.869	1.42E+00	2.98E-01	
	PB-212	0.889	1.42E+00	2.14E-01	
	BI-214	0.935	2.01E+00	3.16E-01	
	PB-214	0.999	2.13E+00	2.88E-01	
	RA-226	0.985	6.16E+00	1.15E+01	
	AC-228	0.975	1.40E+00	3.16E-01	
	TH-234	0.931	3.23E+00	2.79E+00	

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

Errors quoted at 2.000sigma

Analysis Report for 1707082-03

HTC-A01-S005-0612-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 6:53:35AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	76.10	4.06455E-01	6.06		
M	3	84.97	4.25496E-02	28.57	Tol.	TH-231
m	5	92.66	1.10181E-01	15.50	Tol.	GA-67
	6	99.50	2.08160E-02	43.29		
	8	208.67	1.62169E-02	56.93	Tol.	GA-67
m	10	242.16	5.93187E-02	19.52		
	11	269.51	2.89384E-02	36.64		
	13	329.57	1.22193E-02	56.38	Tol.	LA-140
	16	463.48	1.46073E-02	33.54	Tol.	SB-125
M	18	507.83	1.61529E-02	33.79		
m	19	511.19	1.56054E-02	34.27		
	20	549.64	9.64410E-03	42.72		
	21	561.94	8.32143E-03	53.10		
m	25	665.67	8.47610E-03	34.04	Tol.	SB-126
	26	686.03	1.13586E-02	54.53	Tol.	SB-127
	27	705.74	1.66246E-02	30.29	Tol.	AG-110M
	28	724.08	2.89004E-02	30.35	Sum	
	29	767.99	1.95787E-02	21.53		
	30	784.74	1.47175E-02	33.02	Tol.	SB-127
	31	798.63	1.87516E-02	38.00		
	32	863.58	1.77778E-02	32.17		
	33	876.85	6.42747E-03	56.02		
	35	934.74	6.22685E-03	47.25	Sum	
M	36	965.75	7.09526E-03	56.75		
m	38	975.09	7.33290E-03	39.57	Sum	
	39	980.79	3.72396E-03	57.30		
	40	1009.14	8.11650E-03	63.19		
	42	1185.61	1.11111E-02	44.46		
	43	1221.90	6.52778E-03	57.78	Tol.	TA-182
	44	1289.96	5.61839E-03	45.85		
	45	1370.24	4.40657E-03	36.89		
	46	1383.86	1.41908E-02	25.39	Tol.	AG-110M
	48	1509.88	5.22377E-03	55.33		
	49	1564.05	4.16667E-03	40.10		

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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
50	1608.82	6.94444E-03	20.00		
51	1729.75	3.23232E-03	59.11	Sum	
53	1810.44	1.56746E-03	53.90		
54	1846.15	2.91667E-03	35.95		
55	2118.65	2.30556E-03	43.54		
56	2214.19	2.70833E-03	42.37		
57	2357.48	2.40741E-03	51.60		
58	2376.79	5.27778E-03	22.94		

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59	*	10.42	1.94E+00	3.69E+00	3.69E+00
+	NA-22	1274.54		99.94	-5.41E-02	1.74E-01	1.74E-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	0.00E+00	1.05E-01	1.05E-01
+	K-40	1460.81	*	10.67	2.07E+01	2.57E+00	2.57E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-1.91E-01	9.52E-02	9.52E-02
		78.34		96.00	5.47E-01		1.24E-01
+	SC-46	889.25		99.98	-1.82E-03	3.26E-01	3.26E-01
		1120.51		99.99	6.97E-01		4.99E-01
+	V-48	983.52		99.98	1.13E-01	7.96E+00	7.96E+00
		1312.10		97.50	3.31E-01		9.13E+00
+	CR-51	320.08		9.83	2.52E+00	9.11E+00	9.11E+00
+	MN-54	834.83		99.97	5.91E-02	1.76E-01	1.76E-01
+	CO-56	846.75		99.96	1.29E-01	3.09E-01	3.09E-01
		1037.75		14.03	-2.65E-01		2.40E+00
		1238.25		67.00	5.10E-01		8.10E-01
		1771.40		15.51	-7.32E-01		1.66E+00
		2598.48		16.90	5.41E-01		1.62E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CO-57	122.06		85.51	-3.55E-02	9.89E-02	9.89E-02
		136.48		10.60	-5.49E-01		8.31E-01
+	CO-58	810.76		99.40	-5.51E-03	3.11E-01	3.11E-01
+	FE-59	1099.22		56.50	-4.88E-02	1.28E+00	1.28E+00
		1291.56		43.20	-1.01E-02		1.70E+00
+	CO-60	1173.22		100.00	-1.04E-02	1.31E-01	1.77E-01
		1332.49		100.00	-2.66E-02		1.31E-01
+	ZN-65	1115.52		50.75	4.17E-02	5.13E-01	5.13E-01
+	GA-67	93.31		35.70	1.87E+08	1.20E+08	1.20E+08
		208.95		2.24	1.06E+09		1.80E+09
		300.22		16.00	4.72E+07		2.88E+08
+	SE-75	121.11		16.70	2.08E-02	2.03E-01	6.88E-01
		136.00		59.20	-6.70E-02		2.03E-01
		264.65		59.80	-1.51E-03		2.35E-01
		279.53		25.20	2.34E-02		5.53E-01
		400.65		11.40	-9.23E-01		1.45E+00
+	RB-82	776.52		13.00	-5.23E-01	1.18E+01	1.18E+01
+	RB-83	520.41		46.00	-1.63E-01	4.60E-01	4.60E-01
		529.64		30.30	3.83E-02		6.93E-01
		552.65		16.40	1.42E-01		1.27E+00
+	KR-85	513.99		0.43	3.99E+00	3.21E+01	3.21E+01
+	SR-85	513.99		99.27	4.68E-02	3.78E-01	3.78E-01
+	Y-88	898.02		93.40	-9.46E-02	2.17E-01	2.83E-01
		1836.01		99.38	1.24E-02		2.17E-01
+	MO-93	263.06		56.72	-2.33E-02	1.19E-01	1.43E-01
		684.67		99.68	-5.80E-04		1.30E-01
		1477.11		99.08	-9.10E-03		1.19E-01
+	NB-93M	16.57		9.43	2.26E+01	9.76E+00	9.76E+00
+	NB-94	702.63		100.00	-1.49E-02	1.37E-01	1.40E-01
		871.10		100.00	-1.16E-01		1.37E-01
+	NB-95	765.79		99.81	-2.01E-02	1.07E+00	1.07E+00
+	NB-95M	235.69		25.00	1.58E+06	3.43E+07	3.43E+07
+	ZR-95	724.18		43.70	-4.12E-01	6.90E-01	9.08E-01
		756.72		55.30	1.12E-01		6.90E-01
+	MO-99	181.06		6.20	-7.91E+08	2.17E+10	2.36E+10
		739.58		12.80	4.88E+09		2.17E+10
		778.00		4.50	1.33E+09		5.25E+10
+	RU-103	497.08		89.00	-7.42E-02	5.59E-01	5.59E-01
+	RU-106	621.84		9.80	4.97E-01	1.40E+00	1.40E+00
+	AG-108M	433.93		89.90	-9.83E-03	1.12E-01	1.12E-01
		614.37		90.40	-2.37E-03		1.20E-01
		722.95		90.50	-1.57E-01		1.53E-01
+	CD-109	88.03	*	3.72	6.17E+00	4.99E+00	4.99E+00
+	AG-110M	657.75		93.14	9.17E-03	1.85E-01	1.85E-01
		677.61		10.53	-2.53E-01		1.55E+00
		706.67		16.46	9.60E-01		1.16E+00
		763.93		21.98	7.83E-02		8.94E-01
		884.67		71.63	-3.27E-02		2.74E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	AG-110M	1384.27		23.94	-1.99E-01	1.85E-01	7.38E-01
+	CD-113M	263.70		0.02	-3.03E+01	3.55E+02	3.55E+02
+	SN-113	255.12		1.93	4.77E+00	2.59E-01	7.35E+00
		391.69		64.90	-1.27E-01		2.59E-01
+	TE123M	159.00		84.10	-1.14E-01	1.51E-01	1.51E-01
+	SB-124	602.71		97.87	1.18E-01	3.25E-01	3.25E-01
		645.85		7.26	5.28E-01		4.52E+00
		722.78		11.10	-3.77E+00		3.68E+00
		1691.02		49.00	-1.49E-01		6.76E-01
+	I-125	35.49		6.49	-1.15E+00	6.04E+00	6.04E+00
+	SB-125	176.33		6.89	-5.52E-02	3.57E-01	1.15E+00
		427.89		29.33	-7.66E-03		3.57E-01
		463.38		10.35	1.05E+00		1.06E+00
		600.56		17.80	2.87E-01		6.83E-01
		635.90		11.32	-4.44E-01		9.44E-01
+	SB-126	414.70		83.30	-9.07E+00	2.12E+01	2.12E+01
		666.33		99.60	-5.66E-01		2.63E+01
		695.00		99.60	8.63E+00		2.53E+01
		720.50		53.80	7.03E+00		4.94E+01
+	SN-126	87.57	*	37.00	5.39E-01	4.36E-01	4.36E-01
+	SB-127	473.00		25.00	2.51E+06	8.03E+06	9.01E+06
		685.20		35.70	-3.58E+04		8.03E+06
		783.80		14.70	1.02E+07		2.24E+07
+	I-129	29.78		57.00	-9.08E-02	3.37E-01	3.37E-01
		33.60		13.20	-5.71E-01		1.10E+00
		39.58		7.52	-2.30E-01		1.50E+00
+	I-131	284.30		6.05	-1.20E+03	3.70E+02	4.37E+03
		364.48		81.20	2.20E+02		3.70E+02
		636.97		7.26	-2.20E+03		4.55E+03
		722.89		1.80	-2.61E+04		2.55E+04
+	TE-132	49.72		13.10	1.06E+08	4.60E+07	3.59E+08
		228.16		88.00	-1.56E+07		4.60E+07
+	BA-133	81.00		33.00	-9.85E-01	2.22E-01	2.81E-01
		302.84		17.80	1.32E-01		5.03E-01
		356.01		60.00	3.27E-02		2.22E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-2.10E+05	6.00E+04	6.00E+04
+	CS-134	563.23		8.38	-2.28E-02	1.40E-01	1.42E+00
		569.32		15.43	6.79E-01		8.06E-01
		604.70		97.60	2.06E-02		1.40E-01
		795.84		85.40	7.98E-02		1.96E-01
		801.93		8.73	9.52E-03		1.74E+00
+	CS-135	268.24		16.00	3.76E-01	5.74E-01	5.74E-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	1.11E+02	1.90E+01	1.49E+02
		163.89		4.61	5.43E+01		2.28E+02
		176.55		13.56	7.21E+00		7.71E+01

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CS-136	273.65		12.66	7.45E+00	1.90E+01	9.51E+01
		340.57		48.50	2.61E+00		3.18E+01
		818.50		99.70	-1.31E+00		1.90E+01
		1048.07		79.60	6.37E+00		2.80E+01
		1235.34		19.70	8.64E+00		1.62E+02
+	CS-137	661.65	*	85.12	1.40E-01	1.79E-01	1.79E-01
+	LA-138	788.74		34.00	-9.94E-02	2.17E-01	4.50E-01
		1435.80		66.00	4.84E-02		2.17E-01
+	CE-139	165.85		80.35	-2.77E-02	1.47E-01	1.47E-01
+	BA-140	162.64		6.70	7.80E+01	6.71E+01	1.81E+02
		304.84		4.50	-1.30E+02		3.05E+02
		423.70		3.20	3.16E+01		5.05E+02
		437.55		2.00	4.47E+02		8.62E+02
		537.32		25.00	-1.69E+01		6.71E+01
+	LA-140	328.77		20.50	4.24E+01	2.19E+01	7.30E+01
		487.03		45.50	2.33E+01		3.67E+01
		815.85		23.50	-2.45E+01		8.94E+01
		1596.49		95.49	-5.70E-01		2.19E+01
+	CE-141	145.44		48.40	-1.90E-01	1.13E+00	1.13E+00
+	@ CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26
	@	293.26		42.00	1.00E+26		1.00E+26
	@	664.55		5.20	1.00E+26		1.00E+26
+	CE-144	133.54		10.80	-3.52E-01	8.12E-01	8.12E-01
+	PM-144	476.78		42.00	2.45E-01	1.33E-01	3.01E-01
		618.01		98.60	-1.48E-02		1.33E-01
		696.49		99.49	-4.48E-03		1.43E-01
+	PM-145	36.85		21.70	8.80E-02	3.12E-01	5.83E-01
		37.36		39.70	4.70E-02		3.12E-01
		42.30		15.10	-8.38E-01		6.96E-01
		72.40		2.31	-1.31E+01		4.50E+00
+	PM-146	453.90		39.94	-3.03E-02	2.40E-01	2.40E-01
		735.90		14.01	2.64E-01		1.01E+00
		747.13		13.10	5.76E-01		1.12E+00
+	ND-147	91.11		28.90	2.49E+02	1.25E+02	1.25E+02
		531.02		13.10	-3.81E+01		2.79E+02
+	PM-149	285.90		3.10	3.88E+12	1.66E+13	1.66E+13
+	EU-152	121.78		20.50	-1.18E-01	3.28E-01	3.28E-01
		244.69		5.40	4.64E-01		1.82E+00
		344.27		19.13	1.10E-01		4.66E-01
		778.89		9.20	-1.24E-01		1.38E+00
		964.01		10.40	8.21E-02		1.64E+00
		1085.78		7.22	-9.29E-01		2.13E+00
		1112.02		9.60	-1.05E-01		1.64E+00
		1407.95		14.94	6.55E-02		1.04E+00
+	GD-153	97.43		31.30	-4.22E-01	3.11E-01	3.11E-01
		103.18		22.20	-8.92E-03		3.87E-01
+	EU-154	123.07		40.50	-6.52E-03	1.70E-01	1.70E-01
		723.30		19.70	-3.36E-01		7.41E-01
		873.19		11.50	-2.79E-01		1.28E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-154	996.32		10.30	-1.34E-02	1.70E-01	1.52E+00
		1004.76		17.90	3.97E-01		9.81E-01
		1274.45		35.50	-1.45E-01		4.67E-01
+	EU-155	86.50		30.90	2.57E-01	3.07E-01	3.07E-01
		105.30		20.70	-2.46E-01		3.25E-01
+	EU-156	811.77		10.40	6.22E+00	8.65E+01	8.65E+01
		1153.47		7.20	1.06E+02		1.84E+02
		1230.71		8.90	-1.81E+01		1.69E+02
+	HO-166M	184.41		72.60	2.76E-01	1.31E-01	1.31E-01
		280.45		29.60	1.37E-02		2.76E-01
		410.94		11.10	5.99E-01		9.10E-01
		711.69		54.10	-2.53E-01		2.40E-01
+	TM-171	66.72		0.14	-6.45E+01	7.20E+01	7.20E+01
+	HF-172	67.35		5.31	-1.70E+00	6.72E-01	1.90E+00
		125.81		11.30	-2.41E-01		6.72E-01
+	LU-172	181.53		20.60	1.83E+02	4.38E+03	6.46E+03
		900.72		29.81	3.70E+03		8.36E+03
		1093.66		62.50	1.27E+03		4.38E+03
+	LU-173	100.72		5.24	-3.46E-01	4.93E-01	1.46E+00
		272.11		21.20	3.76E-01		4.93E-01
+	HF-175	343.40		84.00	6.26E-02	2.65E-01	2.65E-01
+	LU-176	88.34		13.30	-2.90E-01	8.93E-02	6.90E-01
		201.83		86.00	-5.50E-02		9.32E-02
		306.78		94.00	1.12E-02		8.93E-02
+	HF-181	133.02		41.70	-1.09E-01	5.35E-01	7.88E-01
		345.85		17.20	5.65E-01		2.46E+00
		482.03		82.80	3.40E-02		5.35E-01
+	TA-182	67.75		41.20	-7.72E-01	3.85E-01	3.85E-01
		1121.30		34.90	1.32E+00		1.13E+00
		1189.05		16.23	-2.10E-01		2.12E+00
		1221.41		26.98	3.37E-01		1.28E+00
		1231.02		11.44	-1.14E+00		3.18E+00
+	IR-192	308.46		29.68	-2.24E-01	4.70E-01	6.72E-01
		468.07		48.10	-6.59E-03		4.70E-01
+	HG-203	279.19		77.30	1.58E-01	4.33E-01	4.33E-01
+	TL-204	374.74		94.11	6.19E-02	1.02E-01	1.02E-01
		899.15		99.16	-1.22E-02		1.54E-01
		911.74		91.10	4.67E-01		2.48E-01
+	BI-207	569.67		97.72	9.89E-02	1.17E-01	1.17E-01
		1063.62		74.90	-4.04E-02		2.06E-01
+	TL-208	583.14	*	30.22	1.33E+00	7.60E-02	5.16E-01
		860.37		4.48	1.70E+00		3.38E+00
		2614.66	*	35.85	1.54E+00		7.60E-02
+	BI-210M	262.00		45.00	-5.91E-02	1.75E-01	1.75E-01
		300.00		23.00	6.86E-02		4.18E-01
+	PB-210	46.50		4.25	7.78E-01	2.40E+00	2.40E+00
+	PB-211	404.84		2.90	2.01E+00	3.63E+00	3.63E+00
		831.96		2.90	-9.52E-01		4.77E+00

Analysis Report for 1707082-03

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BI-212	727.17		11.80	2.58E-01	1.24E+00	1.24E+00
		1620.62		2.75	1.51E+00		4.61E+00
+	PB-212	238.63	*	44.60	1.42E+00	3.01E-01	3.01E-01
		300.09		3.41	4.63E-01		2.82E+00
+	BI-214	609.31	*	46.30	1.95E+00	3.51E-01	3.51E-01
		1120.29	*	15.10	2.33E+00		1.34E+00
		1764.49	*	15.80	2.09E+00		1.00E+00
		2204.22		4.98	6.16E-01		2.46E+00
+	PB-214	295.21	*	19.19	2.05E+00	3.99E-01	7.06E-01
		351.92	*	37.19	2.17E+00		3.99E-01
+	RN-219	401.80		6.50	4.75E-03	1.52E+00	1.52E+00
+	RA-223	323.87		3.88	-2.60E-02	2.10E+00	2.10E+00
+	RA-224	240.98		3.95	1.73E+01	3.73E+00	3.73E+00
+	RA-225	40.00		31.00	-4.50E+00	2.93E+01	2.93E+01
+	RA-226	186.21	*	3.28	6.16E+00	3.28E+00	3.28E+00
+	TH-227	50.10		8.40	3.39E-01	1.08E+00	1.14E+00
		236.00		11.50	4.97E-02		1.08E+00
		256.20		6.30	8.93E-01		1.30E+00
+	AC-228	338.32	*	11.40	1.33E+00	5.66E-01	1.10E+00
		911.07	*	27.70	1.51E+00		5.66E-01
		969.11	*	16.60	1.25E+00		1.47E+00
+	TH-230	48.44		16.90	1.12E-01	5.79E-01	5.79E-01
		62.85		4.60	2.64E+00		2.13E+00
		67.67		0.37	-4.87E+01		2.42E+01
+	PA-231	283.67		1.60	-1.36E+00	3.82E+00	4.97E+00
		302.67		2.30	1.01E+00		3.82E+00
+	TH-231	25.64		14.70	4.93E-01	1.32E+00	1.92E+00
		84.21		6.40	-1.84E+00		1.32E+00
+	PA-233	311.98		38.60	1.32E+00	2.48E+00	2.48E+00
+	PA-234	131.20		20.40	2.59E-01	3.56E-01	3.56E-01
		733.99		8.80	-2.03E-01		1.51E+00
		946.00		12.00	6.47E-01		1.31E+00
+	PA-234M	1001.03		0.92	1.80E-01	1.66E+01	1.66E+01
+	TH-234	63.29	*	3.80	3.23E+00	4.55E+00	4.55E+00
+	U-235	143.76		10.50	3.59E-01	7.14E-01	7.14E-01
		163.35		4.70	6.83E-01		1.58E+00
		205.31		4.70	-2.58E-01		1.71E+00
+	NP-237	86.50		12.60	6.08E-01	7.26E-01	7.26E-01
+	NP-239	106.10		22.70	-1.88E+11	3.03E+11	3.03E+11
		228.18		10.70	-2.76E+11		8.13E+11
		277.60		14.10	2.25E+11		6.02E+11
+	AM-241	59.54		35.90	2.11E-03	2.67E-01	2.67E-01
+	AM-243	74.67		66.00	1.02E+00	1.91E-01	1.91E-01
+	CM-243	209.75		3.29	1.97E+00	5.84E-01	2.59E+00
		228.14		10.60	-2.68E-01		7.90E-01
		277.60		14.00	2.18E-01		5.84E-01

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
+	BE-7	477.59	*	10.42	3.69E+00	3.69E+00	1.94E+00	1.76E+00
	NA-22	1274.54		99.94	1.74E-01	1.74E-01	-5.41E-02	8.00E-02
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		0.00E+00	1.00E+20
	AL-26	1808.65		99.76	1.05E-01	1.05E-01	0.00E+00	4.36E-02
+	K-40	1460.81	*	10.67	2.57E+00	2.57E+00	2.07E+01	1.21E+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	9.52E-02	9.52E-02	-1.91E-01	4.67E-02
		78.34		96.00	1.24E-01		5.47E-01	6.12E-02
	SC-46	889.25		99.98	3.26E-01	3.26E-01	-1.82E-03	1.53E-01
		1120.51		99.99	4.99E-01		6.97E-01	2.37E-01
	V-48	983.52		99.98	7.96E+00	7.96E+00	1.13E-01	3.68E+00
		1312.10		97.50	9.13E+00		3.31E-01	4.16E+00
	CR-51	320.08		9.83	9.11E+00	9.11E+00	2.52E+00	4.37E+00
	MN-54	834.83		99.97	1.76E-01	1.76E-01	5.91E-02	8.27E-02
	CO-56	846.75		99.96	3.09E-01	3.09E-01	1.29E-01	1.44E-01
		1037.75		14.03	2.40E+00		-2.65E-01	1.11E+00
		1238.25		67.00	8.10E-01		5.10E-01	3.83E-01
		1771.40		15.51	1.66E+00		-7.32E-01	7.02E-01
		2598.48		16.90	1.62E+00		5.41E-01	6.29E-01
	CO-57	122.06		85.51	9.89E-02	9.89E-02	-3.55E-02	4.83E-02
		136.48		10.60	8.31E-01		-5.49E-01	4.06E-01
	CO-58	810.76		99.40	3.11E-01	3.11E-01	-5.51E-03	1.45E-01
	FE-59	1099.22		56.50	1.28E+00	1.28E+00	-4.88E-02	5.96E-01
		1291.56		43.20	1.70E+00		-1.01E-02	7.86E-01
	CO-60	1173.22		100.00	1.77E-01	1.31E-01	-1.04E-02	8.23E-02
		1332.49		100.00	1.31E-01		-2.66E-02	5.87E-02
	ZN-65	1115.52		50.75	5.13E-01	5.13E-01	4.17E-02	2.42E-01
	GA-67	93.31		35.70	1.20E+08	1.20E+08	1.87E+08	5.90E+07

Analysis Report for 1707082-03

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	GA-67	208.95		2.24	1.80E+09	1.20E+08	1.06E+09	8.75E+08
		300.22		16.00	2.88E+08		4.72E+07	1.39E+08
	SE-75	121.11		16.70	6.88E-01	2.03E-01	2.08E-02	3.36E-01
		136.00		59.20	2.03E-01		-6.70E-02	9.91E-02
		264.65		59.80	2.35E-01		-1.51E-03	1.13E-01
		279.53		25.20	5.53E-01		2.34E-02	2.66E-01
		400.65		11.40	1.45E+00		-9.23E-01	6.91E-01
	RB-82	776.52		13.00	1.18E+01	1.18E+01	-5.23E-01	5.47E+00
	RB-83	520.41		46.00	4.60E-01	4.60E-01	-1.63E-01	2.17E-01
		529.64		30.30	6.93E-01		3.83E-02	3.26E-01
		552.65		16.40	1.27E+00		1.42E-01	5.96E-01
	KR-85	513.99		0.43	3.21E+01	3.21E+01	3.99E+00	1.54E+01
	SR-85	513.99		99.27	3.78E-01	3.78E-01	4.68E-02	1.81E-01
	Y-88	898.02		93.40	2.83E-01	2.17E-01	-9.46E-02	1.32E-01
		1836.01		99.38	2.17E-01		1.24E-02	9.15E-02
	MO-93	263.06		56.72	1.43E-01	1.19E-01	-2.33E-02	6.90E-02
		684.67		99.68	1.30E-01		-5.80E-04	6.12E-02
		1477.11		99.08	1.19E-01		-9.10E-03	5.21E-02
	NB-93M	16.57		9.43	9.76E+00	9.76E+00	2.26E+01	4.75E+00
	NB-94	702.63		100.00	1.40E-01	1.37E-01	-1.49E-02	6.62E-02
		871.10		100.00	1.37E-01		-1.16E-01	6.36E-02
	NB-95	765.79		99.81	1.07E+00	1.07E+00	-2.01E-02	5.08E-01
	NB-95M	235.69		25.00	3.43E+07	3.43E+07	1.58E+06	1.68E+07
	ZR-95	724.18		43.70	9.08E-01	6.90E-01	-4.12E-01	4.29E-01
		756.72		55.30	6.90E-01		1.12E-01	3.24E-01
	MO-99	181.06		6.20	2.36E+10	2.17E+10	-7.91E+08	1.15E+10
		739.58		12.80	2.17E+10		4.88E+09	1.03E+10
		778.00		4.50	5.25E+10		1.33E+09	2.44E+10
	RU-103	497.08		89.00	5.59E-01	5.59E-01	-7.42E-02	2.63E-01
	RU-106	621.84		9.80	1.40E+00	1.40E+00	4.97E-01	6.59E-01
	AG-108M	433.93		89.90	1.12E-01	1.12E-01	-9.83E-03	5.34E-02
		614.37		90.40	1.20E-01		-2.37E-03	5.64E-02
		722.95		90.50	1.53E-01		-1.57E-01	7.22E-02
+	CD-109	88.03	*	3.72	4.99E+00	4.99E+00	6.17E+00	2.47E+00
	AG-110M	657.75		93.14	1.85E-01	1.85E-01	9.17E-03	8.74E-02
		677.61		10.53	1.55E+00		-2.53E-01	7.28E-01
		706.67		16.46	1.16E+00		9.60E-01	5.52E-01
		763.93		21.98	8.94E-01		7.83E-02	4.23E-01
		884.67		71.63	2.74E-01		-3.27E-02	1.28E-01
		1384.27		23.94	7.38E-01		-1.99E-01	3.31E-01
	CD-113M	263.70		0.02	3.55E+02	3.55E+02	-3.03E+01	1.71E+02
	SN-113	255.12		1.93	7.35E+00	2.59E-01	4.77E+00	3.55E+00
		391.69		64.90	2.59E-01		-1.27E-01	1.24E-01
	TE123M	159.00		84.10	1.51E-01	1.51E-01	-1.14E-01	7.37E-02
	SB-124	602.71		97.87	3.25E-01	3.25E-01	1.18E-01	1.53E-01
		645.85		7.26	4.52E+00		5.28E-01	2.12E+00
		722.78		11.10	3.68E+00		-3.77E+00	1.74E+00
		1691.02		49.00	6.76E-01		-1.49E-01	2.88E-01
	I-125	35.49		6.49	6.04E+00	6.04E+00	-1.15E+00	2.95E+00
	SB-125	176.33		6.89	1.15E+00	3.57E-01	-5.52E-02	5.60E-01
		427.89		29.33	3.57E-01		-7.66E-03	1.70E-01
		463.38		10.35	1.06E+00		1.05E+00	5.06E-01
		600.56		17.80	6.83E-01		2.87E-01	3.22E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	SB-125	635.90		11.32	9.44E-01	3.57E-01	-4.44E-01	4.40E-01
	SB-126	414.70		83.30	2.12E+01	2.12E+01	-9.07E+00	1.01E+01
		666.33		99.60	2.63E+01		-5.66E-01	1.25E+01
		695.00		99.60	2.53E+01		8.63E+00	1.19E+01
		720.50		53.80	4.94E+01		7.03E+00	2.33E+01
+	SN-126	87.57	*	37.00	4.36E-01	4.36E-01	5.39E-01	2.16E-01
	SB-127	473.00		25.00	9.01E+06	8.03E+06	2.51E+06	4.27E+06
		685.20		35.70	8.03E+06		-3.58E+04	3.78E+06
		783.80		14.70	2.24E+07		1.02E+07	1.05E+07
	I-129	29.78		57.00	3.37E-01	3.37E-01	-9.08E-02	1.65E-01
		33.60		13.20	1.10E+00		-5.71E-01	5.38E-01
		39.58		7.52	1.50E+00		-2.30E-01	7.32E-01
	I-131	284.30		6.05	4.37E+03	3.70E+02	-1.20E+03	2.10E+03
		364.48		81.20	3.70E+02		2.20E+02	1.77E+02
		636.97		7.26	4.55E+03		-2.20E+03	2.12E+03
		722.89		1.80	2.55E+04		-2.61E+04	1.20E+04
	TE-132	49.72		13.10	3.59E+08	4.60E+07	1.06E+08	1.76E+08
		228.16		88.00	4.60E+07		-1.56E+07	2.23E+07
	BA-133	81.00		33.00	2.81E-01	2.22E-01	-9.85E-01	1.38E-01
		302.84		17.80	5.03E-01		1.32E-01	2.42E-01
		356.01		60.00	2.22E-01		3.27E-02	1.08E-01
@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	XE-133	81.00		38.00	6.00E+04	6.00E+04	-2.10E+05	2.95E+04
	CS-134	563.23		8.38	1.42E+00	1.40E-01	-2.28E-02	6.71E-01
		569.32		15.43	8.06E-01		6.79E-01	3.81E-01
		604.70		97.60	1.40E-01		2.06E-02	6.64E-02
		795.84		85.40	1.96E-01		7.98E-02	9.26E-02
		801.93		8.73	1.74E+00		9.52E-03	8.19E-01
	CS-135	268.24		16.00	5.74E-01	5.74E-01	3.76E-01	2.78E-01
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	1.49E+02	1.90E+01	1.11E+02	7.27E+01
		163.89		4.61	2.28E+02		5.43E+01	1.11E+02
		176.55		13.56	7.71E+01		7.21E+00	3.75E+01
		273.65		12.66	9.51E+01		7.45E+00	4.59E+01
		340.57		48.50	3.18E+01		2.61E+00	1.54E+01
		818.50		99.70	1.90E+01		-1.31E+00	8.86E+00
		1048.07		79.60	2.80E+01		6.37E+00	1.30E+01
		1235.34		19.70	1.62E+02		8.64E+00	7.66E+01
+	CS-137	661.65	*	85.12	1.79E-01	1.79E-01	1.40E-01	8.53E-02
	LA-138	788.74		34.00	4.50E-01	2.17E-01	-9.94E-02	2.13E-01
		1435.80		66.00	2.17E-01		4.84E-02	9.74E-02
	CE-139	165.85		80.35	1.47E-01	1.47E-01	-2.77E-02	7.18E-02
	BA-140	162.64		6.70	1.81E+02	6.71E+01	7.80E+01	8.81E+01
		304.84		4.50	3.05E+02		-1.30E+02	1.47E+02
		423.70		3.20	5.05E+02		3.16E+01	2.41E+02
		437.55		2.00	8.62E+02		4.47E+02	4.12E+02
		537.32		25.00	6.71E+01		-1.69E+01	3.16E+01
	LA-140	328.77		20.50	7.30E+01	2.19E+01	4.24E+01	3.51E+01
		487.03		45.50	3.67E+01		2.33E+01	1.74E+01
		815.85		23.50	8.94E+01		-2.45E+01	4.17E+01
		1596.49		95.49	2.19E+01		-5.70E-01	9.61E+00

Analysis Report for 1707082-03

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CE-141	145.44	48.40	1.13E+00	1.13E+00	-1.90E-01	5.54E-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	8.12E-01	8.12E-01	-3.52E-01	3.96E-01
PM-144	476.78	42.00	3.01E-01	1.33E-01	2.45E-01	1.43E-01
	618.01	98.60	1.33E-01		-1.48E-02	6.26E-02
	696.49	99.49	1.43E-01		-4.48E-03	6.69E-02
PM-145	36.85	21.70	5.83E-01	3.12E-01	8.80E-02	2.85E-01
	37.36	39.70	3.12E-01		4.70E-02	1.52E-01
	42.30	15.10	6.96E-01		-8.38E-01	3.40E-01
	72.40	2.31	4.50E+00		-1.31E+01	2.22E+00
PM-146	453.90	39.94	2.40E-01	2.40E-01	-3.03E-02	1.14E-01
	735.90	14.01	1.01E+00		2.64E-01	4.74E-01
	747.13	13.10	1.12E+00		5.76E-01	5.28E-01
ND-147	91.11	28.90	1.25E+02	1.25E+02	2.49E+02	6.14E+01
	531.02	13.10	2.79E+02		-3.81E+01	1.31E+02
PM-149	285.90	3.10	1.66E+13	1.66E+13	3.88E+12	7.99E+12
EU-152	121.78	20.50	3.28E-01	3.28E-01	-1.18E-01	1.60E-01
	244.69	5.40	1.82E+00		4.64E-01	8.86E-01
	344.27	19.13	4.66E-01		1.10E-01	2.23E-01
	778.89	9.20	1.38E+00		-1.24E-01	6.43E-01
	964.01	10.40	1.64E+00		8.21E-02	7.73E-01
	1085.78	7.22	2.13E+00		-9.29E-01	9.88E-01
	1112.02	9.60	1.64E+00		-1.05E-01	7.59E-01
	1407.95	14.94	1.04E+00		6.55E-02	4.74E-01
GD-153	97.43	31.30	3.11E-01	3.11E-01	-4.22E-01	1.52E-01
	103.18	22.20	3.87E-01		-8.92E-03	1.89E-01
EU-154	123.07	40.50	1.70E-01	1.70E-01	-6.52E-03	8.30E-02
	723.30	19.70	7.41E-01		-3.36E-01	3.51E-01
	873.19	11.50	1.28E+00		-2.79E-01	6.00E-01
	996.32	10.30	1.52E+00		-1.34E-02	7.11E-01
	1004.76	17.90	9.81E-01		3.97E-01	4.61E-01
	1274.45	35.50	4.67E-01		-1.45E-01	2.15E-01
EU-155	86.50	30.90	3.07E-01	3.07E-01	2.57E-01	1.51E-01
	105.30	20.70	3.25E-01		-2.46E-01	1.59E-01
EU-156	811.77	10.40	8.65E+01	8.65E+01	6.22E+00	4.02E+01
	1153.47	7.20	1.84E+02		1.06E+02	8.59E+01
	1230.71	8.90	1.69E+02		-1.81E+01	7.92E+01
HO-166M	184.41	72.60	1.31E-01	1.31E-01	2.76E-01	6.39E-02
	280.45	29.60	2.76E-01		1.37E-02	1.33E-01
	410.94	11.10	9.10E-01		5.99E-01	4.35E-01
	711.69	54.10	2.40E-01		-2.53E-01	1.13E-01
TM-171	66.72	0.14	7.20E+01	7.20E+01	-6.45E+01	3.54E+01
HF-172	67.35	5.31	1.90E+00	6.72E-01	-1.70E+00	9.31E-01
	125.81	11.30	6.72E-01		-2.41E-01	3.28E-01
LU-172	181.53	20.60	6.46E+03	4.38E+03	1.83E+02	3.15E+03
	900.72	29.81	8.36E+03		3.70E+03	3.91E+03
	1093.66	62.50	4.38E+03		1.27E+03	2.04E+03
LU-173	100.72	5.24	1.46E+00	4.93E-01	-3.46E-01	7.16E-01
	272.11	21.20	4.93E-01		3.76E-01	2.39E-01
HF-175	343.40	84.00	2.65E-01	2.65E-01	6.26E-02	1.27E-01
LU-176	88.34	13.30	6.90E-01	8.93E-02	-2.90E-01	3.40E-01

Analysis Report for 1707082-03

HTC-A01-S005-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	LU-176	201.83		86.00	9.32E-02	8.93E-02	-5.50E-02	4.53E-02
		306.78		94.00	8.93E-02		1.12E-02	4.29E-02
	HF-181	133.02		41.70	7.88E-01	5.35E-01	-1.09E-01	3.85E-01
		345.85		17.20	2.46E+00		5.65E-01	1.18E+00
		482.03		82.80	5.35E-01		3.40E-02	2.53E-01
	TA-182	67.75		41.20	3.85E-01	3.85E-01	-7.72E-01	1.89E-01
		1121.30		34.90	1.13E+00		1.32E+00	5.38E-01
		1189.05		16.23	2.12E+00		-2.10E-01	9.94E-01
		1221.41		26.98	1.28E+00		3.37E-01	6.00E-01
		1231.02		11.44	3.18E+00		-1.14E+00	1.49E+00
	IR-192	308.46		29.68	6.72E-01	4.70E-01	-2.24E-01	3.22E-01
		468.07		48.10	4.70E-01		-6.59E-03	2.22E-01
	HG-203	279.19		77.30	4.33E-01	4.33E-01	1.58E-01	2.09E-01
	TL-204	374.74		94.11	1.02E-01	1.02E-01	6.19E-02	4.89E-02
		899.15		99.16	1.54E-01		-1.22E-02	7.19E-02
		911.74		91.10	2.48E-01		4.67E-01	1.18E-01
	BI-207	569.67		97.72	1.17E-01	1.17E-01	9.89E-02	5.55E-02
		1063.62		74.90	2.06E-01		-4.04E-02	9.54E-02
+	TL-208	583.14	*	30.22	5.16E-01	7.60E-02	1.33E+00	2.48E-01
		860.37		4.48	3.38E+00		1.70E+00	1.59E+00
		2614.66	*	35.85	7.60E-02		1.54E+00	0.00E+00
	BI-210M	262.00		45.00	1.75E-01	1.75E-01	-5.91E-02	8.44E-02
		300.00		23.00	4.18E-01		6.86E-02	2.02E-01
	PB-210	46.50		4.25	2.40E+00	2.40E+00	7.78E-01	1.17E+00
	PB-211	404.84		2.90	3.63E+00	3.63E+00	2.01E+00	1.74E+00
		831.96		2.90	4.77E+00		-9.52E-01	2.23E+00
	BI-212	727.17		11.80	1.24E+00	1.24E+00	2.58E-01	5.85E-01
		1620.62		2.75	4.61E+00		1.51E+00	2.01E+00
+	PB-212	238.63	*	44.60	3.01E-01	3.01E-01	1.42E+00	1.48E-01
		300.09		3.41	2.82E+00		4.63E-01	1.36E+00
+	BI-214	609.31	*	46.30	3.51E-01	3.51E-01	1.95E+00	1.68E-01
		1120.29	*	15.10	1.34E+00		2.33E+00	6.33E-01
		1764.49	*	15.80	1.00E+00		2.09E+00	4.45E-01
		2204.22		4.98	2.46E+00		6.16E-01	1.01E+00
+	PB-214	295.21	*	19.19	7.06E-01	3.99E-01	2.05E+00	3.45E-01
		351.92	*	37.19	3.99E-01		2.17E+00	1.95E-01
	RN-219	401.80		6.50	1.52E+00	1.52E+00	4.75E-03	7.28E-01
	RA-223	323.87		3.88	2.10E+00	2.10E+00	-2.60E-02	1.01E+00
	RA-224	240.98		3.95	3.73E+00	3.73E+00	1.73E+01	1.83E+00
	RA-225	40.00		31.00	2.93E+01	2.93E+01	-4.50E+00	1.43E+01
+	RA-226	186.21	*	3.28	3.28E+00	3.28E+00	6.16E+00	1.61E+00
	TH-227	50.10		8.40	1.14E+00	1.08E+00	3.39E-01	5.60E-01
		236.00		11.50	1.08E+00		4.97E-02	5.28E-01
		256.20		6.30	1.30E+00		8.93E-01	6.26E-01
+	AC-228	338.32	*	11.40	1.10E+00	5.66E-01	1.33E+00	5.34E-01
		911.07	*	27.70	5.66E-01		1.51E+00	2.66E-01
		969.11	*	16.60	1.47E+00		1.25E+00	7.04E-01
	TH-230	48.44		16.90	5.79E-01	5.79E-01	1.12E-01	2.83E-01
		62.85		4.60	2.13E+00		2.64E+00	1.05E+00
		67.67		0.37	2.42E+01		-4.87E+01	1.19E+01
	PA-231	283.67		1.60	4.97E+00	3.82E+00	-1.36E+00	2.39E+00
		302.67		2.30	3.82E+00		1.01E+00	1.84E+00
	TH-231	25.64		14.70	1.92E+00	1.32E+00	4.93E-01	9.41E-01

Analysis Report for 1707082-03

HTC-A01-S005-0612-01

	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	1.32E+00	1.32E+00	-1.84E+00	6.47E-01
	PA-233	311.98		38.60	2.48E+00	2.48E+00	1.32E+00	1.19E+00
	PA-234	131.20		20.40	3.56E-01	3.56E-01	2.59E-01	1.74E-01
		733.99		8.80	1.51E+00		-2.03E-01	7.12E-01
		946.00		12.00	1.31E+00		6.47E-01	6.14E-01
	PA-234M	1001.03		0.92	1.66E+01	1.66E+01	1.80E-01	7.71E+00
+	TH-234	63.29	*	3.80	4.55E+00	4.55E+00	3.23E+00	2.25E+00
	U-235	143.76		10.50	7.14E-01	7.14E-01	3.59E-01	3.49E-01
		163.35		4.70	1.58E+00		6.83E-01	7.71E-01
		205.31		4.70	1.71E+00		-2.58E-01	8.31E-01
	NP-237	86.50		12.60	7.26E-01	7.26E-01	6.08E-01	3.57E-01
	NP-239	106.10		22.70	3.03E+11	3.03E+11	-1.88E+11	1.48E+11
		228.18		10.70	8.13E+11		-2.76E+11	3.95E+11
		277.60		14.10	6.02E+11		2.25E+11	2.90E+11
	AM-241	59.54		35.90	2.67E-01	2.67E-01	2.11E-03	1.31E-01
	AM-243	74.67		66.00	1.91E-01	1.91E-01	1.02E+00	9.44E-02
	CM-243	209.75		3.29	2.59E+00	5.84E-01	1.97E+00	1.26E+00
		228.14		10.60	7.90E-01		-2.68E-01	3.84E-01
		277.60		14.00	5.84E-01		2.18E-01	2.81E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

Analysis Report for 1707082-03

HTC-A01-S005-0612-01

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

Sample Title: HTC-A01-S005-0612-01

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	36	122
17:	122	105	102	86	90	87	96	102
25:	92	101	79	90	91	85	79	75
33:	80	91	66	83	84	89	85	87
41:	78	84	89	97	112	139	102	100
49:	97	111	115	121	107	109	123	124
57:	122	137	146	134	187	212	196	173
65:	145	154	148	155	142	157	174	213
73:	285	375	408	481	373	190	143	118
81:	120	124	169	166	164	205	223	174
89:	161	181	198	255	180	137	96	86
97:	105	124	90	99	86	74	85	98
105:	91	94	75	100	114	93	106	97
113:	82	93	80	95	83	68	91	103
121:	73	81	81	75	82	91	90	101
129:	100	90	85	92	82	66	81	82
137:	82	82	82	89	94	90	98	77
145:	100	69	78	78	83	85	99	81
153:	95	101	79	84	66	87	63	69
161:	74	76	80	69	79	59	57	71
169:	80	68	82	62	72	60	70	61
177:	61	68	56	61	51	70	79	110
185:	164	142	80	66	63	62	63	78
193:	61	53	77	64	98	54	68	66
201:	62	67	60	46	59	61	57	82
209:	72	58	51	61	50	54	67	60
217:	46	43	43	59	51	53	55	54
225:	53	51	48	59	44	56	55	62
233:	44	40	57	99	191	281	200	116
241:	116	104	49	40	32	44	52	44
249:	26	28	33	41	38	40	38	49
257:	35	38	33	33	39	42	29	34
265:	43	37	37	53	66	55	42	40
273:	34	25	43	27	47	18	45	30
281:	30	32	30	32	30	31	32	38
289:	26	33	33	28	63	172	171	74
297:	35	33	36	40	40	25	31	27
305:	32	26	26	37	25	29	20	28
313:	37	29	24	21	32	32	28	26
321:	30	23	24	23	22	23	33	41
329:	29	29	34	24	26	32	24	44
337:	61	69	46	23	23	31	27	23
345:	30	19	30	27	47	150	243	174
353:	73	32	20	25	22	28	18	15
361:	24	27	22	26	22	20	24	15

369:	24	16	18	20	21	32	17	32

Sample Title: HTC-A01-S005-0612-01

Channel								
377:	20	19	12	27	13	17	19	19
385:	21	23	31	24	21	20	30	19
393:	22	21	25	28	20	19	12	24
401:	26	20	30	30	25	19	30	22
409:	23	28	20	24	13	12	16	21
417:	23	20	18	28	19	20	22	18
425:	17	19	22	19	25	18	20	18
433:	24	18	29	14	20	20	32	20
441:	12	17	10	17	21	11	17	15
449:	12	15	15	23	13	6	15	21
457:	26	11	9	12	22	28	19	19
465:	14	15	10	12	13	20	10	24
473:	17	14	18	18	21	17	23	8
481:	7	12	14	19	16	20	17	12
489:	16	13	13	13	14	19	6	17
497:	12	16	9	10	20	7	13	19
505:	15	14	36	21	32	52	47	23
513:	13	13	19	21	17	9	9	19
521:	12	17	10	14	11	17	12	10
529:	12	13	11	13	13	11	13	17
537:	15	9	16	12	16	17	14	9
545:	8	12	9	19	13	17	12	6
553:	8	11	12	9	8	9	17	9
561:	21	19	12	13	5	15	19	11
569:	13	18	16	11	7	10	12	16
577:	7	10	13	13	23	66	68	33
585:	14	12	12	11	8	10	15	13
593:	9	13	15	14	17	9	18	10
601:	16	13	9	9	6	10	48	138
609:	154	57	16	12	10	9	13	8
617:	11	11	8	20	17	11	14	6
625:	9	12	5	12	7	11	12	8
633:	13	6	4	7	11	13	7	16
641:	9	13	7	9	12	11	10	13
649:	12	4	16	10	15	11	9	5
657:	9	7	9	25	15	19	9	12
665:	24	10	6	10	10	9	8	14
673:	11	5	4	15	16	4	11	9
681:	13	13	13	9	12	5	6	9
689:	9	14	15	4	10	11	9	9
697:	11	9	4	7	11	12	10	10
705:	19	21	9	12	12	9	6	8
713:	12	6	12	12	10	14	13	16
721:	7	9	6	9	5	16	21	18
729:	13	8	8	11	7	4	16	6
737:	12	15	10	10	6	11	11	8
745:	17	12	7	9	10	9	9	6
753:	11	11	9	9	10	8	14	8
761:	10	7	6	11	11	16	20	28
769:	16	8	3	6	7	7	7	7
777:	6	5	2	13	8	11	5	12
785:	17	15	8	11	9	6	8	13
793:	12	18	14	10	7	7	9	8

801:	11	11	12	6	8	8	4	5

Sample Title: HTC-A01-S005-0612-01

Channel								
809:	6	6	7	9	8	6	8	7
817:	7	7	5	7	13	9	8	7
825:	7	8	8	9	6	10	8	11
833:	8	6	6	11	9	8	7	6
841:	8	6	3	11	5	8	10	5
849:	7	11	5	3	11	6	4	5
857:	5	9	17	10	11	9	7	9
865:	8	8	8	11	7	8	4	5
873:	5	8	10	15	10	7	10	7
881:	7	14	9	11	6	9	8	6
889:	13	7	13	6	7	8	6	7
897:	7	9	6	8	9	10	7	9
905:	8	2	3	6	18	32	44	25
913:	14	7	5	6	2	8	8	5
921:	13	8	7	2	10	6	8	7
929:	10	5	7	5	11	13	6	9
937:	3	4	9	5	5	8	13	11
945:	7	3	12	9	6	4	6	10
953:	8	1	4	9	10	7	7	7
961:	6	4	7	16	11	8	17	25
969:	25	8	10	8	8	8	13	5
977:	2	3	6	7	10	3	3	4
985:	6	6	4	6	6	4	13	8
993:	5	8	8	8	4	6	4	13
1001:	6	6	8	7	7	16	7	10
1009:	9	8	5	6	3	1	5	3
1017:	6	6	5	11	5	4	4	5
1025:	5	4	5	6	4	5	6	8
1033:	4	6	7	7	5	9	4	6
1041:	6	4	8	6	5	5	6	8
1049:	4	11	8	5	8	3	12	5
1057:	10	12	4	9	5	6	9	6
1065:	7	6	4	3	5	3	14	4
1073:	8	8	8	4	9	6	8	5
1081:	6	8	2	9	6	9	2	7
1089:	4	6	11	3	4	10	5	9
1097:	9	5	8	9	6	6	7	8
1105:	7	4	8	4	3	6	9	5
1113:	7	5	6	8	10	10	30	27
1121:	19	5	7	4	2	5	6	6
1129:	7	6	6	6	6	8	8	7
1137:	5	9	8	6	5	2	9	8
1145:	6	3	6	4	5	6	9	8
1153:	6	7	13	7	8	3	4	10
1161:	8	5	9	11	8	11	7	3
1169:	9	6	8	6	4	7	8	3
1177:	8	8	2	10	7	10	6	7
1185:	7	13	15	9	9	5	5	5
1193:	8	6	9	14	8	11	5	9
1201:	6	8	7	6	9	10	9	8
1209:	8	8	7	8	12	10	3	6
1217:	5	7	9	5	11	14	11	5
1225:	6	5	10	7	10	11	8	8

1233:	9	12	5	9	20	15	11	9

Sample Title: HTC-A01-S005-0612-01

Channel								
1241:	13	13	7	10	8	10	6	7
1249:	5	4	7	9	1	4	7	4
1257:	7	9	7	7	7	8	6	5
1265:	8	4	2	4	6	7	5	7
1273:	7	6	7	2	2	2	8	11
1281:	3	5	8	3	5	1	4	8
1289:	9	7	6	5	2	3	5	5
1297:	4	3	5	3	5	8	3	6
1305:	7	2	7	6	5	2	3	1
1313:	4	5	5	5	0	5	3	4
1321:	1	6	2	6	1	4	3	4
1329:	1	5	1	3	2	3	2	3
1337:	5	4	2	6	5	4	5	3
1345:	6	3	3	1	7	0	5	3
1353:	1	2	5	8	4	4	6	4
1361:	8	5	3	5	4	2	1	5
1369:	3	6	6	1	0	1	3	3
1377:	6	6	4	3	2	2	4	4
1385:	2	4	3	2	3	1	3	3
1393:	2	3	4	1	1	3	3	2
1401:	4	6	2	4	2	3	6	4
1409:	3	3	2	6	2	5	2	1
1417:	1	2	3	4	5	1	2	4
1425:	2	4	2	3	2	2	2	2
1433:	3	3	5	3	3	3	3	3
1441:	3	1	2	5	2	4	5	2
1449:	2	1	2	3	1	8	4	6
1457:	4	31	57	139	117	66	15	4
1465:	1	2	2	1	1	0	1	1
1473:	3	1	2	3	3	1	1	2
1481:	0	4	1	3	3	2	4	5
1489:	3	4	0	1	4	8	3	4
1497:	0	2	2	1	2	1	0	1
1505:	0	4	3	6	3	2	5	1
1513:	3	2	1	1	0	2	2	1
1521:	1	1	1	1	2	4	3	1
1529:	3	2	1	0	4	0	2	3
1537:	1	3	3	1	2	3	3	1
1545:	2	3	2	3	1	3	0	2
1553:	3	1	3	1	4	1	2	3
1561:	2	1	1	4	6	2	0	0
1569:	0	2	3	2	2	2	1	2
1577:	4	1	3	5	1	3	5	3
1585:	4	1	6	1	2	3	7	0
1593:	4	2	3	2	3	2	1	0
1601:	0	1	1	5	1	3	1	2
1609:	1	1	1	1	3	1	1	2
1617:	0	0	3	3	2	1	1	4
1625:	0	0	3	0	2	0	0	2
1633:	0	2	0	1	2	1	1	1
1641:	0	3	0	1	1	1	2	4
1649:	1	0	0	1	1	2	0	1
1657:	1	1	5	1	3	4	2	2

1665:	2	2	1	2	1	1	1	3

Sample Title: HTC-A01-S005-0612-01

Channel								
1673:	1	0	0	0	1	1	2	1
1681:	0	0	2	1	2	2	2	0
1689:	2	2	0	1	2	1	1	4
1697:	1	0	1	1	1	0	0	1
1705:	1	0	1	0	1	1	0	2
1713:	0	4	1	2	2	4	2	0
1721:	0	1	1	3	1	3	1	3
1729:	5	3	5	1	0	1	0	1
1737:	0	1	1	0	2	1	2	0
1745:	0	1	1	0	2	0	1	1
1753:	3	1	1	1	2	1	1	1
1761:	1	3	6	25	13	8	3	1
1769:	3	0	0	0	0	2	1	0
1777:	0	1	0	1	0	1	1	1
1785:	0	2	0	2	2	0	0	3
1793:	3	1	1	1	0	2	1	0
1801:	1	1	2	1	0	0	0	0
1809:	1	3	3	0	1	0	2	0
1817:	0	1	0	0	1	2	0	1
1825:	1	0	2	0	0	1	2	1
1833:	0	2	1	1	3	1	1	0
1841:	3	0	0	2	2	2	6	0
1849:	1	2	0	2	0	0	0	1
1857:	1	0	2	1	0	1	1	0
1865:	0	2	0	3	0	1	3	1
1873:	2	2	0	1	0	0	2	1
1881:	1	1	1	1	2	0	1	0
1889:	0	0	1	0	2	1	1	0
1897:	0	1	1	1	0	1	0	0
1905:	2	0	1	0	0	0	1	0
1913:	2	1	0	1	1	0	0	0
1921:	0	1	0	1	1	2	1	0
1929:	1	1	0	0	1	0	5	0
1937:	0	0	1	3	0	1	0	0
1945:	0	0	1	0	0	2	1	1
1953:	1	1	1	2	2	1	0	0
1961:	3	1	1	1	0	1	0	0
1969:	0	1	1	2	0	0	0	1
1977:	1	1	1	0	1	0	3	1
1985:	0	2	0	0	1	1	2	0
1993:	2	1	0	0	0	1	0	2
2001:	0	0	2	0	1	0	0	1
2009:	0	1	1	2	3	0	1	1
2017:	0	0	1	0	0	0	0	0
2025:	0	1	0	1	1	0	1	2
2033:	1	4	0	1	0	0	0	0
2041:	1	0	0	1	1	1	0	0
2049:	2	0	2	1	0	0	0	3
2057:	1	0	0	0	1	0	1	2
2065:	1	1	0	1	0	1	1	1
2073:	1	0	1	2	1	1	0	0
2081:	0	0	2	1	0	2	1	0
2089:	0	2	0	0	1	0	1	0

2097:	1	1	1	0	0	0	2	2

Sample Title: HTC-A01-S005-0612-01

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

2529:	0	0	0	1	0	0	0	1

Sample Title: HTC-A01-S005-0612-01

Channel								
2537:	0	0	0	0	0	0	0	0
2545:	0	0	0	0	0	1	1	1
2553:	1	0	1	0	0	0	0	0
2561:	0	0	0	0	0	0	0	0
2569:	0	1	0	0	1	0	1	0
2577:	0	0	0	0	0	0	0	0
2585:	0	0	0	1	0	0	0	0
2593:	0	0	1	0	0	0	1	1
2601:	1	0	0	0	0	0	2	0
2609:	0	1	1	3	6	11	16	14
2617:	3	0	0	0	0	0	0	0
2625:	0	1	2	1	0	0	0	0
2633:	0	0	0	0	1	0	1	1
2641:	0	0	0	0	1	0	0	0
2649:	0	1	0	0	0	1	0	0
2657:	0	0	0	0	0	0	0	0
2665:	1	0	0	0	1	0	0	1
2673:	0	0	0	0	0	0	0	0
2681:	0	0	0	0	0	0	0	1
2689:	0	0	0	0	0	0	0	0
2697:	0	0	0	1	0	0	0	2
2705:	0	0	0	0	1	1	0	0
2713:	0	1	0	0	1	0	0	1
2721:	0	0	1	0	0	1	0	0
2729:	0	0	0	0	0	0	0	0
2737:	0	0	0	0	0	0	0	1
2745:	0	0	2	0	0	0	0	0
2753:	0	0	0	0	0	0	0	0
2761:	0	0	1	0	0	0	0	0
2769:	0	0	0	0	0	0	0	0
2777:	1	0	0	1	1	0	0	0
2785:	0	0	0	0	0	0	0	1
2793:	0	0	0	0	0	0	0	0
2801:	0	0	0	0	1	0	0	1
2809:	0	0	0	2	0	0	0	0
2817:	0	0	0	0	1	0	0	0
2825:	0	0	0	0	0	0	1	0
2833:	0	0	0	0	0	1	0	1
2841:	0	0	1	0	0	0	0	0
2849:	1	0	0	0	0	0	1	0
2857:	0	0	1	0	0	0	1	0
2865:	0	0	0	0	0	1	0	0
2873:	0	0	0	1	0	0	0	0
2881:	1	0	1	0	0	1	0	0
2889:	0	0	0	0	1	0	0	1
2897:	0	0	0	0	0	0	0	0
2905:	0	0	0	0	0	0	0	0
2913:	0	0	0	0	0	0	0	1
2921:	0	0	0	1	0	0	0	0
2929:	1	0	0	0	0	0	0	1
2937:	0	0	0	0	0	0	0	0
2945:	0	0	0	0	1	1	2	1
2953:	0	1	0	0	0	0	0	0

2961:	0	0	0	1	0	0	0	0

Sample Title: HTC-A01-S005-0612-01

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

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S005-0612-01

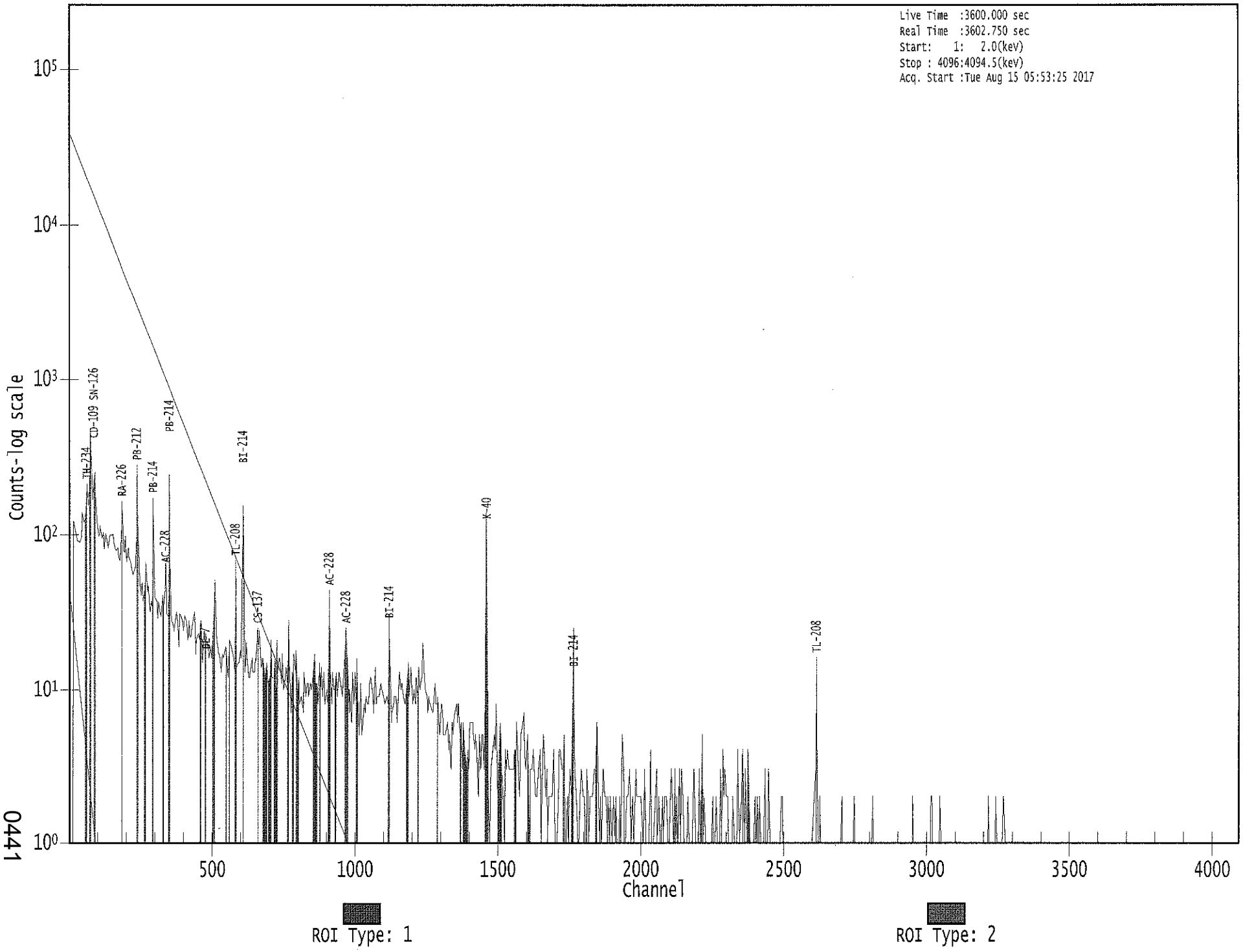
Channel								
3401:	0	1	1	1	0	1	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	1	0	0	0
3425:	0	0	1	0	0	0	0	0
3433:	1	0	1	0	0	0	0	1
3441:	0	0	0	0	1	0	0	1
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	1	0	0
3465:	0	0	1	0	1	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	1
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	1	0	0	0	0

Sample Title: HTC-A01-S005-0612-01

Channel								
3833:	0	0	0	1	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	1	0	0
3873:	0	0	0	0	0	0	0	0
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	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	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	1	0	0	0	0	0	0
3969:	0	0	0	0	1	0	0	0
3977:	0	0	0	0	0	0	1	0
3985:	0	0	0	1	0	0	0	0
3993:	0	0	1	0	0	0	0	0
4001:	1	0	0	0	0	0	0	0
4009:	0	0	1	0	0	0	0	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	1	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	1	0	0
4073:	0	0	0	0	0	0	0	0
4081:	0	0	1	1	0	0	0	0
4089:	0	0	0	0	0	0	0	0

0000055231.CNF



0441

Apex-Gamma

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Analysis Report for 1707082-04

HTC-A01-S005-0612-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707082-04
Sample Description	: HTC-A01-S005-0612-01
Sample Type	: SOIL
Sample Size	: 5.827E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 5:45:30AM
Acquisition Started	: 8/15/2017 6:59:01AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3602.3 seconds
Dead Time	: 0.06 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 14 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55236

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/16/17

Analysis Report for 1707082-04

HTC-A01-S005-0612-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/15/2017 7:59:25AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	63.22	62.28	0.0000	0.00
2	74.55	73.61	0.0000	0.00
3	77.03	76.09	0.0000	0.00
4	86.91	85.98	0.0000	0.00
5	93.01	92.07	0.0000	0.00
6	185.86	184.95	0.0000	0.00
7	209.98	209.08	0.0000	0.00
8	238.78	237.88	0.0000	0.00
9	241.99	241.10	0.0000	0.00
10	270.49	269.61	0.0000	0.00
11	295.18	294.30	0.0000	0.00
12	300.26	299.39	0.0000	0.00
13	327.53	326.67	0.0000	0.00
14	338.13	337.27	0.0000	0.00
15	352.05	351.20	0.0000	0.00
16	427.53	426.70	0.0000	0.00
17	463.84	463.03	0.0000	0.00
18	510.85	510.05	0.0000	0.00
19	583.38	582.61	0.0000	0.00
20	609.52	608.76	0.0000	0.00
21	648.60	647.85	0.0000	0.00
22	770.28	769.58	0.0000	0.00
23	783.09	782.40	0.0000	0.00
24	795.21	794.53	0.0000	0.00
25	860.66	860.00	0.0000	0.00
26	911.29	910.66	0.0000	0.00
27	969.39	968.78	0.0000	0.00
28	1120.30	1119.76	0.0000	0.00
29	1330.69	1330.25	0.0000	0.00
30	1339.76	1339.32	0.0000	0.00
31	1433.55	1433.16	0.0000	0.00
32	1460.63	1460.25	0.0000	0.00
33	1508.50	1508.15	0.0000	0.00
34	1536.24	1535.90	0.0000	0.00
35	1593.58	1593.28	0.0000	0.00
36	1689.05	1688.80	0.0000	0.00
37	1695.32	1695.07	0.0000	0.00
38	1730.44	1730.21	0.0000	0.00
39	1764.16	1763.95	0.0000	0.00
40	1846.55	1846.38	0.0000	0.00
41	1967.39	1967.29	0.0000	0.00
42	1999.04	1998.96	0.0000	0.00

Analysis Report for 1707082-04

HTC-A01-S005-0612-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	2028.98	2028.92	0.0000	0.00
44	2133.60	2133.60	0.0000	0.00
45	2203.31	2203.36	0.0000	0.00
46	2295.77	2295.88	0.0000	0.00
47	2614.27	2614.59	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707082-04

HTC-A01-S005-0612-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 7:59:25AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	63.22	59 -	65	62.28	1.41E+02	107.53	2.00E+03	1.79
M	2	74.55	70 -	82	73.61	5.28E+02	139.23	2.40E+03	2.62
m	3	77.03	70 -	82	76.09	7.74E+02	118.29	1.80E+03	2.16
	4	86.91	82 -	89	85.98	2.27E+02	123.79	2.42E+03	2.17
	5	93.01	89 -	96	92.07	2.96E+02	118.56	2.04E+03	2.76
	6	185.86	181 -	188	184.95	2.07E+02	84.38	1.05E+03	2.49
	7	209.98	206 -	213	209.08	7.77E+01	73.81	8.41E+02	1.53
M	8	238.78	234 -	250	237.88	5.90E+02	84.76	7.52E+02	2.55
m	9	241.99	234 -	250	241.10	1.97E+02	74.94	5.68E+02	2.22
	10	270.49	266 -	274	269.61	8.74E+01	65.80	6.13E+02	3.06
M	11	295.18	290 -	302	294.30	3.73E+02	64.06	4.34E+02	2.61
m	12	300.26	290 -	302	299.39	5.87E+01	50.11	4.00E+02	2.23
	13	327.53	322 -	331	326.67	6.30E+01	58.86	4.56E+02	2.17
	14	338.13	332 -	343	337.27	1.49E+02	70.85	5.56E+02	2.73
	15	352.05	346 -	357	351.20	6.06E+02	81.78	5.30E+02	2.50
	16	427.53	423 -	430	426.70	3.51E+01	41.62	2.68E+02	3.47
	17	463.84	458 -	470	463.03	7.26E+01	57.65	3.55E+02	6.73
	18	510.85	506 -	514	510.05	1.37E+02	44.46	2.19E+02	3.39
	19	583.38	579 -	586	582.61	1.30E+02	41.18	1.96E+02	2.14
	20	609.52	604 -	614	608.76	3.62E+02	58.38	2.53E+02	2.33
	21	648.60	646 -	650	647.85	1.68E+01	20.04	7.04E+01	2.65
	22	770.28	764 -	776	769.58	5.63E+01	43.26	1.89E+02	5.12
	23	783.09	777 -	788	782.40	3.73E+01	39.90	1.82E+02	7.96
	24	795.21	791 -	797	794.53	2.26E+01	25.52	9.68E+01	1.37
	25	860.66	858 -	862	860.00	1.35E+01	16.02	4.50E+01	2.46
	26	911.29	904 -	917	910.66	1.07E+02	45.32	1.76E+02	2.27
	27	969.39	965 -	974	968.78	5.50E+01	35.01	1.28E+02	2.57
	28	1120.30	1114 -	1124	1119.76	9.58E+01	35.91	1.20E+02	2.19
	29	1330.69	1328 -	1333	1330.25	1.11E+01	14.25	2.98E+01	1.89
	30	1339.76	1336 -	1343	1339.32	1.28E+01	14.83	2.84E+01	2.64
	31	1433.55	1429 -	1435	1433.16	9.73E+00	9.84	1.05E+01	1.08
	32	1460.63	1454 -	1466	1460.25	4.54E+02	44.53	1.97E+01	2.87
	33	1508.50	1504 -	1513	1508.15	1.56E+01	20.35	5.08E+01	3.67
	34	1536.24	1532 -	1540	1535.90	1.89E+01	13.75	1.61E+01	3.68
	35	1593.58	1588 -	1597	1593.28	2.16E+01	16.16	2.49E+01	4.68
	36	1689.05	1686 -	1691	1688.80	7.72E+00	6.71	2.56E+00	1.61
	37	1695.32	1692 -	1701	1695.07	7.31E+00	10.10	1.14E+01	2.22
	38	1730.44	1725 -	1735	1730.21	1.97E+01	14.24	1.66E+01	2.10
	39	1764.16	1758 -	1770	1763.95	5.63E+01	18.34	1.35E+01	2.43
	40	1846.55	1842 -	1850	1846.38	1.00E+01	12.53	1.80E+01	1.40

Analysis Report for 1707082-04

HTC-A01-S005-0612-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1967.39	1964 -	1970	1967.29	5.43E+00	6.34	3.14E+00	1.80
42	1999.04	1996 -	2001	1998.96	6.50E+00	6.40	3.00E+00	2.05
43	2028.98	2024 -	2033	2028.92	5.63E+00	7.55	4.75E+00	1.09
44	2133.60	2131 -	2136	2133.60	5.00E+00	4.47	0.00E+00	1.24
45	2203.31	2199 -	2208	2203.36	1.23E+01	12.45	1.54E+01	3.14
46	2295.77	2293 -	2298	2295.88	8.00E+00	5.66	0.00E+00	2.70
47	2614.27	2610 -	2618	2614.59	5.98E+01	16.38	4.39E+00	3.04

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 : 8/15/2017 7:59:25AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	63.22	59 -	65	1.41E+02	107.53	2.00E+03	8.62E+01
M	2	74.55	70 -	82	5.28E+02	139.23	2.40E+03	8.05E+01
m	3	77.03	70 -	82	7.74E+02	118.29	1.80E+03	6.98E+01
	4	86.91	82 -	89	2.27E+02	123.79	2.42E+03	9.87E+01
	5	93.01	89 -	96	2.96E+02	118.56	2.04E+03	9.33E+01
	6	185.86	181 -	188	2.07E+02	84.38	1.05E+03	6.52E+01
	7	209.98	206 -	213	7.77E+01	73.81	8.41E+02	5.89E+01
M	8	238.78	234 -	250	5.90E+02	84.76	7.52E+02	4.51E+01
m	9	241.99	234 -	250	1.97E+02	74.94	5.68E+02	3.92E+01
	10	270.49	266 -	274	8.74E+01	65.80	6.13E+02	5.19E+01
M	11	295.18	290 -	302	3.73E+02	64.06	4.34E+02	3.42E+01
m	12	300.26	290 -	302	5.87E+01	50.11	4.00E+02	3.29E+01
	13	327.53	322 -	331	6.30E+01	58.86	4.56E+02	4.66E+01
	14	338.13	332 -	343	1.49E+02	70.85	5.56E+02	5.47E+01
	15	352.05	346 -	357	6.06E+02	81.78	5.30E+02	5.37E+01
	16	427.53	423 -	430	3.51E+01	41.62	2.68E+02	3.28E+01
	17	463.84	458 -	470	7.26E+01	57.65	3.55E+02	4.53E+01
	18	510.85	506 -	514	1.37E+02	44.46	2.19E+02	3.11E+01
	19	583.38	579 -	586	1.30E+02	41.18	1.96E+02	2.82E+01
	20	609.52	604 -	614	3.62E+02	58.38	2.53E+02	3.64E+01

Analysis Report for 1707082-04

HTC-A01-S005-0612-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
21	648.60	646 -	650	1.68E+01	20.04	7.04E+01	1.50E+01
22	770.28	764 -	776	5.63E+01	43.26	1.89E+02	1.18E+01
23	783.09	777 -	788	3.73E+01	39.90	1.82E+02	3.12E+01
24	795.21	791 -	797	2.26E+01	25.52	9.68E+01	1.95E+01
25	860.66	858 -	862	1.35E+01	16.02	4.50E+01	1.17E+01
26	911.29	904 -	917	1.07E+02	45.32	1.76E+02	3.31E+01
27	969.39	965 -	974	5.50E+01	35.01	1.28E+02	2.61E+01
28	1120.30	1114 -	1124	9.58E+01	35.91	1.20E+02	2.47E+01
29	1330.69	1328 -	1333	1.11E+01	14.25	2.98E+01	1.04E+01
30	1339.76	1336 -	1343	1.28E+01	14.83	2.84E+01	1.07E+01
31	1433.55	1429 -	1435	9.73E+00	9.84	1.05E+01	6.25E+00
32	1460.63	1454 -	1466	4.54E+02	44.53	1.97E+01	1.06E+01
33	1508.50	1504 -	1513	1.56E+01	20.35	5.08E+01	1.54E+01
34	1536.24	1532 -	1540	1.89E+01	13.75	1.61E+01	8.75E+00
35	1593.58	1588 -	1597	2.16E+01	16.16	2.49E+01	1.09E+01
36	1689.05	1686 -	1691	7.72E+00	6.71	2.56E+00	3.09E+00
37	1695.32	1692 -	1701	7.31E+00	10.10	1.14E+01	7.01E+00
38	1730.44	1725 -	1735	1.97E+01	14.24	1.66E+01	9.15E+00
39	1764.16	1758 -	1770	5.63E+01	18.34	1.35E+01	8.68E+00
40	1846.55	1842 -	1850	1.00E+01	12.53	1.80E+01	8.89E+00
41	1967.39	1964 -	1970	5.43E+00	6.34	3.14E+00	3.54E+00
42	1999.04	1996 -	2001	6.50E+00	6.40	3.00E+00	3.18E+00
43	2028.98	2024 -	2033	5.63E+00	7.55	4.75E+00	4.83E+00
44	2133.60	2131 -	2136	5.00E+00	4.47	0.00E+00	0.00E+00
45	2203.31	2199 -	2208	1.23E+01	12.45	1.54E+01	8.46E+00
46	2295.77	2293 -	2298	8.00E+00	5.66	0.00E+00	0.00E+00
47	2614.27	2610 -	2618	5.98E+01	16.38	4.39E+00	4.43E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/15/2017 7:59:25AM

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 1707082-04

HTC-A01-S005-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	63.22	59 -	65	62.28	1.41E+02	107.53	2.00E+03	TH-234
									TH-230
M	2	74.55	70 -	82	73.61	5.28E+02	139.23	2.40E+03	AM-243
m	3	77.03	70 -	82	76.09	7.74E+02	118.29	1.80E+03	.....
	4	86.91	82 -	89	85.98	2.27E+02	123.79	2.42E+03	NP-237
									EU-155
									SN-126
	5	93.01	89 -	96	92.07	2.96E+02	118.56	2.04E+03	GA-67
	6	185.86	181 -	188	184.95	2.07E+02	84.38	1.05E+03	RA-226
	7	209.98	206 -	213	209.08	7.77E+01	73.81	8.41E+02	CM-243
M	8	238.78	234 -	250	237.88	5.90E+02	84.76	7.52E+02	PB-212
m	9	241.99	234 -	250	241.10	1.97E+02	74.94	5.68E+02	.....
	10	270.49	266 -	274	269.61	8.74E+01	65.80	6.13E+02	.....
M	11	295.18	290 -	302	294.30	3.73E+02	64.06	4.34E+02	PB-214
m	12	300.26	290 -	302	299.39	5.87E+01	50.11	4.00E+02	GA-67
									PB-212
									BI-210M
	13	327.53	322 -	331	326.67	6.30E+01	58.86	4.56E+02	.....
	14	338.13	332 -	343	337.27	1.49E+02	70.85	5.56E+02	AC-228
	15	352.05	346 -	357	351.20	6.06E+02	81.78	5.30E+02	PB-214
	16	427.53	423 -	430	426.70	3.51E+01	41.62	2.68E+02	SB-125
	17	463.84	458 -	470	463.03	7.26E+01	57.65	3.55E+02	SB-125
	18	510.85	506 -	514	510.05	1.37E+02	44.46	2.19E+02	.....
	19	583.38	579 -	586	582.61	1.30E+02	41.18	1.96E+02	TL-208
	20	609.52	604 -	614	608.76	3.62E+02	58.38	2.53E+02	BI-214
	21	648.60	646 -	650	647.85	1.68E+01	20.04	7.04E+01	.....
	22	770.28	764 -	776	769.58	5.63E+01	43.26	1.89E+02	.....
	23	783.09	777 -	788	782.40	3.73E+01	39.90	1.82E+02	SB-127
	24	795.21	791 -	797	794.53	2.26E+01	25.52	9.68E+01	CS-134
	25	860.66	858 -	862	860.00	1.35E+01	16.02	4.50E+01	TL-208
	26	911.29	904 -	917	910.66	1.07E+02	45.32	1.76E+02	AC-228
									TL-204
	27	969.39	965 -	974	968.78	5.50E+01	35.01	1.28E+02	AC-228
	28	1120.30	1114 -	1124	1119.76	9.58E+01	35.91	1.20E+02	BI-214
									SC-46
	29	1330.69	1328 -	1333	1330.25	1.11E+01	14.25	2.98E+01	.....
	30	1339.76	1336 -	1343	1339.32	1.28E+01	14.83	2.84E+01	.....
	31	1433.55	1429 -	1435	1433.16	9.73E+00	9.84	1.05E+01	.....
	32	1460.63	1454 -	1466	1460.25	4.54E+02	44.53	1.97E+01	K-40
	33	1508.50	1504 -	1513	1508.15	1.56E+01	20.35	5.08E+01	.....
	34	1536.24	1532 -	1540	1535.90	1.89E+01	13.75	1.61E+01	.....
	35	1593.58	1588 -	1597	1593.28	2.16E+01	16.16	2.49E+01	.....
	36	1689.05	1686 -	1691	1688.80	7.72E+00	6.71	2.56E+00	.....
	37	1695.32	1692 -	1701	1695.07	7.31E+00	10.10	1.14E+01	.....
	38	1730.44	1725 -	1735	1730.21	1.97E+01	14.24	1.66E+01	.....
	39	1764.16	1758 -	1770	1763.95	5.63E+01	18.34	1.35E+01	BI-214
	40	1846.55	1842 -	1850	1846.38	1.00E+01	12.53	1.80E+01	.....
	41	1967.39	1964 -	1970	1967.29	5.43E+00	6.34	3.14E+00	.....
	42	1999.04	1996 -	2001	1998.96	6.50E+00	6.40	3.00E+00	.....
	43	2028.98	2024 -	2033	2028.92	5.63E+00	7.55	4.75E+00	.....
	44	2133.60	2131 -	2136	2133.60	5.00E+00	4.47	0.00E+00	.....
	45	2203.31	2199 -	2208	2203.36	1.23E+01	12.45	1.54E+01	BI-214
	46	2295.77	2293 -	2298	2295.88	8.00E+00	5.66	0.00E+00	.....
	47	2614.27	2610 -	2618	2614.59	5.98E+01	16.38	4.39E+00	TL-208

Analysis Report for 1707082-04

HTC-A01-S005-0612-01

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/15/2017 7:59:25AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	63.22	1.41E+02	107.53	2.15E-02	1.64E-03
M	2	74.55	5.28E+02	139.23	2.31E-02	1.88E-03
m	3	77.03	7.74E+02	118.29	2.33E-02	1.93E-03
	4	86.91	2.27E+02	123.79	2.37E-02	2.14E-03
	5	93.01	2.96E+02	118.56	2.37E-02	2.09E-03
	6	185.86	2.07E+02	84.38	1.69E-02	1.40E-03
	7	209.98	7.77E+01	73.81	1.53E-02	1.28E-03
M	8	238.78	5.90E+02	84.76	1.36E-02	1.14E-03
m	9	241.99	1.97E+02	74.94	1.34E-02	1.13E-03
	10	270.49	8.74E+01	65.80	1.20E-02	9.89E-04
M	11	295.18	3.73E+02	64.06	1.10E-02	9.13E-04
m	12	300.26	5.87E+01	50.11	1.08E-02	9.03E-04
	13	327.53	6.30E+01	58.86	9.92E-03	8.45E-04
	14	338.13	1.49E+02	70.85	9.60E-03	8.23E-04
	15	352.05	6.06E+02	81.78	9.21E-03	7.94E-04
	16	427.53	3.51E+01	41.62	7.54E-03	6.96E-04
	17	463.84	7.26E+01	57.65	6.93E-03	6.81E-04
	18	510.85	1.37E+02	44.46	6.28E-03	6.61E-04
	19	583.38	1.30E+02	41.18	5.50E-03	6.31E-04
	20	609.52	3.62E+02	58.38	5.27E-03	6.20E-04
	21	648.60	1.68E+01	20.04	4.96E-03	6.04E-04
	22	770.28	5.63E+01	43.26	4.22E-03	4.62E-04
	23	783.09	3.73E+01	39.90	4.15E-03	4.46E-04
	24	795.21	2.26E+01	25.52	4.10E-03	4.31E-04
	25	860.66	1.35E+01	16.02	3.81E-03	3.49E-04
	26	911.29	1.07E+02	45.32	3.62E-03	2.99E-04
	27	969.39	5.50E+01	35.01	3.42E-03	2.85E-04
	28	1120.30	9.58E+01	35.91	3.01E-03	2.50E-04
	29	1330.69	1.11E+01	14.25	2.59E-03	2.27E-04
	30	1339.76	1.28E+01	14.83	2.58E-03	2.26E-04
	31	1433.55	9.73E+00	9.84	2.43E-03	2.12E-04
	32	1460.63	4.54E+02	44.53	2.39E-03	2.08E-04
	33	1508.50	1.56E+01	20.35	2.32E-03	2.01E-04
	34	1536.24	1.89E+01	13.75	2.28E-03	1.96E-04

Analysis Report for 1707082-04

HTC-A01-S005-0612-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
35	1593.58	2.16E+01	16.16	2.20E-03	1.88E-04
36	1689.05	7.72E+00	6.71	2.08E-03	1.73E-04
37	1695.32	7.31E+00	10.10	2.08E-03	1.72E-04
38	1730.44	1.97E+01	14.24	2.04E-03	1.67E-04
39	1764.16	5.63E+01	18.34	2.00E-03	1.62E-04
40	1846.55	1.00E+01	12.53	1.91E-03	1.51E-04
41	1967.39	5.43E+00	6.34	1.79E-03	1.51E-04
42	1999.04	6.50E+00	6.40	1.76E-03	1.51E-04
43	2028.98	5.63E+00	7.55	1.73E-03	1.51E-04
44	2133.60	5.00E+00	4.47	1.64E-03	1.51E-04
45	2203.31	1.23E+01	12.45	1.58E-03	1.51E-04
46	2295.77	8.00E+00	5.66	1.51E-03	1.51E-04
47	2614.27	5.98E+01	16.38	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 : 8/15/2017 7:59:25AM

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

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	63.22	1.41E+02	107.53	5.28E+01	8.63E+00	8.83E+01	1.08E+02
M	2	74.55	5.28E+02	139.23			5.28E+02	1.39E+02
m	3	77.03	7.74E+02	118.29			7.74E+02	1.18E+02
	4	86.91	2.27E+02	123.79			2.27E+02	1.24E+02
	5	93.01	2.96E+02	118.56	6.21E+01	4.71E+00	2.34E+02	1.19E+02
	6	185.86	2.07E+02	84.38	2.34E+01	8.57E+00	1.83E+02	8.48E+01
	7	209.98	7.77E+01	73.81			7.77E+01	7.38E+01
M	8	238.78	5.90E+02	84.76	8.90E+00	6.12E+00	5.81E+02	8.50E+01
m	9	241.99	1.97E+02	74.94			1.97E+02	7.49E+01
	10	270.49	8.74E+01	65.80			8.74E+01	6.58E+01
M	11	295.18	3.73E+02	64.06			3.73E+02	6.41E+01
m	12	300.26	5.87E+01	50.11			5.87E+01	5.01E+01
	13	327.53	6.30E+01	58.86			6.30E+01	5.89E+01
	14	338.13	1.49E+02	70.85			1.49E+02	7.09E+01
	15	352.05	6.06E+02	81.78			6.06E+02	8.18E+01
	16	427.53	3.51E+01	41.62			3.51E+01	4.16E+01
	17	463.84	7.26E+01	57.65			7.26E+01	5.77E+01

Analysis Report for 1707082-04

HTC-A01-S005-0612-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
18	510.85	1.37E+02	44.46	4.43E+01	4.80E+00	9.23E+01	4.47E+01
19	583.38	1.30E+02	41.18	3.56E+00	2.78E+00	1.27E+02	4.13E+01
20	609.52	3.62E+02	58.38			3.62E+02	5.84E+01
21	648.60	1.68E+01	20.04			1.68E+01	2.00E+01
22	770.28	5.63E+01	43.26			5.63E+01	4.33E+01
23	783.09	3.73E+01	39.90			3.73E+01	3.99E+01
24	795.21	2.26E+01	25.52			2.26E+01	2.55E+01
25	860.66	1.35E+01	16.02			1.35E+01	1.60E+01
26	911.29	1.07E+02	45.32			1.07E+02	4.53E+01
27	969.39	5.50E+01	35.01			5.50E+01	3.50E+01
28	1120.30	9.58E+01	35.91			9.58E+01	3.59E+01
29	1330.69	1.11E+01	14.25			1.11E+01	1.42E+01
30	1339.76	1.28E+01	14.83			1.28E+01	1.48E+01
31	1433.55	9.73E+00	9.84			9.73E+00	9.84E+00
32	1460.63	4.54E+02	44.53			4.54E+02	4.45E+01
33	1508.50	1.56E+01	20.35			1.56E+01	2.03E+01
34	1536.24	1.89E+01	13.75			1.89E+01	1.37E+01
35	1593.58	2.16E+01	16.16			2.16E+01	1.62E+01
36	1689.05	7.72E+00	6.71			7.72E+00	6.71E+00
37	1695.32	7.31E+00	10.10			7.31E+00	1.01E+01
38	1730.44	1.97E+01	14.24			1.97E+01	1.42E+01
39	1764.16	5.63E+01	18.34			5.63E+01	1.83E+01
40	1846.55	1.00E+01	12.53			1.00E+01	1.25E+01
41	1967.39	5.43E+00	6.34			5.43E+00	6.34E+00
42	1999.04	6.50E+00	6.40			6.50E+00	6.40E+00
43	2028.98	5.63E+00	7.55			5.63E+00	7.55E+00
44	2133.60	5.00E+00	4.47			5.00E+00	4.47E+00
45	2203.31	1.23E+01	12.45			1.23E+01	1.24E+01
46	2295.77	8.00E+00	5.66			8.00E+00	5.66E+00
47	2614.27	5.98E+01	16.38			5.98E+01	1.64E+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 : 8/15/2017 7:59:25AM

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

Corrected Area is: Original * Peak Ratio - Background

Analysis Report for 1707082-04

HTC-A01-S005-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	63.22	1.41E+02	107.53	5.28E+01	8.63E+00	8.83E+01	1.08E+02
M	2	74.55	5.28E+02	139.23			5.28E+02	1.39E+02
m	3	77.03	7.74E+02	118.29			7.74E+02	1.18E+02
	4	86.91	2.27E+02	123.79			2.27E+02	1.24E+02
	5	93.01	2.96E+02	118.56	6.21E+01	4.71E+00	2.34E+02	1.19E+02
	6	185.86	2.07E+02	84.38	2.34E+01	8.57E+00	1.83E+02	8.48E+01
	7	209.98	7.77E+01	73.81			7.77E+01	7.38E+01
M	8	238.78	5.90E+02	84.76	8.90E+00	6.12E+00	5.81E+02	8.50E+01
m	9	241.99	1.97E+02	74.94			1.97E+02	7.49E+01
	10	270.49	8.74E+01	65.80			8.74E+01	6.58E+01
M	11	295.18	3.73E+02	64.06			3.73E+02	6.41E+01
m	12	300.26	5.87E+01	50.11			5.87E+01	5.01E+01
	13	327.53	6.30E+01	58.86			6.30E+01	5.89E+01
	14	338.13	1.49E+02	70.85			1.49E+02	7.09E+01
	15	352.05	6.06E+02	81.78			6.06E+02	8.18E+01
	16	427.53	3.51E+01	41.62			3.51E+01	4.16E+01
	17	463.84	7.26E+01	57.65			7.26E+01	5.77E+01
	18	510.85	1.37E+02	44.46	4.43E+01	4.80E+00	9.23E+01	4.47E+01
	19	583.38	1.30E+02	41.18	3.56E+00	2.78E+00	1.27E+02	4.13E+01
	20	609.52	3.62E+02	58.38			3.62E+02	5.84E+01
	21	648.60	1.68E+01	20.04			1.68E+01	2.00E+01
	22	770.28	5.63E+01	43.26			5.63E+01	4.33E+01
	23	783.09	3.73E+01	39.90			3.73E+01	3.99E+01
	24	795.21	2.26E+01	25.52			2.26E+01	2.55E+01
	25	860.66	1.35E+01	16.02			1.35E+01	1.60E+01
	26	911.29	1.07E+02	45.32			1.07E+02	4.53E+01
	27	969.39	5.50E+01	35.01			5.50E+01	3.50E+01
	28	1120.30	9.58E+01	35.91			9.58E+01	3.59E+01
	29	1330.69	1.11E+01	14.25			1.11E+01	1.42E+01
	30	1339.76	1.28E+01	14.83			1.28E+01	1.48E+01
	31	1433.55	9.73E+00	9.84			9.73E+00	9.84E+00
	32	1460.63	4.54E+02	44.53			4.54E+02	4.45E+01
	33	1508.50	1.56E+01	20.35			1.56E+01	2.03E+01
	34	1536.24	1.89E+01	13.75			1.89E+01	1.37E+01
	35	1593.58	2.16E+01	16.16			2.16E+01	1.62E+01
	36	1689.05	7.72E+00	6.71			7.72E+00	6.71E+00
	37	1695.32	7.31E+00	10.10			7.31E+00	1.01E+01
	38	1730.44	1.97E+01	14.24			1.97E+01	1.42E+01
	39	1764.16	5.63E+01	18.34			5.63E+01	1.83E+01
	40	1846.55	1.00E+01	12.53			1.00E+01	1.25E+01
	41	1967.39	5.43E+00	6.34			5.43E+00	6.34E+00
	42	1999.04	6.50E+00	6.40			6.50E+00	6.40E+00
	43	2028.98	5.63E+00	7.55			5.63E+00	7.55E+00
	44	2133.60	5.00E+00	4.47			5.00E+00	4.47E+00
	45	2203.31	1.23E+01	12.45			1.23E+01	1.24E+01
	46	2295.77	8.00E+00	5.66			8.00E+00	5.66E+00
	47	2614.27	5.98E+01	16.38			5.98E+01	1.64E+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 1707082-04

HTC-A01-S005-0612-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.995	1460.81	*	10.67	2.30E+01	3.05E+00
SN-126	0.934	87.57	*	37.00	3.34E-01	1.85E-01
EU-155	0.346	86.50	*	30.90	4.15E-01	2.29E-01
		105.30		20.70		
TL-208	0.983	583.14	*	30.22	9.81E-01	3.39E-01
		860.37	*	4.48	1.02E+00	1.21E+00
		2614.66	*	35.85	1.68E+00	5.01E-01
PB-212	0.996	238.63	*	44.60	1.24E+00	2.08E-01
		300.09	*	3.41	2.05E+00	1.75E+00
BI-214	0.985	609.31	*	46.30	1.91E+00	3.82E-01
		1120.29	*	15.10	2.71E+00	1.04E+00
		1764.49	*	15.80	2.29E+00	7.71E-01
		2204.22	*	4.98	2.01E+00	2.05E+00
PB-214	0.998	295.21	*	19.19	2.27E+00	4.33E-01
		351.92	*	37.19	2.28E+00	3.65E-01
RA-226	0.980	186.21	*	3.28	4.25E+00	8.02E+00
AC-228	0.991	338.32	*	11.40	1.75E+00	8.47E-01
		911.07	*	27.70	1.37E+00	5.94E-01
		969.11	*	16.60	1.25E+00	8.00E-01
TH-234	0.999	63.29	*	3.80	1.39E+00	1.70E+00
NP-237	0.973	86.50	*	12.60	9.82E-01	5.42E-01
AM-243	0.998	74.67	*	66.00	4.46E-01	1.23E-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 7:59:25AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Analysis Report for 1707082-04

HTC-A01-S005-0612-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	3	77.03	2.14942E-01	7.64		
	5	93.01	6.49606E-02	25.37	Tol.	GA-67
	7	209.98	2.15880E-02	47.49	Tol.	CM-243
m	9	241.99	5.48386E-02	18.98		
	10	270.49	2.42872E-02	37.63		
	13	327.53	1.75095E-02	46.69		
	16	427.53	9.75838E-03	59.23	Sum	
	17	463.84	2.01700E-02	39.70	Tol.	SB-125
	18	510.85	2.56279E-02	24.23		
	21	648.60	4.66613E-03	59.66		
	22	770.28	1.56255E-02	38.45		
	23	783.09	1.03472E-02	53.56		
	24	795.21	6.27739E-03	56.47	Sum	
	29	1330.69	3.08761E-03	64.09		
	30	1339.76	3.55453E-03	57.96		
	31	1433.55	2.70370E-03	50.53		
	33	1508.50	4.33604E-03	65.17		
	34	1536.24	5.26235E-03	36.28		
	35	1593.58	5.99265E-03	37.44		
	36	1689.05	2.14506E-03	43.43		
	37	1695.32	2.02991E-03	69.10		
	38	1730.44	5.46627E-03	36.18	Sum	
	40	1846.55	2.77778E-03	62.65		
	41	1967.39	1.50794E-03	58.43		
	42	1999.04	1.80556E-03	49.25		
	43	2028.98	1.56250E-03	67.11		
	44	2133.60	1.38889E-03	44.72		
	46	2295.77	2.22222E-03	35.36		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Analysis Report for 1707082-04

HTC-A01-S005-0612-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81	*	10.67	2.30E+01	3.05E+00
SN-126	0.93	87.57	*	37.00	3.34E-01	1.85E-01
EU-155	0.34	86.50	*	30.90	4.15E-01	2.29E-01
		105.30		20.70		
TL-208	0.98	583.14	*	30.22	9.81E-01	3.39E-01
		860.37	*	4.48	1.02E+00	1.21E+00
		2614.66	*	35.85	1.68E+00	5.01E-01
PB-212	0.99	238.63	*	44.60	1.24E+00	2.08E-01
		300.09	*	3.41	2.05E+00	1.75E+00
BI-214	0.98	609.31	*	46.30	1.91E+00	3.82E-01
		1120.29	*	15.10	2.71E+00	1.04E+00
		1764.49	*	15.80	2.29E+00	7.71E-01
		2204.22	*	4.98	2.01E+00	2.05E+00
PB-214	0.99	295.21	*	19.19	2.27E+00	4.33E-01
		351.92	*	37.19	2.28E+00	3.65E-01
RA-226	0.98	186.21	*	3.28	4.25E+00	8.02E+00
AC-228	0.99	338.32	*	11.40	1.75E+00	8.47E-01
		911.07	*	27.70	1.37E+00	5.94E-01
		969.11	*	16.60	1.25E+00	8.00E-01
TH-234	0.99	63.29	*	3.80	1.39E+00	1.70E+00
NP-237	0.97	86.50	*	12.60	9.82E-01	5.42E-01
AM-243	0.99	74.67	*	66.00	4.46E-01	1.23E-01

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.995	2.30E+01	3.05E+00	
?	SN-126	0.934	3.34E-01	1.85E-01	
?	EU-155	0.346	4.15E-01	2.29E-01	
	TL-208	0.983	1.19E+00	2.74E-01	
	PB-212	0.996	1.25E+00	2.07E-01	

Analysis Report for 1707082-04

HTC-A01-S005-0612-01

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	BI-214	0.985	2.06E+00	3.21E-01	
	PB-214	0.998	2.27E+00	2.79E-01	
	RA-226	0.980	4.25E+00	8.02E+00	
	AC-228	0.991	1.43E+00	4.15E-01	
	TH-234	0.999	1.39E+00	1.70E+00	
?	NP-237	0.973	9.82E-01	5.42E-01	
	AM-243	0.998	4.46E-01	1.23E-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 1707082-04

HTC-A01-S005-0612-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 7:59:25AM
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	77.03	2.14942E-01	7.64		
	5	93.01	6.49606E-02	25.37	Tol.	GA-67
	7	209.98	2.15880E-02	47.49	Tol.	CM-243
m	9	241.99	5.48386E-02	18.98		
	10	270.49	2.42872E-02	37.63		
	13	327.53	1.75095E-02	46.69		
	16	427.53	9.75838E-03	59.23	Sum	
	17	463.84	2.01700E-02	39.70	Tol.	SB-125
	18	510.85	2.56279E-02	24.23		
	21	648.60	4.66613E-03	59.66		
	22	770.28	1.56255E-02	38.45		
	23	783.09	1.03472E-02	53.56		
	24	795.21	6.27739E-03	56.47	Sum	
	29	1330.69	3.08761E-03	64.09		
	30	1339.76	3.55453E-03	57.96		
	31	1433.55	2.70370E-03	50.53		
	33	1508.50	4.33604E-03	65.17		
	34	1536.24	5.26235E-03	36.28		
	35	1593.58	5.99265E-03	37.44		
	36	1689.05	2.14506E-03	43.43		
	37	1695.32	2.02991E-03	69.10		
	38	1730.44	5.46627E-03	36.18	Sum	
	40	1846.55	2.77778E-03	62.65		
	41	1967.39	1.50794E-03	58.43		
	42	1999.04	1.80556E-03	49.25		
	43	2028.98	1.56250E-03	67.11		
	44	2133.60	1.38889E-03	44.72		
	46	2295.77	2.22222E-03	35.36		

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

Analysis Report for 1707082-04

HTC-A01-S005-0612-01

NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	2.25E+00	3.43E+00	3.43E+00
+		NA-22	1274.54		99.94	-4.30E-02	1.63E-01	1.63E-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	-4.63E-02	8.68E-02	8.68E-02
+		K-40	1460.81	*	10.67	2.30E+01	1.21E+00	1.21E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	2.73E-02	9.37E-02	9.37E-02
			78.34		96.00	5.14E-01		1.25E-01
+		SC-46	889.25		99.98	-1.02E-01	2.80E-01	2.80E-01
			1120.51		99.99	8.77E-01		5.43E-01
+		V-48	983.52		99.98	-6.41E-01	8.20E+00	8.20E+00
			1312.10		97.50	1.05E+00		8.67E+00
+		CR-51	320.08		9.83	1.40E+00	8.89E+00	8.89E+00
+		MN-54	834.83		99.97	3.29E-02	1.85E-01	1.85E-01
+		CO-56	846.75		99.96	2.08E-01	3.07E-01	3.07E-01
			1037.75		14.03	-2.26E+00		2.40E+00
			1238.25		67.00	6.02E-01		7.43E-01
			1771.40		15.51	-3.18E-02		1.66E+00
			2598.48		16.90	6.76E-01		1.77E+00
+		CO-57	122.06		85.51	3.90E-03	1.00E-01	1.00E-01
			136.48		10.60	2.40E-01		8.48E-01
+		CO-58	810.76		99.40	-9.41E-02	3.48E-01	3.48E-01
+		FE-59	1099.22		56.50	-1.88E-01	1.13E+00	1.13E+00
			1291.56		43.20	6.56E-01		1.53E+00
+		CO-60	1173.22		100.00	1.18E-01	1.52E-01	2.04E-01
			1332.49		100.00	0.00E+00		1.52E-01
+		ZN-65	1115.52		50.75	3.57E-02	5.26E-01	5.26E-01
+		GA-67	93.31		35.70	2.01E+08	1.22E+08	1.22E+08
			208.95		2.24	2.61E+09		1.90E+09
			300.22		16.00	-9.51E+08		2.94E+08
+		SE-75	121.11		16.70	-1.50E-01	2.05E-01	6.91E-01
			136.00		59.20	1.53E-02		2.05E-01
			264.65		59.80	-1.74E-02		2.29E-01
			279.53		25.20	-2.31E-02		5.71E-01
			400.65		11.40	1.81E-01		1.54E+00
+		RB-82	776.52		13.00	-6.93E-01	1.42E+01	1.42E+01
+		RB-83	520.41		46.00	-6.69E-02	4.41E-01	4.41E-01
			529.64		30.30	3.55E-01		7.63E-01
			552.65		16.40	-1.44E-01		1.36E+00

Analysis Report for 1707082-04

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	KR-85	513.99		0.43	5.99E+00	3.19E+01	3.19E+01
+	SR-85	513.99		99.27	7.04E-02	3.75E-01	3.75E-01
+	Y-88	898.02		93.40	1.19E-01	2.07E-01	3.06E-01
		1836.01		99.38	-3.04E-02		2.07E-01
+	MO-93	263.06		56.72	-5.65E-02	1.13E-01	1.40E-01
		684.67		99.68	4.46E-02		1.35E-01
		1477.11		99.08	-2.40E-02		1.13E-01
+	NB-93M	16.57		9.43	2.31E+01	9.42E+00	9.42E+00
+	NB-94	702.63		100.00	-3.14E-02	1.36E-01	1.36E-01
		871.10		100.00	1.54E-02		1.38E-01
+	NB-95	765.79		99.81	-9.67E-02	1.00E+00	1.00E+00
+	NB-95M	235.69		25.00	4.84E+06	3.50E+07	3.50E+07
+	ZR-95	724.18		43.70	-3.40E-01	7.58E-01	9.16E-01
		756.72		55.30	3.61E-01		7.58E-01
+	MO-99	181.06		6.20	7.74E+09	1.86E+10	2.48E+10
		739.58		12.80	-6.19E+09		1.86E+10
		778.00		4.50	9.08E+09		6.22E+10
+	RU-103	497.08		89.00	-2.94E-01	5.53E-01	5.53E-01
+	RU-106	621.84		9.80	-6.46E-02	1.31E+00	1.31E+00
+	AG-108M	433.93		89.90	1.03E-02	1.10E-01	1.10E-01
		614.37		90.40	-1.36E-03		1.24E-01
		722.95		90.50	-1.38E-01		1.55E-01
+	CD-109	88.03		3.72	-1.64E+00	2.85E+00	2.85E+00
+	AG-110M	657.75		93.14	8.79E-02	1.77E-01	1.77E-01
		677.61		10.53	-6.98E-01		1.54E+00
		706.67		16.46	2.40E-01		1.10E+00
		763.93		21.98	-9.90E-02		8.60E-01
		884.67		71.63	5.38E-02		2.49E-01
		1384.27		23.94	-1.03E-01		8.33E-01
+	CD-113M	263.70		0.02	-1.03E+02	3.43E+02	3.43E+02
+	SN-113	255.12		1.93	1.32E+00	2.46E-01	7.40E+00
		391.69		64.90	-1.51E-01		2.46E-01
+	TE123M	159.00		84.10	-3.72E-02	1.51E-01	1.51E-01
+	SB-124	602.71		97.87	1.01E-01	3.33E-01	3.33E-01
		645.85		7.26	2.60E-01		4.77E+00
		722.78		11.10	-3.32E+00		3.72E+00
		1691.02		49.00	2.24E-01		7.73E-01
+	I-125	35.49		6.49	-6.18E-02	5.95E+00	5.95E+00
+	SB-125	176.33		6.89	-5.76E-01	3.75E-01	1.13E+00
		427.89		29.33	7.82E-02		3.75E-01
		463.38		10.35	4.33E-01		1.15E+00
		600.56		17.80	2.37E-01		6.51E-01
		635.90		11.32	-3.72E-01		9.65E-01
+	SB-126	414.70		83.30	-4.15E+00	2.25E+01	2.25E+01
		666.33		99.60	-2.31E+01		2.43E+01
		695.00		99.60	1.61E+00		2.64E+01
		720.50		53.80	1.79E+01		5.07E+01
+	SN-126	87.57	*	37.00	3.34E-01	2.94E-01	2.94E-01

Analysis Report for 1707082-04

HTC-A01-S005-0612-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SB-127	473.00	25.00	1.22E+06	8.43E+06	8.74E+06
		685.20	35.70	2.78E+06		8.43E+06
		783.80	14.70	1.72E+07		2.43E+07
+	I-129	29.78	57.00	-1.02E-01	3.17E-01	3.17E-01
		33.60	13.20	-1.73E-01		1.08E+00
		39.58	7.52	-1.49E-01		1.51E+00
+	I-131	284.30	6.05	-4.36E+02	3.61E+02	4.46E+03
		364.48	81.20	1.12E+02		3.61E+02
		636.97	7.26	4.97E+02		4.77E+03
		722.89	1.80	-2.30E+04		2.58E+04
+	TE-132	49.72	13.10	-4.09E+08	4.49E+07	3.57E+08
		228.16	88.00	-1.68E+07		4.49E+07
+	BA-133	81.00	33.00	-1.00E+00	2.24E-01	2.85E-01
		302.84	17.80	6.87E-02		5.24E-01
		356.01	60.00	-7.05E-02		2.24E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-2.16E+05	6.13E+04	6.13E+04
+	CS-134	563.23	8.38	-2.43E-01	1.47E-01	1.28E+00
		569.32	15.43	6.68E-02		7.45E-01
		604.70	97.60	1.73E-02		1.47E-01
		795.84	85.40	9.59E-03		1.82E-01
		801.93	8.73	7.92E-02		1.58E+00
+	CS-135	268.24	16.00	-2.65E-02	5.51E-01	5.51E-01
+	@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41	28.60	1.00E+26		1.00E+26
	@	1678.03	9.54	1.00E+26		1.00E+26
+	CS-136	153.22	7.46	1.75E+01	1.94E+01	1.42E+02
		163.89	4.61	1.57E+01		2.28E+02
		176.55	13.56	1.50E+01		7.81E+01
		273.65	12.66	1.41E+01		1.00E+02
		340.57	48.50	2.78E+01		3.19E+01
		818.50	99.70	-8.91E-01		1.94E+01
		1048.07	79.60	-2.43E+00		2.93E+01
		1235.34	19.70	8.38E+01		1.55E+02
+	CS-137	661.65	85.12	8.38E-03	1.57E-01	1.57E-01
+	LA-138	788.74	34.00	4.42E-02	1.81E-01	4.56E-01
		1435.80	66.00	-2.69E-02		1.81E-01
+	CE-139	165.85	80.35	-7.77E-03	1.49E-01	1.49E-01
+	BA-140	162.64	6.70	-6.30E+01	6.48E+01	1.78E+02
		304.84	4.50	1.04E+02		3.04E+02
		423.70	3.20	1.03E+02		5.11E+02
		437.55	2.00	5.38E+02		8.58E+02
		537.32	25.00	-5.16E+01		6.48E+01
+	LA-140	328.77	20.50	3.31E+01	2.83E+01	7.28E+01
		487.03	45.50	1.82E+01		3.49E+01
		815.85	23.50	-5.03E+01		9.28E+01
		1596.49	95.49	0.00E+00		2.83E+01
+	CE-141	145.44	48.40	1.50E-01	1.13E+00	1.13E+00
+	@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26

Analysis Report for 1707082-04

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		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	@	CE-143	293.26		42.00	1.00E+26	1.00E+26	1.00E+26
	@		664.55		5.20	1.00E+26		1.00E+26
+		CE-144	133.54		10.80	-4.32E-01	8.14E-01	8.14E-01
+		PM-144	476.78		42.00	1.15E-01	1.19E-01	2.98E-01
			618.01		98.60	-5.64E-02		1.19E-01
			696.49		99.49	-5.31E-02		1.64E-01
+		PM-145	36.85		21.70	5.88E-02	3.09E-01	5.79E-01
			37.36		39.70	3.14E-02		3.09E-01
			42.30		15.10	-8.84E-01		7.07E-01
			72.40		2.31	-2.49E-01		4.50E+00
+		PM-146	453.90		39.94	9.71E-02	2.66E-01	2.66E-01
			735.90		14.01	3.10E-02		9.34E-01
			747.13		13.10	-2.62E-01		1.00E+00
+		ND-147	91.11		28.90	1.95E+02	1.25E+02	1.25E+02
			531.02		13.10	9.01E+01		3.14E+02
+		PM-149	285.90		3.10	8.83E+12	1.69E+13	1.69E+13
+		EU-152	121.78		20.50	1.29E-02	3.33E-01	3.33E-01
			244.69		5.40	-1.26E+00		1.80E+00
			344.27		19.13	3.01E-02		4.75E-01
			778.89		9.20	-7.70E-01		1.53E+00
			964.01		10.40	2.27E-01		1.71E+00
			1085.78		7.22	-5.00E-02		2.43E+00
			1112.02		9.60	4.23E-01		1.80E+00
			1407.95		14.94	6.41E-02		9.37E-01
+		GD-153	97.43		31.30	9.88E-02	3.14E-01	3.14E-01
			103.18		22.20	-2.94E-01		3.92E-01
+		EU-154	123.07		40.50	-8.70E-02	1.68E-01	1.68E-01
			723.30		19.70	-2.77E-01		7.48E-01
			873.19		11.50	-7.82E-01		1.14E+00
			996.32		10.30	-5.81E-01		1.47E+00
			1004.76		17.90	-2.48E-01		8.97E-01
			1274.45		35.50	-1.15E-01		4.37E-01
+		EU-155	86.50	*	30.90	4.15E-01	3.37E-01	3.66E-01
			105.30		20.70	-7.67E-02		3.37E-01
+		EU-156	811.77		10.40	9.73E+00	9.76E+01	9.76E+01
			1153.47		7.20	1.35E+01		1.95E+02
			1230.71		8.90	-8.13E+01		1.51E+02
+		HO-166M	184.41		72.60	2.00E-01	1.28E-01	1.28E-01
			280.45		29.60	-2.29E-01		2.72E-01
			410.94		11.10	-6.47E-02		8.77E-01
			711.69		54.10	-8.07E-02		2.40E-01
+		TM-171	66.72		0.14	2.03E+01	7.26E+01	7.26E+01
+		HF-172	67.35		5.31	5.34E-01	6.92E-01	1.91E+00
			125.81		11.30	2.00E-01		6.92E-01
+		LU-172	181.53		20.60	8.83E+02	4.44E+03	6.66E+03
			900.72		29.81	4.13E+02		8.98E+03
			1093.66		62.50	1.55E+03		4.44E+03
+		LU-173	100.72		5.24	-2.73E-01	4.97E-01	1.46E+00
			272.11		21.20	2.54E-01		4.97E-01

Analysis Report for 1707082-04

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	HF-175	343.40		84.00	1.71E-02	2.70E-01	2.70E-01
+	LU-176	88.34		13.30	-3.99E-01	8.72E-02	6.94E-01
		201.83		86.00	3.32E-03		9.44E-02
		306.78		94.00	-5.35E-03		8.72E-02
+	HF-181	133.02		41.70	-3.46E-01	5.65E-01	7.86E-01
		345.85		17.20	1.55E-01		2.39E+00
		482.03		82.80	3.60E-02		5.65E-01
+	TA-182	67.75		41.20	1.10E-01	3.79E-01	3.79E-01
		1121.30		34.90	1.82E+00		1.25E+00
		1189.05		16.23	-1.31E+00		1.83E+00
		1221.41		26.98	3.74E-01		1.24E+00
		1231.02		11.44	-5.04E-01		3.05E+00
+	IR-192	308.46		29.68	-2.78E-01	4.89E-01	6.55E-01
		468.07		48.10	-1.80E-01		4.89E-01
+	HG-203	279.19		77.30	2.20E-01	4.43E-01	4.43E-01
+	TL-204	374.74		94.11	1.40E-02	1.03E-01	1.03E-01
		899.15		99.16	-4.09E-02		1.64E-01
		911.74		91.10	3.43E-01		2.48E-01
+	BI-207	569.67		97.72	9.74E-03	1.08E-01	1.08E-01
		1063.62		74.90	8.54E-02		2.37E-01
+	TL-208	583.14	*	30.22	9.81E-01	3.25E-01	4.62E-01
		860.37	*	4.48	1.02E+00		1.97E+00
		2614.66	*	35.85	1.68E+00		3.25E-01
+	BI-210M	262.00		45.00	-2.85E-03	1.76E-01	1.76E-01
		300.00		23.00	-1.37E+00		4.24E-01
+	PB-210	46.50		4.25	1.49E+00	2.45E+00	2.45E+00
+	PB-211	404.84		2.90	-9.22E-01	3.32E+00	3.32E+00
		831.96		2.90	-2.15E+00		4.74E+00
+	BI-212	727.17		11.80	3.75E-01	1.25E+00	1.25E+00
		1620.62		2.75	5.12E-01		4.97E+00
+	PB-212	238.63	*	44.60	1.24E+00	4.25E-01	4.25E-01
		300.09	*	3.41	2.05E+00		4.32E+00
+	BI-214	609.31	*	46.30	1.91E+00	3.99E-01	3.99E-01
		1120.29	*	15.10	2.71E+00		1.48E+00
		1764.49	*	15.80	2.29E+00		8.19E-01
		2204.22	*	4.98	2.01E+00		3.21E+00
+	PB-214	295.21	*	19.19	2.27E+00	4.14E-01	7.60E-01
		351.92	*	37.19	2.28E+00		4.14E-01
+	RN-219	401.80		6.50	-6.79E-02	1.55E+00	1.55E+00
+	RA-223	323.87		3.88	-4.33E-02	2.22E+00	2.22E+00
+	RA-224	240.98		3.95	1.59E+01	3.66E+00	3.66E+00
+	RA-225	40.00		31.00	-2.92E+00	2.95E+01	2.95E+01
+	RA-226	186.21	*	3.28	4.25E+00	3.13E+00	3.13E+00
+	TH-227	50.10		8.40	-1.29E+00	1.09E+00	1.13E+00
		236.00		11.50	1.51E-01		1.09E+00
		256.20		6.30	7.00E-01		1.30E+00
+	AC-228	338.32	*	11.40	1.75E+00	8.87E-01	1.32E+00
		911.07	*	27.70	1.37E+00		8.87E-01

Analysis Report for 1707082-04

HTC-A01-S005-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	AC-228	969.11	*	16.60	1.25E+00	8.87E-01	1.24E+00
+	TH-230	48.44		16.90	5.21E-01	5.95E-01	5.95E-01
		62.85		4.60	1.32E+00		2.09E+00
		67.67		0.37	6.96E+00		2.39E+01
+	PA-231	283.67		1.60	-4.95E-01	3.99E+00	5.05E+00
		302.67		2.30	5.22E-01		3.99E+00
+	TH-231	25.64		14.70	1.36E+00	1.36E+00	1.82E+00
		84.21		6.40	-1.53E+00		1.36E+00
+	PA-233	311.98		38.60	2.54E-01	2.37E+00	2.37E+00
+	PA-234	131.20		20.40	2.51E-01	3.58E-01	3.58E-01
		733.99		8.80	-9.58E-01		1.48E+00
		946.00		12.00	-3.65E-01		1.21E+00
+	PA-234M	1001.03		0.92	7.10E+00	1.68E+01	1.68E+01
+	TH-234	63.29	*	3.80	1.39E+00	2.80E+00	2.80E+00
+	U-235	143.76		10.50	4.39E-02	6.90E-01	6.90E-01
		163.35		4.70	-5.50E-01		1.55E+00
		205.31		4.70	-5.50E-01		1.72E+00
+	NP-237	86.50	*	12.60	9.82E-01	8.65E-01	8.65E-01
+	NP-239	106.10		22.70	7.83E+10	3.18E+11	3.18E+11
		228.18		10.70	-2.97E+11		7.96E+11
		277.60		14.10	3.27E+11		6.39E+11
+	AM-241	59.54		35.90	-6.97E-02	2.63E-01	2.63E-01
+	AM-243	74.67	*	66.00	4.46E-01	2.44E-01	2.44E-01
+	CM-243	209.75		3.29	2.07E+00	6.11E-01	2.64E+00
		228.14		10.60	-2.85E-01		7.64E-01
		277.60		14.00	3.13E-01		6.11E-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
? = 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 1707082-04

HTC-A01-S005-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	3.43E+00	3.43E+00	2.25E+00	1.63E+00
	NA-22	1274.54		99.94	1.63E-01	1.63E-01	-4.30E-02	7.45E-02
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		0.00E+00	1.00E+20
	AL-26	1808.65		99.76	8.68E-02	8.68E-02	-4.63E-02	3.44E-02
+	K-40	1460.81	*	10.67	1.21E+00	1.21E+00	2.30E+01	5.37E-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	9.37E-02	9.37E-02	2.73E-02	4.60E-02
		78.34		96.00	1.25E-01		5.14E-01	6.16E-02
	SC-46	889.25		99.98	2.80E-01	2.80E-01	-1.02E-01	1.30E-01
		1120.51		99.99	5.43E-01		8.77E-01	2.59E-01
	V-48	983.52		99.98	8.20E+00	8.20E+00	-6.41E-01	3.79E+00
		1312.10		97.50	8.67E+00		1.05E+00	3.93E+00
	CR-51	320.08		9.83	8.89E+00	8.89E+00	1.40E+00	4.26E+00
	MN-54	834.83		99.97	1.85E-01	1.85E-01	3.29E-02	8.69E-02
	CO-56	846.75		99.96	3.07E-01	3.07E-01	2.08E-01	1.43E-01
		1037.75		14.03	2.40E+00		-2.26E+00	1.11E+00
		1238.25		67.00	7.43E-01		6.02E-01	3.50E-01
		1771.40		15.51	1.66E+00		-3.18E-02	7.02E-01
		2598.48		16.90	1.77E+00		6.76E-01	7.03E-01
	CO-57	122.06		85.51	1.00E-01	1.00E-01	3.90E-03	4.91E-02
		136.48		10.60	8.48E-01		2.40E-01	4.14E-01
	CO-58	810.76		99.40	3.48E-01	3.48E-01	-9.41E-02	1.63E-01
	FE-59	1099.22		56.50	1.13E+00	1.13E+00	-1.88E-01	5.22E-01
		1291.56		43.20	1.53E+00		6.56E-01	7.02E-01
	CO-60	1173.22		100.00	2.04E-01	1.52E-01	1.18E-01	9.58E-02
		1332.49		100.00	1.52E-01		0.00E+00	6.88E-02
	ZN-65	1115.52		50.75	5.26E-01	5.26E-01	3.57E-02	2.48E-01
	GA-67	93.31		35.70	1.22E+08	1.22E+08	2.01E+08	6.01E+07
		208.95		2.24	1.90E+09		2.61E+09	9.28E+08
		300.22		16.00	2.94E+08		-9.51E+08	1.42E+08
	SE-75	121.11		16.70	6.91E-01	2.05E-01	-1.50E-01	3.38E-01
		136.00		59.20	2.05E-01		1.53E-02	9.99E-02
		264.65		59.80	2.29E-01		-1.74E-02	1.10E-01
		279.53		25.20	5.71E-01		-2.31E-02	2.75E-01
		400.65		11.40	1.54E+00		1.81E-01	7.37E-01
	RB-82	776.52		13.00	1.42E+01	1.42E+01	-6.93E-01	6.67E+00
	RB-83	520.41		46.00	4.41E-01	4.41E-01	-6.69E-02	2.08E-01
		529.64		30.30	7.63E-01		3.55E-01	3.62E-01
		552.65		16.40	1.36E+00		-1.44E-01	6.43E-01
	KR-85	513.99		0.43	3.19E+01	3.19E+01	5.99E+00	1.53E+01
	SR-85	513.99		99.27	3.75E-01	3.75E-01	7.04E-02	1.80E-01
	Y-88	898.02		93.40	3.06E-01	2.07E-01	1.19E-01	1.43E-01
		1836.01		99.38	2.07E-01		-3.04E-02	8.68E-02
	MO-93	263.06		56.72	1.40E-01	1.13E-01	-5.65E-02	6.74E-02
		684.67		99.68	1.35E-01		4.46E-02	6.39E-02
		1477.11		99.08	1.13E-01		-2.40E-02	4.87E-02
	NB-93M	16.57		9.43	9.42E+00	9.42E+00	2.31E+01	4.58E+00
	NB-94	702.63		100.00	1.36E-01	1.36E-01	-3.14E-02	6.42E-02
		871.10		100.00	1.38E-01		1.54E-02	6.46E-02
	NB-95	765.79		99.81	1.00E+00	1.00E+00	-9.67E-02	4.75E-01

Analysis Report for 1707082-04

HTC-A01-S005-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	NB-95M	235.69		25.00	3.50E+07	3.50E+07	4.84E+06	1.71E+07
	ZR-95	724.18		43.70	9.16E-01	7.58E-01	-3.40E-01	4.33E-01
		756.72		55.30	7.58E-01		3.61E-01	3.59E-01
	MO-99	181.06		6.20	2.48E+10	1.86E+10	7.74E+09	1.21E+10
		739.58		12.80	1.86E+10		-6.19E+09	8.68E+09
		778.00		4.50	6.22E+10		9.08E+09	2.93E+10
	RU-103	497.08		89.00	5.53E-01	5.53E-01	-2.94E-01	2.61E-01
	RU-106	621.84		9.80	1.31E+00	1.31E+00	-6.46E-02	6.12E-01
	AG-108M	433.93		89.90	1.10E-01	1.10E-01	1.03E-02	5.23E-02
		614.37		90.40	1.24E-01		-1.36E-03	5.85E-02
		722.95		90.50	1.55E-01		-1.38E-01	7.30E-02
	CD-109	88.03		3.72	2.85E+00	2.85E+00	-1.64E+00	1.40E+00
	AG-110M	657.75		93.14	1.77E-01	1.77E-01	8.79E-02	8.36E-02
		677.61		10.53	1.54E+00		-6.98E-01	7.24E-01
		706.67		16.46	1.10E+00		2.40E-01	5.22E-01
		763.93		21.98	8.60E-01		-9.90E-02	4.06E-01
		884.67		71.63	2.49E-01		5.38E-02	1.16E-01
		1384.27		23.94	8.33E-01		-1.03E-01	3.79E-01
	CD-113M	263.70		0.02	3.43E+02	3.43E+02	-1.03E+02	1.65E+02
	SN-113	255.12		1.93	7.40E+00	2.46E-01	1.32E+00	3.57E+00
		391.69		64.90	2.46E-01		-1.51E-01	1.17E-01
	TE123M	159.00		84.10	1.51E-01	1.51E-01	-3.72E-02	7.34E-02
	SB-124	602.71		97.87	3.33E-01	3.33E-01	1.01E-01	1.56E-01
		645.85		7.26	4.77E+00		2.60E-01	2.24E+00
		722.78		11.10	3.72E+00		-3.32E+00	1.76E+00
		1691.02		49.00	7.73E-01		2.24E-01	3.36E-01
	I-125	35.49		6.49	5.95E+00	5.95E+00	-6.18E-02	2.90E+00
	SB-125	176.33		6.89	1.13E+00	3.75E-01	-5.76E-01	5.51E-01
		427.89		29.33	3.75E-01		7.82E-02	1.79E-01
		463.38		10.35	1.15E+00		4.33E-01	5.51E-01
		600.56		17.80	6.51E-01		2.37E-01	3.06E-01
		635.90		11.32	9.65E-01		-3.72E-01	4.50E-01
	SB-126	414.70		83.30	2.25E+01	2.25E+01	-4.15E+00	1.07E+01
		666.33		99.60	2.43E+01		-2.31E+01	1.15E+01
		695.00		99.60	2.64E+01		1.61E+00	1.25E+01
		720.50		53.80	5.07E+01		1.79E+01	2.40E+01
+	SN-126	87.57	*	37.00	2.94E-01	2.94E-01	3.34E-01	1.45E-01
	SB-127	473.00		25.00	8.74E+06	8.43E+06	1.22E+06	4.14E+06
		685.20		35.70	8.43E+06		2.78E+06	3.98E+06
		783.80		14.70	2.43E+07		1.72E+07	1.15E+07
	I-129	29.78		57.00	3.17E-01	3.17E-01	-1.02E-01	1.54E-01
		33.60		13.20	1.08E+00		-1.73E-01	5.25E-01
		39.58		7.52	1.51E+00		-1.49E-01	7.36E-01
	I-131	284.30		6.05	4.46E+03	3.61E+02	-4.36E+02	2.14E+03
		364.48		81.20	3.61E+02		1.12E+02	1.73E+02
		636.97		7.26	4.77E+03		4.97E+02	2.23E+03
		722.89		1.80	2.58E+04		-2.30E+04	1.22E+04
	TE-132	49.72		13.10	3.57E+08	4.49E+07	-4.09E+08	1.75E+08
		228.16		88.00	4.49E+07		-1.68E+07	2.18E+07
	BA-133	81.00		33.00	2.85E-01	2.24E-01	-1.00E+00	1.40E-01
		302.84		17.80	5.24E-01		6.87E-02	2.53E-01
		356.01		60.00	2.24E-01		-7.05E-02	1.09E-01
@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20

Analysis Report for 1707082-04

HTC-A01-S005-0612-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
XE-133	81.00	38.00	6.13E+04	6.13E+04	-2.16E+05	3.01E+04
CS-134	563.23	8.38	1.28E+00	1.47E-01	-2.43E-01	6.01E-01
	569.32	15.43	7.45E-01		6.68E-02	3.50E-01
	604.70	97.60	1.47E-01		1.73E-02	6.99E-02
	795.84	85.40	1.82E-01		9.59E-03	8.57E-02
	801.93	8.73	1.58E+00		7.92E-02	7.37E-01
CS-135	268.24	16.00	5.51E-01	5.51E-01	-2.65E-02	2.66E-01
@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41	28.60	1.00E+26		1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		1.00E+26	1.00E+20
CS-136	153.22	7.46	1.42E+02	1.94E+01	1.75E+01	6.94E+01
	163.89	4.61	2.28E+02		1.57E+01	1.11E+02
	176.55	13.56	7.81E+01		1.50E+01	3.80E+01
	273.65	12.66	1.00E+02		1.41E+01	4.84E+01
	340.57	48.50	3.19E+01		2.78E+01	1.54E+01
	818.50	99.70	1.94E+01		-8.91E-01	9.07E+00
	1048.07	79.60	2.93E+01		-2.43E+00	1.37E+01
	1235.34	19.70	1.55E+02		8.38E+01	7.32E+01
CS-137	661.65	85.12	1.57E-01	1.57E-01	8.38E-03	7.42E-02
LA-138	788.74	34.00	4.56E-01	1.81E-01	4.42E-02	2.16E-01
	1435.80	66.00	1.81E-01		-2.69E-02	7.95E-02
CE-139	165.85	80.35	1.49E-01	1.49E-01	-7.77E-03	7.24E-02
BA-140	162.64	6.70	1.78E+02	6.48E+01	-6.30E+01	8.66E+01
	304.84	4.50	3.04E+02		1.04E+02	1.46E+02
	423.70	3.20	5.11E+02		1.03E+02	2.44E+02
	437.55	2.00	8.58E+02		5.38E+02	4.10E+02
	537.32	25.00	6.48E+01		-5.16E+01	3.05E+01
LA-140	328.77	20.50	7.28E+01	2.83E+01	3.31E+01	3.50E+01
	487.03	45.50	3.49E+01		1.82E+01	1.65E+01
	815.85	23.50	9.28E+01		-5.03E+01	4.34E+01
	1596.49	95.49	2.83E+01		0.00E+00	1.28E+01
CE-141	145.44	48.40	1.13E+00	1.13E+00	1.50E-01	5.50E-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	8.14E-01	8.14E-01	-4.32E-01	3.97E-01
PM-144	476.78	42.00	2.98E-01	1.19E-01	1.15E-01	1.42E-01
	618.01	98.60	1.19E-01		-5.64E-02	5.55E-02
	696.49	99.49	1.64E-01		-5.31E-02	7.74E-02
PM-145	36.85	21.70	5.79E-01	3.09E-01	5.88E-02	2.83E-01
	37.36	39.70	3.09E-01		3.14E-02	1.51E-01
	42.30	15.10	7.07E-01		-8.84E-01	3.46E-01
	72.40	2.31	4.50E+00		-2.49E-01	2.22E+00
PM-146	453.90	39.94	2.66E-01	2.66E-01	9.71E-02	1.27E-01
	735.90	14.01	9.34E-01		3.10E-02	4.38E-01
	747.13	13.10	1.00E+00		-2.62E-01	4.68E-01
ND-147	91.11	28.90	1.25E+02	1.25E+02	1.95E+02	6.16E+01
	531.02	13.10	3.14E+02		9.01E+01	1.49E+02
PM-149	285.90	3.10	1.69E+13	1.69E+13	8.83E+12	8.13E+12
EU-152	121.78	20.50	3.33E-01	3.33E-01	1.29E-02	1.63E-01
	244.69	5.40	1.80E+00		-1.26E+00	8.78E-01
	344.27	19.13	4.75E-01		3.01E-02	2.28E-01
	778.89	9.20	1.53E+00		-7.70E-01	7.21E-01

Analysis Report for 1707082-04

HTC-A01-S005-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-152	964.01		10.40	1.71E+00	3.33E-01	2.27E-01	8.05E-01
		1085.78		7.22	2.43E+00		-5.00E-02	1.14E+00
		1112.02		9.60	1.80E+00		4.23E-01	8.41E-01
		1407.95		14.94	9.37E-01		6.41E-02	4.20E-01
	GD-153	97.43		31.30	3.14E-01	3.14E-01	9.88E-02	1.54E-01
		103.18		22.20	3.92E-01		-2.94E-01	1.92E-01
	EU-154	123.07		40.50	1.68E-01	1.68E-01	-8.70E-02	8.21E-02
		723.30		19.70	7.48E-01		-2.77E-01	3.54E-01
		873.19		11.50	1.14E+00		-7.82E-01	5.29E-01
		996.32		10.30	1.47E+00		-5.81E-01	6.82E-01
		1004.76		17.90	8.97E-01		-2.48E-01	4.18E-01
		1274.45		35.50	4.37E-01		-1.15E-01	2.00E-01
+	EU-155	86.50	*	30.90	3.66E-01	3.37E-01	4.15E-01	1.80E-01
		105.30		20.70	3.37E-01		-7.67E-02	1.65E-01
	EU-156	811.77		10.40	9.76E+01	9.76E+01	9.73E+00	4.57E+01
		1153.47		7.20	1.95E+02		1.35E+01	9.15E+01
		1230.71		8.90	1.51E+02		-8.13E+01	7.04E+01
	HO-166M	184.41		72.60	1.28E-01	1.28E-01	2.00E-01	6.28E-02
		280.45		29.60	2.72E-01		-2.29E-01	1.31E-01
		410.94		11.10	8.77E-01		-6.47E-02	4.18E-01
		711.69		54.10	2.40E-01		-8.07E-02	1.13E-01
	TM-171	66.72		0.14	7.26E+01	7.26E+01	2.03E+01	3.57E+01
	HF-172	67.35		5.31	1.91E+00	6.92E-01	5.34E-01	9.39E-01
		125.81		11.30	6.92E-01		2.00E-01	3.38E-01
	LU-172	181.53		20.60	6.66E+03	4.44E+03	8.83E+02	3.25E+03
		900.72		29.81	8.98E+03		4.13E+02	4.22E+03
		1093.66		62.50	4.44E+03		1.55E+03	2.07E+03
	LU-173	100.72		5.24	1.46E+00	4.97E-01	-2.73E-01	7.14E-01
		272.11		21.20	4.97E-01		2.54E-01	2.41E-01
	HF-175	343.40		84.00	2.70E-01	2.70E-01	1.71E-02	1.30E-01
	LU-176	88.34		13.30	6.94E-01	8.72E-02	-3.99E-01	3.41E-01
		201.83		86.00	9.44E-02		3.32E-03	4.59E-02
		306.78		94.00	8.72E-02		-5.35E-03	4.19E-02
	HF-181	133.02		41.70	7.86E-01	5.65E-01	-3.46E-01	3.84E-01
		345.85		17.20	2.39E+00		1.55E-01	1.14E+00
		482.03		82.80	5.65E-01		3.60E-02	2.68E-01
	TA-182	67.75		41.20	3.79E-01	3.79E-01	1.10E-01	1.86E-01
		1121.30		34.90	1.25E+00		1.82E+00	5.94E-01
		1189.05		16.23	1.83E+00		-1.31E+00	8.46E-01
		1221.41		26.98	1.24E+00		3.74E-01	5.79E-01
		1231.02		11.44	3.05E+00		-5.04E-01	1.43E+00
	IR-192	308.46		29.68	6.55E-01	4.89E-01	-2.78E-01	3.14E-01
		468.07		48.10	4.89E-01		-1.80E-01	2.32E-01
	HG-203	279.19		77.30	4.43E-01	4.43E-01	2.20E-01	2.14E-01
	TL-204	374.74		94.11	1.03E-01	1.03E-01	1.40E-02	4.94E-02
		899.15		99.16	1.64E-01		-4.09E-02	7.69E-02
		911.74		91.10	2.48E-01		3.43E-01	1.18E-01
	BI-207	569.67		97.72	1.08E-01	1.08E-01	9.74E-03	5.10E-02
		1063.62		74.90	2.37E-01		8.54E-02	1.11E-01
+	TL-208	583.14	*	30.22	4.62E-01	3.25E-01	9.81E-01	2.20E-01
		860.37	*	4.48	1.97E+00		1.02E+00	8.84E-01
		2614.66	*	35.85	3.25E-01		1.68E+00	1.24E-01
	BI-210M	262.00		45.00	1.76E-01	1.76E-01	-2.85E-03	8.50E-02

Analysis Report for 1707082-04

HTC-A01-S005-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BI-210M	300.00		23.00	4.24E-01	1.76E-01	-1.37E+00	2.05E-01
	PB-210	46.50		4.25	2.45E+00	2.45E+00	1.49E+00	1.20E+00
	PB-211	404.84		2.90	3.32E+00	3.32E+00	-9.22E-01	1.58E+00
		831.96		2.90	4.74E+00		-2.15E+00	2.22E+00
	BI-212	727.17		11.80	1.25E+00	1.25E+00	3.75E-01	5.90E-01
		1620.62		2.75	4.97E+00		5.12E-01	2.19E+00
+	PB-212	238.63	*	44.60	4.25E-01	4.25E-01	1.24E+00	2.10E-01
		300.09	*	3.41	4.32E+00		2.05E+00	2.12E+00
+	BI-214	609.31	*	46.30	3.99E-01	3.99E-01	1.91E+00	1.92E-01
		1120.29	*	15.10	1.48E+00		2.71E+00	7.01E-01
		1764.49	*	15.80	8.19E-01		2.29E+00	3.54E-01
		2204.22	*	4.98	3.21E+00		2.01E+00	1.38E+00
+	PB-214	295.21	*	19.19	7.60E-01	4.14E-01	2.27E+00	3.72E-01
		351.92	*	37.19	4.14E-01		2.28E+00	2.02E-01
	RN-219	401.80		6.50	1.55E+00	1.55E+00	-6.79E-02	7.39E-01
	RA-223	323.87		3.88	2.22E+00	2.22E+00	-4.33E-02	1.07E+00
	RA-224	240.98		3.95	3.66E+00	3.66E+00	1.59E+01	1.80E+00
	RA-225	40.00		31.00	2.95E+01	2.95E+01	-2.92E+00	1.44E+01
+	RA-226	186.21	*	3.28	3.13E+00	3.13E+00	4.25E+00	1.53E+00
	TH-227	50.10		8.40	1.13E+00	1.09E+00	-1.29E+00	5.51E-01
		236.00		11.50	1.09E+00		1.51E-01	5.33E-01
		256.20		6.30	1.30E+00		7.00E-01	6.30E-01
+	AC-228	338.32	*	11.40	1.32E+00	8.87E-01	1.75E+00	6.44E-01
		911.07	*	27.70	8.87E-01		1.37E+00	4.26E-01
		969.11	*	16.60	1.24E+00		1.25E+00	5.91E-01
	TH-230	48.44		16.90	5.95E-01	5.95E-01	5.21E-01	2.92E-01
		62.85		4.60	2.09E+00		1.32E+00	1.03E+00
		67.67		0.37	2.39E+01		6.96E+00	1.17E+01
	PA-231	283.67		1.60	5.05E+00	3.99E+00	-4.95E-01	2.43E+00
		302.67		2.30	3.99E+00		5.22E-01	1.92E+00
	TH-231	25.64		14.70	1.82E+00	1.36E+00	1.36E+00	8.91E-01
		84.21		6.40	1.36E+00		-1.53E+00	6.68E-01
	PA-233	311.98		38.60	2.37E+00	2.37E+00	2.54E-01	1.14E+00
	PA-234	131.20		20.40	3.58E-01	3.58E-01	2.51E-01	1.75E-01
		733.99		8.80	1.48E+00		-9.58E-01	6.95E-01
		946.00		12.00	1.21E+00		-3.65E-01	5.62E-01
	PA-234M	1001.03		0.92	1.68E+01	1.68E+01	7.10E+00	7.83E+00
+	TH-234	63.29	*	3.80	2.80E+00	2.80E+00	1.39E+00	1.38E+00
	U-235	143.76		10.50	6.90E-01	6.90E-01	4.39E-02	3.37E-01
		163.35		4.70	1.55E+00		-5.50E-01	7.56E-01
		205.31		4.70	1.72E+00		-5.50E-01	8.37E-01
+	NP-237	86.50	*	12.60	8.65E-01	8.65E-01	9.82E-01	4.27E-01
	NP-239	106.10		22.70	3.18E+11	3.18E+11	7.83E+10	1.55E+11
		228.18		10.70	7.96E+11		-2.97E+11	3.86E+11
		277.60		14.10	6.39E+11		3.27E+11	3.08E+11
	AM-241	59.54		35.90	2.63E-01	2.63E-01	-6.97E-02	1.29E-01
+	AM-243	74.67	*	66.00	2.44E-01	2.44E-01	4.46E-01	1.21E-01
	CM-243	209.75		3.29	2.64E+00	6.11E-01	2.07E+00	1.28E+00
		228.14		10.60	7.64E-01		-2.85E-01	3.70E-01
		277.60		14.00	6.11E-01		3.13E-01	2.95E-01

Analysis Report for 1707082-04

HTC-A01-S005-0612-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	***Comment***	***User***

No Data Review Comments Entered.

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

Sample Title: HTC-A01-S005-0612-01

Elapsed Live time: 3600
Elapsed Real Time: 3602

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	1	22	110
17:	116	110	94	80	71	93	78	82
25:	81	68	89	89	65	69	73	74
33:	79	80	74	84	71	89	92	78
41:	91	91	75	114	144	132	107	99
49:	98	109	99	117	137	125	121	127
57:	115	138	144	154	129	221	223	142
65:	129	160	171	142	165	133	179	194
73:	323	364	397	512	344	208	147	144
81:	128	139	163	158	173	230	217	177
89:	178	154	229	235	185	141	106	90
97:	104	110	100	96	77	81	91	101
105:	93	98	106	93	97	90	82	101
113:	79	81	90	86	81	104	69	88
121:	69	78	96	87	86	82	95	114
129:	97	88	79	82	91	76	79	86
137:	80	83	85	74	79	84	114	84
145:	72	68	75	83	77	90	69	72
153:	85	98	74	80	77	66	63	71
161:	87	52	83	68	67	77	80	72
169:	60	73	67	56	59	71	59	59
177:	72	63	75	65	62	61	82	115
185:	153	126	74	59	76	69	57	68
193:	72	54	60	59	64	64	76	67
201:	53	57	57	60	69	54	68	72
209:	94	63	65	42	40	53	55	57
217:	44	58	44	48	48	56	40	56
225:	51	42	49	54	45	43	59	55
233:	64	44	56	99	195	277	180	101
241:	136	80	49	39	42	50	33	43
249:	39	31	38	33	44	34	49	41
257:	38	44	35	33	29	32	42	36
265:	34	33	41	42	66	46	57	40
273:	34	35	34	48	42	29	43	27
281:	29	27	29	43	39	28	26	34
289:	31	21	38	37	75	170	146	69
297:	30	33	56	47	31	25	33	33
305:	27	34	21	21	25	25	32	32
313:	25	26	24	24	27	28	31	22
321:	30	20	31	31	26	32	43	36
329:	23	25	24	18	25	29	28	46
337:	68	66	40	34	27	25	21	29
345:	25	22	29	24	43	145	250	209
353:	44	33	26	25	21	21	22	27
361:	23	21	24	25	21	20	22	20

369:	12	21	16	18	24	31	22	25

Sample Title: HTC-A01-S005-0612-01

Channel								
377:	27	23	31	20	25	23	24	25
385:	27	24	31	21	18	14	28	24
393:	17	19	25	22	25	26	27	28
401:	24	23	19	19	28	21	15	19
409:	23	29	18	18	26	16	23	23
417:	22	21	18	24	28	13	16	18
425:	21	26	25	30	22	11	26	22
433:	11	24	21	20	19	25	24	18
441:	16	16	14	18	21	17	13	15
449:	22	15	24	23	18	16	19	19
457:	15	14	17	18	34	30	25	16
465:	11	19	25	16	12	13	13	12
473:	18	20	19	12	22	21	13	20
481:	13	10	20	15	17	12	12	19
489:	7	11	10	12	13	11	11	14
497:	15	15	12	23	19	20	20	15
505:	16	10	18	25	43	53	43	30
513:	15	9	14	21	9	13	11	13
521:	13	12	14	7	12	12	18	16
529:	14	15	21	12	11	17	11	11
537:	14	10	12	11	21	22	10	13
545:	15	13	13	13	18	10	14	10
553:	10	12	18	18	11	10	11	10
561:	12	12	6	13	13	10	17	11
569:	13	12	15	9	8	14	8	12
577:	17	15	10	10	27	57	74	31
585:	10	9	15	11	14	10	9	9
593:	10	17	9	8	11	8	9	15
601:	6	12	22	9	12	11	51	140
609:	149	59	24	11	12	11	6	15
617:	6	8	8	9	14	10	11	15
625:	14	9	15	12	7	13	10	9
633:	7	9	11	7	10	12	11	12
641:	5	15	9	12	12	8	18	10
649:	13	3	8	7	7	10	12	10
657:	10	8	5	18	16	9	8	16
665:	14	12	11	9	7	6	17	11
673:	15	8	4	14	10	6	12	11
681:	7	15	6	10	10	14	10	14
689:	12	6	13	14	8	15	9	18
697:	14	3	7	11	8	22	14	10
705:	8	14	8	8	9	9	9	12
713:	13	8	10	11	12	12	13	9
721:	13	12	9	10	12	7	19	18
729:	12	8	7	12	8	9	6	11
737:	8	9	6	6	8	8	6	13
745:	6	5	10	9	9	8	10	13
753:	9	16	16	7	12	10	13	9
761:	8	10	11	7	16	8	13	21
769:	15	14	9	11	13	11	5	8
777:	4	9	14	14	9	9	7	16
785:	15	16	7	8	10	12	9	9
793:	8	21	12	8	4	5	8	7

801:	3	7	8	13	9	11	6	5

Sample Title: HTC-A01-S005-0612-01

Channel								
809:	6	16	5	10	7	9	12	5
817:	7	5	9	10	9	6	7	9
825:	8	8	8	5	6	6	10	6
833:	7	11	12	10	14	9	17	6
841:	4	9	5	4	9	8	6	8
849:	9	7	5	2	7	4	8	9
857:	5	4	9	11	9	3	6	7
865:	11	4	6	15	6	5	9	4
873:	7	10	5	5	5	10	6	10
881:	4	6	10	5	6	6	9	7
889:	4	5	4	2	11	9	6	8
897:	7	8	14	7	9	13	7	10
905:	10	5	8	9	28	44	26	17
913:	6	8	8	11	5	4	3	5
921:	11	7	9	5	7	7	7	8
929:	9	4	7	7	19	8	5	8
937:	9	4	10	7	9	9	6	4
945:	7	9	3	8	7	10	6	11
953:	6	9	7	5	7	6	6	4
961:	10	9	10	15	8	11	17	27
969:	23	13	5	5	7	3	4	5
977:	5	9	6	9	5	8	7	4
985:	3	4	6	6	5	8	9	4
993:	9	8	4	2	6	5	11	10
1001:	9	7	5	9	5	4	8	9
1009:	7	11	6	11	7	9	8	11
1017:	6	7	5	8	6	10	2	5
1025:	3	3	4	4	1	5	10	8
1033:	5	8	8	4	6	5	7	6
1041:	5	10	11	10	7	9	10	6
1049:	6	4	4	9	7	8	5	5
1057:	7	7	9	9	7	2	15	16
1065:	7	6	5	6	7	6	7	7
1073:	8	6	7	8	8	4	4	9
1081:	9	6	11	6	3	10	9	6
1089:	10	10	8	3	8	3	10	5
1097:	5	5	3	5	6	5	5	6
1105:	7	4	12	8	4	6	10	7
1113:	5	8	5	6	7	10	37	46
1121:	21	4	5	7	2	6	7	5
1129:	7	10	7	12	9	5	10	3
1137:	8	5	5	13	4	7	5	9
1145:	11	12	6	8	6	5	11	7
1153:	8	10	11	9	11	7	7	10
1161:	6	8	4	5	7	6	10	10
1169:	8	10	9	9	13	6	7	9
1177:	9	4	3	5	8	5	10	11
1185:	4	7	8	10	12	2	6	4
1193:	2	8	8	12	9	2	10	8
1201:	8	5	5	6	8	5	8	10
1209:	14	7	8	8	6	6	5	7
1217:	6	6	8	8	12	3	7	10
1225:	8	3	10	6	4	11	6	4

1233:	10	9	13	5	13	14	14	10

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Channel								
1241:	5	6	9	4	2	4	7	4
1249:	7	6	3	8	4	5	4	8
1257:	6	4	4	4	3	3	7	7
1265:	4	4	6	3	2	3	3	4
1273:	6	4	5	8	2	4	7	8
1281:	5	5	7	4	8	1	5	8
1289:	6	3	6	3	3	2	3	1
1297:	3	2	2	3	4	2	6	5
1305:	2	3	4	2	4	2	3	3
1313:	3	6	6	3	3	3	4	5
1321:	5	3	4	7	6	7	3	4
1329:	4	9	8	1	0	4	2	1
1337:	3	5	3	8	2	2	3	1
1345:	5	5	7	4	4	1	5	0
1353:	2	7	6	1	3	3	3	5
1361:	4	6	0	4	1	5	3	2
1369:	2	4	3	4	0	3	2	5
1377:	10	5	3	6	3	4	4	3
1385:	5	3	5	1	3	5	1	3
1393:	2	3	6	2	4	2	4	2
1401:	4	3	3	3	3	5	6	3
1409:	1	2	1	2	3	3	1	5
1417:	4	5	2	3	1	0	7	1
1425:	1	0	4	1	1	2	1	2
1433:	2	7	0	1	2	3	0	2
1441:	2	2	1	2	3	4	2	4
1449:	2	3	1	2	1	0	3	2
1457:	3	26	81	146	133	58	8	2
1465:	1	1	1	3	2	0	4	4
1473:	1	1	2	1	1	1	2	3
1481:	2	2	1	1	0	1	1	0
1489:	2	0	0	0	2	6	1	1
1497:	0	3	1	3	3	2	2	1
1505:	3	3	5	7	6	6	4	3
1513:	3	4	2	3	2	3	1	1
1521:	2	2	2	1	1	2	1	3
1529:	2	5	1	2	2	3	6	5
1537:	5	3	1	0	1	1	2	2
1545:	3	2	1	1	2	0	1	3
1553:	3	1	1	2	1	4	2	3
1561:	0	1	3	3	1	2	3	2
1569:	2	2	1	3	4	0	1	2
1577:	2	3	1	2	2	1	1	2
1585:	3	2	1	2	2	2	2	8
1593:	6	2	3	5	2	0	4	0
1601:	1	0	0	0	1	1	3	0
1609:	0	1	1	0	2	0	3	1
1617:	2	1	3	5	2	1	3	1
1625:	1	2	3	0	5	1	2	0
1633:	1	0	2	3	0	2	0	1
1641:	1	1	2	2	3	0	1	0
1649:	3	2	0	1	2	0	2	0
1657:	3	2	2	2	0	2	2	2

1665:	0	0	1	1	1	2	0	1

Sample Title: HTC-A01-S005-0612-01

Channel								
1673:	1	3	0	2	1	2	0	0
1681:	0	0	1	2	0	1	1	1
1689:	4	2	0	0	1	3	3	1
1697:	0	2	1	1	1	1	1	0
1705:	0	1	1	2	1	0	0	0
1713:	1	0	1	0	2	1	1	1
1721:	0	5	1	0	1	2	1	3
1729:	3	2	6	5	2	2	1	1
1737:	1	0	1	0	0	1	1	0
1745:	1	0	3	1	1	0	3	3
1753:	0	1	0	1	0	0	2	2
1761:	3	5	4	18	14	9	2	2
1769:	1	1	1	1	1	1	0	1
1777:	1	0	1	0	2	3	0	2
1785:	0	0	0	2	0	2	0	1
1793:	1	0	1	2	0	0	0	0
1801:	1	2	1	0	0	1	1	0
1809:	0	0	2	1	0	1	3	0
1817:	0	1	1	0	2	0	0	0
1825:	2	2	0	0	1	0	0	2
1833:	1	2	1	1	1	0	1	0
1841:	2	0	3	0	1	3	8	3
1849:	1	0	2	2	1	0	2	2
1857:	2	1	0	1	0	0	1	2
1865:	1	0	1	0	1	0	4	0
1873:	2	2	0	3	2	1	0	2
1881:	1	0	1	1	2	1	2	1
1889:	0	0	0	1	0	0	1	0
1897:	1	0	1	0	2	2	0	1
1905:	1	1	1	0	1	1	0	1
1913:	0	1	0	1	1	0	1	1
1921:	0	0	0	0	0	3	0	0
1929:	1	0	1	1	0	1	1	0
1937:	0	0	2	1	1	1	0	1
1945:	1	2	0	0	0	2	0	2
1953:	1	3	1	1	0	0	0	1
1961:	0	0	1	0	1	0	3	3
1969:	0	0	0	1	1	0	2	1
1977:	1	0	1	0	1	0	2	1
1985:	1	1	1	1	0	2	1	2
1993:	1	1	0	0	1	1	3	3
2001:	0	1	0	2	1	2	0	1
2009:	1	1	1	2	0	0	1	0
2017:	2	0	1	1	0	1	0	0
2025:	1	0	0	0	4	1	1	1
2033:	0	1	0	0	1	0	0	0
2041:	2	0	0	3	1	1	2	1
2049:	1	0	1	1	0	0	0	0
2057:	0	0	0	0	0	1	0	2
2065:	1	0	2	0	1	2	2	1
2073:	0	0	1	0	0	1	1	0
2081:	0	1	0	0	0	1	1	1
2089:	0	1	1	1	0	1	1	2

2097:	0	0	2	0	0	2	1	2

Sample Title: HTC-A01-S005-0612-01

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

2529:	0	0	0	1	0	0	0	0

Sample Title: HTC-A01-S005-0612-01

Channel								
2537:	1	1	0	0	0	0	0	0
2545:	1	1	1	0	1	1	0	0
2553:	0	0	0	0	1	1	0	0
2561:	1	0	0	0	0	0	0	0
2569:	2	0	0	0	0	0	2	0
2577:	0	0	0	0	1	1	0	1
2585:	0	0	2	0	0	0	1	0
2593:	0	0	0	0	0	1	1	0
2601:	2	0	1	0	0	0	2	0
2609:	0	0	0	3	9	17	18	10
2617:	5	0	1	0	0	0	0	0
2625:	0	0	0	1	0	0	0	0
2633:	0	0	0	0	0	0	0	0
2641:	1	0	0	0	0	0	0	1
2649:	0	0	1	1	0	0	0	0
2657:	0	0	1	0	0	0	1	0
2665:	0	1	0	0	0	0	0	0
2673:	0	0	0	1	0	0	0	0
2681:	0	0	0	0	0	0	0	0
2689:	0	1	0	0	1	0	0	0
2697:	1	0	0	1	0	0	0	1
2705:	0	0	1	0	0	0	1	0
2713:	0	0	0	0	0	0	0	0
2721:	0	0	0	0	0	0	0	0
2729:	0	0	1	1	1	0	0	0
2737:	0	0	1	0	0	0	1	0
2745:	0	1	1	0	1	0	0	0
2753:	0	0	0	0	0	0	0	0
2761:	0	0	0	0	1	1	0	0
2769:	0	0	1	0	0	2	0	2
2777:	0	0	0	1	0	0	1	0
2785:	0	0	0	0	0	0	0	0
2793:	0	0	0	1	1	0	0	0
2801:	1	0	1	0	0	0	0	0
2809:	0	0	0	0	0	0	0	1
2817:	0	0	1	0	0	0	1	0
2825:	0	0	0	0	0	0	0	0
2833:	0	0	0	0	0	0	0	0
2841:	0	0	0	0	0	0	0	0
2849:	0	0	0	2	0	0	0	1
2857:	0	0	1	0	0	0	0	0
2865:	0	0	0	0	0	1	0	0
2873:	0	1	0	0	1	0	0	0
2881:	0	0	0	0	0	0	0	0
2889:	0	0	1	0	0	1	0	0
2897:	0	0	0	0	1	0	0	0
2905:	0	0	0	0	0	0	0	0
2913:	0	0	0	1	1	0	0	0
2921:	0	0	0	0	0	0	0	0
2929:	0	0	0	0	1	0	0	0
2937:	0	0	0	0	0	0	0	0
2945:	1	0	0	0	2	0	0	0
2953:	0	0	0	0	0	0	1	0

2961:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S005-0612-01

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

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S005-0612-01

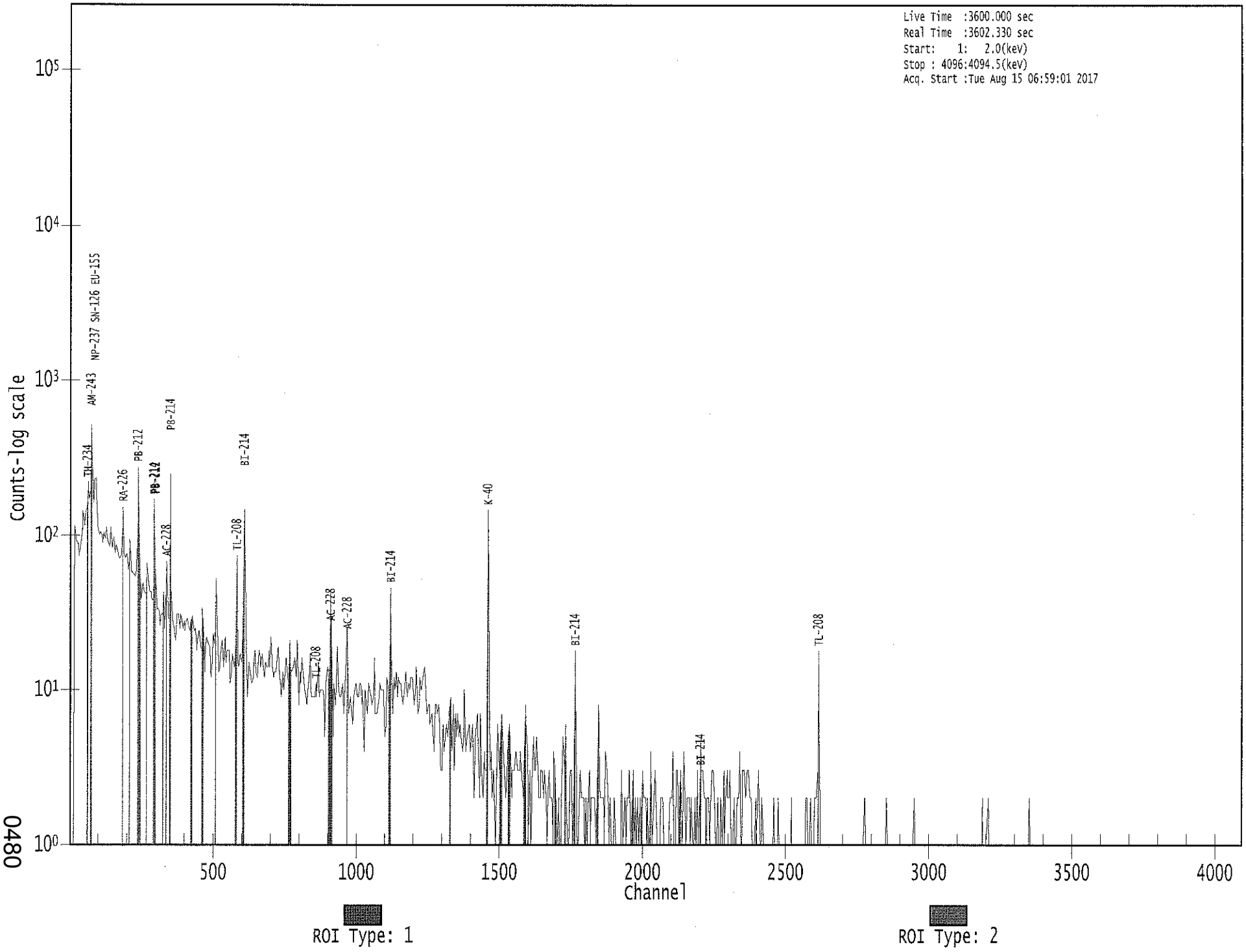
Channel								
3401:	0	0	1	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	1	0	0	0	0	0	0	0
3433:	0	0	0	1	0	0	0	0
3441:	0	0	0	1	0	0	0	0
3449:	0	0	0	0	0	0	1	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	1	0	0	0	0	0	0	0
3481:	0	0	1	0	1	1	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	1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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S005-0612-01

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

0000055236.CNF



0480

Apex-Gamma

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Analysis Report for 1707082-07

HTC-A01-S005-0612-02

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707082-07
Sample Description	: HTC-A01-S005-0612-02
Sample Type	: SOIL
Sample Size	: 5.628E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 5:45:58AM
Acquisition Started	: 8/15/2017 6:58:28AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3601.7 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	: 55234

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

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Analysis Report for 1707082-07

HTC-A01-S005-0612-02

PEAK LOCATE REPORT

Peak Locate Performed on : 8/15/2017 7:58:32AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	46.20	46.83	0.0000	0.00
2	62.96	63.56	0.0000	0.00
3	75.90	76.49	0.0000	0.00
4	83.57	84.15	0.0000	0.00
5	87.57	88.15	0.0000	0.00
6	92.27	92.85	0.0000	0.00
7	128.30	128.84	0.0000	0.00
8	143.65	144.18	0.0000	0.00
9	185.72	186.20	0.0000	0.00
10	238.51	238.94	0.0000	0.00
11	241.74	242.17	0.0000	0.00
12	244.41	244.83	0.0000	0.00
13	257.96	258.36	0.0000	0.00
14	270.01	270.40	0.0000	0.00
15	277.03	277.42	0.0000	0.00
16	295.16	295.52	0.0000	0.00
17	328.26	328.59	0.0000	0.00
18	338.60	338.92	0.0000	0.00
19	351.77	352.08	0.0000	0.00
20	464.01	464.21	0.0000	0.00
21	472.94	473.13	0.0000	0.00
22	479.59	479.77	0.0000	0.00
23	496.60	496.76	0.0000	0.00
24	511.07	511.22	0.0000	0.00
25	546.00	546.12	0.0000	0.00
26	579.29	579.37	0.0000	0.00
27	583.31	583.38	0.0000	0.00
28	609.53	609.58	0.0000	0.00
29	645.57	645.59	0.0000	0.00
30	666.14	666.13	0.0000	0.00
31	699.10	699.06	0.0000	0.00
32	727.48	727.41	0.0000	0.00
33	769.15	769.04	0.0000	0.00
34	786.17	786.05	0.0000	0.00
35	794.89	794.76	0.0000	0.00
36	860.69	860.49	0.0000	0.00
37	911.53	911.28	0.0000	0.00
38	934.25	933.98	0.0000	0.00
39	965.51	965.20	0.0000	0.00
40	969.18	968.87	0.0000	0.00
41	1069.81	1069.40	0.0000	0.00
42	1120.61	1120.15	0.0000	0.00

Analysis Report for 1707082-07

HTC-A01-S005-0612-02

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1238.16	1237.58	0.0000	0.00
44	1311.60	1310.95	0.0000	0.00
45	1378.20	1377.48	0.0000	0.00
46	1401.42	1400.69	0.0000	0.00
47	1408.57	1407.83	0.0000	0.00
48	1461.45	1460.65	0.0000	0.00
49	1465.96	1465.16	0.0000	0.00
50	1507.01	1506.16	0.0000	0.00
51	1510.30	1509.46	0.0000	0.00
52	1530.70	1529.83	0.0000	0.00
53	1662.31	1661.32	0.0000	0.00
54	1706.31	1705.27	0.0000	0.00
55	1725.07	1724.01	0.0000	0.00
56	1730.56	1729.51	0.0000	0.00
57	1765.25	1764.15	0.0000	0.00
58	1847.74	1846.57	0.0000	0.00
59	1958.58	1957.30	0.0000	0.00
60	1965.59	1964.31	0.0000	0.00
61	2110.35	2108.92	0.0000	0.00
62	2118.67	2117.24	0.0000	0.00
63	2145.03	2143.57	0.0000	0.00
64	2204.60	2203.09	0.0000	0.00
65	2448.28	2446.53	0.0000	0.00
66	2460.39	2458.63	0.0000	0.00
67	2615.59	2613.68	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707082-07

HTC-A01-S005-0612-02

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 7:58:32AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	46.20	43 -	49	46.83	1.82E+02	90.11	1.34E+03	1.56
	2	62.96	60 -	66	63.56	3.12E+02	117.48	2.30E+03	1.65
	3	75.90	71 -	81	76.49	1.63E+03	188.93	3.89E+03	3.79
M	4	83.57	83 -	97	84.15	1.10E+02	59.69	9.49E+02	1.66
m	5	87.57	83 -	97	88.15	3.10E+02	90.92	1.49E+03	1.67
m	6	92.27	83 -	97	92.85	4.09E+02	94.40	1.39E+03	1.67
	7	128.30	125 -	133	128.84	1.15E+02	110.29	1.80E+03	1.92
	8	143.65	140 -	148	144.18	1.16E+02	108.50	1.75E+03	3.07
	9	185.72	182 -	189	186.20	4.01E+02	98.45	1.35E+03	1.89
M	10	238.51	233 -	247	238.94	9.93E+02	81.14	6.32E+02	1.70
m	11	241.74	233 -	247	242.17	3.77E+02	69.95	5.55E+02	1.65
m	12	244.41	233 -	247	244.83	5.40E+01	63.60	5.35E+02	1.83
	13	257.96	256 -	261	258.36	4.53E+01	51.68	4.93E+02	2.99
	14	270.01	266 -	274	270.40	1.35E+02	74.45	7.71E+02	2.53
	15	277.03	275 -	279	277.42	4.70E+01	45.11	4.08E+02	1.01
	16	295.16	291 -	299	295.52	5.37E+02	92.84	9.98E+02	1.82
	17	328.26	325 -	331	328.59	4.92E+01	56.42	5.44E+02	1.28
	18	338.60	335 -	344	338.92	2.08E+02	73.23	6.40E+02	1.94
	19	351.77	347 -	356	352.08	1.06E+03	95.15	6.90E+02	1.68
	20	464.01	460 -	468	464.21	7.86E+01	50.79	3.43E+02	1.88
	21	472.94	470 -	476	473.13	3.39E+01	37.59	2.28E+02	3.73
	22	479.59	477 -	484	479.77	4.00E+01	39.75	2.38E+02	1.93
	23	496.60	495 -	499	496.76	2.60E+01	26.29	1.28E+02	2.20
	24	511.07	507 -	516	511.22	1.78E+02	58.98	3.97E+02	2.68
	25	546.00	543 -	550	546.12	4.04E+01	37.47	2.05E+02	2.90
M	26	579.29	578 -	592	579.37	2.23E+01	19.16	9.26E+01	2.25
m	27	583.31	578 -	592	583.38	3.21E+02	45.91	1.81E+02	1.98
	28	609.53	605 -	615	609.58	8.40E+02	77.51	3.55E+02	2.05
	29	645.57	642 -	649	645.59	3.30E+01	35.78	1.90E+02	2.96
	30	666.14	664 -	669	666.13	3.23E+01	26.59	1.13E+02	2.20
	31	699.10	697 -	701	699.06	2.59E+01	23.58	9.82E+01	2.03
	32	727.48	723 -	731	727.41	1.05E+02	39.11	1.71E+02	2.09
	33	769.15	764 -	774	769.04	1.07E+02	51.61	2.86E+02	2.33
	34	786.17	782 -	789	786.05	3.15E+01	35.04	1.83E+02	3.46
	35	794.89	791 -	798	794.76	3.60E+01	34.64	1.76E+02	1.42
	36	860.69	855 -	863	860.49	4.54E+01	37.56	1.89E+02	2.24
	37	911.53	907 -	916	911.28	2.20E+02	47.71	1.99E+02	1.98
	38	934.25	930 -	937	933.98	3.89E+01	30.00	1.24E+02	2.24
M	39	965.51	962 -	972	965.20	3.17E+01	30.53	1.26E+02	2.22
m	40	969.18	962 -	972	968.87	1.32E+02	34.00	1.01E+02	2.22

Analysis Report for 1707082-07

HTC-A01-S005-0612-02

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1069.81	1066 -	1073	1069.40	3.53E+01	25.61	8.14E+01	2.96
	42	1120.61	1115 -	1124	1120.15	1.61E+02	47.13	2.25E+02	1.89
	43	1238.16	1233 -	1241	1237.58	6.10E+01	38.77	1.94E+02	1.47
	44	1311.60	1306 -	1314	1310.95	2.02E+01	22.08	6.16E+01	3.00
	45	1378.20	1372 -	1382	1377.48	5.48E+01	30.30	9.23E+01	2.20
	46	1401.42	1399 -	1403	1400.69	1.21E+01	11.48	1.98E+01	1.27
	47	1408.57	1404 -	1411	1407.83	2.78E+01	20.59	5.24E+01	2.89
M	48	1461.45	1454 -	1468	1460.65	1.03E+03	66.97	6.63E+01	2.26
m	49	1465.96	1454 -	1468	1465.16	2.20E+01	53.74	7.96E+01	2.61
M	50	1507.01	1505 -	1514	1506.16	1.50E+01	6.48	4.31E+00	2.78
m	51	1510.30	1505 -	1514	1509.46	2.99E+01	19.65	3.14E+01	3.22
	52	1530.70	1527 -	1533	1529.83	1.30E+01	12.22	1.81E+01	4.06
	53	1662.31	1657 -	1665	1661.32	1.19E+01	13.90	2.22E+01	1.94
	54	1706.31	1702 -	1708	1705.27	1.10E+01	6.63	0.00E+00	2.67
M	55	1725.07	1722 -	1732	1724.01	7.83E+00	6.36	9.74E-01	3.58
m	56	1730.56	1722 -	1732	1729.51	2.93E+01	12.51	8.41E+00	2.88
	57	1765.25	1760 -	1769	1764.15	1.41E+02	27.29	2.72E+01	2.35
	58	1847.74	1843 -	1850	1846.57	1.73E+01	9.59	3.47E+00	1.60
	59	1958.58	1954 -	1960	1957.30	1.15E+01	8.02	3.08E+00	3.25
	60	1965.59	1961 -	1967	1964.31	1.30E+01	7.21	0.00E+00	2.67
m	61	2110.35	2097 -	2111	2108.92	1.09E+01	10.25	9.18E+00	3.15
	62	2118.67	2113 -	2121	2117.24	1.80E+01	10.01	4.10E+00	3.68
	63	2145.03	2140 -	2145	2143.57	7.00E+00	5.29	0.00E+00	1.77
	64	2204.60	2196 -	2207	2203.09	4.87E+01	20.88	3.05E+01	2.22
	65	2448.28	2443 -	2449	2446.53	1.50E+01	7.75	0.00E+00	2.15
	66	2460.39	2455 -	2461	2458.63	8.00E+00	5.66	0.00E+00	1.12
	67	2615.59	2608 -	2618	2613.68	1.04E+02	22.37	1.10E+01	2.97

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 7:58:32AM

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

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
1	46.20	43 -	49	1.82E+02	90.11	1.34E+03	7.07E+01

Analysis Report for 1707082-07

HTC-A01-S005-0612-02

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	2	62.96	60 -	66	3.12E+02	117.48	2.30E+03	9.21E+01
	3	75.90	71 -	81	1.63E+03	188.93	3.89E+03	1.40E+02
M	4	83.57	83 -	97	1.10E+02	59.69	9.49E+02	5.07E+01
m	5	87.57	83 -	97	3.10E+02	90.92	1.49E+03	6.34E+01
m	6	92.27	83 -	97	4.09E+02	94.40	1.39E+03	6.12E+01
	7	128.30	125 -	133	1.15E+02	110.29	1.80E+03	8.89E+01
	8	143.65	140 -	148	1.16E+02	108.50	1.75E+03	8.74E+01
	9	185.72	182 -	189	4.01E+02	98.45	1.35E+03	7.39E+01
M	10	238.51	233 -	247	9.93E+02	81.14	6.32E+02	4.13E+01
m	11	241.74	233 -	247	3.77E+02	69.95	5.55E+02	3.87E+01
m	12	244.41	233 -	247	5.40E+01	63.60	5.35E+02	3.80E+01
	13	257.96	256 -	261	4.53E+01	51.68	4.93E+02	4.10E+01
	14	270.01	266 -	274	1.35E+02	74.45	7.71E+02	5.81E+01
	15	277.03	275 -	279	4.70E+01	45.11	4.08E+02	3.53E+01
	16	295.16	291 -	299	5.37E+02	92.84	9.98E+02	6.61E+01
	17	328.26	325 -	331	4.92E+01	56.42	5.44E+02	4.49E+01
	18	338.60	335 -	344	2.08E+02	73.23	6.40E+02	5.53E+01
	19	351.77	347 -	356	1.06E+03	95.15	6.90E+02	5.71E+01
	20	464.01	460 -	468	7.86E+01	50.79	3.43E+02	3.91E+01
	21	472.94	470 -	476	3.39E+01	37.59	2.28E+02	2.94E+01
	22	479.59	477 -	484	4.00E+01	39.75	2.38E+02	3.10E+01
	23	496.60	495 -	499	2.60E+01	26.29	1.28E+02	1.99E+01
	24	511.07	507 -	516	1.78E+02	58.98	3.97E+02	4.33E+01
	25	546.00	543 -	550	4.04E+01	37.47	2.05E+02	2.90E+01
M	26	579.29	578 -	592	2.23E+01	19.16	9.26E+01	1.58E+01
m	27	583.31	578 -	592	3.21E+02	45.91	1.81E+02	2.21E+01
	28	609.53	605 -	615	8.40E+02	77.51	3.55E+02	4.23E+01
	29	645.57	642 -	649	3.30E+01	35.78	1.90E+02	2.79E+01
	30	666.14	664 -	669	3.23E+01	26.59	1.13E+02	1.98E+01
	31	699.10	697 -	701	2.59E+01	23.58	9.82E+01	1.75E+01
	32	727.48	723 -	731	1.05E+02	39.11	1.71E+02	2.74E+01
	33	769.15	764 -	774	1.07E+02	51.61	2.86E+02	3.89E+01
	34	786.17	782 -	789	3.15E+01	35.04	1.83E+02	2.73E+01
	35	794.89	791 -	798	3.60E+01	34.64	1.76E+02	2.67E+01
	36	860.69	855 -	863	4.54E+01	37.56	1.89E+02	2.88E+01
	37	911.53	907 -	916	2.20E+02	47.71	1.99E+02	3.07E+01
	38	934.25	930 -	937	3.89E+01	30.00	1.24E+02	2.24E+01
M	39	965.51	962 -	972	3.17E+01	30.53	1.26E+02	1.85E+01
m	40	969.18	962 -	972	1.32E+02	34.00	1.01E+02	1.65E+01
	41	1069.81	1066 -	1073	3.53E+01	25.61	8.14E+01	1.86E+01
	42	1120.61	1115 -	1124	1.61E+02	47.13	2.25E+02	3.26E+01
	43	1238.16	1233 -	1241	6.10E+01	38.77	1.94E+02	2.92E+01
	44	1311.60	1306 -	1314	2.02E+01	22.08	6.16E+01	1.66E+01
	45	1378.20	1372 -	1382	5.48E+01	30.30	9.23E+01	2.17E+01
	46	1401.42	1399 -	1403	1.21E+01	11.48	1.98E+01	7.50E+00
	47	1408.57	1404 -	1411	2.78E+01	20.59	5.24E+01	1.45E+01
M	48	1461.45	1454 -	1468	1.03E+03	66.97	6.63E+01	1.34E+01
m	49	1465.96	1454 -	1468	2.20E+01	53.74	7.96E+01	1.47E+01
M	50	1507.01	1505 -	1514	1.50E+01	6.48	4.31E+00	3.41E+00
m	51	1510.30	1505 -	1514	2.99E+01	19.65	3.14E+01	9.21E+00
	52	1530.70	1527 -	1533	1.30E+01	12.22	1.81E+01	8.11E+00

Analysis Report for 1707082-07

HTC-A01-S005-0612-02

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	53	1662.31	1657 -	1665	1.19E+01	13.90	2.22E+01	9.92E+00
	54	1706.31	1702 -	1708	1.10E+01	6.63	0.00E+00	0.00E+00
M	55	1725.07	1722 -	1732	7.83E+00	6.36	9.74E-01	1.62E+00
m	56	1730.56	1722 -	1732	2.93E+01	12.51	8.41E+00	4.77E+00
	57	1765.25	1760 -	1769	1.41E+02	27.29	2.72E+01	1.10E+01
	58	1847.74	1843 -	1850	1.73E+01	9.59	3.47E+00	3.94E+00
	59	1958.58	1954 -	1960	1.15E+01	8.02	3.08E+00	3.53E+00
	60	1965.59	1961 -	1967	1.30E+01	7.21	0.00E+00	0.00E+00
m	61	2110.35	2097 -	2111	1.09E+01	10.25	9.18E+00	4.98E+00
	62	2118.67	2113 -	2121	1.80E+01	10.01	4.10E+00	4.38E+00
	63	2145.03	2140 -	2145	7.00E+00	5.29	0.00E+00	0.00E+00
	64	2204.60	2196 -	2207	4.87E+01	20.88	3.05E+01	1.28E+01
	65	2448.28	2443 -	2449	1.50E+01	7.75	0.00E+00	0.00E+00
	66	2460.39	2455 -	2461	8.00E+00	5.66	0.00E+00	0.00E+00
	67	2615.59	2608 -	2618	1.04E+02	22.37	1.10E+01	7.47E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/15/2017 7:58:32AM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	46.20	43 -	49	46.83	1.82E+02	90.11	1.34E+03	PB-210
	2	62.96	60 -	66	63.56	3.12E+02	117.48	2.30E+03	TH-230
									TH-234
	3	75.90	71 -	81	76.49	1.63E+03	188.93	3.89E+03	.....
M	4	83.57	83 -	97	84.15	1.10E+02	59.69	9.49E+02	TH-231
m	5	87.57	83 -	97	88.15	3.10E+02	90.92	1.49E+03	SN-126
									CD-109
									LU-176
m	6	92.27	83 -	97	92.85	4.09E+02	94.40	1.39E+03	.....
	7	128.30	125 -	133	128.84	1.15E+02	110.29	1.80E+03	.....

Analysis Report for 1707082-07

HTC-A01-S005-0612-02

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	8	143.65	140 -	148	144.18	1.16E+02	108.50	1.75E+03	U-235
	9	185.72	182 -	189	186.20	4.01E+02	98.45	1.35E+03	RA-226
M	10	238.51	233 -	247	238.94	9.93E+02	81.14	6.32E+02	PB-212
m	11	241.74	233 -	247	242.17	3.77E+02	69.95	5.55E+02	RA-224
m	12	244.41	233 -	247	244.83	5.40E+01	63.60	5.35E+02	EU-152
	13	257.96	256 -	261	258.36	4.53E+01	51.68	4.93E+02	.....
	14	270.01	266 -	274	270.40	1.35E+02	74.45	7.71E+02	.....
	15	277.03	275 -	279	277.42	4.70E+01	45.11	4.08E+02	CM-243 NP-239
	16	295.16	291 -	299	295.52	5.37E+02	92.84	9.98E+02	PB-214
	17	328.26	325 -	331	328.59	4.92E+01	56.42	5.44E+02	LA-140
	18	338.60	335 -	344	338.92	2.08E+02	73.23	6.40E+02	AC-228
	19	351.77	347 -	356	352.08	1.06E+03	95.15	6.90E+02	PB-214
	20	464.01	460 -	468	464.21	7.86E+01	50.79	3.43E+02	SB-125
	21	472.94	470 -	476	473.13	3.39E+01	37.59	2.28E+02	SB-127
	22	479.59	477 -	484	479.77	4.00E+01	39.75	2.38E+02	.....
	23	496.60	495 -	499	496.76	2.60E+01	26.29	1.28E+02	RU-103
	24	511.07	507 -	516	511.22	1.78E+02	58.98	3.97E+02	.....
	25	546.00	543 -	550	546.12	4.04E+01	37.47	2.05E+02	.....
M	26	579.29	578 -	592	579.37	2.23E+01	19.16	9.26E+01	.....
m	27	583.31	578 -	592	583.38	3.21E+02	45.91	1.81E+02	TL-208
	28	609.53	605 -	615	609.58	8.40E+02	77.51	3.55E+02	BI-214
	29	645.57	642 -	649	645.59	3.30E+01	35.78	1.90E+02	SB-124
	30	666.14	664 -	669	666.13	3.23E+01	26.59	1.13E+02	SB-126
	31	699.10	697 -	701	699.06	2.59E+01	23.58	9.82E+01	.....
	32	727.48	723 -	731	727.41	1.05E+02	39.11	1.71E+02	BI-212
	33	769.15	764 -	774	769.04	1.07E+02	51.61	2.86E+02	.....
	34	786.17	782 -	789	786.05	3.15E+01	35.04	1.83E+02	.....
	35	794.89	791 -	798	794.76	3.60E+01	34.64	1.76E+02	CS-134
	36	860.69	855 -	863	860.49	4.54E+01	37.56	1.89E+02	TL-208
	37	911.53	907 -	916	911.28	2.20E+02	47.71	1.99E+02	TL-204 AC-228
	38	934.25	930 -	937	933.98	3.89E+01	30.00	1.24E+02	.....
M	39	965.51	962 -	972	965.20	3.17E+01	30.53	1.26E+02	.....
m	40	969.18	962 -	972	968.87	1.32E+02	34.00	1.01E+02	AC-228
	41	1069.81	1066 -	1073	1069.40	3.53E+01	25.61	8.14E+01	.....
	42	1120.61	1115 -	1124	1120.15	1.61E+02	47.13	2.25E+02	SC-46 BI-214 TA-182
	43	1238.16	1233 -	1241	1237.58	6.10E+01	38.77	1.94E+02	CO-56
	44	1311.60	1306 -	1314	1310.95	2.02E+01	22.08	6.16E+01	V-48
	45	1378.20	1372 -	1382	1377.48	5.48E+01	30.30	9.23E+01	.....
	46	1401.42	1399 -	1403	1400.69	1.21E+01	11.48	1.98E+01	.....
	47	1408.57	1404 -	1411	1407.83	2.78E+01	20.59	5.24E+01	EU-152
M	48	1461.45	1454 -	1468	1460.65	1.03E+03	66.97	6.63E+01	K-40
m	49	1465.96	1454 -	1468	1465.16	2.20E+01	53.74	7.96E+01	.....
M	50	1507.01	1505 -	1514	1506.16	1.50E+01	6.48	4.31E+00	.....
m	51	1510.30	1505 -	1514	1509.46	2.99E+01	19.65	3.14E+01	.....
	52	1530.70	1527 -	1533	1529.83	1.30E+01	12.22	1.81E+01	.....
	53	1662.31	1657 -	1665	1661.32	1.19E+01	13.90	2.22E+01	.....
	54	1706.31	1702 -	1708	1705.27	1.10E+01	6.63	0.00E+00	.....
M	55	1725.07	1722 -	1732	1724.01	7.83E+00	6.36	9.74E-01	.....
m	56	1730.56	1722 -	1732	1729.51	2.93E+01	12.51	8.41E+00	.....
	57	1765.25	1760 -	1769	1764.15	1.41E+02	27.29	2.72E+01	BI-214

Analysis Report for 1707082-07

HTC-A01-S005-0612-02

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	58	1847.74	1843 -	1850	1846.57	1.73E+01	9.59	3.47E+00	.....
	59	1958.58	1954 -	1960	1957.30	1.15E+01	8.02	3.08E+00	.....
	60	1965.59	1961 -	1967	1964.31	1.30E+01	7.21	0.00E+00	.....
m	61	2110.35	2097 -	2111	2108.92	1.09E+01	10.25	9.18E+00	.....
	62	2118.67	2113 -	2121	2117.24	1.80E+01	10.01	4.10E+00	.....
	63	2145.03	2140 -	2145	2143.57	7.00E+00	5.29	0.00E+00	.....
	64	2204.60	2196 -	2207	2203.09	4.87E+01	20.88	3.05E+01	BI-214
	65	2448.28	2443 -	2449	2446.53	1.50E+01	7.75	0.00E+00	.....
	66	2460.39	2455 -	2461	2458.63	8.00E+00	5.66	0.00E+00	.....
	67	2615.59	2608 -	2618	2613.68	1.04E+02	22.37	1.10E+01	TL-208

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/15/2017 7:58:32AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.20	1.82E+02	90.11	2.46E-02	2.22E-03
	2	62.96	3.12E+02	117.48	2.70E-02	2.25E-03
	3	75.90	1.63E+03	188.93	2.75E-02	2.39E-03
M	4	83.57	1.10E+02	59.69	2.75E-02	2.47E-03
m	5	87.57	3.10E+02	90.92	2.74E-02	2.52E-03
m	6	92.27	4.09E+02	94.40	2.73E-02	2.45E-03
	7	128.30	1.15E+02	110.29	2.54E-02	1.94E-03
	8	143.65	1.16E+02	108.50	2.44E-02	1.86E-03
	9	185.72	4.01E+02	98.45	2.17E-02	1.68E-03
M	10	238.51	9.93E+02	81.14	1.89E-02	1.53E-03
m	11	241.74	3.77E+02	69.95	1.87E-02	1.52E-03
m	12	244.41	5.40E+01	63.60	1.86E-02	1.51E-03
	13	257.96	4.53E+01	51.68	1.80E-02	1.47E-03
	14	270.01	1.35E+02	74.45	1.74E-02	1.43E-03
	15	277.03	4.70E+01	45.11	1.72E-02	1.41E-03
	16	295.16	5.37E+02	92.84	1.64E-02	1.37E-03
	17	328.26	4.92E+01	56.42	1.53E-02	1.29E-03
	18	338.60	2.08E+02	73.23	1.49E-02	1.27E-03
	19	351.77	1.06E+03	95.15	1.45E-02	1.24E-03
	20	464.01	7.86E+01	50.79	1.19E-02	1.10E-03

Analysis Report for 1707082-07

HTC-A01-S005-0612-02

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	21	472.94	3.39E+01	37.59	1.17E-02	1.09E-03
	22	479.59	4.00E+01	39.75	1.16E-02	1.09E-03
	23	496.60	2.60E+01	26.29	1.13E-02	1.08E-03
	24	511.07	1.78E+02	58.98	1.10E-02	1.07E-03
	25	546.00	4.04E+01	37.47	1.05E-02	1.05E-03
M	26	579.29	2.23E+01	19.16	1.00E-02	1.02E-03
m	27	583.31	3.21E+02	45.91	9.96E-03	1.02E-03
	28	609.53	8.40E+02	77.51	9.63E-03	1.01E-03
	29	645.57	3.30E+01	35.78	9.22E-03	9.82E-04
	30	666.14	3.23E+01	26.59	9.00E-03	9.65E-04
	31	699.10	2.59E+01	23.58	8.67E-03	9.12E-04
	32	727.48	1.05E+02	39.11	8.41E-03	8.67E-04
	33	769.15	1.07E+02	51.61	8.06E-03	8.01E-04
	34	786.17	3.15E+01	35.04	7.92E-03	7.74E-04
	35	794.89	3.60E+01	34.64	7.86E-03	7.60E-04
	36	860.69	4.54E+01	37.56	7.40E-03	6.56E-04
	37	911.53	2.20E+02	47.71	7.08E-03	5.91E-04
	38	934.25	3.89E+01	30.00	6.95E-03	5.83E-04
M	39	965.51	3.17E+01	30.53	6.78E-03	5.71E-04
m	40	969.18	1.32E+02	34.00	6.76E-03	5.69E-04
	41	1069.81	3.53E+01	25.61	6.28E-03	5.31E-04
	42	1120.61	1.61E+02	47.13	6.07E-03	5.11E-04
	43	1238.16	6.10E+01	38.77	5.64E-03	4.76E-04
	44	1311.60	2.02E+01	22.08	5.41E-03	4.59E-04
	45	1378.20	5.48E+01	30.30	5.22E-03	4.44E-04
	46	1401.42	1.21E+01	11.48	5.16E-03	4.39E-04
	47	1408.57	2.78E+01	20.59	5.14E-03	4.37E-04
M	48	1461.45	1.03E+03	66.97	5.00E-03	4.25E-04
m	49	1465.96	2.20E+01	53.74	4.99E-03	4.24E-04
M	50	1507.01	1.50E+01	6.48	4.90E-03	4.14E-04
m	51	1510.30	2.99E+01	19.65	4.89E-03	4.13E-04
	52	1530.70	1.30E+01	12.22	4.84E-03	4.09E-04
	53	1662.31	1.19E+01	13.90	4.56E-03	3.78E-04
	54	1706.31	1.10E+01	6.63	4.48E-03	3.68E-04
M	55	1725.07	7.83E+00	6.36	4.45E-03	3.64E-04
m	56	1730.56	2.93E+01	12.51	4.44E-03	3.62E-04
	57	1765.25	1.41E+02	27.29	4.37E-03	3.54E-04
	58	1847.74	1.73E+01	9.59	4.23E-03	3.38E-04
	59	1958.58	1.15E+01	8.02	4.06E-03	3.38E-04
	60	1965.59	1.30E+01	7.21	4.05E-03	3.38E-04
m	61	2110.35	1.09E+01	10.25	3.85E-03	3.38E-04
	62	2118.67	1.80E+01	10.01	3.84E-03	3.38E-04
	63	2145.03	7.00E+00	5.29	3.81E-03	3.38E-04
	64	2204.60	4.87E+01	20.88	3.74E-03	3.38E-04
	65	2448.28	1.50E+01	7.75	3.47E-03	3.38E-04
	66	2460.39	8.00E+00	5.66	3.45E-03	3.38E-04
	67	2615.59	1.04E+02	22.37	3.30E-03	3.38E-04

Analysis Report for 1707082-07

HTC-A01-S005-0612-02

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/15/2017 7:58:32AM

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

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.20	1.82E+02	90.11	4.28E+01	8.26E+00	1.40E+02	9.05E+01
	2	62.96	3.12E+02	117.48	6.71E+01	1.02E+01	2.45E+02	1.18E+02
	3	75.90	1.63E+03	188.93			1.63E+03	1.89E+02
M	4	83.57	1.10E+02	59.69			1.10E+02	5.97E+01
m	5	87.57	3.10E+02	90.92			3.10E+02	9.09E+01
m	6	92.27	4.09E+02	94.40	1.35E+02	7.64E+00	2.74E+02	9.47E+01
	7	128.30	1.15E+02	110.29			1.15E+02	1.10E+02
	8	143.65	1.16E+02	108.50	1.54E+01	2.12E+01	1.00E+02	1.11E+02
	9	185.72	4.01E+02	98.45	5.47E+01	6.99E+00	3.46E+02	9.87E+01
M	10	238.51	9.93E+02	81.14	1.58E+01	5.72E+00	9.77E+02	8.13E+01
m	11	241.74	3.77E+02	69.95			3.77E+02	6.99E+01
m	12	244.41	5.40E+01	63.60			5.40E+01	6.36E+01
	13	257.96	4.53E+01	51.68			4.53E+01	5.17E+01
	14	270.01	1.35E+02	74.45			1.35E+02	7.44E+01
	15	277.03	4.70E+01	45.11			4.70E+01	4.51E+01
	16	295.16	5.37E+02	92.84			5.37E+02	9.28E+01
	17	328.26	4.92E+01	56.42			4.92E+01	5.64E+01
	18	338.60	2.08E+02	73.23	1.94E+00	4.45E+00	2.06E+02	7.34E+01
	19	351.77	1.06E+03	95.15	8.23E+00	4.77E+00	1.05E+03	9.53E+01
	20	464.01	7.86E+01	50.79			7.86E+01	5.08E+01
	21	472.94	3.39E+01	37.59			3.39E+01	3.76E+01
	22	479.59	4.00E+01	39.75			4.00E+01	3.97E+01
	23	496.60	2.60E+01	26.29			2.60E+01	2.63E+01
	24	511.07	1.78E+02	58.98	7.54E+01	5.68E+00	1.02E+02	5.93E+01
	25	546.00	4.04E+01	37.47			4.04E+01	3.75E+01
M	26	579.29	2.23E+01	19.16			2.23E+01	1.92E+01
m	27	583.31	3.21E+02	45.91	7.97E+00	3.93E+00	3.13E+02	4.61E+01
	28	609.53	8.40E+02	77.51	5.86E+00	3.50E+00	8.34E+02	7.76E+01
	29	645.57	3.30E+01	35.78			3.30E+01	3.58E+01
	30	666.14	3.23E+01	26.59			3.23E+01	2.66E+01
	31	699.10	2.59E+01	23.58			2.59E+01	2.36E+01
	32	727.48	1.05E+02	39.11			1.05E+02	3.91E+01
	33	769.15	1.07E+02	51.61			1.07E+02	5.16E+01
	34	786.17	3.15E+01	35.04	1.09E+00	2.79E+00	3.04E+01	3.52E+01
	35	794.89	3.60E+01	34.64			3.60E+01	3.46E+01

Analysis Report for 1707082-07

HTC-A01-S005-0612-02

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	36	860.69	4.54E+01	37.56			4.54E+01	3.76E+01
	37	911.53	2.20E+02	47.71			2.20E+02	4.77E+01
	38	934.25	3.89E+01	30.00			3.89E+01	3.00E+01
M	39	965.51	3.17E+01	30.53			3.17E+01	3.05E+01
m	40	969.18	1.32E+02	34.00			1.32E+02	3.40E+01
	41	1069.81	3.53E+01	25.61			3.53E+01	2.56E+01
	42	1120.61	1.61E+02	47.13			1.61E+02	4.71E+01
	43	1238.16	6.10E+01	38.77			6.10E+01	3.88E+01
	44	1311.60	2.02E+01	22.08			2.02E+01	2.21E+01
	45	1378.20	5.48E+01	30.30			5.48E+01	3.03E+01
	46	1401.42	1.21E+01	11.48			1.21E+01	1.15E+01
	47	1408.57	2.78E+01	20.59			2.78E+01	2.06E+01
M	48	1461.45	1.03E+03	66.97	7.31E+00	2.50E+00	1.02E+03	6.70E+01
m	49	1465.96	2.20E+01	53.74			2.20E+01	5.37E+01
M	50	1507.01	1.50E+01	6.48			1.50E+01	6.48E+00
m	51	1510.30	2.99E+01	19.65			2.99E+01	1.96E+01
	52	1530.70	1.30E+01	12.22			1.30E+01	1.22E+01
	53	1662.31	1.19E+01	13.90			1.19E+01	1.39E+01
	54	1706.31	1.10E+01	6.63			1.10E+01	6.63E+00
M	55	1725.07	7.83E+00	6.36			7.83E+00	6.36E+00
m	56	1730.56	2.93E+01	12.51			2.93E+01	1.25E+01
	57	1765.25	1.41E+02	27.29			1.41E+02	2.73E+01
	58	1847.74	1.73E+01	9.59			1.73E+01	9.59E+00
	59	1958.58	1.15E+01	8.02			1.15E+01	8.02E+00
	60	1965.59	1.30E+01	7.21			1.30E+01	7.21E+00
m	61	2110.35	1.09E+01	10.25			1.09E+01	1.02E+01
	62	2118.67	1.80E+01	10.01			1.80E+01	1.00E+01
	63	2145.03	7.00E+00	5.29			7.00E+00	5.29E+00
	64	2204.60	4.87E+01	20.88			4.87E+01	2.09E+01
	65	2448.28	1.50E+01	7.75			1.50E+01	7.75E+00
	66	2460.39	8.00E+00	5.66			8.00E+00	5.66E+00
	67	2615.59	1.04E+02	22.37	5.15E+00	1.56E+00	9.93E+01	2.24E+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 : 8/15/2017 7:58:32AM

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

Corrected Area is: Original * Peak Ratio - Background

Analysis Report for 1707082-07

HTC-A01-S005-0612-02

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	46.20	1.82E+02	90.11	4.28E+01	8.26E+00	1.40E+02	9.05E+01
	2	62.96	3.12E+02	117.48	6.71E+01	1.02E+01	2.45E+02	1.18E+02
	3	75.90	1.63E+03	188.93			1.63E+03	1.89E+02
M	4	83.57	1.10E+02	59.69			1.10E+02	5.97E+01
m	5	87.57	3.10E+02	90.92			3.10E+02	9.09E+01
m	6	92.27	4.09E+02	94.40	1.35E+02	7.64E+00	2.74E+02	9.47E+01
	7	128.30	1.15E+02	110.29			1.15E+02	1.10E+02
	8	143.65	1.16E+02	108.50	1.54E+01	2.12E+01	1.00E+02	1.11E+02
	9	185.72	4.01E+02	98.45	5.47E+01	6.99E+00	3.46E+02	9.87E+01
M	10	238.51	9.93E+02	81.14	1.58E+01	5.72E+00	9.77E+02	8.13E+01
m	11	241.74	3.77E+02	69.95			3.77E+02	6.99E+01
m	12	244.41	5.40E+01	63.60			5.40E+01	6.36E+01
	13	257.96	4.53E+01	51.68			4.53E+01	5.17E+01
	14	270.01	1.35E+02	74.45			1.35E+02	7.44E+01
	15	277.03	4.70E+01	45.11			4.70E+01	4.51E+01
	16	295.16	5.37E+02	92.84			5.37E+02	9.28E+01
	17	328.26	4.92E+01	56.42			4.92E+01	5.64E+01
	18	338.60	2.08E+02	73.23	1.94E+00	4.45E+00	2.06E+02	7.34E+01
	19	351.77	1.06E+03	95.15	8.23E+00	4.77E+00	1.05E+03	9.53E+01
	20	464.01	7.86E+01	50.79			7.86E+01	5.08E+01
	21	472.94	3.39E+01	37.59			3.39E+01	3.76E+01
	22	479.59	4.00E+01	39.75			4.00E+01	3.97E+01
	23	496.60	2.60E+01	26.29			2.60E+01	2.63E+01
	24	511.07	1.78E+02	58.98	7.54E+01	5.68E+00	1.02E+02	5.93E+01
	25	546.00	4.04E+01	37.47			4.04E+01	3.75E+01
M	26	579.29	2.23E+01	19.16			2.23E+01	1.92E+01
m	27	583.31	3.21E+02	45.91	7.97E+00	3.93E+00	3.13E+02	4.61E+01
	28	609.53	8.40E+02	77.51	5.86E+00	3.50E+00	8.34E+02	7.76E+01
	29	645.57	3.30E+01	35.78			3.30E+01	3.58E+01
	30	666.14	3.23E+01	26.59			3.23E+01	2.66E+01
	31	699.10	2.59E+01	23.58			2.59E+01	2.36E+01
	32	727.48	1.05E+02	39.11			1.05E+02	3.91E+01
	33	769.15	1.07E+02	51.61			1.07E+02	5.16E+01
	34	786.17	3.15E+01	35.04	1.09E+00	2.79E+00	3.04E+01	3.52E+01
	35	794.89	3.60E+01	34.64			3.60E+01	3.46E+01
	36	860.69	4.54E+01	37.56			4.54E+01	3.76E+01
	37	911.53	2.20E+02	47.71			2.20E+02	4.77E+01
	38	934.25	3.89E+01	30.00			3.89E+01	3.00E+01
M	39	965.51	3.17E+01	30.53			3.17E+01	3.05E+01
m	40	969.18	1.32E+02	34.00			1.32E+02	3.40E+01
	41	1069.81	3.53E+01	25.61			3.53E+01	2.56E+01
	42	1120.61	1.61E+02	47.13			1.61E+02	4.71E+01
	43	1238.16	6.10E+01	38.77			6.10E+01	3.88E+01
	44	1311.60	2.02E+01	22.08			2.02E+01	2.21E+01
	45	1378.20	5.48E+01	30.30			5.48E+01	3.03E+01
	46	1401.42	1.21E+01	11.48			1.21E+01	1.15E+01
	47	1408.57	2.78E+01	20.59			2.78E+01	2.06E+01
M	48	1461.45	1.03E+03	66.97	7.31E+00	2.50E+00	1.02E+03	6.70E+01
m	49	1465.96	2.20E+01	53.74			2.20E+01	5.37E+01
M	50	1507.01	1.50E+01	6.48			1.50E+01	6.48E+00
m	51	1510.30	2.99E+01	19.65			2.99E+01	1.96E+01
	52	1530.70	1.30E+01	12.22			1.30E+01	1.22E+01
	53	1662.31	1.19E+01	13.90			1.19E+01	1.39E+01
	54	1706.31	1.10E+01	6.63			1.10E+01	6.63E+00

Analysis Report for 1707082-07

HTC-A01-S005-0612-02

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	55	1725.07	7.83E+00	6.36			7.83E+00	6.36E+00
m	56	1730.56	2.93E+01	12.51			2.93E+01	1.25E+01
	57	1765.25	1.41E+02	27.29			1.41E+02	2.73E+01
	58	1847.74	1.73E+01	9.59			1.73E+01	9.59E+00
	59	1958.58	1.15E+01	8.02			1.15E+01	8.02E+00
	60	1965.59	1.30E+01	7.21			1.30E+01	7.21E+00
m	61	2110.35	1.09E+01	10.25			1.09E+01	1.02E+01
	62	2118.67	1.80E+01	10.01			1.80E+01	1.00E+01
	63	2145.03	7.00E+00	5.29			7.00E+00	5.29E+00
	64	2204.60	4.87E+01	20.88			4.87E+01	2.09E+01
	65	2448.28	1.50E+01	7.75			1.50E+01	7.75E+00
	66	2460.39	8.00E+00	5.66			8.00E+00	5.66E+00
	67	2615.59	1.04E+02	22.37	5.15E+00	1.56E+00	9.93E+01	2.24E+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	0.937	1460.81	*	10.67	2.55E+01	2.79E+00
RU-103	0.936	497.08	*	89.00	1.82E-01	1.85E-01
CD-109	0.966	88.03	*	3.72	4.66E+00	1.46E+00
SN-126	1.000	87.57	*	37.00	4.08E-01	1.25E-01
TL-208	0.930	583.14	*	30.22	1.39E+00	2.49E-01
		860.37	*	4.48	1.83E+00	1.52E+00
		2614.66	*	35.85	1.12E+00	2.77E-01
PB-210	0.986	46.50	*	4.25	1.79E+00	1.18E+00
BI-212	0.752	727.17	*	11.80	1.40E+00	5.45E-01
		1620.62		2.75		
PB-212	0.892	238.63	*	44.60	1.55E+00	1.80E-01
		300.09		3.41		
BI-214	0.974	609.31	*	46.30	2.50E+00	3.49E-01
		1120.29	*	15.10	2.35E+00	7.14E-01
		1764.49	*	15.80	2.73E+00	5.72E-01
		2204.22	*	4.98	3.49E+00	1.53E+00
PB-214	0.998	295.21	*	19.19	2.27E+00	4.36E-01
		351.92	*	37.19	2.58E+00	3.22E-01

Analysis Report for 1707082-07

HTC-A01-S005-0612-02

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
RA-224	0.911	240.98	*	3.95	6.81E+00	1.38E+00
RA-226	0.962	186.21	*	3.28	6.48E+00	1.20E+01
AC-228	0.980	338.32	*	11.40	1.61E+00	5.90E-01
		911.07	*	27.70	1.49E+00	3.47E-01
		969.11	*	16.60	1.57E+00	4.25E-01
TH-234	0.982	63.29	*	3.80	3.19E+00	1.56E+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 : 8/15/2017 7:58:32AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	75.90	4.53085E-01	5.79		
M	4	83.57	3.05144E-02	27.17	Tol.	TH-231
m	6	92.27	7.61320E-02	17.28	Sum	
	7	128.30	3.19570E-02	47.93		
	8	143.65	2.78717E-02	55.09	Tol.	U-235
m	12	244.41	1.50030E-02	58.87	Tol.	EU-152
	13	257.96	1.25728E-02	57.09		
	14	270.01	3.74004E-02	27.65		
	15	277.03	1.30605E-02	47.98	Tol.	NP-239 CM-243
	17	328.26	1.36669E-02	57.33	Tol.	LA-140
	20	464.01	2.18222E-02	32.32		
	21	472.94	9.42943E-03	55.36	Tol.	SB-127
	22	479.59	1.11242E-02	49.63	Sum	
	24	511.07	2.83960E-02	28.98		
	25	546.00	1.12141E-02	46.41		
M	26	579.29	6.19229E-03	42.97		
	29	645.57	9.17535E-03	54.16	Sum	
	30	666.14	8.97160E-03	41.16	Tol.	SB-126
	31	699.10	7.20000E-03	45.50		
	33	769.15	2.97844E-02	24.07	Sum	
	34	786.17	8.43568E-03	57.88		
	35	794.89	1.00000E-02	48.11	Sum	

Analysis Report for 1707082-07

HTC-A01-S005-0612-02

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	38	934.25	1.07921E-02	38.61	Sum	
M	39	965.51	8.79344E-03	48.22	Sum	
	41	1069.81	9.80994E-03	36.26		
	43	1238.16	1.69506E-02	31.76	Tol.	CO-56
	44	1311.60	5.60730E-03	54.69	Sum	
	45	1378.20	1.52324E-02	27.63		
	46	1401.42	3.36490E-03	47.38		
	47	1408.57	7.72634E-03	37.01	Sum	
m	49	1465.96	6.11476E-03	122.06	Sum	
M	50	1507.01	4.17087E-03	21.58	Sum	
m	51	1510.30	8.31815E-03	32.80		
	52	1530.70	3.59848E-03	47.15		
	53	1662.31	3.30918E-03	58.35		
	54	1706.31	3.05556E-03	30.15		
M	55	1725.07	2.17462E-03	40.65		
m	56	1730.56	8.13588E-03	21.36	Sum	
	58	1847.74	4.79532E-03	27.78	Sum	
	59	1958.58	3.18376E-03	34.97	Sum	
	60	1965.59	3.61111E-03	27.74		
m	61	2110.35	3.01716E-03	47.17		
	62	2118.67	4.98611E-03	27.89		
	63	2145.03	1.94444E-03	37.80		
	65	2448.28	4.16667E-03	25.82		
	66	2460.39	2.22222E-03	35.36		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.93	1460.81	*	10.67	2.55E+01	2.79E+00
RU-103	0.93	497.08	*	89.00	1.82E-01	1.85E-01
CD-109	0.96	88.03	*	3.72	4.66E+00	1.46E+00
SN-126	1.00	87.57	*	37.00	4.08E-01	1.25E-01

Analysis Report for 1707082-07

HTC-A01-S005-0612-02

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
TL-208	0.93	583.14	*	30.22	1.39E+00	2.49E-01
		860.37	*	4.48	1.83E+00	1.52E+00
		2614.66	*	35.85	1.12E+00	2.77E-01
PB-210	0.98	46.50	*	4.25	1.79E+00	1.18E+00
BI-212	0.75	727.17	*	11.80	1.40E+00	5.45E-01
		1620.62		2.75		
PB-212	0.89	238.63	*	44.60	1.55E+00	1.80E-01
		300.09		3.41		
BI-214	0.97	609.31	*	46.30	2.50E+00	3.49E-01
		1120.29	*	15.10	2.35E+00	7.14E-01
		1764.49	*	15.80	2.73E+00	5.72E-01
		2204.22	*	4.98	3.49E+00	1.53E+00
PB-214	0.99	295.21	*	19.19	2.27E+00	4.36E-01
		351.92	*	37.19	2.58E+00	3.22E-01
RA-224	0.91	240.98	*	3.95	6.81E+00	1.38E+00
RA-226	0.96	186.21	*	3.28	6.48E+00	1.20E+01
AC-228	0.98	338.32	*	11.40	1.61E+00	5.90E-01
		911.07	*	27.70	1.49E+00	3.47E-01
		969.11	*	16.60	1.57E+00	4.25E-01
TH-234	0.98	63.29	*	3.80	3.19E+00	1.56E+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	0.937	2.55E+01	2.79E+00	
	RU-103	0.936	1.82E-01	1.85E-01	
?	CD-109	0.966	4.66E+00	1.46E+00	
?	SN-126	1.000	4.08E-01	1.25E-01	
	TL-208	0.930	1.27E+00	1.84E-01	
	PB-210	0.986	1.79E+00	1.18E+00	
	BI-212	0.752	1.40E+00	5.45E-01	

Analysis Report for 1707082-07

HTC-A01-S005-0612-02

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
PB-212	0.892	1.55E+00	1.80E-01	
BI-214	0.974	2.56E+00	2.71E-01	
PB-214	0.998	2.47E+00	2.59E-01	
RA-224	0.911	6.81E+00	1.38E+00	
RA-226	0.962	6.48E+00	1.20E+01	
AC-228	0.980	1.54E+00	2.45E-01	
TH-234	0.982	3.19E+00	1.56E+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 1707082-07

HTC-A01-S005-0612-02

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 7:58:32AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	75.90	4.53085E-01	5.79		
M	4	83.57	3.05144E-02	27.17	Tol.	TH-231
m	6	92.27	7.61320E-02	17.28	Sum	
	7	128.30	3.19570E-02	47.93		
	8	143.65	2.78717E-02	55.09	Tol.	U-235
m	12	244.41	1.50030E-02	58.87	Tol.	EU-152
	13	257.96	1.25728E-02	57.09		
	14	270.01	3.74004E-02	27.65		
	15	277.03	1.30605E-02	47.98	Tol.	NP-239
						CM-243
	17	328.26	1.36669E-02	57.33	Tol.	LA-140
	20	464.01	2.18222E-02	32.32		
	21	472.94	9.42943E-03	55.36	Tol.	SB-127
	22	479.59	1.11242E-02	49.63	Sum	
	24	511.07	2.83960E-02	28.98		
	25	546.00	1.12141E-02	46.41		
M	26	579.29	6.19229E-03	42.97		
	29	645.57	9.17535E-03	54.16	Sum	
	30	666.14	8.97160E-03	41.16	Tol.	SB-126
	31	699.10	7.20000E-03	45.50		
	33	769.15	2.97844E-02	24.07	Sum	
	34	786.17	8.43568E-03	57.88		
	35	794.89	1.00000E-02	48.11	Sum	
	38	934.25	1.07921E-02	38.61	Sum	
M	39	965.51	8.79344E-03	48.22	Sum	
	41	1069.81	9.80994E-03	36.26		
	43	1238.16	1.69506E-02	31.76	Tol.	CO-56
	44	1311.60	5.60730E-03	54.69	Sum	
	45	1378.20	1.52324E-02	27.63		
	46	1401.42	3.36490E-03	47.38		
	47	1408.57	7.72634E-03	37.01	Sum	
m	49	1465.96	6.11476E-03	122.06	Sum	
M	50	1507.01	4.17087E-03	21.58	Sum	
m	51	1510.30	8.31815E-03	32.80		
	52	1530.70	3.59848E-03	47.15		

Analysis Report for 1707082-07

HTC-A01-S005-0612-02

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	53	1662.31	3.30918E-03	58.35		
	54	1706.31	3.05556E-03	30.15		
M	55	1725.07	2.17462E-03	40.65		
m	56	1730.56	8.13588E-03	21.36	Sum	
	58	1847.74	4.79532E-03	27.78	Sum	
	59	1958.58	3.18376E-03	34.97	Sum	
	60	1965.59	3.61111E-03	27.74		
m	61	2110.35	3.01716E-03	47.17		
	62	2118.67	4.98611E-03	27.89		
	63	2145.03	1.94444E-03	37.80		
	65	2448.28	4.16667E-03	25.82		
	66	2460.39	2.22222E-03	35.36		

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

NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	4.45E-01	2.21E+00	2.21E+00
+		NA-22	1274.54		99.94	5.57E-02	1.04E-01	1.04E-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	1.24E-02	5.64E-02	5.64E-02
+		K-40	1460.81	*	10.67	2.55E+01	1.51E+00	1.51E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	4.60E-02	7.62E-02	7.62E-02
			78.34		96.00	3.26E-01		1.02E-01
+		SC-46	889.25		99.98	5.86E-02	1.87E-01	1.87E-01
			1120.51		99.99	7.54E-01		3.59E-01
+		V-48	983.52		99.98	2.50E+00	4.93E+00	4.96E+00
			1312.10		97.50	3.47E-01		4.93E+00
+		CR-51	320.08		9.83	-8.75E-01	7.35E+00	7.35E+00
+		MN-54	834.83		99.97	-5.74E-02	9.51E-02	9.51E-02
+		CO-56	846.75		99.96	1.52E-02	1.80E-01	1.80E-01

Analysis Report for 1707082-07

HTC-A01-S005-0612-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CO-56	1037.75		14.03	-5.74E-02	1.80E-01	1.27E+00
		1238.25		67.00	4.66E-01		4.63E-01
		1771.40		15.51	1.68E-01		8.49E-01
		2598.48		16.90	-1.63E-01		4.00E-01
+	CO-57	122.06		85.51	-2.72E-03	8.11E-02	8.11E-02
		136.48		10.60	1.75E-01		6.96E-01
+	CO-58	810.76		99.40	-1.31E-01	1.79E-01	1.79E-01
+	FE-59	1099.22		56.50	2.74E-02	6.45E-01	6.45E-01
		1291.56		43.20	-5.47E-01		8.42E-01
+	CO-60	1173.22		100.00	4.82E-02	7.80E-02	9.52E-02
		1332.49		100.00	5.16E-03		7.80E-02
+	ZN-65	1115.52		50.75	-1.09E-02	2.33E-01	2.33E-01
+	GA-67	93.31		35.70	2.38E+08	1.06E+08	1.06E+08
		208.95		2.24	-1.64E+08		1.32E+09
		300.22		16.00	7.71E+07		2.21E+08
+	SE-75	121.11		16.70	2.59E-02	1.69E-01	5.65E-01
		136.00		59.20	4.25E-02		1.69E-01
		264.65		59.80	2.24E-02		1.85E-01
		279.53		25.20	-5.73E-02		4.80E-01
		400.65		11.40	3.56E-03		1.07E+00
+	RB-82	776.52		13.00	1.41E-02	7.67E+00	7.67E+00
+	RB-83	520.41		46.00	-4.49E-02	3.19E-01	3.19E-01
		529.64		30.30	-1.21E-02		5.14E-01
		552.65		16.40	1.17E-01		8.49E-01
+	KR-85	513.99		0.43	3.33E+01	2.29E+01	2.29E+01
+	SR-85	513.99		99.27	3.92E-01	2.69E-01	2.69E-01
+	Y-88	898.02		93.40	-3.12E-02	1.27E-01	1.34E-01
		1836.01		99.38	5.73E-02		1.27E-01
+	MO-93	263.06		56.72	1.39E-02	6.48E-02	1.13E-01
		684.67		99.68	1.69E-02		7.57E-02
		1477.11		99.08	2.62E-02		6.48E-02
+	NB-93M	16.57		9.43	-2.66E-01	6.24E-01	6.24E-01
+	NB-94	702.63		100.00	5.48E-03	7.05E-02	7.46E-02
		871.10		100.00	-4.82E-02		7.05E-02
+	NB-95	765.79		99.81	7.17E-01	7.04E-01	7.04E-01
+	NB-95M	235.69		25.00	-1.41E+08	2.13E+07	2.13E+07
+	ZR-95	724.18		43.70	9.29E-02	3.79E-01	5.67E-01
		756.72		55.30	-1.05E-01		3.79E-01
+	MO-99	181.06		6.20	-3.84E+09	1.15E+10	1.91E+10
		739.58		12.80	-2.10E+09		1.15E+10
		778.00		4.50	3.24E+09		3.42E+10
+	RU-103	497.08	*	89.00	1.82E-01	2.97E-01	2.97E-01
+	RU-106	621.84		9.80	6.95E-01	9.12E-01	9.12E-01
+	AG-108M	433.93		89.90	-4.20E-02	7.72E-02	7.72E-02
		614.37		90.40	-3.37E-03		1.03E-01
		722.95		90.50	2.88E-02		8.60E-02
+	CD-109	88.03	*	3.72	4.66E+00	4.72E+00	4.72E+00
+	AG-110M	657.75		93.14	-5.63E-02	1.01E-01	1.01E-01

Analysis Report for 1707082-07

HTC-A01-S005-0612-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	AG-110M	677.61		10.53	-2.31E-01	1.01E-01	8.06E-01
		706.67		16.46	3.85E-01		6.05E-01
		763.93		21.98	1.76E-03		5.34E-01
		884.67		71.63	6.64E-03		1.55E-01
		1384.27		23.94	2.09E-02		3.67E-01
+	CD-113M	263.70		0.02	3.41E+01	2.80E+02	2.80E+02
+	SN-113	255.12		1.93	0.00E+00	1.98E-01	5.11E+00
		391.69		64.90	6.61E-02		1.98E-01
+	TE123M	159.00		84.10	-2.51E-02	1.20E-01	1.20E-01
+	SB-124	602.71		97.87	-1.66E-02	2.28E-01	2.28E-01
		645.85		7.26	1.16E+00		3.12E+00
		722.78		11.10	6.91E-01		2.07E+00
		1691.02		49.00	9.61E-02		4.00E-01
+	I-125	35.49		6.49	-2.07E+00	2.77E+00	2.77E+00
+	SB-125	176.33		6.89	3.48E-02	2.40E-01	8.89E-01
		427.89		29.33	-6.40E-02		2.40E-01
		463.38		10.35	9.60E-01		8.23E-01
		600.56		17.80	-7.21E-02		4.33E-01
		635.90		11.32	1.35E-02		6.61E-01
+	SB-126	414.70		83.30	7.00E-01	1.40E+01	1.66E+01
		666.33		99.60	-1.25E+00		1.40E+01
		695.00		99.60	8.58E-01		1.46E+01
		720.50		53.80	1.67E+01		2.76E+01
+	SN-126	87.57	*	37.00	4.08E-01	4.12E-01	4.12E-01
+	SB-127	473.00		25.00	3.09E+06	4.71E+06	6.14E+06
		685.20		35.70	1.05E+06		4.71E+06
		783.80		14.70	4.94E+06		1.33E+07
+	I-129	29.78		57.00	-8.54E-02	1.21E-01	1.21E-01
		33.60		13.20	1.07E-01		4.88E-01
		39.58		7.52	1.79E-01		7.97E-01
+	I-131	284.30		6.05	1.96E+03	2.64E+02	3.94E+03
		364.48		81.20	2.74E+01		2.64E+02
		636.97		7.26	6.57E+02		3.25E+03
		722.89		1.80	4.80E+03		1.44E+04
+	TE-132	49.72		13.10	5.01E+07	3.34E+07	2.24E+08
		228.16		88.00	-4.84E+05		3.34E+07
+	BA-133	81.00		33.00	-8.24E-01	1.76E-01	2.14E-01
		302.84		17.80	3.00E-02		3.96E-01
		356.01		60.00	-1.33E-02		1.76E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-1.77E+05	4.59E+04	4.59E+04
+	CS-134	563.23		8.38	-2.94E-01	1.01E-01	8.81E-01
		569.32		15.43	4.73E-01		5.24E-01
		604.70		97.60	-4.33E-03		1.01E-01
		795.84		85.40	8.77E-02		1.16E-01
		801.93		8.73	-5.13E-01		9.41E-01
+	CS-135	268.24		16.00	7.05E-01	4.78E-01	4.78E-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

Analysis Report for 1707082-07

HTC-A01-S005-0612-02

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
@	I-135	1678.03	9.54	1.00E+26	1.00E+26	1.00E+26
+	CS-136	153.22	7.46	3.94E+01	1.13E+01	1.16E+02
		163.89	4.61	1.61E+01		1.84E+02
		176.55	13.56	2.35E+00		6.01E+01
		273.65	12.66	-6.06E+01		8.01E+01
		340.57	48.50	5.64E+01		2.55E+01
		818.50	99.70	1.73E+00		1.13E+01
		1048.07	79.60	-1.34E+00		1.44E+01
		1235.34	19.70	2.70E+01		9.30E+01
+	CS-137	661.65	85.12	-2.04E-03	8.82E-02	8.82E-02
+	LA-138	788.74	34.00	-7.51E-02	1.09E-01	2.44E-01
		1435.80	66.00	5.06E-02		1.09E-01
+	CE-139	165.85	80.35	-5.06E-03	1.19E-01	1.19E-01
+	BA-140	162.64	6.70	5.85E+01	4.58E+01	1.49E+02
		304.84	4.50	-3.12E+02		2.28E+02
		423.70	3.20	9.37E+01		3.54E+02
		437.55	2.00	4.36E+02		6.04E+02
		537.32	25.00	1.07E+01		4.58E+01
+	LA-140	328.77	20.50	1.32E+01	1.33E+01	5.94E+01
		487.03	45.50	1.16E+01		2.38E+01
		815.85	23.50	5.75E+00		5.31E+01
		1596.49	95.49	3.96E+00		1.33E+01
+	CE-141	145.44	48.40	3.25E-01	9.62E-01	9.62E-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	-5.55E-02	6.69E-01	6.69E-01
+	PM-144	476.78	42.00	-7.20E-02	8.44E-02	1.92E-01
		618.01	98.60	-5.36E-02		8.44E-02
		696.49	99.49	8.46E-03		9.47E-02
+	PM-145	36.85	21.70	3.79E-02	1.58E-01	2.86E-01
		37.36	39.70	1.04E-01		1.58E-01
		42.30	15.10	4.77E-03		3.94E-01
		72.40	2.31	-1.09E+00		3.70E+00
+	PM-146	453.90	39.94	8.35E-03	1.82E-01	1.82E-01
		735.90	14.01	1.41E-01		5.67E-01
		747.13	13.10	-1.44E-01		5.45E-01
+	ND-147	91.11	28.90	2.56E+02	1.10E+02	1.10E+02
		531.02	13.10	4.31E+01		2.14E+02
+	PM-149	285.90	3.10	2.52E+12	1.45E+13	1.45E+13
+	EU-152	121.78	20.50	1.24E-02	2.71E-01	2.71E-01
		244.69	5.40	-5.28E-01		1.33E+00
		344.27	19.13	-1.17E-01		3.48E-01
		778.89	9.20	3.02E-01		8.76E-01
		964.01	10.40	-2.54E+00		9.42E-01
		1085.78	7.22	1.69E-01		1.15E+00
		1112.02	9.60	-1.04E-01		9.34E-01
		1407.95	14.94	4.53E-01		6.38E-01
+	GD-153	97.43	31.30	9.50E-02	2.51E-01	2.51E-01

Analysis Report for 1707082-07

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	GD-153	103.18		22.20	-8.63E-02	2.51E-01	3.24E-01
+	EU-154	123.07		40.50	-1.37E-02	1.38E-01	1.38E-01
		723.30		19.70	1.35E-01		4.03E-01
		873.19		11.50	6.74E-03		6.55E-01
		996.32		10.30	-2.83E-01		8.08E-01
		1004.76		17.90	8.83E-02		4.94E-01
		1274.45		35.50	1.49E-01		2.79E-01
+	EU-155	86.50		30.90	1.70E-01	2.59E-01	2.59E-01
		105.30		20.70	-9.66E-03		2.77E-01
+	EU-156	811.77		10.40	-1.41E+01	4.91E+01	4.91E+01
		1153.47		7.20	2.86E+01		1.03E+02
		1230.71		8.90	5.01E+00		8.62E+01
+	HO-166M	184.41		72.60	3.16E-01	1.14E-01	1.14E-01
		280.45		29.60	-4.58E-02		2.38E-01
		410.94		11.10	2.55E-01		6.68E-01
		711.69		54.10	-3.91E-02		1.32E-01
+	TM-171	66.72		0.14	3.31E+01	5.70E+01	5.70E+01
+	HF-172	67.35		5.31	8.98E-01	5.59E-01	1.49E+00
		125.81		11.30	-3.96E-01		5.59E-01
+	LU-172	181.53		20.60	-9.90E+02	2.20E+03	4.93E+03
		900.72		29.81	-2.72E+03		3.72E+03
		1093.66		62.50	1.69E+02		2.20E+03
+	LU-173	100.72		5.24	1.02E-01	4.08E-01	1.24E+00
		272.11		21.20	8.58E-02		4.08E-01
+	HF-175	343.40		84.00	-6.69E-02	2.01E-01	2.01E-01
+	LU-176	88.34		13.30	-4.19E-01	6.79E-02	5.97E-01
		201.83		86.00	-1.54E-02		7.14E-02
		306.78		94.00	3.20E-03		6.79E-02
+	HF-181	133.02		41.70	-5.31E-02	3.75E-01	6.41E-01
		345.85		17.20	-6.02E-01		1.74E+00
		482.03		82.80	2.07E-02		3.75E-01
+	TA-182	67.75		41.20	1.86E-01	3.08E-01	3.08E-01
		1121.30		34.90	1.81E+00		8.39E-01
		1189.05		16.23	-7.01E-01		1.01E+00
		1221.41		26.98	-3.06E-01		6.47E-01
		1231.02		11.44	9.42E-02		1.62E+00
+	IR-192	308.46		29.68	-2.47E-03	3.31E-01	5.30E-01
		468.07		48.10	-5.94E-01		3.31E-01
+	HG-203	279.19		77.30	-4.39E-02	3.68E-01	3.68E-01
+	TL-204	374.74		94.11	-2.47E-04	6.68E-02	7.04E-02
		899.15		99.16	-6.41E-02		6.68E-02
		911.74		91.10	4.84E-01		1.78E-01
+	BI-207	569.67		97.72	2.43E-02	7.32E-02	7.32E-02
		1063.62		74.90	4.32E-02		1.15E-01
+	TL-208	583.14	*	30.22	1.39E+00	2.21E-01	4.60E-01
		860.37	*	4.48	1.83E+00		2.43E+00
		2614.66	*	35.85	1.12E+00		2.21E-01
+	BI-210M	262.00		45.00	1.71E-02	1.45E-01	1.45E-01
		300.00		23.00	1.59E-01		3.32E-01

Analysis Report for 1707082-07

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	PB-210	46.50	*	4.25	1.79E+00	1.88E+00	1.88E+00
+	PB-211	404.84		2.90	-1.44E-02	2.53E+00	2.53E+00
		831.96		2.90	6.40E-01		2.70E+00
+	BI-212	727.17	*	11.80	1.40E+00	7.74E-01	7.74E-01
		1620.62		2.75	1.36E+00		2.45E+00
+	PB-212	238.63	*	44.60	1.55E+00	3.23E-01	3.23E-01
		300.09		3.41	1.07E+00		2.24E+00
+	BI-214	609.31	*	46.30	2.50E+00	2.63E-01	2.63E-01
		1120.29	*	15.10	2.35E+00		9.89E-01
		1764.49	*	15.80	2.73E+00		4.78E-01
		2204.22	*	4.98	3.49E+00		2.03E+00
+	PB-214	295.21	*	19.19	2.27E+00	2.90E-01	5.71E-01
		351.92	*	37.19	2.58E+00		2.90E-01
+	RN-219	401.80		6.50	1.75E-01	1.11E+00	1.11E+00
+	RA-223	323.87		3.88	1.90E-01	1.80E+00	1.80E+00
+	RA-224	240.98	*	3.95	6.81E+00	3.65E+00	3.65E+00
+	RA-225	40.00		31.00	5.53E+00	1.59E+01	1.59E+01
+	RA-226	186.21	*	3.28	6.48E+00	2.87E+00	2.87E+00
+	TH-227	50.10		8.40	-4.05E-01	6.62E-01	6.93E-01
		236.00		11.50	-4.39E+00		6.62E-01
		256.20		6.30	0.00E+00		1.06E+00
+	AC-228	338.32	*	11.40	1.61E+00	4.36E-01	8.91E-01
		911.07	*	27.70	1.49E+00		4.36E-01
		969.11	*	16.60	1.57E+00		7.00E-01
+	TH-230	48.44		16.90	-1.96E-02	3.82E-01	3.82E-01
		62.85		4.60	3.37E+00		1.71E+00
		67.67		0.37	1.17E+01		1.94E+01
+	PA-231	283.67		1.60	3.18E+00	3.01E+00	4.44E+00
		302.67		2.30	2.28E-01		3.01E+00
+	TH-231	25.64		14.70	-3.94E+00	5.75E-01	5.75E-01
		84.21		6.40	-7.60E-01		1.13E+00
+	PA-233	311.98		38.60	-4.83E-01	1.94E+00	1.94E+00
+	PA-234	131.20		20.40	-1.28E-02	2.90E-01	2.90E-01
		733.99		8.80	1.03E-01		8.50E-01
		946.00		12.00	-6.69E-03		6.72E-01
+	PA-234M	1001.03		0.92	-5.01E-01	9.56E+00	9.56E+00
+	TH-234	63.29	*	3.80	3.19E+00	2.47E+00	2.47E+00
+	U-235	143.76		10.50	3.35E-01	5.98E-01	5.98E-01
		163.35		4.70	1.11E-01		1.27E+00
		205.31		4.70	-6.82E-01		1.28E+00
+	NP-237	86.50		12.60	4.01E-01	6.12E-01	6.12E-01
+	NP-239	106.10		22.70	1.57E+11	2.66E+11	2.66E+11
		228.18		10.70	-8.58E+09		5.91E+11
		277.60		14.10	-8.90E+10		5.18E+11
+	AM-241	59.54		35.90	-1.38E-02	1.83E-01	1.83E-01
+	AM-243	74.67		66.00	-2.09E-01	1.53E-01	1.53E-01
+	CM-243	209.75		3.29	6.42E-01	4.96E-01	1.90E+00

Analysis Report for 1707082-07

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Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
CM-243	228.14	10.60	-8.23E-03	4.96E-01	5.67E-01
	277.60	14.00	-8.52E-02		4.96E-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	2.21E+00	2.21E+00	4.45E-01	1.05E+00
	NA-22	1274.54		99.94	1.04E-01	1.04E-01	5.57E-02	4.85E-02
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	5.64E-02	5.64E-02	1.24E-02	2.40E-02
+	K-40	1460.81	*	10.67	1.51E+00	1.51E+00	2.55E+01	7.23E-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	7.62E-02	7.62E-02	4.60E-02	3.74E-02
		78.34		96.00	1.02E-01		3.26E-01	5.04E-02
	SC-46	889.25		99.98	1.87E-01	1.87E-01	5.86E-02	8.78E-02
		1120.51		99.99	3.59E-01		7.54E-01	1.73E-01
	V-48	983.52		99.98	4.96E+00	4.93E+00	2.50E+00	2.32E+00
		1312.10		97.50	4.93E+00		3.47E-01	2.26E+00
	CR-51	320.08		9.83	7.35E+00	7.35E+00	-8.75E-01	3.55E+00
	MN-54	834.83		99.97	9.51E-02	9.51E-02	-5.74E-02	4.46E-02
	CO-56	846.75		99.96	1.80E-01	1.80E-01	1.52E-02	8.43E-02
		1037.75		14.03	1.27E+00		-5.74E-02	5.89E-01
		1238.25		67.00	4.63E-01		4.66E-01	2.21E-01
		1771.40		15.51	8.49E-01		1.68E-01	3.64E-01
		2598.48		16.90	4.00E-01		-1.63E-01	1.27E-01
	CO-57	122.06		85.51	8.11E-02	8.11E-02	-2.72E-03	3.95E-02
		136.48		10.60	6.96E-01		1.75E-01	3.40E-01

Analysis Report for 1707082-07

HTC-A01-S005-0612-02

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CO-58	810.76		99.40	1.79E-01	1.79E-01	-1.31E-01	8.35E-02
	FE-59	1099.22		56.50	6.45E-01	6.45E-01	2.74E-02	3.00E-01
		1291.56		43.20	8.42E-01		-5.47E-01	3.88E-01
	CO-60	1173.22		100.00	9.52E-02	7.80E-02	4.82E-02	4.44E-02
		1332.49		100.00	7.80E-02		5.16E-03	3.55E-02
	ZN-65	1115.52		50.75	2.33E-01	2.33E-01	-1.09E-02	1.09E-01
	GA-67	93.31		35.70	1.06E+08	1.06E+08	2.38E+08	5.23E+07
		208.95		2.24	1.32E+09		-1.64E+08	6.40E+08
		300.22		16.00	2.21E+08		7.71E+07	1.07E+08
	SE-75	121.11		16.70	5.65E-01	1.69E-01	2.59E-02	2.75E-01
		136.00		59.20	1.69E-01		4.25E-02	8.23E-02
		264.65		59.80	1.85E-01		2.24E-02	8.97E-02
		279.53		25.20	4.80E-01		-5.73E-02	2.33E-01
		400.65		11.40	1.07E+00		3.56E-03	5.14E-01
	RB-82	776.52		13.00	7.67E+00	7.67E+00	1.41E-02	3.61E+00
	RB-83	520.41		46.00	3.19E-01	3.19E-01	-4.49E-02	1.52E-01
		529.64		30.30	5.14E-01		-1.21E-02	2.45E-01
		552.65		16.40	8.49E-01		1.17E-01	4.02E-01
	KR-85	513.99		0.43	2.29E+01	2.29E+01	3.33E+01	1.10E+01
	SR-85	513.99		99.27	2.69E-01	2.69E-01	3.92E-01	1.30E-01
	Y-88	898.02		93.40	1.34E-01	1.27E-01	-3.12E-02	6.22E-02
		1836.01		99.38	1.27E-01		5.73E-02	5.58E-02
	MO-93	263.06		56.72	1.13E-01	6.48E-02	1.39E-02	5.48E-02
		684.67		99.68	7.57E-02		1.69E-02	3.57E-02
		1477.11		99.08	6.48E-02		2.62E-02	2.87E-02
	NB-93M	16.57		9.43	6.24E-01	6.24E-01	-2.66E-01	2.94E-01
	NB-94	702.63		100.00	7.46E-02	7.05E-02	5.48E-03	3.52E-02
		871.10		100.00	7.05E-02		-4.82E-02	3.28E-02
	NB-95	765.79		99.81	7.04E-01	7.04E-01	7.17E-01	3.38E-01
	NB-95M	235.69		25.00	2.13E+07	2.13E+07	-1.41E+08	1.04E+07
	ZR-95	724.18		43.70	5.67E-01	3.79E-01	9.29E-02	2.70E-01
		756.72		55.30	3.79E-01		-1.05E-01	1.79E-01
	MO-99	181.06		6.20	1.91E+10	1.15E+10	-3.84E+09	9.31E+09
		739.58		12.80	1.15E+10		-2.10E+09	5.43E+09
		778.00		4.50	3.42E+10		3.24E+09	1.61E+10
+	RU-103	497.08	*	89.00	2.97E-01	2.97E-01	1.82E-01	1.39E-01
	RU-106	621.84		9.80	9.12E-01	9.12E-01	6.95E-01	4.33E-01
	AG-108M	433.93		89.90	7.72E-02	7.72E-02	-4.20E-02	3.70E-02
		614.37		90.40	1.03E-01		-3.37E-03	4.95E-02
		722.95		90.50	8.60E-02		2.88E-02	4.06E-02
+	CD-109	88.03	*	3.72	4.72E+00	4.72E+00	4.66E+00	2.34E+00
	AG-110M	657.75		93.14	1.01E-01	1.01E-01	-5.63E-02	4.76E-02
		677.61		10.53	8.06E-01		-2.31E-01	3.78E-01
		706.67		16.46	6.05E-01		3.85E-01	2.86E-01
		763.93		21.98	5.34E-01		1.76E-03	2.54E-01
		884.67		71.63	1.55E-01		6.64E-03	7.28E-02
		1384.27		23.94	3.67E-01		2.09E-02	1.65E-01
	CD-113M	263.70		0.02	2.80E+02	2.80E+02	3.41E+01	1.35E+02
	SN-113	255.12		1.93	5.11E+00	1.98E-01	0.00E+00	2.46E+00
		391.69		64.90	1.98E-01		6.61E-02	9.56E-02
	TE123M	159.00		84.10	1.20E-01	1.20E-01	-2.51E-02	5.86E-02
	SB-124	602.71		97.87	2.28E-01	2.28E-01	-1.66E-02	1.08E-01
		645.85		7.26	3.12E+00		1.16E+00	1.48E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	SB-124	722.78		11.10	2.07E+00	2.28E-01	6.91E-01	9.77E-01
		1691.02		49.00	4.00E-01		9.61E-02	1.76E-01
	I-125	35.49		6.49	2.77E+00	2.77E+00	-2.07E+00	1.35E+00
	SB-125	176.33		6.89	8.89E-01	2.40E-01	3.48E-02	4.32E-01
		427.89		29.33	2.40E-01		-6.40E-02	1.15E-01
		463.38		10.35	8.23E-01		9.60E-01	3.96E-01
		600.56		17.80	4.33E-01		-7.21E-02	2.06E-01
		635.90		11.32	6.61E-01		1.35E-02	3.12E-01
	SB-126	414.70		83.30	1.66E+01	1.40E+01	7.00E-01	7.99E+00
		666.33		99.60	1.40E+01		-1.25E+00	6.62E+00
		695.00		99.60	1.46E+01		8.58E-01	6.88E+00
		720.50		53.80	2.76E+01		1.67E+01	1.30E+01
+	SN-126	87.57	*	37.00	4.12E-01	4.12E-01	4.08E-01	2.04E-01
	SB-127	473.00		25.00	6.14E+06	4.71E+06	3.09E+06	2.93E+06
		685.20		35.70	4.71E+06		1.05E+06	2.23E+06
		783.80		14.70	1.33E+07		4.94E+06	6.32E+06
	I-129	29.78		57.00	1.21E-01	1.21E-01	-8.54E-02	5.89E-02
		33.60		13.20	4.88E-01		1.07E-01	2.37E-01
		39.58		7.52	7.97E-01		1.79E-01	3.88E-01
	I-131	284.30		6.05	3.94E+03	2.64E+02	1.96E+03	1.91E+03
		364.48		81.20	2.64E+02		2.74E+01	1.27E+02
		636.97		7.26	3.25E+03		6.57E+02	1.54E+03
		722.89		1.80	1.44E+04		4.80E+03	6.79E+03
	TE-132	49.72		13.10	2.24E+08	3.34E+07	5.01E+07	1.09E+08
		228.16		88.00	3.34E+07		-4.84E+05	1.62E+07
	BA-133	81.00		33.00	2.14E-01	1.76E-01	-8.24E-01	1.05E-01
		302.84		17.80	3.96E-01		3.00E-02	1.92E-01
		356.01		60.00	1.76E-01		-1.33E-02	8.57E-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	4.59E+04	4.59E+04	-1.77E+05	2.25E+04
	CS-134	563.23		8.38	8.81E-01	1.01E-01	-2.94E-01	4.18E-01
		569.32		15.43	5.24E-01		4.73E-01	2.49E-01
		604.70		97.60	1.01E-01		-4.33E-03	4.84E-02
		795.84		85.40	1.16E-01		8.77E-02	5.48E-02
		801.93		8.73	9.41E-01		-5.13E-01	4.41E-01
	CS-135	268.24		16.00	4.78E-01	4.78E-01	7.05E-01	2.33E-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	1.16E+02	1.13E+01	3.94E+01	5.65E+01
		163.89		4.61	1.84E+02		1.61E+01	8.96E+01
		176.55		13.56	6.01E+01		2.35E+00	2.92E+01
		273.65		12.66	8.01E+01		-6.06E+01	3.89E+01
		340.57		48.50	2.55E+01		5.64E+01	1.24E+01
		818.50		99.70	1.13E+01		1.73E+00	5.30E+00
		1048.07		79.60	1.44E+01		-1.34E+00	6.71E+00
		1235.34		19.70	9.30E+01		2.70E+01	4.42E+01
	CS-137	661.65		85.12	8.82E-02	8.82E-02	-2.04E-03	4.18E-02
	LA-138	788.74		34.00	2.44E-01	1.09E-01	-7.51E-02	1.15E-01
		1435.80		66.00	1.09E-01		5.06E-02	4.91E-02
	CE-139	165.85		80.35	1.19E-01	1.19E-01	-5.06E-03	5.77E-02
	BA-140	162.64		6.70	1.49E+02	4.58E+01	5.85E+01	7.26E+01
		304.84		4.50	2.28E+02		-3.12E+02	1.10E+02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BA-140	423.70	3.20	3.54E+02	4.58E+01	9.37E+01	1.70E+02
	437.55	2.00	6.04E+02		4.36E+02	2.90E+02
	537.32	25.00	4.58E+01		1.07E+01	2.18E+01
LA-140	328.77	20.50	5.94E+01	1.33E+01	1.32E+01	2.88E+01
	487.03	45.50	2.38E+01		1.16E+01	1.13E+01
	815.85	23.50	5.31E+01		5.75E+00	2.49E+01
	1596.49	95.49	1.33E+01		3.96E+00	5.99E+00
CE-141	145.44	48.40	9.62E-01	9.62E-01	3.25E-01	4.70E-01
@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	293.26	42.00	1.00E+26		1.00E+26	1.00E+20
@	664.55	5.20	1.00E+26		1.00E+26	1.00E+20
CE-144	133.54	10.80	6.69E-01	6.69E-01	-5.55E-02	3.26E-01
PM-144	476.78	42.00	1.92E-01	8.44E-02	-7.20E-02	9.13E-02
	618.01	98.60	8.44E-02		-5.36E-02	3.99E-02
	696.49	99.49	9.47E-02		8.46E-03	4.48E-02
PM-145	36.85	21.70	2.86E-01	1.58E-01	3.79E-02	1.39E-01
	37.36	39.70	1.58E-01		1.04E-01	7.68E-02
	42.30	15.10	3.94E-01		4.77E-03	1.92E-01
	72.40	2.31	3.70E+00		-1.09E+00	1.82E+00
PM-146	453.90	39.94	1.82E-01	1.82E-01	8.35E-03	8.73E-02
	735.90	14.01	5.67E-01		1.41E-01	2.68E-01
	747.13	13.10	5.45E-01		-1.44E-01	2.55E-01
ND-147	91.11	28.90	1.10E+02	1.10E+02	2.56E+02	5.42E+01
	531.02	13.10	2.14E+02		4.31E+01	1.02E+02
PM-149	285.90	3.10	1.45E+13	1.45E+13	2.52E+12	7.03E+12
EU-152	121.78	20.50	2.71E-01	2.71E-01	1.24E-02	1.32E-01
	244.69	5.40	1.33E+00		-5.28E-01	6.46E-01
	344.27	19.13	3.48E-01		-1.17E-01	1.67E-01
	778.89	9.20	8.76E-01		3.02E-01	4.13E-01
	964.01	10.40	9.42E-01		-2.54E+00	4.45E-01
	1085.78	7.22	1.15E+00		1.69E-01	5.34E-01
	1112.02	9.60	9.34E-01		-1.04E-01	4.36E-01
	1407.95	14.94	6.38E-01		4.53E-01	2.95E-01
GD-153	97.43	31.30	2.51E-01	2.51E-01	9.50E-02	1.23E-01
	103.18	22.20	3.24E-01		-8.63E-02	1.58E-01
EU-154	123.07	40.50	1.38E-01	1.38E-01	-1.37E-02	6.74E-02
	723.30	19.70	4.03E-01		1.35E-01	1.90E-01
	873.19	11.50	6.55E-01		6.74E-03	3.06E-01
	996.32	10.30	8.08E-01		-2.83E-01	3.77E-01
	1004.76	17.90	4.94E-01		8.83E-02	2.31E-01
	1274.45	35.50	2.79E-01		1.49E-01	1.30E-01
EU-155	86.50	30.90	2.59E-01	2.59E-01	1.70E-01	1.27E-01
	105.30	20.70	2.77E-01		-9.66E-03	1.35E-01
EU-156	811.77	10.40	4.91E+01	4.91E+01	-1.41E+01	2.29E+01
	1153.47	7.20	1.03E+02		2.86E+01	4.83E+01
	1230.71	8.90	8.62E+01		5.01E+00	4.05E+01
HO-166M	184.41	72.60	1.14E-01	1.14E-01	3.16E-01	5.58E-02
	280.45	29.60	2.38E-01		-4.58E-02	1.15E-01
	410.94	11.10	6.68E-01		2.55E-01	3.22E-01
	711.69	54.10	1.32E-01		-3.91E-02	6.19E-02
TM-171	66.72	0.14	5.70E+01	5.70E+01	3.31E+01	2.80E+01
HF-172	67.35	5.31	1.49E+00	5.59E-01	8.98E-01	7.30E-01
	125.81	11.30	5.59E-01		-3.96E-01	2.73E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	LU-172	181.53		20.60	4.93E+03	2.20E+03	-9.90E+02	2.40E+03
		900.72		29.81	3.72E+03		-2.72E+03	1.72E+03
		1093.66		62.50	2.20E+03		1.69E+02	1.02E+03
	LU-173	100.72		5.24	1.24E+00	4.08E-01	1.02E-01	6.07E-01
		272.11		21.20	4.08E-01		8.58E-02	1.98E-01
	HF-175	343.40		84.00	2.01E-01	2.01E-01	-6.69E-02	9.69E-02
	LU-176	88.34		13.30	5.97E-01	6.79E-02	-4.19E-01	2.93E-01
		201.83		86.00	7.14E-02		-1.54E-02	3.47E-02
		306.78		94.00	6.79E-02		3.20E-03	3.27E-02
	HF-181	133.02		41.70	6.41E-01	3.75E-01	-5.31E-02	3.12E-01
		345.85		17.20	1.74E+00		-6.02E-01	8.39E-01
		482.03		82.80	3.75E-01		2.07E-02	1.79E-01
	TA-182	67.75		41.20	3.08E-01	3.08E-01	1.86E-01	1.51E-01
		1121.30		34.90	8.39E-01		1.81E+00	4.05E-01
		1189.05		16.23	1.01E+00		-7.01E-01	4.72E-01
		1221.41		26.98	6.47E-01		-3.06E-01	3.03E-01
		1231.02		11.44	1.62E+00		9.42E-02	7.62E-01
	IR-192	308.46		29.68	5.30E-01	3.31E-01	-2.47E-03	2.56E-01
		468.07		48.10	3.31E-01		-5.94E-01	1.58E-01
	HG-203	279.19		77.30	3.68E-01	3.68E-01	-4.39E-02	1.78E-01
	TL-204	374.74		94.11	7.04E-02	6.68E-02	-2.47E-04	3.37E-02
		899.15		99.16	6.68E-02		-6.41E-02	3.08E-02
		911.74		91.10	1.78E-01		4.84E-01	8.60E-02
	BI-207	569.67		97.72	7.32E-02	7.32E-02	2.43E-02	3.48E-02
		1063.62		74.90	1.15E-01		4.32E-02	5.36E-02
+	TL-208	583.14	*	30.22	4.60E-01	2.21E-01	1.39E+00	2.24E-01
		860.37	*	4.48	2.43E+00		1.83E+00	1.16E+00
		2614.66	*	35.85	2.21E-01		1.12E+00	9.52E-02
	BI-210M	262.00		45.00	1.45E-01	1.45E-01	1.71E-02	7.03E-02
		300.00		23.00	3.32E-01		1.59E-01	1.61E-01
+	PB-210	46.50	*	4.25	1.88E+00	1.88E+00	1.79E+00	9.24E-01
	PB-211	404.84		2.90	2.53E+00	2.53E+00	-1.44E-02	1.22E+00
		831.96		2.90	2.70E+00		6.40E-01	1.27E+00
+	BI-212	727.17	*	11.80	7.74E-01	7.74E-01	1.40E+00	3.69E-01
		1620.62		2.75	2.45E+00		1.36E+00	1.09E+00
+	PB-212	238.63	*	44.60	3.23E-01	3.23E-01	1.55E+00	1.60E-01
		300.09		3.41	2.24E+00		1.07E+00	1.09E+00
+	BI-214	609.31	*	46.30	2.63E-01	2.63E-01	2.50E+00	1.27E-01
		1120.29	*	15.10	9.89E-01		2.35E+00	4.75E-01
		1764.49	*	15.80	4.78E-01		2.73E+00	2.13E-01
		2204.22	*	4.98	2.03E+00		3.49E+00	9.16E-01
+	PB-214	295.21	*	19.19	5.71E-01	2.90E-01	2.27E+00	2.80E-01
		351.92	*	37.19	2.90E-01		2.58E+00	1.42E-01
	RN-219	401.80		6.50	1.11E+00	1.11E+00	1.75E-01	5.33E-01
	RA-223	323.87		3.88	1.80E+00	1.80E+00	1.90E-01	8.68E-01
+	RA-224	240.98	*	3.95	3.65E+00	3.65E+00	6.81E+00	1.80E+00
	RA-225	40.00		31.00	1.59E+01	1.59E+01	5.53E+00	7.72E+00
+	RA-226	186.21	*	3.28	2.87E+00	2.87E+00	6.48E+00	1.41E+00
	TH-227	50.10		8.40	6.93E-01	6.62E-01	-4.05E-01	3.38E-01
		236.00		11.50	6.62E-01		-4.39E+00	3.23E-01
		256.20		6.30	1.06E+00		0.00E+00	5.16E-01
+	AC-228	338.32	*	11.40	8.91E-01	4.36E-01	1.61E+00	4.35E-01
		911.07	*	27.70	4.36E-01		1.49E+00	2.09E-01

Analysis Report for 1707082-07

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	AC-228	969.11	*	16.60	7.00E-01	4.36E-01	1.57E+00	3.34E-01
	TH-230	48.44		16.90	3.82E-01	3.82E-01	-1.96E-02	1.87E-01
		62.85		4.60	1.71E+00		3.37E+00	8.43E-01
		67.67		0.37	1.94E+01		1.17E+01	9.52E+00
	PA-231	283.67		1.60	4.44E+00	3.01E+00	3.18E+00	2.15E+00
		302.67		2.30	3.01E+00		2.28E-01	1.46E+00
	TH-231	25.64		14.70	5.75E-01	5.75E-01	-3.94E+00	2.80E-01
		84.21		6.40	1.13E+00		-7.60E-01	5.56E-01
	PA-233	311.98		38.60	1.94E+00	1.94E+00	-4.83E-01	9.39E-01
	PA-234	131.20		20.40	2.90E-01	2.90E-01	-1.28E-02	1.42E-01
		733.99		8.80	8.50E-01		1.03E-01	4.01E-01
		946.00		12.00	6.72E-01		-6.69E-03	3.14E-01
	PA-234M	1001.03		0.92	9.56E+00	9.56E+00	-5.01E-01	4.48E+00
+	TH-234	63.29	*	3.80	2.47E+00	2.47E+00	3.19E+00	1.22E+00
	U-235	143.76		10.50	5.98E-01	5.98E-01	3.35E-01	2.92E-01
		163.35		4.70	1.27E+00		1.11E-01	6.18E-01
		205.31		4.70	1.28E+00		-6.82E-01	6.19E-01
	NP-237	86.50		12.60	6.12E-01	6.12E-01	4.01E-01	3.01E-01
	NP-239	106.10		22.70	2.66E+11	2.66E+11	1.57E+11	1.30E+11
		228.18		10.70	5.91E+11		-8.58E+09	2.87E+11
		277.60		14.10	5.18E+11		-8.90E+10	2.51E+11
	AM-241	59.54		35.90	1.83E-01	1.83E-01	-1.38E-02	8.95E-02
	AM-243	74.67		66.00	1.53E-01	1.53E-01	-2.09E-01	7.54E-02
	CM-243	209.75		3.29	1.90E+00	4.96E-01	6.42E-01	9.25E-01
		228.14		10.60	5.67E-01		-8.23E-03	2.75E-01
		277.60		14.00	4.96E-01		-8.52E-02	2.41E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

Analysis Report for 1707082-07

HTC-A01-S005-0612-02

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-S005-0612-02

Elapsed Live time: 3600
Elapsed Real Time: 3602

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	90	110	83	182	547	149
25:	81	88	99	77	82	93	76	92
33:	97	69	80	97	87	82	98	98
41:	78	105	88	112	95	128	204	140
49:	87	104	114	121	114	156	131	141
57:	133	149	136	152	164	160	263	350
65:	197	174	188	195	225	174	173	201
73:	215	261	506	392	569	677	214	184
81:	185	175	149	215	200	174	253	327
89:	168	237	201	213	392	277	128	140
97:	117	140	137	124	120	107	101	90
105:	127	110	110	103	122	102	107	116
113:	109	102	124	96	110	90	99	99
121:	104	108	77	106	92	108	120	106
129:	140	145	101	102	102	100	105	103
137:	104	111	91	90	100	99	128	120
145:	132	102	117	101	104	101	103	108
153:	93	125	99	93	97	88	103	79
161:	108	86	109	88	101	85	94	88
169:	88	89	88	76	84	82	84	77
177:	90	76	75	70	85	82	102	93
185:	108	279	229	102	80	90	69	87
193:	92	69	71	86	82	87	96	90
201:	79	79	72	80	75	84	71	63
209:	88	92	66	84	71	66	67	58
217:	73	56	59	73	55	65	61	72
225:	58	63	67	59	71	77	53	78
233:	60	72	61	81	80	222	659	226
241:	125	259	168	67	79	60	51	53
249:	53	64	45	44	57	51	50	40
257:	61	45	64	46	36	41	52	46
265:	44	40	49	42	58	99	84	70
273:	38	40	47	48	47	77	32	46
281:	44	49	55	48	50	50	55	49
289:	36	52	42	45	48	75	282	365
297:	70	52	57	70	62	29	38	37
305:	27	42	39	33	40	34	29	45
313:	43	40	42	47	46	34	42	33
321:	38	38	45	40	36	41	42	66
329:	47	39	50	29	59	31	40	39
337:	37	106	115	42	45	36	34	34
345:	25	23	37	37	26	60	150	621
353:	351	45	35	39	39	27	16	30
361:	26	32	26	25	37	33	21	25

369:	28	26	25	21	26	27	27	24

Sample Title: HTC-A01-S005-0612-02

Channel								
377:	26	33	28	26	27	25	31	31
385:	39	25	38	32	43	28	24	39
393:	36	30	33	21	31	30	27	29
401:	32	34	28	30	37	29	28	37
409:	25	41	26	34	28	32	27	28
417:	24	34	28	24	42	23	23	38
425:	17	20	21	21	24	38	23	24
433:	19	21	34	32	25	33	27	29
441:	20	25	20	27	20	20	26	20
449:	21	25	20	28	28	24	30	19
457:	23	24	26	20	18	27	53	43
465:	18	24	33	14	18	21	15	30
473:	24	19	25	14	14	21	29	22
481:	22	20	15	16	15	19	22	20
489:	23	20	16	14	20	16	14	25
497:	23	17	11	12	18	19	19	23
505:	26	24	14	20	31	59	85	66
513:	35	29	22	15	26	17	12	15
521:	20	13	35	20	21	18	18	17
529:	25	25	21	18	21	21	23	18
537:	17	11	14	25	18	11	17	19
545:	16	25	20	20	14	12	12	15
553:	17	16	19	16	18	14	20	23
561:	15	11	17	15	12	19	26	13
569:	21	24	12	18	8	13	16	13
577:	18	13	27	18	19	38	162	128
585:	27	22	20	17	18	13	15	15
593:	14	16	22	14	16	21	9	11
601:	21	24	17	13	17	23	20	69
609:	337	384	85	27	13	23	20	14
617:	8	9	11	20	20	17	16	23
625:	11	17	9	11	21	15	13	15
633:	11	11	24	15	12	9	17	13
641:	15	11	17	15	20	20	22	12
649:	11	11	18	14	20	17	16	12
657:	12	20	11	11	18	26	10	12
665:	18	23	16	9	11	6	13	15
673:	13	12	10	11	7	14	16	10
681:	9	13	13	17	17	8	11	20
689:	18	12	15	12	24	12	14	10
697:	14	14	21	19	7	10	14	19
705:	13	14	10	17	18	10	8	9
713:	13	16	11	13	16	14	14	18
721:	18	13	6	13	13	19	52	44
729:	18	14	11	8	16	13	14	15
737:	13	11	13	13	14	16	9	13
745:	14	10	12	11	4	10	13	11
753:	16	10	19	14	13	12	7	13
761:	16	14	17	20	17	15	27	45
769:	46	21	18	16	16	9	9	14
777:	11	17	13	14	12	12	12	14
785:	22	19	19	16	9	13	9	15
793:	14	17	33	18	14	4	18	8

801:	13	8	9	12	11	25	12	13

Sample Title: HTC-A01-S005-0612-02

Channel								
809:	9	10	12	5	8	11	11	11
817:	9	14	15	12	13	13	12	9
825:	14	10	7	9	10	16	11	14
833:	9	9	12	8	15	11	17	15
841:	13	12	13	14	11	8	13	13
849:	7	13	4	15	11	14	8	10
857:	11	11	18	25	31	16	10	10
865:	14	12	16	4	12	9	9	5
873:	13	8	13	9	10	11	11	13
881:	12	14	17	7	11	13	14	14
889:	11	14	14	8	14	9	10	8
897:	6	9	5	10	5	2	12	12
905:	12	11	10	8	17	42	112	77
913:	18	17	10	8	11	11	12	15
921:	6	6	10	12	6	12	11	9
929:	6	9	6	6	21	25	16	13
937:	5	11	4	11	5	7	14	11
945:	12	7	9	10	7	10	15	11
953:	13	11	7	7	8	10	7	9
961:	10	10	11	15	24	17	13	45
969:	68	31	14	3	9	9	14	8
977:	11	6	10	11	10	13	8	10
985:	9	10	7	6	8	5	9	9
993:	9	9	7	8	11	13	9	13
1001:	14	12	10	6	14	11	7	12
1009:	5	13	10	13	8	10	6	10
1017:	6	9	9	4	13	6	8	9
1025:	6	13	17	6	7	10	7	11
1033:	6	8	5	9	5	6	10	13
1041:	11	5	8	9	5	14	9	9
1049:	8	7	8	7	12	6	8	10
1057:	3	6	11	8	13	10	9	11
1065:	10	5	9	20	9	13	9	9
1073:	2	5	8	9	5	7	12	5
1081:	14	14	10	7	11	8	4	4
1089:	11	2	7	3	11	12	8	14
1097:	9	7	5	10	7	9	6	9
1105:	11	10	11	3	16	7	5	3
1113:	15	8	12	11	7	13	41	89
1121:	53	23	16	9	16	10	13	16
1129:	7	13	13	16	8	14	6	7
1137:	10	9	11	5	14	9	7	9
1145:	12	10	5	7	8	9	12	10
1153:	8	9	19	16	17	8	10	9
1161:	11	5	16	8	9	13	9	5
1169:	8	10	12	5	7	13	5	14
1177:	6	7	7	11	10	6	12	9
1185:	12	15	12	11	6	7	9	6
1193:	20	10	8	14	10	9	3	11
1201:	11	7	7	6	16	14	11	15
1209:	12	10	18	8	13	12	14	14
1217:	9	19	11	9	11	7	6	9
1225:	15	13	10	10	12	20	9	12

1233:	8	12	13	18	21	41	20	14

Sample Title: HTC-A01-S005-0612-02

Channel								
1241:	11	12	13	9	16	9	11	11
1249:	9	3	8	9	10	13	8	6
1257:	7	8	13	2	10	3	7	5
1265:	7	6	8	9	5	13	11	6
1273:	6	10	12	15	5	4	4	14
1281:	9	12	3	7	4	6	10	6
1289:	7	5	6	8	9	6	10	13
1297:	7	6	5	5	9	3	11	3
1305:	6	3	6	7	3	5	10	7
1313:	9	1	4	9	2	2	5	5
1321:	7	5	5	4	9	5	4	6
1329:	5	6	3	8	3	3	7	4
1337:	5	2	7	2	5	2	6	8
1345:	3	6	2	3	1	8	7	5
1353:	6	6	3	4	7	7	8	3
1361:	3	4	5	4	5	11	5	3
1369:	4	11	6	4	5	6	7	9
1377:	22	26	11	4	3	4	3	4
1385:	7	4	1	5	2	4	1	3
1393:	4	3	3	2	6	1	0	9
1401:	5	6	2	4	3	3	15	10
1409:	14	3	2	5	4	5	3	1
1417:	4	4	2	3	1	5	3	4
1425:	2	0	7	4	5	5	2	2
1433:	5	4	2	4	8	3	1	1
1441:	4	5	2	7	6	2	4	5
1449:	5	4	6	2	4	5	3	7
1457:	7	19	96	341	418	159	23	12
1465:	20	6	4	4	6	3	1	2
1473:	3	3	1	2	3	3	5	2
1481:	1	2	2	2	3	5	4	4
1489:	1	1	1	6	5	3	3	6
1497:	6	1	2	4	5	4	2	2
1505:	0	9	3	7	15	9	5	5
1513:	6	0	4	0	4	7	3	1
1521:	5	0	6	2	1	2	0	4
1529:	5	7	1	5	0	3	4	2
1537:	1	4	6	1	0	3	2	3
1545:	0	2	3	4	2	6	0	2
1553:	3	3	0	1	2	4	2	0
1561:	2	1	6	3	2	3	4	2
1569:	2	1	1	1	5	1	0	0
1577:	1	1	4	7	3	4	5	3
1585:	4	6	9	8	6	8	5	7
1593:	7	8	1	2	2	0	8	1
1601:	1	0	3	2	2	5	2	5
1609:	1	1	3	1	1	2	1	1
1617:	1	4	5	3	2	3	2	0
1625:	2	0	1	2	2	3	4	4
1633:	2	2	1	1	3	2	6	3
1641:	2	3	2	1	1	0	4	2
1649:	3	4	1	2	4	1	1	1
1657:	2	0	0	4	8	5	1	3

1665:	0	2	6	1	4	4	1	3

Sample Title: HTC-A01-S005-0612-02

Channel								
1673:	2	0	3	0	1	2	4	1
1681:	2	2	0	2	2	1	2	2
1689:	5	3	3	1	2	2	2	2
1697:	2	0	1	0	0	0	2	0
1705:	5	1	3	0	0	1	2	1
1713:	1	0	2	2	0	3	2	2
1721:	0	0	1	4	1	1	2	5
1729:	10	8	7	0	2	0	3	1
1737:	1	3	2	1	0	1	2	2
1745:	2	0	2	0	2	1	5	1
1753:	0	1	2	0	4	1	1	0
1761:	5	6	23	55	48	13	2	2
1769:	1	3	0	3	1	0	1	0
1777:	0	0	2	1	2	1	1	4
1785:	2	0	1	2	2	2	1	1
1793:	3	0	0	0	0	0	2	1
1801:	2	1	0	2	2	0	3	2
1809:	1	1	2	2	0	3	1	0
1817:	0	0	1	3	3	2	3	1
1825:	3	3	1	1	2	0	1	2
1833:	3	1	2	3	2	4	2	1
1841:	1	1	0	2	2	4	8	2
1849:	1	0	0	0	1	0	1	2
1857:	0	3	1	1	3	1	1	3
1865:	2	2	0	0	4	2	0	1
1873:	4	0	0	2	0	3	1	0
1881:	2	3	3	2	2	0	1	0
1889:	0	2	2	3	1	0	3	1
1897:	2	1	2	1	2	0	3	0
1905:	1	2	2	0	1	1	0	5
1913:	2	1	1	0	1	1	1	4
1921:	1	1	1	1	1	1	1	2
1929:	4	0	1	1	0	1	2	2
1937:	1	3	3	0	3	1	1	1
1945:	1	3	1	2	0	3	2	1
1953:	0	1	1	2	4	2	3	0
1961:	0	0	3	5	3	2	0	0
1969:	2	1	1	1	2	4	0	2
1977:	1	1	0	2	0	1	0	1
1985:	0	2	2	1	1	0	1	0
1993:	0	0	2	2	1	0	2	0
2001:	1	1	2	1	1	0	2	1
2009:	0	0	0	2	4	2	0	2
2017:	2	2	3	2	2	4	3	2
2025:	1	3	3	0	1	2	0	2
2033:	1	1	2	1	0	0	0	0
2041:	2	0	0	2	0	0	1	2
2049:	1	1	2	0	1	1	0	1
2057:	0	0	2	0	4	0	0	2
2065:	1	2	2	0	1	3	0	3
2073:	1	1	2	1	1	1	1	1
2081:	1	2	0	0	2	0	1	1
2089:	1	2	1	1	0	1	0	2

2097:	1	2	0	0	2	5	7	2

Sample Title: HTC-A01-S005-0612-02

Channel								
2105:	2	3	1	2	5	1	0	1
2113:	0	1	3	4	2	6	3	1
2121:	0	0	2	0	1	1	0	2
2129:	3	1	3	0	0	0	2	0
2137:	0	2	0	0	0	0	3	4
2145:	0	0	1	2	1	1	1	1
2153:	2	2	3	2	0	2	2	0
2161:	1	1	4	1	1	2	0	2
2169:	2	1	0	1	0	1	0	0
2177:	3	1	2	3	4	1	3	2
2185:	0	1	1	2	1	0	1	1
2193:	2	2	1	2	2	2	3	2
2201:	2	14	16	7	7	7	0	2
2209:	0	1	0	0	1	1	0	1
2217:	1	1	1	0	2	1	2	0
2225:	2	1	0	3	2	1	0	1
2233:	1	0	1	2	1	1	0	3
2241:	1	3	2	0	1	1	2	0
2249:	0	0	2	1	0	0	1	1
2257:	1	0	0	1	0	1	1	0
2265:	1	2	1	0	1	0	0	0
2273:	2	0	2	2	2	1	1	0
2281:	3	0	0	1	2	0	3	2
2289:	1	1	5	2	4	1	3	2
2297:	3	1	0	5	1	1	1	1
2305:	4	1	1	1	1	2	2	1
2313:	0	2	0	1	0	0	2	1
2321:	0	1	1	2	0	0	2	2
2329:	2	1	1	0	1	1	0	1
2337:	2	1	2	2	2	1	1	2
2345:	1	1	1	0	0	1	0	0
2353:	2	0	1	1	2	1	2	1
2361:	1	1	0	1	3	0	3	3
2369:	1	0	1	0	1	1	2	4
2377:	1	0	2	2	1	0	1	1
2385:	0	0	0	3	2	1	1	1
2393:	3	2	0	0	0	3	1	0
2401:	1	1	0	0	0	0	2	1
2409:	0	0	0	1	2	0	0	1
2417:	2	0	0	0	0	0	0	2
2425:	3	0	4	1	2	1	0	0
2433:	2	2	0	3	1	0	1	0
2441:	0	0	0	1	0	6	6	2
2449:	0	0	1	1	1	0	0	0
2457:	2	0	5	1	0	0	0	2
2465:	0	0	1	1	2	0	1	0
2473:	0	2	1	0	1	0	0	0
2481:	0	1	1	3	1	0	0	0
2489:	0	2	1	1	0	0	3	0
2497:	1	3	2	0	1	1	0	1
2505:	0	0	0	1	0	1	0	0
2513:	0	0	0	1	1	0	0	0
2521:	1	1	1	0	0	1	0	0

2529:	0	1	1	1	0	1	0	0

Sample Title: HTC-A01-S005-0612-02

Channel								
2537:	0	0	0	0	1	1	0	1
2545:	0	0	0	1	0	1	0	0
2553:	1	0	1	0	1	1	0	0
2561:	0	1	1	1	0	0	1	0
2569:	1	1	1	1	1	0	0	0
2577:	0	0	0	0	0	1	2	1
2585:	1	1	0	1	1	0	0	0
2593:	0	1	0	0	0	0	0	0
2601:	0	0	1	0	1	1	1	1
2609:	1	2	2	21	24	35	14	6
2617:	4	0	0	0	0	0	0	0
2625:	0	0	0	1	0	0	0	0
2633:	0	0	0	0	1	0	0	0
2641:	0	0	1	0	0	0	1	0
2649:	0	0	1	0	2	1	0	0
2657:	0	1	0	0	1	0	1	0
2665:	1	0	1	0	0	0	0	0
2673:	0	0	0	1	0	0	2	0
2681:	0	0	0	1	0	0	1	0
2689:	0	0	1	1	0	0	0	0
2697:	0	0	0	0	0	0	0	0
2705:	0	0	0	1	0	0	0	1
2713:	2	0	1	0	0	0	1	0
2721:	1	0	0	0	0	0	0	3
2729:	1	0	2	0	0	0	0	0
2737:	0	0	1	0	0	0	0	0
2745:	0	2	0	0	0	1	1	0
2753:	0	0	0	1	0	0	0	1
2761:	0	0	2	1	1	0	0	0
2769:	0	0	1	0	1	1	0	0
2777:	0	0	0	0	1	0	0	0
2785:	1	1	0	1	1	2	0	1
2793:	1	0	1	0	0	0	1	1
2801:	1	0	1	2	0	0	0	1
2809:	0	0	0	1	0	0	0	0
2817:	1	0	0	1	0	0	0	0
2825:	0	0	0	1	0	1	1	0
2833:	0	0	1	0	1	0	0	0
2841:	0	1	0	1	1	0	0	0
2849:	0	0	0	0	0	0	0	1
2857:	0	0	0	0	0	0	0	0
2865:	0	0	1	0	0	0	0	0
2873:	0	0	0	0	1	0	0	0
2881:	0	0	0	1	0	0	0	0
2889:	1	0	0	0	0	0	0	0
2897:	0	0	0	0	0	1	1	0
2905:	0	0	1	0	0	0	0	0
2913:	0	0	0	0	1	0	0	0
2921:	0	0	1	0	0	0	0	0
2929:	0	0	0	0	1	1	0	0
2937:	1	0	2	0	0	0	0	1
2945:	0	0	0	0	0	0	0	1
2953:	0	0	0	0	0	0	0	0

2961:	0	0	0	0	1	0	0	0

Sample Title: HTC-A01-S005-0612-02

Channel								
2969:	0	2	0	1	1	0	0	1
2977:	0	0	0	1	1	0	1	0
2985:	1	1	0	0	0	0	1	0
2993:	1	0	0	0	0	0	0	0
3001:	1	0	1	1	0	0	1	0
3009:	1	0	1	0	1	0	0	0
3017:	2	0	0	0	3	0	0	0
3025:	0	1	0	0	1	0	1	0
3033:	0	0	1	0	0	0	0	0
3041:	1	0	0	1	1	0	0	0
3049:	0	0	1	0	0	1	0	0
3057:	0	0	0	0	0	0	1	0
3065:	0	0	0	0	0	0	0	0
3073:	0	0	0	0	0	0	0	0
3081:	1	1	0	0	0	0	0	0
3089:	0	0	0	0	0	1	0	0
3097:	0	0	0	0	0	0	1	1
3105:	1	0	0	0	0	0	1	0
3113:	0	2	0	1	0	1	0	0
3121:	0	0	0	1	0	0	0	0
3129:	0	0	0	0	0	1	0	0
3137:	1	0	0	1	0	1	1	2
3145:	2	1	1	1	0	1	0	0
3153:	0	0	0	1	0	0	0	0
3161:	0	0	0	0	1	0	0	0
3169:	0	1	0	0	0	0	0	0
3177:	1	0	0	0	0	0	1	0
3185:	0	0	0	0	1	0	0	0
3193:	1	1	0	1	0	0	0	1
3201:	0	0	0	1	1	0	0	0
3209:	0	1	0	1	0	0	0	0
3217:	0	0	1	0	0	1	1	0
3225:	0	0	1	1	0	0	0	0
3233:	0	0	0	0	1	0	0	0
3241:	0	0	0	0	1	0	0	0
3249:	0	0	0	0	0	0	0	0
3257:	2	0	0	0	0	2	0	0
3265:	0	0	0	0	0	0	0	0
3273:	0	0	0	1	1	0	0	1
3281:	0	1	1	1	0	0	0	0
3289:	0	0	1	0	0	0	0	0
3297:	0	0	0	0	0	0	0	0
3305:	0	1	0	0	0	1	0	0
3313:	0	0	0	0	0	1	0	0
3321:	0	0	1	0	0	0	0	0
3329:	0	0	0	0	0	1	0	0
3337:	0	0	0	1	2	0	1	0
3345:	0	0	0	1	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	1	0
3377:	0	1	1	0	1	1	0	1
3385:	0	0	0	0	0	0	0	0

3393:	0	0	0	1	0	0	0	0

Sample Title: HTC-A01-S005-0612-02

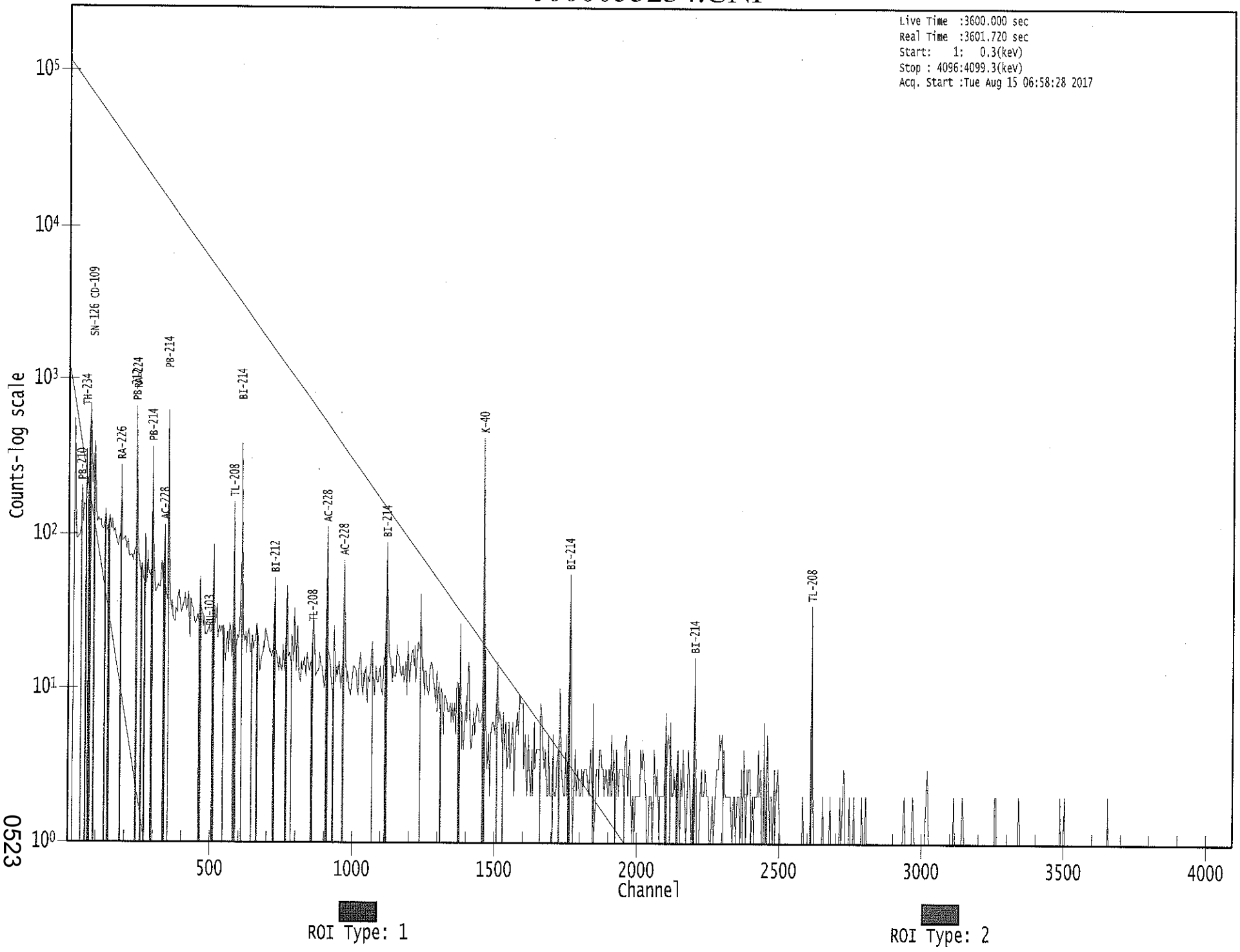
Channel								
3401:	0	0	0	1	0	0	0	0
3409:	1	0	1	0	1	0	0	0
3417:	0	0	0	0	1	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	1	1	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	1	0	1	0	0	0	0
3457:	0	1	0	0	0	0	0	0
3465:	1	0	1	1	0	1	1	1
3473:	0	0	0	1	1	0	0	0
3481:	0	0	0	0	0	0	2	0
3489:	0	0	0	0	0	0	0	0
3497:	0	1	0	0	0	0	2	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S005-0612-02

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

0000055234.CNF



0523

Apex-Gamma

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Analysis Report for 1707082-08

HTC-A01-S005-1218-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707082-08
Sample Description	: HTC-A01-S005-1218-01
Sample Type	: SOIL
Sample Size	: 6.541E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 5:46:31AM
Acquisition Started	: 8/15/2017 6:58:48AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3608.3 seconds
Dead Time	: 0.23 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 9 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55235

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/16/17

Analysis Report for 1707082-08

HTC-A01-S005-1218-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/15/2017 7:59:00AM
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	22.52	22.84	0.0000	0.00
2	62.92	63.22	0.0000	0.00
3	76.35	76.66	0.0000	0.00
4	87.06	87.36	0.0000	0.00
5	92.72	93.02	0.0000	0.00
6	100.75	101.05	0.0000	0.00
7	111.57	111.86	0.0000	0.00
8	128.99	129.27	0.0000	0.00
9	143.68	143.96	0.0000	0.00
10	186.66	186.93	0.0000	0.00
11	209.81	210.07	0.0000	0.00
12	235.30	235.55	0.0000	0.00
13	239.09	239.34	0.0000	0.00
14	242.19	242.44	0.0000	0.00
15	295.44	295.67	0.0000	0.00
16	300.14	300.37	0.0000	0.00
17	321.90	322.12	0.0000	0.00
18	329.61	329.82	0.0000	0.00
19	338.53	338.74	0.0000	0.00
20	352.20	352.41	0.0000	0.00
21	510.96	511.11	0.0000	0.00
22	583.28	583.41	0.0000	0.00
23	609.38	609.50	0.0000	0.00
24	727.39	727.48	0.0000	0.00
25	768.14	768.20	0.0000	0.00
26	771.14	771.20	0.0000	0.00
27	785.78	785.84	0.0000	0.00
28	795.01	795.07	0.0000	0.00
29	860.69	860.73	0.0000	0.00
30	911.19	911.21	0.0000	0.00
31	916.98	917.00	0.0000	0.00
32	927.57	927.58	0.0000	0.00
33	934.85	934.86	0.0000	0.00
34	950.08	950.09	0.0000	0.00
35	968.40	968.40	0.0000	0.00
36	1043.01	1042.99	0.0000	0.00
37	1054.19	1054.16	0.0000	0.00
38	1068.49	1068.46	0.0000	0.00
39	1114.05	1114.00	0.0000	0.00
40	1120.29	1120.24	0.0000	0.00
41	1236.97	1236.88	0.0000	0.00
42	1301.79	1301.68	0.0000	0.00

Analysis Report for 1707082-08

HTC-A01-S005-1218-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1376.88	1376.75	0.0000	0.00
44	1382.88	1382.75	0.0000	0.00
45	1460.59	1460.43	0.0000	0.00
46	1485.51	1485.33	0.0000	0.00
47	1514.08	1513.89	0.0000	0.00
48	1537.14	1536.95	0.0000	0.00
49	1619.48	1619.26	0.0000	0.00
50	1623.43	1623.21	0.0000	0.00
51	1636.86	1636.64	0.0000	0.00
52	1683.16	1682.92	0.0000	0.00
53	1764.17	1763.90	0.0000	0.00
54	1857.99	1857.69	0.0000	0.00
55	1956.21	1955.88	0.0000	0.00
56	2103.54	2103.16	0.0000	0.00
57	2118.11	2117.73	0.0000	0.00
58	2163.24	2162.83	0.0000	0.00
59	2203.16	2202.74	0.0000	0.00
60	2613.91	2613.36	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707082-08

HTC-A01-S005-1218-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 7:59:00AM

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	22.52	20 -	25	22.84	1.05E+02	72.75	9.79E+02	2.96
	2	62.92	58 -	67	63.22	2.39E+02	135.52	2.49E+03	1.67
	3	76.35	71 -	82	76.66	9.40E+02	170.19	3.12E+03	3.66
M	4	87.06	84 -	99	87.36	2.15E+02	95.61	1.51E+03	3.07
m	5	92.72	84 -	99	93.02	4.01E+02	127.29	1.95E+03	3.22
	6	100.75	99 -	104	101.05	6.09E+01	69.25	9.08E+02	2.56
	7	111.57	109 -	115	111.86	8.42E+01	76.29	9.90E+02	1.49
	8	128.99	125 -	132	129.27	1.01E+02	86.69	1.19E+03	3.28
	9	143.68	140 -	149	143.96	1.34E+02	96.36	1.25E+03	4.17
	10	186.66	182 -	191	186.93	2.36E+02	93.81	1.12E+03	2.08
	11	209.81	207 -	213	210.07	7.65E+01	64.58	7.01E+02	1.29
M	12	235.30	234 -	245	235.55	4.60E+01	22.96	1.63E+02	2.11
m	13	239.09	234 -	245	239.34	8.28E+02	76.07	4.59E+02	1.95
m	14	242.19	234 -	245	242.44	1.66E+02	79.84	4.98E+02	2.27
M	15	295.44	290 -	305	295.67	2.37E+02	51.19	3.32E+02	2.12
m	16	300.14	290 -	305	300.37	5.33E+01	44.59	3.12E+02	2.12
M	17	321.90	320 -	333	322.12	3.12E+01	27.78	1.71E+02	1.95
m	18	329.61	320 -	333	329.82	5.01E+01	39.36	2.54E+02	1.95
	19	338.53	334 -	344	338.74	1.69E+02	64.68	4.68E+02	2.32
	20	352.20	349 -	357	352.41	4.51E+02	57.91	2.38E+02	2.25
	21	510.96	506 -	517	511.11	1.38E+02	50.71	2.55E+02	2.30
	22	583.28	578 -	588	583.41	2.16E+02	48.90	2.04E+02	2.12
	23	609.38	604 -	614	609.50	3.06E+02	52.01	1.96E+02	2.10
	24	727.39	722 -	732	727.48	4.18E+01	38.47	1.72E+02	2.21
M	25	768.14	764 -	776	768.20	4.06E+01	25.96	8.60E+01	2.25
m	26	771.14	764 -	776	771.20	1.67E+01	25.18	7.42E+01	2.25
	27	785.78	783 -	788	785.84	3.00E+01	20.49	6.00E+01	2.66
	28	795.01	792 -	798	795.07	2.85E+01	25.75	9.69E+01	1.26
	29	860.69	856 -	866	860.73	3.76E+01	32.58	1.23E+02	4.88
M	30	911.19	905 -	925	911.21	1.48E+02	31.52	7.54E+01	2.33
m	31	916.98	905 -	925	917.00	1.56E+01	18.03	4.92E+01	2.12
	32	927.57	925 -	931	927.58	2.05E+01	17.17	3.91E+01	2.32
	33	934.85	932 -	938	934.86	1.62E+01	20.90	6.96E+01	3.23
	34	950.08	947 -	953	950.09	1.58E+01	20.41	6.04E+01	1.96
	35	968.40	963 -	972	968.40	1.11E+02	36.80	1.30E+02	1.79
	36	1043.01	1040 -	1047	1042.99	1.95E+01	20.88	5.91E+01	1.93
	37	1054.19	1050 -	1059	1054.16	2.58E+01	26.40	8.44E+01	4.38
	38	1068.49	1062 -	1071	1068.46	2.16E+01	26.02	8.28E+01	2.48
M	39	1114.05	1113 -	1137	1114.00	1.66E+01	9.95	2.34E+01	2.20
m	40	1120.29	1113 -	1137	1120.24	7.07E+01	26.00	5.24E+01	2.67

Analysis Report for 1707082-08

HTC-A01-S005-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1236.97	1232 -	1242	1236.88	3.06E+01	33.38	1.33E+02	2.94
	42	1301.79	1298 -	1307	1301.68	3.22E+01	21.95	5.16E+01	1.93
	43	1376.88	1371 -	1380	1376.75	1.91E+01	15.78	2.37E+01	4.40
	44	1382.88	1381 -	1386	1382.75	9.30E+00	9.33	1.14E+01	2.64
	45	1460.59	1454 -	1466	1460.43	5.91E+02	52.97	5.20E+01	2.66
	46	1485.51	1483 -	1487	1485.33	6.00E+00	4.90	0.00E+00	1.92
	47	1514.08	1512 -	1517	1513.89	9.27E+00	7.87	3.45E+00	3.34
	48	1537.14	1533 -	1543	1536.95	1.46E+01	12.02	1.29E+01	5.26
M	49	1619.48	1617 -	1626	1619.26	1.21E+01	6.63	7.50E-01	2.53
m	50	1623.43	1617 -	1626	1623.21	8.69E+00	9.80	5.70E+00	3.19
	51	1636.86	1635 -	1639	1636.64	4.50E+00	6.36	5.00E+00	1.94
	52	1683.16	1679 -	1685	1682.92	1.20E+01	6.93	0.00E+00	2.75
	53	1764.17	1758 -	1768	1763.90	4.94E+01	16.75	1.11E+01	2.52
	54	1857.99	1855 -	1860	1857.69	4.67E+00	5.74	2.67E+00	1.89
	55	1956.21	1953 -	1958	1955.88	4.58E+00	5.74	2.83E+00	1.85
	56	2103.54	2099 -	2107	2103.16	1.90E+01	8.72	0.00E+00	1.60
	57	2118.11	2113 -	2122	2117.73	1.10E+01	6.63	0.00E+00	3.22
	58	2163.24	2159 -	2165	2162.83	6.00E+00	4.90	0.00E+00	2.74
	59	2203.16	2197 -	2208	2202.74	2.30E+01	9.59	0.00E+00	4.67
	60	2613.91	2608 -	2617	2613.36	6.70E+01	16.37	0.00E+00	3.61

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 : 8/15/2017 7:59:00AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	22.52	20 -	25	1.05E+02	72.75	9.79E+02	5.74E+01
	2	62.92	58 -	67	2.39E+02	135.52	2.49E+03	1.08E+02
	3	76.35	71 -	82	9.40E+02	170.19	3.12E+03	1.30E+02
M	4	87.06	84 -	99	2.15E+02	95.61	1.51E+03	6.39E+01
m	5	92.72	84 -	99	4.01E+02	127.29	1.95E+03	7.26E+01
	6	100.75	99 -	104	6.09E+01	69.25	9.08E+02	5.55E+01
	7	111.57	109 -	115	8.42E+01	76.29	9.90E+02	6.09E+01
	8	128.99	125 -	132	1.01E+02	86.69	1.19E+03	6.93E+01

Analysis Report for 1707082-08

HTC-A01-S005-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	9	143.68	140 -	149	1.34E+02	96.36	1.25E+03	7.69E+01
	10	186.66	182 -	191	2.36E+02	93.81	1.12E+03	7.29E+01
	11	209.81	207 -	213	7.65E+01	64.58	7.01E+02	5.11E+01
M	12	235.30	234 -	245	4.60E+01	22.96	1.63E+02	2.10E+01
m	13	239.09	234 -	245	8.28E+02	76.07	4.59E+02	3.52E+01
m	14	242.19	234 -	245	1.66E+02	79.84	4.98E+02	3.67E+01
M	15	295.44	290 -	305	2.37E+02	51.19	3.32E+02	2.99E+01
m	16	300.14	290 -	305	5.33E+01	44.59	3.12E+02	2.90E+01
M	17	321.90	320 -	333	3.12E+01	27.78	1.71E+02	2.15E+01
m	18	329.61	320 -	333	5.01E+01	39.36	2.54E+02	2.62E+01
	19	338.53	334 -	344	1.69E+02	64.68	4.68E+02	4.87E+01
	20	352.20	349 -	357	4.51E+02	57.91	2.38E+02	3.23E+01
	21	510.96	506 -	517	1.38E+02	50.71	2.55E+02	3.70E+01
	22	583.28	578 -	588	2.16E+02	48.90	2.04E+02	3.21E+01
	23	609.38	604 -	614	3.06E+02	52.01	1.96E+02	3.16E+01
	24	727.39	722 -	732	4.18E+01	38.47	1.72E+02	2.98E+01
M	25	768.14	764 -	776	4.06E+01	25.96	8.60E+01	1.52E+01
m	26	771.14	764 -	776	1.67E+01	25.18	7.42E+01	1.42E+01
	27	785.78	783 -	788	3.00E+01	20.49	6.00E+01	1.42E+01
	28	795.01	792 -	798	2.85E+01	25.75	9.69E+01	1.93E+01
	29	860.69	856 -	866	3.76E+01	32.58	1.23E+02	2.48E+01
M	30	911.19	905 -	925	1.48E+02	31.52	7.54E+01	1.43E+01
m	31	916.98	905 -	925	1.56E+01	18.03	4.92E+01	1.15E+01
	32	927.57	925 -	931	2.05E+01	17.17	3.91E+01	1.20E+01
	33	934.85	932 -	938	1.62E+01	20.90	6.96E+01	1.59E+01
	34	950.08	947 -	953	1.58E+01	20.41	6.04E+01	1.55E+01
	35	968.40	963 -	972	1.11E+02	36.80	1.30E+02	2.48E+01
	36	1043.01	1040 -	1047	1.95E+01	20.88	5.91E+01	1.56E+01
	37	1054.19	1050 -	1059	2.58E+01	26.40	8.44E+01	2.00E+01
	38	1068.49	1062 -	1071	2.16E+01	26.02	8.28E+01	2.00E+01
M	39	1114.05	1113 -	1137	1.66E+01	9.95	2.34E+01	7.95E+00
m	40	1120.29	1113 -	1137	7.07E+01	26.00	5.24E+01	1.19E+01
	41	1236.97	1232 -	1242	3.06E+01	33.38	1.33E+02	2.59E+01
	42	1301.79	1298 -	1307	3.22E+01	21.95	5.16E+01	1.54E+01
	43	1376.88	1371 -	1380	1.91E+01	15.78	2.37E+01	1.08E+01
	44	1382.88	1381 -	1386	9.30E+00	9.33	1.14E+01	5.80E+00
	45	1460.59	1454 -	1466	5.91E+02	52.97	5.20E+01	1.73E+01
	46	1485.51	1483 -	1487	6.00E+00	4.90	0.00E+00	0.00E+00
	47	1514.08	1512 -	1517	9.27E+00	7.87	3.45E+00	4.10E+00
	48	1537.14	1533 -	1543	1.46E+01	12.02	1.29E+01	7.63E+00
M	49	1619.48	1617 -	1626	1.21E+01	6.63	7.50E-01	1.42E+00
m	50	1623.43	1617 -	1626	8.69E+00	9.80	5.70E+00	3.93E+00
	51	1636.86	1635 -	1639	4.50E+00	6.36	5.00E+00	3.90E+00
	52	1683.16	1679 -	1685	1.20E+01	6.93	0.00E+00	0.00E+00
	53	1764.17	1758 -	1768	4.94E+01	16.75	1.11E+01	7.48E+00
	54	1857.99	1855 -	1860	4.67E+00	5.74	2.67E+00	3.11E+00
	55	1956.21	1953 -	1958	4.58E+00	5.74	2.83E+00	3.15E+00
	56	2103.54	2099 -	2107	1.90E+01	8.72	0.00E+00	0.00E+00
	57	2118.11	2113 -	2122	1.10E+01	6.63	0.00E+00	0.00E+00
	58	2163.24	2159 -	2165	6.00E+00	4.90	0.00E+00	0.00E+00
	59	2203.16	2197 -	2208	2.30E+01	9.59	0.00E+00	0.00E+00

Analysis Report for 1707082-08

HTC-A01-S005-1218-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
60	2613.91	2608 -	2617	6.70E+01	16.37	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 : 8/15/2017 7:59:00AM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	22.52	20 -	25	22.84	1.05E+02	72.75	9.79E+02	.....
	2	62.92	58 -	67	63.22	2.39E+02	135.52	2.49E+03	TH-230
									TH-234
	3	76.35	71 -	82	76.66	9.40E+02	170.19	3.12E+03	.....
M	4	87.06	84 -	99	87.36	2.15E+02	95.61	1.51E+03	SN-126
									NP-237
									EU-155
									CD-109
m	5	92.72	84 -	99	93.02	4.01E+02	127.29	1.95E+03	GA-67
	6	100.75	99 -	104	101.05	6.09E+01	69.25	9.08E+02	LU-173
	7	111.57	109 -	115	111.86	8.42E+01	76.29	9.90E+02	.....
	8	128.99	125 -	132	129.27	1.01E+02	86.69	1.19E+03	.....
	9	143.68	140 -	149	143.96	1.34E+02	96.36	1.25E+03	U-235
	10	186.66	182 -	191	186.93	2.36E+02	93.81	1.12E+03	RA-226
	11	209.81	207 -	213	210.07	7.65E+01	64.58	7.01E+02	CM-243
									GA-67
M	12	235.30	234 -	245	235.55	4.60E+01	22.96	1.63E+02	NB-95M
									TH-227
m	13	239.09	234 -	245	239.34	8.28E+02	76.07	4.59E+02	PB-212
m	14	242.19	234 -	245	242.44	1.66E+02	79.84	4.98E+02	.....
M	15	295.44	290 -	305	295.67	2.37E+02	51.19	3.32E+02	PB-214
m	16	300.14	290 -	305	300.37	5.33E+01	44.59	3.12E+02	PB-212
									GA-67
									BI-210M
M	17	321.90	320 -	333	322.12	3.12E+01	27.78	1.71E+02	.....

Analysis Report for 1707082-08

HTC-A01-S005-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
m	18	329.61	320 -	333	329.82	5.01E+01	39.36	2.54E+02	LA-140
	19	338.53	334 -	344	338.74	1.69E+02	64.68	4.68E+02	AC-228
	20	352.20	349 -	357	352.41	4.51E+02	57.91	2.38E+02	PB-214
	21	510.96	506 -	517	511.11	1.38E+02	50.71	2.55E+02	.....
	22	583.28	578 -	588	583.41	2.16E+02	48.90	2.04E+02	TL-208
	23	609.38	604 -	614	609.50	3.06E+02	52.01	1.96E+02	BI-214
	24	727.39	722 -	732	727.48	4.18E+01	38.47	1.72E+02	BI-212
M	25	768.14	764 -	776	768.20	4.06E+01	25.96	8.60E+01	.....
m	26	771.14	764 -	776	771.20	1.67E+01	25.18	7.42E+01	.....
	27	785.78	783 -	788	785.84	3.00E+01	20.49	6.00E+01	.....
	28	795.01	792 -	798	795.07	2.85E+01	25.75	9.69E+01	CS-134
	29	860.69	856 -	866	860.73	3.76E+01	32.58	1.23E+02	TL-208
M	30	911.19	905 -	925	911.21	1.48E+02	31.52	7.54E+01	AC-228 TL-204
m	31	916.98	905 -	925	917.00	1.56E+01	18.03	4.92E+01	.....
	32	927.57	925 -	931	927.58	2.05E+01	17.17	3.91E+01	.....
	33	934.85	932 -	938	934.86	1.62E+01	20.90	6.96E+01	.....
	34	950.08	947 -	953	950.09	1.58E+01	20.41	6.04E+01	.....
	35	968.40	963 -	972	968.40	1.11E+02	36.80	1.30E+02	AC-228
	36	1043.01	1040 -	1047	1042.99	1.95E+01	20.88	5.91E+01	.....
	37	1054.19	1050 -	1059	1054.16	2.58E+01	26.40	8.44E+01	.....
	38	1068.49	1062 -	1071	1068.46	2.16E+01	26.02	8.28E+01	.....
M	39	1114.05	1113 -	1137	1114.00	1.66E+01	9.95	2.34E+01	.....
m	40	1120.29	1113 -	1137	1120.24	7.07E+01	26.00	5.24E+01	BI-214 SC-46
	41	1236.97	1232 -	1242	1236.88	3.06E+01	33.38	1.33E+02	.....
	42	1301.79	1298 -	1307	1301.68	3.22E+01	21.95	5.16E+01	.....
	43	1376.88	1371 -	1380	1376.75	1.91E+01	15.78	2.37E+01	.....
	44	1382.88	1381 -	1386	1382.75	9.30E+00	9.33	1.14E+01	.....
	45	1460.59	1454 -	1466	1460.43	5.91E+02	52.97	5.20E+01	K-40
	46	1485.51	1483 -	1487	1485.33	6.00E+00	4.90	0.00E+00	.....
	47	1514.08	1512 -	1517	1513.89	9.27E+00	7.87	3.45E+00	.....
	48	1537.14	1533 -	1543	1536.95	1.46E+01	12.02	1.29E+01	.....
M	49	1619.48	1617 -	1626	1619.26	1.21E+01	6.63	7.50E-01	.....
m	50	1623.43	1617 -	1626	1623.21	8.69E+00	9.80	5.70E+00	.....
	51	1636.86	1635 -	1639	1636.64	4.50E+00	6.36	5.00E+00	.....
	52	1683.16	1679 -	1685	1682.92	1.20E+01	6.93	0.00E+00	.....
	53	1764.17	1758 -	1768	1763.90	4.94E+01	16.75	1.11E+01	BI-214
	54	1857.99	1855 -	1860	1857.69	4.67E+00	5.74	2.67E+00	.....
	55	1956.21	1953 -	1958	1955.88	4.58E+00	5.74	2.83E+00	.....
	56	2103.54	2099 -	2107	2103.16	1.90E+01	8.72	0.00E+00	.....
	57	2118.11	2113 -	2122	2117.73	1.10E+01	6.63	0.00E+00	.....
	58	2163.24	2159 -	2165	2162.83	6.00E+00	4.90	0.00E+00	.....
	59	2203.16	2197 -	2208	2202.74	2.30E+01	9.59	0.00E+00	.....
	60	2613.91	2608 -	2617	2613.36	6.70E+01	16.37	0.00E+00	TL-208

Analysis Report for 1707082-08

HTC-A01-S005-1218-01

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 : 8/15/2017 7:59:00AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	22.52	1.05E+02	72.75	1.55E-03	1.73E-03
	2	62.92	2.39E+02	135.52	2.43E-02	1.79E-03
	3	76.35	9.40E+02	170.19	2.67E-02	2.04E-03
M	4	87.06	2.15E+02	95.61	2.71E-02	2.24E-03
m	5	92.72	4.01E+02	127.29	2.71E-02	2.24E-03
	6	100.75	6.09E+01	69.25	2.68E-02	2.21E-03
	7	111.57	8.42E+01	76.29	2.61E-02	2.16E-03
	8	128.99	1.01E+02	86.69	2.46E-02	2.04E-03
	9	143.68	1.34E+02	96.36	2.32E-02	1.88E-03
	10	186.66	2.36E+02	93.81	1.95E-02	1.55E-03
	11	209.81	7.65E+01	64.58	1.79E-02	1.45E-03
M	12	235.30	4.60E+01	22.96	1.63E-02	1.35E-03
m	13	239.09	8.28E+02	76.07	1.61E-02	1.34E-03
m	14	242.19	1.66E+02	79.84	1.59E-02	1.33E-03
M	15	295.44	2.37E+02	51.19	1.35E-02	1.15E-03
m	16	300.14	5.33E+01	44.59	1.33E-02	1.14E-03
M	17	321.90	3.12E+01	27.78	1.25E-02	1.09E-03
m	18	329.61	5.01E+01	39.36	1.22E-02	1.08E-03
	19	338.53	1.69E+02	64.68	1.19E-02	1.06E-03
	20	352.20	4.51E+02	57.91	1.15E-02	1.03E-03
	21	510.96	1.38E+02	50.71	8.25E-03	7.94E-04
	22	583.28	2.16E+02	48.90	7.32E-03	6.98E-04
	23	609.38	3.06E+02	52.01	7.04E-03	6.64E-04
	24	727.39	4.18E+01	38.47	6.01E-03	5.37E-04
M	25	768.14	4.06E+01	25.96	5.72E-03	5.01E-04
m	26	771.14	1.67E+01	25.18	5.70E-03	4.98E-04
	27	785.78	3.00E+01	20.49	5.61E-03	4.85E-04
	28	795.01	2.85E+01	25.75	5.55E-03	4.77E-04
	29	860.69	3.76E+01	32.58	5.17E-03	4.19E-04
M	30	911.19	1.48E+02	31.52	4.92E-03	3.84E-04
m	31	916.98	1.56E+01	18.03	4.89E-03	3.83E-04
	32	927.57	2.05E+01	17.17	4.85E-03	3.81E-04
	33	934.85	1.62E+01	20.90	4.81E-03	3.80E-04
	34	950.08	1.58E+01	20.41	4.74E-03	3.78E-04

Analysis Report for 1707082-08

HTC-A01-S005-1218-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	35	968.40	1.11E+02	36.80	4.67E-03	3.75E-04
	36	1043.01	1.95E+01	20.88	4.38E-03	3.62E-04
	37	1054.19	2.58E+01	26.40	4.34E-03	3.60E-04
	38	1068.49	2.16E+01	26.02	4.29E-03	3.58E-04
M	39	1114.05	1.66E+01	9.95	4.14E-03	3.51E-04
m	40	1120.29	7.07E+01	26.00	4.12E-03	3.50E-04
	41	1236.97	3.06E+01	33.38	3.79E-03	3.23E-04
	42	1301.79	3.22E+01	21.95	3.63E-03	3.04E-04
	43	1376.88	1.91E+01	15.78	3.47E-03	2.88E-04
	44	1382.88	9.30E+00	9.33	3.46E-03	2.88E-04
	45	1460.59	5.91E+02	52.97	3.31E-03	2.75E-04
	46	1485.51	6.00E+00	4.90	3.27E-03	2.71E-04
	47	1514.08	9.27E+00	7.87	3.22E-03	2.67E-04
	48	1537.14	1.46E+01	12.02	3.18E-03	2.63E-04
M	49	1619.48	1.21E+01	6.63	3.05E-03	2.50E-04
m	50	1623.43	8.69E+00	9.80	3.05E-03	2.49E-04
	51	1636.86	4.50E+00	6.36	3.03E-03	2.47E-04
	52	1683.16	1.20E+01	6.93	2.97E-03	2.39E-04
	53	1764.17	4.94E+01	16.75	2.87E-03	2.27E-04
	54	1857.99	4.67E+00	5.74	2.76E-03	2.15E-04
	55	1956.21	4.58E+00	5.74	2.66E-03	2.15E-04
	56	2103.54	1.90E+01	8.72	2.54E-03	2.15E-04
	57	2118.11	1.10E+01	6.63	2.53E-03	2.15E-04
	58	2163.24	6.00E+00	4.90	2.49E-03	2.15E-04
	59	2203.16	2.30E+01	9.59	2.46E-03	2.15E-04
	60	2613.91	6.70E+01	16.37	2.24E-03	2.15E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/15/2017 7:59:00AM

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

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	22.52	1.05E+02	72.75	1.03E+01	1.28E+01	9.44E+01	7.39E+01
	2	62.92	2.39E+02	135.52	4.29E+01	6.03E+00	1.96E+02	1.36E+02
	3	76.35	9.40E+02	170.19	1.67E+01	8.84E+00	9.24E+02	1.70E+02
M	4	87.06	2.15E+02	95.61			2.15E+02	9.56E+01

Analysis Report for 1707082-08

HTC-A01-S005-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	5	92.72	4.01E+02	127.29	6.90E+01	7.61E+00	3.32E+02	1.28E+02
	6	100.75	6.09E+01	69.25			6.09E+01	6.93E+01
	7	111.57	8.42E+01	76.29			8.42E+01	7.63E+01
	8	128.99	1.01E+02	86.69			1.01E+02	8.67E+01
	9	143.68	1.34E+02	96.36			1.34E+02	9.64E+01
	10	186.66	2.36E+02	93.81	2.99E+01	5.81E+00	2.06E+02	9.40E+01
	11	209.81	7.65E+01	64.58			7.65E+01	6.46E+01
M	12	235.30	4.60E+01	22.96			4.60E+01	2.30E+01
m	13	239.09	8.28E+02	76.07	9.49E+00	5.63E+00	8.18E+02	7.63E+01
m	14	242.19	1.66E+02	79.84			1.66E+02	7.98E+01
M	15	295.44	2.37E+02	51.19			2.37E+02	5.12E+01
m	16	300.14	5.33E+01	44.59			5.33E+01	4.46E+01
M	17	321.90	3.12E+01	27.78			3.12E+01	2.78E+01
m	18	329.61	5.01E+01	39.36			5.01E+01	3.94E+01
	19	338.53	1.69E+02	64.68	4.73E+00	4.47E+00	1.64E+02	6.48E+01
	20	352.20	4.51E+02	57.91			4.51E+02	5.79E+01
	21	510.96	1.38E+02	50.71	5.37E+01	4.54E+00	8.38E+01	5.09E+01
	22	583.28	2.16E+02	48.90			2.16E+02	4.89E+01
	23	609.38	3.06E+02	52.01	4.09E+00	3.07E+00	3.02E+02	5.21E+01
	24	727.39	4.18E+01	38.47			4.18E+01	3.85E+01
M	25	768.14	4.06E+01	25.96			4.06E+01	2.60E+01
m	26	771.14	1.67E+01	25.18			1.67E+01	2.52E+01
	27	785.78	3.00E+01	20.49			3.00E+01	2.05E+01
	28	795.01	2.85E+01	25.75			2.85E+01	2.58E+01
	29	860.69	3.76E+01	32.58			3.76E+01	3.26E+01
M	30	911.19	1.48E+02	31.52			1.48E+02	3.15E+01
m	31	916.98	1.56E+01	18.03			1.56E+01	1.80E+01
	32	927.57	2.05E+01	17.17			2.05E+01	1.72E+01
	33	934.85	1.62E+01	20.90			1.62E+01	2.09E+01
	34	950.08	1.58E+01	20.41			1.58E+01	2.04E+01
	35	968.40	1.11E+02	36.80			1.11E+02	3.68E+01
	36	1043.01	1.95E+01	20.88			1.95E+01	2.09E+01
	37	1054.19	2.58E+01	26.40			2.58E+01	2.64E+01
	38	1068.49	2.16E+01	26.02			2.16E+01	2.60E+01
M	39	1114.05	1.66E+01	9.95			1.66E+01	9.95E+00
m	40	1120.29	7.07E+01	26.00			7.07E+01	2.60E+01
	41	1236.97	3.06E+01	33.38			3.06E+01	3.34E+01
	42	1301.79	3.22E+01	21.95			3.22E+01	2.20E+01
	43	1376.88	1.91E+01	15.78			1.91E+01	1.58E+01
	44	1382.88	9.30E+00	9.33			9.30E+00	9.33E+00
	45	1460.59	5.91E+02	52.97			5.91E+02	5.30E+01
	46	1485.51	6.00E+00	4.90			6.00E+00	4.90E+00
	47	1514.08	9.27E+00	7.87			9.27E+00	7.87E+00
	48	1537.14	1.46E+01	12.02			1.46E+01	1.20E+01
M	49	1619.48	1.21E+01	6.63			1.21E+01	6.63E+00
m	50	1623.43	8.69E+00	9.80			8.69E+00	9.80E+00
	51	1636.86	4.50E+00	6.36			4.50E+00	6.36E+00
	52	1683.16	1.20E+01	6.93			1.20E+01	6.93E+00
	53	1764.17	4.94E+01	16.75			4.94E+01	1.67E+01
	54	1857.99	4.67E+00	5.74			4.67E+00	5.74E+00
	55	1956.21	4.58E+00	5.74			4.58E+00	5.74E+00
	56	2103.54	1.90E+01	8.72			1.90E+01	8.72E+00
	57	2118.11	1.10E+01	6.63			1.10E+01	6.63E+00
	58	2163.24	6.00E+00	4.90			6.00E+00	4.90E+00

Analysis Report for 1707082-08

HTC-A01-S005-1218-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
59	2203.16	2.30E+01	9.59			2.30E+01	9.59E+00
60	2613.91	6.70E+01	16.37			6.70E+01	1.64E+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 : 8/15/2017 7:59:00AM

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

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	22.52	1.05E+02	72.75	1.03E+01	1.28E+01	9.44E+01	7.39E+01
	2	62.92	2.39E+02	135.52	4.29E+01	6.03E+00	1.96E+02	1.36E+02
	3	76.35	9.40E+02	170.19	1.67E+01	8.84E+00	9.24E+02	1.70E+02
M	4	87.06	2.15E+02	95.61			2.15E+02	9.56E+01
m	5	92.72	4.01E+02	127.29	6.90E+01	7.61E+00	3.32E+02	1.28E+02
	6	100.75	6.09E+01	69.25			6.09E+01	6.93E+01
	7	111.57	8.42E+01	76.29			8.42E+01	7.63E+01
	8	128.99	1.01E+02	86.69			1.01E+02	8.67E+01
	9	143.68	1.34E+02	96.36			1.34E+02	9.64E+01
	10	186.66	2.36E+02	93.81	2.99E+01	5.81E+00	2.06E+02	9.40E+01
	11	209.81	7.65E+01	64.58			7.65E+01	6.46E+01
M	12	235.30	4.60E+01	22.96			4.60E+01	2.30E+01
m	13	239.09	8.28E+02	76.07	9.49E+00	5.63E+00	8.18E+02	7.63E+01
m	14	242.19	1.66E+02	79.84			1.66E+02	7.98E+01
M	15	295.44	2.37E+02	51.19			2.37E+02	5.12E+01
m	16	300.14	5.33E+01	44.59			5.33E+01	4.46E+01
M	17	321.90	3.12E+01	27.78			3.12E+01	2.78E+01
m	18	329.61	5.01E+01	39.36			5.01E+01	3.94E+01
	19	338.53	1.69E+02	64.68	4.73E+00	4.47E+00	1.64E+02	6.48E+01
	20	352.20	4.51E+02	57.91			4.51E+02	5.79E+01
	21	510.96	1.38E+02	50.71	5.37E+01	4.54E+00	8.38E+01	5.09E+01
	22	583.28	2.16E+02	48.90			2.16E+02	4.89E+01
	23	609.38	3.06E+02	52.01	4.09E+00	3.07E+00	3.02E+02	5.21E+01
	24	727.39	4.18E+01	38.47			4.18E+01	3.85E+01
M	25	768.14	4.06E+01	25.96			4.06E+01	2.60E+01
m	26	771.14	1.67E+01	25.18			1.67E+01	2.52E+01

Analysis Report for 1707082-08

HTC-A01-S005-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	27	785.78	3.00E+01	20.49			3.00E+01	2.05E+01
	28	795.01	2.85E+01	25.75			2.85E+01	2.58E+01
	29	860.69	3.76E+01	32.58			3.76E+01	3.26E+01
M	30	911.19	1.48E+02	31.52			1.48E+02	3.15E+01
m	31	916.98	1.56E+01	18.03			1.56E+01	1.80E+01
	32	927.57	2.05E+01	17.17			2.05E+01	1.72E+01
	33	934.85	1.62E+01	20.90			1.62E+01	2.09E+01
	34	950.08	1.58E+01	20.41			1.58E+01	2.04E+01
	35	968.40	1.11E+02	36.80			1.11E+02	3.68E+01
	36	1043.01	1.95E+01	20.88			1.95E+01	2.09E+01
	37	1054.19	2.58E+01	26.40			2.58E+01	2.64E+01
	38	1068.49	2.16E+01	26.02			2.16E+01	2.60E+01
M	39	1114.05	1.66E+01	9.95			1.66E+01	9.95E+00
m	40	1120.29	7.07E+01	26.00			7.07E+01	2.60E+01
	41	1236.97	3.06E+01	33.38			3.06E+01	3.34E+01
	42	1301.79	3.22E+01	21.95			3.22E+01	2.20E+01
	43	1376.88	1.91E+01	15.78			1.91E+01	1.58E+01
	44	1382.88	9.30E+00	9.33			9.30E+00	9.33E+00
	45	1460.59	5.91E+02	52.97			5.91E+02	5.30E+01
	46	1485.51	6.00E+00	4.90			6.00E+00	4.90E+00
	47	1514.08	9.27E+00	7.87			9.27E+00	7.87E+00
	48	1537.14	1.46E+01	12.02			1.46E+01	1.20E+01
M	49	1619.48	1.21E+01	6.63			1.21E+01	6.63E+00
m	50	1623.43	8.69E+00	9.80			8.69E+00	9.80E+00
	51	1636.86	4.50E+00	6.36			4.50E+00	6.36E+00
	52	1683.16	1.20E+01	6.93			1.20E+01	6.93E+00
	53	1764.17	4.94E+01	16.75			4.94E+01	1.67E+01
	54	1857.99	4.67E+00	5.74			4.67E+00	5.74E+00
	55	1956.21	4.58E+00	5.74			4.58E+00	5.74E+00
	56	2103.54	1.90E+01	8.72			1.90E+01	8.72E+00
	57	2118.11	1.10E+01	6.63			1.10E+01	6.63E+00
	58	2163.24	6.00E+00	4.90			6.00E+00	4.90E+00
	59	2203.16	2.30E+01	9.59			2.30E+01	9.59E+00
	60	2613.91	6.70E+01	16.37			6.70E+01	1.64E+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 1707082-08

HTC-A01-S005-1218-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.992	1460.81	*	10.67	1.92E+01	2.38E+00
CD-109	0.859	88.03	*	3.72	2.81E+00	1.28E+00
SN-126	0.959	87.57	*	37.00	2.45E-01	1.11E-01
EU-155	0.333	86.50	*	30.90	3.04E-01	1.38E-01
		105.30		20.70		
TL-208	0.953	583.14	*	30.22	1.12E+00	2.75E-01
		860.37	*	4.48	1.86E+00	1.62E+00
		2614.66	*	35.85	9.58E-01	2.52E-01
BI-212	0.766	727.17	*	11.80	6.77E-01	6.26E-01
		1620.62		2.75		
PB-212	0.968	238.63	*	44.60	1.31E+00	1.63E-01
		300.09	*	3.41	1.35E+00	1.14E+00
BI-214	0.930	609.31	*	46.30	1.06E+00	2.09E-01
		1120.29	*	15.10	1.31E+00	4.93E-01
		1764.49	*	15.80	1.25E+00	4.36E-01
		2204.22		4.98		
PB-214	0.989	295.21	*	19.19	1.05E+00	2.45E-01
		351.92	*	37.19	1.21E+00	1.89E-01
RA-226	0.968	186.21	*	3.28	3.69E+00	6.97E+00
AC-228	0.974	338.32	*	11.40	1.38E+00	5.60E-01
		911.07	*	27.70	1.25E+00	2.83E-01
		969.11	*	16.60	1.64E+00	5.61E-01
TH-234	0.978	63.29	*	3.80	2.44E+00	1.69E+00
NP-237	0.952	86.50	*	12.60	7.20E-01	3.26E-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 7:59:00AM
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	22.52	2.62331E-02	39.11		
	3	76.35	2.56587E-01	9.22		
m	5	92.72	9.22145E-02	19.21	Tol.	GA-67
	6	100.75	1.69083E-02	56.89	Tol.	LU-173
	7	111.57	2.33880E-02	45.30		

Analysis Report for 1707082-08

HTC-A01-S005-1218-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	8	128.99	2.81035E-02	42.85		
	9	143.68	3.72222E-02	35.96	Tol.	U-235
	11	209.81	2.12402E-02	42.23	Tol.	GA-67 CM-243
M	12	235.30	1.27667E-02	24.97	Tol.	TH-227
m	14	242.19	4.61612E-02	24.02		
M	17	321.90	8.67161E-03	44.50		
m	18	329.61	1.39262E-02	39.25		
	21	510.96	2.32835E-02	30.37		
M	25	768.14	1.12756E-02	31.98		
m	26	771.14	4.63595E-03	75.44		
	27	785.78	8.33333E-03	34.16		
	28	795.01	7.92929E-03	45.11	Tol.	CS-134
m	31	916.98	4.34410E-03	57.64		
	32	927.57	5.68403E-03	41.95		
	33	934.85	4.50163E-03	64.48	Sum	
	34	950.08	4.38708E-03	64.63	S-Esc	
	36	1043.01	5.40533E-03	53.65		
	37	1054.19	7.16707E-03	51.16		
	38	1068.49	6.00309E-03	60.20		
M	39	1114.05	4.62263E-03	29.89		
	41	1236.97	8.49227E-03	54.59		
	42	1301.79	8.94636E-03	34.08		
	43	1376.88	5.31810E-03	41.21		
	44	1382.88	2.58333E-03	50.15		
	46	1485.51	1.66667E-03	40.82		
	47	1514.08	2.57576E-03	42.46		
	48	1537.14	4.04762E-03	41.25		
M	49	1619.48	3.35176E-03	27.49		
m	50	1623.43	2.41441E-03	56.36		
	51	1636.86	1.25000E-03	70.71		
	52	1683.16	3.33333E-03	28.87		
	54	1857.99	1.29630E-03	61.55		
	55	1956.21	1.27315E-03	62.67		
	56	2103.54	5.27778E-03	22.94	S-Esc	
	57	2118.11	3.05556E-03	30.15		
	58	2163.24	1.66667E-03	40.82		
	59	2203.16	6.38889E-03	20.85		

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

Analysis Report for 1707082-08

HTC-A01-S005-1218-01

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	0.99	1460.81	*	10.67	1.92E+01	2.38E+00
CD-109	0.85	88.03	*	3.72	2.81E+00	1.28E+00
SN-126	0.95	87.57	*	37.00	2.45E-01	1.11E-01
EU-155	0.33	86.50	*	30.90	3.04E-01	1.38E-01
		105.30		20.70		
TL-208	0.95	583.14	*	30.22	1.12E+00	2.75E-01
		860.37	*	4.48	1.86E+00	1.62E+00
		2614.66	*	35.85	9.58E-01	2.52E-01
BI-212	0.76	727.17	*	11.80	6.77E-01	6.26E-01
		1620.62		2.75		
PB-212	0.96	238.63	*	44.60	1.31E+00	1.63E-01
		300.09	*	3.41	1.35E+00	1.14E+00
BI-214	0.93	609.31	*	46.30	1.06E+00	2.09E-01
		1120.29	*	15.10	1.31E+00	4.93E-01
		1764.49	*	15.80	1.25E+00	4.36E-01
		2204.22		4.98		
PB-214	0.98	295.21	*	19.19	1.05E+00	2.45E-01
		351.92	*	37.19	1.21E+00	1.89E-01
RA-226	0.96	186.21	*	3.28	3.69E+00	6.97E+00
AC-228	0.97	338.32	*	11.40	1.38E+00	5.60E-01
		911.07	*	27.70	1.25E+00	2.83E-01
		969.11	*	16.60	1.64E+00	5.61E-01
TH-234	0.97	63.29	*	3.80	2.44E+00	1.69E+00
NP-237	0.95	86.50	*	12.60	7.20E-01	3.26E-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 1707082-08

HTC-A01-S005-1218-01

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.992	1.92E+01	2.38E+00	
?	CD-109	0.859	2.81E+00	1.28E+00	
?	SN-126	0.959	2.45E-01	1.11E-01	
?	EU-155	0.333	3.04E-01	1.38E-01	
	TL-208	0.953	1.04E+00	1.84E-01	
	BI-212	0.766	6.77E-01	6.26E-01	
	PB-212	0.968	1.31E+00	1.62E-01	
	BI-214	0.930	1.13E+00	1.76E-01	
	PB-214	0.989	1.15E+00	1.50E-01	
	RA-226	0.968	3.69E+00	6.97E+00	
	AC-228	0.974	1.34E+00	2.30E-01	
	TH-234	0.978	2.44E+00	1.69E+00	
?	NP-237	0.952	7.20E-01	3.26E-01	

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

Errors quoted at 2.000sigma

Analysis Report for 1707082-08

HTC-A01-S005-1218-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 7:59:00AM
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	22.52	2.62331E-02	39.11		
	3	76.35	2.56587E-01	9.22		
m	5	92.72	9.22145E-02	19.21	Tol.	GA-67
	6	100.75	1.69083E-02	56.89	Tol.	LU-173
	7	111.57	2.33880E-02	45.30		
	8	128.99	2.81035E-02	42.85		
	9	143.68	3.72222E-02	35.96	Tol.	U-235
	11	209.81	2.12402E-02	42.23	Tol.	GA-67
						CM-243
M	12	235.30	1.27667E-02	24.97	Tol.	TH-227
m	14	242.19	4.61612E-02	24.02		
M	17	321.90	8.67161E-03	44.50		
m	18	329.61	1.39262E-02	39.25		
	21	510.96	2.32835E-02	30.37		
M	25	768.14	1.12756E-02	31.98		
m	26	771.14	4.63595E-03	75.44		
	27	785.78	8.33333E-03	34.16		
	28	795.01	7.92929E-03	45.11	Tol.	CS-134
m	31	916.98	4.34410E-03	57.64		
	32	927.57	5.68403E-03	41.95		
	33	934.85	4.50163E-03	64.48	Sum	
	34	950.08	4.38708E-03	64.63	S-Esc	
	36	1043.01	5.40533E-03	53.65		
	37	1054.19	7.16707E-03	51.16		
	38	1068.49	6.00309E-03	60.20		
M	39	1114.05	4.62263E-03	29.89		
	41	1236.97	8.49227E-03	54.59		
	42	1301.79	8.94636E-03	34.08		
	43	1376.88	5.31810E-03	41.21		
	44	1382.88	2.58333E-03	50.15		
	46	1485.51	1.66667E-03	40.82		
	47	1514.08	2.57576E-03	42.46		
	48	1537.14	4.04762E-03	41.25		
M	49	1619.48	3.35176E-03	27.49		

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	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	50	1623.43	2.41441E-03	56.36		
	51	1636.86	1.25000E-03	70.71		
	52	1683.16	3.33333E-03	28.87		
	54	1857.99	1.29630E-03	61.55		
	55	1956.21	1.27315E-03	62.67		
	56	2103.54	5.27778E-03	22.94	S-Esc	
	57	2118.11	3.05556E-03	30.15		
	58	2163.24	1.66667E-03	40.82		
	59	2203.16	6.38889E-03	20.85		

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	-9.01E-02	2.11E+00	2.11E+00
+	NA-22	1274.54		99.94	-2.07E-02	9.52E-02	9.52E-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	3.32E-03	6.49E-02	6.49E-02
+	K-40	1460.81	*	10.67	1.92E+01	1.21E+00	1.21E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	1.13E-02	6.03E-02	6.03E-02
		78.34		96.00	1.53E-01		7.19E-02
+	SC-46	889.25		99.98	1.54E-01	1.96E-01	1.96E-01
		1120.51		99.99	4.26E-01		3.19E-01
+	V-48	983.52		99.98	-2.60E+00	4.97E+00	4.97E+00
		1312.10		97.50	-4.69E-01		5.70E+00
+	CR-51	320.08		9.83	-5.18E-02	6.34E+00	6.34E+00
+	MN-54	834.83		99.97	-7.78E-02	9.90E-02	9.90E-02
+	CO-56	846.75		99.96	-7.38E-02	1.65E-01	1.65E-01
		1037.75		14.03	2.70E-02		1.38E+00
		1238.25		67.00	1.57E-01		4.25E-01
		1771.40		15.51	-4.35E-01		7.77E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CO-56	2598.48		16.90	4.61E-02	1.65E-01	7.45E-01
+	CO-57	122.06		85.51	-4.43E-03	6.14E-02	6.14E-02
		136.48		10.60	-8.63E-02		5.23E-01
+	CO-58	810.76		99.40	3.97E-02	2.09E-01	2.09E-01
+	FE-59	1099.22		56.50	-7.15E-02	7.24E-01	7.24E-01
		1291.56		43.20	-2.30E-01		9.35E-01
+	CO-60	1173.22		100.00	-2.98E-02	8.34E-02	1.04E-01
		1332.49		100.00	1.17E-02		8.34E-02
+	ZN-65	1115.52		50.75	-5.49E-01	2.42E-01	2.42E-01
+	GA-67	93.31		35.70	1.44E+08	7.60E+07	7.60E+07
		208.95		2.24	8.46E+08		1.37E+09
		300.22		16.00	-4.32E+08		2.14E+08
+	SE-75	121.11		16.70	1.19E-02	1.30E-01	4.25E-01
		136.00		59.20	5.33E-02		1.30E-01
		264.65		59.80	-5.02E-02		1.65E-01
		279.53		25.20	2.58E-01		4.19E-01
		400.65		11.40	4.22E-02		9.92E-01
+	RB-82	776.52		13.00	5.65E-01	6.50E+00	6.50E+00
+	RB-83	520.41		46.00	-2.06E-02	3.00E-01	3.00E-01
		529.64		30.30	-1.18E-02		4.73E-01
		552.65		16.40	2.15E-01		8.94E-01
+	KR-85	513.99		0.43	2.93E+01	2.14E+01	2.14E+01
+	SR-85	513.99		99.27	3.44E-01	2.51E-01	2.51E-01
+	Y-88	898.02		93.40	3.53E-02	1.33E-01	1.43E-01
		1836.01		99.38	-7.99E-02		1.33E-01
+	MO-93	263.06		56.72	3.53E-02	7.22E-02	1.03E-01
		684.67		99.68	-1.59E-03		7.79E-02
		1477.11		99.08	1.56E-02		7.22E-02
+	NB-93M	16.57		9.43	4.12E+01	6.61E+01	6.61E+01
+	NB-94	702.63		100.00	2.35E-02	8.59E-02	8.59E-02
		871.10		100.00	1.14E-02		8.69E-02
+	NB-95	765.79		99.81	8.37E-02	5.93E-01	5.93E-01
+	NB-95M	235.69		25.00	2.25E+07	2.66E+07	2.66E+07
+	ZR-95	724.18		43.70	-1.78E-02	4.13E-01	5.47E-01
		756.72		55.30	-8.89E-02		4.13E-01
+	MO-99	181.06		6.20	1.08E+09	1.23E+10	1.53E+10
		739.58		12.80	-3.25E+08		1.23E+10
		778.00		4.50	3.65E+09		2.75E+10
+	RU-103	497.08		89.00	5.39E-03	3.78E-01	3.78E-01
+	RU-106	621.84		9.80	-1.58E-01	8.75E-01	8.75E-01
+	AG-108M	433.93		89.90	-2.04E-02	6.61E-02	6.61E-02
		614.37		90.40	-1.34E-02		8.43E-02
		722.95		90.50	-1.40E-03		8.33E-02
+	CD-109	88.03	*	3.72	2.81E+00	3.70E+00	3.70E+00
+	AG-110M	657.75		93.14	5.29E-03	1.04E-01	1.04E-01
		677.61		10.53	1.72E-01		9.51E-01
		706.67		16.46	3.46E-01		6.99E-01
		763.93		21.98	2.63E-02		4.88E-01

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		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		AG-110M	884.67		71.63	-2.22E-02	1.04E-01	1.47E-01
			1384.27		23.94	5.41E-02		3.94E-01
+		CD-113M	263.70		0.02	4.73E+01	2.54E+02	2.54E+02
+		SN-113	255.12		1.93	1.53E+00	1.54E-01	5.42E+00
			391.69		64.90	-5.82E-02		1.54E-01
+		TE123M	159.00		84.10	-2.61E-03	9.40E-02	9.40E-02
+		SB-124	602.71		97.87	-8.89E-02	2.06E-01	2.06E-01
			645.85		7.26	2.18E-01		2.89E+00
			722.78		11.10	-3.37E-02		2.00E+00
			1691.02		49.00	1.34E-02		3.51E-01
+		I-125	35.49		6.49	2.48E+00	5.43E+00	5.43E+00
+		SB-125	176.33		6.89	-2.03E-02	2.25E-01	7.16E-01
			427.89		29.33	-1.10E-02		2.25E-01
			463.38		10.35	4.21E-01		7.37E-01
			600.56		17.80	-1.71E-01		4.07E-01
			635.90		11.32	-1.76E-01		6.86E-01
+		SB-126	414.70		83.30	4.30E-01	1.47E+01	1.47E+01
			666.33		99.60	-3.91E+00		1.51E+01
			695.00		99.60	2.98E+00		1.50E+01
			720.50		53.80	-2.48E+00		2.52E+01
+		SN-126	87.57	*	37.00	2.45E-01	3.23E-01	3.23E-01
+		SB-127	473.00		25.00	1.39E+05	4.85E+06	5.68E+06
			685.20		35.70	-9.90E+04		4.85E+06
			783.80		14.70	2.00E+05		1.28E+07
+		I-129	29.78		57.00	1.73E-01	3.63E-01	3.63E-01
			33.60		13.20	8.33E-01		1.04E+00
			39.58		7.52	9.71E-01		1.22E+00
+		I-131	284.30		6.05	-1.81E+03	2.53E+02	2.99E+03
			364.48		81.20	-1.29E+02		2.53E+02
			636.97		7.26	3.75E+02		3.41E+03
			722.89		1.80	-2.34E+02		1.39E+04
+		TE-132	49.72		13.10	-1.88E+08	3.30E+07	2.43E+08
			228.16		88.00	7.18E+06		3.30E+07
+		BA-133	81.00		33.00	-5.32E-01	1.42E-01	1.59E-01
			302.84		17.80	1.27E-01		3.77E-01
			356.01		60.00	-2.42E-02		1.42E-01
+	@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+		XE-133	81.00		38.00	-1.14E+05	3.41E+04	3.41E+04
+		CS-134	563.23		8.38	-3.13E-01	9.11E-02	9.06E-01
			569.32		15.43	2.39E-01		5.31E-01
			604.70		97.60	-1.49E-02		9.11E-02
			795.84		85.40	1.13E-02		1.13E-01
			801.93		8.73	1.01E-01		9.69E-01
+		CS-135	268.24		16.00	3.30E-03	3.78E-01	3.78E-01
+	@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26
	@		1260.41		28.60	1.00E+26		1.00E+26
	@		1678.03		9.54	1.00E+26		1.00E+26
+		CS-136	153.22		7.46	5.89E+01	1.12E+01	8.85E+01
			163.89		4.61	4.30E+01		1.44E+02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CS-136	176.55	13.56	-1.37E+00	1.12E+01	4.84E+01
		273.65	12.66	-3.65E-01		7.04E+01
		340.57	48.50	3.53E+01		2.34E+01
		818.50	99.70	-9.58E-01		1.12E+01
		1048.07	79.60	2.29E+00		1.34E+01
		1235.34	19.70	3.04E+01		8.83E+01
+	CS-137	661.65	85.12	1.68E-02	9.46E-02	9.46E-02
+	LA-138	788.74	34.00	-4.08E-02	1.13E-01	2.43E-01
		1435.80	66.00	-3.66E-02		1.13E-01
+	CE-139	165.85	80.35	-2.34E-03	9.04E-02	9.04E-02
+	BA-140	162.64	6.70	-9.38E+00	4.65E+01	1.12E+02
		304.84	4.50	3.26E+01		2.23E+02
		423.70	3.20	-1.07E+02		3.06E+02
		437.55	2.00	1.09E+02		5.19E+02
		537.32	25.00	-7.08E+00		4.65E+01
+	LA-140	328.77	20.50	5.01E+01	1.53E+01	5.29E+01
		487.03	45.50	8.82E+00		2.46E+01
		815.85	23.50	-1.98E+01		5.30E+01
		1596.49	95.49	3.17E+00		1.53E+01
+	CE-141	145.44	48.40	3.20E-01	7.23E-01	7.23E-01
+	@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26
	@	293.26	42.00	1.00E+26		1.00E+26
	@	664.55	5.20	1.00E+26		1.00E+26
+	CE-144	133.54	10.80	1.15E-01	5.25E-01	5.25E-01
+	PM-144	476.78	42.00	-1.90E-02	8.29E-02	1.82E-01
		618.01	98.60	2.61E-02		8.29E-02
		696.49	99.49	1.11E-02		9.27E-02
+	PM-145	36.85	21.70	2.52E-01	2.63E-01	5.05E-01
		37.36	39.70	-5.03E-02		2.63E-01
		42.30	15.10	-2.91E-01		5.22E-01
		72.40	2.31	-6.16E+00		2.76E+00
+	PM-146	453.90	39.94	1.01E-02	1.58E-01	1.58E-01
		735.90	14.01	-1.55E-03		5.30E-01
		747.13	13.10	-2.09E-01		6.34E-01
+	ND-147	91.11	28.90	-8.88E+00	7.56E+01	7.56E+01
		531.02	13.10	-2.73E+01		1.96E+02
+	PM-149	285.90	3.10	-3.22E+12	1.14E+13	1.14E+13
+	EU-152	121.78	20.50	-1.47E-02	2.04E-01	2.04E-01
		244.69	5.40	1.43E-02		1.28E+00
		344.27	19.13	8.09E-02		3.22E-01
		778.89	9.20	1.57E-01		7.19E-01
		964.01	10.40	-2.09E-01		9.94E-01
		1085.78	7.22	2.13E-01		1.29E+00
		1112.02	9.60	-9.62E-02		9.61E-01
		1407.95	14.94	2.81E-01		5.72E-01
+	GD-153	97.43	31.30	-2.56E-01	1.80E-01	1.80E-01
		103.18	22.20	-9.35E-02		2.50E-01
+	EU-154	123.07	40.50	2.49E-03	1.06E-01	1.06E-01
		723.30	19.70	-6.57E-03		3.90E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-154	873.19		11.50	4.38E-01	1.06E-01	7.84E-01
		996.32		10.30	-2.88E-02		8.30E-01
		1004.76		17.90	-2.90E-02		5.01E-01
		1274.45		35.50	-5.54E-02		2.55E-01
+	EU-155	86.50	*	30.90	3.04E-01	2.09E-01	4.01E-01
		105.30		20.70	4.25E-02		2.09E-01
+	EU-156	811.77		10.40	1.31E+01	5.74E+01	5.74E+01
		1153.47		7.20	1.19E+01		1.05E+02
		1230.71		8.90	2.48E+00		8.99E+01
+	HO-166M	184.41		72.60	1.12E-01	8.32E-02	8.32E-02
		280.45		29.60	-3.36E-02		1.99E-01
		410.94		11.10	3.27E-01		6.05E-01
		711.69		54.10	4.17E-02		1.56E-01
+	TM-171	66.72		0.14	-7.46E+00	4.53E+01	4.53E+01
+	HF-172	67.35		5.31	2.22E-01	4.24E-01	1.18E+00
		125.81		11.30	-2.98E-01		4.24E-01
+	LU-172	181.53		20.60	-2.05E+02	2.67E+03	3.91E+03
		900.72		29.81	1.18E+03		4.33E+03
		1093.66		62.50	9.10E+02		2.67E+03
+	LU-173	100.72		5.24	6.10E-01	3.31E-01	9.46E-01
		272.11		21.20	-2.73E-02		3.31E-01
+	HF-175	343.40		84.00	4.60E-02	1.83E-01	1.83E-01
+	LU-176	88.34		13.30	4.99E-02	5.66E-02	4.35E-01
		201.83		86.00	-8.27E-03		5.66E-02
		306.78		94.00	1.43E-02		6.28E-02
+	HF-181	133.02		41.70	-5.76E-02	3.74E-01	5.13E-01
		345.85		17.20	-1.79E-01		1.53E+00
		482.03		82.80	-4.12E-02		3.74E-01
+	TA-182	67.75		41.20	4.58E-02	2.44E-01	2.44E-01
		1121.30		34.90	9.00E-01		7.40E-01
		1189.05		16.23	-8.81E-03		1.22E+00
		1221.41		26.98	4.15E-02		7.73E-01
		1231.02		11.44	4.66E-02		1.69E+00
+	IR-192	308.46		29.68	1.05E-01	3.16E-01	4.69E-01
		468.07		48.10	-1.51E-01		3.16E-01
+	HG-203	279.19		77.30	3.34E-01	3.30E-01	3.30E-01
+	TL-204	374.74		94.11	-3.82E-02	6.93E-02	6.93E-02
		899.15		99.16	-1.54E-02		7.46E-02
		911.74		91.10	3.41E-01		1.75E-01
+	BI-207	569.67		97.72	4.20E-02	7.70E-02	7.70E-02
		1063.62		74.90	-1.79E-02		1.16E-01
+	TL-208	583.14	*	30.22	1.12E+00	3.87E-02	3.47E-01
		860.37	*	4.48	1.86E+00		2.59E+00
		2614.66	*	35.85	9.58E-01		3.87E-02
+	BI-210M	262.00		45.00	4.91E-02	1.30E-01	1.30E-01
		300.00		23.00	-6.21E-01		3.07E-01
+	PB-210	46.50		4.25	8.20E-01	1.76E+00	1.76E+00
+	PB-211	404.84		2.90	-7.32E-02	2.34E+00	2.34E+00
		831.96		2.90	8.05E-01		2.92E+00

Analysis Report for 1707082-08

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BI-212	727.17	*	11.80	6.77E-01	1.01E+00	1.01E+00
		1620.62		2.75	5.86E-01		3.14E+00
+	PB-212	238.63	*	44.60	1.31E+00	2.15E-01	2.15E-01
		300.09	*	3.41	1.35E+00		3.69E+00
+	BI-214	609.31	*	46.30	1.06E+00	2.34E-01	2.34E-01
		1120.29	*	15.10	1.31E+00		1.40E+00
		1764.49	*	15.80	1.25E+00		4.48E-01
		2204.22		4.98	1.03E+00		2.20E+00
+	PB-214	295.21	*	19.19	1.05E+00	1.80E-01	6.48E-01
		351.92	*	37.19	1.21E+00		1.80E-01
+	RN-219	401.80		6.50	2.44E-01	1.03E+00	1.03E+00
+	RA-223	323.87		3.88	-7.35E-01	1.53E+00	1.53E+00
+	RA-224	240.98		3.95	1.74E+01	3.03E+00	3.03E+00
+	RA-225	40.00		31.00	1.89E+01	2.36E+01	2.36E+01
+	RA-226	186.21	*	3.28	3.69E+00	2.68E+00	2.68E+00
+	TH-227	50.10		8.40	-5.91E-01	7.63E-01	7.63E-01
		236.00		11.50	7.01E-01		8.28E-01
		256.20		6.30	-2.36E-01		9.21E-01
+	AC-228	338.32	*	11.40	1.38E+00	7.11E-01	8.49E-01
		911.07	*	27.70	1.25E+00		7.11E-01
		969.11	*	16.60	1.64E+00		7.75E-01
+	TH-230	48.44		16.90	1.41E-01	4.19E-01	4.19E-01
		62.85		4.60	1.84E+00		1.42E+00
		67.67		0.37	2.89E+00		1.54E+01
+	PA-231	283.67		1.60	6.55E-02	2.87E+00	3.53E+00
		302.67		2.30	9.66E-01		2.87E+00
+	TH-231	25.64		14.70	1.03E+00	8.11E-01	2.76E+00
		84.21		6.40	-4.46E-01		8.11E-01
+	PA-233	311.98		38.60	-5.65E-01	1.62E+00	1.62E+00
+	PA-234	131.20		20.40	1.17E-01	2.36E-01	2.36E-01
		733.99		8.80	-1.23E-01		7.50E-01
		946.00		12.00	-1.02E-01		6.81E-01
+	PA-234M	1001.03		0.92	9.15E+00	1.05E+01	1.05E+01
+	TH-234	63.29	*	3.80	2.44E+00	2.75E+00	2.75E+00
+	U-235	143.76		10.50	4.48E-01	4.66E-01	4.66E-01
		163.35		4.70	2.97E-01		9.93E-01
		205.31		4.70	2.65E-01		1.25E+00
+	NP-237	86.50	*	12.60	7.20E-01	9.49E-01	9.49E-01
+	NP-239	106.10		22.70	3.96E+10	1.95E+11	1.95E+11
		228.18		10.70	1.27E+11		5.86E+11
		277.60		14.10	4.03E+11		4.70E+11
+	AM-241	59.54		35.90	-1.17E-01	1.68E-01	1.68E-01
+	AM-243	74.67		66.00	1.34E-01	1.12E-01	1.12E-01
+	CM-243	209.75		3.29	1.48E+00	4.50E-01	1.94E+00
		228.14		10.60	1.22E-01		5.62E-01
		277.60		14.00	3.86E-01		4.50E-01

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	2.11E+00	2.11E+00	-9.01E-02	9.99E-01
	NA-22	1274.54		99.94	9.52E-02	9.52E-02	-2.07E-02	4.31E-02
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	6.49E-02	6.49E-02	3.32E-03	2.69E-02
+	K-40	1460.81	*	10.67	1.21E+00	1.21E+00	1.92E+01	5.62E-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	6.03E-02	6.03E-02	1.13E-02	2.95E-02
		78.34		96.00	7.19E-02		1.53E-01	3.53E-02
	SC-46	889.25		99.98	1.96E-01	1.96E-01	1.54E-01	9.10E-02
		1120.51		99.99	3.19E-01		4.26E-01	1.51E-01
	V-48	983.52		99.98	4.97E+00	4.97E+00	-2.60E+00	2.28E+00
		1312.10		97.50	5.70E+00		-4.69E-01	2.59E+00
	CR-51	320.08		9.83	6.34E+00	6.34E+00	-5.18E-02	3.04E+00
	MN-54	834.83		99.97	9.90E-02	9.90E-02	-7.78E-02	4.59E-02
	CO-56	846.75		99.96	1.65E-01	1.65E-01	-7.38E-02	7.55E-02
		1037.75		14.03	1.38E+00		2.70E-02	6.34E-01
		1238.25		67.00	4.25E-01		1.57E-01	1.99E-01
		1771.40		15.51	7.77E-01		-4.35E-01	3.08E-01
		2598.48		16.90	7.45E-01		4.61E-02	2.79E-01
	CO-57	122.06		85.51	6.14E-02	6.14E-02	-4.43E-03	2.98E-02
		136.48		10.60	5.23E-01		-8.63E-02	2.54E-01
	CO-58	810.76		99.40	2.09E-01	2.09E-01	3.97E-02	9.74E-02
	FE-59	1099.22		56.50	7.24E-01	7.24E-01	-7.15E-02	3.34E-01
		1291.56		43.20	9.35E-01		-2.30E-01	4.25E-01
	CO-60	1173.22		100.00	1.04E-01	8.34E-02	-2.98E-02	4.78E-02
		1332.49		100.00	8.34E-02		1.17E-02	3.72E-02
	ZN-65	1115.52		50.75	2.42E-01	2.42E-01	-5.49E-01	1.12E-01
	GA-67	93.31		35.70	7.60E+07	7.60E+07	1.44E+08	3.72E+07

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	GA-67	208.95		2.24	1.37E+09	7.60E+07	8.46E+08	6.65E+08
		300.22		16.00	2.14E+08		-4.32E+08	1.03E+08
	SE-75	121.11		16.70	4.25E-01	1.30E-01	1.19E-02	2.06E-01
		136.00		59.20	1.30E-01		5.33E-02	6.31E-02
		264.65		59.80	1.65E-01		-5.02E-02	7.94E-02
		279.53		25.20	4.19E-01		2.58E-01	2.02E-01
		400.65		11.40	9.92E-01		4.22E-02	4.73E-01
	RB-82	776.52		13.00	6.50E+00	6.50E+00	5.65E-01	2.98E+00
	RB-83	520.41		46.00	3.00E-01	3.00E-01	-2.06E-02	1.41E-01
		529.64		30.30	4.73E-01		-1.18E-02	2.23E-01
		552.65		16.40	8.94E-01		2.15E-01	4.21E-01
	KR-85	513.99		0.43	2.14E+01	2.14E+01	2.93E+01	1.03E+01
	SR-85	513.99		99.27	2.51E-01	2.51E-01	3.44E-01	1.20E-01
	Y-88	898.02		93.40	1.43E-01	1.33E-01	3.53E-02	6.52E-02
		1836.01		99.38	1.33E-01		-7.99E-02	5.63E-02
	MO-93	263.06		56.72	1.03E-01	7.22E-02	3.53E-02	4.97E-02
		684.67		99.68	7.79E-02		-1.59E-03	3.64E-02
		1477.11		99.08	7.22E-02		1.56E-02	3.12E-02
	NB-93M	16.57		9.43	6.61E+01	6.61E+01	4.12E+01	3.22E+01
	NB-94	702.63		100.00	8.59E-02	8.59E-02	2.35E-02	4.04E-02
		871.10		100.00	8.69E-02		1.14E-02	4.04E-02
	NB-95	765.79		99.81	5.93E-01	5.93E-01	8.37E-02	2.79E-01
	NB-95M	235.69		25.00	2.66E+07	2.66E+07	2.25E+07	1.30E+07
	ZR-95	724.18		43.70	5.47E-01	4.13E-01	-1.78E-02	2.57E-01
		756.72		55.30	4.13E-01		-8.89E-02	1.93E-01
	MO-99	181.06		6.20	1.53E+10	1.23E+10	1.08E+09	7.42E+09
		739.58		12.80	1.23E+10		-3.25E+08	5.73E+09
		778.00		4.50	2.75E+10		3.65E+09	1.26E+10
	RU-103	497.08		89.00	3.78E-01	3.78E-01	5.39E-03	1.78E-01
	RU-106	621.84		9.80	8.75E-01	8.75E-01	-1.58E-01	4.10E-01
	AG-108M	433.93		89.90	6.61E-02	6.61E-02	-2.04E-02	3.12E-02
		614.37		90.40	8.43E-02		-1.34E-02	3.97E-02
		722.95		90.50	8.33E-02		-1.40E-03	3.88E-02
+	CD-109	88.03	*	3.72	3.70E+00	3.70E+00	2.81E+00	1.83E+00
	AG-110M	657.75		93.14	1.04E-01	1.04E-01	5.29E-03	4.87E-02
		677.61		10.53	9.51E-01		1.72E-01	4.45E-01
		706.67		16.46	6.99E-01		3.46E-01	3.29E-01
		763.93		21.98	4.88E-01		2.63E-02	2.28E-01
		884.67		71.63	1.47E-01		-2.22E-02	6.78E-02
		1384.27		23.94	3.94E-01		5.41E-02	1.73E-01
	CD-113M	263.70		0.02	2.54E+02	2.54E+02	4.73E+01	1.22E+02
	SN-113	255.12		1.93	5.42E+00	1.54E-01	1.53E+00	2.62E+00
		391.69		64.90	1.54E-01		-5.82E-02	7.32E-02
	TE123M	159.00		84.10	9.40E-02	9.40E-02	-2.61E-03	4.56E-02
	SB-124	602.71		97.87	2.06E-01	2.06E-01	-8.89E-02	9.62E-02
		645.85		7.26	2.89E+00		2.18E-01	1.35E+00
		722.78		11.10	2.00E+00		-3.37E-02	9.34E-01
		1691.02		49.00	3.51E-01		1.34E-02	1.44E-01
	I-125	35.49		6.49	5.43E+00	5.43E+00	2.48E+00	2.64E+00
	SB-125	176.33		6.89	7.16E-01	2.25E-01	-2.03E-02	3.46E-01
		427.89		29.33	2.25E-01		-1.10E-02	1.07E-01
		463.38		10.35	7.37E-01		4.21E-01	3.51E-01
		600.56		17.80	4.07E-01		-1.71E-01	1.90E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	SB-125	635.90		11.32	6.86E-01	2.25E-01	-1.76E-01	3.22E-01
	SB-126	414.70		83.30	1.47E+01	1.47E+01	4.30E-01	7.00E+00
		666.33		99.60	1.51E+01		-3.91E+00	7.09E+00
		695.00		99.60	1.50E+01		2.98E+00	7.04E+00
		720.50		53.80	2.52E+01		-2.48E+00	1.17E+01
+	SN-126	87.57	*	37.00	3.23E-01	3.23E-01	2.45E-01	1.60E-01
	SB-127	473.00		25.00	5.68E+06	4.85E+06	1.39E+05	2.68E+06
		685.20		35.70	4.85E+06		-9.90E+04	2.27E+06
		783.80		14.70	1.28E+07		2.00E+05	6.00E+06
	I-129	29.78		57.00	3.63E-01	3.63E-01	1.73E-01	1.77E-01
		33.60		13.20	1.04E+00		8.33E-01	5.04E-01
		39.58		7.52	1.22E+00		9.71E-01	5.91E-01
	I-131	284.30		6.05	2.99E+03	2.53E+02	-1.81E+03	1.43E+03
		364.48		81.20	2.53E+02		-1.29E+02	1.21E+02
		636.97		7.26	3.41E+03		3.75E+02	1.60E+03
		722.89		1.80	1.39E+04		-2.34E+02	6.49E+03
	TE-132	49.72		13.10	2.43E+08	3.30E+07	-1.88E+08	1.18E+08
		228.16		88.00	3.30E+07		7.18E+06	1.60E+07
	BA-133	81.00		33.00	1.59E-01	1.42E-01	-5.32E-01	7.75E-02
		302.84		17.80	3.77E-01		1.27E-01	1.82E-01
		356.01		60.00	1.42E-01		-2.42E-02	6.85E-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	3.41E+04	3.41E+04	-1.14E+05	1.67E+04
	CS-134	563.23		8.38	9.06E-01	9.11E-02	-3.13E-01	4.26E-01
		569.32		15.43	5.31E-01		2.39E-01	2.51E-01
		604.70		97.60	9.11E-02		-1.49E-02	4.31E-02
		795.84		85.40	1.13E-01		1.13E-02	5.29E-02
		801.93		8.73	9.69E-01		1.01E-01	4.49E-01
	CS-135	268.24		16.00	3.78E-01	3.78E-01	3.30E-03	1.83E-01
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	8.85E+01	1.12E+01	5.89E+01	4.29E+01
		163.89		4.61	1.44E+02		4.30E+01	6.97E+01
		176.55		13.56	4.84E+01		-1.37E+00	2.34E+01
		273.65		12.66	7.04E+01		-3.65E-01	3.40E+01
		340.57		48.50	2.34E+01		3.53E+01	1.13E+01
		818.50		99.70	1.12E+01		-9.58E-01	5.21E+00
		1048.07		79.60	1.34E+01		2.29E+00	6.08E+00
		1235.34		19.70	8.83E+01		3.04E+01	4.12E+01
	CS-137	661.65		85.12	9.46E-02	9.46E-02	1.68E-02	4.45E-02
	LA-138	788.74		34.00	2.43E-01	1.13E-01	-4.08E-02	1.13E-01
		1435.80		66.00	1.13E-01		-3.66E-02	4.97E-02
	CE-139	165.85		80.35	9.04E-02	9.04E-02	-2.34E-03	4.37E-02
	BA-140	162.64		6.70	1.12E+02	4.65E+01	-9.38E+00	5.44E+01
		304.84		4.50	2.23E+02		3.26E+01	1.07E+02
		423.70		3.20	3.06E+02		-1.07E+02	1.45E+02
		437.55		2.00	5.19E+02		1.09E+02	2.46E+02
		537.32		25.00	4.65E+01		-7.08E+00	2.20E+01
	LA-140	328.77		20.50	5.29E+01	1.53E+01	5.01E+01	2.54E+01
		487.03		45.50	2.46E+01		8.82E+00	1.16E+01
		815.85		23.50	5.30E+01		-1.98E+01	2.45E+01
		1596.49		95.49	1.53E+01		3.17E+00	6.79E+00

Analysis Report for 1707082-08

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CE-141	145.44		48.40	7.23E-01	7.23E-01	3.20E-01	3.51E-01
@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		293.26		42.00	1.00E+26		1.00E+26	1.00E+20
@		664.55		5.20	1.00E+26		1.00E+26	1.00E+20
	CE-144	133.54		10.80	5.25E-01	5.25E-01	1.15E-01	2.55E-01
	PM-144	476.78		42.00	1.82E-01	8.29E-02	-1.90E-02	8.57E-02
		618.01		98.60	8.29E-02		2.61E-02	3.87E-02
		696.49		99.49	9.27E-02		1.11E-02	4.33E-02
	PM-145	36.85		21.70	5.05E-01	2.63E-01	2.52E-01	2.46E-01
		37.36		39.70	2.63E-01		-5.03E-02	1.28E-01
		42.30		15.10	5.22E-01		-2.91E-01	2.54E-01
		72.40		2.31	2.76E+00		-6.16E+00	1.36E+00
	PM-146	453.90		39.94	1.58E-01	1.58E-01	1.01E-02	7.48E-02
		735.90		14.01	5.30E-01		-1.55E-03	2.46E-01
		747.13		13.10	6.34E-01		-2.09E-01	2.96E-01
	ND-147	91.11		28.90	7.56E+01	7.56E+01	-8.88E+00	3.71E+01
		531.02		13.10	1.96E+02		-2.73E+01	9.25E+01
	PM-149	285.90		3.10	1.14E+13	1.14E+13	-3.22E+12	5.47E+12
	EU-152	121.78		20.50	2.04E-01	2.04E-01	-1.47E-02	9.88E-02
		244.69		5.40	1.28E+00		1.43E-02	6.20E-01
		344.27		19.13	3.22E-01		8.09E-02	1.54E-01
		778.89		9.20	7.19E-01		1.57E-01	3.29E-01
		964.01		10.40	9.94E-01		-2.09E-01	4.65E-01
		1085.78		7.22	1.29E+00		2.13E-01	5.94E-01
		1112.02		9.60	9.61E-01		-9.62E-02	4.41E-01
		1407.95		14.94	5.72E-01		2.81E-01	2.55E-01
	GD-153	97.43		31.30	1.80E-01	1.80E-01	-2.56E-01	8.76E-02
		103.18		22.20	2.50E-01		-9.35E-02	1.22E-01
	EU-154	123.07		40.50	1.06E-01	1.06E-01	2.49E-03	5.13E-02
		723.30		19.70	3.90E-01		-6.57E-03	1.82E-01
		873.19		11.50	7.84E-01		4.38E-01	3.65E-01
		996.32		10.30	8.30E-01		-2.88E-02	3.81E-01
		1004.76		17.90	5.01E-01		-2.90E-02	2.31E-01
		1274.45		35.50	2.55E-01		-5.54E-02	1.16E-01
+	EU-155	86.50	*	30.90	4.01E-01	2.09E-01	3.04E-01	1.99E-01
		105.30		20.70	2.09E-01		4.25E-02	1.02E-01
	EU-156	811.77		10.40	5.74E+01	5.74E+01	1.31E+01	2.67E+01
		1153.47		7.20	1.05E+02		1.19E+01	4.87E+01
		1230.71		8.90	8.99E+01		2.48E+00	4.16E+01
	HO-166M	184.41		72.60	8.32E-02	8.32E-02	1.12E-01	4.05E-02
		280.45		29.60	1.99E-01		-3.36E-02	9.59E-02
		410.94		11.10	6.05E-01		3.27E-01	2.88E-01
		711.69		54.10	1.56E-01		4.17E-02	7.34E-02
	TM-171	66.72		0.14	4.53E+01	4.53E+01	-7.46E+00	2.21E+01
	HF-172	67.35		5.31	1.18E+00	4.24E-01	2.22E-01	5.77E-01
		125.81		11.30	4.24E-01		-2.98E-01	2.06E-01
	LU-172	181.53		20.60	3.91E+03	2.67E+03	-2.05E+02	1.89E+03
		900.72		29.81	4.33E+03		1.18E+03	1.99E+03
		1093.66		62.50	2.67E+03		9.10E+02	1.24E+03
	LU-173	100.72		5.24	9.46E-01	3.31E-01	6.10E-01	4.60E-01
		272.11		21.20	3.31E-01		-2.73E-02	1.60E-01
	HF-175	343.40		84.00	1.83E-01	1.83E-01	4.60E-02	8.76E-02
	LU-176	88.34		13.30	4.35E-01	5.66E-02	4.99E-02	2.13E-01

Analysis Report for 1707082-08

HTC-A01-S005-1218-01

	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	5.66E-02	5.66E-02	-8.27E-03	2.73E-02
		306.78		94.00	6.28E-02		1.43E-02	3.01E-02
	HF-181	133.02		41.70	5.13E-01	3.74E-01	-5.76E-02	2.49E-01
		345.85		17.20	1.53E+00		-1.79E-01	7.30E-01
		482.03		82.80	3.74E-01		-4.12E-02	1.77E-01
	TA-182	67.75		41.20	2.44E-01	2.44E-01	4.58E-02	1.19E-01
		1121.30		34.90	7.40E-01		9.00E-01	3.51E-01
		1189.05		16.23	1.22E+00		-8.81E-03	5.66E-01
		1221.41		26.98	7.73E-01		4.15E-02	3.60E-01
		1231.02		11.44	1.69E+00		4.66E-02	7.82E-01
	IR-192	308.46		29.68	4.69E-01	3.16E-01	1.05E-01	2.25E-01
		468.07		48.10	3.16E-01		-1.51E-01	1.49E-01
	HG-203	279.19		77.30	3.30E-01	3.30E-01	3.34E-01	1.59E-01
	TL-204	374.74		94.11	6.93E-02	6.93E-02	-3.82E-02	3.31E-02
		899.15		99.16	7.46E-02		-1.54E-02	3.40E-02
		911.74		91.10	1.75E-01		3.41E-01	8.40E-02
	BI-207	569.67		97.72	7.70E-02	7.70E-02	4.20E-02	3.63E-02
		1063.62		74.90	1.16E-01		-1.79E-02	5.33E-02
+	TL-208	583.14	*	30.22	3.47E-01	3.87E-02	1.12E+00	1.67E-01
		860.37	*	4.48	2.59E+00		1.86E+00	1.23E+00
		2614.66	*	35.85	3.87E-02		9.58E-01	0.00E+00
	BI-210M	262.00		45.00	1.30E-01	1.30E-01	4.91E-02	6.26E-02
		300.00		23.00	3.07E-01		-6.21E-01	1.49E-01
	PB-210	46.50		4.25	1.76E+00	1.76E+00	8.20E-01	8.59E-01
	PB-211	404.84		2.90	2.34E+00	2.34E+00	-7.32E-02	1.12E+00
		831.96		2.90	2.92E+00		8.05E-01	1.36E+00
+	BI-212	727.17	*	11.80	1.01E+00	1.01E+00	6.77E-01	4.83E-01
		1620.62		2.75	3.14E+00		5.86E-01	1.39E+00
+	PB-212	238.63	*	44.60	2.15E-01	2.15E-01	1.31E+00	1.05E-01
		300.09	*	3.41	3.69E+00		1.35E+00	1.81E+00
+	BI-214	609.31	*	46.30	2.34E-01	2.34E-01	1.06E+00	1.12E-01
		1120.29	*	15.10	1.40E+00		1.31E+00	6.76E-01
		1764.49	*	15.80	4.48E-01		1.25E+00	1.90E-01
		2204.22		4.98	2.20E+00		1.03E+00	9.73E-01
+	PB-214	295.21	*	19.19	6.48E-01	1.80E-01	1.05E+00	3.18E-01
		351.92	*	37.19	1.80E-01		1.21E+00	8.66E-02
	RN-219	401.80		6.50	1.03E+00	1.03E+00	2.44E-01	4.92E-01
	RA-223	323.87		3.88	1.53E+00	1.53E+00	-7.35E-01	7.35E-01
	RA-224	240.98		3.95	3.03E+00	3.03E+00	1.74E+01	1.49E+00
	RA-225	40.00		31.00	2.36E+01	2.36E+01	1.89E+01	1.15E+01
+	RA-226	186.21	*	3.28	2.68E+00	2.68E+00	3.69E+00	1.32E+00
	TH-227	50.10		8.40	7.63E-01	7.63E-01	-5.91E-01	3.72E-01
		236.00		11.50	8.28E-01		7.01E-01	4.05E-01
		256.20		6.30	9.21E-01		-2.36E-01	4.44E-01
+	AC-228	338.32	*	11.40	8.49E-01	7.11E-01	1.38E+00	4.13E-01
		911.07	*	27.70	7.11E-01		1.25E+00	3.44E-01
		969.11	*	16.60	7.75E-01		1.64E+00	3.68E-01
	TH-230	48.44		16.90	4.19E-01	4.19E-01	1.41E-01	2.04E-01
		62.85		4.60	1.42E+00		1.84E+00	6.96E-01
		67.67		0.37	1.54E+01		2.89E+00	7.51E+00
	PA-231	283.67		1.60	3.53E+00	2.87E+00	6.55E-02	1.70E+00
		302.67		2.30	2.87E+00		9.66E-01	1.38E+00
	TH-231	25.64		14.70	2.76E+00	8.11E-01	1.03E+00	1.34E+00

Analysis Report for 1707082-08

HTC-A01-S005-1218-01

	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	8.11E-01	8.11E-01	-4.46E-01	3.97E-01
	PA-233	311.98		38.60	1.62E+00	1.62E+00	-5.65E-01	7.75E-01
	PA-234	131.20		20.40	2.36E-01	2.36E-01	1.17E-01	1.15E-01
		733.99		8.80	7.50E-01		-1.23E-01	3.45E-01
		946.00		12.00	6.81E-01		-1.02E-01	3.13E-01
	PA-234M	1001.03		0.92	1.05E+01	1.05E+01	9.15E+00	4.87E+00
+	TH-234	63.29	*	3.80	2.75E+00	2.75E+00	2.44E+00	1.36E+00
	U-235	143.76		10.50	4.66E-01	4.66E-01	4.48E-01	2.26E-01
		163.35		4.70	9.93E-01		2.97E-01	4.81E-01
		205.31		4.70	1.25E+00		2.65E-01	6.05E-01
+	NP-237	86.50	*	12.60	9.49E-01	9.49E-01	7.20E-01	4.70E-01
	NP-239	106.10		22.70	1.95E+11	1.95E+11	3.96E+10	9.49E+10
		228.18		10.70	5.86E+11		1.27E+11	2.84E+11
		277.60		14.10	4.70E+11		4.03E+11	2.27E+11
	AM-241	59.54		35.90	1.68E-01	1.68E-01	-1.17E-01	8.20E-02
	AM-243	74.67		66.00	1.12E-01	1.12E-01	1.34E-01	5.50E-02
	CM-243	209.75		3.29	1.94E+00	4.50E-01	1.48E+00	9.43E-01
		228.14		10.60	5.62E-01		1.22E-01	2.72E-01
		277.60		14.00	4.50E-01		3.86E-01	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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

Analysis Report for 1707082-08

HTC-A01-S005-1218-01

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

Sample Title: HTC-A01-S005-1218-01

Elapsed Live time: 3600
Elapsed Real Time: 3608

Channel								
1:	0	0	0	0	0	0	0	0
9:	7	186	193	176	179	107	119	120
17:	116	72	77	77	89	113	116	118
25:	81	89	93	102	82	88	76	80
33:	66	80	90	103	62	100	86	77
41:	89	90	79	84	85	109	159	111
49:	83	109	102	103	91	118	111	114
57:	127	109	126	139	143	142	165	229
65:	170	130	132	129	152	158	142	153
73:	164	191	276	310	354	381	184	120
81:	115	108	119	110	137	118	180	197
89:	150	150	154	153	216	194	110	107
97:	82	80	75	102	102	90	82	64
105:	85	112	76	70	82	88	78	106
113:	85	82	58	76	69	72	68	67
121:	71	84	68	67	76	73	82	89
129:	97	106	100	72	81	82	75	83
137:	80	57	63	62	79	74	90	92
145:	75	96	63	64	64	61	65	62
153:	80	66	84	46	68	60	60	78
161:	64	70	65	64	58	73	54	54
169:	62	52	77	53	72	43	57	55
177:	49	65	65	57	62	60	61	58
185:	67	148	138	78	66	68	50	53
193:	50	56	50	54	57	57	54	59
201:	62	37	49	56	58	51	52	44
209:	65	103	59	56	48	50	44	45
217:	44	65	35	43	46	44	50	41
225:	41	57	43	44	58	43	37	40
233:	44	38	56	49	64	143	414	322
241:	115	98	105	48	29	40	30	32
249:	33	30	45	49	38	39	33	39
257:	44	26	35	32	35	36	38	39
265:	33	26	31	30	32	45	59	41
273:	28	29	25	42	43	49	27	33
281:	39	26	27	23	27	30	29	22
289:	33	25	31	31	37	42	107	136
297:	59	37	26	54	46	32	35	29
305:	26	24	31	32	25	24	21	23
313:	24	18	30	27	19	23	28	15
321:	26	38	29	23	19	18	23	35
329:	34	48	26	30	21	21	23	24
337:	38	75	82	42	28	23	27	20
345:	23	21	22	16	11	32	72	186
353:	171	47	22	21	8	18	12	26
361:	22	19	25	20	23	22	19	25

369:	27	29	24	21	15	22	29	13

Sample Title: HTC-A01-S005-1218-01

Channel								
377:	29	18	26	24	17	15	18	18
385:	24	22	20	17	15	19	14	18
393:	22	15	9	17	21	17	20	20
401:	19	23	21	25	23	20	20	21
409:	23	25	19	17	19	21	13	14
417:	29	15	11	19	12	14	21	16
425:	13	15	16	21	19	19	10	14
433:	16	10	19	13	19	15	14	15
441:	19	15	17	15	13	11	17	13
449:	16	14	11	12	13	9	19	19
457:	16	18	7	19	17	32	17	25
465:	17	15	9	18	12	16	12	9
473:	21	12	16	10	12	13	17	18
481:	16	13	14	12	15	15	21	16
489:	15	15	11	14	17	13	18	16
497:	13	10	12	10	7	16	13	14
505:	11	7	14	17	16	30	57	48
513:	18	19	13	12	14	10	9	10
521:	12	19	14	12	14	11	9	12
529:	16	6	14	16	17	10	17	17
537:	16	12	12	14	12	16	14	10
545:	18	13	11	16	9	13	6	14
553:	18	9	13	14	3	16	12	13
561:	5	16	14	11	15	12	21	9
569:	16	15	8	18	11	8	8	12
577:	12	6	10	15	19	26	82	99
585:	33	14	6	8	11	11	9	16
593:	9	15	11	14	11	12	14	10
601:	9	5	11	11	16	10	13	39
609:	120	134	29	11	14	7	7	11
617:	9	10	14	9	9	5	7	22
625:	10	12	16	9	14	5	14	10
633:	12	12	10	9	9	12	11	15
641:	10	10	13	6	9	13	13	6
649:	9	11	7	4	10	5	8	12
657:	10	14	7	8	15	13	12	12
665:	18	15	5	10	8	16	9	11
673:	8	13	15	10	11	7	9	15
681:	8	11	7	10	10	11	10	13
689:	11	8	11	9	11	9	11	9
697:	13	11	9	9	10	8	16	12
705:	16	17	12	11	15	10	8	9
713:	10	15	16	10	8	5	10	5
721:	10	9	7	9	10	13	26	23
729:	12	8	5	6	7	8	6	3
737:	11	11	9	11	9	8	9	18
745:	9	6	12	6	7	10	14	13
753:	9	8	14	5	12	11	10	10
761:	14	9	7	8	10	10	11	25
769:	16	10	13	3	9	9	3	6
777:	3	6	6	8	5	6	4	5
785:	19	14	14	4	6	9	9	9
793:	13	5	23	13	9	5	6	10

801:	11	8	11	4	5	7	8	9

Sample Title: HTC-A01-S005-1218-01

Channel								
809:	11	7	8	11	8	8	7	9
817:	4	9	6	7	11	9	6	12
825:	7	11	7	7	10	11	12	6
833:	9	6	8	6	9	11	15	10
841:	7	3	10	6	6	9	11	2
849:	8	0	11	7	4	8	4	4
857:	9	3	10	14	17	8	9	13
865:	6	6	8	8	7	9	10	8
873:	12	6	12	5	3	6	7	12
881:	7	7	6	5	6	7	11	8
889:	6	7	8	15	4	3	7	4
897:	3	5	6	6	7	5	5	9
905:	5	7	10	8	11	23	66	57
913:	12	7	5	3	11	3	5	7
921:	3	7	10	5	0	7	10	12
929:	3	6	2	4	6	9	11	9
937:	9	3	10	6	8	9	6	6
945:	5	7	6	7	8	9	11	3
953:	2	4	8	3	7	9	7	5
961:	9	3	10	12	11	10	15	20
969:	48	28	14	8	5	5	3	10
977:	5	6	9	7	2	7	7	9
985:	5	7	7	7	12	11	6	5
993:	6	8	6	3	3	4	13	6
1001:	8	8	7	12	6	2	9	3
1009:	6	8	9	7	9	3	8	6
1017:	9	8	10	3	4	4	1	4
1025:	5	5	4	4	7	6	1	5
1033:	7	6	8	3	8	7	4	4
1041:	7	7	12	8	6	3	2	5
1049:	7	2	6	8	12	11	5	9
1057:	7	3	5	3	7	5	5	6
1065:	5	8	5	9	8	12	0	5
1073:	7	13	6	5	7	2	7	11
1081:	3	5	7	4	6	3	11	9
1089:	5	8	6	7	8	6	12	6
1097:	7	1	9	7	6	11	4	7
1105:	3	4	7	6	7	5	7	5
1113:	3	11	4	6	9	7	21	34
1121:	25	10	9	8	7	7	7	6
1129:	6	7	2	7	7	4	8	6
1137:	1	3	7	7	7	3	10	5
1145:	5	5	11	10	10	10	9	4
1153:	6	6	6	11	5	4	5	7
1161:	8	4	4	7	8	5	5	11
1169:	10	6	2	9	9	4	9	8
1177:	7	5	8	2	8	7	4	8
1185:	5	9	11	9	7	9	5	8
1193:	5	14	8	5	5	8	11	9
1201:	4	4	8	7	8	7	5	7
1209:	12	10	12	8	15	7	5	4
1217:	12	5	11	12	6	9	10	9
1225:	11	7	7	8	11	4	6	5

1233:	9	9	3	12	15	13	10	10

Sample Title: HTC-A01-S005-1218-01

Channel								
1241:	5	6	7	8	9	6	5	15
1249:	9	7	7	3	5	7	3	2
1257:	10	6	4	2	2	3	5	4
1265:	6	5	5	9	6	4	6	7
1273:	4	2	5	3	4	5	6	7
1281:	5	4	4	4	8	8	5	3
1289:	3	11	5	7	1	4	2	9
1297:	2	2	6	7	12	7	6	6
1305:	5	4	3	3	7	5	2	5
1313:	4	5	5	6	7	0	6	10
1321:	9	3	5	8	5	3	4	1
1329:	4	2	2	4	5	5	1	3
1337:	3	4	5	7	6	3	8	1
1345:	3	0	5	2	2	3	1	1
1353:	4	0	3	8	3	2	4	1
1361:	1	2	4	2	4	4	2	2
1369:	1	4	1	3	2	3	4	6
1377:	3	5	4	0	0	7	1	5
1385:	1	1	2	3	1	2	0	2
1393:	3	1	4	2	2	3	0	2
1401:	1	4	3	2	3	4	6	3
1409:	4	2	1	2	0	4	2	5
1417:	3	3	3	0	3	2	2	3
1425:	4	6	3	0	2	1	3	5
1433:	1	3	3	4	1	3	2	3
1441:	3	0	4	1	2	0	0	3
1449:	1	2	5	3	3	1	2	6
1457:	6	19	89	189	199	87	12	3
1465:	2	2	2	2	1	1	2	3
1473:	0	4	1	2	1	2	1	2
1481:	1	0	0	1	2	3	0	0
1489:	1	2	2	1	1	1	3	2
1497:	1	0	1	0	2	1	1	2
1505:	1	1	1	4	6	1	0	2
1513:	4	1	3	1	0	0	0	3
1521:	2	2	2	3	0	1	0	0
1529:	0	0	0	0	0	2	3	1
1537:	4	4	3	2	1	1	0	2
1545:	1	1	3	1	0	3	3	0
1553:	0	1	3	2	1	2	2	2
1561:	1	2	1	2	2	2	1	1
1569:	0	0	0	3	0	1	2	1
1577:	3	1	1	0	6	3	2	1
1585:	3	4	5	4	4	1	4	4
1593:	6	3	3	1	0	1	2	1
1601:	1	2	0	1	1	1	0	2
1609:	2	0	1	2	0	2	3	0
1617:	0	0	5	5	1	3	1	4
1625:	1	0	1	3	1	2	4	2
1633:	0	1	0	3	3	1	0	1
1641:	1	2	3	0	1	0	1	2
1649:	0	1	1	1	1	0	2	2
1657:	2	1	5	0	2	2	0	1

1665:	3	2	1	0	0	1	2	0

Sample Title: HTC-A01-S005-1218-01

Channel								
1673:	0	0	0	2	2	0	0	1
1681:	0	4	1	6	0	0	0	1
1689:	1	0	1	1	0	3	0	2
1697:	1	0	1	0	0	0	0	1
1705:	1	2	0	2	0	3	1	0
1713:	0	0	1	2	1	1	0	2
1721:	1	0	1	4	1	1	2	2
1729:	3	2	1	0	1	3	3	0
1737:	1	1	1	1	0	0	2	3
1745:	3	2	1	2	0	1	0	3
1753:	2	2	1	1	1	1	1	1
1761:	4	5	10	17	11	3	2	0
1769:	0	0	1	1	0	0	1	1
1777:	3	0	1	3	0	0	2	0
1785:	1	1	1	1	0	1	2	0
1793:	2	1	1	0	1	3	1	2
1801:	3	0	2	0	0	1	0	2
1809:	1	1	2	1	1	0	1	1
1817:	1	1	2	2	0	1	1	1
1825:	0	0	0	1	2	2	2	0
1833:	2	2	0	2	0	2	1	1
1841:	2	3	0	0	1	3	4	0
1849:	1	1	0	1	1	1	0	0
1857:	3	2	1	0	0	1	1	2
1865:	0	1	0	0	0	0	2	1
1873:	0	0	0	1	2	0	0	0
1881:	0	0	0	0	1	1	1	1
1889:	0	1	1	1	1	3	0	1
1897:	1	2	2	1	1	0	0	1
1905:	3	1	0	2	2	1	0	0
1913:	1	0	0	0	1	2	1	2
1921:	1	0	0	2	0	1	2	0
1929:	0	2	0	0	0	0	1	1
1937:	1	1	3	1	1	1	4	0
1945:	0	3	0	0	2	0	0	1
1953:	0	0	2	3	1	0	0	1
1961:	0	1	1	1	1	0	0	0
1969:	3	0	0	1	0	3	0	1
1977:	0	1	0	0	0	2	3	0
1985:	0	1	0	1	0	0	1	0
1993:	0	1	0	0	0	3	2	0
2001:	1	0	0	2	0	0	0	0
2009:	1	0	1	2	0	0	0	1
2017:	1	0	2	2	1	3	1	0
2025:	1	0	0	1	0	0	0	0
2033:	0	0	1	2	1	0	0	0
2041:	0	0	0	2	2	2	2	0
2049:	1	2	2	1	1	2	0	1
2057:	1	0	1	1	1	0	1	0
2065:	1	2	2	1	2	0	0	2
2073:	0	2	0	0	2	0	1	0
2081:	1	2	0	2	0	1	0	3
2089:	0	1	0	2	1	0	2	2

2097:	2	0	0	1	1	3	8	3

Sample Title: HTC-A01-S005-1218-01

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

2529:	0	0	0	0	0	1	0	0

Sample Title: HTC-A01-S005-1218-01

Channel								
2537:	0	1	0	0	1	0	0	0
2545:	0	0	1	2	0	0	0	1
2553:	0	0	0	0	0	1	0	0
2561:	1	0	0	0	0	0	0	0
2569:	1	0	0	1	2	0	0	0
2577:	0	1	0	0	0	0	1	0
2585:	0	1	2	1	0	0	0	0
2593:	0	2	0	0	0	0	0	1
2601:	0	0	0	0	1	1	0	0
2609:	1	0	1	16	18	18	11	2
2617:	0	0	0	0	0	0	0	0
2625:	3	1	1	1	0	0	0	0
2633:	0	0	0	0	0	0	0	0
2641:	0	1	0	0	1	0	0	1
2649:	0	0	1	1	0	0	0	0
2657:	0	1	0	0	0	0	0	0
2665:	0	0	0	0	0	1	0	0
2673:	0	0	1	0	0	0	0	0
2681:	0	0	0	0	1	0	0	0
2689:	0	0	0	2	0	0	0	0
2697:	0	0	0	0	0	0	0	0
2705:	1	1	0	0	0	1	0	1
2713:	1	0	0	0	0	0	0	0
2721:	0	2	1	0	0	0	0	0
2729:	0	0	0	1	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	0	0	0	0	0	0	0
2769:	0	1	0	1	0	0	0	0
2777:	0	0	0	0	0	0	0	1
2785:	0	0	1	0	0	0	0	0
2793:	0	0	0	1	0	0	0	0
2801:	0	0	0	0	1	0	0	0
2809:	0	0	0	0	0	0	0	0
2817:	0	0	0	0	0	0	1	1
2825:	1	1	0	0	0	0	0	0
2833:	0	0	0	1	1	0	1	0
2841:	0	0	0	0	0	0	0	0
2849:	0	0	0	0	0	0	0	0
2857:	0	0	0	0	0	0	0	0
2865:	0	0	0	0	0	0	0	0
2873:	0	0	0	0	0	0	0	0
2881:	0	0	0	0	0	1	0	0
2889:	1	0	1	0	0	0	0	0
2897:	0	0	0	0	0	1	0	0
2905:	0	0	0	1	0	0	0	1
2913:	0	0	0	0	0	0	0	0
2921:	0	0	0	0	0	0	0	0
2929:	0	1	0	0	1	0	0	0
2937:	0	1	1	1	0	1	0	0
2945:	0	1	0	0	0	0	0	0
2953:	0	0	1	2	0	0	0	1

2961:	1	0	0	0	0	0	0	0

Sample Title: HTC-A01-S005-1218-01

Channel								
2969:	0	0	1	0	0	0	0	1
2977:	1	0	1	0	0	0	0	0
2985:	0	0	0	0	0	0	0	0
2993:	0	0	0	0	1	1	0	0
3001:	0	1	1	0	1	0	0	0
3009:	0	0	0	0	0	0	0	0
3017:	0	0	0	0	0	0	0	0
3025:	0	0	1	0	0	0	0	0
3033:	0	1	0	0	0	0	0	1
3041:	0	0	0	1	0	0	0	0
3049:	0	0	0	0	0	0	0	0
3057:	0	0	0	0	1	1	0	0
3065:	0	0	0	0	0	1	0	0
3073:	0	0	0	0	0	0	0	0
3081:	0	0	0	0	0	1	0	0
3089:	0	0	0	0	0	0	0	0
3097:	0	0	0	0	0	0	2	0
3105:	0	0	0	0	0	0	0	0
3113:	0	0	0	0	0	0	1	0
3121:	1	0	0	1	0	0	0	0
3129:	0	0	0	0	0	0	0	0
3137:	0	0	1	0	0	0	0	1
3145:	0	0	0	0	0	0	0	0
3153:	1	0	0	0	0	0	0	0
3161:	0	0	0	0	0	0	0	0
3169:	0	0	0	0	0	0	1	0
3177:	0	0	0	0	0	0	0	0
3185:	0	0	0	0	0	1	0	0
3193:	0	0	1	0	0	0	0	0
3201:	0	0	0	0	0	0	0	0
3209:	0	0	0	0	0	0	0	0
3217:	0	0	0	0	0	0	0	0
3225:	0	0	0	0	0	0	0	0
3233:	0	0	0	0	0	0	0	0
3241:	0	1	0	1	0	0	1	0
3249:	0	0	0	0	0	0	1	0
3257:	0	0	0	0	0	0	0	1
3265:	0	0	0	0	1	0	0	0
3273:	0	0	0	0	0	0	0	0
3281:	0	0	0	0	0	0	0	0
3289:	0	0	0	0	0	0	0	0
3297:	0	0	0	0	0	0	0	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	1	1	0	0	0
3337:	0	1	1	0	0	0	0	0
3345:	0	0	0	1	0	0	1	0
3353:	0	0	0	0	0	0	0	0
3361:	0	0	0	0	1	0	0	0
3369:	0	0	0	0	0	0	2	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: HTC-A01-S005-1218-01

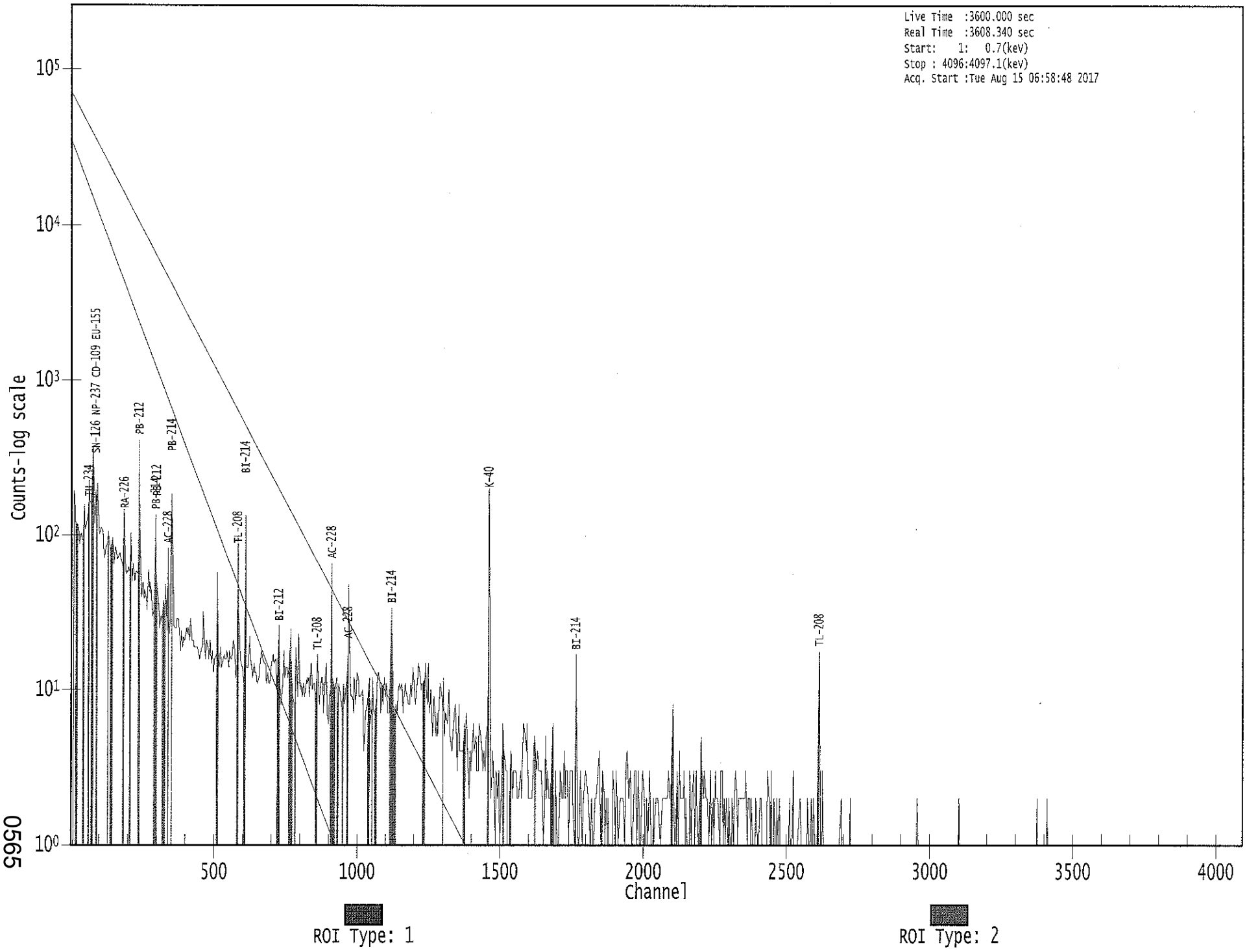
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	2	0	0	0	0	0	0
3417:	0	0	0	0	1	0	0	0
3425:	0	0	1	0	0	0	0	0
3433:	0	0	0	0	1	0	0	1
3441:	0	0	0	0	0	0	0	0
3449:	0	1	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	1	0	0	0
3473:	1	0	0	1	0	0	0	0
3481:	0	0	0	0	1	1	0	0
3489:	1	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S005-1218-01

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:	1	0	0	0	1	0	0	0
3865:	0	0	0	0	0	0	0	0
3873:	0	0	0	1	1	0	0	0
3881:	0	0	0	0	0	0	0	0
3889:	0	0	0	0	0	1	0	0
3897:	0	0	0	0	0	0	0	0
3905:	1	0	1	0	0	0	0	0
3913:	0	1	0	0	0	0	0	0
3921:	0	0	0	0	1	0	0	0
3929:	0	0	0	0	1	0	0	0
3937:	0	0	0	0	0	1	0	0
3945:	0	0	0	0	1	1	0	0
3953:	0	1	0	0	0	0	0	0
3961:	0	1	0	0	0	0	0	0
3969:	0	0	0	0	0	0	0	0
3977:	1	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:	0	0	0	0	0	0	0	0
4009:	0	0	0	0	0	0	0	0
4017:	0	0	0	1	0	0	1	0
4025:	0	0	0	0	0	0	0	0
4033:	0	0	0	0	0	0	0	0
4041:	1	0	0	0	1	0	1	0
4049:	0	0	0	0	0	0	0	0
4057:	0	0	0	0	0	0	0	0
4065:	0	1	0	0	0	0	1	0
4073:	0	0	0	0	0	1	0	0
4081:	0	0	0	0	0	0	0	0
4089:	0	1	0	0	0	0	0	0

0000055235.CNF



0965

Apex-Gamma

BCU

Analysis Report for 1707082-09

HTC-A01-S005-1824-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707082-09
Sample Description	: HTC-A01-S005-1824-01
Sample Type	: SOIL
Sample Size	: 6.720E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 5:47:00AM
Acquisition Started	: 8/15/2017 8:04:23AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3601.5 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	: 55238

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/16/17

Analysis Report for 1707082-09

HTC-A01-S005-1824-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/15/2017 9:04:28AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	74.72	75.31	0.0000	0.00
2	77.16	77.75	0.0000	0.00
3	87.57	88.15	0.0000	0.00
4	92.27	92.85	0.0000	0.00
5	129.04	129.58	0.0000	0.00
6	185.42	185.90	0.0000	0.00
7	209.22	209.67	0.0000	0.00
8	238.55	238.97	0.0000	0.00
9	241.74	242.17	0.0000	0.00
10	291.63	292.00	0.0000	0.00
11	295.28	295.64	0.0000	0.00
12	312.40	312.75	0.0000	0.00
13	326.86	327.20	0.0000	0.00
14	338.23	338.56	0.0000	0.00
15	351.78	352.09	0.0000	0.00
16	462.98	463.18	0.0000	0.00
17	467.81	468.00	0.0000	0.00
18	540.40	540.52	0.0000	0.00
19	583.29	583.37	0.0000	0.00
20	609.38	609.43	0.0000	0.00
21	718.52	718.46	0.0000	0.00
22	727.20	727.13	0.0000	0.00
23	768.85	768.74	0.0000	0.00
24	794.78	794.65	0.0000	0.00
25	804.69	804.54	0.0000	0.00
26	861.07	860.87	0.0000	0.00
27	911.64	911.39	0.0000	0.00
28	933.24	932.97	0.0000	0.00
29	964.97	964.67	0.0000	0.00
30	969.53	969.22	0.0000	0.00
31	1120.59	1120.14	0.0000	0.00
32	1155.11	1154.62	0.0000	0.00
33	1256.80	1256.21	0.0000	0.00
34	1282.07	1281.46	0.0000	0.00
35	1377.60	1376.89	0.0000	0.00
36	1388.41	1387.69	0.0000	0.00
37	1408.17	1407.43	0.0000	0.00
38	1461.37	1460.58	0.0000	0.00
39	1591.35	1590.43	0.0000	0.00
40	1620.91	1619.96	0.0000	0.00
41	1631.87	1630.90	0.0000	0.00
42	1638.51	1637.54	0.0000	0.00

Analysis Report for 1707082-09

HTC-A01-S005-1824-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1662.29	1661.30	0.0000	0.00
44	1668.54	1667.54	0.0000	0.00
45	1695.74	1694.71	0.0000	0.00
46	1707.73	1706.69	0.0000	0.00
47	1730.94	1729.88	0.0000	0.00
48	1761.13	1760.05	0.0000	0.00
49	1764.87	1763.77	0.0000	0.00
50	1844.17	1843.00	0.0000	0.00
51	1847.94	1846.77	0.0000	0.00
52	1936.70	1935.44	0.0000	0.00
53	1962.41	1961.13	0.0000	0.00
54	2104.35	2102.93	0.0000	0.00
55	2118.98	2117.54	0.0000	0.00
56	2171.22	2169.74	0.0000	0.00
57	2190.36	2188.86	0.0000	0.00
58	2204.95	2203.43	0.0000	0.00
59	2219.52	2217.99	0.0000	0.00
60	2448.31	2446.56	0.0000	0.00
61	2498.25	2496.45	0.0000	0.00
62	2615.63	2613.73	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707082-09

HTC-A01-S005-1824-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 9:04:28AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	1	74.72	71 -	83	75.31	5.07E+02	101.08	1.53E+03	1.81
m	2	77.16	71 -	83	77.75	7.47E+02	107.59	1.49E+03	1.82
m	3	87.57	83 -	96	88.15	2.53E+02	81.53	1.19E+03	1.67
m	4	92.27	83 -	96	92.85	3.02E+02	83.71	1.07E+03	1.67
	5	129.04	126 -	133	129.58	1.19E+02	94.06	1.39E+03	1.89
	6	185.42	182 -	190	185.90	2.65E+02	92.52	1.16E+03	1.84
	7	209.22	207 -	213	209.67	8.52E+01	67.10	7.52E+02	1.97
M	8	238.55	235 -	246	238.97	9.34E+02	79.75	5.67E+02	1.60
m	9	241.74	235 -	246	242.17	2.04E+02	79.17	5.24E+02	1.82
M	10	291.63	291 -	302	292.00	2.93E+01	12.14	6.11E+01	1.69
m	11	295.28	291 -	302	295.64	3.71E+02	57.46	3.77E+02	2.05
	12	312.40	309 -	316	312.75	5.65E+01	54.37	4.53E+02	3.19
	13	326.86	323 -	333	327.20	8.30E+01	70.43	6.20E+02	4.98
	14	338.23	335 -	342	338.56	1.48E+02	57.72	4.58E+02	1.93
	15	351.78	347 -	356	352.09	5.10E+02	80.34	6.31E+02	1.45
M	16	462.98	459 -	471	463.18	7.36E+01	34.15	1.67E+02	1.98
m	17	467.81	459 -	471	468.00	2.19E+01	26.49	1.28E+02	1.80
	18	540.40	529 -	553	540.52	1.75E+02	78.35	3.76E+02	20.18
	19	583.29	579 -	588	583.37	3.67E+02	56.14	2.41E+02	1.92
	20	609.38	604 -	614	609.43	4.39E+02	64.72	3.25E+02	2.14
	21	718.52	715 -	722	718.46	2.59E+01	30.00	1.34E+02	2.99
	22	727.20	723 -	732	727.13	8.80E+01	43.16	2.18E+02	2.11
	23	768.85	763 -	774	768.74	5.84E+01	48.41	2.63E+02	1.81
	24	794.78	791 -	798	794.65	4.52E+01	31.18	1.32E+02	3.41
	25	804.69	799 -	814	804.54	6.44E+01	48.99	2.07E+02	8.50
	26	861.07	856 -	865	860.87	3.54E+01	41.44	2.25E+02	2.23
	27	911.64	908 -	914	911.39	1.99E+02	38.54	1.25E+02	1.99
	28	933.24	928 -	938	932.97	3.39E+01	36.57	1.62E+02	2.87
M	29	964.97	962 -	975	964.67	4.42E+01	22.91	6.50E+01	2.69
m	30	969.53	962 -	975	969.22	1.42E+02	31.71	7.26E+01	2.29
	31	1120.59	1115 -	1123	1120.14	7.87E+01	33.69	1.27E+02	1.57
	32	1155.11	1150 -	1158	1154.62	2.90E+01	30.58	1.26E+02	3.74
	33	1256.80	1253 -	1259	1256.21	2.76E+01	24.05	8.09E+01	4.68
	34	1282.07	1279 -	1285	1281.46	1.84E+01	18.43	4.72E+01	3.76
	35	1377.60	1372 -	1381	1376.89	2.44E+01	20.32	4.52E+01	1.72
	36	1388.41	1382 -	1393	1387.69	2.70E+01	19.70	3.19E+01	7.87
	37	1408.17	1405 -	1410	1407.43	1.88E+01	14.46	2.64E+01	1.43
	38	1461.37	1455 -	1467	1460.58	1.11E+03	74.49	1.33E+02	2.28
	39	1591.35	1585 -	1597	1590.43	2.55E+01	20.82	3.90E+01	6.88
	40	1620.91	1617 -	1622	1619.96	2.00E+01	11.09	8.00E+00	1.79

Analysis Report for 1707082-09

HTC-A01-S005-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1631.87	1627 -	1633	1630.90	8.74E+00	11.37	1.65E+01	2.76
	42	1638.51	1634 -	1643	1637.54	1.79E+01	13.38	1.62E+01	4.37
	43	1662.29	1659 -	1663	1661.30	1.09E+01	7.37	2.25E+00	1.40
	44	1668.54	1665 -	1672	1667.54	1.08E+01	8.00	2.42E+00	1.96
	45	1695.74	1691 -	1698	1694.71	7.15E+00	10.00	1.17E+01	0.96
	46	1707.73	1704 -	1709	1706.69	5.63E+00	7.07	4.75E+00	2.48
	47	1730.94	1726 -	1734	1729.88	1.67E+01	13.45	1.65E+01	1.27
M	48	1761.13	1759 -	1769	1760.05	7.19E+00	0.87	2.00E+00	2.50
m	49	1764.87	1759 -	1769	1763.77	7.95E+01	18.99	1.10E+01	2.50
M	50	1844.17	1842 -	1852	1843.00	7.05E+00	4.53	4.52E-01	2.30
m	51	1847.94	1842 -	1852	1846.77	2.20E+01	12.33	8.77E+00	2.53
	52	1936.70	1932 -	1938	1935.44	9.00E+00	6.00	0.00E+00	1.25
	53	1962.41	1959 -	1964	1961.13	8.00E+00	5.66	0.00E+00	2.92
	54	2104.35	2099 -	2106	2102.93	1.90E+01	11.14	8.00E+00	1.55
	55	2118.98	2113 -	2121	2117.54	1.43E+01	12.03	1.35E+01	2.61
	56	2171.22	2165 -	2173	2169.74	8.50E+00	9.62	9.00E+00	2.95
	57	2190.36	2183 -	2195	2188.86	1.37E+01	14.79	1.86E+01	3.57
	58	2204.95	2198 -	2208	2203.43	2.00E+01	15.65	2.20E+01	3.47
	59	2219.52	2214 -	2222	2217.99	1.26E+01	8.96	4.73E+00	1.40
	60	2448.31	2443 -	2450	2446.56	1.03E+01	8.00	3.42E+00	4.56
	61	2498.25	2494 -	2498	2496.45	4.83E+00	5.50	2.33E+00	1.66
	62	2615.63	2609 -	2619	2613.73	1.20E+02	21.91	0.00E+00	2.51

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 9:04:28AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	1	74.72	71 -	83	5.07E+02	101.08	1.53E+03	6.42E+01
m	2	77.16	71 -	83	7.47E+02	107.59	1.49E+03	6.34E+01
m	3	87.57	83 -	96	2.53E+02	81.53	1.19E+03	5.66E+01
m	4	92.27	83 -	96	3.02E+02	83.71	1.07E+03	5.37E+01
	5	129.04	126 -	133	1.19E+02	94.06	1.39E+03	7.52E+01
	6	185.42	182 -	190	2.65E+02	92.52	1.16E+03	7.12E+01

Analysis Report for 1707082-09

HTC-A01-S005-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	7	209.22	207 -	213	8.52E+01	67.10	7.52E+02	5.30E+01
M	8	238.55	235 -	246	9.34E+02	79.75	5.67E+02	3.92E+01
m	9	241.74	235 -	246	2.04E+02	79.17	5.24E+02	3.76E+01
M	10	291.63	291 -	302	2.93E+01	12.14	6.11E+01	1.29E+01
m	11	295.28	291 -	302	3.71E+02	57.46	3.77E+02	3.19E+01
	12	312.40	309 -	316	5.65E+01	54.37	4.53E+02	4.29E+01
	13	326.86	323 -	333	8.30E+01	70.43	6.20E+02	5.59E+01
	14	338.23	335 -	342	1.48E+02	57.72	4.58E+02	4.30E+01
	15	351.78	347 -	356	5.10E+02	80.34	6.31E+02	5.46E+01
M	16	462.98	459 -	471	7.36E+01	34.15	1.67E+02	2.13E+01
m	17	467.81	459 -	471	2.19E+01	26.49	1.28E+02	1.86E+01
	18	540.40	529 -	553	1.75E+02	78.35	3.76E+02	6.06E+01
	19	583.29	579 -	588	3.67E+02	56.14	2.41E+02	3.37E+01
	20	609.38	604 -	614	4.39E+02	64.72	3.25E+02	4.06E+01
	21	718.52	715 -	722	2.59E+01	30.00	1.34E+02	2.32E+01
	22	727.20	723 -	732	8.80E+01	43.16	2.18E+02	3.20E+01
	23	768.85	763 -	774	5.84E+01	48.41	2.63E+02	3.78E+01
	24	794.78	791 -	798	4.52E+01	31.18	1.32E+02	2.31E+01
	25	804.69	799 -	814	6.44E+01	48.99	2.07E+02	3.80E+01
	26	861.07	856 -	865	3.54E+01	41.44	2.25E+02	3.26E+01
	27	911.64	908 -	914	1.99E+02	38.54	1.25E+02	2.16E+01
	28	933.24	928 -	938	3.39E+01	36.57	1.62E+02	2.85E+01
M	29	964.97	962 -	975	4.42E+01	22.91	6.50E+01	1.33E+01
m	30	969.53	962 -	975	1.42E+02	31.71	7.26E+01	1.40E+01
	31	1120.59	1115 -	1123	7.87E+01	33.69	1.27E+02	2.35E+01
	32	1155.11	1150 -	1158	2.90E+01	30.58	1.26E+02	2.35E+01
	33	1256.80	1253 -	1259	2.76E+01	24.05	8.09E+01	1.78E+01
	34	1282.07	1279 -	1285	1.84E+01	18.43	4.72E+01	1.34E+01
	35	1377.60	1372 -	1381	2.44E+01	20.32	4.52E+01	1.46E+01
	36	1388.41	1382 -	1393	2.70E+01	19.70	3.19E+01	1.38E+01
	37	1408.17	1405 -	1410	1.88E+01	14.46	2.64E+01	9.51E+00
	38	1461.37	1455 -	1467	1.11E+03	74.49	1.33E+02	2.74E+01
	39	1591.35	1585 -	1597	2.55E+01	20.82	3.90E+01	1.50E+01
	40	1620.91	1617 -	1622	2.00E+01	11.09	8.00E+00	5.39E+00
	41	1631.87	1627 -	1633	8.74E+00	11.37	1.65E+01	7.98E+00
	42	1638.51	1634 -	1643	1.79E+01	13.38	1.62E+01	8.52E+00
	43	1662.29	1659 -	1663	1.09E+01	7.37	2.25E+00	2.70E+00
	44	1668.54	1665 -	1672	1.08E+01	8.00	2.42E+00	3.75E+00
	45	1695.74	1691 -	1698	7.15E+00	10.00	1.17E+01	6.95E+00
	46	1707.73	1704 -	1709	5.63E+00	7.07	4.75E+00	4.31E+00
	47	1730.94	1726 -	1734	1.67E+01	13.45	1.65E+01	8.78E+00
M	48	1761.13	1759 -	1769	7.19E+00	0.87	2.00E+00	2.33E+00
m	49	1764.87	1759 -	1769	7.95E+01	18.99	1.10E+01	5.45E+00
M	50	1844.17	1842 -	1852	7.05E+00	4.53	4.52E-01	1.10E+00
m	51	1847.94	1842 -	1852	2.20E+01	12.33	8.77E+00	4.87E+00
	52	1936.70	1932 -	1938	9.00E+00	6.00	0.00E+00	0.00E+00
	53	1962.41	1959 -	1964	8.00E+00	5.66	0.00E+00	0.00E+00
	54	2104.35	2099 -	2106	1.90E+01	11.14	8.00E+00	5.70E+00
	55	2118.98	2113 -	2121	1.43E+01	12.03	1.35E+01	7.70E+00
	56	2171.22	2165 -	2173	8.50E+00	9.62	9.00E+00	6.29E+00
	57	2190.36	2183 -	2195	1.37E+01	14.79	1.86E+01	1.05E+01

Analysis Report for 1707082-09

HTC-A01-S005-1824-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
58	2204.95	2198 -	2208	2.00E+01	15.65	2.20E+01	1.06E+01
59	2219.52	2214 -	2222	1.26E+01	8.96	4.73E+00	4.48E+00
60	2448.31	2443 -	2450	1.03E+01	8.00	3.42E+00	3.93E+00
61	2498.25	2494 -	2498	4.83E+00	5.50	2.33E+00	2.72E+00
62	2615.63	2609 -	2619	1.20E+02	21.91	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 : 8/15/2017 9:04:28AM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	1	74.72	71 -	83	75.31	5.07E+02	101.08	1.53E+03	AM-243
m	2	77.16	71 -	83	77.75	7.47E+02	107.59	1.49E+03	.....
m	3	87.57	83 -	96	88.15	2.53E+02	81.53	1.19E+03	SN-126
									CD-109
									LU-176
m	4	92.27	83 -	96	92.85	3.02E+02	83.71	1.07E+03	.....
	5	129.04	126 -	133	129.58	1.19E+02	94.06	1.39E+03	.....
	6	185.42	182 -	190	185.90	2.65E+02	92.52	1.16E+03	RA-226
	7	209.22	207 -	213	209.67	8.52E+01	67.10	7.52E+02	GA-67
									CM-243
M	8	238.55	235 -	246	238.97	9.34E+02	79.75	5.67E+02	PB-212
m	9	241.74	235 -	246	242.17	2.04E+02	79.17	5.24E+02	RA-224
M	10	291.63	291 -	302	292.00	2.93E+01	12.14	6.11E+01	.....
m	11	295.28	291 -	302	295.64	3.71E+02	57.46	3.77E+02	PB-214
	12	312.40	309 -	316	312.75	5.65E+01	54.37	4.53E+02	PA-233
	13	326.86	323 -	333	327.20	8.30E+01	70.43	6.20E+02	.....
	14	338.23	335 -	342	338.56	1.48E+02	57.72	4.58E+02	AC-228
	15	351.78	347 -	356	352.09	5.10E+02	80.34	6.31E+02	PB-214
M	16	462.98	459 -	471	463.18	7.36E+01	34.15	1.67E+02	SB-125
m	17	467.81	459 -	471	468.00	2.19E+01	26.49	1.28E+02	IR-192
	18	540.40	529 -	553	540.52	1.75E+02	78.35	3.76E+02	.....

Analysis Report for 1707082-09

HTC-A01-S005-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	19	583.29	579 -	588	583.37	3.67E+02	56.14	2.41E+02	TL-208
	20	609.38	604 -	614	609.43	4.39E+02	64.72	3.25E+02	BI-214
	21	718.52	715 -	722	718.46	2.59E+01	30.00	1.34E+02	.....
	22	727.20	723 -	732	727.13	8.80E+01	43.16	2.18E+02	BI-212
	23	768.85	763 -	774	768.74	5.84E+01	48.41	2.63E+02	.....
	24	794.78	791 -	798	794.65	4.52E+01	31.18	1.32E+02	.....
	25	804.69	799 -	814	804.54	6.44E+01	48.99	2.07E+02	.....
	26	861.07	856 -	865	860.87	3.54E+01	41.44	2.25E+02	TL-208
	27	911.64	908 -	914	911.39	1.99E+02	38.54	1.25E+02	TL-204 AC-228
	28	933.24	928 -	938	932.97	3.39E+01	36.57	1.62E+02	.....
M	29	964.97	962 -	975	964.67	4.42E+01	22.91	6.50E+01	EU-152
m	30	969.53	962 -	975	969.22	1.42E+02	31.71	7.26E+01	AC-228
	31	1120.59	1115 -	1123	1120.14	7.87E+01	33.69	1.27E+02	SC-46 BI-214 TA-182
	32	1155.11	1150 -	1158	1154.62	2.90E+01	30.58	1.26E+02	.....
	33	1256.80	1253 -	1259	1256.21	2.76E+01	24.05	8.09E+01	.....
	34	1282.07	1279 -	1285	1281.46	1.84E+01	18.43	4.72E+01	.....
	35	1377.60	1372 -	1381	1376.89	2.44E+01	20.32	4.52E+01	.....
	36	1388.41	1382 -	1393	1387.69	2.70E+01	19.70	3.19E+01	.....
	37	1408.17	1405 -	1410	1407.43	1.88E+01	14.46	2.64E+01	EU-152
	38	1461.37	1455 -	1467	1460.58	1.11E+03	74.49	1.33E+02	K-40
	39	1591.35	1585 -	1597	1590.43	2.55E+01	20.82	3.90E+01	.....
	40	1620.91	1617 -	1622	1619.96	2.00E+01	11.09	8.00E+00	BI-212
	41	1631.87	1627 -	1633	1630.90	8.74E+00	11.37	1.65E+01	.....
	42	1638.51	1634 -	1643	1637.54	1.79E+01	13.38	1.62E+01	.....
	43	1662.29	1659 -	1663	1661.30	1.09E+01	7.37	2.25E+00	.....
	44	1668.54	1665 -	1672	1667.54	1.08E+01	8.00	2.42E+00	.....
	45	1695.74	1691 -	1698	1694.71	7.15E+00	10.00	1.17E+01	.....
	46	1707.73	1704 -	1709	1706.69	5.63E+00	7.07	4.75E+00	.....
	47	1730.94	1726 -	1734	1729.88	1.67E+01	13.45	1.65E+01	.....
M	48	1761.13	1759 -	1769	1760.05	7.19E+00	0.87	2.00E+00	.....
m	49	1764.87	1759 -	1769	1763.77	7.95E+01	18.99	1.10E+01	BI-214
M	50	1844.17	1842 -	1852	1843.00	7.05E+00	4.53	4.52E-01	.....
m	51	1847.94	1842 -	1852	1846.77	2.20E+01	12.33	8.77E+00	.....
	52	1936.70	1932 -	1938	1935.44	9.00E+00	6.00	0.00E+00	.....
	53	1962.41	1959 -	1964	1961.13	8.00E+00	5.66	0.00E+00	.....
	54	2104.35	2099 -	2106	2102.93	1.90E+01	11.14	8.00E+00	.....
	55	2118.98	2113 -	2121	2117.54	1.43E+01	12.03	1.35E+01	.....
	56	2171.22	2165 -	2173	2169.74	8.50E+00	9.62	9.00E+00	.....
	57	2190.36	2183 -	2195	2188.86	1.37E+01	14.79	1.86E+01	.....
	58	2204.95	2198 -	2208	2203.43	2.00E+01	15.65	2.20E+01	BI-214
	59	2219.52	2214 -	2222	2217.99	1.26E+01	8.96	4.73E+00	.....
	60	2448.31	2443 -	2450	2446.56	1.03E+01	8.00	3.42E+00	.....
	61	2498.25	2494 -	2498	2496.45	4.83E+00	5.50	2.33E+00	.....
	62	2615.63	2609 -	2619	2613.73	1.20E+02	21.91	0.00E+00	TL-208

Analysis Report for 1707082-09

HTC-A01-S005-1824-01

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/15/2017 9:04:28AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	1	74.72	5.07E+02	101.08	2.75E-02	2.38E-03
m	2	77.16	7.47E+02	107.59	2.75E-02	2.40E-03
m	3	87.57	2.53E+02	81.53	2.74E-02	2.52E-03
m	4	92.27	3.02E+02	83.71	2.73E-02	2.45E-03
	5	129.04	1.19E+02	94.06	2.53E-02	1.94E-03
	6	185.42	2.65E+02	92.52	2.17E-02	1.68E-03
	7	209.22	8.52E+01	67.10	2.04E-02	1.61E-03
M	8	238.55	9.34E+02	79.75	1.89E-02	1.53E-03
m	9	241.74	2.04E+02	79.17	1.87E-02	1.52E-03
M	10	291.63	2.93E+01	12.14	1.66E-02	1.38E-03
m	11	295.28	3.71E+02	57.46	1.64E-02	1.37E-03
	12	312.40	5.65E+01	54.37	1.58E-02	1.33E-03
	13	326.86	8.30E+01	70.43	1.53E-02	1.30E-03
	14	338.23	1.48E+02	57.72	1.50E-02	1.27E-03
	15	351.78	5.10E+02	80.34	1.45E-02	1.24E-03
M	16	462.98	7.36E+01	34.15	1.19E-02	1.10E-03
m	17	467.81	2.19E+01	26.49	1.18E-02	1.10E-03
	18	540.40	1.75E+02	78.35	1.06E-02	1.05E-03
	19	583.29	3.67E+02	56.14	9.96E-03	1.02E-03
	20	609.38	4.39E+02	64.72	9.63E-03	1.01E-03
	21	718.52	2.59E+01	30.00	8.49E-03	8.82E-04
	22	727.20	8.80E+01	43.16	8.41E-03	8.68E-04
	23	768.85	5.84E+01	48.41	8.06E-03	8.02E-04
	24	794.78	4.52E+01	31.18	7.86E-03	7.60E-04
	25	804.69	6.44E+01	48.99	7.79E-03	7.45E-04
	26	861.07	3.54E+01	41.44	7.40E-03	6.55E-04
	27	911.64	1.99E+02	38.54	7.08E-03	5.91E-04
	28	933.24	3.39E+01	36.57	6.96E-03	5.83E-04
M	29	964.97	4.42E+01	22.91	6.79E-03	5.71E-04
m	30	969.53	1.42E+02	31.71	6.76E-03	5.69E-04
	31	1120.59	7.87E+01	33.69	6.07E-03	5.11E-04
	32	1155.11	2.90E+01	30.58	5.94E-03	4.98E-04
	33	1256.80	2.76E+01	24.05	5.58E-03	4.72E-04
	34	1282.07	1.84E+01	18.43	5.50E-03	4.66E-04

Analysis Report for 1707082-09

HTC-A01-S005-1824-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	35	1377.60	2.44E+01	20.32	5.22E-03	4.44E-04
	36	1388.41	2.70E+01	19.70	5.19E-03	4.42E-04
	37	1408.17	1.88E+01	14.46	5.14E-03	4.37E-04
	38	1461.37	1.11E+03	74.49	5.00E-03	4.25E-04
	39	1591.35	2.55E+01	20.82	4.71E-03	3.95E-04
	40	1620.91	2.00E+01	11.09	4.65E-03	3.88E-04
	41	1631.87	8.74E+00	11.37	4.62E-03	3.85E-04
	42	1638.51	1.79E+01	13.38	4.61E-03	3.84E-04
	43	1662.29	1.09E+01	7.37	4.56E-03	3.78E-04
	44	1668.54	1.08E+01	8.00	4.55E-03	3.77E-04
	45	1695.74	7.15E+00	10.00	4.50E-03	3.70E-04
	46	1707.73	5.63E+00	7.07	4.48E-03	3.68E-04
	47	1730.94	1.67E+01	13.45	4.43E-03	3.62E-04
M	48	1761.13	7.19E+00	0.87	4.38E-03	3.55E-04
m	49	1764.87	7.95E+01	18.99	4.37E-03	3.54E-04
M	50	1844.17	7.05E+00	4.53	4.24E-03	3.38E-04
m	51	1847.94	2.20E+01	12.33	4.23E-03	3.38E-04
	52	1936.70	9.00E+00	6.00	4.10E-03	3.38E-04
	53	1962.41	8.00E+00	5.66	4.06E-03	3.38E-04
	54	2104.35	1.90E+01	11.14	3.86E-03	3.38E-04
	55	2118.98	1.43E+01	12.03	3.84E-03	3.38E-04
	56	2171.22	8.50E+00	9.62	3.78E-03	3.38E-04
	57	2190.36	1.37E+01	14.79	3.75E-03	3.38E-04
	58	2204.95	2.00E+01	15.65	3.74E-03	3.38E-04
	59	2219.52	1.26E+01	8.96	3.72E-03	3.38E-04
	60	2448.31	1.03E+01	8.00	3.47E-03	3.38E-04
	61	2498.25	4.83E+00	5.50	3.42E-03	3.38E-04
	62	2615.63	1.20E+02	21.91	3.30E-03	3.38E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/15/2017 9:04:28AM

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.
M	1	74.72	5.07E+02	101.08			5.07E+02	1.01E+02
m	2	77.16	7.47E+02	107.59			7.47E+02	1.08E+02

Analysis Report for 1707082-09

HTC-A01-S005-1824-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	3	87.57	2.53E+02	81.53			2.53E+02	8.15E+01
m	4	92.27	3.02E+02	83.71	1.35E+02	2.05E+01	1.67E+02	8.62E+01
	5	129.04	1.19E+02	94.06			1.19E+02	9.41E+01
	6	185.42	2.65E+02	92.52	4.68E+01	7.65E+00	2.19E+02	9.28E+01
	7	209.22	8.52E+01	67.10			8.52E+01	6.71E+01
M	8	238.55	9.34E+02	79.75	2.06E+01	6.26E+00	9.14E+02	8.00E+01
m	9	241.74	2.04E+02	79.17			2.04E+02	7.92E+01
M	10	291.63	2.93E+01	12.14			2.93E+01	1.21E+01
m	11	295.28	3.71E+02	57.46			3.71E+02	5.75E+01
	12	312.40	5.65E+01	54.37			5.65E+01	5.44E+01
	13	326.86	8.30E+01	70.43			8.30E+01	7.04E+01
	14	338.23	1.48E+02	57.72			1.48E+02	5.77E+01
	15	351.78	5.10E+02	80.34	3.12E+00	4.40E+00	5.07E+02	8.05E+01
M	16	462.98	7.36E+01	34.15			7.36E+01	3.41E+01
m	17	467.81	2.19E+01	26.49			2.19E+01	2.65E+01
	18	540.40	1.75E+02	78.35			1.75E+02	7.84E+01
	19	583.29	3.67E+02	56.14			3.67E+02	5.61E+01
	20	609.38	4.39E+02	64.72	6.00E+00	4.13E+00	4.33E+02	6.49E+01
	21	718.52	2.59E+01	30.00			2.59E+01	3.00E+01
	22	727.20	8.80E+01	43.16			8.80E+01	4.32E+01
	23	768.85	5.84E+01	48.41			5.84E+01	4.84E+01
	24	794.78	4.52E+01	31.18			4.52E+01	3.12E+01
	25	804.69	6.44E+01	48.99			6.44E+01	4.90E+01
	26	861.07	3.54E+01	41.44	3.72E-01	2.26E+00	3.50E+01	4.15E+01
	27	911.64	1.99E+02	38.54	5.15E+00	3.10E+00	1.94E+02	3.87E+01
	28	933.24	3.39E+01	36.57			3.39E+01	3.66E+01
M	29	964.97	4.42E+01	22.91			4.42E+01	2.29E+01
m	30	969.53	1.42E+02	31.71	0.00E+00	0.00E+00	1.42E+02	3.17E+01
	31	1120.59	7.87E+01	33.69			7.87E+01	3.37E+01
	32	1155.11	2.90E+01	30.58			2.90E+01	3.06E+01
	33	1256.80	2.76E+01	24.05			2.76E+01	2.40E+01
	34	1282.07	1.84E+01	18.43			1.84E+01	1.84E+01
	35	1377.60	2.44E+01	20.32			2.44E+01	2.03E+01
	36	1388.41	2.70E+01	19.70			2.70E+01	1.97E+01
	37	1408.17	1.88E+01	14.46			1.88E+01	1.45E+01
	38	1461.37	1.11E+03	74.49	4.04E+00	2.32E+00	1.11E+03	7.45E+01
	39	1591.35	2.55E+01	20.82			2.55E+01	2.08E+01
	40	1620.91	2.00E+01	11.09			2.00E+01	1.11E+01
	41	1631.87	8.74E+00	11.37			8.74E+00	1.14E+01
	42	1638.51	1.79E+01	13.38			1.79E+01	1.34E+01
	43	1662.29	1.09E+01	7.37			1.09E+01	7.37E+00
	44	1668.54	1.08E+01	8.00			1.08E+01	8.00E+00
	45	1695.74	7.15E+00	10.00			7.15E+00	1.00E+01
	46	1707.73	5.63E+00	7.07			5.63E+00	7.07E+00
	47	1730.94	1.67E+01	13.45			1.67E+01	1.35E+01
M	48	1761.13	7.19E+00	0.87			7.19E+00	8.66E-01
m	49	1764.87	7.95E+01	18.99			7.95E+01	1.90E+01
M	50	1844.17	7.05E+00	4.53			7.05E+00	4.53E+00
m	51	1847.94	2.20E+01	12.33			2.20E+01	1.23E+01
	52	1936.70	9.00E+00	6.00			9.00E+00	6.00E+00
	53	1962.41	8.00E+00	5.66			8.00E+00	5.66E+00
	54	2104.35	1.90E+01	11.14			1.90E+01	1.11E+01
	55	2118.98	1.43E+01	12.03			1.43E+01	1.20E+01
	56	2171.22	8.50E+00	9.62			8.50E+00	9.62E+00

Analysis Report for 1707082-09

HTC-A01-S005-1824-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
57	2190.36	1.37E+01	14.79			1.37E+01	1.48E+01
58	2204.95	2.00E+01	15.65			2.00E+01	1.57E+01
59	2219.52	1.26E+01	8.96			1.26E+01	8.96E+00
60	2448.31	1.03E+01	8.00			1.03E+01	8.00E+00
61	2498.25	4.83E+00	5.50			4.83E+00	5.50E+00
62	2615.63	1.20E+02	21.91	6.52E+00	1.61E+00	1.13E+02	2.20E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/15/2017 9:04:28AM

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.
M	1	74.72	5.07E+02	101.08			5.07E+02	1.01E+02
m	2	77.16	7.47E+02	107.59			7.47E+02	1.08E+02
m	3	87.57	2.53E+02	81.53			2.53E+02	8.15E+01
m	4	92.27	3.02E+02	83.71	1.35E+02	2.05E+01	1.67E+02	8.62E+01
	5	129.04	1.19E+02	94.06			1.19E+02	9.41E+01
	6	185.42	2.65E+02	92.52	4.68E+01	7.65E+00	2.19E+02	9.28E+01
	7	209.22	8.52E+01	67.10			8.52E+01	6.71E+01
M	8	238.55	9.34E+02	79.75	2.06E+01	6.26E+00	9.14E+02	8.00E+01
m	9	241.74	2.04E+02	79.17			2.04E+02	7.92E+01
M	10	291.63	2.93E+01	12.14			2.93E+01	1.21E+01
m	11	295.28	3.71E+02	57.46			3.71E+02	5.75E+01
	12	312.40	5.65E+01	54.37			5.65E+01	5.44E+01
	13	326.86	8.30E+01	70.43			8.30E+01	7.04E+01
	14	338.23	1.48E+02	57.72			1.48E+02	5.77E+01
	15	351.78	5.10E+02	80.34	3.12E+00	4.40E+00	5.07E+02	8.05E+01
M	16	462.98	7.36E+01	34.15			7.36E+01	3.41E+01
m	17	467.81	2.19E+01	26.49			2.19E+01	2.65E+01
	18	540.40	1.75E+02	78.35			1.75E+02	7.84E+01
	19	583.29	3.67E+02	56.14			3.67E+02	5.61E+01
	20	609.38	4.39E+02	64.72	6.00E+00	4.13E+00	4.33E+02	6.49E+01
	21	718.52	2.59E+01	30.00			2.59E+01	3.00E+01
	22	727.20	8.80E+01	43.16			8.80E+01	4.32E+01

Analysis Report for 1707082-09

HTC-A01-S005-1824-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	23	768.85	5.84E+01	48.41			5.84E+01	4.84E+01
	24	794.78	4.52E+01	31.18			4.52E+01	3.12E+01
	25	804.69	6.44E+01	48.99			6.44E+01	4.90E+01
	26	861.07	3.54E+01	41.44	3.72E-01	2.26E+00	3.50E+01	4.15E+01
	27	911.64	1.99E+02	38.54	5.15E+00	3.10E+00	1.94E+02	3.87E+01
	28	933.24	3.39E+01	36.57			3.39E+01	3.66E+01
M	29	964.97	4.42E+01	22.91			4.42E+01	2.29E+01
m	30	969.53	1.42E+02	31.71	0.00E+00	0.00E+00	1.42E+02	3.17E+01
	31	1120.59	7.87E+01	33.69			7.87E+01	3.37E+01
	32	1155.11	2.90E+01	30.58			2.90E+01	3.06E+01
	33	1256.80	2.76E+01	24.05			2.76E+01	2.40E+01
	34	1282.07	1.84E+01	18.43			1.84E+01	1.84E+01
	35	1377.60	2.44E+01	20.32			2.44E+01	2.03E+01
	36	1388.41	2.70E+01	19.70			2.70E+01	1.97E+01
	37	1408.17	1.88E+01	14.46			1.88E+01	1.45E+01
	38	1461.37	1.11E+03	74.49	4.04E+00	2.32E+00	1.11E+03	7.45E+01
	39	1591.35	2.55E+01	20.82			2.55E+01	2.08E+01
	40	1620.91	2.00E+01	11.09			2.00E+01	1.11E+01
	41	1631.87	8.74E+00	11.37			8.74E+00	1.14E+01
	42	1638.51	1.79E+01	13.38			1.79E+01	1.34E+01
	43	1662.29	1.09E+01	7.37			1.09E+01	7.37E+00
	44	1668.54	1.08E+01	8.00			1.08E+01	8.00E+00
	45	1695.74	7.15E+00	10.00			7.15E+00	1.00E+01
	46	1707.73	5.63E+00	7.07			5.63E+00	7.07E+00
	47	1730.94	1.67E+01	13.45			1.67E+01	1.35E+01
M	48	1761.13	7.19E+00	0.87			7.19E+00	8.66E-01
m	49	1764.87	7.95E+01	18.99			7.95E+01	1.90E+01
M	50	1844.17	7.05E+00	4.53			7.05E+00	4.53E+00
m	51	1847.94	2.20E+01	12.33			2.20E+01	1.23E+01
	52	1936.70	9.00E+00	6.00			9.00E+00	6.00E+00
	53	1962.41	8.00E+00	5.66			8.00E+00	5.66E+00
	54	2104.35	1.90E+01	11.14			1.90E+01	1.11E+01
	55	2118.98	1.43E+01	12.03			1.43E+01	1.20E+01
	56	2171.22	8.50E+00	9.62			8.50E+00	9.62E+00
	57	2190.36	1.37E+01	14.79			1.37E+01	1.48E+01
	58	2204.95	2.00E+01	15.65			2.00E+01	1.57E+01
	59	2219.52	1.26E+01	8.96			1.26E+01	8.96E+00
	60	2448.31	1.03E+01	8.00			1.03E+01	8.00E+00
	61	2498.25	4.83E+00	5.50			4.83E+00	5.50E+00
	62	2615.63	1.20E+02	21.91	6.52E+00	1.61E+00	1.13E+02	2.20E+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 1707082-09

HTC-A01-S005-1824-01

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	0.950	1460.81	*	10.67	2.31E+01	2.55E+00
CD-109	0.966	88.03	*	3.72	3.19E+00	1.09E+00
SN-126	1.000	87.57	*	37.00	2.79E-01	9.34E-02
IR-192	0.322	308.46		29.68		
		468.07	*	48.10	1.04E-01	1.26E-01
TL-208	0.920	583.14	*	30.22	1.36E+00	2.51E-01
		860.37	*	4.48	1.18E+00	1.40E+00
		2614.66	*	35.85	1.07E+00	2.34E-01
BI-212	0.997	727.17	*	11.80	9.90E-01	4.96E-01
		1620.62	*	2.75	1.75E+00	9.80E-01
PB-212	0.893	238.63	*	44.60	1.21E+00	1.45E-01
		300.09		3.41		
BI-214	0.988	609.31	*	46.30	1.08E+00	1.98E-01
		1120.29	*	15.10	9.59E-01	4.18E-01
		1764.49	*	15.80	1.29E+00	3.24E-01
		2204.22	*	4.98	1.20E+00	9.46E-01
PB-214	0.998	295.21	*	19.19	1.31E+00	2.31E-01
		351.92	*	37.19	1.05E+00	1.89E-01
RA-224	0.911	240.98	*	3.95	3.09E+00	1.22E+00
RA-226	0.905	186.21	*	3.28	3.43E+00	6.44E+00
AC-228	0.966	338.32	*	11.40	9.71E-01	3.87E-01
		911.07	*	27.70	1.10E+00	2.39E-01
		969.11	*	16.60	1.42E+00	3.37E-01
PA-233	0.915	311.98	*	38.60	1.16E+00	1.14E+00
AM-243	1.000	74.67	*	66.00	3.13E-01	6.79E-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 1707082-09

HTC-A01-S005-1824-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 9:04:28AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	2	77.16	2.07370E-01	7.21		
m	4	92.27	4.64276E-02	25.78		
	5	129.04	3.29820E-02	39.61		
	7	209.22	2.36641E-02	39.38	Tol.	GA-67 CM-243
M	10	291.63	8.12984E-03	20.75		
	13	326.86	2.30587E-02	42.42	Sum	
M	16	462.98	2.04322E-02	23.21	Tol.	SB-125
	18	540.40	4.85533E-02	22.41		
	21	718.52	7.19385E-03	57.92		
	23	768.85	1.62310E-02	41.43	Sum	
	24	794.78	1.25663E-02	34.46	Sum	
	25	804.69	1.78902E-02	38.03		
	28	933.24	9.41546E-03	53.94		
M	29	964.97	1.22805E-02	25.91	Sum	
	32	1155.11	8.05556E-03	52.72	Sum	
	33	1256.80	7.65523E-03	43.63		
	34	1282.07	5.10582E-03	50.12	Sum	
	35	1377.60	6.77305E-03	41.67		
	36	1388.41	7.51292E-03	36.41		
	37	1408.17	5.22135E-03	38.46	Tol.	EU-152
	39	1591.35	7.08333E-03	40.82		
	41	1631.87	2.42647E-03	65.07		
	42	1638.51	4.97329E-03	37.36	Sum	
	43	1662.29	3.02083E-03	33.86		
	44	1668.54	2.99769E-03	37.07		
	45	1695.74	1.98718E-03	69.89	Sum	
	46	1707.73	1.56250E-03	62.85	Sum	
	47	1730.94	4.65000E-03	40.18	Sum	
M	48	1761.13	1.99639E-03	6.02		
M	50	1844.17	1.95901E-03	32.10		
m	51	1847.94	6.10901E-03	28.03	Sum	
	52	1936.70	2.50000E-03	33.33		
	53	1962.41	2.22222E-03	35.36		
	54	2104.35	5.27778E-03	29.30	S-Esc	
	55	2118.98	3.96164E-03	42.18		
	56	2171.22	2.36111E-03	56.57		
	57	2190.36	3.80435E-03	54.00		
	59	2219.52	3.50926E-03	35.45		
	60	2448.31	2.85880E-03	38.87		
	61	2498.25	1.34259E-03	56.90		

Analysis Report for 1707082-09

HTC-A01-S005-1824-01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.95	1460.81	*	10.67	2.31E+01	2.55E+00
CD-109	0.96	88.03	*	3.72	3.19E+00	1.09E+00
SN-126	1.00	87.57	*	37.00	2.79E-01	9.34E-02
IR-192	0.32	308.46		29.68		
		468.07	*	48.10	1.04E-01	1.26E-01
TL-208	0.92	583.14	*	30.22	1.36E+00	2.51E-01
		860.37	*	4.48	1.18E+00	1.40E+00
		2614.66	*	35.85	1.07E+00	2.34E-01
BI-212	0.99	727.17	*	11.80	9.90E-01	4.96E-01
		1620.62	*	2.75	1.75E+00	9.80E-01
PB-212	0.89	238.63	*	44.60	1.21E+00	1.45E-01
		300.09		3.41		
BI-214	0.98	609.31	*	46.30	1.08E+00	1.98E-01
		1120.29	*	15.10	9.59E-01	4.18E-01
		1764.49	*	15.80	1.29E+00	3.24E-01
		2204.22	*	4.98	1.20E+00	9.46E-01
PB-214	0.99	295.21	*	19.19	1.31E+00	2.31E-01
		351.92	*	37.19	1.05E+00	1.89E-01
RA-224	0.91	240.98	*	3.95	3.09E+00	1.22E+00
RA-226	0.90	186.21	*	3.28	3.43E+00	6.44E+00
AC-228	0.96	338.32	*	11.40	9.71E-01	3.87E-01
		911.07	*	27.70	1.10E+00	2.39E-01
		969.11	*	16.60	1.42E+00	3.37E-01
PA-233	0.91	311.98	*	38.60	1.16E+00	1.14E+00
AM-243	1.00	74.67	*	66.00	3.13E-01	6.79E-02

Analysis Report for 1707082-09

HTC-A01-S005-1824-01

* = 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	0.950	2.31E+01	2.55E+00	
?	CD-109	0.966	3.19E+00	1.09E+00	
?	SN-126	1.000	2.79E-01	9.34E-02	
	IR-192	0.322	1.04E-01	1.26E-01	
	TL-208	0.920	1.21E+00	1.70E-01	
	BI-212	0.997	1.14E+00	4.43E-01	
	PB-212	0.893	1.21E+00	1.45E-01	
	BI-214	0.988	1.12E+00	1.55E-01	
	PB-214	0.998	1.15E+00	1.46E-01	
	RA-224	0.911	3.09E+00	1.22E+00	
	RA-226	0.905	3.43E+00	6.44E+00	
	AC-228	0.966	1.16E+00	1.74E-01	
	PA-233	0.915	1.16E+00	1.14E+00	
	AM-243	1.000	3.13E-01	6.79E-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 1707082-09

HTC-A01-S005-1824-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 9:04:28AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	2	77.16	2.07370E-01	7.21		
m	4	92.27	4.64276E-02	25.78		
	5	129.04	3.29820E-02	39.61		
	7	209.22	2.36641E-02	39.38	Tol.	GA-67 CM-243
M	10	291.63	8.12984E-03	20.75		
	13	326.86	2.30587E-02	42.42	Sum	
M	16	462.98	2.04322E-02	23.21	Tol.	SB-125
	18	540.40	4.85533E-02	22.41		
	21	718.52	7.19385E-03	57.92		
	23	768.85	1.62310E-02	41.43	Sum	
	24	794.78	1.25663E-02	34.46	Sum	
	25	804.69	1.78902E-02	38.03		
	28	933.24	9.41546E-03	53.94		
M	29	964.97	1.22805E-02	25.91	Sum	
	32	1155.11	8.05556E-03	52.72	Sum	
	33	1256.80	7.65523E-03	43.63		
	34	1282.07	5.10582E-03	50.12	Sum	
	35	1377.60	6.77305E-03	41.67		
	36	1388.41	7.51292E-03	36.41		
	37	1408.17	5.22135E-03	38.46	Tol.	EU-152
	39	1591.35	7.08333E-03	40.82		
	41	1631.87	2.42647E-03	65.07		
	42	1638.51	4.97329E-03	37.36	Sum	
	43	1662.29	3.02083E-03	33.86		
	44	1668.54	2.99769E-03	37.07		
	45	1695.74	1.98718E-03	69.89	Sum	
	46	1707.73	1.56250E-03	62.85	Sum	
	47	1730.94	4.65000E-03	40.18	Sum	
M	48	1761.13	1.99639E-03	6.02		
M	50	1844.17	1.95901E-03	32.10		
m	51	1847.94	6.10901E-03	28.03	Sum	
	52	1936.70	2.50000E-03	33.33		
	53	1962.41	2.22222E-03	35.36		
	54	2104.35	5.27778E-03	29.30	S-Esc	

Analysis Report for 1707082-09

HTC-A01-S005-1824-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
55	2118.98	3.96164E-03	42.18		
56	2171.22	2.36111E-03	56.57		
57	2190.36	3.80435E-03	54.00		
59	2219.52	3.50926E-03	35.45		
60	2448.31	2.85880E-03	38.87		
61	2498.25	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	5.84E-01	1.80E+00	1.80E+00
+	NA-22	1274.54		99.94	2.58E-02	8.59E-02	8.59E-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	8.14E-04	4.13E-02	4.13E-02
+	K-40	1460.81	*	10.67	2.31E+01	1.22E+00	1.22E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-9.85E-05	5.70E-02	5.70E-02
		78.34		96.00	1.89E-01		7.69E-02
+	SC-46	889.25		99.98	-1.03E-02	1.37E-01	1.37E-01
		1120.51		99.99	3.56E-01		2.27E-01
+	V-48	983.52		99.98	4.24E-01	3.81E+00	4.02E+00
		1312.10		97.50	-3.79E-01		3.81E+00
+	CR-51	320.08		9.83	-9.14E-01	5.44E+00	5.44E+00
+	MN-54	834.83		99.97	-4.05E-02	7.77E-02	7.77E-02
+	CO-56	846.75		99.96	-7.36E-02	1.47E-01	1.47E-01
		1037.75		14.03	8.44E-02		1.12E+00
		1238.25		67.00	1.09E-01		3.41E-01
		1771.40		15.51	-2.36E-02		6.86E-01
		2598.48		16.90	-6.84E-02		4.91E-01
+	CO-57	122.06		85.51	-1.50E-02	6.25E-02	6.25E-02
		136.48		10.60	9.20E-02		5.44E-01
+	CO-58	810.76		99.40	-3.82E-02	1.27E-01	1.27E-01

Analysis Report for 1707082-09

HTC-A01-S005-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	FE-59	1099.22		56.50	2.16E-01	5.61E-01	5.61E-01
		1291.56		43.20	-5.22E-02		7.12E-01
+	CO-60	1173.22		100.00	-3.81E-03	7.25E-02	7.39E-02
		1332.49		100.00	2.51E-02		7.25E-02
+	ZN-65	1115.52		50.75	1.04E-01	1.84E-01	1.84E-01
+	GA-67	93.31		35.70	1.12E+08	7.78E+07	7.78E+07
		208.95		2.24	6.70E+08		1.08E+09
		300.22		16.00	-8.38E+06		1.86E+08
+	SE-75	121.11		16.70	-9.72E-02	1.32E-01	4.27E-01
		136.00		59.20	2.23E-02		1.32E-01
		264.65		59.80	-1.02E-01		1.54E-01
		279.53		25.20	2.88E-01		3.84E-01
		400.65		11.40	-2.86E-01		8.02E-01
+	RB-82	776.52		13.00	-6.62E-01	5.75E+00	5.75E+00
+	RB-83	520.41		46.00	6.48E-03	2.51E-01	2.51E-01
		529.64		30.30	-2.09E-02		3.40E-01
		552.65		16.40	8.21E-03		7.01E-01
+	KR-85	513.99		0.43	1.83E+01	1.79E+01	1.79E+01
+	SR-85	513.99		99.27	2.15E-01	2.10E-01	2.10E-01
+	Y-88	898.02		93.40	-1.20E-02	9.17E-02	1.32E-01
		1836.01		99.38	-2.23E-03		9.17E-02
+	MO-93	263.06		56.72	9.11E-03	4.50E-02	9.48E-02
		684.67		99.68	-1.87E-02		5.38E-02
		1477.11		99.08	5.77E-03		4.50E-02
+	NB-93M	16.57		9.43	-1.23E-01	4.64E-01	4.64E-01
+	NB-94	702.63		100.00	-5.58E-02	5.27E-02	6.09E-02
		871.10		100.00	-1.59E-02		5.27E-02
+	NB-95	765.79		99.81	3.53E-01	4.80E-01	4.80E-01
+	NB-95M	235.69		25.00	-1.11E+08	1.72E+07	1.72E+07
+	ZR-95	724.18		43.70	-1.84E-01	3.26E-01	4.51E-01
		756.72		55.30	1.87E-01		3.26E-01
+	MO-99	181.06		6.20	2.15E+09	8.83E+09	1.46E+10
		739.58		12.80	-2.37E+09		8.83E+09
		778.00		4.50	-7.13E+09		2.45E+10
+	RU-103	497.08		89.00	-2.38E-02	3.21E-01	3.21E-01
+	RU-106	621.84		9.80	2.21E-02	6.79E-01	6.79E-01
+	AG-108M	433.93		89.90	1.39E-02	6.11E-02	6.11E-02
		614.37		90.40	4.19E-03		7.62E-02
		722.95		90.50	-1.70E-01		7.00E-02
+	CD-109	88.03	*	3.72	3.19E+00	3.31E+00	3.31E+00
+	AG-110M	657.75		93.14	7.64E-03	8.03E-02	8.03E-02
		677.61		10.53	-3.31E-01		6.88E-01
		706.67		16.46	5.57E-02		5.00E-01
		763.93		21.98	-8.15E-02		3.52E-01
		884.67		71.63	3.35E-02		1.15E-01
		1384.27		23.94	1.13E-01		3.23E-01
+	CD-113M	263.70		0.02	-4.56E+01	2.33E+02	2.33E+02
+	SN-113	255.12		1.93	5.05E-01	1.44E-01	4.03E+00

Analysis Report for 1707082-09

HTC-A01-S005-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SN-113	391.69		64.90	-5.55E-02	1.44E-01	1.44E-01
+	TE123M	159.00		84.10	-2.94E-02	9.00E-02	9.00E-02
+	SB-124	602.71		97.87	4.35E-02	1.92E-01	1.92E-01
		645.85		7.26	1.55E+00		2.34E+00
		722.78		11.10	-4.09E+00		1.68E+00
		1691.02		49.00	1.49E-02		2.11E-01
+	I-125	35.49		6.49	2.47E-01	2.15E+00	2.15E+00
+	SB-125	176.33		6.89	-5.89E-03	1.90E-01	6.93E-01
		427.89		29.33	-8.91E-02		1.90E-01
		463.38		10.35	6.06E-01		6.42E-01
		600.56		17.80	5.65E-02		3.66E-01
		635.90		11.32	-1.20E-01		4.79E-01
+	SB-126	414.70		83.30	-9.52E+00	1.11E+01	1.15E+01
		666.33		99.60	-5.40E+00		1.12E+01
		695.00		99.60	-5.10E+00		1.11E+01
		720.50		53.80	2.90E+00		2.19E+01
+	SN-126	87.57	*	37.00	2.79E-01	2.90E-01	2.90E-01
+	SB-127	473.00		25.00	-2.78E+05	3.38E+06	4.67E+06
		685.20		35.70	-1.17E+06		3.38E+06
		783.80		14.70	3.70E+06		9.91E+06
+	I-129	29.78		57.00	6.51E-02	9.37E-02	9.37E-02
		33.60		13.20	-1.46E-01		3.59E-01
		39.58		7.52	3.14E-02		6.14E-01
+	I-131	284.30		6.05	-2.75E+02	2.00E+02	2.81E+03
		364.48		81.20	-2.20E+01		2.00E+02
		636.97		7.26	-1.92E+02		2.33E+03
		722.89		1.80	-2.85E+04		1.17E+04
+	TE-132	49.72		13.10	-1.87E+08	2.60E+07	1.78E+08
		228.16		88.00	-7.45E+06		2.60E+07
+	BA-133	81.00		33.00	-5.46E-01	1.17E-01	1.63E-01
		302.84		17.80	2.10E-02		3.33E-01
		356.01		60.00	2.92E-02		1.17E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-1.18E+05	3.52E+04	3.52E+04
+	CS-134	563.23		8.38	-2.48E-01	7.86E-02	7.09E-01
		569.32		15.43	-1.51E-01		3.72E-01
		604.70		97.60	3.63E-03		7.86E-02
		795.84		85.40	4.93E-02		9.20E-02
		801.93		8.73	5.44E-01		8.76E-01
+	CS-135	268.24		16.00	3.04E-01	3.60E-01	3.60E-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	-2.09E+00	8.09E+00	8.64E+01
		163.89		4.61	5.08E+01		1.40E+02
		176.55		13.56	-3.99E-01		4.70E+01
		273.65		12.66	-4.03E+01		6.19E+01
		340.57		48.50	1.83E+00		2.01E+01
		818.50		99.70	1.80E+00		8.09E+00

Analysis Report for 1707082-09

HTC-A01-S005-1824-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CS-136	1048.07	79.60	-3.15E+00	8.09E+00	1.22E+01
		1235.34	19.70	2.35E+01		7.02E+01
+	CS-137	661.65	85.12	1.44E-02	7.02E-02	7.02E-02
+	LA-138	788.74	34.00	4.68E-03	9.27E-02	1.71E-01
		1435.80	66.00	3.84E-02		9.27E-02
+	CE-139	165.85	80.35	1.09E-02	9.01E-02	9.01E-02
+	BA-140	162.64	6.70	9.95E+00	3.50E+01	1.10E+02
		304.84	4.50	-7.52E+01		1.86E+02
		423.70	3.20	-1.25E+01		2.79E+02
		437.55	2.00	1.32E+02		4.47E+02
		537.32	25.00	-1.86E+00		3.50E+01
+	LA-140	328.77	20.50	1.24E+01	9.40E+00	4.56E+01
		487.03	45.50	4.50E+00		2.06E+01
		815.85	23.50	-5.06E-01		3.57E+01
		1596.49	95.49	-2.45E-01		9.40E+00
+	CE-141	145.44	48.40	-1.67E-01	6.95E-01	6.95E-01
+	@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26
	@	293.26	42.00	1.00E+26		1.00E+26
	@	664.55	5.20	1.00E+26		1.00E+26
+	CE-144	133.54	10.80	2.35E-02	5.29E-01	5.29E-01
+	PM-144	476.78	42.00	1.21E-02	6.56E-02	1.51E-01
		618.01	98.60	-3.76E-02		6.56E-02
		696.49	99.49	-8.09E-03		7.13E-02
+	PM-145	36.85	21.70	3.57E-03	1.20E-01	2.20E-01
		37.36	39.70	1.64E-02		1.20E-01
		42.30	15.10	-1.71E-01		3.08E-01
		72.40	2.31	-3.39E+00		2.83E+00
+	PM-146	453.90	39.94	4.56E-02	1.38E-01	1.38E-01
		735.90	14.01	-1.04E-01		4.17E-01
		747.13	13.10	2.00E-01		4.98E-01
+	ND-147	91.11	28.90	1.61E+02	8.18E+01	8.18E+01
		531.02	13.10	5.97E+01		1.48E+02
+	PM-149	285.90	3.10	-4.10E+12	1.04E+13	1.04E+13
+	EU-152	121.78	20.50	-4.66E-02	2.05E-01	2.05E-01
		244.69	5.40	-5.21E-01		9.33E-01
		344.27	19.13	-8.55E-03		2.72E-01
		778.89	9.20	9.49E-02		6.38E-01
		964.01	10.40	-1.75E+00		7.47E-01
		1085.78	7.22	6.65E-01		1.12E+00
		1112.02	9.60	1.84E-01		7.25E-01
		1407.95	14.94	9.38E-03		4.34E-01
+	GD-153	97.43	31.30	6.61E-02	1.87E-01	1.87E-01
		103.18	22.20	2.14E-02		2.61E-01
+	EU-154	123.07	40.50	-1.38E-02	1.07E-01	1.07E-01
		723.30	19.70	-7.96E-01		3.28E-01
		873.19	11.50	-1.75E-01		4.60E-01
		996.32	10.30	-2.22E-01		6.67E-01
		1004.76	17.90	2.27E-01		4.19E-01
		1274.45	35.50	6.92E-02		2.30E-01

Analysis Report for 1707082-09

HTC-A01-S005-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	EU-155	86.50		30.90	1.19E-01	1.98E-01	1.98E-01
		105.30		20.70	-1.01E-01		2.21E-01
+	EU-156	811.77		10.40	-8.95E+00	3.69E+01	3.69E+01
		1153.47		7.20	4.49E+01		8.28E+01
		1230.71		8.90	3.16E+01		7.07E+01
+	HO-166M	184.41		72.60	2.07E-01	8.23E-02	8.23E-02
		280.45		29.60	1.01E-01		1.86E-01
		410.94		11.10	2.41E-01		4.86E-01
		711.69		54.10	-4.15E-02		1.02E-01
+	TM-171	66.72		0.14	-8.97E+01	4.18E+01	4.18E+01
+	HF-172	67.35		5.31	-1.92E-03	4.31E-01	1.11E+00
		125.81		11.30	-2.85E-02		4.31E-01
+	LU-172	181.53		20.60	5.50E+02	1.74E+03	3.75E+03
		900.72		29.81	-1.01E+03		3.86E+03
		1093.66		62.50	-9.75E+02		1.74E+03
+	LU-173	100.72		5.24	4.78E-02	3.03E-01	9.62E-01
		272.11		21.20	-5.31E-02		3.03E-01
+	HF-175	343.40		84.00	-4.87E-03	1.54E-01	1.54E-01
+	LU-176	88.34		13.30	-5.05E-03	5.27E-02	4.55E-01
		201.83		86.00	-2.26E-02		5.27E-02
		306.78		94.00	-1.13E-04		5.49E-02
+	HF-181	133.02		41.70	2.25E-02	3.17E-01	5.07E-01
		345.85		17.20	-4.39E-02		1.42E+00
		482.03		82.80	1.23E-01		3.17E-01
+	TA-182	67.75		41.20	-3.98E-04	2.30E-01	2.30E-01
		1121.30		34.90	6.71E-01		5.22E-01
		1189.05		16.23	-2.09E-02		8.89E-01
		1221.41		26.98	-5.91E-02		5.24E-01
		1231.02		11.44	5.94E-01		1.33E+00
+	IR-192	308.46		29.68	-8.91E-03	4.07E-01	4.30E-01
		468.07	*	48.10	1.04E-01		4.07E-01
+	HG-203	279.19		77.30	2.20E-01	2.94E-01	2.94E-01
+	TL-204	374.74		94.11	-4.47E-02	5.50E-02	5.50E-02
		899.15		99.16	-1.74E-02		7.01E-02
		911.74		91.10	3.38E-01		1.41E-01
+	BI-207	569.67		97.72	5.67E-04	5.63E-02	5.63E-02
		1063.62		74.90	7.47E-03		9.89E-02
+	TL-208	583.14	*	30.22	1.36E+00	1.09E-01	2.60E-01
		860.37	*	4.48	1.18E+00		2.30E+00
		2614.66	*	35.85	1.07E+00		1.09E-01
+	BI-210M	262.00		45.00	2.65E-02	1.17E-01	1.17E-01
		300.00		23.00	-7.93E-01		2.74E-01
+	PB-210	46.50		4.25	6.03E-01	1.17E+00	1.17E+00
+	PB-211	404.84		2.90	-8.84E-01	1.84E+00	1.84E+00
		831.96		2.90	-7.40E-01		2.17E+00
+	BI-212	727.17	*	11.80	9.90E-01	7.50E-01	7.50E-01
		1620.62	*	2.75	1.75E+00		1.18E+00
+	PB-212	238.63	*	44.60	1.21E+00	2.15E-01	2.15E-01

Analysis Report for 1707082-09

HTC-A01-S005-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PB-212	300.09		3.41	-5.35E+00	2.15E-01	1.85E+00
+	BI-214	609.31	*	46.30	1.08E+00	2.12E-01	2.12E-01
		1120.29	*	15.10	9.59E-01		6.07E-01
		1764.49	*	15.80	1.29E+00		3.26E-01
		2204.22	*	4.98	1.20E+00		1.43E+00
+	PB-214	295.21	*	19.19	1.31E+00	2.32E-01	4.33E-01
		351.92	*	37.19	1.05E+00		2.32E-01
+	RN-219	401.80		6.50	2.98E-01	8.48E-01	8.48E-01
+	RA-223	323.87		3.88	-9.34E-02	1.40E+00	1.40E+00
+	RA-224	240.98	*	3.95	3.09E+00	2.42E+00	2.42E+00
+	RA-225	40.00		31.00	-4.91E+00	1.22E+01	1.22E+01
+	RA-226	186.21	*	3.28	3.43E+00	2.31E+00	2.31E+00
+	TH-227	50.10		8.40	-8.92E-02	5.32E-01	5.64E-01
		236.00		11.50	-3.43E+00		5.32E-01
		256.20		6.30	1.25E-02		8.21E-01
+	AC-228	338.32	*	11.40	9.71E-01	2.67E-01	5.82E-01
		911.07	*	27.70	1.10E+00		2.67E-01
		969.11	*	16.60	1.42E+00		5.88E-01
+	TH-230	48.44		16.90	-6.72E-02	2.89E-01	2.89E-01
		62.85		4.60	1.76E+00		1.26E+00
		67.67		0.37	-2.51E-02		1.45E+01
+	PA-231	283.67		1.60	-1.79E-02	2.54E+00	3.26E+00
		302.67		2.30	1.60E-01		2.54E+00
+	TH-231	25.64		14.70	-3.35E+00	4.45E-01	4.45E-01
		84.21		6.40	-5.98E-01		8.55E-01
+	PA-233	311.98	*	38.60	1.16E+00	1.82E+00	1.82E+00
+	PA-234	131.20		20.40	-5.35E-03	2.31E-01	2.31E-01
		733.99		8.80	2.92E-01		6.74E-01
		946.00		12.00	8.35E-02		5.55E-01
+	PA-234M	1001.03		0.92	1.01E+00	7.86E+00	7.86E+00
+	TH-234	63.29		3.80	2.32E+00	1.55E+00	1.55E+00
+	U-235	143.76		10.50	3.46E-01	4.49E-01	4.49E-01
		163.35		4.70	3.50E-01		9.64E-01
		205.31		4.70	3.17E-01		9.86E-01
+	NP-237	86.50		12.60	2.81E-01	4.68E-01	4.68E-01
+	NP-239	106.10		22.70	7.61E+10	2.16E+11	2.16E+11
		228.18		10.70	-1.33E+11		4.62E+11
		277.60		14.10	1.09E+11		4.22E+11
+	AM-241	59.54		35.90	-1.83E-01	1.42E-01	1.42E-01
+	AM-243	74.67	*	66.00	3.13E-01	1.73E-01	1.73E-01
+	CM-243	209.75		3.29	1.52E+00	3.99E-01	1.52E+00
		228.14		10.60	-1.26E-01		4.38E-01
		277.60		14.00	1.03E-01		3.99E-01

Analysis Report for 1707082-09

HTC-A01-S005-1824-01

+ = 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	1.80E+00	1.80E+00	5.84E-01	8.56E-01
	NA-22	1274.54		99.94	8.59E-02	8.59E-02	2.58E-02	4.00E-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	4.13E-02	4.13E-02	8.14E-04	1.71E-02
+	K-40	1460.81	*	10.67	1.22E+00	1.22E+00	2.31E+01	5.79E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	5.70E-02	5.70E-02	-9.85E-05	2.79E-02
		78.34		96.00	7.69E-02		1.89E-01	3.79E-02
	SC-46	889.25		99.98	1.37E-01	1.37E-01	-1.03E-02	6.37E-02
		1120.51		99.99	2.27E-01		3.56E-01	1.08E-01
	V-48	983.52		99.98	4.02E+00	3.81E+00	4.24E-01	1.88E+00
		1312.10		97.50	3.81E+00		-3.79E-01	1.73E+00
	CR-51	320.08		9.83	5.44E+00	5.44E+00	-9.14E-01	2.61E+00
	MN-54	834.83		99.97	7.77E-02	7.77E-02	-4.05E-02	3.64E-02
	CO-56	846.75		99.96	1.47E-01	1.47E-01	-7.36E-02	6.88E-02
		1037.75		14.03	1.12E+00		8.44E-02	5.24E-01
		1238.25		67.00	3.41E-01		1.09E-01	1.61E-01
		1771.40		15.51	6.86E-01		-2.36E-02	2.92E-01
		2598.48		16.90	4.91E-01		-6.84E-02	1.84E-01
	CO-57	122.06		85.51	6.25E-02	6.25E-02	-1.50E-02	3.04E-02
		136.48		10.60	5.44E-01		9.20E-02	2.65E-01
	CO-58	810.76		99.40	1.27E-01	1.27E-01	-3.82E-02	5.88E-02
	FE-59	1099.22		56.50	5.61E-01	5.61E-01	2.16E-01	2.62E-01
		1291.56		43.20	7.12E-01		-5.22E-02	3.29E-01
	CO-60	1173.22		100.00	7.39E-02	7.25E-02	-3.81E-03	3.43E-02
		1332.49		100.00	7.25E-02		2.51E-02	3.33E-02
	ZN-65	1115.52		50.75	1.84E-01	1.84E-01	1.04E-01	8.57E-02
	GA-67	93.31		35.70	7.78E+07	7.78E+07	1.12E+08	3.81E+07

Analysis Report for 1707082-09

HTC-A01-S005-1824-01

	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	1.08E+09	7.78E+07	6.70E+08	5.23E+08
		300.22		16.00	1.86E+08		-8.38E+06	9.00E+07
	SE-75	121.11		16.70	4.27E-01	1.32E-01	-9.72E-02	2.07E-01
		136.00		59.20	1.32E-01		2.23E-02	6.41E-02
		264.65		59.80	1.54E-01		-1.02E-01	7.47E-02
		279.53		25.20	3.84E-01		2.88E-01	1.86E-01
		400.65		11.40	8.02E-01		-2.86E-01	3.84E-01
	RB-82	776.52		13.00	5.75E+00	5.75E+00	-6.62E-01	2.69E+00
	RB-83	520.41		46.00	2.51E-01	2.51E-01	6.48E-03	1.19E-01
		529.64		30.30	3.40E-01		-2.09E-02	1.60E-01
		552.65		16.40	7.01E-01		8.21E-03	3.32E-01
	KR-85	513.99		0.43	1.79E+01	1.79E+01	1.83E+01	8.61E+00
	SR-85	513.99		99.27	2.10E-01	2.10E-01	2.15E-01	1.01E-01
	Y-88	898.02		93.40	1.32E-01	9.17E-02	-1.20E-02	6.20E-02
		1836.01		99.38	9.17E-02		-2.23E-03	3.93E-02
	MO-93	263.06		56.72	9.48E-02	4.50E-02	9.11E-03	4.59E-02
		684.67		99.68	5.38E-02		-1.87E-02	2.52E-02
		1477.11		99.08	4.50E-02		5.77E-03	1.94E-02
	NB-93M	16.57		9.43	4.64E-01	4.64E-01	-1.23E-01	2.17E-01
	NB-94	702.63		100.00	6.09E-02	5.27E-02	-5.58E-02	2.87E-02
		871.10		100.00	5.27E-02		-1.59E-02	2.43E-02
	NB-95	765.79		99.81	4.80E-01	4.80E-01	3.53E-01	2.28E-01
	NB-95M	235.69		25.00	1.72E+07	1.72E+07	-1.11E+08	8.39E+06
	ZR-95	724.18		43.70	4.51E-01	3.26E-01	-1.84E-01	2.14E-01
		756.72		55.30	3.26E-01		1.87E-01	1.54E-01
	MO-99	181.06		6.20	1.46E+10	8.83E+09	2.15E+09	7.10E+09
		739.58		12.80	8.83E+09		-2.37E+09	4.13E+09
		778.00		4.50	2.45E+10		-7.13E+09	1.14E+10
	RU-103	497.08		89.00	3.21E-01	3.21E-01	-2.38E-02	1.53E-01
	RU-106	621.84		9.80	6.79E-01	6.79E-01	2.21E-02	3.20E-01
	AG-108M	433.93		89.90	6.11E-02	6.11E-02	1.39E-02	2.92E-02
		614.37		90.40	7.62E-02		4.19E-03	3.63E-02
		722.95		90.50	7.00E-02		-1.70E-01	3.30E-02
+	CD-109	88.03	*	3.72	3.31E+00	3.31E+00	3.19E+00	1.64E+00
	AG-110M	657.75		93.14	8.03E-02	8.03E-02	7.64E-03	3.78E-02
		677.61		10.53	6.88E-01		-3.31E-01	3.23E-01
		706.67		16.46	5.00E-01		5.57E-02	2.36E-01
		763.93		21.98	3.52E-01		-8.15E-02	1.65E-01
		884.67		71.63	1.15E-01		3.35E-02	5.36E-02
		1384.27		23.94	3.23E-01		1.13E-01	1.46E-01
	CD-113M	263.70		0.02	2.33E+02	2.33E+02	-4.56E+01	1.13E+02
	SN-113	255.12		1.93	4.03E+00	1.44E-01	5.05E-01	1.94E+00
		391.69		64.90	1.44E-01		-5.55E-02	6.90E-02
	TE123M	159.00		84.10	9.00E-02	9.00E-02	-2.94E-02	4.37E-02
	SB-124	602.71		97.87	1.92E-01	1.92E-01	4.35E-02	9.14E-02
		645.85		7.26	2.34E+00		1.55E+00	1.10E+00
		722.78		11.10	1.68E+00		-4.09E+00	7.94E-01
		1691.02		49.00	2.11E-01		1.49E-02	8.52E-02
	I-125	35.49		6.49	2.15E+00	2.15E+00	2.47E-01	1.04E+00
	SB-125	176.33		6.89	6.93E-01	1.90E-01	-5.89E-03	3.36E-01
		427.89		29.33	1.90E-01		-8.91E-02	9.06E-02
		463.38		10.35	6.42E-01		6.06E-01	3.08E-01
		600.56		17.80	3.66E-01		5.65E-02	1.74E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	SB-125	635.90		11.32	4.79E-01	1.90E-01	-1.20E-01	2.24E-01
	SB-126	414.70		83.30	1.15E+01	1.11E+01	-9.52E+00	5.47E+00
		666.33		99.60	1.12E+01		-5.40E+00	5.27E+00
		695.00		99.60	1.11E+01		-5.10E+00	5.20E+00
		720.50		53.80	2.19E+01		2.90E+00	1.03E+01
+	SN-126	87.57	*	37.00	2.90E-01	2.90E-01	2.79E-01	1.43E-01
	SB-127	473.00		25.00	4.67E+06	3.38E+06	-2.78E+05	2.22E+06
		685.20		35.70	3.38E+06		-1.17E+06	1.58E+06
		783.80		14.70	9.91E+06		3.70E+06	4.66E+06
	I-129	29.78		57.00	9.37E-02	9.37E-02	6.51E-02	4.54E-02
		33.60		13.20	3.59E-01		-1.46E-01	1.74E-01
		39.58		7.52	6.14E-01		3.14E-02	2.98E-01
	I-131	284.30		6.05	2.81E+03	2.00E+02	-2.75E+02	1.36E+03
		364.48		81.20	2.00E+02		-2.20E+01	9.54E+01
		636.97		7.26	2.33E+03		-1.92E+02	1.09E+03
		722.89		1.80	1.17E+04		-2.85E+04	5.53E+03
	TE-132	49.72		13.10	1.78E+08	2.60E+07	-1.87E+08	8.68E+07
		228.16		88.00	2.60E+07		-7.45E+06	1.25E+07
	BA-133	81.00		33.00	1.63E-01	1.17E-01	-5.46E-01	7.97E-02
		302.84		17.80	3.33E-01		2.10E-02	1.61E-01
		356.01		60.00	1.17E-01		2.92E-02	5.66E-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	3.52E+04	3.52E+04	-1.18E+05	1.72E+04
	CS-134	563.23		8.38	7.09E-01	7.86E-02	-2.48E-01	3.35E-01
		569.32		15.43	3.72E-01		-1.51E-01	1.75E-01
		604.70		97.60	7.86E-02		3.63E-03	3.75E-02
		795.84		85.40	9.20E-02		4.93E-02	4.35E-02
		801.93		8.73	8.76E-01		5.44E-01	4.14E-01
	CS-135	268.24		16.00	3.60E-01	3.60E-01	3.04E-01	1.74E-01
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	8.64E+01	8.09E+00	-2.09E+00	4.20E+01
		163.89		4.61	1.40E+02		5.08E+01	6.80E+01
		176.55		13.56	4.70E+01		-3.99E-01	2.28E+01
		273.65		12.66	6.19E+01		-4.03E+01	3.00E+01
		340.57		48.50	2.01E+01		1.83E+00	9.77E+00
		818.50		99.70	8.09E+00		1.80E+00	3.77E+00
		1048.07		79.60	1.22E+01		-3.15E+00	5.68E+00
		1235.34		19.70	7.02E+01		2.35E+01	3.32E+01
	CS-137	661.65		85.12	7.02E-02	7.02E-02	1.44E-02	3.31E-02
	LA-138	788.74		34.00	1.71E-01	9.27E-02	4.68E-03	7.97E-02
		1435.80		66.00	9.27E-02		3.84E-02	4.18E-02
	CE-139	165.85		80.35	9.01E-02	9.01E-02	1.09E-02	4.38E-02
	BA-140	162.64		6.70	1.10E+02	3.50E+01	9.95E+00	5.32E+01
		304.84		4.50	1.86E+02		-7.52E+01	8.98E+01
		423.70		3.20	2.79E+02		-1.25E+01	1.33E+02
		437.55		2.00	4.47E+02		1.32E+02	2.14E+02
		537.32		25.00	3.50E+01		-1.86E+00	1.66E+01
	LA-140	328.77		20.50	4.56E+01	9.40E+00	1.24E+01	2.20E+01
		487.03		45.50	2.06E+01		4.50E+00	9.81E+00
		815.85		23.50	3.57E+01		-5.06E-01	1.65E+01
		1596.49		95.49	9.40E+00		-2.45E-01	4.14E+00

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CE-141	145.44	48.40	6.95E-01	6.95E-01	-1.67E-01	3.38E-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	5.29E-01	5.29E-01	2.35E-02	2.58E-01
PM-144	476.78	42.00	1.51E-01	6.56E-02	1.21E-02	7.18E-02
	618.01	98.60	6.56E-02		-3.76E-02	3.09E-02
	696.49	99.49	7.13E-02		-8.09E-03	3.35E-02
PM-145	36.85	21.70	2.20E-01	1.20E-01	3.57E-03	1.07E-01
	37.36	39.70	1.20E-01		1.64E-02	5.82E-02
	42.30	15.10	3.08E-01		-1.71E-01	1.50E-01
	72.40	2.31	2.83E+00		-3.39E+00	1.39E+00
PM-146	453.90	39.94	1.38E-01	1.38E-01	4.56E-02	6.57E-02
	735.90	14.01	4.17E-01		-1.04E-01	1.95E-01
	747.13	13.10	4.98E-01		2.00E-01	2.35E-01
ND-147	91.11	28.90	8.18E+01	8.18E+01	1.61E+02	4.02E+01
	531.02	13.10	1.48E+02		5.97E+01	6.98E+01
PM-149	285.90	3.10	1.04E+13	1.04E+13	-4.10E+12	5.01E+12
EU-152	121.78	20.50	2.05E-01	2.05E-01	-4.66E-02	9.94E-02
	244.69	5.40	9.33E-01		-5.21E-01	4.51E-01
	344.27	19.13	2.72E-01		-8.55E-03	1.30E-01
	778.89	9.20	6.38E-01		9.49E-02	2.98E-01
	964.01	10.40	7.47E-01		-1.75E+00	3.52E-01
	1085.78	7.22	1.12E+00		6.65E-01	5.28E-01
	1112.02	9.60	7.25E-01		1.84E-01	3.36E-01
	1407.95	14.94	4.34E-01		9.38E-03	1.97E-01
GD-153	97.43	31.30	1.87E-01	1.87E-01	6.61E-02	9.09E-02
	103.18	22.20	2.61E-01		2.14E-02	1.27E-01
EU-154	123.07	40.50	1.07E-01	1.07E-01	-1.38E-02	5.20E-02
	723.30	19.70	3.28E-01		-7.96E-01	1.55E-01
	873.19	11.50	4.60E-01		-1.75E-01	2.11E-01
	996.32	10.30	6.67E-01		-2.22E-01	3.11E-01
	1004.76	17.90	4.19E-01		2.27E-01	1.96E-01
	1274.45	35.50	2.30E-01		6.92E-02	1.07E-01
EU-155	86.50	30.90	1.98E-01	1.98E-01	1.19E-01	9.70E-02
	105.30	20.70	2.21E-01		-1.01E-01	1.08E-01
EU-156	811.77	10.40	3.69E+01	3.69E+01	-8.95E+00	1.71E+01
	1153.47	7.20	8.28E+01		4.49E+01	3.88E+01
	1230.71	8.90	7.07E+01		3.16E+01	3.31E+01
HO-166M	184.41	72.60	8.23E-02	8.23E-02	2.07E-01	4.02E-02
	280.45	29.60	1.86E-01		1.01E-01	9.00E-02
	410.94	11.10	4.86E-01		2.41E-01	2.32E-01
	711.69	54.10	1.02E-01		-4.15E-02	4.77E-02
TM-171	66.72	0.14	4.18E+01	4.18E+01	-8.97E+01	2.04E+01
HF-172	67.35	5.31	1.11E+00	4.31E-01	-1.92E-03	5.45E-01
	125.81	11.30	4.31E-01		-2.85E-02	2.10E-01
LU-172	181.53	20.60	3.75E+03	1.74E+03	5.50E+02	1.82E+03
	900.72	29.81	3.86E+03		-1.01E+03	1.81E+03
	1093.66	62.50	1.74E+03		-9.75E+02	8.05E+02
LU-173	100.72	5.24	9.62E-01	3.03E-01	4.78E-02	4.69E-01
	272.11	21.20	3.03E-01		-5.31E-02	1.47E-01
HF-175	343.40	84.00	1.54E-01	1.54E-01	-4.87E-03	7.40E-02
LU-176	88.34	13.30	4.55E-01	5.27E-02	-5.05E-03	2.24E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	LU-176	201.83		86.00	5.27E-02	5.27E-02	-2.26E-02	2.55E-02
		306.78		94.00	5.49E-02		-1.13E-04	2.65E-02
	HF-181	133.02		41.70	5.07E-01	3.17E-01	2.25E-02	2.47E-01
		345.85		17.20	1.42E+00		-4.39E-02	6.81E-01
		482.03		82.80	3.17E-01		1.23E-01	1.51E-01
	TA-182	67.75		41.20	2.30E-01	2.30E-01	-3.98E-04	1.13E-01
		1121.30		34.90	5.22E-01		6.71E-01	2.48E-01
		1189.05		16.23	8.89E-01		-2.09E-02	4.16E-01
		1221.41		26.98	5.24E-01		-5.91E-02	2.45E-01
		1231.02		11.44	1.33E+00		5.94E-01	6.22E-01
+	IR-192	308.46		29.68	4.30E-01	4.07E-01	-8.91E-03	2.07E-01
		468.07	*	48.10	4.07E-01		1.04E-01	1.97E-01
	HG-203	279.19		77.30	2.94E-01	2.94E-01	2.20E-01	1.42E-01
	TL-204	374.74		94.11	5.50E-02	5.50E-02	-4.47E-02	2.63E-02
		899.15		99.16	7.01E-02		-1.74E-02	3.28E-02
		911.74		91.10	1.41E-01		3.38E-01	6.82E-02
	BI-207	569.67		97.72	5.63E-02	5.63E-02	5.67E-04	2.66E-02
		1063.62		74.90	9.89E-02		7.47E-03	4.62E-02
+	TL-208	583.14	*	30.22	2.60E-01	1.09E-01	1.36E+00	1.25E-01
		860.37	*	4.48	2.30E+00		1.18E+00	1.10E+00
		2614.66	*	35.85	1.09E-01		1.07E+00	4.15E-02
	BI-210M	262.00		45.00	1.17E-01	1.17E-01	2.65E-02	5.66E-02
		300.00		23.00	2.74E-01		-7.93E-01	1.33E-01
	PB-210	46.50		4.25	1.17E+00	1.17E+00	6.03E-01	5.68E-01
	PB-211	404.84		2.90	1.84E+00	1.84E+00	-8.84E-01	8.79E-01
		831.96		2.90	2.17E+00		-7.40E-01	1.02E+00
+	BI-212	727.17	*	11.80	7.50E-01	7.50E-01	9.90E-01	3.60E-01
		1620.62	*	2.75	1.18E+00		1.75E+00	4.72E-01
+	PB-212	238.63	*	44.60	2.15E-01	2.15E-01	1.21E+00	1.06E-01
		300.09		3.41	1.85E+00		-5.35E+00	8.96E-01
+	BI-214	609.31	*	46.30	2.12E-01	2.12E-01	1.08E+00	1.03E-01
		1120.29	*	15.10	6.07E-01		9.59E-01	2.87E-01
		1764.49	*	15.80	3.26E-01		1.29E+00	1.41E-01
		2204.22	*	4.98	1.43E+00		1.20E+00	6.35E-01
+	PB-214	295.21	*	19.19	4.33E-01	2.32E-01	1.31E+00	2.12E-01
		351.92	*	37.19	2.32E-01		1.05E+00	1.13E-01
	RN-219	401.80		6.50	8.48E-01	8.48E-01	2.98E-01	4.06E-01
	RA-223	323.87		3.88	1.40E+00	1.40E+00	-9.34E-02	6.73E-01
+	RA-224	240.98	*	3.95	2.42E+00	2.42E+00	3.09E+00	1.19E+00
	RA-225	40.00		31.00	1.22E+01	1.22E+01	-4.91E+00	5.92E+00
+	RA-226	186.21	*	3.28	2.31E+00	2.31E+00	3.43E+00	1.13E+00
	TH-227	50.10		8.40	5.64E-01	5.32E-01	-8.92E-02	2.75E-01
		236.00		11.50	5.32E-01		-3.43E+00	2.59E-01
		256.20		6.30	8.21E-01		1.25E-02	3.97E-01
+	AC-228	338.32	*	11.40	5.82E-01	2.67E-01	9.71E-01	2.82E-01
		911.07	*	27.70	2.67E-01		1.10E+00	1.26E-01
		969.11	*	16.60	5.88E-01		1.42E+00	2.80E-01
	TH-230	48.44		16.90	2.89E-01	2.89E-01	-6.72E-02	1.41E-01
		62.85		4.60	1.26E+00		1.76E+00	6.20E-01
		67.67		0.37	1.45E+01		-2.51E-02	7.11E+00
	PA-231	283.67		1.60	3.26E+00	2.54E+00	-1.79E-02	1.57E+00
		302.67		2.30	2.54E+00		1.60E-01	1.23E+00
	TH-231	25.64		14.70	4.45E-01	4.45E-01	-3.35E+00	2.17E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TH-231	84.21		6.40	8.55E-01	4.45E-01	-5.98E-01	4.19E-01
+	PA-233	311.98	*	38.60	1.82E+00	1.82E+00	1.16E+00	8.81E-01
	PA-234	131.20		20.40	2.31E-01	2.31E-01	-5.35E-03	1.12E-01
		733.99		8.80	6.74E-01		2.92E-01	3.16E-01
		946.00		12.00	5.55E-01		8.35E-02	2.59E-01
	PA-234M	1001.03		0.92	7.86E+00	7.86E+00	1.01E+00	3.68E+00
	TH-234	63.29		3.80	1.55E+00	1.55E+00	2.32E+00	7.58E-01
	U-235	143.76		10.50	4.49E-01	4.49E-01	3.46E-01	2.19E-01
		163.35		4.70	9.64E-01		3.50E-01	4.68E-01
		205.31		4.70	9.86E-01		3.17E-01	4.77E-01
	NP-237	86.50		12.60	4.68E-01	4.68E-01	2.81E-01	2.29E-01
	NP-239	106.10		22.70	2.16E+11	2.16E+11	7.61E+10	1.05E+11
		228.18		10.70	4.62E+11		-1.33E+11	2.23E+11
		277.60		14.10	4.22E+11		1.09E+11	2.04E+11
	AM-241	59.54		35.90	1.42E-01	1.42E-01	-1.83E-01	6.96E-02
+	AM-243	74.67	*	66.00	1.73E-01	1.73E-01	3.13E-01	8.55E-02
	CM-243	209.75		3.29	1.52E+00	3.99E-01	1.52E+00	7.39E-01
		228.14		10.60	4.38E-01		-1.26E-01	2.12E-01
		277.60		14.00	3.99E-01		1.03E-01	1.93E-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 1707082-09

HTC-A01-S005-1824-01

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

Sample Title: HTC-A01-S005-1824-01

Elapsed Live time: 3600
Elapsed Real Time: 3601

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	70	81	93	150	546	121
25:	85	71	58	86	60	73	66	71
33:	59	56	84	63	79	73	76	87
41:	65	87	75	94	94	99	144	97
49:	83	91	111	117	106	111	108	108
57:	128	130	119	134	116	157	187	269
65:	145	137	149	162	152	160	157	171
73:	171	199	430	368	447	529	181	174
81:	142	149	119	165	188	136	196	260
89:	151	197	178	143	293	219	109	93
97:	101	106	105	108	92	92	103	91
105:	101	107	101	89	124	104	89	90
113:	92	101	86	89	81	75	82	79
121:	78	77	85	80	90	86	96	96
129:	127	137	87	97	90	83	103	82
137:	82	88	90	83	87	93	93	87
145:	100	91	70	73	90	83	87	84
153:	84	73	90	75	83	76	72	76
161:	66	78	69	91	70	75	70	68
169:	68	76	63	70	70	66	71	77
177:	75	65	59	75	66	57	72	80
185:	105	200	143	65	57	65	68	65
193:	58	68	51	70	62	70	64	64
201:	66	56	61	61	78	62	53	62
209:	86	95	60	55	50	52	56	65
217:	62	53	64	71	50	52	68	68
225:	77	47	66	51	52	74	33	61
233:	56	63	65	55	70	220	635	214
241:	98	160	107	47	43	46	52	38
249:	40	41	31	42	41	44	46	50
257:	40	38	44	40	42	46	51	38
265:	43	45	39	48	49	72	62	39
273:	42	36	44	38	54	47	48	34
281:	48	51	36	40	26	35	31	35
289:	38	32	29	47	34	44	169	189
297:	61	45	61	68	65	28	37	37
305:	30	43	27	30	30	38	29	48
313:	34	40	36	28	26	30	33	35
321:	36	27	26	42	40	33	36	53
329:	38	37	32	32	24	35	20	31
337:	22	103	107	40	27	27	32	28
345:	22	29	29	29	34	27	98	359
353:	161	32	26	31	37	29	27	19
361:	24	29	25	19	14	27	20	26

369:	31	20	31	20	26	20	32	17

Sample Title: HTC-A01-S005-1824-01

Channel								
377:	26	18	40	26	23	28	30	29
385:	29	30	23	38	25	26	27	20
393:	19	29	27	26	27	15	22	31
401:	28	28	24	19	28	27	20	20
409:	21	33	20	25	22	25	16	16
417:	16	18	29	24	19	22	29	20
425:	28	19	24	21	21	15	18	28
433:	22	29	18	19	24	24	21	26
441:	22	17	12	16	20	21	16	18
449:	17	23	20	17	21	22	20	23
457:	16	18	12	19	18	28	49	38
465:	18	19	16	24	14	28	10	14
473:	11	13	23	20	15	15	20	21
481:	24	19	23	21	14	19	18	21
489:	22	28	13	20	20	21	16	14
497:	21	14	22	18	14	21	6	23
505:	17	16	22	23	27	49	78	49
513:	29	19	23	23	20	16	19	18
521:	14	17	17	14	13	12	8	9
529:	4	14	12	20	21	18	13	12
537:	17	9	14	23	10	13	15	14
545:	18	17	11	10	20	16	21	11
553:	10	7	20	19	15	22	17	14
561:	14	16	17	13	16	13	13	18
569:	11	10	13	16	21	14	15	12
577:	14	14	9	17	21	45	184	129
585:	38	15	20	10	15	9	13	17
593:	18	20	17	18	18	15	17	16
601:	23	18	17	12	18	24	17	51
609:	188	187	50	21	17	16	14	12
617:	16	12	10	12	11	14	18	13
625:	14	10	14	13	9	8	14	11
633:	10	12	7	10	10	13	11	9
641:	14	8	19	7	16	12	13	12
649:	13	10	4	15	13	12	12	12
657:	14	13	12	11	16	13	11	10
665:	22	10	12	8	16	14	20	16
673:	15	20	12	14	15	8	12	9
681:	10	15	10	13	12	5	6	9
689:	13	14	10	11	11	14	9	9
697:	13	14	17	16	15	14	13	12
705:	8	13	22	21	10	12	16	10
713:	10	8	6	12	9	19	13	18
721:	10	6	13	13	14	20	44	40
729:	14	18	11	10	14	14	10	10
737:	11	6	7	16	9	12	11	15
745:	12	13	14	13	6	16	10	8
753:	12	13	15	16	17	7	15	10
761:	9	9	14	15	12	9	8	33
769:	30	13	16	16	12	12	9	6
777:	7	7	17	9	8	15	4	11
785:	18	17	11	7	6	11	6	10
793:	18	20	23	16	13	5	11	12

801:	14	13	15	18	16	7	14	4

Sample Title: HTC-A01-S005-1824-01

Channel								
809:	12	7	8	8	6	3	8	6
817:	11	8	7	10	11	10	10	9
825:	9	5	12	9	13	15	12	6
833:	9	8	11	12	16	12	17	11
841:	15	14	13	11	9	11	13	15
849:	6	10	13	15	8	5	12	10
857:	11	8	13	26	26	17	12	13
865:	12	11	9	10	6	5	6	8
873:	6	6	7	7	9	8	10	6
881:	13	8	12	7	10	8	10	6
889:	10	12	10	10	8	14	13	8
897:	6	11	11	12	14	11	12	9
905:	20	9	15	6	11	33	105	73
913:	27	6	9	10	10	5	8	5
921:	11	6	8	12	9	6	4	7
929:	9	9	10	8	17	15	15	10
937:	11	4	14	10	6	10	9	11
945:	9	6	9	15	9	11	8	16
953:	5	6	11	10	6	7	10	10
961:	5	6	7	20	21	18	12	29
969:	68	44	8	8	8	8	4	6
977:	7	12	8	14	9	6	8	11
985:	8	10	6	10	6	11	11	10
993:	6	7	9	14	10	10	8	7
1001:	16	12	13	8	8	8	11	11
1009:	4	10	8	4	6	9	5	11
1017:	6	13	8	9	7	7	6	8
1025:	7	11	6	9	5	7	8	11
1033:	8	12	8	12	9	7	8	7
1041:	8	8	8	15	7	8	8	10
1049:	7	11	10	10	8	9	6	7
1057:	7	9	9	7	6	10	17	11
1065:	15	4	10	10	6	13	6	11
1073:	5	3	4	11	13	4	11	9
1081:	6	15	13	12	11	9	13	8
1089:	10	6	3	4	11	8	7	11
1097:	11	11	7	8	7	11	7	7
1105:	6	6	9	13	8	6	4	12
1113:	11	11	4	3	10	10	18	50
1121:	26	14	7	6	12	7	6	9
1129:	9	12	7	8	9	10	11	11
1137:	11	8	19	11	4	6	10	6
1145:	8	7	7	7	7	7	7	8
1153:	13	15	13	13	7	9	5	12
1161:	11	5	7	11	5	8	10	10
1169:	6	9	7	4	9	11	7	9
1177:	10	7	9	13	5	10	6	10
1185:	10	10	10	8	15	10	12	8
1193:	11	11	4	9	7	9	13	6
1201:	9	12	10	7	14	8	8	6
1209:	6	8	9	10	11	8	7	10
1217:	8	10	14	9	9	10	8	7
1225:	14	8	13	11	9	9	7	13

1233:	15	7	5	12	24	24	22	10

Sample Title: HTC-A01-S005-1824-01

Channel								
1241:	8	17	11	6	8	8	6	16
1249:	5	11	1	9	8	14	9	13
1257:	6	15	3	5	9	5	10	6
1265:	9	11	6	7	9	14	7	9
1273:	11	6	12	11	7	6	2	10
1281:	10	6	10	2	2	4	5	7
1289:	6	6	6	7	7	9	9	10
1297:	6	9	8	7	6	4	5	6
1305:	5	4	5	6	6	6	6	3
1313:	3	5	7	5	3	5	3	7
1321:	4	6	2	7	9	4	2	5
1329:	10	5	4	3	7	5	10	5
1337:	6	7	1	3	0	4	2	3
1345:	6	5	8	4	1	7	7	6
1353:	1	5	6	3	5	7	6	1
1361:	3	6	4	6	5	5	3	2
1369:	4	1	1	3	2	3	4	5
1377:	13	8	3	4	2	3	3	3
1385:	9	5	4	2	2	2	4	6
1393:	0	1	1	3	6	3	4	4
1401:	0	9	5	1	4	6	5	10
1409:	4	3	1	4	2	3	3	3
1417:	2	2	5	5	7	3	6	3
1425:	1	4	1	4	6	4	1	7
1433:	4	2	6	5	2	3	3	2
1441:	2	1	1	1	1	0	3	4
1449:	5	1	2	3	3	5	3	5
1457:	6	27	116	389	430	141	22	11
1465:	12	9	5	7	2	1	3	0
1473:	2	0	5	2	2	0	2	2
1481:	1	2	2	0	1	2	5	3
1489:	1	3	1	2	3	2	4	5
1497:	0	2	1	2	2	2	6	2
1505:	2	4	4	2	5	4	8	3
1513:	2	6	6	1	1	2	3	3
1521:	1	4	0	2	4	2	2	1
1529:	1	5	3	1	4	2	1	2
1537:	3	2	1	1	2	3	1	2
1545:	1	5	2	1	3	1	3	1
1553:	1	2	0	2	1	1	3	2
1561:	0	2	1	6	2	4	2	1
1569:	2	2	1	1	1	2	2	3
1577:	3	3	1	4	6	3	4	3
1585:	0	3	7	6	4	1	4	6
1593:	5	2	3	4	0	3	2	4
1601:	2	1	1	2	0	3	2	3
1609:	1	2	0	0	2	1	5	0
1617:	3	3	2	7	9	0	0	4
1625:	1	3	1	2	2	4	4	4
1633:	0	1	3	5	5	2	4	1
1641:	3	2	0	2	2	1	2	1
1649:	1	1	2	1	2	1	1	3
1657:	1	1	0	3	3	6	0	0

1665:	1	3	4	1	1	1	1	0

Sample Title: HTC-A01-S005-1824-01

Channel								
1673:	0	0	2	0	1	3	1	2
1681:	0	0	0	2	3	2	2	2
1689:	0	1	1	0	0	7	1	2
1697:	1	1	0	0	1	4	1	1
1705:	0	4	1	2	0	0	1	2
1713:	0	2	1	1	0	3	3	2
1721:	0	2	1	0	3	0	1	3
1729:	5	12	1	2	1	0	1	1
1737:	0	1	0	0	0	0	1	1
1745:	1	3	2	2	0	2	1	1
1753:	0	0	2	1	0	2	0	4
1761:	2	3	19	34	14	5	3	4
1769:	0	1	1	0	2	1	0	1
1777:	0	1	2	2	0	0	3	0
1785:	0	2	1	1	1	0	1	1
1793:	0	1	2	0	3	1	1	1
1801:	1	1	0	0	2	1	3	1
1809:	0	1	0	2	1	0	1	1
1817:	1	1	0	2	1	3	2	0
1825:	0	1	0	0	1	2	1	2
1833:	1	0	5	1	1	2	2	2
1841:	0	0	3	1	3	7	9	4
1849:	1	2	1	0	2	0	1	0
1857:	0	0	1	2	1	0	0	0
1865:	3	1	1	1	1	0	3	3
1873:	3	2	2	4	0	0	0	1
1881:	0	0	1	0	2	0	3	3
1889:	1	1	1	0	2	3	1	0
1897:	1	2	2	1	1	0	1	0
1905:	0	1	2	1	1	1	1	0
1913:	1	2	0	2	2	0	1	0
1921:	1	3	1	2	1	1	1	1
1929:	2	1	0	0	1	1	1	5
1937:	1	0	0	1	1	1	1	2
1945:	0	0	0	0	3	0	1	1
1953:	0	0	1	3	1	0	0	3
1961:	2	2	1	0	0	1	1	0
1969:	0	0	1	1	1	1	0	0
1977:	2	0	0	2	0	0	1	1
1985:	3	1	1	1	1	2	1	2
1993:	0	1	2	2	0	1	2	0
2001:	0	2	0	1	2	1	2	1
2009:	0	1	0	0	1	1	1	2
2017:	1	0	0	0	2	0	0	0
2025:	0	0	1	0	0	0	2	0
2033:	2	1	0	0	0	0	0	2
2041:	1	1	0	1	1	0	0	2
2049:	3	4	1	2	0	2	2	2
2057:	1	2	1	0	2	2	1	0
2065:	1	0	4	1	0	1	0	1
2073:	1	3	1	0	1	0	1	1
2081:	0	0	0	2	1	2	2	1
2089:	0	1	2	1	0	0	0	1

2097:	0	1	0	1	2	8	4	4

Sample Title: HTC-A01-S005-1824-01

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

2529:	1	1	0	0	0	0	0	0

Sample Title: HTC-A01-S005-1824-01

Channel								
2537:	0	0	0	1	2	1	1	0
2545:	0	1	0	0	0	0	0	0
2553:	0	0	0	0	0	2	0	1
2561:	1	0	0	0	1	0	0	0
2569:	0	0	0	0	0	0	1	1
2577:	1	0	0	0	0	0	0	0
2585:	0	0	0	2	1	0	1	0
2593:	1	0	0	0	0	1	1	0
2601:	0	0	1	0	0	2	0	0
2609:	0	1	3	15	34	41	17	4
2617:	1	4	0	0	0	0	0	0
2625:	0	2	0	0	1	0	0	0
2633:	1	0	0	1	2	2	0	1
2641:	0	0	0	0	0	0	0	0
2649:	0	0	0	0	0	0	0	0
2657:	1	0	0	1	0	0	0	0
2665:	0	0	0	1	1	0	1	0
2673:	1	0	0	1	1	0	1	0
2681:	0	0	0	0	2	0	1	0
2689:	0	0	1	0	0	0	0	0
2697:	0	2	0	0	0	0	2	0
2705:	1	0	2	0	0	0	0	0
2713:	0	1	1	0	0	0	2	0
2721:	0	2	0	0	0	0	0	0
2729:	0	0	0	0	0	1	0	0
2737:	0	0	1	2	0	0	0	0
2745:	0	0	0	2	0	0	0	0
2753:	1	2	1	0	0	0	0	0
2761:	0	0	0	0	0	2	0	1
2769:	0	0	0	1	0	0	0	0
2777:	0	1	1	0	1	0	0	0
2785:	0	0	2	0	0	2	1	0
2793:	0	0	0	0	0	0	0	1
2801:	0	0	0	1	0	1	1	0
2809:	0	1	1	0	0	0	1	1
2817:	0	0	0	0	0	0	0	0
2825:	0	0	0	0	0	2	0	0
2833:	1	0	1	0	0	1	0	0
2841:	0	0	0	1	1	0	0	1
2849:	0	0	0	0	1	0	0	0
2857:	0	0	0	0	0	0	0	2
2865:	1	0	0	1	0	0	1	1
2873:	1	0	0	0	2	0	0	0
2881:	0	1	1	0	0	0	0	0
2889:	0	1	0	1	0	0	0	0
2897:	0	0	0	0	0	0	1	0
2905:	0	1	0	0	1	0	0	0
2913:	2	0	0	0	1	0	1	1
2921:	0	1	1	0	0	0	0	0
2929:	1	1	0	0	0	0	0	0
2937:	2	0	0	0	0	0	0	0
2945:	0	0	0	0	0	0	0	2
2953:	0	0	1	0	0	1	0	0

2961:	0	0	0	0	0	0	0	1

Sample Title: HTC-A01-S005-1824-01

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

3393:	0	0	0	1	0	0	0	0

Sample Title: HTC-A01-S005-1824-01

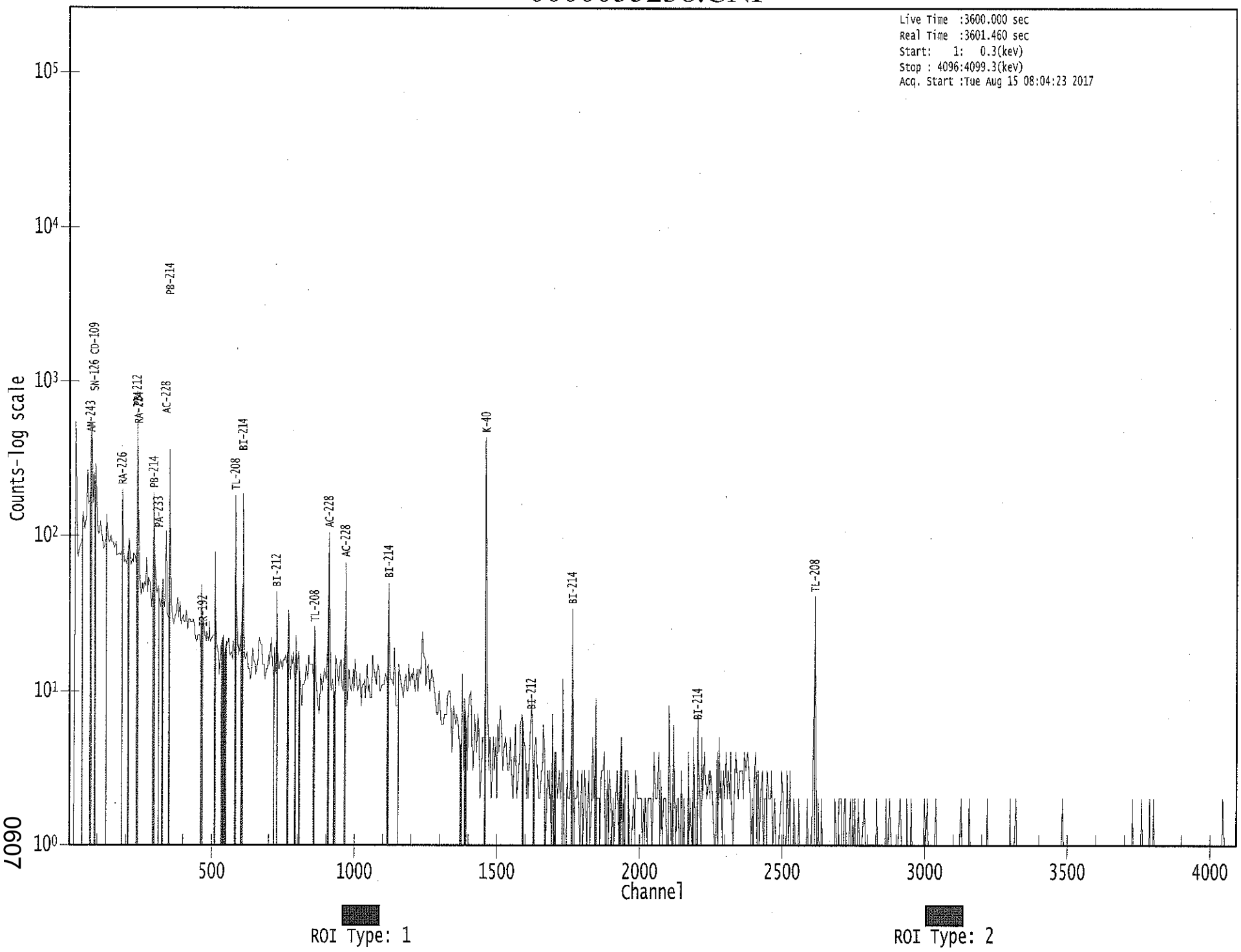
Channel								
3401:	1	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	1	0	0	0	0	0	0
3425:	0	0	0	0	0	1	0	1
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	1	0	0	1	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	1	0	0	0	0
3473:	0	0	0	0	0	1	1	0
3481:	0	0	2	0	0	1	0	0
3489:	0	0	0	1	0	0	0	0
3497:	0	1	1	0	1	0	0	0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

3825:	1	0	1	0	0	0	0	0

Sample Title: HTC-A01-S005-1824-01

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

0000055238.CNF



0607

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Apex-Gamma

Analysis Report for 1707082-10

HTC-A01-S005-2430-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707082-10
Sample Description	: HTC-A01-S005-2430-01
Sample Type	: SOIL
Sample Size	: 5.798E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 5:47:27AM
Acquisition Started	: 8/15/2017 8:04:30AM
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	: 55239

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/16/17

Analysis Report for 1707082-10

HTC-A01-S005-2430-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/15/2017 9:04:57AM
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	76.44	76.74	0.0000	0.00
2	88.08	88.38	0.0000	0.00
3	93.50	93.80	0.0000	0.00
4	128.33	128.62	0.0000	0.00
5	134.99	135.27	0.0000	0.00
6	186.33	186.60	0.0000	0.00
7	209.66	209.92	0.0000	0.00
8	238.92	239.17	0.0000	0.00
9	242.15	242.40	0.0000	0.00
10	270.63	270.87	0.0000	0.00
11	278.16	278.39	0.0000	0.00
12	295.54	295.77	0.0000	0.00
13	300.63	300.86	0.0000	0.00
14	338.68	338.89	0.0000	0.00
15	352.16	352.37	0.0000	0.00
16	410.01	410.20	0.0000	0.00
17	463.09	463.27	0.0000	0.00
18	510.80	510.95	0.0000	0.00
19	583.11	583.24	0.0000	0.00
20	608.99	609.12	0.0000	0.00
21	795.22	795.28	0.0000	0.00
22	818.13	818.18	0.0000	0.00
23	840.75	840.79	0.0000	0.00
24	860.52	860.56	0.0000	0.00
25	911.07	911.09	0.0000	0.00
26	951.69	951.70	0.0000	0.00
27	965.01	965.01	0.0000	0.00
28	968.80	968.80	0.0000	0.00
29	1076.44	1076.41	0.0000	0.00
30	1120.26	1120.21	0.0000	0.00
31	1377.48	1377.35	0.0000	0.00
32	1384.72	1384.58	0.0000	0.00
33	1431.17	1431.01	0.0000	0.00
34	1460.60	1460.44	0.0000	0.00
35	1537.53	1537.34	0.0000	0.00
36	1595.03	1594.82	0.0000	0.00
37	1764.02	1763.75	0.0000	0.00
38	1814.49	1814.20	0.0000	0.00
39	1820.62	1820.33	0.0000	0.00
40	2206.76	2206.34	0.0000	0.00
41	2257.06	2256.63	0.0000	0.00
42	2264.58	2264.14	0.0000	0.00

Analysis Report for 1707082-10

HTC-A01-S005-2430-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	2613.97	2613.42	0.0000	0.00
44	2795.42	2794.80	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707082-10

HTC-A01-S005-2430-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 9:04:57AM

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	76.44	72 -	82	76.74	1.12E+03	154.72	2.57E+03	3.82
	2	88.08	85 -	91	88.38	1.70E+02	104.52	1.86E+03	1.25
	3	93.50	91 -	97	93.80	2.07E+02	97.69	1.51E+03	1.85
	4	128.33	124 -	133	128.62	1.63E+02	97.64	1.27E+03	6.00
	5	134.99	134 -	138	135.27	4.44E+01	54.01	6.07E+02	2.09
	6	186.33	183 -	192	186.60	2.07E+02	86.05	9.38E+02	2.53
	7	209.66	206 -	213	209.92	5.64E+01	66.03	6.83E+02	1.56
M	8	238.92	234 -	245	239.17	7.49E+02	77.61	4.97E+02	2.18
m	9	242.15	234 -	245	242.40	1.40E+02	73.97	4.48E+02	2.17
	10	270.63	267 -	274	270.87	7.88E+01	54.77	4.46E+02	1.98
	11	278.16	276 -	281	278.39	3.56E+01	40.80	3.07E+02	1.45
M	12	295.54	292 -	303	295.77	2.08E+02	49.34	3.23E+02	1.84
m	13	300.63	292 -	303	300.86	5.73E+01	36.91	2.49E+02	1.76
	14	338.68	334 -	343	338.89	1.42E+02	59.51	4.23E+02	2.13
	15	352.16	348 -	357	352.37	3.55E+02	61.41	3.38E+02	2.39
	16	410.01	406 -	413	410.20	5.02E+01	40.05	2.30E+02	3.71
	17	463.09	459 -	468	463.27	6.03E+01	42.67	2.27E+02	2.04
	18	510.80	507 -	515	510.95	1.18E+02	43.31	2.17E+02	2.14
	19	583.11	578 -	587	583.24	2.01E+02	45.79	1.85E+02	2.13
	20	608.99	602 -	615	609.12	2.19E+02	59.86	3.00E+02	2.26
	21	795.22	793 -	798	795.28	1.90E+01	20.98	7.41E+01	1.43
	22	818.13	816 -	820	818.18	1.60E+01	16.70	4.79E+01	1.54
	23	840.75	838 -	843	840.79	1.68E+01	21.21	7.44E+01	2.60
	24	860.52	855 -	867	860.56	4.28E+01	35.68	1.28E+02	4.22
	25	911.07	906 -	914	911.09	1.57E+02	33.59	7.79E+01	2.90
	26	951.69	946 -	956	951.70	3.60E+01	27.60	8.21E+01	5.57
M	27	965.01	963 -	972	965.01	1.81E+01	13.53	4.90E+01	2.35
m	28	968.80	963 -	972	968.80	7.15E+01	29.78	9.55E+01	2.35
	29	1076.44	1072 -	1079	1076.41	2.03E+01	21.35	5.94E+01	3.97
	30	1120.26	1116 -	1125	1120.21	3.30E+01	31.18	1.20E+02	2.11
	31	1377.48	1374 -	1380	1377.35	1.99E+01	11.69	1.01E+01	2.33
	32	1384.72	1382 -	1387	1384.58	1.13E+01	11.00	1.54E+01	3.26
	33	1431.17	1428 -	1434	1431.01	1.09E+01	10.63	1.03E+01	1.26
	34	1460.60	1457 -	1466	1460.44	5.74E+02	50.06	3.00E+01	2.55
	35	1537.53	1533 -	1540	1537.34	8.07E+00	10.20	1.19E+01	4.47
	36	1595.03	1590 -	1601	1594.82	1.94E+01	16.25	2.13E+01	9.34
	37	1764.02	1758 -	1767	1763.75	2.58E+01	14.39	1.44E+01	2.61
	38	1814.49	1811 -	1816	1814.20	5.00E+00	4.47	0.00E+00	2.31
	39	1820.62	1818 -	1823	1820.33	4.25E+00	5.74	3.50E+00	1.09
	40	2206.76	2198 -	2214	2206.34	1.36E+01	17.91	2.47E+01	10.63

Analysis Report for 1707082-10

HTC-A01-S005-2430-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	2257.06	2253 -	2260	2256.63	8.00E+00	5.66	0.00E+00	1.92
42	2264.58	2261 -	2266	2264.14	7.00E+00	5.29	0.00E+00	2.70
43	2613.97	2609 -	2616	2613.42	6.50E+01	16.12	0.00E+00	1.81
44	2795.42	2791 -	2797	2794.80	5.00E+00	4.47	0.00E+00	2.41

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 9:04:57AM

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	76.44	72 -	82	1.12E+03	154.72	2.57E+03	1.15E+02
	2	88.08	85 -	91	1.70E+02	104.52	1.86E+03	8.32E+01
	3	93.50	91 -	97	2.07E+02	97.69	1.51E+03	7.68E+01
	4	128.33	124 -	133	1.63E+02	97.64	1.27E+03	7.75E+01
	5	134.99	134 -	138	4.44E+01	54.01	6.07E+02	4.30E+01
	6	186.33	183 -	192	2.07E+02	86.05	9.38E+02	6.67E+01
	7	209.66	206 -	213	5.64E+01	66.03	6.83E+02	5.29E+01
M	8	238.92	234 -	245	7.49E+02	77.61	4.97E+02	3.66E+01
m	9	242.15	234 -	245	1.40E+02	73.97	4.48E+02	3.48E+01
	10	270.63	267 -	274	7.88E+01	54.77	4.46E+02	4.26E+01
	11	278.16	276 -	281	3.56E+01	40.80	3.07E+02	3.21E+01
M	12	295.54	292 -	303	2.08E+02	49.34	3.23E+02	2.96E+01
m	13	300.63	292 -	303	5.73E+01	36.91	2.49E+02	2.59E+01
	14	338.68	334 -	343	1.42E+02	59.51	4.23E+02	4.48E+01
	15	352.16	348 -	357	3.55E+02	61.41	3.38E+02	3.99E+01
	16	410.01	406 -	413	5.02E+01	40.05	2.30E+02	3.08E+01
	17	463.09	459 -	468	6.03E+01	42.67	2.27E+02	3.27E+01
	18	510.80	507 -	515	1.18E+02	43.31	2.17E+02	3.08E+01
	19	583.11	578 -	587	2.01E+02	45.79	1.85E+02	2.96E+01
	20	608.99	602 -	615	2.19E+02	59.86	3.00E+02	4.28E+01
	21	795.22	793 -	798	1.90E+01	20.98	7.41E+01	1.57E+01
	22	818.13	816 -	820	1.60E+01	16.70	4.79E+01	1.20E+01
	23	840.75	838 -	843	1.68E+01	21.21	7.44E+01	1.61E+01

Analysis Report for 1707082-10

HTC-A01-S005-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	24	860.52	855 -	867	4.28E+01	35.68	1.28E+02	2.73E+01
	25	911.07	906 -	914	1.57E+02	33.59	7.79E+01	1.84E+01
	26	951.69	946 -	956	3.60E+01	27.60	8.21E+01	2.04E+01
M	27	965.01	963 -	972	1.81E+01	13.53	4.90E+01	1.15E+01
m	28	968.80	963 -	972	7.15E+01	29.78	9.55E+01	1.61E+01
	29	1076.44	1072 -	1079	2.03E+01	21.35	5.94E+01	1.59E+01
	30	1120.26	1116 -	1125	3.30E+01	31.18	1.20E+02	2.38E+01
	31	1377.48	1374 -	1380	1.99E+01	11.69	1.01E+01	6.21E+00
	32	1384.72	1382 -	1387	1.13E+01	11.00	1.54E+01	7.16E+00
	33	1431.17	1428 -	1434	1.09E+01	10.63	1.03E+01	6.85E+00
	34	1460.60	1457 -	1466	5.74E+02	50.06	3.00E+01	1.19E+01
	35	1537.53	1533 -	1540	8.07E+00	10.20	1.19E+01	6.96E+00
	36	1595.03	1590 -	1601	1.94E+01	16.25	2.13E+01	1.12E+01
	37	1764.02	1758 -	1767	2.58E+01	14.39	1.44E+01	8.37E+00
	38	1814.49	1811 -	1816	5.00E+00	4.47	0.00E+00	0.00E+00
	39	1820.62	1818 -	1823	4.25E+00	5.74	3.50E+00	3.29E+00
	40	2206.76	2198 -	2214	1.36E+01	17.91	2.47E+01	1.34E+01
	41	2257.06	2253 -	2260	8.00E+00	5.66	0.00E+00	0.00E+00
	42	2264.58	2261 -	2266	7.00E+00	5.29	0.00E+00	0.00E+00
	43	2613.97	2609 -	2616	6.50E+01	16.12	0.00E+00	0.00E+00
	44	2795.42	2791 -	2797	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 : 8/15/2017 9:04:57AM

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	76.44	72 -	82	76.74	1.12E+03	154.72	2.57E+03	.....
2	88.08	85 -	91	88.38	1.70E+02	104.52	1.86E+03	CD-109
								LU-176
								SN-126

Analysis Report for 1707082-10

HTC-A01-S005-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	3	93.50	91 -	97	93.80	2.07E+02	97.69	1.51E+03	GA-67
	4	128.33	124 -	133	128.62	1.63E+02	97.64	1.27E+03	.....
	5	134.99	134 -	138	135.27	4.44E+01	54.01	6.07E+02	.....
	6	186.33	183 -	192	186.60	2.07E+02	86.05	9.38E+02	RA-226
	7	209.66	206 -	213	209.92	5.64E+01	66.03	6.83E+02	CM-243
									GA-67
M	8	238.92	234 -	245	239.17	7.49E+02	77.61	4.97E+02	PB-212
m	9	242.15	234 -	245	242.40	1.40E+02	73.97	4.48E+02	.....
	10	270.63	267 -	274	270.87	7.88E+01	54.77	4.46E+02	.....
	11	278.16	276 -	281	278.39	3.56E+01	40.80	3.07E+02	CM-243
									NP-239
M	12	295.54	292 -	303	295.77	2.08E+02	49.34	3.23E+02	PB-214
m	13	300.63	292 -	303	300.86	5.73E+01	36.91	2.49E+02	GA-67
									PB-212
									BI-210M
	14	338.68	334 -	343	338.89	1.42E+02	59.51	4.23E+02	AC-228
	15	352.16	348 -	357	352.37	3.55E+02	61.41	3.38E+02	PB-214
	16	410.01	406 -	413	410.20	5.02E+01	40.05	2.30E+02	HO-166M
	17	463.09	459 -	468	463.27	6.03E+01	42.67	2.27E+02	SB-125
	18	510.80	507 -	515	510.95	1.18E+02	43.31	2.17E+02	.....
	19	583.11	578 -	587	583.24	2.01E+02	45.79	1.85E+02	TL-208
	20	608.99	602 -	615	609.12	2.19E+02	59.86	3.00E+02	BI-214
	21	795.22	793 -	798	795.28	1.90E+01	20.98	7.41E+01	CS-134
	22	818.13	816 -	820	818.18	1.60E+01	16.70	4.79E+01	CS-136
	23	840.75	838 -	843	840.79	1.68E+01	21.21	7.44E+01	.....
	24	860.52	855 -	867	860.56	4.28E+01	35.68	1.28E+02	TL-208
	25	911.07	906 -	914	911.09	1.57E+02	33.59	7.79E+01	AC-228
									TL-204
	26	951.69	946 -	956	951.70	3.60E+01	27.60	8.21E+01	.....
M	27	965.01	963 -	972	965.01	1.81E+01	13.53	4.90E+01	EU-152
m	28	968.80	963 -	972	968.80	7.15E+01	29.78	9.55E+01	AC-228
	29	1076.44	1072 -	1079	1076.41	2.03E+01	21.35	5.94E+01	.....
	30	1120.26	1116 -	1125	1120.21	3.30E+01	31.18	1.20E+02	BI-214
									SC-46
	31	1377.48	1374 -	1380	1377.35	1.99E+01	11.69	1.01E+01	.....
	32	1384.72	1382 -	1387	1384.58	1.13E+01	11.00	1.54E+01	AG-110M
	33	1431.17	1428 -	1434	1431.01	1.09E+01	10.63	1.03E+01	.....
	34	1460.60	1457 -	1466	1460.44	5.74E+02	50.06	3.00E+01	K-40
	35	1537.53	1533 -	1540	1537.34	8.07E+00	10.20	1.19E+01	.....
	36	1595.03	1590 -	1601	1594.82	1.94E+01	16.25	2.13E+01	.....
	37	1764.02	1758 -	1767	1763.75	2.58E+01	14.39	1.44E+01	BI-214
	38	1814.49	1811 -	1816	1814.20	5.00E+00	4.47	0.00E+00	.....
	39	1820.62	1818 -	1823	1820.33	4.25E+00	5.74	3.50E+00	.....
	40	2206.76	2198 -	2214	2206.34	1.36E+01	17.91	2.47E+01	.....
	41	2257.06	2253 -	2260	2256.63	8.00E+00	5.66	0.00E+00	.....
	42	2264.58	2261 -	2266	2264.14	7.00E+00	5.29	0.00E+00	.....
	43	2613.97	2609 -	2616	2613.42	6.50E+01	16.12	0.00E+00	TL-208
	44	2795.42	2791 -	2797	2794.80	5.00E+00	4.47	0.00E+00	.....

Analysis Report for 1707082-10

HTC-A01-S005-2430-01

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/15/2017 9:04:57AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	76.44	1.12E+03	154.72	2.67E-02	2.04E-03
	2	88.08	1.70E+02	104.52	2.72E-02	2.26E-03
	3	93.50	2.07E+02	97.69	2.71E-02	2.24E-03
	4	128.33	1.63E+02	97.64	2.46E-02	2.05E-03
	5	134.99	4.44E+01	54.01	2.40E-02	1.98E-03
	6	186.33	2.07E+02	86.05	1.96E-02	1.55E-03
	7	209.66	5.64E+01	66.03	1.79E-02	1.45E-03
M	8	238.92	7.49E+02	77.61	1.61E-02	1.34E-03
m	9	242.15	1.40E+02	73.97	1.59E-02	1.33E-03
	10	270.63	7.88E+01	54.77	1.45E-02	1.21E-03
	11	278.16	3.56E+01	40.80	1.42E-02	1.18E-03
M	12	295.54	2.08E+02	49.34	1.35E-02	1.15E-03
m	13	300.63	5.73E+01	36.91	1.33E-02	1.14E-03
	14	338.68	1.42E+02	59.51	1.19E-02	1.06E-03
	15	352.16	3.55E+02	61.41	1.15E-02	1.03E-03
	16	410.01	5.02E+01	40.05	1.01E-02	9.28E-04
	17	463.09	6.03E+01	42.67	9.02E-03	8.58E-04
	18	510.80	1.18E+02	43.31	8.26E-03	7.95E-04
	19	583.11	2.01E+02	45.79	7.33E-03	6.99E-04
	20	608.99	2.19E+02	59.86	7.05E-03	6.64E-04
	21	795.22	1.90E+01	20.98	5.55E-03	4.77E-04
	22	818.13	1.60E+01	16.70	5.41E-03	4.57E-04
	23	840.75	1.68E+01	21.21	5.28E-03	4.37E-04
	24	860.52	4.28E+01	35.68	5.18E-03	4.19E-04
	25	911.07	1.57E+02	33.59	4.92E-03	3.84E-04
	26	951.69	3.60E+01	27.60	4.74E-03	3.77E-04
M	27	965.01	1.81E+01	13.53	4.68E-03	3.75E-04
m	28	968.80	7.15E+01	29.78	4.67E-03	3.74E-04
	29	1076.44	2.03E+01	21.35	4.26E-03	3.57E-04
	30	1120.26	3.30E+01	31.18	4.12E-03	3.50E-04
	31	1377.48	1.99E+01	11.69	3.47E-03	2.88E-04
	32	1384.72	1.13E+01	11.00	3.45E-03	2.87E-04
	33	1431.17	1.09E+01	10.63	3.36E-03	2.80E-04
	34	1460.60	5.74E+02	50.06	3.31E-03	2.75E-04

Analysis Report for 1707082-10

HTC-A01-S005-2430-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
35	1537.53	8.07E+00	10.20	3.18E-03	2.63E-04
36	1595.03	1.94E+01	16.25	3.09E-03	2.54E-04
37	1764.02	2.58E+01	14.39	2.87E-03	2.27E-04
38	1814.49	5.00E+00	4.47	2.81E-03	2.18E-04
39	1820.62	4.25E+00	5.74	2.80E-03	2.17E-04
40	2206.76	1.36E+01	17.91	2.46E-03	2.15E-04
41	2257.06	8.00E+00	5.66	2.43E-03	2.15E-04
42	2264.58	7.00E+00	5.29	2.42E-03	2.15E-04
43	2613.97	6.50E+01	16.12	2.24E-03	2.15E-04
44	2795.42	5.00E+00	4.47	2.17E-03	2.15E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/15/2017 9:04:57AM

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	76.44	1.12E+03	154.72			1.12E+03	1.55E+02
	2	88.08	1.70E+02	104.52			1.70E+02	1.05E+02
	3	93.50	2.07E+02	97.69	7.43E+01	4.99E+00	1.32E+02	9.78E+01
	4	128.33	1.63E+02	97.64			1.63E+02	9.76E+01
	5	134.99	4.44E+01	54.01			4.44E+01	5.40E+01
	6	186.33	2.07E+02	86.05	3.36E+01	5.83E+00	1.73E+02	8.62E+01
	7	209.66	5.64E+01	66.03			5.64E+01	6.60E+01
M	8	238.92	7.49E+02	77.61	1.14E+01	5.08E+00	7.38E+02	7.78E+01
m	9	242.15	1.40E+02	73.97			1.40E+02	7.40E+01
	10	270.63	7.88E+01	54.77			7.88E+01	5.48E+01
	11	278.16	3.56E+01	40.80			3.56E+01	4.08E+01
M	12	295.54	2.08E+02	49.34			2.08E+02	4.93E+01
m	13	300.63	5.73E+01	36.91			5.73E+01	3.69E+01
	14	338.68	1.42E+02	59.51	0.00E+00	0.00E+00	1.42E+02	5.95E+01
	15	352.16	3.55E+02	61.41			3.55E+02	6.14E+01
	16	410.01	5.02E+01	40.05			5.02E+01	4.00E+01
	17	463.09	6.03E+01	42.67			6.03E+01	4.27E+01
	18	510.80	1.18E+02	43.31	5.38E+01	4.80E+00	6.37E+01	4.36E+01
	19	583.11	2.01E+02	45.79	1.58E+00	2.86E+00	1.99E+02	4.59E+01
	20	608.99	2.19E+02	59.86	3.58E+00	2.96E+00	2.15E+02	5.99E+01

Analysis Report for 1707082-10

HTC-A01-S005-2430-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	21	795.22	1.90E+01	20.98			1.90E+01	2.10E+01
	22	818.13	1.60E+01	16.70			1.60E+01	1.67E+01
	23	840.75	1.68E+01	21.21			1.68E+01	2.12E+01
	24	860.52	4.28E+01	35.68			4.28E+01	3.57E+01
	25	911.07	1.57E+02	33.59			1.57E+02	3.36E+01
	26	951.69	3.60E+01	27.60			3.60E+01	2.76E+01
M	27	965.01	1.81E+01	13.53			1.81E+01	1.35E+01
m	28	968.80	7.15E+01	29.78			7.15E+01	2.98E+01
	29	1076.44	2.03E+01	21.35			2.03E+01	2.14E+01
	30	1120.26	3.30E+01	31.18			3.30E+01	3.12E+01
	31	1377.48	1.99E+01	11.69			1.99E+01	1.17E+01
	32	1384.72	1.13E+01	11.00			1.13E+01	1.10E+01
	33	1431.17	1.09E+01	10.63			1.09E+01	1.06E+01
	34	1460.60	5.74E+02	50.06	3.11E+00	2.06E+00	5.71E+02	5.01E+01
	35	1537.53	8.07E+00	10.20			8.07E+00	1.02E+01
	36	1595.03	1.94E+01	16.25			1.94E+01	1.62E+01
	37	1764.02	2.58E+01	14.39			2.58E+01	1.44E+01
	38	1814.49	5.00E+00	4.47			5.00E+00	4.47E+00
	39	1820.62	4.25E+00	5.74			4.25E+00	5.74E+00
	40	2206.76	1.36E+01	17.91			1.36E+01	1.79E+01
	41	2257.06	8.00E+00	5.66			8.00E+00	5.66E+00
	42	2264.58	7.00E+00	5.29			7.00E+00	5.29E+00
	43	2613.97	6.50E+01	16.12	1.69E+00	9.96E-01	6.33E+01	1.62E+01
	44	2795.42	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 : 8/15/2017 9:04:57AM

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	76.44	1.12E+03	154.72			1.12E+03	1.55E+02
2	88.08	1.70E+02	104.52			1.70E+02	1.05E+02
3	93.50	2.07E+02	97.69	7.43E+01	4.99E+00	1.32E+02	9.78E+01
4	128.33	1.63E+02	97.64			1.63E+02	9.76E+01

Analysis Report for 1707082-10

HTC-A01-S005-2430-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	5	134.99	4.44E+01	54.01			4.44E+01	5.40E+01
	6	186.33	2.07E+02	86.05	3.36E+01	5.83E+00	1.73E+02	8.62E+01
	7	209.66	5.64E+01	66.03			5.64E+01	6.60E+01
M	8	238.92	7.49E+02	77.61	1.14E+01	5.08E+00	7.38E+02	7.78E+01
m	9	242.15	1.40E+02	73.97			1.40E+02	7.40E+01
	10	270.63	7.88E+01	54.77			7.88E+01	5.48E+01
	11	278.16	3.56E+01	40.80			3.56E+01	4.08E+01
M	12	295.54	2.08E+02	49.34			2.08E+02	4.93E+01
m	13	300.63	5.73E+01	36.91			5.73E+01	3.69E+01
	14	338.68	1.42E+02	59.51	0.00E+00	0.00E+00	1.42E+02	5.95E+01
	15	352.16	3.55E+02	61.41			3.55E+02	6.14E+01
	16	410.01	5.02E+01	40.05			5.02E+01	4.00E+01
	17	463.09	6.03E+01	42.67			6.03E+01	4.27E+01
	18	510.80	1.18E+02	43.31	5.38E+01	4.80E+00	6.37E+01	4.36E+01
	19	583.11	2.01E+02	45.79	1.58E+00	2.86E+00	1.99E+02	4.59E+01
	20	608.99	2.19E+02	59.86	3.58E+00	2.96E+00	2.15E+02	5.99E+01
	21	795.22	1.90E+01	20.98			1.90E+01	2.10E+01
	22	818.13	1.60E+01	16.70			1.60E+01	1.67E+01
	23	840.75	1.68E+01	21.21			1.68E+01	2.12E+01
	24	860.52	4.28E+01	35.68			4.28E+01	3.57E+01
	25	911.07	1.57E+02	33.59			1.57E+02	3.36E+01
	26	951.69	3.60E+01	27.60			3.60E+01	2.76E+01
M	27	965.01	1.81E+01	13.53			1.81E+01	1.35E+01
m	28	968.80	7.15E+01	29.78			7.15E+01	2.98E+01
	29	1076.44	2.03E+01	21.35			2.03E+01	2.14E+01
	30	1120.26	3.30E+01	31.18			3.30E+01	3.12E+01
	31	1377.48	1.99E+01	11.69			1.99E+01	1.17E+01
	32	1384.72	1.13E+01	11.00			1.13E+01	1.10E+01
	33	1431.17	1.09E+01	10.63			1.09E+01	1.06E+01
	34	1460.60	5.74E+02	50.06	3.11E+00	2.06E+00	5.71E+02	5.01E+01
	35	1537.53	8.07E+00	10.20			8.07E+00	1.02E+01
	36	1595.03	1.94E+01	16.25			1.94E+01	1.62E+01
	37	1764.02	2.58E+01	14.39			2.58E+01	1.44E+01
	38	1814.49	5.00E+00	4.47			5.00E+00	4.47E+00
	39	1820.62	4.25E+00	5.74			4.25E+00	5.74E+00
	40	2206.76	1.36E+01	17.91			1.36E+01	1.79E+01
	41	2257.06	8.00E+00	5.66			8.00E+00	5.66E+00
	42	2264.58	7.00E+00	5.29			7.00E+00	5.29E+00
	43	2613.97	6.50E+01	16.12	1.69E+00	9.96E-01	6.33E+01	1.62E+01
	44	2795.42	5.00E+00	4.47			5.00E+00	4.47E+00

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

Analysis Report for 1707082-10

HTC-A01-S005-2430-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.993	1460.81	*	10.67	2.09E+01	2.57E+00
CD-109	0.999	88.03	*	3.72	2.50E+00	1.56E+00
SN-126	0.959	87.57	*	37.00	2.18E-01	1.36E-01
TL-208	0.962	583.14	*	30.22	1.16E+00	2.90E-01
		860.37	*	4.48	2.39E+00	2.00E+00
		2614.66	*	35.85	1.02E+00	2.78E-01
PB-212	0.984	238.63	*	44.60	1.33E+00	1.78E-01
		300.09	*	3.41	1.64E+00	1.07E+00
BI-214	0.918	609.31	*	46.30	8.55E-01	2.51E-01
		1120.29	*	15.10	6.87E-01	6.52E-01
		1764.49	*	15.80	7.38E-01	4.16E-01
		2204.22		4.98		
PB-214	0.988	295.21	*	19.19	1.04E+00	2.63E-01
		351.92	*	37.19	1.07E+00	2.09E-01
RA-226	0.998	186.21	*	3.28	3.49E+00	6.63E+00
AC-228	0.991	338.32	*	11.40	1.35E+00	5.79E-01
		911.07	*	27.70	1.49E+00	3.40E-01
		969.11	*	16.60	1.20E+00	5.07E-01
CM-243	0.345	209.75	*	3.29	1.25E+00	1.46E+00
		228.14		10.60		
		277.60	*	14.00	2.34E-01	2.69E-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 9:04:57AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Analysis Report for 1707082-10

HTC-A01-S005-2430-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	76.44	3.09988E-01	6.93		
	3	93.50	3.67387E-02	36.98	Tol.	GA-67
	4	128.33	4.51598E-02	30.03		
	5	134.99	1.23324E-02	60.83		
m	9	242.15	3.90138E-02	26.33		
	10	270.63	2.18985E-02	34.74		
	16	410.01	1.39419E-02	39.90	Tol.	HO-166M
	17	463.09	1.67585E-02	35.37	Tol.	SB-125
	18	510.80	1.76849E-02	34.22	Sum	
	21	795.22	5.26786E-03	55.30	Sum	
	22	818.13	4.45833E-03	52.01	Sum	
	23	840.75	4.66049E-03	63.22		
	26	951.69	9.98737E-03	38.38		
M	27	965.01	5.04003E-03	37.28	Tol.	EU-152
	29	1076.44	5.63889E-03	52.60		
	31	1377.48	5.53889E-03	29.32		
	32	1384.72	3.13596E-03	48.72	Tol.	AG-110M
	33	1431.17	3.02083E-03	48.87		
	35	1537.53	2.24206E-03	63.17		
	36	1595.03	5.37963E-03	41.95		
	38	1814.49	1.38889E-03	44.72		
	39	1820.62	1.18056E-03	67.58		
	40	2206.76	3.78739E-03	65.68		
	41	2257.06	2.22222E-03	35.36		
	42	2264.58	1.94444E-03	37.80		
	44	2795.42	1.38889E-03	44.72		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81	*	10.67	2.09E+01	2.57E+00
CD-109	0.99	88.03	*	3.72	2.50E+00	1.56E+00

Analysis Report for 1707082-10

HTC-A01-S005-2430-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
SN-126	0.95	87.57	*	37.00	2.18E-01	1.36E-01
TL-208	0.96	583.14	*	30.22	1.16E+00	2.90E-01
		860.37	*	4.48	2.39E+00	2.00E+00
		2614.66	*	35.85	1.02E+00	2.78E-01
PB-212	0.98	238.63	*	44.60	1.33E+00	1.78E-01
		300.09	*	3.41	1.64E+00	1.07E+00
BI-214	0.91	609.31	*	46.30	8.55E-01	2.51E-01
		1120.29	*	15.10	6.87E-01	6.52E-01
		1764.49	*	15.80	7.38E-01	4.16E-01
		2204.22		4.98		
PB-214	0.98	295.21	*	19.19	1.04E+00	2.63E-01
		351.92	*	37.19	1.07E+00	2.09E-01
RA-226	0.99	186.21	*	3.28	3.49E+00	6.63E+00
AC-228	0.99	338.32	*	11.40	1.35E+00	5.79E-01
		911.07	*	27.70	1.49E+00	3.40E-01
		969.11	*	16.60	1.20E+00	5.07E-01
CM-243	0.34	209.75	*	3.29	1.25E+00	1.46E+00
		228.14		10.60		
		277.60	*	14.00	2.34E-01	2.69E-01

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.993	2.09E+01	2.57E+00	
?	CD-109	0.999	2.50E+00	1.56E+00	
?	SN-126	0.959	2.18E-01	1.36E-01	
	TL-208	0.962	1.10E+00	2.00E-01	
	PB-212	0.984	1.34E+00	1.76E-01	
	BI-214	0.918	8.10E-01	2.04E-01	
	PB-214	0.988	1.06E+00	1.63E-01	
	RA-226	0.998	3.49E+00	6.63E+00	

Analysis Report for 1707082-10

HTC-A01-S005-2430-01

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
AC-228	0.991	1.39E+00	2.54E-01	
CM-243	0.345	2.66E-01	2.64E-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 1707082-10

HTC-A01-S005-2430-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 9:04:57AM
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	76.44	3.09988E-01	6.93		
	3	93.50	3.67387E-02	36.98	Tol.	GA-67
	4	128.33	4.51598E-02	30.03		
	5	134.99	1.23324E-02	60.83		
m	9	242.15	3.90138E-02	26.33		
	10	270.63	2.18985E-02	34.74		
	16	410.01	1.39419E-02	39.90	Tol.	HO-166M
	17	463.09	1.67585E-02	35.37	Tol.	SB-125
	18	510.80	1.76849E-02	34.22	Sum	
	21	795.22	5.26786E-03	55.30	Sum	
	22	818.13	4.45833E-03	52.01	Sum	
	23	840.75	4.66049E-03	63.22		
	26	951.69	9.98737E-03	38.38		
M	27	965.01	5.04003E-03	37.28	Tol.	EU-152
	29	1076.44	5.63889E-03	52.60		
	31	1377.48	5.53889E-03	29.32		
	32	1384.72	3.13596E-03	48.72	Tol.	AG-110M
	33	1431.17	3.02083E-03	48.87		
	35	1537.53	2.24206E-03	63.17		
	36	1595.03	5.37963E-03	41.95		
	38	1814.49	1.38889E-03	44.72		
	39	1820.62	1.18056E-03	67.58		
	40	2206.76	3.78739E-03	65.68		
	41	2257.06	2.22222E-03	35.36		
	42	2264.58	1.94444E-03	37.80		
	44	2795.42	1.38889E-03	44.72		

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

Analysis Report for 1707082-10

HTC-A01-S005-2430-01

NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	-2.19E-01	2.37E+00	2.37E+00
+		NA-22	1274.54		99.94	-4.81E-02	1.06E-01	1.06E-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	1.84E-02	6.05E-02	6.05E-02
+		K-40	1460.81	*	10.67	2.09E+01	1.01E+00	1.01E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	-6.62E-03	6.79E-02	6.79E-02
			78.34		96.00	2.34E-01		8.38E-02
+		SC-46	889.25		99.98	5.20E-02	2.10E-01	2.10E-01
			1120.51		99.99	1.38E-01		2.85E-01
+		V-48	983.52		99.98	-2.04E+00	4.57E+00	4.57E+00
			1312.10		97.50	-2.24E+00		5.47E+00
+		CR-51	320.08		9.83	1.61E+00	6.79E+00	6.79E+00
+		MN-54	834.83		99.97	-1.57E-02	1.14E-01	1.14E-01
+		CO-56	846.75		99.96	5.51E-02	2.03E-01	2.03E-01
			1037.75		14.03	-3.95E-02		1.58E+00
			1238.25		67.00	-6.90E-02		4.70E-01
			1771.40		15.51	3.34E-02		1.00E+00
			2598.48		16.90	-4.69E-01		7.25E-01
+		CO-57	122.06		85.51	-2.45E-02	6.64E-02	6.64E-02
			136.48		10.60	1.71E-01		5.83E-01
+		CO-58	810.76		99.40	8.25E-03	2.18E-01	2.18E-01
+		FE-59	1099.22		56.50	3.20E-01	7.85E-01	7.85E-01
			1291.56		43.20	-2.95E-02		9.97E-01
+		CO-60	1173.22		100.00	8.33E-03	1.03E-01	1.25E-01
			1332.49		100.00	-3.97E-02		1.03E-01
+		ZN-65	1115.52		50.75	7.71E-03	2.56E-01	2.56E-01
+		GA-67	93.31		35.70	1.40E+08	8.47E+07	8.47E+07
			208.95		2.24	8.38E+08		1.43E+09
			300.22		16.00	-4.45E+08		2.31E+08
+		SE-75	121.11		16.70	-2.71E-01	1.41E-01	4.66E-01
			136.00		59.20	3.88E-02		1.41E-01
			264.65		59.80	5.16E-02		1.79E-01
			279.53		25.20	2.56E-02		4.63E-01
			400.65		11.40	7.15E-01		1.14E+00
+		RB-82	776.52		13.00	-6.30E+00	7.09E+00	7.09E+00
+		RB-83	520.41		46.00	3.05E-02	3.20E-01	3.20E-01
			529.64		30.30	-2.66E-01		4.75E-01
			552.65		16.40	-1.83E-01		9.41E-01
+		KR-85	513.99		0.43	-5.12E-01	2.38E+01	2.38E+01
+		SR-85	513.99		99.27	-6.02E-03	2.80E-01	2.80E-01

Analysis Report for 1707082-10

HTC-A01-S005-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	Y-88	898.02		93.40	-1.03E-02	1.30E-01	1.89E-01
		1836.01		99.38	2.22E-02		1.30E-01
+	MO-93	263.06		56.72	2.43E-02	7.62E-02	1.12E-01
		684.67		99.68	1.49E-02		8.07E-02
		1477.11		99.08	9.11E-03		7.62E-02
+	NB-93M	16.57		9.43	-7.52E-01	7.26E+01	7.26E+01
+	NB-94	702.63		100.00	3.99E-02	9.17E-02	9.53E-02
		871.10		100.00	2.07E-02		9.17E-02
+	NB-95	765.79		99.81	3.58E-01	6.55E-01	6.55E-01
+	NB-95M	235.69		25.00	3.27E+07	2.95E+07	2.95E+07
+	ZR-95	724.18		43.70	-5.99E-02	4.43E-01	5.85E-01
		756.72		55.30	2.43E-01		4.43E-01
+	MO-99	181.06		6.20	3.57E+09	1.39E+10	1.61E+10
		739.58		12.80	2.55E+09		1.39E+10
		778.00		4.50	-3.99E+10		2.98E+10
+	RU-103	497.08		89.00	-8.79E-02	3.68E-01	3.68E-01
+	RU-106	621.84		9.80	5.37E-01	9.37E-01	9.37E-01
+	AG-108M	433.93		89.90	-6.19E-02	7.14E-02	7.14E-02
		614.37		90.40	-7.39E-03		9.76E-02
		722.95		90.50	-1.19E-01		9.05E-02
+	CD-109	88.03	*	3.72	2.50E+00	2.50E+00	2.50E+00
+	AG-110M	657.75		93.14	-3.15E-02	1.10E-01	1.10E-01
		677.61		10.53	-2.55E-01		9.04E-01
		706.67		16.46	-3.73E-01		6.71E-01
		763.93		21.98	-1.36E-01		5.43E-01
		884.67		71.63	-2.47E-02		1.56E-01
		1384.27		23.94	1.57E-01		4.78E-01
+	CD-113M	263.70		0.02	1.39E+02	2.76E+02	2.76E+02
+	SN-113	255.12		1.93	2.50E+00	1.79E-01	5.68E+00
		391.69		64.90	7.36E-02		1.79E-01
+	TE123M	159.00		84.10	-5.14E-02	9.83E-02	9.83E-02
+	SB-124	602.71		97.87	-6.58E-02	2.66E-01	2.66E-01
		645.85		7.26	-1.18E-01		3.13E+00
		722.78		11.10	-2.86E+00		2.18E+00
		1691.02		49.00	1.32E-01		4.40E-01
+	I-125	35.49		6.49	-4.91E-01	5.89E+00	5.89E+00
+	SB-125	176.33		6.89	-7.67E-02	2.63E-01	7.82E-01
		427.89		29.33	9.33E-02		2.63E-01
		463.38		10.35	9.50E-01		8.69E-01
		600.56		17.80	-1.76E-01		5.23E-01
		635.90		11.32	-2.49E-01		6.76E-01
+	SB-126	414.70		83.30	-7.31E+00	1.49E+01	1.50E+01
		666.33		99.60	-2.19E+00		1.49E+01
		695.00		99.60	8.08E-01		1.74E+01
		720.50		53.80	4.33E-01		2.80E+01
+	SN-126	87.57	*	37.00	2.18E-01	2.18E-01	2.18E-01
+	SB-127	473.00		25.00	-2.60E+06	5.07E+06	6.33E+06
		685.20		35.70	9.37E+05		5.07E+06

Analysis Report for 1707082-10

HTC-A01-S005-2430-01

		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		SB-127	783.80	14.70	9.41E+06	5.07E+06	1.44E+07
+		I-129	29.78	57.00	5.80E-02	4.18E-01	4.18E-01
			33.60	13.20	-1.72E-01		1.16E+00
			39.58	7.52	3.01E-01		1.35E+00
+		I-131	284.30	6.05	-2.31E+03	2.76E+02	3.50E+03
			364.48	81.20	-8.08E+01		2.76E+02
			636.97	7.26	-1.16E+03		3.30E+03
			722.89	1.80	-1.99E+04		1.52E+04
+		TE-132	49.72	13.10	-1.90E+08	3.72E+07	2.74E+08
			228.16	88.00	4.00E+06		3.72E+07
+		BA-133	81.00	33.00	-6.79E-01	1.59E-01	1.80E-01
			302.84	17.80	-2.36E-02		4.04E-01
			356.01	60.00	2.04E-02		1.59E-01
+	@	I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+		XE-133	81.00	38.00	-1.47E+05	3.89E+04	3.89E+04
+		CS-134	563.23	8.38	5.29E-01	1.07E-01	1.13E+00
			569.32	15.43	-2.57E-01		5.45E-01
			604.70	97.60	-5.09E-01		1.07E-01
			795.84	85.40	3.08E-02		1.19E-01
			801.93	8.73	-4.36E-01		1.04E+00
+		CS-135	268.24	16.00	7.01E-03	4.34E-01	4.34E-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	3.34E+00	1.26E+01	9.79E+01
			163.89	4.61	1.70E+01		1.54E+02
			176.55	13.56	-5.20E+00		5.30E+01
			273.65	12.66	-4.49E+01		7.53E+01
			340.57	48.50	3.47E+01		2.56E+01
			818.50	99.70	7.19E-01		1.26E+01
			1048.07	79.60	4.19E+00		1.80E+01
			1235.34	19.70	3.20E+01		9.69E+01
+		CS-137	661.65	85.12	7.99E-03	9.81E-02	9.81E-02
+		LA-138	788.74	34.00	1.07E-01	8.78E-02	2.68E-01
			1435.80	66.00	-1.12E-02		8.78E-02
+		CE-139	165.85	80.35	-1.54E-03	1.02E-01	1.02E-01
+		BA-140	162.64	6.70	4.71E+01	5.18E+01	1.22E+02
			304.84	4.50	3.43E+01		2.32E+02
			423.70	3.20	2.51E+02		4.03E+02
			437.55	2.00	6.47E+01		5.67E+02
			537.32	25.00	2.09E+01		5.18E+01
+		LA-140	328.77	20.50	3.43E+01	1.87E+01	5.59E+01
			487.03	45.50	2.60E+00		2.62E+01
			815.85	23.50	1.29E+00		6.20E+01
			1596.49	95.49	9.87E+00		1.87E+01
+		CE-141	145.44	48.40	2.46E-01	7.54E-01	7.54E-01
+	@	CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26
	@		293.26	42.00	1.00E+26		1.00E+26
	@		664.55	5.20	1.00E+26		1.00E+26

Analysis Report for 1707082-10

HTC-A01-S005-2430-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CE-144	133.54	10.80	9.80E-02	5.73E-01	5.73E-01
+	PM-144	476.78	42.00	-1.67E-03	8.62E-02	2.09E-01
		618.01	98.60	-3.22E-02		8.62E-02
		696.49	99.49	8.73E-03		1.09E-01
+	PM-145	36.85	21.70	-2.67E-01	2.88E-01	5.46E-01
		37.36	39.70	-1.07E-01		2.88E-01
		42.30	15.10	-4.54E-01		5.92E-01
		72.40	2.31	-5.80E+00		3.10E+00
+	PM-146	453.90	39.94	1.16E-01	1.78E-01	1.78E-01
		735.90	14.01	1.11E-01		6.27E-01
		747.13	13.10	-1.69E-01		6.64E-01
+	ND-147	91.11	28.90	-7.48E+01	8.29E+01	8.29E+01
		531.02	13.10	3.35E+01		2.13E+02
+	PM-149	285.90	3.10	-4.02E+12	1.36E+13	1.36E+13
+	EU-152	121.78	20.50	-8.12E-02	2.20E-01	2.20E-01
		244.69	5.40	1.32E-02		1.35E+00
		344.27	19.13	4.61E-02		3.57E-01
		778.89	9.20	-4.52E-01		8.20E-01
		964.01	10.40	-2.69E-02		1.06E+00
		1085.78	7.22	-5.26E-01		1.30E+00
		1112.02	9.60	4.12E-01		1.11E+00
		1407.95	14.94	2.71E-02		5.92E-01
+	GD-153	97.43	31.30	1.44E-02	1.99E-01	1.99E-01
		103.18	22.20	-1.25E-01		2.61E-01
+	EU-154	123.07	40.50	-8.45E-03	1.18E-01	1.18E-01
		723.30	19.70	-5.56E-01		4.24E-01
		873.19	11.50	3.16E-01		8.44E-01
		996.32	10.30	-1.39E-01		9.75E-01
		1004.76	17.90	-3.04E-01		4.67E-01
		1274.45	35.50	-1.29E-01		2.84E-01
+	EU-155	86.50	30.90	1.51E-01	2.14E-01	2.14E-01
		105.30	20.70	-1.34E-03		2.21E-01
+	EU-156	811.77	10.40	-1.33E+01	5.80E+01	5.80E+01
		1153.47	7.20	1.15E+01		1.08E+02
		1230.71	8.90	3.48E+01		1.03E+02
+	HO-166M	184.41	72.60	1.17E-01	8.76E-02	8.76E-02
		280.45	29.60	7.91E-03		2.28E-01
		410.94	11.10	1.64E-01		6.78E-01
		711.69	54.10	1.15E-01		1.66E-01
+	TM-171	66.72	0.14	-4.58E+01	5.13E+01	5.13E+01
+	HF-172	67.35	5.31	-1.30E-01	4.78E-01	1.33E+00
		125.81	11.30	-2.29E-01		4.78E-01
+	LU-172	181.53	20.60	1.54E+03	2.86E+03	4.16E+03
		900.72	29.81	1.10E+03		5.36E+03
		1093.66	62.50	1.44E+03		2.86E+03
+	LU-173	100.72	5.24	5.09E-01	3.85E-01	1.01E+00
		272.11	21.20	4.81E-01		3.85E-01
+	HF-175	343.40	84.00	2.62E-02	2.03E-01	2.03E-01
+	LU-176	88.34	13.30	6.87E-01	5.85E-02	4.93E-01

Analysis Report for 1707082-10

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LU-176	201.83		86.00	-1.22E-02	5.85E-02	5.85E-02
		306.78		94.00	7.40E-03		6.79E-02
+	HF-181	133.02		41.70	-2.87E-01	4.26E-01	5.48E-01
		345.85		17.20	2.37E-01		1.69E+00
		482.03		82.80	2.63E-02		4.26E-01
+	TA-182	67.75		41.20	-2.68E-02	2.75E-01	2.75E-01
		1121.30		34.90	6.38E-01		6.98E-01
		1189.05		16.23	-1.34E-01		1.29E+00
		1221.41		26.98	-3.21E-01		8.04E-01
		1231.02		11.44	6.52E-01		1.92E+00
+	IR-192	308.46		29.68	4.83E-03	3.56E-01	5.15E-01
		468.07		48.10	5.55E-03		3.56E-01
+	HG-203	279.19		77.30	6.87E-02	3.42E-01	3.42E-01
+	TL-204	374.74		94.11	-7.95E-04	7.32E-02	7.32E-02
		899.15		99.16	1.78E-02		1.02E-01
		911.74		91.10	3.82E-01		1.97E-01
+	BI-207	569.67		97.72	-2.64E-02	7.89E-02	7.89E-02
		1063.62		74.90	-3.18E-02		1.19E-01
+	TL-208	583.14	*	30.22	1.16E+00	1.18E-01	3.64E-01
		860.37	*	4.48	2.39E+00		3.20E+00
		2614.66	*	35.85	1.02E+00		1.18E-01
+	BI-210M	262.00		45.00	-8.38E-03	1.36E-01	1.36E-01
		300.00		23.00	-6.34E-01		3.29E-01
+	PB-210	46.50		4.25	1.55E+00	1.99E+00	1.99E+00
+	PB-211	404.84		2.90	5.84E-01	2.47E+00	2.47E+00
		831.96		2.90	7.58E-01		3.39E+00
+	BI-212	727.17		11.80	3.41E-01	8.23E-01	8.23E-01
		1620.62		2.75	1.23E+00		3.20E+00
+	PB-212	238.63	*	44.60	1.33E+00	2.38E-01	2.38E-01
		300.09	*	3.41	1.64E+00		3.17E+00
+	BI-214	609.31	*	46.30	8.55E-01	3.52E-01	3.52E-01
		1120.29	*	15.10	6.87E-01		1.05E+00
		1764.49	*	15.80	7.38E-01		5.57E-01
		2204.22		4.98	4.90E-01		2.19E+00
+	PB-214	295.21	*	19.19	1.04E+00	2.49E-01	5.65E-01
		351.92	*	37.19	1.07E+00		2.49E-01
+	RN-219	401.80		6.50	1.89E-01	1.12E+00	1.12E+00
+	RA-223	323.87		3.88	-2.23E+00	1.57E+00	1.57E+00
+	RA-224	240.98		3.95	1.72E+01	3.21E+00	3.21E+00
+	RA-225	40.00		31.00	5.85E+00	2.62E+01	2.62E+01
+	RA-226	186.21	*	3.28	3.49E+00	2.78E+00	2.78E+00
+	TH-227	50.10		8.40	-5.91E-01	8.53E-01	8.53E-01
		236.00		11.50	1.01E+00		9.09E-01
		256.20		6.30	1.01E-01		9.80E-01
+	AC-228	338.32	*	11.40	1.35E+00	3.75E-01	8.79E-01
		911.07	*	27.70	1.49E+00		3.75E-01
		969.11	*	16.60	1.20E+00		8.66E-01
+	TH-230	48.44		16.90	2.09E-01	4.62E-01	4.62E-01

Analysis Report for 1707082-10

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TH-230	62.85		4.60	8.33E-01	4.62E-01	1.56E+00
		67.67		0.37	-1.69E+00		1.73E+01
+	PA-231	283.67		1.60	-1.48E+00	3.07E+00	3.95E+00
		302.67		2.30	-1.80E-01		3.07E+00
+	TH-231	25.64		14.70	6.84E-01	9.20E-01	2.99E+00
		84.21		6.40	1.16E-02		9.20E-01
+	PA-233	311.98		38.60	-4.92E-01	1.80E+00	1.80E+00
+	PA-234	131.20		20.40	2.27E-02	2.52E-01	2.52E-01
		733.99		8.80	-9.88E-02		9.49E-01
		946.00		12.00	3.14E-01		7.20E-01
+	PA-234M	1001.03		0.92	4.46E+00	1.11E+01	1.11E+01
+	TH-234	63.29		3.80	1.74E+00	1.89E+00	1.89E+00
+	U-235	143.76		10.50	2.10E-01	4.70E-01	4.70E-01
		163.35		4.70	1.17E-01		1.06E+00
		205.31		4.70	1.10E-01		1.34E+00
+	NP-237	86.50		12.60	3.57E-01	5.07E-01	5.07E-01
+	NP-239	106.10		22.70	-1.27E+09	2.09E+11	2.09E+11
		228.18		10.70	7.12E+10		6.62E+11
		277.60		14.10	5.51E+10		4.94E+11
+	AM-241	59.54		35.90	-1.23E-01	1.86E-01	1.86E-01
+	AM-243	74.67		66.00	1.18E-01	1.26E-01	1.26E-01
+	CM-243	209.75	*	3.29	1.25E+00	4.39E-01	2.40E+00
		228.14		10.60	6.74E-02		6.26E-01
		277.60	*	14.00	2.34E-01		4.39E-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 1707082-10

HTC-A01-S005-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	2.37E+00	2.37E+00	-2.19E-01	1.12E+00
	NA-22	1274.54		99.94	1.06E-01	1.06E-01	-4.81E-02	4.78E-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	6.05E-02	6.05E-02	1.84E-02	2.40E-02
+	K-40	1460.81	*	10.67	1.01E+00	1.01E+00	2.09E+01	4.54E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	6.79E-02	6.79E-02	-6.62E-03	3.32E-02
		78.34		96.00	8.38E-02		2.34E-01	4.12E-02
	SC-46	889.25		99.98	2.10E-01	2.10E-01	5.20E-02	9.76E-02
		1120.51		99.99	2.85E-01		1.38E-01	1.33E-01
	V-48	983.52		99.98	4.57E+00	4.57E+00	-2.04E+00	2.06E+00
		1312.10		97.50	5.47E+00		-2.24E+00	2.44E+00
	CR-51	320.08		9.83	6.79E+00	6.79E+00	1.61E+00	3.24E+00
	MN-54	834.83		99.97	1.14E-01	1.14E-01	-1.57E-02	5.27E-02
	CO-56	846.75		99.96	2.03E-01	2.03E-01	5.51E-02	9.39E-02
		1037.75		14.03	1.58E+00		-3.95E-02	7.25E-01
		1238.25		67.00	4.70E-01		-6.90E-02	2.19E-01
		1771.40		15.51	1.00E+00		3.34E-02	4.12E-01
		2598.48		16.90	7.25E-01		-4.69E-01	2.57E-01
	CO-57	122.06		85.51	6.64E-02	6.64E-02	-2.45E-02	3.22E-02
		136.48		10.60	5.83E-01		1.71E-01	2.83E-01
	CO-58	810.76		99.40	2.18E-01	2.18E-01	8.25E-03	1.01E-01
	FE-59	1099.22		56.50	7.85E-01	7.85E-01	3.20E-01	3.60E-01
		1291.56		43.20	9.97E-01		-2.95E-02	4.51E-01
	CO-60	1173.22		100.00	1.25E-01	1.03E-01	8.33E-03	5.78E-02
		1332.49		100.00	1.03E-01		-3.97E-02	4.63E-02
	ZN-65	1115.52		50.75	2.56E-01	2.56E-01	7.71E-03	1.17E-01
	GA-67	93.31		35.70	8.47E+07	8.47E+07	1.40E+08	4.15E+07
		208.95		2.24	1.43E+09		8.38E+08	6.95E+08
		300.22		16.00	2.31E+08		-4.45E+08	1.11E+08
	SE-75	121.11		16.70	4.66E-01	1.41E-01	-2.71E-01	2.26E-01
		136.00		59.20	1.41E-01		3.88E-02	6.84E-02
		264.65		59.80	1.79E-01		5.16E-02	8.63E-02
		279.53		25.20	4.63E-01		2.56E-02	2.23E-01
		400.65		11.40	1.14E+00		7.15E-01	5.45E-01
	RB-82	776.52		13.00	7.09E+00	7.09E+00	-6.30E+00	3.24E+00
	RB-83	520.41		46.00	3.20E-01	3.20E-01	3.05E-02	1.50E-01
		529.64		30.30	4.75E-01		-2.66E-01	2.22E-01
		552.65		16.40	9.41E-01		-1.83E-01	4.41E-01
	KR-85	513.99		0.43	2.38E+01	2.38E+01	-5.12E-01	1.14E+01
	SR-85	513.99		99.27	2.80E-01	2.80E-01	-6.02E-03	1.34E-01
	Y-88	898.02		93.40	1.89E-01	1.30E-01	-1.03E-02	8.77E-02
		1836.01		99.38	1.30E-01		2.22E-02	5.31E-02
	MO-93	263.06		56.72	1.12E-01	7.62E-02	2.43E-02	5.37E-02
		684.67		99.68	8.07E-02		1.49E-02	3.75E-02
		1477.11		99.08	7.62E-02		9.11E-03	3.26E-02
	NB-93M	16.57		9.43	7.26E+01	7.26E+01	-7.52E-01	3.53E+01
	NB-94	702.63		100.00	9.53E-02	9.17E-02	3.99E-02	4.48E-02
		871.10		100.00	9.17E-02		2.07E-02	4.24E-02
	NB-95	765.79		99.81	6.55E-01	6.55E-01	3.58E-01	3.08E-01
	NB-95M	235.69		25.00	2.95E+07	2.95E+07	3.27E+07	1.44E+07
	ZR-95	724.18		43.70	5.85E-01	4.43E-01	-5.99E-02	2.74E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	ZR-95	756.72		55.30	4.43E-01	4.43E-01	2.43E-01	2.07E-01
	MO-99	181.06		6.20	1.61E+10	1.39E+10	3.57E+09	7.78E+09
		739.58		12.80	1.39E+10		2.55E+09	6.48E+09
		778.00		4.50	2.98E+10		-3.99E+10	1.35E+10
	RU-103	497.08		89.00	3.68E-01	3.68E-01	-8.79E-02	1.72E-01
	RU-106	621.84		9.80	9.37E-01	9.37E-01	5.37E-01	4.38E-01
	AG-108M	433.93		89.90	7.14E-02	7.14E-02	-6.19E-02	3.36E-02
		614.37		90.40	9.76E-02		-7.39E-03	4.60E-02
		722.95		90.50	9.05E-02		-1.19E-01	4.20E-02
+	CD-109	88.03	*	3.72	2.50E+00	2.50E+00	2.50E+00	1.23E+00
	AG-110M	657.75		93.14	1.10E-01	1.10E-01	-3.15E-02	5.11E-02
		677.61		10.53	9.04E-01		-2.55E-01	4.18E-01
		706.67		16.46	6.71E-01		-3.73E-01	3.13E-01
		763.93		21.98	5.43E-01		-1.36E-01	2.53E-01
		884.67		71.63	1.56E-01		-2.47E-02	7.17E-02
		1384.27		23.94	4.78E-01		1.57E-01	2.11E-01
	CD-113M	263.70		0.02	2.76E+02	2.76E+02	1.39E+02	1.33E+02
	SN-113	255.12		1.93	5.68E+00	1.79E-01	2.50E+00	2.73E+00
		391.69		64.90	1.79E-01		7.36E-02	8.47E-02
	TE123M	159.00		84.10	9.83E-02	9.83E-02	-5.14E-02	4.75E-02
	SB-124	602.71		97.87	2.66E-01	2.66E-01	-6.58E-02	1.25E-01
		645.85		7.26	3.13E+00		-1.18E-01	1.46E+00
		722.78		11.10	2.18E+00		-2.86E+00	1.01E+00
		1691.02		49.00	4.40E-01		1.32E-01	1.84E-01
	I-125	35.49		6.49	5.89E+00	5.89E+00	-4.91E-01	2.86E+00
	SB-125	176.33		6.89	7.82E-01	2.63E-01	-7.67E-02	3.78E-01
		427.89		29.33	2.63E-01		9.33E-02	1.25E-01
		463.38		10.35	8.69E-01		9.50E-01	4.15E-01
		600.56		17.80	5.23E-01		-1.76E-01	2.47E-01
		635.90		11.32	6.76E-01		-2.49E-01	3.13E-01
	SB-126	414.70		83.30	1.50E+01	1.49E+01	-7.31E+00	7.10E+00
		666.33		99.60	1.49E+01		-2.19E+00	6.95E+00
		695.00		99.60	1.74E+01		8.08E-01	8.17E+00
		720.50		53.80	2.80E+01		4.33E-01	1.30E+01
+	SN-126	87.57	*	37.00	2.18E-01	2.18E-01	2.18E-01	1.07E-01
	SB-127	473.00		25.00	6.33E+06	5.07E+06	-2.60E+06	2.98E+06
		685.20		35.70	5.07E+06		9.37E+05	2.36E+06
		783.80		14.70	1.44E+07		9.41E+06	6.72E+06
	I-129	29.78		57.00	4.18E-01	4.18E-01	5.80E-02	2.04E-01
		33.60		13.20	1.16E+00		-1.72E-01	5.66E-01
		39.58		7.52	1.35E+00		3.01E-01	6.55E-01
	I-131	284.30		6.05	3.50E+03	2.76E+02	-2.31E+03	1.68E+03
		364.48		81.20	2.76E+02		-8.08E+01	1.32E+02
		636.97		7.26	3.30E+03		-1.16E+03	1.53E+03
		722.89		1.80	1.52E+04		-1.99E+04	7.05E+03
	TE-132	49.72		13.10	2.74E+08	3.72E+07	-1.90E+08	1.33E+08
		228.16		88.00	3.72E+07		4.00E+06	1.80E+07
	BA-133	81.00		33.00	1.80E-01	1.59E-01	-6.79E-01	8.80E-02
		302.84		17.80	4.04E-01		-2.36E-02	1.94E-01
		356.01		60.00	1.59E-01		2.04E-02	7.70E-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	3.89E+04	3.89E+04	-1.47E+05	1.90E+04
	CS-134	563.23		8.38	1.13E+00	1.07E-01	5.29E-01	5.34E-01

Analysis Report for 1707082-10

HTC-A01-S005-2430-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-134	569.32	15.43	5.45E-01	1.07E-01	-2.57E-01	2.56E-01
	604.70	97.60	1.07E-01		-5.09E-01	5.09E-02
	795.84	85.40	1.19E-01		3.08E-02	5.55E-02
	801.93	8.73	1.04E+00		-4.36E-01	4.78E-01
CS-135	268.24	16.00	4.34E-01	4.34E-01	7.01E-03	2.10E-01
@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41	28.60	1.00E+26		1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		1.00E+26	1.00E+20
CS-136	153.22	7.46	9.79E+01	1.26E+01	3.34E+00	4.74E+01
	163.89	4.61	1.54E+02		1.70E+01	7.44E+01
	176.55	13.56	5.30E+01		-5.20E+00	2.56E+01
	273.65	12.66	7.53E+01		-4.49E+01	3.63E+01
	340.57	48.50	2.56E+01		3.47E+01	1.24E+01
	818.50	99.70	1.26E+01		7.19E-01	5.84E+00
	1048.07	79.60	1.80E+01		4.19E+00	8.28E+00
	1235.34	19.70	9.69E+01		3.20E+01	4.51E+01
CS-137	661.65	85.12	9.81E-02	9.81E-02	7.99E-03	4.59E-02
LA-138	788.74	34.00	2.68E-01	8.78E-02	1.07E-01	1.25E-01
	1435.80	66.00	8.78E-02		-1.12E-02	3.60E-02
CE-139	165.85	80.35	1.02E-01	1.02E-01	-1.54E-03	4.91E-02
BA-140	162.64	6.70	1.22E+02	5.18E+01	4.71E+01	5.92E+01
	304.84	4.50	2.32E+02		3.43E+01	1.11E+02
	423.70	3.20	4.03E+02		2.51E+02	1.92E+02
	437.55	2.00	5.67E+02		6.47E+01	2.68E+02
	537.32	25.00	5.18E+01		2.09E+01	2.44E+01
LA-140	328.77	20.50	5.59E+01	1.87E+01	3.43E+01	2.68E+01
	487.03	45.50	2.62E+01		2.60E+00	1.24E+01
	815.85	23.50	6.20E+01		1.29E+00	2.88E+01
	1596.49	95.49	1.87E+01		9.87E+00	8.38E+00
CE-141	145.44	48.40	7.54E-01	7.54E-01	2.46E-01	3.65E-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	5.73E-01	5.73E-01	9.80E-02	2.78E-01
PM-144	476.78	42.00	2.09E-01	8.62E-02	-1.67E-03	9.87E-02
	618.01	98.60	8.62E-02		-3.22E-02	4.01E-02
	696.49	99.49	1.09E-01		8.73E-03	5.09E-02
PM-145	36.85	21.70	5.46E-01	2.88E-01	-2.67E-01	2.65E-01
	37.36	39.70	2.88E-01		-1.07E-01	1.40E-01
	42.30	15.10	5.92E-01		-4.54E-01	2.88E-01
	72.40	2.31	3.10E+00		-5.80E+00	1.52E+00
PM-146	453.90	39.94	1.78E-01	1.78E-01	1.16E-01	8.39E-02
	735.90	14.01	6.27E-01		1.11E-01	2.92E-01
	747.13	13.10	6.64E-01		-1.69E-01	3.08E-01
ND-147	91.11	28.90	8.29E+01	8.29E+01	-7.48E+01	4.06E+01
	531.02	13.10	2.13E+02		3.35E+01	1.00E+02
PM-149	285.90	3.10	1.36E+13	1.36E+13	-4.02E+12	6.52E+12
EU-152	121.78	20.50	2.20E-01	2.20E-01	-8.12E-02	1.07E-01
	244.69	5.40	1.35E+00		1.32E-02	6.57E-01
	344.27	19.13	3.57E-01		4.61E-02	1.70E-01
	778.89	9.20	8.20E-01		-4.52E-01	3.76E-01
	964.01	10.40	1.06E+00		-2.69E-02	4.93E-01
	1085.78	7.22	1.30E+00		-5.26E-01	5.91E-01

Analysis Report for 1707082-10

HTC-A01-S005-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-152	1112.02		9.60	1.11E+00	2.20E-01	4.12E-01	5.09E-01
		1407.95		14.94	5.92E-01		2.71E-02	2.61E-01
	GD-153	97.43		31.30	1.99E-01	1.99E-01	1.44E-02	9.67E-02
		103.18		22.20	2.61E-01		-1.25E-01	1.26E-01
	EU-154	123.07		40.50	1.18E-01	1.18E-01	-8.45E-03	5.72E-02
		723.30		19.70	4.24E-01		-5.56E-01	1.97E-01
		873.19		11.50	8.44E-01		3.16E-01	3.92E-01
		996.32		10.30	9.75E-01		-1.39E-01	4.49E-01
		1004.76		17.90	4.67E-01		-3.04E-01	2.12E-01
		1274.45		35.50	2.84E-01		-1.29E-01	1.28E-01
	EU-155	86.50		30.90	2.14E-01	2.14E-01	1.51E-01	1.05E-01
		105.30		20.70	2.21E-01		-1.34E-03	1.07E-01
	EU-156	811.77		10.40	5.80E+01	5.80E+01	-1.33E+01	2.67E+01
		1153.47		7.20	1.08E+02		1.15E+01	4.95E+01
		1230.71		8.90	1.03E+02		3.48E+01	4.75E+01
	HO-166M	184.41		72.60	8.76E-02	8.76E-02	1.17E-01	4.26E-02
		280.45		29.60	2.28E-01		7.91E-03	1.10E-01
		410.94		11.10	6.78E-01		1.64E-01	3.23E-01
		711.69		54.10	1.66E-01		1.15E-01	7.77E-02
	TM-171	66.72		0.14	5.13E+01	5.13E+01	-4.58E+01	2.51E+01
	HF-172	67.35		5.31	1.33E+00	4.78E-01	-1.30E-01	6.51E-01
		125.81		11.30	4.78E-01		-2.29E-01	2.32E-01
	LU-172	181.53		20.60	4.16E+03	2.86E+03	1.54E+03	2.01E+03
		900.72		29.81	5.36E+03		1.10E+03	2.48E+03
		1093.66		62.50	2.86E+03		1.44E+03	1.32E+03
	LU-173	100.72		5.24	1.01E+00	3.85E-01	5.09E-01	4.91E-01
		272.11		21.20	3.85E-01		4.81E-01	1.86E-01
	HF-175	343.40		84.00	2.03E-01	2.03E-01	2.62E-02	9.70E-02
	LU-176	88.34		13.30	4.93E-01	5.85E-02	6.87E-01	2.42E-01
		201.83		86.00	5.85E-02		-1.22E-02	2.81E-02
		306.78		94.00	6.79E-02		7.40E-03	3.25E-02
	HF-181	133.02		41.70	5.48E-01	4.26E-01	-2.87E-01	2.66E-01
		345.85		17.20	1.69E+00		2.37E-01	8.06E-01
		482.03		82.80	4.26E-01		2.63E-02	2.02E-01
	TA-182	67.75		41.20	2.75E-01	2.75E-01	-2.68E-02	1.34E-01
		1121.30		34.90	6.98E-01		6.38E-01	3.28E-01
		1189.05		16.23	1.29E+00		-1.34E-01	5.99E-01
		1221.41		26.98	8.04E-01		-3.21E-01	3.72E-01
		1231.02		11.44	1.92E+00		6.52E-01	8.91E-01
	IR-192	308.46		29.68	5.15E-01	3.56E-01	4.83E-03	2.46E-01
		468.07		48.10	3.56E-01		5.55E-03	1.68E-01
	HG-203	279.19		77.30	3.42E-01	3.42E-01	6.87E-02	1.65E-01
	TL-204	374.74		94.11	7.32E-02	7.32E-02	-7.95E-04	3.48E-02
		899.15		99.16	1.02E-01		1.78E-02	4.74E-02
		911.74		91.10	1.97E-01		3.82E-01	9.46E-02
	BI-207	569.67		97.72	7.89E-02	7.89E-02	-2.64E-02	3.70E-02
		1063.62		74.90	1.19E-01		-3.18E-02	5.40E-02
+	TL-208	583.14	*	30.22	3.64E-01	1.18E-01	1.16E+00	1.74E-01
		860.37	*	4.48	3.20E+00		2.39E+00	1.52E+00
		2614.66	*	35.85	1.18E-01		1.02E+00	3.70E-02
	BI-210M	262.00		45.00	1.36E-01	1.36E-01	-8.38E-03	6.55E-02
		300.00		23.00	3.29E-01		-6.34E-01	1.59E-01
	PB-210	46.50		4.25	1.99E+00	1.99E+00	1.55E+00	9.70E-01

Analysis Report for 1707082-10

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PB-211	404.84		2.90	2.47E+00	2.47E+00	5.84E-01	1.18E+00
		831.96		2.90	3.39E+00		7.58E-01	1.58E+00
	BI-212	727.17		11.80	8.23E-01	8.23E-01	3.41E-01	3.87E-01
		1620.62		2.75	3.20E+00		1.23E+00	1.39E+00
+	PB-212	238.63	*	44.60	2.38E-01	2.38E-01	1.33E+00	1.16E-01
		300.09	*	3.41	3.17E+00		1.64E+00	1.55E+00
+	BI-214	609.31	*	46.30	3.52E-01	3.52E-01	8.55E-01	1.71E-01
		1120.29	*	15.10	1.05E+00		6.87E-01	4.96E-01
		1764.49	*	15.80	5.57E-01		7.38E-01	2.40E-01
		2204.22		4.98	2.19E+00		4.90E-01	9.51E-01
+	PB-214	295.21	*	19.19	5.65E-01	2.49E-01	1.04E+00	2.76E-01
		351.92	*	37.19	2.49E-01		1.07E+00	1.20E-01
	RN-219	401.80		6.50	1.12E+00	1.12E+00	1.89E-01	5.35E-01
	RA-223	323.87		3.88	1.57E+00	1.57E+00	-2.23E+00	7.50E-01
	RA-224	240.98		3.95	3.21E+00	3.21E+00	1.72E+01	1.57E+00
	RA-225	40.00		31.00	2.62E+01	2.62E+01	5.85E+00	1.27E+01
+	RA-226	186.21	*	3.28	2.78E+00	2.78E+00	3.49E+00	1.36E+00
	TH-227	50.10		8.40	8.53E-01	8.53E-01	-5.91E-01	4.16E-01
		236.00		11.50	9.09E-01		1.01E+00	4.45E-01
		256.20		6.30	9.80E-01		1.01E-01	4.72E-01
+	AC-228	338.32	*	11.40	8.79E-01	3.75E-01	1.35E+00	4.26E-01
		911.07	*	27.70	3.75E-01		1.49E+00	1.75E-01
		969.11	*	16.60	8.66E-01		1.20E+00	4.10E-01
	TH-230	48.44		16.90	4.62E-01	4.62E-01	2.09E-01	2.25E-01
		62.85		4.60	1.56E+00		8.33E-01	7.64E-01
		67.67		0.37	1.73E+01		-1.69E+00	8.46E+00
	PA-231	283.67		1.60	3.95E+00	3.07E+00	-1.48E+00	1.90E+00
		302.67		2.30	3.07E+00		-1.80E-01	1.48E+00
	TH-231	25.64		14.70	2.99E+00	9.20E-01	6.84E-01	1.45E+00
		84.21		6.40	9.20E-01		1.16E-02	4.50E-01
	PA-233	311.98		38.60	1.80E+00	1.80E+00	-4.92E-01	8.61E-01
	PA-234	131.20		20.40	2.52E-01	2.52E-01	2.27E-02	1.22E-01
		733.99		8.80	9.49E-01		-9.88E-02	4.41E-01
		946.00		12.00	7.20E-01		3.14E-01	3.29E-01
	PA-234M	1001.03		0.92	1.11E+01	1.11E+01	4.46E+00	5.11E+00
	TH-234	63.29		3.80	1.89E+00	1.89E+00	1.74E+00	9.27E-01
	U-235	143.76		10.50	4.70E-01	4.70E-01	2.10E-01	2.28E-01
		163.35		4.70	1.06E+00		1.17E-01	5.12E-01
		205.31		4.70	1.34E+00		1.10E-01	6.52E-01
	NP-237	86.50		12.60	5.07E-01	5.07E-01	3.57E-01	2.48E-01
	NP-239	106.10		22.70	2.09E+11	2.09E+11	-1.27E+09	1.01E+11
		228.18		10.70	6.62E+11		7.12E+10	3.20E+11
		277.60		14.10	4.94E+11		5.51E+10	2.38E+11
	AM-241	59.54		35.90	1.86E-01	1.86E-01	-1.23E-01	9.11E-02
	AM-243	74.67		66.00	1.26E-01	1.26E-01	1.18E-01	6.22E-02
+	CM-243	209.75	*	3.29	2.40E+00	4.39E-01	1.25E+00	1.17E+00
		228.14		10.60	6.26E-01		6.74E-02	3.03E-01
		277.60	*	14.00	4.39E-01		2.34E-01	2.11E-01

Analysis Report for 1707082-10

HTC-A01-S005-2430-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	***Comment***	***User***

No Data Review Comments Entered.

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

Sample Title: HTC-A01-S005-2430-01

Elapsed Live time: 3600
Elapsed Real Time: 3609

Channel								
1:	0	0	0	0	0	0	0	0
9:	5	194	213	163	128	117	115	92
17:	103	81	86	83	91	66	87	87
25:	89	91	93	83	82	92	92	98
33:	82	80	96	58	82	86	82	97
41:	82	79	80	94	97	105	135	126
49:	85	91	103	94	102	102	111	83
57:	114	107	122	143	138	129	165	214
65:	158	149	138	133	142	137	132	131
73:	170	189	291	282	371	419	215	111
81:	117	104	107	142	132	126	164	233
89:	140	172	132	127	201	215	112	90
97:	85	76	90	86	85	72	71	61
105:	70	85	67	71	68	73	74	87
113:	81	79	87	85	82	81	69	60
121:	71	66	71	59	91	75	71	92
129:	99	101	78	77	53	71	87	78
137:	64	48	72	57	75	63	58	85
145:	65	69	57	55	54	67	67	70
153:	64	61	79	82	63	58	50	57
161:	54	41	69	69	65	50	56	60
169:	65	62	59	62	54	48	61	53
177:	55	58	45	64	54	53	42	49
185:	83	120	115	64	53	56	48	46
193:	47	42	54	55	44	49	44	43
201:	42	40	41	53	47	47	46	47
209:	61	72	37	52	36	43	51	48
217:	57	54	43	54	41	45	47	37
225:	40	48	44	47	43	44	49	41
233:	49	32	51	38	64	182	350	258
241:	85	94	75	48	23	38	28	31
249:	33	28	37	31	37	32	26	37
257:	31	36	26	24	34	32	22	47
265:	28	32	26	29	31	53	66	40
273:	31	26	28	17	30	46	33	35
281:	28	28	34	27	29	26	25	29
289:	37	37	35	23	32	32	98	122
297:	62	24	26	42	57	26	22	26
305:	27	21	34	20	28	19	16	32
313:	22	23	20	27	21	26	22	21
321:	25	21	23	15	22	15	23	43
329:	37	20	27	21	27	18	25	31
337:	22	61	77	44	29	26	21	19
345:	19	27	17	14	17	24	72	150
353:	145	46	21	22	13	23	27	24
361:	17	18	19	30	21	16	24	13

369:	26	22	20	12	20	13	18	22

Sample Title: HTC-A01-S005-2430-01

Channel								
377:	21	22	16	16	17	25	12	14
385:	16	20	12	16	16	18	13	20
393:	13	19	19	14	13	30	21	16
401:	21	27	19	17	19	17	16	18
409:	33	24	22	23	12	11	22	17
417:	7	11	17	21	22	22	18	25
425:	15	22	24	14	13	20	14	14
433:	6	17	11	16	14	14	28	12
441:	11	18	15	15	9	14	12	15
449:	12	10	20	17	14	12	9	10
457:	16	12	5	11	15	17	36	31
465:	15	13	18	13	15	13	12	12
473:	12	14	11	18	20	15	14	10
481:	13	20	13	20	17	12	13	12
489:	12	10	9	13	11	10	6	7
497:	11	6	13	14	9	11	10	18
505:	16	14	9	17	21	29	61	51
513:	16	11	11	14	12	16	13	6
521:	11	8	13	9	7	10	8	11
529:	14	10	6	8	13	21	13	12
537:	9	15	15	10	10	12	8	13
545:	10	14	11	11	10	7	15	13
553:	9	7	11	13	13	13	16	10
561:	14	18	14	19	20	11	11	8
569:	14	12	10	15	10	11	13	11
577:	6	10	12	9	18	25	90	80
585:	30	11	8	13	11	14	7	15
593:	10	6	7	5	19	13	12	11
601:	9	14	20	16	11	15	8	31
609:	83	93	37	13	7	10	11	9
617:	6	5	13	8	6	11	9	10
625:	11	8	6	6	6	2	14	16
633:	5	9	11	7	7	9	8	5
641:	7	12	10	8	6	12	11	8
649:	8	9	9	6	4	7	10	7
657:	12	9	8	13	5	15	14	3
665:	13	7	11	5	7	9	9	9
673:	10	10	2	11	8	11	6	6
681:	8	5	11	11	6	7	9	11
689:	7	9	13	10	11	15	9	13
697:	6	13	12	9	7	14	19	16
705:	15	5	4	10	8	8	15	6
713:	9	12	15	4	7	4	9	9
721:	7	11	10	3	7	11	26	18
729:	10	8	8	8	7	8	6	11
737:	11	8	10	10	5	9	14	10
745:	7	7	14	10	4	6	13	4
753:	6	10	8	12	9	9	8	7
761:	7	6	9	11	9	11	14	16
769:	13	14	6	11	14	9	3	5
777:	7	5	6	3	4	11	8	13
785:	4	12	13	5	8	11	8	5
793:	5	6	20	13	6	6	8	11

801:	6	8	4	6	6	10	12	8

Sample Title: HTC-A01-S005-2430-01

Channel								
809:	11	4	4	8	12	5	3	6
817:	7	9	13	5	5	9	4	5
825:	9	5	6	6	9	12	13	8
833:	10	6	8	9	10	6	8	14
841:	13	10	3	7	7	8	12	7
849:	7	3	9	2	10	6	5	7
857:	8	12	10	14	10	9	8	5
865:	7	8	4	5	4	7	11	10
873:	7	8	4	9	7	7	8	6
881:	6	8	3	2	8	6	10	7
889:	7	9	10	7	10	6	10	6
897:	9	8	5	7	9	11	5	7
905:	4	7	7	5	14	36	55	50
913:	19	3	3	8	9	11	7	9
921:	7	8	6	2	7	4	10	4
929:	8	4	7	9	14	7	7	5
937:	6	3	8	6	6	2	5	11
945:	7	2	3	6	5	16	14	5
953:	7	5	10	4	2	9	4	10
961:	3	10	7	7	16	8	11	30
969:	37	21	13	3	8	5	5	4
977:	4	7	8	9	3	4	4	5
985:	3	5	4	4	3	3	4	6
993:	6	5	6	9	6	6	9	9
1001:	10	4	6	6	3	4	5	3
1009:	4	7	5	9	7	7	9	9
1017:	9	6	6	9	5	5	8	8
1025:	4	6	10	3	8	7	6	5
1033:	8	6	7	7	3	9	5	5
1041:	6	5	6	10	3	7	7	7
1049:	9	5	7	3	3	12	3	9
1057:	6	10	7	8	6	4	1	5
1065:	7	6	4	5	4	7	8	5
1073:	3	7	9	8	9	7	2	1
1081:	6	5	6	7	5	4	3	9
1089:	1	6	9	8	5	5	4	11
1097:	4	3	6	6	5	8	6	2
1105:	4	4	7	2	6	9	6	7
1113:	6	5	5	7	2	7	20	15
1121:	12	9	5	10	6	6	4	3
1129:	9	9	5	2	8	6	12	6
1137:	8	8	5	6	6	14	3	5
1145:	5	4	6	5	6	6	7	4
1153:	2	8	9	6	7	4	3	6
1161:	11	7	7	10	9	6	6	8
1169:	4	7	5	8	10	9	5	10
1177:	7	10	6	4	7	5	8	6
1185:	6	12	4	8	9	3	8	7
1193:	9	9	3	8	5	9	6	7
1201:	4	11	4	8	4	6	8	4
1209:	4	4	5	9	6	7	5	12
1217:	7	8	6	6	9	7	6	10
1225:	13	6	5	8	11	5	9	7

1233:	6	7	6	6	13	17	6	8

Sample Title: HTC-A01-S005-2430-01

Channel								
1241:	9	12	14	2	4	11	5	1
1249:	5	7	7	8	5	3	4	5
1257:	9	3	9	3	5	5	2	6
1265:	8	6	3	3	7	9	2	5
1273:	6	3	3	7	4	4	5	10
1281:	5	5	6	3	4	7	5	4
1289:	8	4	4	5	2	3	4	3
1297:	4	1	4	9	4	8	5	3
1305:	7	2	3	7	2	2	3	6
1313:	1	3	6	9	0	5	3	3
1321:	3	6	5	6	3	5	3	6
1329:	7	4	1	9	4	3	0	5
1337:	7	3	3	6	3	3	2	2
1345:	1	2	3	2	5	3	3	1
1353:	4	2	5	2	1	5	1	4
1361:	3	4	4	3	2	3	4	4
1369:	4	4	0	3	0	2	1	3
1377:	8	8	3	0	1	1	4	3
1385:	6	4	1	2	2	1	3	2
1393:	3	2	2	2	2	4	4	4
1401:	2	2	5	2	5	1	3	3
1409:	2	4	1	4	0	1	4	4
1417:	3	2	3	4	3	1	2	3
1425:	4	0	3	1	3	2	7	2
1433:	1	0	0	1	1	2	2	3
1441:	3	0	2	2	1	3	2	3
1449:	1	4	3	0	3	3	5	2
1457:	1	22	95	179	204	67	13	3
1465:	2	3	0	3	2	1	1	3
1473:	0	4	1	1	1	2	2	1
1481:	0	1	0	0	2	1	5	1
1489:	1	2	2	2	2	0	4	3
1497:	1	2	0	1	2	0	1	1
1505:	2	2	2	4	4	2	1	4
1513:	1	1	0	2	1	2	1	1
1521:	1	1	1	1	1	3	1	1
1529:	2	2	2	0	1	0	3	1
1537:	1	3	5	0	2	1	1	3
1545:	3	2	2	0	3	0	2	1
1553:	1	0	2	2	1	3	0	0
1561:	1	1	1	2	2	1	0	0
1569:	2	1	0	0	1	1	1	1
1577:	1	2	1	0	0	3	1	1
1585:	3	0	5	6	2	1	4	6
1593:	4	2	1	2	3	2	1	4
1601:	0	1	2	0	4	0	0	1
1609:	0	0	1	1	1	1	2	0
1617:	1	1	3	3	2	2	0	3
1625:	0	0	3	2	2	3	3	1
1633:	1	1	0	1	1	2	2	0
1641:	0	0	0	1	1	0	1	1
1649:	1	0	1	1	0	1	1	2
1657:	2	1	0	2	3	1	3	1

1665:	2	1	0	1	4	0	1	2

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

2097:	1	1	1	2	1	5	0	3

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

2529:	0	0	0	0	0	1	0	2

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Channel								
2537:	1	0	0	0	0	1	1	1
2545:	1	0	1	0	0	1	1	0
2553:	0	0	1	1	0	0	0	0
2561:	0	1	1	0	2	0	0	0
2569:	1	0	0	1	0	0	1	0
2577:	1	0	0	0	2	0	0	2
2585:	0	1	1	0	0	1	0	0
2593:	0	1	0	1	0	0	0	0
2601:	0	0	0	2	1	0	0	0
2609:	0	0	3	13	13	26	10	0
2617:	0	1	1	0	0	0	0	0
2625:	1	0	0	1	0	1	0	0
2633:	0	0	0	0	0	0	0	0
2641:	0	0	0	1	1	0	0	0
2649:	0	0	0	0	1	0	0	0
2657:	1	0	1	0	0	0	0	0
2665:	0	0	1	0	0	0	0	2
2673:	0	1	0	0	0	0	1	0
2681:	0	0	0	0	0	0	0	0
2689:	1	0	1	1	0	0	0	0
2697:	0	1	0	0	0	0	0	1
2705:	0	0	0	0	0	0	0	0
2713:	1	1	1	0	0	0	0	0
2721:	0	0	0	0	0	0	0	0
2729:	0	0	1	0	0	0	0	0
2737:	0	0	1	0	1	0	0	0
2745:	0	0	0	0	0	0	1	0
2753:	0	0	1	0	1	1	0	0
2761:	0	0	0	0	0	0	0	0
2769:	0	1	0	0	0	0	0	0
2777:	0	0	1	0	0	0	0	0
2785:	0	0	0	0	0	0	0	0
2793:	0	2	2	1	0	0	0	0
2801:	0	0	0	0	0	1	0	0
2809:	1	0	0	0	0	0	1	1
2817:	0	0	0	0	1	0	0	0
2825:	0	0	0	0	0	0	0	0
2833:	0	0	1	0	0	0	0	0
2841:	0	0	0	0	0	0	0	1
2849:	0	0	0	0	0	0	1	0
2857:	0	0	0	1	0	0	0	0
2865:	0	0	1	0	0	0	0	0
2873:	0	0	0	0	1	1	0	1
2881:	0	0	0	0	0	0	0	0
2889:	1	0	0	0	0	0	1	0
2897:	0	0	0	0	0	0	0	0
2905:	0	0	0	0	0	0	0	0
2913:	0	0	0	0	0	0	0	0
2921:	0	0	0	0	0	0	0	1
2929:	0	0	0	0	0	0	0	0
2937:	0	0	0	0	0	0	0	0
2945:	0	0	0	0	0	0	1	0
2953:	0	0	0	0	1	1	0	0

2961:	0	0	0	0	0	1	0	0

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

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S005-2430-01

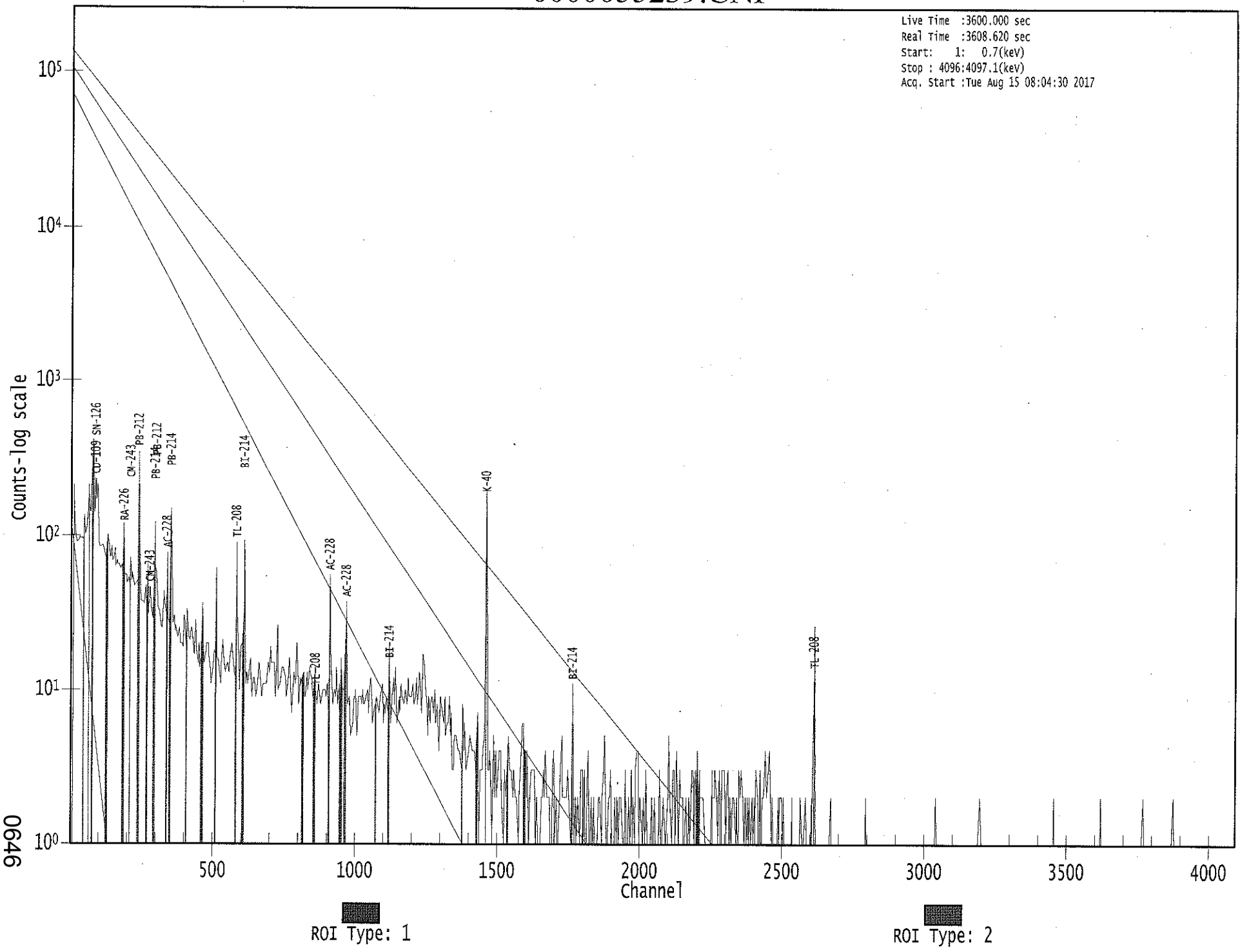
Channel								
3401:	0	0	0	1	0	0	0	0
3409:	0	0	0	0	0	1	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	1	0	0	0	0	0	0
3433:	0	0	1	0	0	0	0	1
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	0	2	0
3457:	0	0	0	0	0	1	0	0
3465:	0	0	0	1	0	0	0	0
3473:	1	0	0	0	0	1	1	0
3481:	0	0	1	0	0	0	0	0
3489:	0	0	0	0	1	0	0	0
3497:	0	0	0	0	1	0	0	0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

3825:	0	0	0	1	0	0	0	0

Sample Title: HTC-A01-S005-2430-01

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

0000055239.CNF



0646

Apex-Gamma

8/15

Analysis Report for 1707082-11

HTC-A01-S005-3036-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707082-11
Sample Description	: HTC-A01-S005-3036-01
Sample Type	: SOIL
Sample Size	: 6.779E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 6:34:29AM
Acquisition Started	: 8/15/2017 8:04:41AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3612.7 seconds
Dead Time	: 0.35 %
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	: 55240

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/16/17

Analysis Report for 1707082-11

HTC-A01-S005-3036-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/15/2017 9:05:22AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	39.63	38.68	0.0000	0.00
2	46.62	45.67	0.0000	0.00
3	63.34	62.40	0.0000	0.00
4	75.99	75.05	0.0000	0.00
5	86.04	85.11	0.0000	0.00
6	93.46	92.52	0.0000	0.00
7	180.46	179.55	0.0000	0.00
8	185.96	185.05	0.0000	0.00
9	209.95	209.05	0.0000	0.00
10	238.68	237.79	0.0000	0.00
11	241.68	240.79	0.0000	0.00
12	259.14	258.25	0.0000	0.00
13	287.08	286.21	0.0000	0.00
14	291.87	291.00	0.0000	0.00
15	295.31	294.44	0.0000	0.00
16	300.02	299.15	0.0000	0.00
17	329.00	328.14	0.0000	0.00
18	338.55	337.70	0.0000	0.00
19	351.82	350.97	0.0000	0.00
20	463.09	462.28	0.0000	0.00
21	510.51	509.72	0.0000	0.00
22	583.34	582.57	0.0000	0.00
23	609.38	608.62	0.0000	0.00
24	617.75	617.00	0.0000	0.00
25	716.52	715.80	0.0000	0.00
26	753.38	752.67	0.0000	0.00
27	860.32	859.66	0.0000	0.00
28	911.15	910.52	0.0000	0.00
29	921.76	921.13	0.0000	0.00
30	934.50	933.88	0.0000	0.00
31	964.42	963.80	0.0000	0.00
32	968.80	968.19	0.0000	0.00
33	1204.60	1204.10	0.0000	0.00
34	1222.95	1222.45	0.0000	0.00
35	1238.87	1238.38	0.0000	0.00
36	1246.68	1246.20	0.0000	0.00
37	1280.29	1279.83	0.0000	0.00
38	1337.16	1336.72	0.0000	0.00
39	1377.51	1377.09	0.0000	0.00
40	1460.54	1460.16	0.0000	0.00
41	1508.41	1508.06	0.0000	0.00
42	1587.31	1587.00	0.0000	0.00

Analysis Report for 1707082-11

HTC-A01-S005-3036-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1592.94	1592.63	0.0000	0.00
44	1684.96	1684.70	0.0000	0.00
45	1763.94	1763.73	0.0000	0.00
46	2076.09	2076.06	0.0000	0.00
47	2102.75	2102.74	0.0000	0.00
48	2176.80	2176.83	0.0000	0.00
49	2189.46	2189.49	0.0000	0.00
50	2613.95	2614.27	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707082-11

HTC-A01-S005-3036-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 9:05:22AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	39.63	36 -	42	38.68	6.74E+01	71.88	8.99E+02	1.78
	2	46.62	42 -	49	45.67	1.04E+02	87.04	1.20E+03	2.54
	3	63.34	59 -	66	62.40	1.46E+02	109.51	1.90E+03	1.44
	4	75.99	69 -	80	75.05	1.01E+03	169.60	3.07E+03	3.72
	5	86.04	81 -	88	85.11	1.13E+02	113.67	2.09E+03	3.91
	6	93.46	90 -	95	92.52	1.60E+02	84.12	1.26E+03	2.27
M	7	180.46	178 -	189	179.55	3.82E+01	33.63	3.10E+02	2.35
m	8	185.96	178 -	189	185.05	1.29E+02	80.22	9.15E+02	3.04
	9	209.95	206 -	212	209.05	7.59E+01	60.63	6.08E+02	2.27
M	10	238.68	232 -	246	237.79	5.89E+02	72.45	4.66E+02	2.33
m	11	241.68	232 -	246	240.79	1.94E+02	73.43	4.30E+02	2.33
M	12	259.14	254 -	274	258.25	5.51E+01	58.71	4.63E+02	3.12
	13	287.08	284 -	289	286.21	3.21E+01	39.10	2.82E+02	1.94
M	14	291.87	290 -	297	291.00	3.38E+01	20.20	1.03E+02	2.15
m	15	295.31	290 -	297	294.44	1.60E+02	48.83	3.52E+02	2.01
	16	300.02	298 -	304	299.15	4.17E+01	45.94	3.29E+02	3.26
	17	329.00	322 -	332	328.14	5.74E+01	58.97	4.29E+02	3.99
	18	338.55	333 -	342	337.70	1.73E+02	54.11	3.18E+02	2.47
	19	351.82	345 -	356	350.97	3.21E+02	70.60	4.63E+02	2.38
	20	463.09	457 -	468	462.28	6.53E+01	51.15	2.95E+02	2.71
	21	510.51	503 -	516	509.72	1.52E+02	54.23	2.59E+02	3.05
	22	583.34	578 -	589	582.57	1.81E+02	54.07	2.71E+02	2.32
	23	609.38	603 -	612	608.62	2.35E+02	46.55	1.77E+02	2.63
	24	617.75	614 -	621	617.00	2.86E+01	29.33	1.25E+02	4.49
	25	716.52	712 -	719	715.80	2.50E+01	26.91	1.04E+02	1.66
	26	753.38	745 -	761	752.67	3.94E+01	47.01	1.95E+02	10.85
	27	860.32	856 -	864	859.66	2.65E+01	28.46	1.09E+02	1.58
M	28	911.15	906 -	924	910.52	8.03E+01	32.47	1.18E+02	2.94
m	29	921.76	906 -	924	921.13	2.06E+01	21.21	5.53E+01	2.95
	30	934.50	929 -	941	933.88	5.00E+01	28.51	7.40E+01	5.70
M	31	964.42	958 -	978	963.80	4.14E+01	33.76	1.00E+02	5.25
m	32	968.80	958 -	978	968.19	6.87E+01	30.63	6.78E+01	3.27
	33	1204.60	1198 -	1211	1204.10	3.60E+01	38.33	1.48E+02	2.72
	34	1222.95	1218 -	1226	1222.45	4.28E+01	24.07	6.23E+01	6.57
	35	1238.87	1236 -	1242	1238.38	3.20E+01	18.95	4.20E+01	1.71
	36	1246.68	1243 -	1253	1246.20	2.21E+01	27.50	9.18E+01	4.37
	37	1280.29	1274 -	1284	1279.83	3.17E+01	23.21	5.46E+01	1.45
	38	1337.16	1331 -	1343	1336.72	3.58E+01	21.39	3.04E+01	4.95
	39	1377.51	1373 -	1381	1377.09	3.20E+01	15.65	1.80E+01	3.46
	40	1460.54	1455 -	1467	1460.16	4.78E+02	45.68	2.33E+01	2.73

Analysis Report for 1707082-11

HTC-A01-S005-3036-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1508.41	1504 -	1513	1508.06	1.52E+01	11.22	7.58E+00	1.16
42	1587.31	1582 -	1590	1587.00	9.00E+00	12.37	1.80E+01	4.50
43	1592.94	1590 -	1596	1592.63	1.39E+01	11.36	1.22E+01	1.20
44	1684.96	1681 -	1688	1684.70	1.00E+01	6.32	0.00E+00	3.75
45	1763.94	1759 -	1768	1763.73	2.65E+01	14.53	1.50E+01	1.68
46	2076.09	2072 -	2079	2076.06	8.05E+00	7.48	3.90E+00	2.96
47	2102.75	2098 -	2105	2102.74	1.48E+01	11.49	1.24E+01	3.32
48	2176.80	2174 -	2179	2176.83	6.00E+00	4.90	0.00E+00	1.98
49	2189.46	2186 -	2193	2189.49	8.30E+00	7.48	3.40E+00	2.49
50	2613.95	2610 -	2618	2614.27	4.90E+01	14.00	0.00E+00	3.32

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 9:05:22AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	39.63	36 -	42	6.74E+01	71.88	8.99E+02	5.75E+01
	2	46.62	42 -	49	1.04E+02	87.04	1.20E+03	6.96E+01
	3	63.34	59 -	66	1.46E+02	109.51	1.90E+03	8.78E+01
	4	75.99	69 -	80	1.01E+03	169.60	3.07E+03	1.29E+02
	5	86.04	81 -	88	1.13E+02	113.67	2.09E+03	4.43E+01
	6	93.46	90 -	95	1.60E+02	84.12	1.26E+03	6.59E+01
M	7	180.46	178 -	189	3.82E+01	33.63	3.10E+02	2.90E+01
m	8	185.96	178 -	189	1.29E+02	80.22	9.15E+02	4.97E+01
	9	209.95	206 -	212	7.59E+01	60.63	6.08E+02	4.77E+01
M	10	238.68	232 -	246	5.89E+02	72.45	4.66E+02	3.55E+01
m	11	241.68	232 -	246	1.94E+02	73.43	4.30E+02	3.41E+01
M	12	259.14	254 -	274	5.51E+01	58.71	4.63E+02	3.54E+01
	13	287.08	284 -	289	3.21E+01	39.10	2.82E+02	3.08E+01
M	14	291.87	290 -	297	3.38E+01	20.20	1.03E+02	1.67E+01
m	15	295.31	290 -	297	1.60E+02	48.83	3.52E+02	3.08E+01
	16	300.02	298 -	304	4.17E+01	45.94	3.29E+02	3.62E+01
	17	329.00	322 -	332	5.74E+01	58.97	4.29E+02	4.68E+01

Analysis Report for 1707082-11

HTC-A01-S005-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	18	338.55	333 -	342	1.73E+02	54.11	3.18E+02	3.89E+01
	19	351.82	345 -	356	3.21E+02	70.60	4.63E+02	5.00E+01
	20	463.09	457 -	468	6.53E+01	51.15	2.95E+02	3.99E+01
	21	510.51	503 -	516	1.52E+02	54.23	2.59E+02	3.97E+01
	22	583.34	578 -	589	1.81E+02	54.07	2.71E+02	3.85E+01
	23	609.38	603 -	612	2.35E+02	46.55	1.77E+02	2.88E+01
	24	617.75	614 -	621	2.86E+01	29.33	1.25E+02	2.24E+01
	25	716.52	712 -	719	2.50E+01	26.91	1.04E+02	2.05E+01
	26	753.38	745 -	761	3.94E+01	47.01	1.95E+02	3.72E+01
	27	860.32	856 -	864	2.65E+01	28.46	1.09E+02	2.18E+01
M	28	911.15	906 -	924	8.03E+01	32.47	1.18E+02	1.79E+01
m	29	921.76	906 -	924	2.06E+01	21.21	5.53E+01	1.22E+01
	30	934.50	929 -	941	5.00E+01	28.51	7.40E+01	2.03E+01
M	31	964.42	958 -	978	4.14E+01	33.76	1.00E+02	1.65E+01
m	32	968.80	958 -	978	6.87E+01	30.63	6.78E+01	1.35E+01
	33	1204.60	1198 -	1211	3.60E+01	38.33	1.48E+02	2.99E+01
	34	1222.95	1218 -	1226	4.28E+01	24.07	6.23E+01	1.66E+01
	35	1238.87	1236 -	1242	3.20E+01	18.95	4.20E+01	1.25E+01
	36	1246.68	1243 -	1253	2.21E+01	27.50	9.18E+01	2.12E+01
	37	1280.29	1274 -	1284	3.17E+01	23.21	5.46E+01	1.67E+01
	38	1337.16	1331 -	1343	3.58E+01	21.39	3.04E+01	1.46E+01
	39	1377.51	1373 -	1381	3.20E+01	15.65	1.80E+01	8.89E+00
	40	1460.54	1455 -	1467	4.78E+02	45.68	2.33E+01	1.08E+01
	41	1508.41	1504 -	1513	1.52E+01	11.22	7.58E+00	6.64E+00
	42	1587.31	1582 -	1590	9.00E+00	12.37	1.80E+01	8.89E+00
	43	1592.94	1590 -	1596	1.39E+01	11.36	1.22E+01	7.04E+00
	44	1684.96	1681 -	1688	1.00E+01	6.32	0.00E+00	0.00E+00
	45	1763.94	1759 -	1768	2.65E+01	14.53	1.50E+01	8.43E+00
	46	2076.09	2072 -	2079	8.05E+00	7.48	3.90E+00	4.01E+00
	47	2102.75	2098 -	2105	1.48E+01	11.49	1.24E+01	7.01E+00
	48	2176.80	2174 -	2179	6.00E+00	4.90	0.00E+00	0.00E+00
	49	2189.46	2186 -	2193	8.30E+00	7.48	3.40E+00	3.93E+00
	50	2613.95	2610 -	2618	4.90E+01	14.00	0.00E+00	0.00E+00

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

Analysis Report for 1707082-11

HTC-A01-S005-3036-01

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/15/2017 9:05:22AM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	39.63	36 -	42	38.68	6.74E+01	71.88	8.99E+02	I-129
									RA-225
	2	46.62	42 -	49	45.67	1.04E+02	87.04	1.20E+03	PB-210
	3	63.34	59 -	66	62.40	1.46E+02	109.51	1.90E+03	TH-234
									TH-230
	4	75.99	69 -	80	75.05	1.01E+03	169.60	3.07E+03	.....
	5	86.04	81 -	88	85.11	1.13E+02	113.67	2.09E+03	EU-155
									NP-237
	6	93.46	90 -	95	92.52	1.60E+02	84.12	1.26E+03	GA-67
M	7	180.46	178 -	189	179.55	3.82E+01	33.63	3.10E+02	MO-99
m	8	185.96	178 -	189	185.05	1.29E+02	80.22	9.15E+02	RA-226
	9	209.95	206 -	212	209.05	7.59E+01	60.63	6.08E+02	CM-243
									GA-67
M	10	238.68	232 -	246	237.79	5.89E+02	72.45	4.66E+02	PB-212
m	11	241.68	232 -	246	240.79	1.94E+02	73.43	4.30E+02	RA-224
M	12	259.14	254 -	274	258.25	5.51E+01	58.71	4.63E+02	.....
	13	287.08	284 -	289	286.21	3.21E+01	39.10	2.82E+02	.....
M	14	291.87	290 -	297	291.00	3.38E+01	20.20	1.03E+02	.....
m	15	295.31	290 -	297	294.44	1.60E+02	48.83	3.52E+02	PB-214
	16	300.02	298 -	304	299.15	4.17E+01	45.94	3.29E+02	BI-210M
									PB-212
									GA-67
	17	329.00	322 -	332	328.14	5.74E+01	58.97	4.29E+02	LA-140
	18	338.55	333 -	342	337.70	1.73E+02	54.11	3.18E+02	AC-228
	19	351.82	345 -	356	350.97	3.21E+02	70.60	4.63E+02	PB-214
	20	463.09	457 -	468	462.28	6.53E+01	51.15	2.95E+02	SB-125
	21	510.51	503 -	516	509.72	1.52E+02	54.23	2.59E+02	.....
	22	583.34	578 -	589	582.57	1.81E+02	54.07	2.71E+02	TL-208
	23	609.38	603 -	612	608.62	2.35E+02	46.55	1.77E+02	BI-214
	24	617.75	614 -	621	617.00	2.86E+01	29.33	1.25E+02	PM-144
	25	716.52	712 -	719	715.80	2.50E+01	26.91	1.04E+02	.....
	26	753.38	745 -	761	752.67	3.94E+01	47.01	1.95E+02	.....
	27	860.32	856 -	864	859.66	2.65E+01	28.46	1.09E+02	TL-208
M	28	911.15	906 -	924	910.52	8.03E+01	32.47	1.18E+02	AC-228
									TL-204
m	29	921.76	906 -	924	921.13	2.06E+01	21.21	5.53E+01	.....
	30	934.50	929 -	941	933.88	5.00E+01	28.51	7.40E+01	.....
M	31	964.42	958 -	978	963.80	4.14E+01	33.76	1.00E+02	EU-152
m	32	968.80	958 -	978	968.19	6.87E+01	30.63	6.78E+01	AC-228
	33	1204.60	1198 -	1211	1204.10	3.60E+01	38.33	1.48E+02	.....
	34	1222.95	1218 -	1226	1222.45	4.28E+01	24.07	6.23E+01	.....

Analysis Report for 1707082-11

HTC-A01-S005-3036-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
35	1238.87	1236 -	1242	1238.38	3.20E+01	18.95	4.20E+01	CO-56
36	1246.68	1243 -	1253	1246.20	2.21E+01	27.50	9.18E+01	.....
37	1280.29	1274 -	1284	1279.83	3.17E+01	23.21	5.46E+01	.....
38	1337.16	1331 -	1343	1336.72	3.58E+01	21.39	3.04E+01	.....
39	1377.51	1373 -	1381	1377.09	3.20E+01	15.65	1.80E+01	.....
40	1460.54	1455 -	1467	1460.16	4.78E+02	45.68	2.33E+01	K-40
41	1508.41	1504 -	1513	1508.06	1.52E+01	11.22	7.58E+00	.....
42	1587.31	1582 -	1590	1587.00	9.00E+00	12.37	1.80E+01	.....
43	1592.94	1590 -	1596	1592.63	1.39E+01	11.36	1.22E+01	.....
44	1684.96	1681 -	1688	1684.70	1.00E+01	6.32	0.00E+00	.....
45	1763.94	1759 -	1768	1763.73	2.65E+01	14.53	1.50E+01	BI-214
46	2076.09	2072 -	2079	2076.06	8.05E+00	7.48	3.90E+00	.....
47	2102.75	2098 -	2105	2102.74	1.48E+01	11.49	1.24E+01	.....
48	2176.80	2174 -	2179	2176.83	6.00E+00	4.90	0.00E+00	.....
49	2189.46	2186 -	2193	2189.49	8.30E+00	7.48	3.40E+00	.....
50	2613.95	2610 -	2618	2614.27	4.90E+01	14.00	0.00E+00	TL-208

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/15/2017 9:05:22AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	39.63	6.74E+01	71.88	1.32E-02	1.56E-03
	2	46.62	1.04E+02	87.04	1.65E-02	1.56E-03
	3	63.34	1.46E+02	109.51	2.15E-02	1.64E-03
	4	75.99	1.01E+03	169.60	2.32E-02	1.91E-03
	5	86.04	1.13E+02	113.67	2.37E-02	2.12E-03
	6	93.46	1.60E+02	84.12	2.36E-02	2.08E-03
M	7	180.46	3.82E+01	33.63	1.73E-02	1.42E-03
m	8	185.96	1.29E+02	80.22	1.69E-02	1.40E-03
	9	209.95	7.59E+01	60.63	1.53E-02	1.28E-03
M	10	238.68	5.89E+02	72.45	1.36E-02	1.14E-03
m	11	241.68	1.94E+02	73.43	1.34E-02	1.13E-03
M	12	259.14	5.51E+01	58.71	1.26E-02	1.04E-03
	13	287.08	3.21E+01	39.10	1.13E-02	9.30E-04
M	14	291.87	3.38E+01	20.20	1.12E-02	9.20E-04

Analysis Report for 1707082-11

HTC-A01-S005-3036-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	15	295.31	1.60E+02	48.83	1.10E-02	9.13E-04
	16	300.02	4.17E+01	45.94	1.09E-02	9.03E-04
	17	329.00	5.74E+01	58.97	9.88E-03	8.42E-04
	18	338.55	1.73E+02	54.11	9.59E-03	8.22E-04
	19	351.82	3.21E+02	70.60	9.22E-03	7.94E-04
	20	463.09	6.53E+01	51.15	6.94E-03	6.81E-04
	21	510.51	1.52E+02	54.23	6.29E-03	6.61E-04
	22	583.34	1.81E+02	54.07	5.50E-03	6.31E-04
	23	609.38	2.35E+02	46.55	5.27E-03	6.20E-04
	24	617.75	2.86E+01	29.33	5.20E-03	6.17E-04
	25	716.52	2.50E+01	26.91	4.51E-03	5.30E-04
	26	753.38	3.94E+01	47.01	4.31E-03	4.84E-04
	27	860.32	2.65E+01	28.46	3.81E-03	3.49E-04
M	28	911.15	8.03E+01	32.47	3.62E-03	2.99E-04
m	29	921.76	2.06E+01	21.21	3.58E-03	2.96E-04
	30	934.50	5.00E+01	28.51	3.54E-03	2.93E-04
M	31	964.42	4.14E+01	33.76	3.44E-03	2.86E-04
m	32	968.80	6.87E+01	30.63	3.43E-03	2.85E-04
	33	1204.60	3.60E+01	38.33	2.83E-03	2.35E-04
	34	1222.95	4.28E+01	24.07	2.79E-03	2.34E-04
	35	1238.87	3.20E+01	18.95	2.76E-03	2.33E-04
	36	1246.68	2.21E+01	27.50	2.75E-03	2.33E-04
	37	1280.29	3.17E+01	23.21	2.68E-03	2.31E-04
	38	1337.16	3.58E+01	21.39	2.58E-03	2.26E-04
	39	1377.51	3.20E+01	15.65	2.51E-03	2.20E-04
	40	1460.54	4.78E+02	45.68	2.39E-03	2.08E-04
	41	1508.41	1.52E+01	11.22	2.32E-03	2.01E-04
	42	1587.31	9.00E+00	12.37	2.21E-03	1.89E-04
	43	1592.94	1.39E+01	11.36	2.20E-03	1.88E-04
	44	1684.96	1.00E+01	6.32	2.09E-03	1.74E-04
	45	1763.94	2.65E+01	14.53	2.00E-03	1.62E-04
	46	2076.09	8.05E+00	7.48	1.69E-03	1.51E-04
	47	2102.75	1.48E+01	11.49	1.67E-03	1.51E-04
	48	2176.80	6.00E+00	4.90	1.60E-03	1.51E-04
	49	2189.46	8.30E+00	7.48	1.59E-03	1.51E-04
	50	2613.95	4.90E+01	14.00	1.28E-03	1.51E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/15/2017 9:05:22AM

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

Analysis Report for 1707082-11

HTC-A01-S005-3036-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	39.63	6.74E+01	71.88			6.74E+01	7.19E+01
	2	46.62	1.04E+02	87.04	2.70E+01	8.29E+00	7.69E+01	8.74E+01
	3	63.34	1.46E+02	109.51	5.43E+01	8.76E+00	9.15E+01	1.10E+02
	4	75.99	1.01E+03	169.60	1.43E+01	8.48E+00	9.97E+02	1.70E+02
	5	86.04	1.13E+02	113.67			1.13E+02	1.14E+02
	6	93.46	1.60E+02	84.12	6.28E+01	7.82E+00	9.74E+01	8.45E+01
M	7	180.46	3.82E+01	33.63			3.82E+01	3.36E+01
m	8	185.96	1.29E+02	80.22	2.54E+01	6.86E+00	1.04E+02	8.05E+01
	9	209.95	7.59E+01	60.63			7.59E+01	6.06E+01
M	10	238.68	5.89E+02	72.45	8.10E+00	6.12E+00	5.81E+02	7.27E+01
m	11	241.68	1.94E+02	73.43			1.94E+02	7.34E+01
M	12	259.14	5.51E+01	58.71			5.51E+01	5.87E+01
	13	287.08	3.21E+01	39.10			3.21E+01	3.91E+01
M	14	291.87	3.38E+01	20.20			3.38E+01	2.02E+01
m	15	295.31	1.60E+02	48.83			1.60E+02	4.88E+01
	16	300.02	4.17E+01	45.94			4.17E+01	4.59E+01
	17	329.00	5.74E+01	58.97			5.74E+01	5.90E+01
	18	338.55	1.73E+02	54.11			1.73E+02	5.41E+01
	19	351.82	3.21E+02	70.60			3.21E+02	7.06E+01
	20	463.09	6.53E+01	51.15			6.53E+01	5.11E+01
	21	510.51	1.52E+02	54.23	3.93E+01	5.03E+00	1.13E+02	5.45E+01
	22	583.34	1.81E+02	54.07			1.81E+02	5.41E+01
	23	609.38	2.35E+02	46.55			2.35E+02	4.66E+01
	24	617.75	2.86E+01	29.33			2.86E+01	2.93E+01
	25	716.52	2.50E+01	26.91			2.50E+01	2.69E+01
	26	753.38	3.94E+01	47.01			3.94E+01	4.70E+01
	27	860.32	2.65E+01	28.46			2.65E+01	2.85E+01
M	28	911.15	8.03E+01	32.47	5.69E-01	2.37E+00	7.97E+01	3.26E+01
m	29	921.76	2.06E+01	21.21			2.06E+01	2.12E+01
	30	934.50	5.00E+01	28.51			5.00E+01	2.85E+01
M	31	964.42	4.14E+01	33.76			4.14E+01	3.38E+01
m	32	968.80	6.87E+01	30.63			6.87E+01	3.06E+01
	33	1204.60	3.60E+01	38.33			3.60E+01	3.83E+01
	34	1222.95	4.28E+01	24.07			4.28E+01	2.41E+01
	35	1238.87	3.20E+01	18.95			3.20E+01	1.89E+01
	36	1246.68	2.21E+01	27.50			2.21E+01	2.75E+01
	37	1280.29	3.17E+01	23.21			3.17E+01	2.32E+01
	38	1337.16	3.58E+01	21.39			3.58E+01	2.14E+01
	39	1377.51	3.20E+01	15.65			3.20E+01	1.57E+01
	40	1460.54	4.78E+02	45.68	1.35E+00	1.57E+00	4.77E+02	4.57E+01
	41	1508.41	1.52E+01	11.22			1.52E+01	1.12E+01
	42	1587.31	9.00E+00	12.37			9.00E+00	1.24E+01
	43	1592.94	1.39E+01	11.36			1.39E+01	1.14E+01
	44	1684.96	1.00E+01	6.32			1.00E+01	6.32E+00
	45	1763.94	2.65E+01	14.53			2.65E+01	1.45E+01
	46	2076.09	8.05E+00	7.48			8.05E+00	7.48E+00
	47	2102.75	1.48E+01	11.49			1.48E+01	1.15E+01
	48	2176.80	6.00E+00	4.90			6.00E+00	4.90E+00
	49	2189.46	8.30E+00	7.48			8.30E+00	7.48E+00
	50	2613.95	4.90E+01	14.00			4.90E+01	1.40E+01

Analysis Report for 1707082-11

HTC-A01-S005-3036-01

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 : 8/15/2017 9:05:22AM

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	39.63	6.74E+01	71.88			6.74E+01	7.19E+01
	2	46.62	1.04E+02	87.04	2.70E+01	8.29E+00	7.69E+01	8.74E+01
	3	63.34	1.46E+02	109.51	5.43E+01	8.76E+00	9.15E+01	1.10E+02
	4	75.99	1.01E+03	169.60	1.43E+01	8.48E+00	9.97E+02	1.70E+02
	5	86.04	1.13E+02	113.67			1.13E+02	1.14E+02
	6	93.46	1.60E+02	84.12	6.28E+01	7.82E+00	9.74E+01	8.45E+01
M	7	180.46	3.82E+01	33.63			3.82E+01	3.36E+01
m	8	185.96	1.29E+02	80.22	2.54E+01	6.86E+00	1.04E+02	8.05E+01
	9	209.95	7.59E+01	60.63			7.59E+01	6.06E+01
M	10	238.68	5.89E+02	72.45	8.10E+00	6.12E+00	5.81E+02	7.27E+01
m	11	241.68	1.94E+02	73.43			1.94E+02	7.34E+01
M	12	259.14	5.51E+01	58.71			5.51E+01	5.87E+01
	13	287.08	3.21E+01	39.10			3.21E+01	3.91E+01
M	14	291.87	3.38E+01	20.20			3.38E+01	2.02E+01
m	15	295.31	1.60E+02	48.83			1.60E+02	4.88E+01
	16	300.02	4.17E+01	45.94			4.17E+01	4.59E+01
	17	329.00	5.74E+01	58.97			5.74E+01	5.90E+01
	18	338.55	1.73E+02	54.11			1.73E+02	5.41E+01
	19	351.82	3.21E+02	70.60			3.21E+02	7.06E+01
	20	463.09	6.53E+01	51.15			6.53E+01	5.11E+01
	21	510.51	1.52E+02	54.23	3.93E+01	5.03E+00	1.13E+02	5.45E+01
	22	583.34	1.81E+02	54.07			1.81E+02	5.41E+01
	23	609.38	2.35E+02	46.55			2.35E+02	4.66E+01
	24	617.75	2.86E+01	29.33			2.86E+01	2.93E+01
	25	716.52	2.50E+01	26.91			2.50E+01	2.69E+01
	26	753.38	3.94E+01	47.01			3.94E+01	4.70E+01
	27	860.32	2.65E+01	28.46			2.65E+01	2.85E+01
M	28	911.15	8.03E+01	32.47	5.69E-01	2.37E+00	7.97E+01	3.26E+01
m	29	921.76	2.06E+01	21.21			2.06E+01	2.12E+01
	30	934.50	5.00E+01	28.51			5.00E+01	2.85E+01
M	31	964.42	4.14E+01	33.76			4.14E+01	3.38E+01
m	32	968.80	6.87E+01	30.63			6.87E+01	3.06E+01

Analysis Report for 1707082-11

HTC-A01-S005-3036-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
33	1204.60	3.60E+01	38.33			3.60E+01	3.83E+01
34	1222.95	4.28E+01	24.07			4.28E+01	2.41E+01
35	1238.87	3.20E+01	18.95			3.20E+01	1.89E+01
36	1246.68	2.21E+01	27.50			2.21E+01	2.75E+01
37	1280.29	3.17E+01	23.21			3.17E+01	2.32E+01
38	1337.16	3.58E+01	21.39			3.58E+01	2.14E+01
39	1377.51	3.20E+01	15.65			3.20E+01	1.57E+01
40	1460.54	4.78E+02	45.68	1.35E+00	1.57E+00	4.77E+02	4.57E+01
41	1508.41	1.52E+01	11.22			1.52E+01	1.12E+01
42	1587.31	9.00E+00	12.37			9.00E+00	1.24E+01
43	1592.94	1.39E+01	11.36			1.39E+01	1.14E+01
44	1684.96	1.00E+01	6.32			1.00E+01	6.32E+00
45	1763.94	2.65E+01	14.53			2.65E+01	1.45E+01
46	2076.09	8.05E+00	7.48			8.05E+00	7.48E+00
47	2102.75	1.48E+01	11.49			1.48E+01	1.15E+01
48	2176.80	6.00E+00	4.90			6.00E+00	4.90E+00
49	2189.46	8.30E+00	7.48			8.30E+00	7.48E+00
50	2613.95	4.90E+01	14.00			4.90E+01	1.40E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.988	1460.81	*	10.67	2.08E+01	2.72E+00
EU-155	0.342	86.50	*	30.90	1.78E-01	1.79E-01
		105.30		20.70		
TL-208	0.957	583.14	*	30.22	1.21E+00	3.86E-01
		860.37	*	4.48	1.72E+00	1.85E+00
		2614.66	*	35.85	1.18E+00	3.66E-01
PB-210	0.998	46.50	*	4.25	1.22E+00	1.40E+00
PB-212	1.000	238.63	*	44.60	1.06E+00	1.60E-01
		300.09	*	3.41	1.25E+00	1.38E+00
BI-214	0.668	609.31	*	46.30	1.06E+00	2.46E-01
		1120.29		15.10		
		1764.49	*	15.80	9.29E-01	5.15E-01
		2204.22		4.98		

Analysis Report for 1707082-11

HTC-A01-S005-3036-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PB-214	0.998	295.21	*	19.19	8.39E-01	2.65E-01
		351.92	*	37.19	1.04E+00	2.45E-01
RA-224	0.925	240.98	*	3.95	4.06E+00	1.57E+00
RA-225	0.800	40.00	*	31.00	1.49E+01	1.60E+01
RA-226	0.990	186.21	*	3.28	2.07E+00	4.11E+00
AC-228	0.993	338.32	*	11.40	1.75E+00	5.68E-01
		911.07	*	27.70	8.80E-01	3.67E-01
		969.11	*	16.60	1.34E+00	6.07E-01
TH-234	1.000	63.29	*	3.80	1.24E+00	1.49E+00
NP-237	0.967	86.50	*	12.60	4.21E-01	4.24E-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 9:05:22AM
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	75.99	2.76922E-01	8.52		
	6	93.46	2.70557E-02	43.37	Sum	
M	7	180.46	1.06067E-02	44.04	Tol.	MO-99
	9	209.95	2.10797E-02	39.95	Tol.	CM-243
M	12	259.14	1.52921E-02	53.33		
	13	287.08	8.91619E-03	60.91		
M	14	291.87	9.38555E-03	29.89		
	17	329.00	1.59498E-02	51.35	Tol.	LA-140
	20	463.09	1.81514E-02	39.14	Tol.	SB-125
	21	510.51	3.13948E-02	24.09		
	24	617.75	7.95024E-03	51.23	Tol.	PM-144
	25	716.52	6.94444E-03	53.81		
	26	753.38	1.09357E-02	59.70		
m	29	921.76	5.70961E-03	51.60	Sum	
	30	934.50	1.38937E-02	28.50	Sum	
M	31	964.42	1.15103E-02	40.74	Tol.	EU-152
	33	1204.60	9.98737E-03	53.30		
	34	1222.95	1.18994E-02	28.10		

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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
35	1238.87	8.88889E-03	29.61	Tol.	CO-56
36	1246.68	6.13562E-03	62.24		
37	1280.29	8.79944E-03	36.63		
38	1337.16	9.95098E-03	29.85		
39	1377.51	8.88889E-03	24.46		
41	1508.41	4.22515E-03	36.90		
42	1587.31	2.50000E-03	68.72		
43	1592.94	3.86111E-03	40.86	D-Esc	
44	1684.96	2.77778E-03	31.62		
46	2076.09	2.23611E-03	46.48		
47	2102.75	4.11376E-03	38.79	S-Esc	
48	2176.80	1.66667E-03	40.82		
49	2189.46	2.30556E-03	45.08		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.98	1460.81	*	10.67	2.08E+01	2.72E+00
EU-155	0.34	86.50	*	30.90	1.78E-01	1.79E-01
		105.30		20.70		
TL-208	0.95	583.14	*	30.22	1.21E+00	3.86E-01
		860.37	*	4.48	1.72E+00	1.85E+00
		2614.66	*	35.85	1.18E+00	3.66E-01
PB-210	0.99	46.50	*	4.25	1.22E+00	1.40E+00
PB-212	1.00	238.63	*	44.60	1.06E+00	1.60E-01
		300.09	*	3.41	1.25E+00	1.38E+00
BI-214	0.66	609.31	*	46.30	1.06E+00	2.46E-01
		1120.29		15.10		
		1764.49	*	15.80	9.29E-01	5.15E-01
		2204.22		4.98		
PB-214	0.99	295.21	*	19.19	8.39E-01	2.65E-01
		351.92	*	37.19	1.04E+00	2.45E-01

Analysis Report for 1707082-11

HTC-A01-S005-3036-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
RA-224	0.92	240.98	*	3.95	4.06E+00	1.57E+00
RA-225	0.80	40.00	*	31.00	1.49E+01	1.60E+01
RA-226	0.99	186.21	*	3.28	2.07E+00	4.11E+00
AC-228	0.99	338.32	*	11.40	1.75E+00	5.68E-01
		911.07	*	27.70	8.80E-01	3.67E-01
		969.11	*	16.60	1.34E+00	6.07E-01
TH-234	1.00	63.29	*	3.80	1.24E+00	1.49E+00
NP-237	0.96	86.50	*	12.60	4.21E-01	4.24E-01

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.988	2.08E+01	2.72E+00	
?	EU-155	0.342	1.78E-01	1.79E-01	
	TL-208	0.957	1.20E+00	2.63E-01	
	PB-210	0.998	1.22E+00	1.40E+00	
	PB-212	1.000	1.07E+00	1.59E-01	
	BI-214	0.668	1.04E+00	2.22E-01	
	PB-214	0.998	9.47E-01	1.80E-01	
	RA-224	0.925	4.06E+00	1.57E+00	
	RA-225	0.800	1.49E+01	1.60E+01	
	RA-226	0.990	2.07E+00	4.11E+00	
	AC-228	0.993	1.18E+00	2.75E-01	
	TH-234	1.000	1.24E+00	1.49E+00	
?	NP-237	0.967	4.21E-01	4.24E-01	

Analysis Report for 1707082-11

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

Errors quoted at 2.000sigma

Analysis Report for 1707082-11

HTC-A01-S005-3036-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 9:05:22AM
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	75.99	2.76922E-01	8.52		
	6	93.46	2.70557E-02	43.37	Sum	
M	7	180.46	1.06067E-02	44.04	Tol.	MO-99
	9	209.95	2.10797E-02	39.95	Tol.	CM-243
M	12	259.14	1.52921E-02	53.33		
	13	287.08	8.91619E-03	60.91		
M	14	291.87	9.38555E-03	29.89		
	17	329.00	1.59498E-02	51.35	Tol.	LA-140
	20	463.09	1.81514E-02	39.14	Tol.	SB-125
	21	510.51	3.13948E-02	24.09		
	24	617.75	7.95024E-03	51.23	Tol.	PM-144
	25	716.52	6.94444E-03	53.81		
	26	753.38	1.09357E-02	59.70		
m	29	921.76	5.70961E-03	51.60	Sum	
	30	934.50	1.38937E-02	28.50	Sum	
M	31	964.42	1.15103E-02	40.74	Tol.	EU-152
	33	1204.60	9.98737E-03	53.30		
	34	1222.95	1.18994E-02	28.10		
	35	1238.87	8.88889E-03	29.61	Tol.	CO-56
	36	1246.68	6.13562E-03	62.24		
	37	1280.29	8.79944E-03	36.63		
	38	1337.16	9.95098E-03	29.85		
	39	1377.51	8.88889E-03	24.46		
	41	1508.41	4.22515E-03	36.90		
	42	1587.31	2.50000E-03	68.72		
	43	1592.94	3.86111E-03	40.86	D-Esc	
	44	1684.96	2.77778E-03	31.62		
	46	2076.09	2.23611E-03	46.48		
	47	2102.75	4.11376E-03	38.79	S-Esc	
	48	2176.80	1.66667E-03	40.82		
	49	2189.46	2.30556E-03	45.08		

Analysis Report for 1707082-11

HTC-A01-S005-3036-01

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

NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	-1.43E-01	2.45E+00	2.45E+00
+		NA-22	1274.54		99.94	-1.81E-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	4.03E-03	9.03E-02	9.03E-02
+		K-40	1460.81	*	10.67	2.08E+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	-7.28E-03	7.64E-02	7.64E-02
			78.34		96.00	3.27E-01		9.60E-02
+		SC-46	889.25		99.98	-3.15E-03	2.55E-01	2.55E-01
			1120.51		99.99	2.14E-01		3.84E-01
+		V-48	983.52		99.98	1.08E+00	7.48E+00	7.48E+00
			1312.10		97.50	4.08E-01		7.66E+00
+		CR-51	320.08		9.83	1.54E+00	7.29E+00	7.29E+00
+		MN-54	834.83		99.97	-6.15E-02	1.41E-01	1.41E-01
+		CO-56	846.75		99.96	-2.92E-02	2.46E-01	2.46E-01
			1037.75		14.03	2.24E-01		2.01E+00
			1238.25		67.00	-9.55E-02		5.47E-01
			1771.40		15.51	-1.69E-01		1.30E+00
			2598.48		16.90	-2.84E-01		1.25E+00
+		CO-57	122.06		85.51	-1.51E-02	7.98E-02	7.98E-02
			136.48		10.60	2.12E-01		6.84E-01
+		CO-58	810.76		99.40	-2.16E-02	2.72E-01	2.72E-01
+		FE-59	1099.22		56.50	-3.28E-01	1.03E+00	1.03E+00
			1291.56		43.20	1.77E-01		1.35E+00
+		CO-60	1173.22		100.00	6.53E-02	1.41E-01	1.59E-01
			1332.49		100.00	6.03E-03		1.41E-01
+		ZN-65	1115.52		50.75	-2.56E-01	4.02E-01	4.02E-01
+		GA-67	93.31		35.70	1.08E+08	9.22E+07	9.22E+07
			208.95		2.24	7.46E+08		1.47E+09
			300.22		16.00	-2.88E+08		2.26E+08
+		SE-75	121.11		16.70	-2.87E-01	1.65E-01	5.42E-01

Analysis Report for 1707082-11

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00	59.20	-2.08E-03	1.65E-01	1.65E-01
		264.65	59.80	-1.74E-01		1.87E-01
		279.53	25.20	1.73E-01		4.47E-01
		400.65	11.40	-6.01E-01		1.12E+00
+	RB-82	776.52	13.00	-5.10E+00	1.00E+01	1.00E+01
+	RB-83	520.41	46.00	-5.78E-02	3.60E-01	3.60E-01
		529.64	30.30	-5.03E-02		5.53E-01
		552.65	16.40	-3.29E-01		1.07E+00
+	KR-85	513.99	0.43	2.55E+01	2.63E+01	2.63E+01
+	SR-85	513.99	99.27	3.00E-01	3.09E-01	3.09E-01
+	Y-88	898.02	93.40	-3.66E-02	1.51E-01	2.24E-01
		1836.01	99.38	-1.19E-03		1.51E-01
+	MO-93	263.06	56.72	-5.36E-02	1.05E-01	1.16E-01
		684.67	99.68	8.69E-03		1.08E-01
		1477.11	99.08	3.14E-02		1.05E-01
+	NB-93M	16.57	9.43	1.46E+01	7.69E+00	7.69E+00
+	NB-94	702.63	100.00	8.93E-03	1.12E-01	1.17E-01
		871.10	100.00	-2.41E-02		1.12E-01
+	NB-95	765.79	99.81	8.23E-02	7.36E-01	7.36E-01
+	NB-95M	235.69	25.00	5.68E+07	2.95E+07	2.95E+07
+	ZR-95	724.18	43.70	2.18E-01	5.77E-01	7.55E-01
		756.72	55.30	2.59E-01		5.77E-01
+	MO-99	181.06	6.20	-1.91E+10	1.56E+10	1.95E+10
		739.58	12.80	2.22E+09		1.56E+10
		778.00	4.50	-1.08E+10		4.58E+10
+	RU-103	497.08	89.00	1.00E-01	5.02E-01	5.02E-01
+	RU-106	621.84	9.80	2.09E-01	1.09E+00	1.09E+00
+	AG-108M	433.93	89.90	-3.49E-02	8.30E-02	8.30E-02
		614.37	90.40	-4.79E-01		1.02E-01
		722.95	90.50	-9.13E-02		1.19E-01
+	CD-109	88.03	3.72	-2.62E-01	2.19E+00	2.19E+00
+	AG-110M	657.75	93.14	-2.52E-02	1.34E-01	1.34E-01
		677.61	10.53	-1.21E-01		1.26E+00
		706.67	16.46	2.43E-01		9.09E-01
		763.93	21.98	-1.10E-01		6.49E-01
		884.67	71.63	5.40E-02		2.29E-01
		1384.27	23.94	7.66E-02		5.25E-01
+	CD-113M	263.70	0.02	-1.34E+02	2.89E+02	2.89E+02
+	SN-113	255.12	1.93	1.02E-01	2.05E-01	5.59E+00
		391.69	64.90	5.61E-02		2.05E-01
+	TE123M	159.00	84.10	-7.14E-02	1.17E-01	1.17E-01
+	SB-124	602.71	97.87	-2.69E-02	2.61E-01	2.61E-01
		645.85	7.26	1.15E-01		3.66E+00
		722.78	11.10	-2.19E+00		2.87E+00
		1691.02	49.00	-1.28E-01		3.45E-01
+	I-125	35.49	6.49	-1.49E+00	4.58E+00	4.58E+00
+	SB-125	176.33	6.89	-3.23E-01	2.87E-01	9.02E-01
		427.89	29.33	-5.67E-02		2.87E-01

Analysis Report for 1707082-11

HTC-A01-S005-3036-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-125	463.38	10.35	6.25E-01	2.87E-01	9.60E-01
		600.56	17.80	-3.42E-02		5.03E-01
		635.90	11.32	1.82E-01		8.76E-01
+	SB-126	414.70	83.30	-3.66E+00	1.71E+01	1.71E+01
		666.33	99.60	6.11E+00		2.15E+01
		695.00	99.60	-1.63E+00		2.19E+01
		720.50	53.80	-2.25E+01		3.86E+01
+	SN-126	87.57	37.00	-2.29E-02	1.92E-01	1.92E-01
+	SB-127	473.00	25.00	3.14E+06	6.75E+06	7.50E+06
		685.20	35.70	5.43E+05		6.75E+06
		783.80	14.70	6.98E+06		1.86E+07
+	I-129	29.78	57.00	3.41E-02	2.62E-01	2.62E-01
		33.60	13.20	-1.40E-01		8.44E-01
		39.58	7.52	6.40E-01		1.21E+00
+	I-131	284.30	6.05	-2.96E+02	2.99E+02	3.58E+03
		364.48	81.20	1.31E+02		2.99E+02
		636.97	7.26	1.34E+03		4.25E+03
		722.89	1.80	-1.53E+04		1.99E+04
+	TE-132	49.72	13.10	-1.05E+07	3.56E+07	2.77E+08
		228.16	88.00	6.26E+06		3.56E+07
+	BA-133	81.00	33.00	-7.19E-01	1.62E-01	2.22E-01
		302.84	17.80	1.48E-01		3.90E-01
		356.01	60.00	4.33E-03		1.62E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-1.55E+05	4.78E+04	4.78E+04
+	CS-134	563.23	8.38	3.06E-01	1.14E-01	1.18E+00
		569.32	15.43	-4.16E-02		5.86E-01
		604.70	97.60	6.94E-03		1.14E-01
		795.84	85.40	1.78E-01		1.56E-01
		801.93	8.73	-5.00E-01		1.31E+00
+	CS-135	268.24	16.00	2.36E-01	4.51E-01	4.51E-01
+	@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41	28.60	1.00E+26		1.00E+26
	@	1678.03	9.54	1.00E+26		1.00E+26
+	CS-136	153.22	7.46	4.55E+01	1.53E+01	1.14E+02
		163.89	4.61	8.39E+00		1.81E+02
		176.55	13.56	4.82E-01		6.37E+01
		273.65	12.66	-5.37E-01		8.08E+01
		340.57	48.50	3.83E+01		2.61E+01
		818.50	99.70	4.09E+00		1.53E+01
		1048.07	79.60	3.04E+00		2.38E+01
		1235.34	19.70	-3.20E+01		1.16E+02
+	CS-137	661.65	85.12	-4.29E-02	1.17E-01	1.17E-01
+	LA-138	788.74	34.00	4.28E-02	1.66E-01	3.60E-01
		1435.80	66.00	4.16E-02		1.66E-01
+	CE-139	165.85	80.35	5.05E-02	1.18E-01	1.18E-01
+	BA-140	162.64	6.70	-2.52E+01	5.64E+01	1.42E+02
		304.84	4.50	2.28E+01		2.14E+02
		423.70	3.20	-2.52E+01		4.03E+02

Analysis Report for 1707082-11

HTC-A01-S005-3036-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		BA-140	437.55		2.00	-3.74E+01	5.64E+01	6.16E+02
			537.32		25.00	8.61E+00		5.64E+01
+		LA-140	328.77		20.50	5.88E+01	2.08E+01	6.06E+01
			487.03		45.50	-4.92E+00		2.76E+01
			815.85		23.50	-2.46E+01		7.12E+01
			1596.49		95.49	-1.15E+00		2.08E+01
+		CE-141	145.44		48.40	6.70E-01	9.35E-01	9.35E-01
+	@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26
	@		293.26		42.00	1.00E+26		1.00E+26
	@		664.55		5.20	1.00E+26		1.00E+26
+		CE-144	133.54		10.80	-1.00E-01	6.53E-01	6.53E-01
+		PM-144	476.78		42.00	-2.85E-02	1.19E-01	2.18E-01
			618.01		98.60	8.54E-02		1.19E-01
			696.49		99.49	6.93E-02		1.43E-01
+		PM-145	36.85		21.70	-1.02E-01	2.42E-01	4.53E-01
			37.36		39.70	-5.46E-02		2.42E-01
			42.30		15.10	-4.70E-01		5.68E-01
			72.40		2.31	-6.60E+00		3.65E+00
+		PM-146	453.90		39.94	3.27E-02	2.05E-01	2.05E-01
			735.90		14.01	2.02E-01		8.32E-01
			747.13		13.10	3.90E-02		7.67E-01
+		ND-147	91.11		28.90	8.39E+01	9.38E+01	9.38E+01
			531.02		13.10	3.82E+01		2.35E+02
+		PM-149	285.90		3.10	-1.69E+11	1.39E+13	1.39E+13
+		EU-152	121.78		20.50	-5.02E-02	2.65E-01	2.65E-01
			244.69		5.40	-9.13E-01		1.40E+00
			344.27		19.13	-4.58E-03		3.62E-01
			778.89		9.20	-6.41E-01		1.12E+00
			964.01		10.40	-1.35E+00		1.54E+00
			1085.78		7.22	-1.01E+00		1.70E+00
			1112.02		9.60	3.62E-01		1.64E+00
			1407.95		14.94	2.44E-01		8.19E-01
+		GD-153	97.43		31.30	-8.19E-02	2.47E-01	2.47E-01
			103.18		22.20	1.52E-01		3.29E-01
+		EU-154	123.07		40.50	3.82E-02	1.38E-01	1.38E-01
			723.30		19.70	1.78E-01		6.16E-01
			873.19		11.50	-2.13E-01		9.89E-01
			996.32		10.30	-6.51E-02		1.26E+00
			1004.76		17.90	1.86E-01		7.20E-01
			1274.45		35.50	-4.84E-02		3.53E-01
+		EU-155	86.50	*	30.90	1.78E-01	2.76E-01	2.93E-01
			105.30		20.70	-5.48E-02		2.76E-01
+		EU-156	811.77		10.40	4.88E+00	7.52E+01	7.52E+01
			1153.47		7.20	1.11E+01		1.52E+02
			1230.71		8.90	-5.49E+01		1.18E+02
+		HO-166M	184.41		72.60	7.67E-02	9.32E-02	9.32E-02
			280.45		29.60	-5.41E-03		2.18E-01
			410.94		11.10	8.38E-02		7.19E-01
			711.69		54.10	1.92E-02		1.99E-01

Analysis Report for 1707082-11

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TM-171	66.72		0.14	-5.41E+00	5.80E+01	5.80E+01
+	HF-172	67.35		5.31	-1.42E-01	5.44E-01	1.53E+00
		125.81		11.30	2.11E-02		5.44E-01
+	LU-172	181.53		20.60	-5.09E+03	4.04E+03	5.11E+03
		900.72		29.81	-8.16E+02		6.49E+03
		1093.66		62.50	1.45E+03		4.04E+03
+	LU-173	100.72		5.24	-2.86E-01	4.04E-01	1.18E+00
		272.11		21.20	2.80E-01		4.04E-01
+	HF-175	343.40		84.00	-2.61E-03	2.06E-01	2.06E-01
+	LU-176	88.34		13.30	-6.36E-02	6.19E-02	5.33E-01
		201.83		86.00	3.22E-02		7.71E-02
		306.78		94.00	8.64E-03		6.19E-02
+	HF-181	133.02		41.70	1.80E-01	4.19E-01	6.36E-01
		345.85		17.20	-2.35E-02		1.78E+00
		482.03		82.80	-1.95E-02		4.19E-01
+	TA-182	67.75		41.20	-2.94E-02	3.09E-01	3.09E-01
		1121.30		34.90	4.55E-01		9.00E-01
		1189.05		16.23	-2.07E-01		1.66E+00
		1221.41		26.98	4.92E-01		1.12E+00
		1231.02		11.44	-1.93E+00		2.26E+00
+	IR-192	308.46		29.68	-5.45E-03	4.19E-01	4.95E-01
		468.07		48.10	2.19E-02		4.19E-01
+	HG-203	279.19		77.30	7.62E-02	3.52E-01	3.52E-01
+	TL-204	374.74		94.11	-2.53E-03	7.91E-02	7.91E-02
		899.15		99.16	-3.31E-02		1.21E-01
		911.74		91.10	3.41E-01		2.08E-01
+	BI-207	569.67		97.72	-6.07E-03	8.53E-02	8.53E-02
		1063.62		74.90	-4.44E-02		1.80E-01
+	TL-208	583.14	*	30.22	1.21E+00	6.53E-02	5.32E-01
		860.37	*	4.48	1.72E+00		3.01E+00
		2614.66	*	35.85	1.18E+00		6.53E-02
+	BI-210M	262.00		45.00	3.88E-02	1.50E-01	1.50E-01
		300.00		23.00	-4.13E-01		3.25E-01
+	PB-210	46.50	*	4.25	1.22E+00	2.29E+00	2.29E+00
+	PB-211	404.84		2.90	5.96E-02	2.72E+00	2.72E+00
		831.96		2.90	1.02E+00		4.02E+00
+	BI-212	727.17		11.80	3.84E-01	1.08E+00	1.08E+00
		1620.62		2.75	1.05E+00		3.96E+00
+	PB-212	238.63	*	44.60	1.06E+00	2.79E-01	2.79E-01
		300.09	*	3.41	1.25E+00		2.25E+00
+	BI-214	609.31	*	46.30	1.06E+00	2.74E-01	2.74E-01
		1120.29		15.10	6.51E-01		1.17E+00
		1764.49	*	15.80	9.29E-01		6.86E-01
		2204.22		4.98	7.74E-01		2.65E+00
+	PB-214	295.21	*	19.19	8.39E-01	3.32E-01	4.50E-01
		351.92	*	37.19	1.04E+00		3.32E-01
+	RN-219	401.80		6.50	-7.75E-02	1.18E+00	1.18E+00
+	RA-223	323.87		3.88	-1.40E-01	1.71E+00	1.71E+00

Analysis Report for 1707082-11

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98	*	3.95	4.06E+00	3.16E+00	3.16E+00
+	RA-225	40.00	*	31.00	1.49E+01	2.61E+01	2.61E+01
+	RA-226	186.21	*	3.28	2.07E+00	3.22E+00	3.22E+00
+	TH-227	50.10		8.40	-3.31E-02	8.70E-01	8.70E-01
		236.00		11.50	1.76E+00		9.16E-01
		256.20		6.30	-2.35E-03		1.01E+00
+	AC-228	338.32	*	11.40	1.75E+00	8.15E-01	8.15E-01
		911.07	*	27.70	8.80E-01		9.22E-01
		969.11	*	16.60	1.34E+00		1.37E+00
+	TH-230	48.44		16.90	2.60E-01	4.56E-01	4.56E-01
		62.85		4.60	1.36E+00		1.67E+00
		67.67		0.37	-1.85E+00		1.95E+01
+	PA-231	283.67		1.60	-3.35E-01	2.97E+00	4.05E+00
		302.67		2.30	1.13E+00		2.97E+00
+	TH-231	25.64		14.70	-5.36E-01	1.08E+00	1.48E+00
		84.21		6.40	-1.34E-01		1.08E+00
+	PA-233	311.98		38.60	5.63E-01	1.84E+00	1.84E+00
+	PA-234	131.20		20.40	-8.98E-02	2.76E-01	2.76E-01
		733.99		8.80	-1.29E+00		1.28E+00
		946.00		12.00	-7.61E-03		9.90E-01
+	PA-234M	1001.03		0.92	5.40E+00	1.39E+01	1.39E+01
+	TH-234	63.29	*	3.80	1.24E+00	2.44E+00	2.44E+00
+	U-235	143.76		10.50	1.23E-03	5.67E-01	5.67E-01
		163.35		4.70	-2.20E-01		1.24E+00
		205.31		4.70	-9.13E-03		1.37E+00
+	NP-237	86.50	*	12.60	4.21E-01	6.92E-01	6.92E-01
+	NP-239	106.10		22.70	4.50E+09	2.57E+11	2.57E+11
		228.18		10.70	1.11E+11		6.32E+11
		277.60		14.10	4.83E+10		4.99E+11
+	AM-241	59.54		35.90	4.81E-02	2.10E-01	2.10E-01
+	AM-243	74.67		66.00	6.41E-01	1.48E-01	1.48E-01
+	CM-243	209.75		3.29	1.31E+00	4.76E-01	2.07E+00
		228.14		10.60	1.06E-01		6.04E-01
		277.60		14.00	4.60E-02		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 1707082-11

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NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	2.45E+00	2.45E+00	-1.43E-01	1.15E+00
	NA-22	1274.54		99.94	1.32E-01	1.32E-01	-1.81E-02	5.98E-02
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	9.03E-02	9.03E-02	4.03E-03	3.74E-02
+	K-40	1460.81	*	10.67	1.08E+00	1.08E+00	2.08E+01	4.82E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	7.64E-02	7.64E-02	-7.28E-03	3.75E-02
		78.34		96.00	9.60E-02		3.27E-01	4.73E-02
	SC-46	889.25		99.98	2.55E-01	2.55E-01	-3.15E-03	1.18E-01
		1120.51		99.99	3.84E-01		2.14E-01	1.81E-01
	V-48	983.52		99.98	7.48E+00	7.48E+00	1.08E+00	3.48E+00
		1312.10		97.50	7.66E+00		4.08E-01	3.48E+00
	CR-51	320.08		9.83	7.29E+00	7.29E+00	1.54E+00	3.49E+00
	MN-54	834.83		99.97	1.41E-01	1.41E-01	-6.15E-02	6.58E-02
	CO-56	846.75		99.96	2.46E-01	2.46E-01	-2.92E-02	1.14E-01
		1037.75		14.03	2.01E+00		2.24E-01	9.31E-01
		1238.25		67.00	5.47E-01		-9.55E-02	2.55E-01
		1771.40		15.51	1.30E+00		-1.69E-01	5.40E-01
		2598.48		16.90	1.25E+00		-2.84E-01	4.68E-01
	CO-57	122.06		85.51	7.98E-02	7.98E-02	-1.51E-02	3.89E-02
		136.48		10.60	6.84E-01		2.12E-01	3.34E-01
	CO-58	810.76		99.40	2.72E-01	2.72E-01	-2.16E-02	1.26E-01
	FE-59	1099.22		56.50	1.03E+00	1.03E+00	-3.28E-01	4.80E-01
		1291.56		43.20	1.35E+00		1.77E-01	6.19E-01
	CO-60	1173.22		100.00	1.59E-01	1.41E-01	6.53E-02	7.42E-02
		1332.49		100.00	1.41E-01		6.03E-03	6.43E-02
	ZN-65	1115.52		50.75	4.02E-01	4.02E-01	-2.56E-01	1.88E-01
	GA-67	93.31		35.70	9.22E+07	9.22E+07	1.08E+08	4.53E+07
		208.95		2.24	1.47E+09		7.46E+08	7.14E+08
		300.22		16.00	2.26E+08		-2.88E+08	1.09E+08
	SE-75	121.11		16.70	5.42E-01	1.65E-01	-2.87E-01	2.64E-01
		136.00		59.20	1.65E-01		-2.08E-03	8.02E-02
		264.65		59.80	1.87E-01		-1.74E-01	8.98E-02
		279.53		25.20	4.47E-01		1.73E-01	2.15E-01
		400.65		11.40	1.12E+00		-6.01E-01	5.34E-01
	RB-82	776.52		13.00	1.00E+01	1.00E+01	-5.10E+00	4.67E+00
	RB-83	520.41		46.00	3.60E-01	3.60E-01	-5.78E-02	1.69E-01
		529.64		30.30	5.53E-01		-5.03E-02	2.59E-01
		552.65		16.40	1.07E+00		-3.29E-01	4.99E-01
	KR-85	513.99		0.43	2.63E+01	2.63E+01	2.55E+01	1.26E+01
	SR-85	513.99		99.27	3.09E-01	3.09E-01	3.00E-01	1.48E-01

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
Y-88	898.02	93.40	2.24E-01	1.51E-01	-3.66E-02	1.04E-01
	1836.01	99.38	1.51E-01		-1.19E-03	6.09E-02
MO-93	263.06	56.72	1.16E-01	1.05E-01	-5.36E-02	5.58E-02
	684.67	99.68	1.08E-01		8.69E-03	5.08E-02
	1477.11	99.08	1.05E-01		3.14E-02	4.62E-02
NB-93M	16.57	9.43	7.69E+00	7.69E+00	1.46E+01	3.74E+00
NB-94	702.63	100.00	1.17E-01	1.12E-01	8.93E-03	5.52E-02
	871.10	100.00	1.12E-01		-2.41E-02	5.21E-02
NB-95	765.79	99.81	7.36E-01	7.36E-01	8.23E-02	3.45E-01
NB-95M	235.69	25.00	2.95E+07	2.95E+07	5.68E+07	1.44E+07
ZR-95	724.18	43.70	7.55E-01	5.77E-01	2.18E-01	3.56E-01
	756.72	55.30	5.77E-01		2.59E-01	2.71E-01
MO-99	181.06	6.20	1.95E+10	1.56E+10	-1.91E+10	9.49E+09
	739.58	12.80	1.56E+10		2.22E+09	7.26E+09
	778.00	4.50	4.58E+10		-1.08E+10	2.13E+10
RU-103	497.08	89.00	5.02E-01	5.02E-01	1.00E-01	2.37E-01
RU-106	621.84	9.80	1.09E+00	1.09E+00	2.09E-01	5.08E-01
AG-108M	433.93	89.90	8.30E-02	8.30E-02	-3.49E-02	3.92E-02
	614.37	90.40	1.02E-01		-4.79E-01	4.79E-02
	722.95	90.50	1.19E-01		-9.13E-02	5.59E-02
CD-109	88.03	3.72	2.19E+00	2.19E+00	-2.62E-01	1.08E+00
AG-110M	657.75	93.14	1.34E-01	1.34E-01	-2.52E-02	6.27E-02
	677.61	10.53	1.26E+00		-1.21E-01	5.90E-01
	706.67	16.46	9.09E-01		2.43E-01	4.29E-01
	763.93	21.98	6.49E-01		-1.10E-01	3.04E-01
	884.67	71.63	2.29E-01		5.40E-02	1.07E-01
	1384.27	23.94	5.25E-01		7.66E-02	2.30E-01
CD-113M	263.70	0.02	2.89E+02	2.89E+02	-1.34E+02	1.39E+02
SN-113	255.12	1.93	5.59E+00	2.05E-01	1.02E-01	2.69E+00
	391.69	64.90	2.05E-01		5.61E-02	9.78E-02
TE123M	159.00	84.10	1.17E-01	1.17E-01	-7.14E-02	5.71E-02
SB-124	602.71	97.87	2.61E-01	2.61E-01	-2.69E-02	1.22E-01
	645.85	7.26	3.66E+00		1.15E-01	1.71E+00
	722.78	11.10	2.87E+00		-2.19E+00	1.34E+00
	1691.02	49.00	3.45E-01		-1.28E-01	1.29E-01
I-125	35.49	6.49	4.58E+00	4.58E+00	-1.49E+00	2.23E+00
SB-125	176.33	6.89	9.02E-01	2.87E-01	-3.23E-01	4.38E-01
	427.89	29.33	2.87E-01		-5.67E-02	1.36E-01
	463.38	10.35	9.60E-01		6.25E-01	4.58E-01
	600.56	17.80	5.03E-01		-3.42E-02	2.34E-01
	635.90	11.32	8.76E-01		1.82E-01	4.10E-01
SB-126	414.70	83.30	1.71E+01	1.71E+01	-3.66E+00	8.13E+00
	666.33	99.60	2.15E+01		6.11E+00	1.01E+01
	695.00	99.60	2.19E+01		-1.63E+00	1.03E+01
	720.50	53.80	3.86E+01		-2.25E+01	1.81E+01
SN-126	87.57	37.00	1.92E-01	1.92E-01	-2.29E-02	9.41E-02
SB-127	473.00	25.00	7.50E+06	6.75E+06	3.14E+06	3.55E+06
	685.20	35.70	6.75E+06		5.43E+05	3.17E+06
	783.80	14.70	1.86E+07		6.98E+06	8.74E+06
I-129	29.78	57.00	2.62E-01	2.62E-01	3.41E-02	1.28E-01
	33.60	13.20	8.44E-01		-1.40E-01	4.11E-01
	39.58	7.52	1.21E+00		6.40E-01	5.89E-01
I-131	284.30	6.05	3.58E+03	2.99E+02	-2.96E+02	1.72E+03

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
I-131	364.48	81.20	2.99E+02	2.99E+02	1.31E+02	1.43E+02
	636.97	7.26	4.25E+03		1.34E+03	1.99E+03
	722.89	1.80	1.99E+04		-1.53E+04	9.35E+03
TE-132	49.72	13.10	2.77E+08	3.56E+07	-1.05E+07	1.35E+08
	228.16	88.00	3.56E+07		6.26E+06	1.72E+07
BA-133	81.00	33.00	2.22E-01	1.62E-01	-7.19E-01	1.09E-01
	302.84	17.80	3.90E-01		1.48E-01	1.87E-01
	356.01	60.00	1.62E-01		4.33E-03	7.81E-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	4.78E+04	4.78E+04	-1.55E+05	2.35E+04
CS-134	563.23	8.38	1.18E+00	1.14E-01	3.06E-01	5.55E-01
	569.32	15.43	5.86E-01		-4.16E-02	2.74E-01
	604.70	97.60	1.14E-01		6.94E-03	5.36E-02
	795.84	85.40	1.56E-01		1.78E-01	7.32E-02
	801.93	8.73	1.31E+00		-5.00E-01	6.08E-01
CS-135	268.24	16.00	4.51E-01	4.51E-01	2.36E-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	1.14E+02	1.53E+01	4.55E+01	5.58E+01
	163.89	4.61	1.81E+02		8.39E+00	8.78E+01
	176.55	13.56	6.37E+01		4.82E-01	3.10E+01
	273.65	12.66	8.08E+01		-5.37E-01	3.90E+01
	340.57	48.50	2.61E+01		3.83E+01	1.26E+01
	818.50	99.70	1.53E+01		4.09E+00	7.12E+00
	1048.07	79.60	2.38E+01		3.04E+00	1.10E+01
	1235.34	19.70	1.16E+02		-3.20E+01	5.41E+01
CS-137	661.65	85.12	1.17E-01	1.17E-01	-4.29E-02	5.49E-02
LA-138	788.74	34.00	3.60E-01	1.66E-01	4.28E-02	1.69E-01
	1435.80	66.00	1.66E-01		4.16E-02	7.39E-02
CE-139	165.85	80.35	1.18E-01	1.18E-01	5.05E-02	5.75E-02
BA-140	162.64	6.70	1.42E+02	5.64E+01	-2.52E+01	6.92E+01
	304.84	4.50	2.14E+02		2.28E+01	1.02E+02
	423.70	3.20	4.03E+02		-2.52E+01	1.92E+02
	437.55	2.00	6.16E+02		-3.74E+01	2.91E+02
	537.32	25.00	5.64E+01		8.61E+00	2.65E+01
LA-140	328.77	20.50	6.06E+01	2.08E+01	5.88E+01	2.91E+01
	487.03	45.50	2.76E+01		-4.92E+00	1.30E+01
	815.85	23.50	7.12E+01		-2.46E+01	3.30E+01
	1596.49	95.49	2.08E+01		-1.15E+00	9.21E+00
CE-141	145.44	48.40	9.35E-01	9.35E-01	6.70E-01	4.56E-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	6.53E-01	6.53E-01	-1.00E-01	3.18E-01
PM-144	476.78	42.00	2.18E-01	1.19E-01	-2.85E-02	1.03E-01
	618.01	98.60	1.19E-01		8.54E-02	5.58E-02
	696.49	99.49	1.43E-01		6.93E-02	6.79E-02
PM-145	36.85	21.70	4.53E-01	2.42E-01	-1.02E-01	2.20E-01
	37.36	39.70	2.42E-01		-5.46E-02	1.18E-01
	42.30	15.10	5.68E-01		-4.70E-01	2.77E-01
	72.40	2.31	3.65E+00		-6.60E+00	1.79E+00
PM-146	453.90	39.94	2.05E-01	2.05E-01	3.27E-02	9.72E-02

Analysis Report for 1707082-11

HTC-A01-S005-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PM-146	735.90		14.01	8.32E-01	2.05E-01	2.02E-01	3.91E-01
		747.13		13.10	7.67E-01		3.90E-02	3.57E-01
	ND-147	91.11		28.90	9.38E+01	9.38E+01	8.39E+01	4.61E+01
		531.02		13.10	2.35E+02		3.82E+01	1.11E+02
	PM-149	285.90		3.10	1.39E+13	1.39E+13	-1.69E+11	6.66E+12
	EU-152	121.78		20.50	2.65E-01	2.65E-01	-5.02E-02	1.29E-01
		244.69		5.40	1.40E+00		-9.13E-01	6.79E-01
		344.27		19.13	3.62E-01		-4.58E-03	1.72E-01
		778.89		9.20	1.12E+00		-6.41E-01	5.22E-01
		964.01		10.40	1.54E+00		-1.35E+00	7.26E-01
		1085.78		7.22	1.70E+00		-1.01E+00	7.83E-01
		1112.02		9.60	1.64E+00		3.62E-01	7.66E-01
		1407.95		14.94	8.19E-01		2.44E-01	3.68E-01
	GD-153	97.43		31.30	2.47E-01	2.47E-01	-8.19E-02	1.21E-01
		103.18		22.20	3.29E-01		1.52E-01	1.61E-01
	EU-154	123.07		40.50	1.38E-01	1.38E-01	3.82E-02	6.70E-02
		723.30		19.70	6.16E-01		1.78E-01	2.91E-01
		873.19		11.50	9.89E-01		-2.13E-01	4.59E-01
		996.32		10.30	1.26E+00		-6.51E-02	5.87E-01
		1004.76		17.90	7.20E-01		1.86E-01	3.34E-01
		1274.45		35.50	3.53E-01		-4.84E-02	1.60E-01
+	EU-155	86.50	*	30.90	2.93E-01	2.76E-01	1.78E-01	1.44E-01
		105.30		20.70	2.76E-01		-5.48E-02	1.35E-01
	EU-156	811.77		10.40	7.52E+01	7.52E+01	4.88E+00	3.50E+01
		1153.47		7.20	1.52E+02		1.11E+01	7.08E+01
		1230.71		8.90	1.18E+02		-5.49E+01	5.45E+01
	HO-166M	184.41		72.60	9.32E-02	9.32E-02	7.67E-02	4.54E-02
		280.45		29.60	2.18E-01		-5.41E-03	1.04E-01
		410.94		11.10	7.19E-01		8.38E-02	3.42E-01
		711.69		54.10	1.99E-01		1.92E-02	9.32E-02
	TM-171	66.72		0.14	5.80E+01	5.80E+01	-5.41E+00	2.85E+01
	HF-172	67.35		5.31	1.53E+00	5.44E-01	-1.42E-01	7.50E-01
		125.81		11.30	5.44E-01		2.11E-02	2.65E-01
	LU-172	181.53		20.60	5.11E+03	4.04E+03	-5.09E+03	2.48E+03
		900.72		29.81	6.49E+03		-8.16E+02	3.01E+03
		1093.66		62.50	4.04E+03		1.45E+03	1.89E+03
	LU-173	100.72		5.24	1.18E+00	4.04E-01	-2.86E-01	5.75E-01
		272.11		21.20	4.04E-01		2.80E-01	1.95E-01
	HF-175	343.40		84.00	2.06E-01	2.06E-01	-2.61E-03	9.82E-02
	LU-176	88.34		13.30	5.33E-01	6.19E-02	-6.36E-02	2.62E-01
		201.83		86.00	7.71E-02		3.22E-02	3.75E-02
		306.78		94.00	6.19E-02		8.64E-03	2.95E-02
	HF-181	133.02		41.70	6.36E-01	4.19E-01	1.80E-01	3.10E-01
		345.85		17.20	1.78E+00		-2.35E-02	8.48E-01
		482.03		82.80	4.19E-01		-1.95E-02	1.97E-01
	TA-182	67.75		41.20	3.09E-01	3.09E-01	-2.94E-02	1.52E-01
		1121.30		34.90	9.00E-01		4.55E-01	4.25E-01
		1189.05		16.23	1.66E+00		-2.07E-01	7.72E-01
		1221.41		26.98	1.12E+00		4.92E-01	5.23E-01
		1231.02		11.44	2.26E+00		-1.93E+00	1.04E+00
	IR-192	308.46		29.68	4.95E-01	4.19E-01	-5.45E-03	2.36E-01
		468.07		48.10	4.19E-01		2.19E-02	1.98E-01
	HG-203	279.19		77.30	3.52E-01	3.52E-01	7.62E-02	1.69E-01

Analysis Report for 1707082-11

HTC-A01-S005-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TL-204	374.74		94.11	7.91E-02	7.91E-02	-2.53E-03	3.76E-02
		899.15		99.16	1.21E-01		-3.31E-02	5.62E-02
		911.74		91.10	2.08E-01		3.41E-01	9.90E-02
	BI-207	569.67		97.72	8.53E-02	8.53E-02	-6.07E-03	3.99E-02
		1063.62		74.90	1.80E-01		-4.44E-02	8.35E-02
+	TL-208	583.14	*	30.22	5.32E-01	6.53E-02	1.21E+00	2.57E-01
		860.37	*	4.48	3.01E+00		1.72E+00	1.42E+00
		2614.66	*	35.85	6.53E-02		1.18E+00	0.00E+00
	BI-210M	262.00		45.00	1.50E-01	1.50E-01	3.88E-02	7.24E-02
		300.00		23.00	3.25E-01		-4.13E-01	1.57E-01
+	PB-210	46.50	*	4.25	2.29E+00	2.29E+00	1.22E+00	1.12E+00
	PB-211	404.84		2.90	2.72E+00	2.72E+00	5.96E-02	1.29E+00
		831.96		2.90	4.02E+00		1.02E+00	1.88E+00
	BI-212	727.17		11.80	1.08E+00	1.08E+00	3.84E-01	5.10E-01
		1620.62		2.75	3.96E+00		1.05E+00	1.73E+00
+	PB-212	238.63	*	44.60	2.79E-01	2.79E-01	1.06E+00	1.37E-01
		300.09	*	3.41	2.25E+00		1.25E+00	1.09E+00
+	BI-214	609.31	*	46.30	2.74E-01	2.74E-01	1.06E+00	1.31E-01
		1120.29		15.10	1.17E+00		6.51E-01	5.52E-01
		1764.49	*	15.80	6.86E-01		9.29E-01	2.96E-01
		2204.22		4.98	2.65E+00		7.74E-01	1.13E+00
+	PB-214	295.21	*	19.19	4.50E-01	3.32E-01	8.39E-01	2.18E-01
		351.92	*	37.19	3.32E-01		1.04E+00	1.62E-01
	RN-219	401.80		6.50	1.18E+00	1.18E+00	-7.75E-02	5.60E-01
	RA-223	323.87		3.88	1.71E+00	1.71E+00	-1.40E-01	8.18E-01
+	RA-224	240.98	*	3.95	3.16E+00	3.16E+00	4.06E+00	1.55E+00
+	RA-225	40.00	*	31.00	2.61E+01	2.61E+01	1.49E+01	1.27E+01
+	RA-226	186.21	*	3.28	3.22E+00	3.22E+00	2.07E+00	1.58E+00
	TH-227	50.10		8.40	8.70E-01	8.70E-01	-3.31E-02	4.25E-01
		236.00		11.50	9.16E-01		1.76E+00	4.48E-01
		256.20		6.30	1.01E+00		-2.35E-03	4.87E-01
+	AC-228	338.32	*	11.40	8.15E-01	8.15E-01	1.75E+00	3.94E-01
		911.07	*	27.70	9.22E-01		8.80E-01	4.46E-01
		969.11	*	16.60	1.37E+00		1.34E+00	6.56E-01
	TH-230	48.44		16.90	4.56E-01	4.56E-01	2.60E-01	2.23E-01
		62.85		4.60	1.67E+00		1.36E+00	8.18E-01
		67.67		0.37	1.95E+01		-1.85E+00	9.55E+00
	PA-231	283.67		1.60	4.05E+00	2.97E+00	-3.35E-01	1.94E+00
		302.67		2.30	2.97E+00		1.13E+00	1.42E+00
	TH-231	25.64		14.70	1.48E+00	1.08E+00	-5.36E-01	7.20E-01
		84.21		6.40	1.08E+00		-1.34E-01	5.32E-01
	PA-233	311.98		38.60	1.84E+00	1.84E+00	5.63E-01	8.77E-01
	PA-234	131.20		20.40	2.76E-01	2.76E-01	-8.98E-02	1.35E-01
		733.99		8.80	1.28E+00		-1.29E+00	6.01E-01
		946.00		12.00	9.90E-01		-7.61E-03	4.59E-01
	PA-234M	1001.03		0.92	1.39E+01	1.39E+01	5.40E+00	6.46E+00
+	TH-234	63.29	*	3.80	2.44E+00	2.44E+00	1.24E+00	1.20E+00
	U-235	143.76		10.50	5.67E-01	5.67E-01	1.23E-03	2.76E-01
		163.35		4.70	1.24E+00		-2.20E-01	6.04E-01
		205.31		4.70	1.37E+00		-9.13E-03	6.65E-01
+	NP-237	86.50	*	12.60	6.92E-01	6.92E-01	4.21E-01	3.41E-01
	NP-239	106.10		22.70	2.57E+11	2.57E+11	4.50E+09	1.25E+11
		228.18		10.70	6.32E+11		1.11E+11	3.05E+11

Analysis Report for 1707082-11

HTC-A01-S005-3036-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
NP-239	277.60	14.10	4.99E+11	2.57E+11	4.83E+10	2.40E+11
AM-241	59.54	35.90	2.10E-01	2.10E-01	4.81E-02	1.03E-01
AM-243	74.67	66.00	1.48E-01	1.48E-01	6.41E-01	7.30E-02
CM-243	209.75	3.29	2.07E+00	4.76E-01	1.31E+00	1.00E+00
	228.14	10.60	6.04E-01		1.06E-01	2.92E-01
	277.60	14.00	4.76E-01		4.60E-02	2.29E-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-S005-3036-01

Elapsed Live time: 3600
Elapsed Real Time: 3613

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	9	119
17:	98	103	78	90	76	69	84	82
25:	76	73	58	71	74	78	70	65
33:	57	62	51	59	67	78	95	74
41:	74	70	73	85	111	114	94	76
49:	79	75	76	98	81	96	79	104
57:	125	125	108	128	150	147	188	131
65:	129	117	125	141	145	147	141	193
73:	231	331	315	393	266	152	120	113
81:	117	116	160	132	147	191	157	138
89:	150	109	137	176	172	114	80	97
97:	71	70	92	96	85	77	87	91
105:	79	97	73	77	88	66	76	60
113:	59	73	82	78	56	62	76	73
121:	71	75	72	73	77	84	71	80
129:	82	74	66	77	68	94	62	63
137:	70	69	84	63	68	86	87	66
145:	71	83	83	64	74	58	72	72
153:	80	71	66	59	56	69	62	49
161:	63	56	73	64	57	64	63	49
169:	51	57	60	41	66	56	53	56
177:	56	48	75	45	55	54	67	69
185:	97	76	57	56	48	52	45	45
193:	50	54	53	53	55	63	63	54
201:	39	55	69	48	50	45	51	63
209:	74	58	46	43	38	49	48	50
217:	43	42	52	41	51	42	41	38
225:	33	33	47	41	43	51	37	36
233:	48	38	48	90	217	278	155	88
241:	118	57	37	37	41	26	31	27
249:	35	31	31	25	28	21	29	35
257:	43	48	25	39	37	33	31	34
265:	25	31	30	47	48	54	38	28
273:	43	27	33	35	36	32	27	20
281:	31	21	27	17	31	45	36	27
289:	17	32	41	26	54	78	105	31
297:	23	44	49	40	20	23	17	13
305:	25	24	12	17	22	20	21	19
313:	29	22	23	16	25	30	30	19
321:	23	22	20	21	22	26	39	33
329:	23	30	22	14	20	16	19	41
337:	74	62	35	27	26	12	18	20
345:	13	26	18	23	29	78	146	128
353:	37	19	16	20	24	21	24	21
361:	12	20	25	19	20	24	24	10

369:	14	22	21	12	19	13	19	16

Sample Title: HTC-A01-S005-3036-01

Channel								
377:	28	19	19	21	20	13	16	19
385:	24	16	11	20	26	17	18	19
393:	16	17	16	22	17	19	20	12
401:	11	29	14	24	23	14	20	25
409:	18	21	19	10	21	16	20	17
417:	10	15	18	15	21	15	20	12
425:	21	18	23	15	18	13	21	18
433:	15	11	12	13	21	16	14	16
441:	12	16	14	13	12	16	7	11
449:	19	16	13	18	16	16	15	13
457:	10	17	13	16	28	28	22	13
465:	18	18	17	13	13	19	14	15
473:	14	20	11	13	7	10	14	11
481:	15	8	13	11	17	10	16	10
489:	8	10	19	11	6	12	20	17
497:	15	18	14	11	12	12	3	14
505:	16	12	15	18	35	48	39	24
513:	21	11	16	10	12	10	12	5
521:	16	13	8	13	9	6	13	11
529:	10	13	11	11	11	12	13	14
537:	12	9	10	18	11	13	11	10
545:	17	11	11	12	6	14	13	9
553:	11	10	12	9	18	7	11	15
561:	17	14	14	9	9	11	9	12
569:	11	9	6	14	10	14	12	17
577:	16	9	14	16	41	69	82	26
585:	18	9	16	7	10	11	6	12
593:	4	10	9	9	9	11	9	6
601:	10	13	8	14	10	11	32	89
609:	88	51	13	7	7	8	13	14
617:	15	15	12	9	5	11	7	11
625:	7	7	15	5	9	10	6	13
633:	9	9	15	6	10	11	12	8
641:	7	9	10	7	12	11	13	4
649:	11	10	8	10	4	9	12	6
657:	6	6	9	13	8	6	12	8
665:	9	12	11	8	20	11	8	8
673:	12	5	9	6	9	13	11	8
681:	5	12	8	16	4	8	10	12
689:	3	9	8	11	13	12	6	9
697:	14	11	10	17	7	11	8	13
705:	9	11	13	6	14	8	5	8
713:	7	11	7	18	13	9	4	9
721:	8	4	6	7	8	22	27	17
729:	11	6	12	11	7	12	12	3
737:	8	11	6	5	10	5	4	7
745:	2	4	12	9	9	6	7	8
753:	6	11	8	12	11	9	8	8
761:	7	7	8	8	3	10	13	13
769:	9	6	12	7	10	5	4	4
777:	7	5	12	5	10	7	6	13
785:	10	9	11	11	6	4	10	11
793:	12	9	12	7	10	6	6	2

801:	3	5	7	11	9	5	9	9

Sample Title: HTC-A01-S005-3036-01

Channel								
809:	7	5	10	4	5	7	4	6
817:	6	2	10	10	7	8	4	9
825:	5	8	5	9	8	7	4	5
833:	6	10	15	7	6	6	14	6
841:	8	4	7	9	6	6	7	8
849:	3	6	5	8	10	5	6	5
857:	8	8	13	19	6	7	9	6
865:	7	8	8	7	4	5	6	8
873:	4	8	11	5	6	9	5	16
881:	8	6	10	9	5	9	7	3
889:	7	7	7	9	7	4	5	9
897:	7	6	4	7	7	8	4	5
905:	13	4	10	8	22	35	35	14
913:	8	6	8	3	4	2	4	6
921:	12	8	3	4	3	8	2	3
929:	1	7	8	11	10	8	11	5
937:	5	7	4	6	4	3	4	11
945:	4	6	10	7	7	2	14	8
953:	8	6	10	4	8	2	5	2
961:	13	9	13	11	15	9	22	28
969:	30	4	8	7	10	7	8	6
977:	5	0	4	9	2	4	6	9
985:	8	8	9	10	9	10	3	10
993:	4	6	6	6	8	4	4	11
1001:	8	6	6	6	5	3	8	4
1009:	8	4	9	3	2	8	6	5
1017:	6	4	7	8	5	6	2	3
1025:	8	7	7	7	7	5	7	4
1033:	7	6	6	4	5	6	4	4
1041:	9	4	6	5	3	7	6	4
1049:	13	4	11	7	4	9	4	3
1057:	8	6	4	4	4	9	8	4
1065:	7	11	7	8	8	8	4	3
1073:	5	9	3	6	4	7	11	4
1081:	6	5	1	4	4	7	8	2
1089:	8	10	4	7	10	7	12	4
1097:	8	5	9	6	6	2	4	4
1105:	10	6	10	12	8	9	11	3
1113:	3	6	11	8	3	11	18	16
1121:	16	7	8	8	9	3	13	7
1129:	2	6	8	7	11	6	6	9
1137:	6	11	6	6	8	3	7	7
1145:	7	8	4	4	10	6	5	5
1153:	9	13	3	6	6	11	7	5
1161:	11	4	8	7	4	1	5	9
1169:	6	12	8	7	5	2	13	9
1177:	3	9	5	3	9	7	6	6
1185:	8	7	2	12	6	5	6	9
1193:	7	11	7	7	5	4	9	9
1201:	7	5	5	11	12	14	6	7
1209:	7	8	6	6	7	6	9	7
1217:	4	4	10	7	8	9	9	13
1225:	11	3	3	9	6	4	7	6

1233:	7	6	5	1	16	12	5	9

Sample Title: HTC-A01-S005-3036-01

Channel								
1241:	7	3	3	8	11	8	6	9
1249:	3	7	3	5	5	5	5	8
1257:	3	4	4	3	8	10	4	6
1265:	9	6	7	4	9	3	5	3
1273:	3	3	2	5	7	3	8	14
1281:	3	5	6	3	1	6	5	2
1289:	6	4	5	6	7	4	2	4
1297:	6	4	6	5	5	4	6	6
1305:	3	4	2	7	5	3	1	5
1313:	3	2	3	5	4	5	3	4
1321:	3	4	6	1	3	2	4	3
1329:	4	4	2	7	1	3	11	4
1337:	7	4	7	2	1	2	0	0
1345:	3	1	2	3	3	2	5	2
1353:	1	3	1	3	3	2	5	0
1361:	2	2	2	2	2	1	1	3
1369:	3	4	3	1	1	1	4	10
1377:	8	10	4	2	1	1	3	2
1385:	3	2	2	1	0	2	1	0
1393:	3	3	1	1	4	2	2	1
1401:	3	1	3	5	3	4	3	6
1409:	4	0	0	2	1	2	3	4
1417:	0	2	2	3	3	0	0	0
1425:	4	2	2	1	3	1	3	3
1433:	1	2	2	5	1	0	4	1
1441:	2	2	1	6	4	1	1	3
1449:	2	7	1	3	5	0	0	5
1457:	4	26	96	166	128	49	6	3
1465:	2	3	2	1	1	1	1	0
1473:	1	2	1	2	3	0	3	3
1481:	2	2	2	1	0	4	1	1
1489:	5	1	2	1	1	2	2	3
1497:	3	1	3	1	2	1	0	2
1505:	0	2	7	1	3	1	2	1
1513:	0	0	2	2	0	1	2	1
1521:	0	2	3	1	0	1	1	2
1529:	3	1	2	2	0	2	0	2
1537:	2	1	0	1	4	1	1	1
1545:	0	1	2	1	0	2	0	1
1553:	2	0	1	2	1	0	1	1
1561:	0	2	1	1	0	0	1	0
1569:	1	0	1	1	1	0	1	3
1577:	0	0	0	0	2	0	1	0
1585:	4	2	4	4	3	0	2	10
1593:	3	4	1	0	1	0	1	1
1601:	0	2	0	1	2	2	2	3
1609:	1	2	1	1	2	1	1	2
1617:	1	1	3	2	2	2	2	1
1625:	0	0	3	5	2	4	2	3
1633:	1	2	2	3	0	0	0	0
1641:	0	0	2	0	1	3	1	1
1649:	1	1	2	1	1	0	1	0
1657:	1	1	1	0	1	2	1	1

1665:	2	2	1	1	0	0	0	2

Sample Title: HTC-A01-S005-3036-01

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

2097:	2	0	1	1	4	5	3	7

Sample Title: HTC-A01-S005-3036-01

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

2529:	1	1	0	1	0	1	1	0

Sample Title: HTC-A01-S005-3036-01

Channel								
2537:	0	0	1	0	0	0	0	0
2545:	0	0	0	0	0	0	0	0
2553:	0	0	0	0	0	1	1	1
2561:	1	0	0	0	0	0	0	0
2569:	0	0	0	1	0	0	0	0
2577:	0	0	0	0	0	0	0	0
2585:	2	0	0	1	0	0	0	0
2593:	1	1	0	0	0	0	0	0
2601:	1	0	2	0	1	0	0	0
2609:	0	0	0	4	11	13	13	5
2617:	3	0	0	0	0	1	0	0
2625:	0	0	0	0	0	0	0	0
2633:	0	1	1	0	0	0	0	0
2641:	0	1	0	0	0	0	0	0
2649:	1	1	0	0	0	0	2	0
2657:	0	0	0	0	1	0	0	0
2665:	0	0	0	0	0	1	0	0
2673:	1	0	0	0	0	0	0	0
2681:	0	0	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	0	1	0	0
2713:	0	1	0	1	2	0	0	0
2721:	0	0	1	0	1	0	0	0
2729:	0	0	1	0	0	0	0	0
2737:	0	0	1	1	0	0	1	0
2745:	0	0	0	0	0	0	0	1
2753:	1	1	0	1	0	1	0	0
2761:	1	0	0	0	0	0	0	0
2769:	0	0	0	1	0	1	0	0
2777:	1	0	0	0	0	0	0	0
2785:	0	0	0	0	0	0	0	0
2793:	0	0	0	0	0	0	0	0
2801:	0	0	0	0	0	0	0	0
2809:	0	1	1	0	0	0	0	0
2817:	0	0	0	0	0	0	0	0
2825:	0	1	0	1	0	0	0	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:	0	0	0	0	2	1	0	1
2873:	0	1	0	0	1	1	0	0
2881:	0	0	0	0	0	0	0	0
2889:	1	0	0	0	0	0	0	0
2897:	1	0	0	0	1	0	0	0
2905:	0	0	0	1	0	1	0	0
2913:	0	0	0	0	0	0	0	0
2921:	0	0	0	0	0	3	0	0
2929:	0	1	0	0	0	0	0	0
2937:	0	0	0	0	0	1	0	0
2945:	1	0	0	0	0	0	0	0
2953:	0	0	0	0	0	0	0	0

2961:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S005-3036-01

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

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S005-3036-01

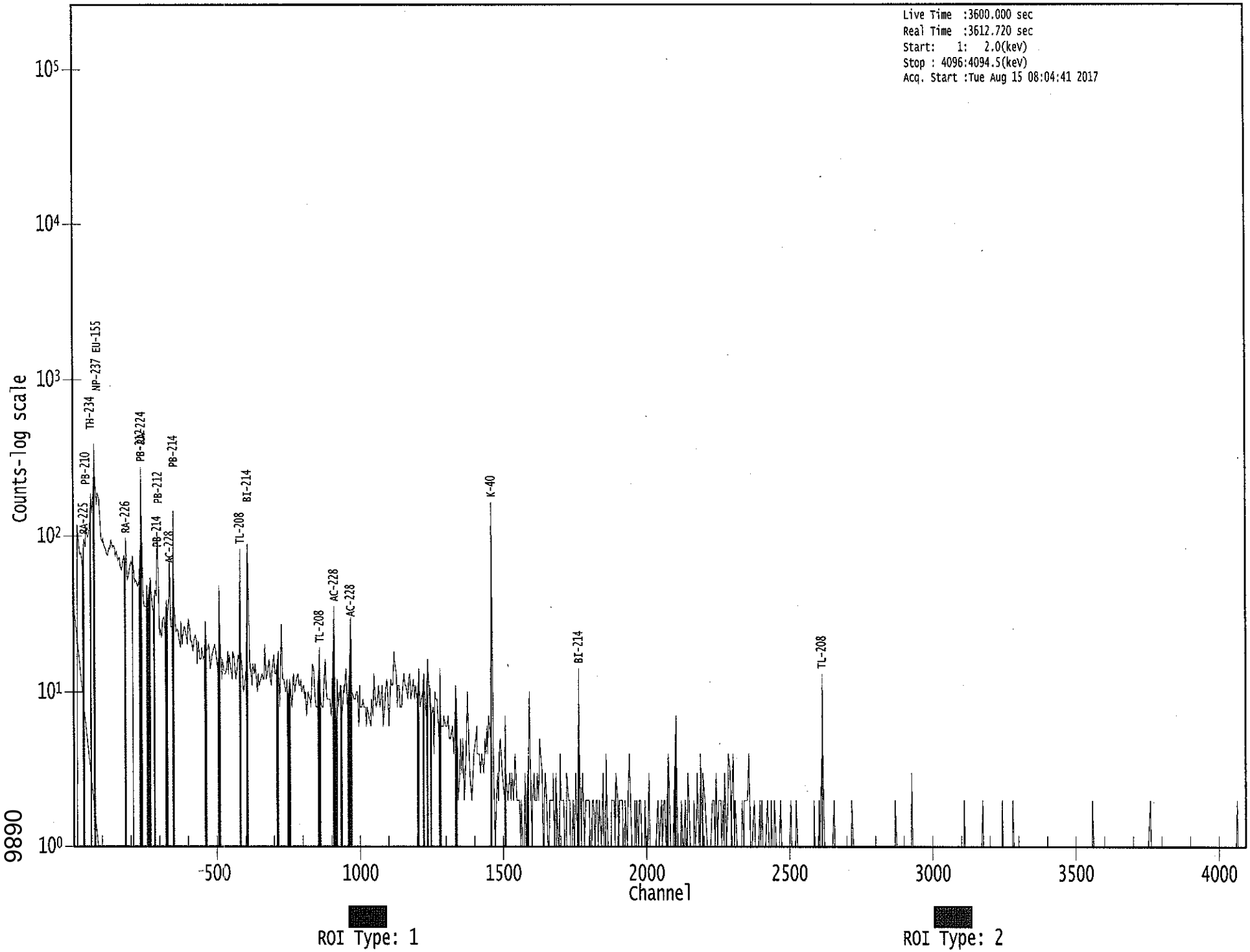
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	1	0	0	0
3417:	0	0	0	1	0	0	0	0
3425:	0	1	0	0	0	0	0	0
3433:	1	0	0	0	0	0	0	1
3441:	0	0	0	1	0	0	0	0
3449:	0	1	0	0	0	0	0	0
3457:	0	0	0	0	1	0	1	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	1	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	0	0	1	0	0

Sample Title: HTC-A01-S005-3036-01

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

0000055240.CNF



9890

Apex-Gamma

8/15

Analysis Report for 1707082-12

HTC-A01-S005-3642-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707082-12
Sample Description	: HTC-A01-S005-3642-01
Sample Type	: SOIL
Sample Size	: 6.701E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 6:35:00AM
Acquisition Started	: 8/15/2017 9:05:25AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3601.5 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	: 55242

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/16/17

Analysis Report for 1707082-12

HTC-A01-S005-3642-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/15/2017 10:05:29AM
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	45.51	46.13	0.0000	0.00
2	62.75	63.35	0.0000	0.00
3	74.72	75.31	0.0000	0.00
4	77.19	77.78	0.0000	0.00
5	87.57	88.15	0.0000	0.00
6	92.27	92.85	0.0000	0.00
7	129.31	129.85	0.0000	0.00
8	182.36	182.84	0.0000	0.00
9	185.68	186.16	0.0000	0.00
10	238.69	239.11	0.0000	0.00
11	241.74	242.17	0.0000	0.00
12	269.82	270.21	0.0000	0.00
13	295.15	295.52	0.0000	0.00
14	299.92	300.29	0.0000	0.00
15	328.28	328.61	0.0000	0.00
16	338.45	338.78	0.0000	0.00
17	351.92	352.23	0.0000	0.00
18	369.60	369.89	0.0000	0.00
19	463.74	463.94	0.0000	0.00
20	510.99	511.14	0.0000	0.00
21	555.38	555.48	0.0000	0.00
22	579.31	579.39	0.0000	0.00
23	583.38	583.45	0.0000	0.00
24	609.44	609.49	0.0000	0.00
25	724.64	724.58	0.0000	0.00
26	727.65	727.58	0.0000	0.00
27	734.23	734.15	0.0000	0.00
28	769.74	769.63	0.0000	0.00
29	784.04	783.92	0.0000	0.00
30	795.30	795.17	0.0000	0.00
31	837.02	836.85	0.0000	0.00
32	911.84	911.58	0.0000	0.00
33	932.04	931.77	0.0000	0.00
34	969.43	969.12	0.0000	0.00
35	1121.02	1120.56	0.0000	0.00
36	1166.71	1166.20	0.0000	0.00
37	1228.35	1227.78	0.0000	0.00
38	1238.47	1237.90	0.0000	0.00
39	1310.68	1310.03	0.0000	0.00
40	1379.22	1378.51	0.0000	0.00
41	1389.98	1389.25	0.0000	0.00
42	1461.56	1460.76	0.0000	0.00

Analysis Report for 1707082-12

HTC-A01-S005-3642-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1520.14	1519.29	0.0000	0.00
44	1591.69	1590.77	0.0000	0.00
45	1681.01	1680.00	0.0000	0.00
46	1730.01	1728.95	0.0000	0.00
47	1765.22	1764.13	0.0000	0.00
48	2104.36	2102.94	0.0000	0.00
49	2263.04	2261.46	0.0000	0.00
50	2615.46	2613.55	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707082-12

HTC-A01-S005-3642-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 10:05:29AM

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	45.51	43 -	49	46.13	1.30E+02	81.85	1.13E+03	1.16
	2	62.75	60 -	65	63.35	2.10E+02	92.60	1.55E+03	1.23
M	3	74.72	71 -	81	75.31	4.38E+02	98.11	1.50E+03	1.81
m	4	77.19	71 -	81	77.78	6.95E+02	104.01	1.51E+03	1.82
M	5	87.57	83 -	97	88.15	2.51E+02	82.63	1.24E+03	1.67
m	6	92.27	83 -	97	92.85	3.27E+02	85.63	1.14E+03	1.67
	7	129.31	126 -	133	129.85	8.96E+01	91.54	1.32E+03	2.01
M	8	182.36	181 -	190	182.84	3.75E+01	36.74	3.51E+02	1.77
m	9	185.68	181 -	190	186.16	2.66E+02	61.63	6.01E+02	1.77
M	10	238.69	235 -	246	239.11	1.05E+03	78.94	5.35E+02	1.76
m	11	241.74	235 -	246	242.17	1.87E+02	80.55	4.40E+02	1.82
	12	269.82	267 -	273	270.21	7.95E+01	56.69	5.29E+02	2.67
M	13	295.15	291 -	304	295.52	3.63E+02	60.45	4.27E+02	2.25
m	14	299.92	291 -	304	300.29	9.74E+01	51.75	3.98E+02	2.26
	15	328.28	325 -	333	328.61	7.39E+01	62.02	5.50E+02	3.02
	16	338.45	335 -	342	338.78	1.82E+02	61.25	4.96E+02	1.55
	17	351.92	348 -	357	352.23	5.29E+02	74.14	4.91E+02	1.80
	18	369.60	367 -	374	369.89	4.75E+01	41.90	2.63E+02	3.70
	19	463.74	460 -	469	463.94	9.38E+01	49.80	3.02E+02	2.16
	20	510.99	507 -	515	511.14	1.79E+02	51.97	3.04E+02	1.77
	21	555.38	552 -	558	555.48	2.93E+01	32.00	1.65E+02	3.54
M	22	579.31	577 -	589	579.39	2.61E+01	26.22	1.35E+02	2.17
m	23	583.38	577 -	589	583.45	3.46E+02	43.72	1.32E+02	1.80
	24	609.44	606 -	612	609.49	3.90E+02	53.18	2.31E+02	1.95
M	25	724.64	723 -	731	724.58	1.71E+01	20.69	8.92E+01	2.56
m	26	727.65	723 -	731	727.58	7.99E+01	36.28	1.52E+02	2.56
	27	734.23	732 -	737	734.15	2.60E+01	24.17	9.60E+01	1.34
	28	769.74	765 -	776	769.63	6.30E+01	47.16	2.48E+02	2.36
	29	784.04	780 -	787	783.92	3.92E+01	28.35	1.08E+02	3.61
	30	795.30	793 -	797	795.17	3.94E+01	21.94	7.12E+01	1.86
	31	837.02	830 -	845	836.85	1.07E+02	44.14	1.53E+02	11.14
	32	911.84	908 -	917	911.58	2.03E+02	43.53	1.54E+02	2.00
	33	932.04	928 -	935	931.77	2.44E+01	29.46	1.29E+02	1.10
	34	969.43	967 -	973	969.12	1.19E+02	32.55	1.03E+02	1.83
	35	1121.02	1114 -	1127	1120.56	1.15E+02	49.14	2.18E+02	2.37
	36	1166.71	1163 -	1169	1166.20	1.87E+01	23.19	8.46E+01	2.16
	37	1228.35	1225 -	1231	1227.78	2.95E+01	26.37	1.05E+02	2.88
	38	1238.47	1234 -	1241	1237.90	3.47E+01	34.12	1.69E+02	2.18
	39	1310.68	1307 -	1312	1310.03	1.47E+01	19.31	6.26E+01	1.38
	40	1379.22	1373 -	1382	1378.51	3.00E+01	22.43	5.40E+01	4.12

Analysis Report for 1707082-12

HTC-A01-S005-3642-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1389.98	1386 -	1391	1389.25	1.25E+01	12.65	1.89E+01	1.85
42	1461.56	1455 -	1467	1460.76	1.10E+03	71.13	7.33E+01	2.22
43	1520.14	1515 -	1524	1519.29	1.18E+01	12.29	1.43E+01	2.24
44	1591.69	1582 -	1597	1590.77	2.75E+01	32.62	9.30E+01	7.59
45	1681.01	1675 -	1685	1680.00	9.50E+00	10.98	1.10E+01	6.50
46	1730.01	1725 -	1731	1728.95	2.25E+01	10.40	3.04E+00	1.96
47	1765.22	1759 -	1769	1764.13	7.30E+01	20.37	1.60E+01	2.05
48	2104.36	2098 -	2108	2102.94	1.41E+01	16.22	2.79E+01	1.97
49	2263.04	2258 -	2264	2261.46	6.38E+00	6.65	3.25E+00	1.99
50	2615.46	2609 -	2620	2613.55	1.03E+02	22.54	1.20E+01	2.40

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 10:05:29AM

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	45.51	43 -	49	1.30E+02	81.85	1.13E+03	6.46E+01
	2	62.75	60 -	65	2.10E+02	92.60	1.55E+03	7.23E+01
M	3	74.72	71 -	81	4.38E+02	98.11	1.50E+03	6.36E+01
m	4	77.19	71 -	81	6.95E+02	104.01	1.51E+03	6.38E+01
M	5	87.57	83 -	97	2.51E+02	82.63	1.24E+03	5.79E+01
m	6	92.27	83 -	97	3.27E+02	85.63	1.14E+03	5.54E+01
	7	129.31	126 -	133	8.96E+01	91.54	1.32E+03	7.36E+01
M	8	182.36	181 -	190	3.75E+01	36.74	3.51E+02	3.08E+01
m	9	185.68	181 -	190	2.66E+02	61.63	6.01E+02	4.03E+01
M	10	238.69	235 -	246	1.05E+03	78.94	5.35E+02	3.80E+01
m	11	241.74	235 -	246	1.87E+02	80.55	4.40E+02	3.45E+01
	12	269.82	267 -	273	7.95E+01	56.69	5.29E+02	4.42E+01
M	13	295.15	291 -	304	3.63E+02	60.45	4.27E+02	3.40E+01
m	14	299.92	291 -	304	9.74E+01	51.75	3.98E+02	3.28E+01
	15	328.28	325 -	333	7.39E+01	62.02	5.50E+02	4.90E+01
	16	338.45	335 -	342	1.82E+02	61.25	4.96E+02	4.52E+01
	17	351.92	348 -	357	5.29E+02	74.14	4.91E+02	4.78E+01

Analysis Report for 1707082-12

HTC-A01-S005-3642-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	18	369.60	367 -	374	4.75E+01	41.90	2.63E+02	3.25E+01
	19	463.74	460 -	469	9.38E+01	49.80	3.02E+02	3.77E+01
	20	510.99	507 -	515	1.79E+02	51.97	3.04E+02	3.66E+01
	21	555.38	552 -	558	2.93E+01	32.00	1.65E+02	2.48E+01
M	22	579.31	577 -	589	2.61E+01	26.22	1.35E+02	1.91E+01
m	23	583.38	577 -	589	3.46E+02	43.72	1.32E+02	1.89E+01
	24	609.44	606 -	612	3.90E+02	53.18	2.31E+02	2.93E+01
M	25	724.64	723 -	731	1.71E+01	20.69	8.92E+01	1.55E+01
m	26	727.65	723 -	731	7.99E+01	36.28	1.52E+02	2.03E+01
	27	734.23	732 -	737	2.60E+01	24.17	9.60E+01	1.80E+01
	28	769.74	765 -	776	6.30E+01	47.16	2.48E+02	3.65E+01
	29	784.04	780 -	787	3.92E+01	28.35	1.08E+02	2.09E+01
	30	795.30	793 -	797	3.94E+01	21.94	7.12E+01	1.48E+01
	31	837.02	830 -	845	1.07E+02	44.14	1.53E+02	3.21E+01
	32	911.84	908 -	917	2.03E+02	43.53	1.54E+02	2.70E+01
	33	932.04	928 -	935	2.44E+01	29.46	1.29E+02	2.28E+01
	34	969.43	967 -	973	1.19E+02	32.55	1.03E+02	1.99E+01
	35	1121.02	1114 -	1127	1.15E+02	49.14	2.18E+02	3.64E+01
	36	1166.71	1163 -	1169	1.87E+01	23.19	8.46E+01	1.77E+01
	37	1228.35	1225 -	1231	2.95E+01	26.37	1.05E+02	1.98E+01
	38	1238.47	1234 -	1241	3.47E+01	34.12	1.69E+02	2.63E+01
	39	1310.68	1307 -	1312	1.47E+01	19.31	6.26E+01	1.46E+01
	40	1379.22	1373 -	1382	3.00E+01	22.43	5.40E+01	1.61E+01
	41	1389.98	1386 -	1391	1.25E+01	12.65	1.89E+01	8.61E+00
	42	1461.56	1455 -	1467	1.10E+03	71.13	7.33E+01	2.10E+01
	43	1520.14	1515 -	1524	1.18E+01	12.29	1.43E+01	8.37E+00
	44	1591.69	1582 -	1597	2.75E+01	32.62	9.30E+01	2.54E+01
	45	1681.01	1675 -	1685	9.50E+00	10.98	1.10E+01	7.47E+00
	46	1730.01	1725 -	1731	2.25E+01	10.40	3.04E+00	3.52E+00
	47	1765.22	1759 -	1769	7.30E+01	20.37	1.60E+01	9.11E+00
	48	2104.36	2098 -	2108	1.41E+01	16.22	2.79E+01	1.18E+01
	49	2263.04	2258 -	2264	6.38E+00	6.65	3.25E+00	3.56E+00
	50	2615.46	2609 -	2620	1.03E+02	22.54	1.20E+01	8.05E+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 1707082-12

HTC-A01-S005-3642-01

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/15/2017 10:05:29AM

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	45.51	43 -	49	46.13	1.30E+02	81.85	1.13E+03	PB-210
	2	62.75	60 -	65	63.35	2.10E+02	92.60	1.55E+03	TH-230
									TH-234
M	3	74.72	71 -	81	75.31	4.38E+02	98.11	1.50E+03	AM-243
m	4	77.19	71 -	81	77.78	6.95E+02	104.01	1.51E+03	.....
M	5	87.57	83 -	97	88.15	2.51E+02	82.63	1.24E+03	SN-126
									CD-109
									LU-176
m	6	92.27	83 -	97	92.85	3.27E+02	85.63	1.14E+03	.....
	7	129.31	126 -	133	129.85	8.96E+01	91.54	1.32E+03	.....
M	8	182.36	181 -	190	182.84	3.75E+01	36.74	3.51E+02	LU-172
m	9	185.68	181 -	190	186.16	2.66E+02	61.63	6.01E+02	RA-226
M	10	238.69	235 -	246	239.11	1.05E+03	78.94	5.35E+02	PB-212
m	11	241.74	235 -	246	242.17	1.87E+02	80.55	4.40E+02	RA-224
	12	269.82	267 -	273	270.21	7.95E+01	56.69	5.29E+02	.....
M	13	295.15	291 -	304	295.52	3.63E+02	60.45	4.27E+02	PB-214
m	14	299.92	291 -	304	300.29	9.74E+01	51.75	3.98E+02	BI-210M
									PB-212
									GA-67
	15	328.28	325 -	333	328.61	7.39E+01	62.02	5.50E+02	LA-140
	16	338.45	335 -	342	338.78	1.82E+02	61.25	4.96E+02	AC-228
	17	351.92	348 -	357	352.23	5.29E+02	74.14	4.91E+02	PB-214
	18	369.60	367 -	374	369.89	4.75E+01	41.90	2.63E+02	.....
	19	463.74	460 -	469	463.94	9.38E+01	49.80	3.02E+02	SB-125
	20	510.99	507 -	515	511.14	1.79E+02	51.97	3.04E+02	.....
	21	555.38	552 -	558	555.48	2.93E+01	32.00	1.65E+02	.....
M	22	579.31	577 -	589	579.39	2.61E+01	26.22	1.35E+02	.....
m	23	583.38	577 -	589	583.45	3.46E+02	43.72	1.32E+02	TL-208
	24	609.44	606 -	612	609.49	3.90E+02	53.18	2.31E+02	BI-214
M	25	724.64	723 -	731	724.58	1.71E+01	20.69	8.92E+01	ZR-95
m	26	727.65	723 -	731	727.58	7.99E+01	36.28	1.52E+02	BI-212
	27	734.23	732 -	737	734.15	2.60E+01	24.17	9.60E+01	PA-234
	28	769.74	765 -	776	769.63	6.30E+01	47.16	2.48E+02	.....
	29	784.04	780 -	787	783.92	3.92E+01	28.35	1.08E+02	SB-127
	30	795.30	793 -	797	795.17	3.94E+01	21.94	7.12E+01	CS-134
	31	837.02	830 -	845	836.85	1.07E+02	44.14	1.53E+02	.....
	32	911.84	908 -	917	911.58	2.03E+02	43.53	1.54E+02	TL-204
									AC-228
	33	932.04	928 -	935	931.77	2.44E+01	29.46	1.29E+02	.....
	34	969.43	967 -	973	969.12	1.19E+02	32.55	1.03E+02	AC-228
	35	1121.02	1114 -	1127	1120.56	1.15E+02	49.14	2.18E+02	TA-182

Analysis Report for 1707082-12

HTC-A01-S005-3642-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
								SC-46 BI-214
36	1166.71	1163 -	1169	1166.20	1.87E+01	23.19	8.46E+01	.....
37	1228.35	1225 -	1231	1227.78	2.95E+01	26.37	1.05E+02	.....
38	1238.47	1234 -	1241	1237.90	3.47E+01	34.12	1.69E+02	CO-56
39	1310.68	1307 -	1312	1310.03	1.47E+01	19.31	6.26E+01	.....
40	1379.22	1373 -	1382	1378.51	3.00E+01	22.43	5.40E+01	.....
41	1389.98	1386 -	1391	1389.25	1.25E+01	12.65	1.89E+01	.....
42	1461.56	1455 -	1467	1460.76	1.10E+03	71.13	7.33E+01	K-40
43	1520.14	1515 -	1524	1519.29	1.18E+01	12.29	1.43E+01	.....
44	1591.69	1582 -	1597	1590.77	2.75E+01	32.62	9.30E+01	.....
45	1681.01	1675 -	1685	1680.00	9.50E+00	10.98	1.10E+01	.....
46	1730.01	1725 -	1731	1728.95	2.25E+01	10.40	3.04E+00	.....
47	1765.22	1759 -	1769	1764.13	7.30E+01	20.37	1.60E+01	BI-214
48	2104.36	2098 -	2108	2102.94	1.41E+01	16.22	2.79E+01	.....
49	2263.04	2258 -	2264	2261.46	6.38E+00	6.65	3.25E+00	.....
50	2615.46	2609 -	2620	2613.55	1.03E+02	22.54	1.20E+01	TL-208

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/15/2017 10:05:29AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	45.51	1.30E+02	81.85	2.44E-02	2.22E-03
	2	62.75	2.10E+02	92.60	2.69E-02	2.25E-03
M	3	74.72	4.38E+02	98.11	2.75E-02	2.38E-03
m	4	77.19	6.95E+02	104.01	2.75E-02	2.41E-03
M	5	87.57	2.51E+02	82.63	2.74E-02	2.52E-03
m	6	92.27	3.27E+02	85.63	2.73E-02	2.45E-03
	7	129.31	8.96E+01	91.54	2.53E-02	1.93E-03
M	8	182.36	3.75E+01	36.74	2.19E-02	1.69E-03
m	9	185.68	2.66E+02	61.63	2.17E-02	1.68E-03
M	10	238.69	1.05E+03	78.94	1.89E-02	1.53E-03
m	11	241.74	1.87E+02	80.55	1.87E-02	1.52E-03
	12	269.82	7.95E+01	56.69	1.74E-02	1.44E-03
M	13	295.15	3.63E+02	60.45	1.64E-02	1.37E-03

Analysis Report for 1707082-12

HTC-A01-S005-3642-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	14	299.92	9.74E+01	51.75	1.63E-02	1.36E-03
	15	328.28	7.39E+01	62.02	1.53E-02	1.29E-03
	16	338.45	1.82E+02	61.25	1.50E-02	1.27E-03
	17	351.92	5.29E+02	74.14	1.45E-02	1.24E-03
	18	369.60	4.75E+01	41.90	1.40E-02	1.20E-03
	19	463.74	9.38E+01	49.80	1.19E-02	1.10E-03
	20	510.99	1.79E+02	51.97	1.10E-02	1.07E-03
	21	555.38	2.93E+01	32.00	1.03E-02	1.04E-03
M	22	579.31	2.61E+01	26.22	1.00E-02	1.02E-03
m	23	583.38	3.46E+02	43.72	9.96E-03	1.02E-03
	24	609.44	3.90E+02	53.18	9.63E-03	1.01E-03
M	25	724.64	1.71E+01	20.69	8.43E-03	8.72E-04
m	26	727.65	7.99E+01	36.28	8.41E-03	8.67E-04
	27	734.23	2.60E+01	24.17	8.35E-03	8.57E-04
	28	769.74	6.30E+01	47.16	8.05E-03	8.00E-04
	29	784.04	3.92E+01	28.35	7.94E-03	7.78E-04
	30	795.30	3.94E+01	21.94	7.86E-03	7.60E-04
	31	837.02	1.07E+02	44.14	7.56E-03	6.93E-04
	32	911.84	2.03E+02	43.53	7.08E-03	5.91E-04
	33	932.04	2.44E+01	29.46	6.97E-03	5.83E-04
	34	969.43	1.19E+02	32.55	6.76E-03	5.69E-04
	35	1121.02	1.15E+02	49.14	6.07E-03	5.11E-04
	36	1166.71	1.87E+01	23.19	5.89E-03	4.94E-04
	37	1228.35	2.95E+01	26.37	5.68E-03	4.78E-04
	38	1238.47	3.47E+01	34.12	5.64E-03	4.76E-04
	39	1310.68	1.47E+01	19.31	5.41E-03	4.59E-04
	40	1379.22	3.00E+01	22.43	5.22E-03	4.44E-04
	41	1389.98	1.25E+01	12.65	5.19E-03	4.41E-04
	42	1461.56	1.10E+03	71.13	5.00E-03	4.25E-04
	43	1520.14	1.18E+01	12.29	4.87E-03	4.11E-04
	44	1591.69	2.75E+01	32.62	4.71E-03	3.94E-04
	45	1681.01	9.50E+00	10.98	4.53E-03	3.74E-04
	46	1730.01	2.25E+01	10.40	4.44E-03	3.62E-04
	47	1765.22	7.30E+01	20.37	4.37E-03	3.54E-04
	48	2104.36	1.41E+01	16.22	3.86E-03	3.38E-04
	49	2263.04	6.38E+00	6.65	3.67E-03	3.38E-04
	50	2615.46	1.03E+02	22.54	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 : 8/15/2017 10:05:29AM

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

Analysis Report for 1707082-12

HTC-A01-S005-3642-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	45.51	1.30E+02	81.85	3.93E+01	8.32E+00	9.06E+01	8.23E+01
	2	62.75	2.10E+02	92.60	9.62E+01	1.46E+01	1.14E+02	9.37E+01
M	3	74.72	4.38E+02	98.11			4.38E+02	9.81E+01
m	4	77.19	6.95E+02	104.01			6.95E+02	1.04E+02
M	5	87.57	2.51E+02	82.63			2.51E+02	8.26E+01
m	6	92.27	3.27E+02	85.63	1.35E+02	2.05E+01	1.92E+02	8.81E+01
	7	129.31	8.96E+01	91.54			8.96E+01	9.15E+01
M	8	182.36	3.75E+01	36.74			3.75E+01	3.67E+01
m	9	185.68	2.66E+02	61.63	4.68E+01	7.65E+00	2.19E+02	6.21E+01
M	10	238.69	1.05E+03	78.94	2.06E+01	6.26E+00	1.03E+03	7.92E+01
m	11	241.74	1.87E+02	80.55			1.87E+02	8.05E+01
	12	269.82	7.95E+01	56.69			7.95E+01	5.67E+01
M	13	295.15	3.63E+02	60.45			3.63E+02	6.04E+01
m	14	299.92	9.74E+01	51.75			9.74E+01	5.17E+01
	15	328.28	7.39E+01	62.02			7.39E+01	6.20E+01
	16	338.45	1.82E+02	61.25			1.82E+02	6.13E+01
	17	351.92	5.29E+02	74.14	3.12E+00	4.40E+00	5.26E+02	7.43E+01
	18	369.60	4.75E+01	41.90			4.75E+01	4.19E+01
	19	463.74	9.38E+01	49.80			9.38E+01	4.98E+01
	20	510.99	1.79E+02	51.97	7.85E+01	5.73E+00	1.00E+02	5.23E+01
	21	555.38	2.93E+01	32.00			2.93E+01	3.20E+01
M	22	579.31	2.61E+01	26.22			2.61E+01	2.62E+01
m	23	583.38	3.46E+02	43.72			3.46E+02	4.37E+01
	24	609.44	3.90E+02	53.18	6.00E+00	4.13E+00	3.83E+02	5.33E+01
M	25	724.64	1.71E+01	20.69			1.71E+01	2.07E+01
m	26	727.65	7.99E+01	36.28			7.99E+01	3.63E+01
	27	734.23	2.60E+01	24.17			2.60E+01	2.42E+01
	28	769.74	6.30E+01	47.16			6.30E+01	4.72E+01
	29	784.04	3.92E+01	28.35			3.92E+01	2.84E+01
	30	795.30	3.94E+01	21.94			3.94E+01	2.19E+01
	31	837.02	1.07E+02	44.14			1.07E+02	4.41E+01
	32	911.84	2.03E+02	43.53	5.15E+00	3.10E+00	1.98E+02	4.36E+01
	33	932.04	2.44E+01	29.46			2.44E+01	2.95E+01
	34	969.43	1.19E+02	32.55	0.00E+00	0.00E+00	1.19E+02	3.26E+01
	35	1121.02	1.15E+02	49.14			1.15E+02	4.91E+01
	36	1166.71	1.87E+01	23.19			1.87E+01	2.32E+01
	37	1228.35	2.95E+01	26.37			2.95E+01	2.64E+01
	38	1238.47	3.47E+01	34.12			3.47E+01	3.41E+01
	39	1310.68	1.47E+01	19.31			1.47E+01	1.93E+01
	40	1379.22	3.00E+01	22.43			3.00E+01	2.24E+01
	41	1389.98	1.25E+01	12.65			1.25E+01	1.26E+01
	42	1461.56	1.10E+03	71.13	4.04E+00	2.32E+00	1.10E+03	7.12E+01
	43	1520.14	1.18E+01	12.29			1.18E+01	1.23E+01
	44	1591.69	2.75E+01	32.62			2.75E+01	3.26E+01
	45	1681.01	9.50E+00	10.98			9.50E+00	1.10E+01
	46	1730.01	2.25E+01	10.40			2.25E+01	1.04E+01
	47	1765.22	7.30E+01	20.37			7.30E+01	2.04E+01
	48	2104.36	1.41E+01	16.22			1.41E+01	1.62E+01
	49	2263.04	6.38E+00	6.65			6.38E+00	6.65E+00
	50	2615.46	1.03E+02	22.54	6.52E+00	1.61E+00	9.65E+01	2.26E+01

Analysis Report for 1707082-12

HTC-A01-S005-3642-01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/15/2017 10:05:29AM

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	45.51	1.30E+02	81.85	3.93E+01	8.32E+00	9.06E+01	8.23E+01
	2	62.75	2.10E+02	92.60	9.62E+01	1.46E+01	1.14E+02	9.37E+01
M	3	74.72	4.38E+02	98.11			4.38E+02	9.81E+01
m	4	77.19	6.95E+02	104.01			6.95E+02	1.04E+02
M	5	87.57	2.51E+02	82.63			2.51E+02	8.26E+01
m	6	92.27	3.27E+02	85.63	1.35E+02	2.05E+01	1.92E+02	8.81E+01
	7	129.31	8.96E+01	91.54			8.96E+01	9.15E+01
M	8	182.36	3.75E+01	36.74			3.75E+01	3.67E+01
m	9	185.68	2.66E+02	61.63	4.68E+01	7.65E+00	2.19E+02	6.21E+01
M	10	238.69	1.05E+03	78.94	2.06E+01	6.26E+00	1.03E+03	7.92E+01
m	11	241.74	1.87E+02	80.55			1.87E+02	8.05E+01
	12	269.82	7.95E+01	56.69			7.95E+01	5.67E+01
M	13	295.15	3.63E+02	60.45			3.63E+02	6.04E+01
m	14	299.92	9.74E+01	51.75			9.74E+01	5.17E+01
	15	328.28	7.39E+01	62.02			7.39E+01	6.20E+01
	16	338.45	1.82E+02	61.25			1.82E+02	6.13E+01
	17	351.92	5.29E+02	74.14	3.12E+00	4.40E+00	5.26E+02	7.43E+01
	18	369.60	4.75E+01	41.90			4.75E+01	4.19E+01
	19	463.74	9.38E+01	49.80			9.38E+01	4.98E+01
	20	510.99	1.79E+02	51.97	7.85E+01	5.73E+00	1.00E+02	5.23E+01
	21	555.38	2.93E+01	32.00			2.93E+01	3.20E+01
M	22	579.31	2.61E+01	26.22			2.61E+01	2.62E+01
m	23	583.38	3.46E+02	43.72			3.46E+02	4.37E+01
	24	609.44	3.90E+02	53.18	6.00E+00	4.13E+00	3.83E+02	5.33E+01
M	25	724.64	1.71E+01	20.69			1.71E+01	2.07E+01
m	26	727.65	7.99E+01	36.28			7.99E+01	3.63E+01
	27	734.23	2.60E+01	24.17			2.60E+01	2.42E+01
	28	769.74	6.30E+01	47.16			6.30E+01	4.72E+01
	29	784.04	3.92E+01	28.35			3.92E+01	2.84E+01
	30	795.30	3.94E+01	21.94			3.94E+01	2.19E+01
	31	837.02	1.07E+02	44.14			1.07E+02	4.41E+01
	32	911.84	2.03E+02	43.53	5.15E+00	3.10E+00	1.98E+02	4.36E+01

Analysis Report for 1707082-12

HTC-A01-S005-3642-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
33	932.04	2.44E+01	29.46			2.44E+01	2.95E+01
34	969.43	1.19E+02	32.55	0.00E+00	0.00E+00	1.19E+02	3.26E+01
35	1121.02	1.15E+02	49.14			1.15E+02	4.91E+01
36	1166.71	1.87E+01	23.19			1.87E+01	2.32E+01
37	1228.35	2.95E+01	26.37			2.95E+01	2.64E+01
38	1238.47	3.47E+01	34.12			3.47E+01	3.41E+01
39	1310.68	1.47E+01	19.31			1.47E+01	1.93E+01
40	1379.22	3.00E+01	22.43			3.00E+01	2.24E+01
41	1389.98	1.25E+01	12.65			1.25E+01	1.26E+01
42	1461.56	1.10E+03	71.13	4.04E+00	2.32E+00	1.10E+03	7.12E+01
43	1520.14	1.18E+01	12.29			1.18E+01	1.23E+01
44	1591.69	2.75E+01	32.62			2.75E+01	3.26E+01
45	1681.01	9.50E+00	10.98			9.50E+00	1.10E+01
46	1730.01	2.25E+01	10.40			2.25E+01	1.04E+01
47	1765.22	7.30E+01	20.37			7.30E+01	2.04E+01
48	2104.36	1.41E+01	16.22			1.41E+01	1.62E+01
49	2263.04	6.38E+00	6.65			6.38E+00	6.65E+00
50	2615.46	1.03E+02	22.54	6.52E+00	1.61E+00	9.65E+01	2.26E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.915	1460.81	*	10.67	2.30E+01	2.50E+00
CD-109	0.966	88.03	*	3.72	3.18E+00	1.10E+00
SN-126	1.000	87.57	*	37.00	2.78E-01	9.48E-02
TL-208	0.833	583.14	*	30.22	1.29E+00	2.10E-01
		860.37		4.48		
		2614.66	*	35.85	9.12E-01	2.33E-01
PB-210	0.855	46.50	*	4.25	9.85E-01	8.99E-01
BI-212	0.735	727.17	*	11.80	9.03E-01	4.20E-01
		1620.62		2.75		
PB-212	0.999	238.63	*	44.60	1.37E+00	1.53E-01
		300.09	*	3.41	1.97E+00	1.06E+00
BI-214	0.898	609.31	*	46.30	9.64E-01	1.68E-01
		1120.29	*	15.10	1.40E+00	6.12E-01

Analysis Report for 1707082-12

HTC-A01-S005-3642-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.898	1764.49	*	15.80	1.18E+00	3.44E-01
		2204.22		4.98		
PB-214	1.000	295.21	*	19.19	1.29E+00	2.40E-01
		351.92	*	37.19	1.09E+00	1.80E-01
RA-224	0.911	240.98	*	3.95	2.84E+00	1.24E+00
RA-226	0.956	186.21	*	3.28	3.45E+00	6.39E+00
AC-228	0.949	338.32	*	11.40	1.20E+00	4.15E-01
		911.07	*	27.70	1.13E+00	2.67E-01
		969.11	*	16.60	1.18E+00	3.40E-01
TH-234	0.954	63.29	*	3.80	1.25E+00	1.03E+00
AM-243	1.000	74.67	*	66.00	2.71E-01	6.50E-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 : 8/15/2017 10:05:29AM
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	77.19	1.93096E-01	7.48		
m	6	92.27	5.34338E-02	22.89		
	7	129.31	2.48820E-02	51.10		
M	8	182.36	1.04146E-02	48.99	Tol.	LU-172
	12	269.82	2.20817E-02	35.66		
	15	328.28	2.05337E-02	41.95	Tol.	LA-140
	18	369.60	1.32076E-02	44.07	Sum	
	19	463.74	2.60692E-02	26.53		
	20	510.99	2.78934E-02	26.03		
	21	555.38	8.12996E-03	54.66		
M	22	579.31	7.24189E-03	50.28	Sum	
M	25	724.64	4.74986E-03	60.49	Tol.	ZR-95
	27	734.23	7.22222E-03	46.47	Tol.	PA-234
	28	769.74	1.74948E-02	37.44	Sum	
	29	784.04	1.08826E-02	36.19	Tol.	SB-127
	30	795.30	1.09389E-02	27.85	Sum	
	31	837.02	2.96053E-02	20.71		
	33	932.04	6.76966E-03	60.44		

Analysis Report for 1707082-12

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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
36	1166.71	5.18898E-03	62.08	Sum	
37	1228.35	8.19444E-03	44.70		
38	1238.47	9.64052E-03	49.15	Tol.	CO-56
39	1310.68	4.08816E-03	65.61	Sum	
40	1379.22	8.32846E-03	37.40		
41	1389.98	3.48485E-03	50.41		
43	1520.14	3.28947E-03	51.88		
44	1591.69	7.63889E-03	59.31		
45	1681.01	2.63889E-03	57.77		
46	1730.01	6.24421E-03	23.14	Sum	
48	2104.36	3.90377E-03	57.73	S-Esc	
49	2263.04	1.77083E-03	52.17		

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	0.91	1460.81	*	10.67	2.30E+01	2.50E+00
CD-109	0.96	88.03	*	3.72	3.18E+00	1.10E+00
SN-126	1.00	87.57	*	37.00	2.78E-01	9.48E-02
TL-208	0.83	583.14	*	30.22	1.29E+00	2.10E-01
		860.37		4.48		
		2614.66	*	35.85	9.12E-01	2.33E-01
PB-210	0.85	46.50	*	4.25	9.85E-01	8.99E-01
BI-212	0.73	727.17	*	11.80	9.03E-01	4.20E-01
		1620.62		2.75		
PB-212	0.99	238.63	*	44.60	1.37E+00	1.53E-01
		300.09	*	3.41	1.97E+00	1.06E+00
BI-214	0.89	609.31	*	46.30	9.64E-01	1.68E-01
		1120.29	*	15.10	1.40E+00	6.12E-01
		1764.49	*	15.80	1.18E+00	3.44E-01
		2204.22		4.98		
PB-214	1.00	295.21	*	19.19	1.29E+00	2.40E-01

Analysis Report for 1707082-12

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Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PB-214	1.00	351.92	*	37.19	1.09E+00	1.80E-01
RA-224	0.91	240.98	*	3.95	2.84E+00	1.24E+00
RA-226	0.95	186.21	*	3.28	3.45E+00	6.39E+00
AC-228	0.94	338.32	*	11.40	1.20E+00	4.15E-01
		911.07	*	27.70	1.13E+00	2.67E-01
		969.11	*	16.60	1.18E+00	3.40E-01
TH-234	0.95	63.29	*	3.80	1.25E+00	1.03E+00
AM-243	1.00	74.67	*	66.00	2.71E-01	6.50E-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	0.915	2.30E+01	2.50E+00	
?	CD-109	0.966	3.18E+00	1.10E+00	
?	SN-126	1.000	2.78E-01	9.48E-02	
	TL-208	0.833	1.12E+00	1.56E-01	
	PB-210	0.855	9.85E-01	8.99E-01	
	BI-212	0.735	9.03E-01	4.20E-01	
	PB-212	0.999	1.38E+00	1.52E-01	
	BI-214	0.898	1.03E+00	1.46E-01	
	PB-214	1.000	1.16E+00	1.44E-01	
	RA-224	0.911	2.84E+00	1.24E+00	
	RA-226	0.956	3.45E+00	6.39E+00	
	AC-228	0.949	1.16E+00	1.87E-01	
	TH-234	0.954	1.25E+00	1.03E+00	
	AM-243	1.000	2.71E-01	6.50E-02	

Analysis Report for 1707082-12

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

Errors quoted at 2.000sigma

Analysis Report for 1707082-12

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UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 10:05:29AM
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	77.19	1.93096E-01	7.48		
m	6	92.27	5.34338E-02	22.89		
	7	129.31	2.48820E-02	51.10		
M	8	182.36	1.04146E-02	48.99	Tol.	LU-172
	12	269.82	2.20817E-02	35.66		
	15	328.28	2.05337E-02	41.95	Tol.	LA-140
	18	369.60	1.32076E-02	44.07	Sum	
	19	463.74	2.60692E-02	26.53		
	20	510.99	2.78934E-02	26.03		
	21	555.38	8.12996E-03	54.66		
M	22	579.31	7.24189E-03	50.28	Sum	
M	25	724.64	4.74986E-03	60.49	Tol.	ZR-95
	27	734.23	7.22222E-03	46.47	Tol.	PA-234
	28	769.74	1.74948E-02	37.44	Sum	
	29	784.04	1.08826E-02	36.19	Tol.	SB-127
	30	795.30	1.09389E-02	27.85	Sum	
	31	837.02	2.96053E-02	20.71		
	33	932.04	6.76966E-03	60.44		
	36	1166.71	5.18898E-03	62.08	Sum	
	37	1228.35	8.19444E-03	44.70		
	38	1238.47	9.64052E-03	49.15	Tol.	CO-56
	39	1310.68	4.08816E-03	65.61	Sum	
	40	1379.22	8.32846E-03	37.40		
	41	1389.98	3.48485E-03	50.41		
	43	1520.14	3.28947E-03	51.88		
	44	1591.69	7.63889E-03	59.31		
	45	1681.01	2.63889E-03	57.77		
	46	1730.01	6.24421E-03	23.14	Sum	
	48	2104.36	3.90377E-03	57.73	S-Esc	
	49	2263.04	1.77083E-03	52.17		

Analysis Report for 1707082-12

HTC-A01-S005-3642-01

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	9.41E-01	1.78E+00	1.78E+00
+		NA-22	1274.54		99.94	3.71E-02	8.02E-02	8.02E-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	3.27E-03	4.15E-02	4.15E-02
+		K-40	1460.81	*	10.67	2.30E+01	9.54E-01	9.54E-01
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	4.50E-02	5.71E-02	5.71E-02
			78.34		96.00	1.67E-01		7.44E-02
+		SC-46	889.25		99.98	-1.67E-01	1.26E-01	1.26E-01
			1120.51		99.99	2.51E-01		2.40E-01
+		V-48	983.52		99.98	2.63E-01	3.74E+00	3.74E+00
			1312.10		97.50	-2.00E-01		4.58E+00
+		CR-51	320.08		9.83	-1.05E+00	5.32E+00	5.32E+00
+		MN-54	834.83		99.97	-3.81E-03	8.45E-02	8.45E-02
+		CO-56	846.75		99.96	5.49E-02	1.21E-01	1.21E-01
			1037.75		14.03	1.16E-01		1.11E+00
			1238.25		67.00	1.46E-01		3.45E-01
			1771.40		15.51	-5.31E-02		6.01E-01
			2598.48		16.90	-3.09E-01		5.49E-01
+		CO-57	122.06		85.51	2.57E-02	6.64E-02	6.64E-02
			136.48		10.60	1.22E-01		5.30E-01
+		CO-58	810.76		99.40	-1.01E-01	1.37E-01	1.37E-01
+		FE-59	1099.22		56.50	-5.16E-02	4.76E-01	4.76E-01
			1291.56		43.20	1.59E-01		7.08E-01
+		CO-60	1173.22		100.00	-6.71E-03	7.12E-02	7.65E-02
			1332.49		100.00	1.07E-02		7.12E-02
+		ZN-65	1115.52		50.75	-2.33E-02	1.82E-01	1.82E-01
+		GA-67	93.31		35.70	1.60E+08	8.23E+07	8.23E+07
			208.95		2.24	6.97E+08		1.14E+09
			300.22		16.00	-2.02E+08		1.73E+08
+		SE-75	121.11		16.70	-6.03E-02	1.28E-01	4.53E-01

Analysis Report for 1707082-12

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00		59.20	2.96E-02	1.28E-01	1.28E-01
		264.65		59.80	2.01E-04		1.42E-01
		279.53		25.20	-2.38E-02		3.70E-01
		400.65		11.40	2.61E-01		8.07E-01
+	RB-82	776.52		13.00	-5.44E-01	5.84E+00	5.84E+00
+	RB-83	520.41		46.00	-6.30E-03	2.32E-01	2.32E-01
		529.64		30.30	1.76E-02		3.94E-01
		552.65		16.40	6.82E-02		7.22E-01
+	KR-85	513.99		0.43	-2.07E+00	1.80E+01	1.80E+01
+	SR-85	513.99		99.27	-2.44E-02	2.12E-01	2.12E-01
+	Y-88	898.02		93.40	-8.87E-02	8.15E-02	1.22E-01
		1836.01		99.38	2.69E-02		8.15E-02
+	MO-93	263.06		56.72	5.18E-03	4.66E-02	9.10E-02
		684.67		99.68	-1.11E-02		5.82E-02
		1477.11		99.08	0.00E+00		4.66E-02
+	NB-93M	16.57		9.43	-2.01E-01	4.46E-01	4.46E-01
+	NB-94	702.63		100.00	8.46E-03	5.78E-02	5.82E-02
		871.10		100.00	-2.34E-02		5.78E-02
+	NB-95	765.79		99.81	-1.19E-02	4.52E-01	4.52E-01
+	NB-95M	235.69		25.00	-1.36E+08	1.66E+07	1.66E+07
+	ZR-95	724.18		43.70	-7.64E-02	3.05E-01	4.61E-01
		756.72		55.30	6.88E-02		3.05E-01
+	MO-99	181.06		6.20	-4.15E+10	8.82E+09	1.41E+10
		739.58		12.80	2.10E+08		8.82E+09
		778.00		4.50	-2.45E+09		2.39E+10
+	RU-103	497.08		89.00	-2.29E-01	2.76E-01	2.76E-01
+	RU-106	621.84		9.80	-3.13E-01	6.63E-01	6.63E-01
+	AG-108M	433.93		89.90	1.77E-02	6.14E-02	6.14E-02
		614.37		90.40	2.11E-02		7.84E-02
		722.95		90.50	-1.39E-02		7.36E-02
+	CD-109	88.03	*	3.72	3.18E+00	3.61E+00	3.61E+00
+	AG-110M	657.75		93.14	7.68E-03	8.05E-02	8.05E-02
		677.61		10.53	1.42E-01		7.17E-01
		706.67		16.46	6.47E-02		4.50E-01
		763.93		21.98	1.90E-02		3.45E-01
		884.67		71.63	7.21E-03		1.17E-01
		1384.27		23.94	-3.18E-02		3.03E-01
+	CD-113M	263.70		0.02	-7.97E+01	2.13E+02	2.13E+02
+	SN-113	255.12		1.93	-1.96E+00	1.40E-01	3.92E+00
		391.69		64.90	4.01E-02		1.40E-01
+	TE123M	159.00		84.10	-9.21E-03	9.18E-02	9.18E-02
+	SB-124	602.71		97.87	1.00E-02	1.79E-01	1.79E-01
		645.85		7.26	-6.67E-01		2.36E+00
		722.78		11.10	-3.35E-01		1.77E+00
		1691.02		49.00	1.16E-01		3.28E-01
+	I-125	35.49		6.49	2.65E-01	2.26E+00	2.26E+00
+	SB-125	176.33		6.89	2.57E-01	1.79E-01	7.01E-01
		427.89		29.33	-8.92E-02		1.79E-01

Analysis Report for 1707082-12

HTC-A01-S005-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-125	463.38		10.35	8.24E-01	1.79E-01	6.65E-01
		600.56		17.80	1.57E-02		3.53E-01
		635.90		11.32	-2.54E-02		5.36E-01
+	SB-126	414.70		83.30	-7.09E+00	1.16E+01	1.18E+01
		666.33		99.60	-4.82E-01		1.16E+01
		695.00		99.60	3.61E-01		1.17E+01
		720.50		53.80	-1.84E+00		2.24E+01
+	SN-126	87.57	*	37.00	2.78E-01	3.15E-01	3.15E-01
+	SB-127	473.00		25.00	-2.53E+06	3.66E+06	4.71E+06
		685.20		35.70	-6.99E+05		3.66E+06
		783.80		14.70	6.82E+06		9.96E+06
+	I-129	29.78		57.00	-3.71E-02	9.39E-02	9.39E-02
		33.60		13.20	9.23E-02		3.87E-01
		39.58		7.52	-1.86E-01		6.13E-01
+	I-131	284.30		6.05	1.32E+03	1.98E+02	3.00E+03
		364.48		81.20	-9.59E+00		1.98E+02
		636.97		7.26	-4.58E+02		2.57E+03
		722.89		1.80	-2.34E+03		1.24E+04
+	TE-132	49.72		13.10	-1.60E+07	2.60E+07	1.71E+08
		228.16		88.00	-2.20E+06		2.60E+07
+	BA-133	81.00		33.00	-4.67E-01	1.23E-01	1.62E-01
		302.84		17.80	0.00E+00		3.11E-01
		356.01		60.00	-1.54E-03		1.23E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-1.01E+05	3.51E+04	3.51E+04
+	CS-134	563.23		8.38	5.19E-01	7.54E-02	7.89E-01
		569.32		15.43	-2.71E-01		3.91E-01
		604.70		97.60	3.38E-03		7.54E-02
		795.84		85.40	-6.98E-03		8.67E-02
		801.93		8.73	1.26E-01		7.76E-01
+	CS-135	268.24		16.00	2.51E-01	3.58E-01	3.58E-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	-9.34E+00	8.31E+00	8.67E+01
		163.89		4.61	4.59E+01		1.39E+02
		176.55		13.56	1.74E+01		4.75E+01
		273.65		12.66	-7.09E+00		6.33E+01
		340.57		48.50	-4.08E-01		2.08E+01
		818.50		99.70	7.43E-01		8.31E+00
		1048.07		79.60	3.30E+00		1.29E+01
		1235.34		19.70	-5.01E-01		7.18E+01
+	CS-137	661.65		85.12	5.67E-03	7.07E-02	7.07E-02
+	LA-138	788.74		34.00	4.61E-02	9.30E-02	1.84E-01
		1435.80		66.00	3.35E-02		9.30E-02
+	CE-139	165.85		80.35	-6.16E-03	8.84E-02	8.84E-02
+	BA-140	162.64		6.70	-3.30E+00	3.37E+01	1.09E+02
		304.84		4.50	-4.88E+01		1.70E+02
		423.70		3.20	-9.61E+01		2.47E+02

Analysis Report for 1707082-12

HTC-A01-S005-3642-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	BA-140	437.55	2.00	2.35E+02	3.37E+01	4.61E+02
		537.32	25.00	-6.94E-01		3.37E+01
+	LA-140	328.77	20.50	4.96E+01	1.12E+01	4.89E+01
		487.03	45.50	-1.04E+00		1.88E+01
		815.85	23.50	8.10E+00		4.12E+01
		1596.49	95.49	7.38E-01		1.12E+01
+	CE-141	145.44	48.40	1.44E-01	7.01E-01	7.01E-01
+	@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26
	@	293.26	42.00	1.00E+26		1.00E+26
	@	664.55	5.20	1.00E+26		1.00E+26
+	CE-144	133.54	10.80	-2.56E-03	5.06E-01	5.06E-01
+	PM-144	476.78	42.00	2.21E-02	7.22E-02	1.53E-01
		618.01	98.60	3.61E-02		7.63E-02
		696.49	99.49	9.81E-03		7.22E-02
+	PM-145	36.85	21.70	-1.39E-01	1.23E-01	2.22E-01
		37.36	39.70	5.62E-03		1.23E-01
		42.30	15.10	-9.69E-02		3.09E-01
		72.40	2.31	-3.13E+00		2.70E+00
+	PM-146	453.90	39.94	4.72E-02	1.48E-01	1.48E-01
		735.90	14.01	-1.85E-01		4.26E-01
		747.13	13.10	-7.15E-03		4.52E-01
+	ND-147	91.11	28.90	1.50E+02	8.42E+01	8.42E+01
		531.02	13.10	2.03E+01		1.64E+02
+	PM-149	285.90	3.10	6.99E+12	1.13E+13	1.13E+13
+	EU-152	121.78	20.50	-2.89E-02	2.17E-01	2.17E-01
		244.69	5.40	-8.72E-01		9.29E-01
		344.27	19.13	6.82E-02		2.55E-01
		778.89	9.20	-6.08E-02		6.04E-01
		964.01	10.40	8.61E-03		7.49E-01
		1085.78	7.22	-3.16E-01		9.41E-01
		1112.02	9.60	-1.42E-01		7.33E-01
		1407.95	14.94	1.10E-01		4.47E-01
+	GD-153	97.43	31.30	8.27E-02	1.92E-01	1.92E-01
		103.18	22.20	-6.94E-02		2.56E-01
+	EU-154	123.07	40.50	2.06E-02	1.11E-01	1.11E-01
		723.30	19.70	-6.53E-02		3.45E-01
		873.19	11.50	-2.05E-01		5.14E-01
		996.32	10.30	-1.17E-01		6.69E-01
		1004.76	17.90	4.03E-02		4.04E-01
		1274.45	35.50	9.94E-02		2.15E-01
+	EU-155	86.50	30.90	1.09E-01	1.98E-01	1.98E-01
		105.30	20.70	2.84E-02		2.18E-01
+	EU-156	811.77	10.40	-1.46E+01	3.90E+01	3.90E+01
		1153.47	7.20	2.72E+01		8.41E+01
		1230.71	8.90	-5.70E-01		7.30E+01
+	HO-166M	184.41	72.60	1.78E-01	8.11E-02	8.11E-02
		280.45	29.60	4.23E-03		1.82E-01
		410.94	11.10	3.58E-01		5.05E-01
		711.69	54.10	-1.41E-02		1.02E-01

Analysis Report for 1707082-12

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TM-171	66.72		0.14	-3.13E+00	4.12E+01	4.12E+01
+	HF-172	67.35		5.31	8.79E-01	4.42E-01	1.11E+00
		125.81		11.30	1.71E-01		4.42E-01
+	LU-172	181.53		20.60	-1.06E+04	1.92E+03	3.61E+03
		900.72		29.81	5.39E+02		3.63E+03
		1093.66		62.50	-5.60E+01		1.92E+03
+	LU-173	100.72		5.24	5.67E-01	3.07E-01	9.82E-01
		272.11		21.20	-9.78E-02		3.07E-01
+	HF-175	343.40		84.00	3.89E-02	1.53E-01	1.53E-01
+	LU-176	88.34		13.30	-1.13E-01	5.07E-02	4.63E-01
		201.83		86.00	-5.92E-03		5.39E-02
		306.78		94.00	4.88E-03		5.07E-02
+	HF-181	133.02		41.70	-2.45E-03	2.77E-01	4.85E-01
		345.85		17.20	3.50E-01		1.28E+00
		482.03		82.80	-1.91E-01		2.77E-01
+	TA-182	67.75		41.20	1.82E-01	2.31E-01	2.31E-01
		1121.30		34.90	8.26E-01		5.74E-01
		1189.05		16.23	-3.30E-02		8.45E-01
		1221.41		26.98	1.42E-01		5.74E-01
		1231.02		11.44	-1.07E-02		1.37E+00
+	IR-192	308.46		29.68	3.76E-02	2.75E-01	3.92E-01
		468.07		48.10	2.11E-02		2.75E-01
+	HG-203	279.19		77.30	-1.83E-02	2.83E-01	2.83E-01
+	TL-204	374.74		94.11	1.54E-02	5.34E-02	5.34E-02
		899.15		99.16	-1.32E-02		6.75E-02
		911.74		91.10	3.24E-01		1.39E-01
+	BI-207	569.67		97.72	9.63E-03	6.03E-02	6.03E-02
		1063.62		74.90	2.92E-02		9.85E-02
+	TL-208	583.14	*	30.22	1.29E+00	1.99E-01	3.16E-01
		860.37		4.48	1.37E+00		1.73E+00
		2614.66	*	35.85	9.12E-01		1.99E-01
+	BI-210M	262.00		45.00	3.47E-02	1.14E-01	1.14E-01
		300.00		23.00	-9.06E-01		2.50E-01
+	PB-210	46.50	*	4.25	9.85E-01	1.46E+00	1.46E+00
+	PB-211	404.84		2.90	-1.18E+00	1.84E+00	1.84E+00
		831.96		2.90	-8.42E-02		2.23E+00
+	BI-212	727.17	*	11.80	9.03E-01	6.51E-01	6.51E-01
		1620.62		2.75	-5.78E-01		1.87E+00
+	PB-212	238.63	*	44.60	1.37E+00	2.04E-01	2.04E-01
		300.09	*	3.41	1.97E+00		2.77E+00
+	BI-214	609.31	*	46.30	9.64E-01	1.56E-01	1.56E-01
		1120.29	*	15.10	1.40E+00		9.22E-01
		1764.49	*	15.80	1.18E+00		3.39E-01
		2204.22		4.98	8.47E-01		1.65E+00
+	PB-214	295.21	*	19.19	1.29E+00	2.05E-01	4.89E-01
		351.92	*	37.19	1.09E+00		2.05E-01
+	RN-219	401.80		6.50	3.83E-01	8.30E-01	8.30E-01
+	RA-223	323.87		3.88	-4.46E-02	1.33E+00	1.33E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98	*	3.95	2.84E+00	2.28E+00	2.28E+00
+	RA-225	40.00		31.00	-3.11E+00	1.23E+01	1.23E+01
+	RA-226	186.21	*	3.28	3.45E+00	2.27E+00	2.27E+00
+	TH-227	50.10		8.40	-4.34E-01	5.13E-01	5.36E-01
		236.00		11.50	-4.20E+00		5.13E-01
		256.20		6.30	3.90E-01		8.33E-01
+	AC-228	338.32	*	11.40	1.20E+00	3.29E-01	6.12E-01
		911.07	*	27.70	1.13E+00		3.29E-01
		969.11	*	16.60	1.18E+00		4.24E-01
+	TH-230	48.44		16.90	-4.62E-02	2.85E-01	2.85E-01
		62.85		4.60	1.95E+00		1.26E+00
		67.67		0.37	1.15E+01		1.45E+01
+	PA-231	283.67		1.60	3.53E-01	2.37E+00	3.33E+00
		302.67		2.30	0.00E+00		2.37E+00
+	TH-231	25.64		14.70	-2.90E+00	4.73E-01	4.73E-01
		84.21		6.40	-8.00E-01		8.50E-01
+	PA-233	311.98		38.60	6.60E-02	1.46E+00	1.46E+00
+	PA-234	131.20		20.40	-3.60E-02	2.20E-01	2.20E-01
		733.99		8.80	1.89E-01		6.84E-01
		946.00		12.00	-5.60E-02		4.83E-01
+	PA-234M	1001.03		0.92	-3.57E+00	7.36E+00	7.36E+00
+	TH-234	63.29	*	3.80	1.25E+00	1.67E+00	1.67E+00
+	U-235	143.76		10.50	2.13E-01	4.46E-01	4.46E-01
		163.35		4.70	3.16E-01		9.56E-01
		205.31		4.70	-1.31E+00		1.00E+00
+	NP-237	86.50		12.60	2.59E-01	4.68E-01	4.68E-01
+	NP-239	106.10		22.70	-4.05E+10	2.07E+11	2.07E+11
		228.18		10.70	-3.92E+10		4.63E+11
		277.60		14.10	1.14E+11		4.12E+11
+	AM-241	59.54		35.90	2.81E-02	1.45E-01	1.45E-01
+	AM-243	74.67	*	66.00	2.71E-01	1.49E-01	1.49E-01
+	CM-243	209.75		3.29	1.15E+00	3.88E-01	1.60E+00
		228.14		10.60	-3.70E-02		4.37E-01
		277.60		14.00	1.07E-01		3.88E-01

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

Analysis Report for 1707082-12

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NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	1.78E+00	1.78E+00	9.41E-01	8.49E-01
	NA-22	1274.54		99.94	8.02E-02	8.02E-02	3.71E-02	3.72E-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	4.15E-02	4.15E-02	3.27E-03	1.72E-02
+	K-40	1460.81	*	10.67	9.54E-01	9.54E-01	2.30E+01	4.48E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	5.71E-02	5.71E-02	4.50E-02	2.79E-02
		78.34		96.00	7.44E-02		1.67E-01	3.66E-02
	SC-46	889.25		99.98	1.26E-01	1.26E-01	-1.67E-01	5.83E-02
		1120.51		99.99	2.40E-01		2.51E-01	1.14E-01
	V-48	983.52		99.98	3.74E+00	3.74E+00	2.63E-01	1.73E+00
		1312.10		97.50	4.58E+00		-2.00E-01	2.12E+00
	CR-51	320.08		9.83	5.32E+00	5.32E+00	-1.05E+00	2.55E+00
	MN-54	834.83		99.97	8.45E-02	8.45E-02	-3.81E-03	3.98E-02
	CO-56	846.75		99.96	1.21E-01	1.21E-01	5.49E-02	5.58E-02
		1037.75		14.03	1.11E+00		1.16E-01	5.17E-01
		1238.25		67.00	3.45E-01		1.46E-01	1.63E-01
		1771.40		15.51	6.01E-01		-5.31E-02	2.49E-01
		2598.48		16.90	5.49E-01		-3.09E-01	2.13E-01
	CO-57	122.06		85.51	6.64E-02	6.64E-02	2.57E-02	3.23E-02
		136.48		10.60	5.30E-01		1.22E-01	2.58E-01
	CO-58	810.76		99.40	1.37E-01	1.37E-01	-1.01E-01	6.37E-02
	FE-59	1099.22		56.50	4.76E-01	4.76E-01	-5.16E-02	2.19E-01
		1291.56		43.20	7.08E-01		1.59E-01	3.26E-01
	CO-60	1173.22		100.00	7.65E-02	7.12E-02	-6.71E-03	3.56E-02
		1332.49		100.00	7.12E-02		1.07E-02	3.27E-02
	ZN-65	1115.52		50.75	1.82E-01	1.82E-01	-2.33E-02	8.46E-02
	GA-67	93.31		35.70	8.23E+07	8.23E+07	1.60E+08	4.04E+07
		208.95		2.24	1.14E+09		6.97E+08	5.52E+08
		300.22		16.00	1.73E+08		-2.02E+08	8.35E+07
	SE-75	121.11		16.70	4.53E-01	1.28E-01	-6.03E-02	2.20E-01
		136.00		59.20	1.28E-01		2.96E-02	6.24E-02
		264.65		59.80	1.42E-01		2.01E-04	6.84E-02
		279.53		25.20	3.70E-01		-2.38E-02	1.79E-01
		400.65		11.40	8.07E-01		2.61E-01	3.86E-01
	RB-82	776.52		13.00	5.84E+00	5.84E+00	-5.44E-01	2.73E+00
	RB-83	520.41		46.00	2.32E-01	2.32E-01	-6.30E-03	1.09E-01
		529.64		30.30	3.94E-01		1.76E-02	1.87E-01
		552.65		16.40	7.22E-01		6.82E-02	3.42E-01
	KR-85	513.99		0.43	1.80E+01	1.80E+01	-2.07E+00	8.67E+00
	SR-85	513.99		99.27	2.12E-01	2.12E-01	-2.44E-02	1.02E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	Y-88	898.02		93.40	1.22E-01	8.15E-02	-8.87E-02	5.70E-02
		1836.01		99.38	8.15E-02		2.69E-02	3.41E-02
	MO-93	263.06		56.72	9.10E-02	4.66E-02	5.18E-03	4.40E-02
		684.67		99.68	5.82E-02		-1.11E-02	2.73E-02
		1477.11		99.08	4.66E-02		0.00E+00	2.01E-02
	NB-93M	16.57		9.43	4.46E-01	4.46E-01	-2.01E-01	2.08E-01
	NB-94	702.63		100.00	5.82E-02	5.78E-02	8.46E-03	2.73E-02
		871.10		100.00	5.78E-02		-2.34E-02	2.68E-02
	NB-95	765.79		99.81	4.52E-01	4.52E-01	-1.19E-02	2.14E-01
	NB-95M	235.69		25.00	1.66E+07	1.66E+07	-1.36E+08	8.10E+06
	ZR-95	724.18		43.70	4.61E-01	3.05E-01	-7.64E-02	2.19E-01
		756.72		55.30	3.05E-01		6.88E-02	1.43E-01
	MO-99	181.06		6.20	1.41E+10	8.82E+09	-4.15E+10	6.84E+09
		739.58		12.80	8.82E+09		2.10E+08	4.13E+09
		778.00		4.50	2.39E+10		-2.45E+09	1.11E+10
	RU-103	497.08		89.00	2.76E-01	2.76E-01	-2.29E-01	1.30E-01
	RU-106	621.84		9.80	6.63E-01	6.63E-01	-3.13E-01	3.12E-01
	AG-108M	433.93		89.90	6.14E-02	6.14E-02	1.77E-02	2.94E-02
		614.37		90.40	7.84E-02		2.11E-02	3.74E-02
		722.95		90.50	7.36E-02		-1.39E-02	3.48E-02
+	CD-109	88.03	*	3.72	3.61E+00	3.61E+00	3.18E+00	1.79E+00
	AG-110M	657.75		93.14	8.05E-02	8.05E-02	7.68E-03	3.79E-02
		677.61		10.53	7.17E-01		1.42E-01	3.38E-01
		706.67		16.46	4.50E-01		6.47E-02	2.11E-01
		763.93		21.98	3.45E-01		1.90E-02	1.61E-01
		884.67		71.63	1.17E-01		7.21E-03	5.46E-02
		1384.27		23.94	3.03E-01		-3.18E-02	1.36E-01
	CD-113M	263.70		0.02	2.13E+02	2.13E+02	-7.97E+01	1.03E+02
	SN-113	255.12		1.93	3.92E+00	1.40E-01	-1.96E+00	1.88E+00
		391.69		64.90	1.40E-01		4.01E-02	6.72E-02
	TE123M	159.00		84.10	9.18E-02	9.18E-02	-9.21E-03	4.46E-02
	SB-124	602.71		97.87	1.79E-01	1.79E-01	1.00E-02	8.46E-02
		645.85		7.26	2.36E+00		-6.67E-01	1.11E+00
		722.78		11.10	1.77E+00		-3.35E-01	8.38E-01
		1691.02		49.00	3.28E-01		1.16E-01	1.44E-01
	I-125	35.49		6.49	2.26E+00	2.26E+00	2.65E-01	1.10E+00
	SB-125	176.33		6.89	7.01E-01	1.79E-01	2.57E-01	3.40E-01
		427.89		29.33	1.79E-01		-8.92E-02	8.51E-02
		463.38		10.35	6.65E-01		8.24E-01	3.19E-01
		600.56		17.80	3.53E-01		1.57E-02	1.67E-01
		635.90		11.32	5.36E-01		-2.54E-02	2.53E-01
	SB-126	414.70		83.30	1.18E+01	1.16E+01	-7.09E+00	5.61E+00
		666.33		99.60	1.16E+01		-4.82E-01	5.50E+00
		695.00		99.60	1.17E+01		3.61E-01	5.50E+00
		720.50		53.80	2.24E+01		-1.84E+00	1.06E+01
+	SN-126	87.57	*	37.00	3.15E-01	3.15E-01	2.78E-01	1.56E-01
	SB-127	473.00		25.00	4.71E+06	3.66E+06	-2.53E+06	2.24E+06
		685.20		35.70	3.66E+06		-6.99E+05	1.72E+06
		783.80		14.70	9.96E+06		6.82E+06	4.68E+06
	I-129	29.78		57.00	9.39E-02	9.39E-02	-3.71E-02	4.56E-02
		33.60		13.20	3.87E-01		9.23E-02	1.88E-01
		39.58		7.52	6.13E-01		-1.86E-01	2.98E-01
	I-131	284.30		6.05	3.00E+03	1.98E+02	1.32E+03	1.45E+03

Analysis Report for 1707082-12

HTC-A01-S005-3642-01

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	1.98E+02	1.98E+02	-9.59E+00	9.45E+01
	636.97	7.26	2.57E+03		-4.58E+02	1.21E+03
	722.89	1.80	1.24E+04		-2.34E+03	5.84E+03
TE-132	49.72	13.10	1.71E+08	2.60E+07	-1.60E+07	8.31E+07
	228.16	88.00	2.60E+07		-2.20E+06	1.25E+07
BA-133	81.00	33.00	1.62E-01	1.23E-01	-4.67E-01	7.93E-02
	302.84	17.80	3.11E-01		0.00E+00	1.50E-01
	356.01	60.00	1.23E-01		-1.54E-03	5.95E-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	3.51E+04	3.51E+04	-1.01E+05	1.72E+04
CS-134	563.23	8.38	7.89E-01	7.54E-02	5.19E-01	3.75E-01
	569.32	15.43	3.91E-01		-2.71E-01	1.85E-01
	604.70	97.60	7.54E-02		3.38E-03	3.59E-02
	795.84	85.40	8.67E-02		-6.98E-03	4.09E-02
	801.93	8.73	7.76E-01		1.26E-01	3.64E-01
CS-135	268.24	16.00	3.58E-01	3.58E-01	2.51E-01	1.73E-01
@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41	28.60	1.00E+26		1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		1.00E+26	1.00E+20
CS-136	153.22	7.46	8.67E+01	8.31E+00	-9.34E+00	4.21E+01
	163.89	4.61	1.39E+02		4.59E+01	6.74E+01
	176.55	13.56	4.75E+01		1.74E+01	2.30E+01
	273.65	12.66	6.33E+01		-7.09E+00	3.07E+01
	340.57	48.50	2.08E+01		-4.08E-01	1.01E+01
	818.50	99.70	8.31E+00		7.43E-01	3.87E+00
	1048.07	79.60	1.29E+01		3.30E+00	6.02E+00
	1235.34	19.70	7.18E+01		-5.01E-01	3.40E+01
CS-137	661.65	85.12	7.07E-02	7.07E-02	5.67E-03	3.34E-02
LA-138	788.74	34.00	1.84E-01	9.30E-02	4.61E-02	8.62E-02
	1435.80	66.00	9.30E-02		3.35E-02	4.20E-02
CE-139	165.85	80.35	8.84E-02	8.84E-02	-6.16E-03	4.29E-02
BA-140	162.64	6.70	1.09E+02	3.37E+01	-3.30E+00	5.31E+01
	304.84	4.50	1.70E+02		-4.88E+01	8.13E+01
	423.70	3.20	2.47E+02		-9.61E+01	1.17E+02
	437.55	2.00	4.61E+02		2.35E+02	2.21E+02
	537.32	25.00	3.37E+01		-6.94E-01	1.59E+01
LA-140	328.77	20.50	4.89E+01	1.12E+01	4.96E+01	2.37E+01
	487.03	45.50	1.88E+01		-1.04E+00	8.90E+00
	815.85	23.50	4.12E+01		8.10E+00	1.92E+01
	1596.49	95.49	1.12E+01		7.38E-01	5.05E+00
CE-141	145.44	48.40	7.01E-01	7.01E-01	1.44E-01	3.41E-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	5.06E-01	5.06E-01	-2.56E-03	2.46E-01
PM-144	476.78	42.00	1.53E-01	7.22E-02	2.21E-02	7.26E-02
	618.01	98.60	7.63E-02		3.61E-02	3.62E-02
	696.49	99.49	7.22E-02		9.81E-03	3.40E-02
PM-145	36.85	21.70	2.22E-01	1.23E-01	-1.39E-01	1.08E-01
	37.36	39.70	1.23E-01		5.62E-03	6.00E-02
	42.30	15.10	3.09E-01		-9.69E-02	1.50E-01
	72.40	2.31	2.70E+00		-3.13E+00	1.33E+00
PM-146	453.90	39.94	1.48E-01	1.48E-01	4.72E-02	7.07E-02

Analysis Report for 1707082-12

HTC-A01-S005-3642-01

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	4.26E-01	1.48E-01	-1.85E-01	2.00E-01
	747.13	13.10	4.52E-01		-7.15E-03	2.12E-01
ND-147	91.11	28.90	8.42E+01	8.42E+01	1.50E+02	4.14E+01
	531.02	13.10	1.64E+02		2.03E+01	7.78E+01
PM-149	285.90	3.10	1.13E+13	1.13E+13	6.99E+12	5.47E+12
EU-152	121.78	20.50	2.17E-01	2.17E-01	-2.89E-02	1.06E-01
	244.69	5.40	9.29E-01		-8.72E-01	4.49E-01
	344.27	19.13	2.55E-01		6.82E-02	1.22E-01
	778.89	9.20	6.04E-01		-6.08E-02	2.81E-01
	964.01	10.40	7.49E-01		8.61E-03	3.53E-01
	1085.78	7.22	9.41E-01		-3.16E-01	4.36E-01
	1112.02	9.60	7.33E-01		-1.42E-01	3.40E-01
	1407.95	14.94	4.47E-01		1.10E-01	2.03E-01
GD-153	97.43	31.30	1.92E-01	1.92E-01	8.27E-02	9.39E-02
	103.18	22.20	2.56E-01		-6.94E-02	1.25E-01
EU-154	123.07	40.50	1.11E-01	1.11E-01	2.06E-02	5.41E-02
	723.30	19.70	3.45E-01		-6.53E-02	1.63E-01
	873.19	11.50	5.14E-01		-2.05E-01	2.39E-01
	996.32	10.30	6.69E-01		-1.17E-01	3.12E-01
	1004.76	17.90	4.04E-01		4.03E-02	1.89E-01
	1274.45	35.50	2.15E-01		9.94E-02	9.96E-02
EU-155	86.50	30.90	1.98E-01	1.98E-01	1.09E-01	9.70E-02
	105.30	20.70	2.18E-01		2.84E-02	1.06E-01
EU-156	811.77	10.40	3.90E+01	3.90E+01	-1.46E+01	1.81E+01
	1153.47	7.20	8.41E+01		2.72E+01	3.94E+01
	1230.71	8.90	7.30E+01		-5.70E-01	3.43E+01
HO-166M	184.41	72.60	8.11E-02	8.11E-02	1.78E-01	3.96E-02
	280.45	29.60	1.82E-01		4.23E-03	8.82E-02
	410.94	11.10	5.05E-01		3.58E-01	2.42E-01
	711.69	54.10	1.02E-01		-1.41E-02	4.78E-02
TM-171	66.72	0.14	4.12E+01	4.12E+01	-3.13E+00	2.02E+01
HF-172	67.35	5.31	1.11E+00	4.42E-01	8.79E-01	5.46E-01
	125.81	11.30	4.42E-01		1.71E-01	2.15E-01
LU-172	181.53	20.60	3.61E+03	1.92E+03	-1.06E+04	1.75E+03
	900.72	29.81	3.63E+03		5.39E+02	1.70E+03
	1093.66	62.50	1.92E+03		-5.60E+01	8.93E+02
LU-173	100.72	5.24	9.82E-01	3.07E-01	5.67E-01	4.79E-01
	272.11	21.20	3.07E-01		-9.78E-02	1.49E-01
HF-175	343.40	84.00	1.53E-01	1.53E-01	3.89E-02	7.32E-02
LU-176	88.34	13.30	4.63E-01	5.07E-02	-1.13E-01	2.27E-01
	201.83	86.00	5.39E-02		-5.92E-03	2.61E-02
	306.78	94.00	5.07E-02		4.88E-03	2.44E-02
HF-181	133.02	41.70	4.85E-01	2.77E-01	-2.45E-03	2.36E-01
	345.85	17.20	1.28E+00		3.50E-01	6.14E-01
	482.03	82.80	2.77E-01		-1.91E-01	1.31E-01
TA-182	67.75	41.20	2.31E-01	2.31E-01	1.82E-01	1.13E-01
	1121.30	34.90	5.74E-01		8.26E-01	2.74E-01
	1189.05	16.23	8.45E-01		-3.30E-02	3.94E-01
	1221.41	26.98	5.74E-01		1.42E-01	2.70E-01
	1231.02	11.44	1.37E+00		-1.07E-02	6.44E-01
IR-192	308.46	29.68	3.92E-01	2.75E-01	3.76E-02	1.88E-01
	468.07	48.10	2.75E-01		2.11E-02	1.31E-01
HG-203	279.19	77.30	2.83E-01	2.83E-01	-1.83E-02	1.37E-01

Analysis Report for 1707082-12

HTC-A01-S005-3642-01

	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	5.34E-02	5.34E-02	1.54E-02	2.55E-02
		899.15		99.16	6.75E-02		-1.32E-02	3.15E-02
		911.74		91.10	1.39E-01		3.24E-01	6.70E-02
	BI-207	569.67		97.72	6.03E-02	6.03E-02	9.63E-03	2.86E-02
		1063.62		74.90	9.85E-02		2.92E-02	4.60E-02
+	TL-208	583.14	*	30.22	3.16E-01	1.99E-01	1.29E+00	1.53E-01
		860.37		4.48	1.73E+00		1.37E+00	8.17E-01
		2614.66	*	35.85	1.99E-01		9.12E-01	8.68E-02
	BI-210M	262.00		45.00	1.14E-01	1.14E-01	3.47E-02	5.51E-02
		300.00		23.00	2.50E-01		-9.06E-01	1.21E-01
+	PB-210	46.50	*	4.25	1.46E+00	1.46E+00	9.85E-01	7.16E-01
	PB-211	404.84		2.90	1.84E+00	1.84E+00	-1.18E+00	8.82E-01
		831.96		2.90	2.23E+00		-8.42E-02	1.05E+00
+	BI-212	727.17	*	11.80	6.51E-01	6.51E-01	9.03E-01	3.10E-01
		1620.62		2.75	1.87E+00		-5.78E-01	8.16E-01
+	PB-212	238.63	*	44.60	2.04E-01	2.04E-01	1.37E+00	1.00E-01
		300.09	*	3.41	2.77E+00		1.97E+00	1.36E+00
+	BI-214	609.31	*	46.30	1.56E-01	1.56E-01	9.64E-01	7.48E-02
		1120.29	*	15.10	9.22E-01		1.40E+00	4.45E-01
		1764.49	*	15.80	3.39E-01		1.18E+00	1.48E-01
		2204.22		4.98	1.65E+00		8.47E-01	7.41E-01
+	PB-214	295.21	*	19.19	4.89E-01	2.05E-01	1.29E+00	2.40E-01
		351.92	*	37.19	2.05E-01		1.09E+00	9.96E-02
	RN-219	401.80		6.50	8.30E-01	8.30E-01	3.83E-01	3.97E-01
	RA-223	323.87		3.88	1.33E+00	1.33E+00	-4.46E-02	6.37E-01
+	RA-224	240.98	*	3.95	2.28E+00	2.28E+00	2.84E+00	1.12E+00
	RA-225	40.00		31.00	1.23E+01	1.23E+01	-3.11E+00	5.96E+00
+	RA-226	186.21	*	3.28	2.27E+00	2.27E+00	3.45E+00	1.11E+00
	TH-227	50.10		8.40	5.36E-01	5.13E-01	-4.34E-01	2.61E-01
		236.00		11.50	5.13E-01		-4.20E+00	2.50E-01
		256.20		6.30	8.33E-01		3.90E-01	4.03E-01
+	AC-228	338.32	*	11.40	6.12E-01	3.29E-01	1.20E+00	2.97E-01
		911.07	*	27.70	3.29E-01		1.13E+00	1.57E-01
		969.11	*	16.60	4.24E-01		1.18E+00	1.99E-01
	TH-230	48.44		16.90	2.85E-01	2.85E-01	-4.62E-02	1.39E-01
		62.85		4.60	1.26E+00		1.95E+00	6.18E-01
		67.67		0.37	1.45E+01		1.15E+01	7.11E+00
	PA-231	283.67		1.60	3.33E+00	2.37E+00	3.53E-01	1.61E+00
		302.67		2.30	2.37E+00		0.00E+00	1.14E+00
	TH-231	25.64		14.70	4.73E-01	4.73E-01	-2.90E+00	2.30E-01
		84.21		6.40	8.50E-01		-8.00E-01	4.16E-01
	PA-233	311.98		38.60	1.46E+00	1.46E+00	6.60E-02	7.04E-01
	PA-234	131.20		20.40	2.20E-01	2.20E-01	-3.60E-02	1.07E-01
		733.99		8.80	6.84E-01		1.89E-01	3.21E-01
		946.00		12.00	4.83E-01		-5.60E-02	2.23E-01
	PA-234M	1001.03		0.92	7.36E+00	7.36E+00	-3.57E+00	3.43E+00
+	TH-234	63.29	*	3.80	1.67E+00	1.67E+00	1.25E+00	8.21E-01
	U-235	143.76		10.50	4.46E-01	4.46E-01	2.13E-01	2.17E-01
		163.35		4.70	9.56E-01		3.16E-01	4.64E-01
		205.31		4.70	1.00E+00		-1.31E+00	4.85E-01
	NP-237	86.50		12.60	4.68E-01	4.68E-01	2.59E-01	2.30E-01
	NP-239	106.10		22.70	2.07E+11	2.07E+11	-4.05E+10	1.01E+11
		228.18		10.70	4.63E+11		-3.92E+10	2.23E+11

Analysis Report for 1707082-12

HTC-A01-S005-3642-01

	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	4.12E+11	2.07E+11	1.14E+11	1.99E+11
	AM-241	59.54		35.90	1.45E-01	1.45E-01	2.81E-02	7.08E-02
+	AM-243	74.67	*	66.00	1.49E-01	1.49E-01	2.71E-01	7.39E-02
	CM-243	209.75		3.29	1.60E+00	3.88E-01	1.15E+00	7.76E-01
		228.14		10.60	4.37E-01		-3.70E-02	2.11E-01
		277.60		14.00	3.88E-01		1.07E-01	1.88E-01

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

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-S005-3642-01

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	64	82	81	166	534	162
25:	68	93	71	79	68	74	67	68
33:	83	81	73	82	77	77	71	92
41:	83	61	86	91	93	89	154	95
49:	87	86	87	98	97	129	121	111
57:	105	129	129	121	143	153	174	265
65:	129	136	161	146	150	164	132	141
73:	158	206	384	318	403	513	149	157
81:	146	158	115	162	160	142	210	267
89:	148	190	194	173	316	210	149	103
97:	101	106	117	117	101	89	95	84
105:	84	120	95	92	85	100	111	86
113:	102	94	105	101	81	99	82	91
121:	95	82	80	100	105	82	84	99
129:	120	122	77	98	69	80	87	79
137:	87	76	90	78	87	96	93	94
145:	84	88	77	84	68	78	97	76
153:	87	89	75	79	79	82	74	84
161:	75	66	73	82	74	79	64	58
169:	70	79	65	78	63	83	73	64
177:	73	78	65	55	61	61	81	64
185:	91	203	140	78	62	63	60	61
193:	62	62	61	64	77	61	64	66
201:	52	74	71	58	78	59	63	66
209:	92	103	68	63	68	66	63	60
217:	66	59	55	68	60	51	64	57
225:	53	40	52	62	50	65	44	68
233:	56	60	61	51	62	203	651	280
241:	129	146	105	53	55	36	42	52
249:	40	33	42	41	43	39	43	40
257:	38	45	48	56	32	39	29	40
265:	42	41	28	40	56	63	74	46
273:	37	44	40	37	50	57	38	39
281:	33	37	38	48	42	37	43	43
289:	34	38	27	34	45	62	163	170
297:	35	37	41	68	62	30	29	24
305:	31	22	28	25	37	31	27	31
313:	26	30	35	36	31	31	33	26
321:	24	29	28	31	24	32	46	53
329:	53	37	43	35	26	40	36	22
337:	40	92	144	36	34	26	25	28
345:	26	27	23	15	20	32	86	302
353:	191	42	24	28	34	24	34	33
361:	25	22	26	33	19	15	15	26

369:	28	27	25	17	23	18	17	25

Sample Title: HTC-A01-S005-3642-01

Channel								
377:	20	29	16	18	33	20	20	21
385:	30	24	29	25	29	20	28	21
393:	22	23	20	22	11	25	23	18
401:	31	25	26	20	28	21	23	23
409:	27	39	29	20	21	20	20	14
417:	27	22	14	24	27	9	17	19
425:	15	19	18	21	23	11	21	27
433:	24	17	26	26	18	24	21	24
441:	24	21	14	22	19	19	20	17
449:	28	18	21	24	21	34	24	20
457:	16	18	18	10	16	28	49	42
465:	15	25	24	20	16	16	23	14
473:	20	14	24	9	23	24	15	20
481:	20	15	12	9	15	14	22	17
489:	23	17	21	20	16	17	9	12
497:	13	12	12	16	17	21	16	20
505:	21	20	16	19	25	50	103	58
513:	19	22	19	13	9	12	16	12
521:	11	13	20	13	17	16	19	19
529:	18	18	18	15	13	20	14	17
537:	15	5	13	13	12	16	16	13
545:	8	16	18	11	18	18	11	11
553:	12	20	15	23	19	12	13	17
561:	19	19	24	16	17	16	11	16
569:	14	14	14	19	29	16	13	19
577:	8	22	19	25	15	26	175	147
585:	32	17	15	15	12	14	19	12
593:	13	14	19	15	12	14	19	15
601:	17	17	11	16	19	14	15	51
609:	167	210	35	13	20	23	24	18
617:	21	13	15	14	14	8	9	12
625:	15	16	13	12	11	15	15	17
633:	15	11	11	17	10	11	17	11
641:	12	12	20	12	7	10	17	15
649:	12	18	17	21	12	10	18	9
657:	17	12	16	5	13	15	11	24
665:	12	15	9	14	11	15	13	15
673:	12	12	12	15	11	13	13	11
681:	12	10	11	15	12	15	7	12
689:	14	14	13	15	11	9	16	12
697:	14	13	14	10	10	11	14	10
705:	14	13	5	12	9	15	11	6
713:	10	10	11	13	13	19	12	16
721:	8	13	11	20	13	23	37	34
729:	24	10	8	8	20	13	12	11
737:	10	6	3	13	16	9	14	8
745:	11	13	5	14	12	9	10	9
753:	11	7	18	17	15	7	9	7
761:	9	11	6	12	7	12	15	28
769:	26	17	14	18	13	16	9	12
777:	10	7	5	9	7	11	18	11
785:	18	11	8	5	11	27	7	10
793:	6	14	29	20	6	7	11	10

801:	10	6	18	11	10	13	12	7

Sample Title: HTC-A01-S005-3642-01

Channel								
809:	9	5	9	7	10	9	9	14
817:	8	3	13	4	13	8	8	19
825:	7	12	8	12	5	4	12	14
833:	10	13	20	15	11	5	12	20
841:	18	15	5	5	4	6	9	9
849:	9	7	5	5	10	8	7	10
857:	18	6	12	24	29	11	8	11
865:	10	10	13	12	7	5	11	4
873:	8	10	9	10	13	9	13	11
881:	13	7	13	6	16	5	10	10
889:	6	8	7	9	21	15	7	8
897:	13	8	12	9	6	11	8	13
905:	6	8	11	5	7	33	99	73
913:	15	18	11	11	8	7	8	13
921:	5	10	13	7	6	7	4	8
929:	11	11	5	9	23	11	11	9
937:	8	7	6	8	9	5	3	6
945:	9	4	10	5	13	11	6	14
953:	9	6	12	8	10	12	8	5
961:	6	7	14	21	23	13	5	38
969:	67	31	15	7	7	6	9	7
977:	6	6	12	4	13	7	7	7
985:	8	10	6	7	4	8	8	8
993:	5	6	13	11	11	9	9	12
1001:	12	9	6	7	11	14	11	7
1009:	10	7	4	7	8	9	10	11
1017:	10	8	7	6	5	6	10	5
1025:	9	5	7	5	7	5	7	6
1033:	8	11	6	9	7	11	6	11
1041:	9	9	11	7	7	8	8	11
1049:	12	11	11	7	8	12	10	5
1057:	14	12	8	11	8	7	10	9
1065:	10	14	9	4	11	7	12	9
1073:	5	8	11	9	6	6	10	9
1081:	8	9	7	12	4	5	6	12
1089:	10	11	7	11	11	7	6	8
1097:	8	7	3	8	7	5	8	7
1105:	9	11	9	13	6	10	11	7
1113:	6	7	10	8	8	13	22	39
1121:	41	14	13	17	14	9	9	9
1129:	3	9	5	5	4	5	7	9
1137:	13	7	11	6	8	7	11	12
1145:	5	10	9	5	10	17	5	10
1153:	7	8	13	18	11	10	10	15
1161:	9	6	3	4	11	15	11	10
1169:	7	8	10	7	9	7	7	12
1177:	10	9	8	10	7	10	14	10
1185:	10	7	5	5	12	14	7	15
1193:	10	8	13	10	10	10	10	11
1201:	6	14	8	9	6	15	9	10
1209:	9	10	10	9	15	7	13	10
1217:	10	12	17	7	13	10	14	8
1225:	7	13	15	17	11	11	8	7

1233:	13	12	9	8	25	30	19	9

Sample Title: HTC-A01-S005-3642-01

Channel								
1241:	7	11	13	8	10	7	9	9
1249:	6	9	8	8	13	6	7	9
1257:	7	13	5	8	8	10	8	8
1265:	10	9	7	11	6	3	8	7
1273:	3	8	6	11	11	7	5	11
1281:	4	10	8	4	5	6	8	10
1289:	5	4	6	5	8	9	4	5
1297:	7	6	9	5	6	5	3	6
1305:	7	5	6	5	7	16	9	3
1313:	7	5	9	5	2	8	7	9
1321:	10	6	7	5	6	6	8	6
1329:	2	8	10	4	7	7	4	5
1337:	3	4	4	2	3	5	4	4
1345:	6	6	2	8	3	4	2	7
1353:	5	4	4	3	4	5	3	5
1361:	3	3	1	0	3	2	2	3
1369:	6	2	4	6	2	3	5	5
1377:	8	13	8	4	8	1	2	3
1385:	4	4	3	2	7	6	0	0
1393:	2	1	3	6	2	3	5	1
1401:	8	8	1	4	5	3	8	7
1409:	4	4	3	4	4	5	1	3
1417:	4	3	5	5	4	3	2	3
1425:	2	3	3	3	5	1	5	6
1433:	3	5	1	5	3	6	3	2
1441:	4	4	5	2	5	5	1	0
1449:	5	4	0	3	3	5	4	4
1457:	4	17	92	380	433	138	24	13
1465:	15	11	3	0	3	2	1	3
1473:	3	1	2	1	5	2	0	4
1481:	0	1	3	1	1	2	3	2
1489:	5	0	3	2	3	2	2	4
1497:	3	1	1	2	2	0	1	2
1505:	1	1	2	2	4	3	2	5
1513:	1	2	0	3	0	3	5	3
1521:	2	1	2	0	1	3	2	4
1529:	3	3	4	2	2	2	1	1
1537:	3	1	2	1	6	0	2	1
1545:	4	1	2	2	1	2	3	0
1553:	0	3	3	3	3	2	1	2
1561:	1	0	4	0	0	4	4	2
1569:	3	1	2	2	1	1	0	5
1577:	0	0	2	0	7	2	3	3
1585:	6	2	8	10	6	4	2	5
1593:	9	7	3	4	0	3	2	0
1601:	3	1	0	0	3	0	0	2
1609:	1	1	0	2	2	0	5	4
1617:	0	2	2	3	6	2	1	2
1625:	2	2	4	1	6	6	5	2
1633:	3	3	2	2	1	2	2	1
1641:	0	0	0	0	0	1	1	2
1649:	2	1	0	2	2	0	1	3
1657:	2	2	1	2	3	1	3	1

1665:	0	3	1	1	2	0	0	1

Sample Title: HTC-A01-S005-3642-01

Channel								
1673:	0	0	1	0	0	3	3	2
1681:	2	1	1	2	0	1	2	3
1689:	3	2	0	3	4	2	2	2
1697:	1	1	2	2	1	3	1	0
1705:	0	0	2	2	1	1	0	2
1713:	0	0	0	1	1	1	1	3
1721:	2	1	2	0	0	2	1	2
1729:	10	9	0	1	1	1	1	0
1737:	2	0	1	3	0	3	0	0
1745:	1	0	0	1	0	2	0	1
1753:	2	0	2	3	0	1	1	1
1761:	1	7	15	30	16	7	1	2
1769:	0	1	1	2	1	1	3	1
1777:	3	1	0	2	1	1	0	1
1785:	2	2	0	3	2	1	0	4
1793:	0	2	2	3	1	1	0	1
1801:	1	1	1	2	1	1	1	0
1809:	2	3	0	0	1	0	1	0
1817:	1	0	1	4	2	2	4	1
1825:	1	2	0	0	2	1	0	1
1833:	0	2	2	1	2	1	1	0
1841:	1	1	1	0	1	3	2	1
1849:	0	3	0	1	0	0	0	0
1857:	1	1	1	1	0	1	1	0
1865:	1	0	1	1	1	0	0	0
1873:	0	1	1	0	0	1	0	0
1881:	1	0	1	1	0	2	0	3
1889:	1	0	0	0	0	0	1	1
1897:	2	2	3	2	0	1	2	1
1905:	1	1	1	2	2	0	2	0
1913:	1	1	3	0	0	0	3	0
1921:	1	2	0	0	1	3	0	0
1929:	1	1	1	0	1	1	2	2
1937:	1	3	1	1	1	5	0	0
1945:	1	4	0	0	3	2	1	1
1953:	1	1	2	2	2	3	0	2
1961:	2	0	1	1	0	2	1	1
1969:	0	0	2	0	1	1	2	1
1977:	0	0	0	1	2	0	3	2
1985:	0	0	0	0	0	4	1	1
1993:	1	3	1	1	2	1	1	1
2001:	1	0	0	0	0	0	0	3
2009:	1	2	1	1	2	1	0	1
2017:	3	4	0	2	0	2	0	1
2025:	3	0	0	1	1	1	1	0
2033:	1	1	1	0	0	3	0	1
2041:	0	0	2	2	0	0	0	0
2049:	1	1	3	1	0	2	1	1
2057:	0	3	0	1	0	0	1	0
2065:	1	0	1	1	0	0	2	0
2073:	0	2	2	0	1	2	0	0
2081:	0	0	2	2	0	2	2	2
2089:	2	0	1	1	2	0	1	0

2097:	1	1	2	0	1	4	9	6

Sample Title: HTC-A01-S005-3642-01

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

2529:	0	0	0	0	0	1	0	0

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Channel								
2537:	0	0	0	1	0	0	0	0
2545:	0	1	0	0	1	0	1	0
2553:	0	1	1	1	0	2	0	1
2561:	1	0	0	0	0	0	0	0
2569:	0	0	1	0	0	0	1	1
2577:	0	0	0	0	0	0	0	0
2585:	0	0	0	0	0	0	1	2
2593:	0	0	0	0	0	2	0	1
2601:	1	0	1	0	0	1	0	1
2609:	0	1	4	14	37	33	12	3
2617:	1	2	1	1	0	0	1	1
2625:	0	0	0	1	1	0	0	0
2633:	0	1	0	0	0	1	1	1
2641:	0	0	1	1	2	0	1	0
2649:	0	0	0	0	0	1	0	1
2657:	1	0	1	0	0	0	0	1
2665:	1	0	1	0	0	0	0	2
2673:	1	0	0	0	0	0	0	0
2681:	0	1	0	0	0	0	0	0
2689:	1	0	0	0	0	0	0	0
2697:	1	0	0	0	0	0	1	0
2705:	0	0	0	1	1	0	0	0
2713:	1	0	1	1	0	0	0	1
2721:	1	0	0	1	1	0	0	0
2729:	0	0	1	1	0	0	1	1
2737:	0	0	0	0	1	1	0	0
2745:	0	1	0	0	1	0	0	0
2753:	1	0	0	1	0	0	0	0
2761:	0	0	0	0	0	1	0	0
2769:	1	0	0	0	0	0	0	0
2777:	1	1	0	0	1	0	1	0
2785:	0	1	0	0	1	0	1	0
2793:	1	0	0	0	0	1	0	0
2801:	1	0	0	0	1	0	0	0
2809:	2	0	0	1	0	0	0	0
2817:	0	0	1	0	1	0	1	0
2825:	1	0	0	0	0	1	0	0
2833:	1	0	0	0	0	0	0	1
2841:	0	0	0	1	0	0	0	0
2849:	0	1	0	0	0	0	1	0
2857:	0	0	1	0	0	0	0	1
2865:	0	0	0	0	0	0	1	0
2873:	1	1	1	0	1	0	1	0
2881:	0	0	0	0	0	0	0	0
2889:	0	2	0	0	0	0	0	2
2897:	2	0	0	0	0	1	0	0
2905:	0	0	0	1	0	0	0	0
2913:	0	0	0	0	0	0	0	0
2921:	0	0	0	0	0	0	0	0
2929:	2	0	0	1	0	1	0	0
2937:	0	0	0	1	0	1	0	0
2945:	1	0	0	0	0	0	1	1
2953:	0	0	1	0	0	0	0	0

2961:	0	0	0	1	0	0	0	1

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Channel								
2969:	0	0	1	0	1	0	0	0
2977:	0	2	0	0	0	1	0	0
2985:	0	0	1	0	1	0	0	0
2993:	1	0	0	0	1	1	0	0
3001:	0	0	1	0	0	0	0	0
3009:	0	1	1	1	1	0	0	0
3017:	0	0	0	1	1	0	0	0
3025:	0	0	1	0	0	0	0	0
3033:	0	0	0	0	0	0	1	0
3041:	1	1	1	0	1	0	0	0
3049:	2	0	2	0	0	0	1	0
3057:	1	0	0	0	0	1	1	0
3065:	0	1	0	0	0	0	0	0
3073:	2	0	0	0	0	0	0	0
3081:	0	0	0	0	0	0	0	1
3089:	0	0	0	0	0	0	0	0
3097:	0	0	0	0	1	3	0	0
3105:	0	0	0	0	0	1	0	0
3113:	0	0	0	1	0	1	0	1
3121:	0	0	1	1	0	0	0	0
3129:	0	0	0	0	0	0	1	0
3137:	0	0	1	1	0	0	0	0
3145:	0	0	0	0	0	0	1	1
3153:	0	0	0	0	0	0	1	2
3161:	0	0	0	0	0	0	0	0
3169:	1	0	1	0	0	0	0	0
3177:	0	0	0	0	0	0	0	0
3185:	0	0	2	0	0	1	0	0
3193:	0	1	2	0	0	1	0	0
3201:	1	1	0	0	0	0	0	2
3209:	0	0	0	0	0	0	0	0
3217:	0	0	1	0	0	0	0	0
3225:	0	0	0	1	0	0	0	0
3233:	0	0	0	0	1	1	0	0
3241:	0	0	1	0	0	1	0	0
3249:	0	0	0	1	0	0	0	0
3257:	0	0	0	0	0	1	0	0
3265:	0	0	0	0	0	1	0	0
3273:	0	0	0	0	0	1	0	0
3281:	1	0	0	1	1	0	0	0
3289:	0	0	0	0	0	0	0	0
3297:	0	0	0	1	0	0	0	0
3305:	0	0	1	0	0	0	0	0
3313:	0	1	0	0	0	0	0	0
3321:	1	1	1	0	0	0	0	1
3329:	0	0	0	0	0	0	0	0
3337:	0	0	1	0	0	0	0	0
3345:	0	0	0	0	0	0	3	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	1	0
3377:	0	0	0	0	0	0	1	0
3385:	0	1	0	0	0	0	0	0

3393:	0	1	0	0	0	0	0	0

Sample Title: HTC-A01-S005-3642-01

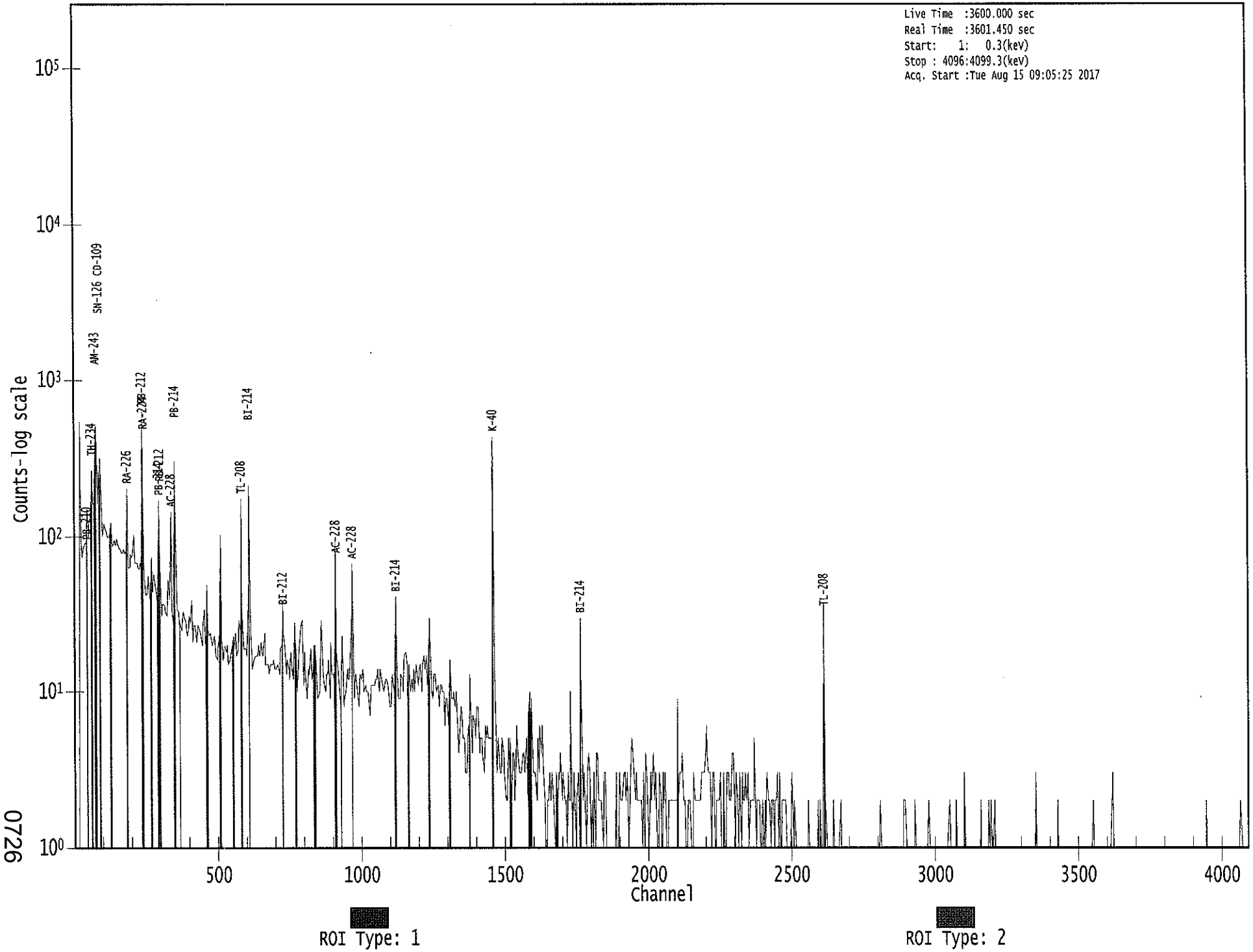
Channel								
3401:	0	0	1	0	1	0	0	0
3409:	0	0	1	1	0	0	0	0
3417:	1	0	0	0	0	0	0	0
3425:	0	0	0	2	0	1	0	0
3433:	0	0	0	0	1	0	0	0
3441:	0	1	0	0	0	0	0	0
3449:	0	0	0	0	0	1	0	0
3457:	0	0	0	1	0	1	1	0
3465:	0	0	0	0	0	0	0	1
3473:	1	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	1	1	0	0	0
3497:	0	0	0	0	0	0	0	1
3505:	0	0	0	0	0	0	0	0
3513:	0	0	0	1	0	0	0	0
3521:	0	0	0	0	0	0	0	0
3529:	0	1	0	0	0	0	0	0
3537:	0	0	0	0	0	0	0	0
3545:	0	0	1	0	0	0	2	0
3553:	0	0	0	0	0	0	0	0
3561:	0	0	0	0	0	0	0	0
3569:	0	0	0	0	0	0	0	1
3577:	0	0	0	0	0	0	0	0
3585:	0	0	1	0	0	0	0	0
3593:	0	0	0	0	0	0	0	0
3601:	0	1	0	0	0	0	0	0
3609:	0	1	0	1	1	0	0	0
3617:	0	0	3	0	0	0	1	0
3625:	0	0	0	0	0	0	0	0
3633:	1	0	0	0	1	0	0	0
3641:	0	0	0	0	0	0	0	0
3649:	0	0	0	0	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	0	1	0	0	1	0
3681:	0	0	0	1	0	0	0	1
3689:	0	0	0	0	0	0	0	0
3697:	0	0	0	0	0	0	1	0
3705:	1	0	0	0	1	1	1	0
3713:	0	0	0	0	1	0	0	0
3721:	0	0	0	0	0	0	0	0
3729:	1	0	0	0	0	0	0	0
3737:	0	0	0	0	0	0	0	0
3745:	0	0	0	0	0	1	1	0
3753:	0	0	0	1	1	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	0	0	0	0
3785:	0	0	0	1	0	0	0	0
3793:	0	0	0	0	0	1	0	0
3801:	0	0	0	0	0	0	0	0
3809:	1	0	0	0	0	0	0	0
3817:	1	0	0	0	0	0	0	0

3825:	1	0	0	0	0	0	0	0

Sample Title: HTC-A01-S005-3642-01

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

0000055242.CNF



0726

8/15

Apex-Gamma

Analysis Report for 1707082-13
HTC-A01-S005-4248-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707082-13
Sample Description	: HTC-A01-S005-4248-01
Sample Type	: SOIL
Sample Size	: 6.439E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 6:35:27AM
Acquisition Started	: 8/15/2017 9:05:31AM
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)	: 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	: 55243

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/16/17

Analysis Report for 1707082-13

HTC-A01-S005-4248-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/15/2017 10:05:52AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	75.01	75.32	0.0000	0.00
2	77.38	77.68	0.0000	0.00
3	93.04	93.34	0.0000	0.00
4	129.06	129.34	0.0000	0.00
5	144.83	145.11	0.0000	0.00
6	153.20	153.47	0.0000	0.00
7	187.30	187.57	0.0000	0.00
8	199.65	199.92	0.0000	0.00
9	210.15	210.40	0.0000	0.00
10	238.93	239.18	0.0000	0.00
11	242.16	242.40	0.0000	0.00
12	269.62	269.86	0.0000	0.00
13	295.40	295.63	0.0000	0.00
14	338.64	338.85	0.0000	0.00
15	352.30	352.51	0.0000	0.00
16	431.77	431.95	0.0000	0.00
17	461.88	462.05	0.0000	0.00
18	510.77	510.92	0.0000	0.00
19	583.44	583.57	0.0000	0.00
20	609.44	609.56	0.0000	0.00
21	619.94	620.05	0.0000	0.00
22	726.61	726.69	0.0000	0.00
23	767.31	767.38	0.0000	0.00
24	840.96	841.00	0.0000	0.00
25	860.57	860.60	0.0000	0.00
26	910.89	910.91	0.0000	0.00
27	964.78	964.79	0.0000	0.00
28	968.92	968.92	0.0000	0.00
29	1000.99	1000.98	0.0000	0.00
30	1120.53	1120.48	0.0000	0.00
31	1203.91	1203.83	0.0000	0.00
32	1355.89	1355.76	0.0000	0.00
33	1363.84	1363.71	0.0000	0.00
34	1377.67	1377.54	0.0000	0.00
35	1460.46	1460.30	0.0000	0.00
36	1566.60	1566.40	0.0000	0.00
37	1621.58	1621.36	0.0000	0.00
38	1637.99	1637.76	0.0000	0.00
39	1701.87	1701.62	0.0000	0.00
40	1729.03	1728.77	0.0000	0.00
41	1736.35	1736.09	0.0000	0.00
42	1739.26	1739.00	0.0000	0.00

Analysis Report for 1707082-13

HTC-A01-S005-4248-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1764.05	1763.78	0.0000	0.00
44	1891.60	1891.29	0.0000	0.00
45	1896.09	1895.77	0.0000	0.00
46	1915.64	1915.32	0.0000	0.00
47	2102.68	2102.30	0.0000	0.00
48	2123.76	2123.38	0.0000	0.00
49	2203.33	2202.91	0.0000	0.00
50	2342.34	2341.88	0.0000	0.00
51	2613.97	2613.42	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707082-13

HTC-A01-S005-4248-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 10:05:52AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
m	1	75.01	60 -	82	75.32	4.06E+02	95.45	1.28E+03	1.83
m	2	77.38	60 -	82	77.68	7.89E+02	103.41	1.29E+03	1.83
	3	93.04	91 -	98	93.34	2.43E+02	111.27	1.80E+03	2.29
	4	129.06	125 -	133	129.34	8.49E+01	98.41	1.43E+03	1.90
	5	144.83	142 -	148	145.11	8.64E+01	75.19	9.63E+02	3.68
	6	153.20	150 -	158	153.47	7.73E+01	93.01	1.29E+03	4.10
	7	187.30	182 -	193	187.57	3.15E+02	109.69	1.34E+03	2.26
	8	199.65	197 -	202	199.92	4.92E+01	58.51	6.42E+02	1.56
	9	210.15	207 -	214	210.40	1.12E+02	73.40	8.15E+02	2.24
M	10	238.93	235 -	245	239.18	7.93E+02	78.76	6.15E+02	1.98
m	11	242.16	235 -	245	242.40	1.80E+02	78.22	5.37E+02	2.04
	12	269.62	266 -	272	269.86	8.25E+01	51.24	4.19E+02	2.13
	13	295.40	291 -	299	295.63	2.55E+02	68.58	5.66E+02	2.27
	14	338.64	335 -	343	338.85	1.71E+02	60.61	4.62E+02	2.38
	15	352.30	348 -	358	352.51	4.98E+02	75.54	4.97E+02	2.20
	16	431.77	429 -	435	431.95	2.85E+01	35.65	2.11E+02	2.09
	17	461.88	457 -	466	462.05	5.19E+01	47.27	2.88E+02	4.13
	18	510.77	505 -	515	510.92	1.29E+02	50.76	2.74E+02	2.26
	19	583.44	578 -	589	583.57	2.31E+02	56.39	2.82E+02	2.44
M	20	609.44	605 -	625	609.56	3.15E+02	44.74	1.39E+02	2.26
m	21	619.94	605 -	625	620.05	2.57E+01	38.03	1.59E+02	3.48
	22	726.61	723 -	731	726.69	6.01E+01	31.47	1.12E+02	2.20
	23	767.31	763 -	771	767.38	3.61E+01	33.35	1.50E+02	1.59
	24	840.96	829 -	852	841.00	6.31E+01	64.03	2.68E+02	20.04
	25	860.57	856 -	864	860.60	3.02E+01	28.17	1.04E+02	2.63
	26	910.89	904 -	917	910.91	1.50E+02	49.20	1.99E+02	2.29
M	27	964.78	962 -	974	964.79	2.46E+01	19.41	5.84E+01	2.35
m	28	968.92	962 -	974	968.92	8.92E+01	30.51	9.54E+01	2.35
	29	1000.99	998 -	1004	1000.98	2.22E+01	18.85	4.75E+01	3.16
	30	1120.53	1116 -	1125	1120.48	7.38E+01	36.52	1.44E+02	2.81
	31	1203.91	1189 -	1213	1203.83	7.64E+01	66.83	2.83E+02	17.73
M	32	1355.89	1353 -	1372	1355.76	2.04E+01	12.73	1.33E+01	3.06
m	33	1363.84	1353 -	1372	1363.71	1.29E+01	16.91	4.33E+01	3.07
	34	1377.67	1372 -	1381	1377.54	2.01E+01	18.97	3.98E+01	2.71
	35	1460.46	1453 -	1466	1460.30	6.31E+02	54.43	4.87E+01	2.29
	36	1566.60	1562 -	1571	1566.40	1.22E+01	12.45	1.56E+01	5.16
	37	1621.58	1616 -	1625	1621.36	2.09E+01	12.41	1.02E+01	4.85
	38	1637.99	1634 -	1640	1637.76	6.80E+00	8.03	6.40E+00	1.09
	39	1701.87	1699 -	1705	1701.62	7.72E+00	6.95	2.56E+00	3.13
	40	1729.03	1724 -	1732	1728.77	2.20E+01	9.38	0.00E+00	3.38

Analysis Report for 1707082-13

HTC-A01-S005-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	41	1736.35	1735 -	1741	1736.09	7.22E+00	3.46	0.00E+00	4.30
m	42	1739.26	1735 -	1741	1739.00	7.81E+00	6.63	0.00E+00	3.32
	43	1764.05	1760 -	1769	1763.78	5.09E+01	15.52	6.13E+00	2.71
M	44	1891.60	1890 -	1899	1891.29	6.67E+00	4.12	1.73E+00	2.81
m	45	1896.09	1890 -	1899	1895.77	8.74E+00	7.75	2.73E+00	4.01
	46	1915.64	1910 -	1919	1915.32	6.72E+00	7.81	4.56E+00	1.80
	47	2102.68	2099 -	2105	2102.30	1.00E+01	6.32	0.00E+00	1.25
	48	2123.76	2121 -	2126	2123.38	8.00E+00	5.66	0.00E+00	2.99
	49	2203.33	2198 -	2207	2202.91	2.45E+01	12.88	8.97E+00	4.42
	50	2342.34	2339 -	2345	2341.88	8.00E+00	5.66	0.00E+00	2.22
	51	2613.97	2609 -	2619	2613.42	6.78E+01	17.61	4.37E+00	3.17

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 10:05:52AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	1	75.01	60 -	82	4.06E+02	95.45	1.28E+03	5.89E+01
m	2	77.38	60 -	82	7.89E+02	103.41	1.29E+03	5.90E+01
	3	93.04	91 -	98	2.43E+02	111.27	1.80E+03	8.78E+01
	4	129.06	125 -	133	8.49E+01	98.41	1.43E+03	7.95E+01
	5	144.83	142 -	148	8.64E+01	75.19	9.63E+02	5.99E+01
	6	153.20	150 -	158	7.73E+01	93.01	1.29E+03	7.51E+01
	7	187.30	182 -	193	3.15E+02	109.69	1.34E+03	8.53E+01
	8	199.65	197 -	202	4.92E+01	58.51	6.42E+02	4.67E+01
	9	210.15	207 -	214	1.12E+02	73.40	8.15E+02	5.78E+01
M	10	238.93	235 -	245	7.93E+02	78.76	6.15E+02	4.08E+01
m	11	242.16	235 -	245	1.80E+02	78.22	5.37E+02	3.81E+01
	12	269.62	266 -	272	8.25E+01	51.24	4.19E+02	3.94E+01
	13	295.40	291 -	299	2.55E+02	68.58	5.66E+02	4.99E+01
	14	338.64	335 -	343	1.71E+02	60.61	4.62E+02	4.49E+01
	15	352.30	348 -	358	4.98E+02	75.54	4.97E+02	5.01E+01
	16	431.77	429 -	435	2.85E+01	35.65	2.11E+02	2.80E+01
	17	461.88	457 -	466	5.19E+01	47.27	2.88E+02	3.70E+01

Analysis Report for 1707082-13

HTC-A01-S005-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	18	510.77	505 -	515	1.29E+02	50.76	2.74E+02	3.73E+01
	19	583.44	578 -	589	2.31E+02	56.39	2.82E+02	3.91E+01
M	20	609.44	605 -	625	3.15E+02	44.74	1.39E+02	1.94E+01
m	21	619.94	605 -	625	2.57E+01	38.03	1.59E+02	2.08E+01
	22	726.61	723 -	731	6.01E+01	31.47	1.12E+02	2.25E+01
	23	767.31	763 -	771	3.61E+01	33.35	1.50E+02	2.56E+01
	24	840.96	829 -	852	6.31E+01	64.03	2.68E+02	5.10E+01
	25	860.57	856 -	864	3.02E+01	28.17	1.04E+02	2.13E+01
	26	910.89	904 -	917	1.50E+02	49.20	1.99E+02	3.51E+01
M	27	964.78	962 -	974	2.46E+01	19.41	5.84E+01	1.26E+01
m	28	968.92	962 -	974	8.92E+01	30.51	9.54E+01	1.61E+01
	29	1000.99	998 -	1004	2.22E+01	18.85	4.75E+01	1.34E+01
	30	1120.53	1116 -	1125	7.38E+01	36.52	1.44E+02	2.65E+01
	31	1203.91	1189 -	1213	7.64E+01	66.83	2.83E+02	5.30E+01
M	32	1355.89	1353 -	1372	2.04E+01	12.73	1.33E+01	5.99E+00
m	33	1363.84	1353 -	1372	1.29E+01	16.91	4.33E+01	1.08E+01
	34	1377.67	1372 -	1381	2.01E+01	18.97	3.98E+01	1.37E+01
	35	1460.46	1453 -	1466	6.31E+02	54.43	4.87E+01	1.73E+01
	36	1566.60	1562 -	1571	1.22E+01	12.45	1.56E+01	8.47E+00
	37	1621.58	1616 -	1625	2.09E+01	12.41	1.02E+01	6.89E+00
	38	1637.99	1634 -	1640	6.80E+00	8.03	6.40E+00	5.02E+00
	39	1701.87	1699 -	1705	7.72E+00	6.95	2.56E+00	3.43E+00
	40	1729.03	1724 -	1732	2.20E+01	9.38	0.00E+00	0.00E+00
M	41	1736.35	1735 -	1741	7.22E+00	3.46	0.00E+00	0.00E+00
m	42	1739.26	1735 -	1741	7.81E+00	6.63	0.00E+00	0.00E+00
	43	1764.05	1760 -	1769	5.09E+01	15.52	6.13E+00	5.02E+00
M	44	1891.60	1890 -	1899	6.67E+00	4.12	1.73E+00	2.16E+00
m	45	1896.09	1890 -	1899	8.74E+00	7.75	2.73E+00	2.72E+00
	46	1915.64	1910 -	1919	6.72E+00	7.81	4.56E+00	4.80E+00
	47	2102.68	2099 -	2105	1.00E+01	6.32	0.00E+00	0.00E+00
	48	2123.76	2121 -	2126	8.00E+00	5.66	0.00E+00	0.00E+00
	49	2203.33	2198 -	2207	2.45E+01	12.88	8.97E+00	6.78E+00
	50	2342.34	2339 -	2345	8.00E+00	5.66	0.00E+00	0.00E+00
	51	2613.97	2609 -	2619	6.78E+01	17.61	4.37E+00	5.13E+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 1707082-13

HTC-A01-S005-4248-01

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/15/2017 10:05:52AM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
m	1	75.01	60 -	82	75.32	4.06E+02	95.45	1.28E+03	AM-243
m	2	77.38	60 -	82	77.68	7.89E+02	103.41	1.29E+03	TI-44
	3	93.04	91 -	98	93.34	2.43E+02	111.27	1.80E+03	GA-67
	4	129.06	125 -	133	129.34	8.49E+01	98.41	1.43E+03	.....
	5	144.83	142 -	148	145.11	8.64E+01	75.19	9.63E+02	CE-141
	6	153.20	150 -	158	153.47	7.73E+01	93.01	1.29E+03	CS-136
	7	187.30	182 -	193	187.57	3.15E+02	109.69	1.34E+03	.....
	8	199.65	197 -	202	199.92	4.92E+01	58.51	6.42E+02	.....
	9	210.15	207 -	214	210.40	1.12E+02	73.40	8.15E+02	CM-243
M	10	238.93	235 -	245	239.18	7.93E+02	78.76	6.15E+02	PB-212
m	11	242.16	235 -	245	242.40	1.80E+02	78.22	5.37E+02	.....
	12	269.62	266 -	272	269.86	8.25E+01	51.24	4.19E+02	.....
	13	295.40	291 -	299	295.63	2.55E+02	68.58	5.66E+02	PB-214
	14	338.64	335 -	343	338.85	1.71E+02	60.61	4.62E+02	AC-228
	15	352.30	348 -	358	352.51	4.98E+02	75.54	4.97E+02	PB-214
	16	431.77	429 -	435	431.95	2.85E+01	35.65	2.11E+02	.....
	17	461.88	457 -	466	462.05	5.19E+01	47.27	2.88E+02	.....
	18	510.77	505 -	515	510.92	1.29E+02	50.76	2.74E+02	.....
	19	583.44	578 -	589	583.57	2.31E+02	56.39	2.82E+02	TL-208
M	20	609.44	605 -	625	609.56	3.15E+02	44.74	1.39E+02	BI-214
m	21	619.94	605 -	625	620.05	2.57E+01	38.03	1.59E+02	.....
	22	726.61	723 -	731	726.69	6.01E+01	31.47	1.12E+02	BI-212
	23	767.31	763 -	771	767.38	3.61E+01	33.35	1.50E+02	.....
	24	840.96	829 -	852	841.00	6.31E+01	64.03	2.68E+02	.....
	25	860.57	856 -	864	860.60	3.02E+01	28.17	1.04E+02	TL-208
	26	910.89	904 -	917	910.91	1.50E+02	49.20	1.99E+02	AC-228
									TL-204
M	27	964.78	962 -	974	964.79	2.46E+01	19.41	5.84E+01	EU-152
m	28	968.92	962 -	974	968.92	8.92E+01	30.51	9.54E+01	AC-228
	29	1000.99	998 -	1004	1000.98	2.22E+01	18.85	4.75E+01	PA-234M
	30	1120.53	1116 -	1125	1120.48	7.38E+01	36.52	1.44E+02	SC-46
									BI-214
									TA-182
	31	1203.91	1189 -	1213	1203.83	7.64E+01	66.83	2.83E+02	.....
M	32	1355.89	1353 -	1372	1355.76	2.04E+01	12.73	1.33E+01	.....
m	33	1363.84	1353 -	1372	1363.71	1.29E+01	16.91	4.33E+01	.....
	34	1377.67	1372 -	1381	1377.54	2.01E+01	18.97	3.98E+01	.....
	35	1460.46	1453 -	1466	1460.30	6.31E+02	54.43	4.87E+01	K-40
	36	1566.60	1562 -	1571	1566.40	1.22E+01	12.45	1.56E+01	.....
	37	1621.58	1616 -	1625	1621.36	2.09E+01	12.41	1.02E+01	BI-212
	38	1637.99	1634 -	1640	1637.76	6.80E+00	8.03	6.40E+00	.....

Analysis Report for 1707082-13

HTC-A01-S005-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	39	1701.87	1699 -	1705	1701.62	7.72E+00	6.95	2.56E+00	.....
	40	1729.03	1724 -	1732	1728.77	2.20E+01	9.38	0.00E+00	.....
M	41	1736.35	1735 -	1741	1736.09	7.22E+00	3.46	0.00E+00	.....
m	42	1739.26	1735 -	1741	1739.00	7.81E+00	6.63	0.00E+00	.....
	43	1764.05	1760 -	1769	1763.78	5.09E+01	15.52	6.13E+00	BI-214
M	44	1891.60	1890 -	1899	1891.29	6.67E+00	4.12	1.73E+00	.....
m	45	1896.09	1890 -	1899	1895.77	8.74E+00	7.75	2.73E+00	.....
	46	1915.64	1910 -	1919	1915.32	6.72E+00	7.81	4.56E+00	.....
	47	2102.68	2099 -	2105	2102.30	1.00E+01	6.32	0.00E+00	.....
	48	2123.76	2121 -	2126	2123.38	8.00E+00	5.66	0.00E+00	.....
	49	2203.33	2198 -	2207	2202.91	2.45E+01	12.88	8.97E+00	BI-214
	50	2342.34	2339 -	2345	2341.88	8.00E+00	5.66	0.00E+00	.....
	51	2613.97	2609 -	2619	2613.42	6.78E+01	17.61	4.37E+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 : 8/15/2017 10:05:52AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	1	75.01	4.06E+02	95.45	2.65E-02	2.02E-03
m	2	77.38	7.89E+02	103.41	2.67E-02	2.06E-03
	3	93.04	2.43E+02	111.27	2.71E-02	2.24E-03
	4	129.06	8.49E+01	98.41	2.46E-02	2.04E-03
	5	144.83	8.64E+01	75.19	2.31E-02	1.86E-03
	6	153.20	7.73E+01	93.01	2.24E-02	1.77E-03
	7	187.30	3.15E+02	109.69	1.95E-02	1.54E-03
	8	199.65	4.92E+01	58.51	1.86E-02	1.49E-03
	9	210.15	1.12E+02	73.40	1.79E-02	1.45E-03
M	10	238.93	7.93E+02	78.76	1.61E-02	1.34E-03
m	11	242.16	1.80E+02	78.22	1.59E-02	1.33E-03
	12	269.62	8.25E+01	51.24	1.46E-02	1.22E-03
	13	295.40	2.55E+02	68.58	1.35E-02	1.15E-03
	14	338.64	1.71E+02	60.61	1.19E-02	1.06E-03
	15	352.30	4.98E+02	75.54	1.15E-02	1.03E-03
	16	431.77	2.85E+01	35.65	9.61E-03	8.99E-04
	17	461.88	5.19E+01	47.27	9.04E-03	8.59E-04

Analysis Report for 1707082-13

HTC-A01-S005-4248-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	18	510.77	1.29E+02	50.76	8.26E-03	7.95E-04
	19	583.44	2.31E+02	56.39	7.32E-03	6.98E-04
M	20	609.44	3.15E+02	44.74	7.04E-03	6.64E-04
m	21	619.94	2.57E+01	38.03	6.93E-03	6.50E-04
	22	726.61	6.01E+01	31.47	6.01E-03	5.37E-04
	23	767.31	3.61E+01	33.35	5.73E-03	5.01E-04
	24	840.96	6.31E+01	64.03	5.28E-03	4.36E-04
	25	860.57	3.02E+01	28.17	5.17E-03	4.19E-04
	26	910.89	1.50E+02	49.20	4.92E-03	3.84E-04
M	27	964.78	2.46E+01	19.41	4.68E-03	3.75E-04
m	28	968.92	8.92E+01	30.51	4.66E-03	3.74E-04
	29	1000.99	2.22E+01	18.85	4.53E-03	3.69E-04
	30	1120.53	7.38E+01	36.52	4.12E-03	3.50E-04
	31	1203.91	7.64E+01	66.83	3.88E-03	3.32E-04
M	32	1355.89	2.04E+01	12.73	3.51E-03	2.92E-04
m	33	1363.84	1.29E+01	16.91	3.50E-03	2.91E-04
	34	1377.67	2.01E+01	18.97	3.47E-03	2.88E-04
	35	1460.46	6.31E+02	54.43	3.31E-03	2.75E-04
	36	1566.60	1.22E+01	12.45	3.13E-03	2.58E-04
	37	1621.58	2.09E+01	12.41	3.05E-03	2.49E-04
	38	1637.99	6.80E+00	8.03	3.03E-03	2.47E-04
	39	1701.87	7.72E+00	6.95	2.94E-03	2.36E-04
	40	1729.03	2.20E+01	9.38	2.91E-03	2.32E-04
M	41	1736.35	7.22E+00	3.46	2.90E-03	2.31E-04
m	42	1739.26	7.81E+00	6.63	2.90E-03	2.30E-04
	43	1764.05	5.09E+01	15.52	2.87E-03	2.27E-04
M	44	1891.60	6.67E+00	4.12	2.73E-03	2.15E-04
m	45	1896.09	8.74E+00	7.75	2.72E-03	2.15E-04
	46	1915.64	6.72E+00	7.81	2.70E-03	2.15E-04
	47	2102.68	1.00E+01	6.32	2.54E-03	2.15E-04
	48	2123.76	8.00E+00	5.66	2.52E-03	2.15E-04
	49	2203.33	2.45E+01	12.88	2.46E-03	2.15E-04
	50	2342.34	8.00E+00	5.66	2.38E-03	2.15E-04
	51	2613.97	6.78E+01	17.61	2.24E-03	2.15E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/15/2017 10:05:52AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055113.CNF

Analysis Report for 1707082-13

HTC-A01-S005-4248-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	1	75.01	4.06E+02	95.45			4.06E+02	9.54E+01
m	2	77.38	7.89E+02	103.41			7.89E+02	1.03E+02
	3	93.04	2.43E+02	111.27	7.43E+01	4.99E+00	1.68E+02	1.11E+02
	4	129.06	8.49E+01	98.41			8.49E+01	9.84E+01
	5	144.83	8.64E+01	75.19	1.25E+00	7.51E+00	8.52E+01	7.56E+01
	6	153.20	7.73E+01	93.01			7.73E+01	9.30E+01
	7	187.30	3.15E+02	109.69			3.15E+02	1.10E+02
	8	199.65	4.92E+01	58.51			4.92E+01	5.85E+01
	9	210.15	1.12E+02	73.40			1.12E+02	7.34E+01
M	10	238.93	7.93E+02	78.76	1.14E+01	5.08E+00	7.81E+02	7.89E+01
m	11	242.16	1.80E+02	78.22			1.80E+02	7.82E+01
	12	269.62	8.25E+01	51.24			8.25E+01	5.12E+01
	13	295.40	2.55E+02	68.58			2.55E+02	6.86E+01
	14	338.64	1.71E+02	60.61	0.00E+00	0.00E+00	1.71E+02	6.06E+01
	15	352.30	4.98E+02	75.54			4.98E+02	7.55E+01
	16	431.77	2.85E+01	35.65			2.85E+01	3.57E+01
	17	461.88	5.19E+01	47.27			5.19E+01	4.73E+01
	18	510.77	1.29E+02	50.76	5.38E+01	4.80E+00	7.50E+01	5.10E+01
	19	583.44	2.31E+02	56.39	1.58E+00	2.86E+00	2.29E+02	5.65E+01
M	20	609.44	3.15E+02	44.74	3.58E+00	2.96E+00	3.12E+02	4.48E+01
m	21	619.94	2.57E+01	38.03			2.57E+01	3.80E+01
	22	726.61	6.01E+01	31.47			6.01E+01	3.15E+01
	23	767.31	3.61E+01	33.35			3.61E+01	3.34E+01
	24	840.96	6.31E+01	64.03			6.31E+01	6.40E+01
	25	860.57	3.02E+01	28.17			3.02E+01	2.82E+01
	26	910.89	1.50E+02	49.20			1.50E+02	4.92E+01
M	27	964.78	2.46E+01	19.41			2.46E+01	1.94E+01
m	28	968.92	8.92E+01	30.51			8.92E+01	3.05E+01
	29	1000.99	2.22E+01	18.85	8.44E-02	2.31E+00	2.22E+01	1.90E+01
	30	1120.53	7.38E+01	36.52			7.38E+01	3.65E+01
	31	1203.91	7.64E+01	66.83			7.64E+01	6.68E+01
M	32	1355.89	2.04E+01	12.73			2.04E+01	1.27E+01
m	33	1363.84	1.29E+01	16.91			1.29E+01	1.69E+01
	34	1377.67	2.01E+01	18.97			2.01E+01	1.90E+01
	35	1460.46	6.31E+02	54.43	3.11E+00	2.06E+00	6.28E+02	5.45E+01
	36	1566.60	1.22E+01	12.45			1.22E+01	1.24E+01
	37	1621.58	2.09E+01	12.41			2.09E+01	1.24E+01
	38	1637.99	6.80E+00	8.03			6.80E+00	8.03E+00
	39	1701.87	7.72E+00	6.95			7.72E+00	6.95E+00
	40	1729.03	2.20E+01	9.38			2.20E+01	9.38E+00
M	41	1736.35	7.22E+00	3.46			7.22E+00	3.46E+00
m	42	1739.26	7.81E+00	6.63			7.81E+00	6.63E+00
	43	1764.05	5.09E+01	15.52			5.09E+01	1.55E+01
M	44	1891.60	6.67E+00	4.12			6.67E+00	4.12E+00
m	45	1896.09	8.74E+00	7.75			8.74E+00	7.75E+00
	46	1915.64	6.72E+00	7.81			6.72E+00	7.81E+00
	47	2102.68	1.00E+01	6.32			1.00E+01	6.32E+00
	48	2123.76	8.00E+00	5.66			8.00E+00	5.66E+00
	49	2203.33	2.45E+01	12.88			2.45E+01	1.29E+01
	50	2342.34	8.00E+00	5.66			8.00E+00	5.66E+00
	51	2613.97	6.78E+01	17.61	1.69E+00	9.96E-01	6.61E+01	1.76E+01

Analysis Report for 1707082-13

HTC-A01-S005-4248-01

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 : 8/15/2017 10:05:52AM

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.
m	1	75.01	4.06E+02	95.45			4.06E+02	9.54E+01
m	2	77.38	7.89E+02	103.41			7.89E+02	1.03E+02
	3	93.04	2.43E+02	111.27	7.43E+01	4.99E+00	1.68E+02	1.11E+02
	4	129.06	8.49E+01	98.41			8.49E+01	9.84E+01
	5	144.83	8.64E+01	75.19	1.25E+00	7.51E+00	8.52E+01	7.56E+01
	6	153.20	7.73E+01	93.01			7.73E+01	9.30E+01
	7	187.30	3.15E+02	109.69			3.15E+02	1.10E+02
	8	199.65	4.92E+01	58.51			4.92E+01	5.85E+01
	9	210.15	1.12E+02	73.40			1.12E+02	7.34E+01
M	10	238.93	7.93E+02	78.76	1.14E+01	5.08E+00	7.81E+02	7.89E+01
m	11	242.16	1.80E+02	78.22			1.80E+02	7.82E+01
	12	269.62	8.25E+01	51.24			8.25E+01	5.12E+01
	13	295.40	2.55E+02	68.58			2.55E+02	6.86E+01
	14	338.64	1.71E+02	60.61	0.00E+00	0.00E+00	1.71E+02	6.06E+01
	15	352.30	4.98E+02	75.54			4.98E+02	7.55E+01
	16	431.77	2.85E+01	35.65			2.85E+01	3.57E+01
	17	461.88	5.19E+01	47.27			5.19E+01	4.73E+01
	18	510.77	1.29E+02	50.76	5.38E+01	4.80E+00	7.50E+01	5.10E+01
	19	583.44	2.31E+02	56.39	1.58E+00	2.86E+00	2.29E+02	5.65E+01
M	20	609.44	3.15E+02	44.74	3.58E+00	2.96E+00	3.12E+02	4.48E+01
m	21	619.94	2.57E+01	38.03			2.57E+01	3.80E+01
	22	726.61	6.01E+01	31.47			6.01E+01	3.15E+01
	23	767.31	3.61E+01	33.35			3.61E+01	3.34E+01
	24	840.96	6.31E+01	64.03			6.31E+01	6.40E+01
	25	860.57	3.02E+01	28.17			3.02E+01	2.82E+01
	26	910.89	1.50E+02	49.20			1.50E+02	4.92E+01
M	27	964.78	2.46E+01	19.41			2.46E+01	1.94E+01
m	28	968.92	8.92E+01	30.51			8.92E+01	3.05E+01
	29	1000.99	2.22E+01	18.85	8.44E-02	2.31E+00	2.22E+01	1.90E+01
	30	1120.53	7.38E+01	36.52			7.38E+01	3.65E+01
	31	1203.91	7.64E+01	66.83			7.64E+01	6.68E+01
M	32	1355.89	2.04E+01	12.73			2.04E+01	1.27E+01

Analysis Report for 1707082-13

HTC-A01-S005-4248-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
m	33	1363.84	1.29E+01	16.91			1.29E+01	1.69E+01
	34	1377.67	2.01E+01	18.97			2.01E+01	1.90E+01
	35	1460.46	6.31E+02	54.43	3.11E+00	2.06E+00	6.28E+02	5.45E+01
	36	1566.60	1.22E+01	12.45			1.22E+01	1.24E+01
	37	1621.58	2.09E+01	12.41			2.09E+01	1.24E+01
	38	1637.99	6.80E+00	8.03			6.80E+00	8.03E+00
	39	1701.87	7.72E+00	6.95			7.72E+00	6.95E+00
	40	1729.03	2.20E+01	9.38			2.20E+01	9.38E+00
M	41	1736.35	7.22E+00	3.46			7.22E+00	3.46E+00
m	42	1739.26	7.81E+00	6.63			7.81E+00	6.63E+00
	43	1764.05	5.09E+01	15.52			5.09E+01	1.55E+01
M	44	1891.60	6.67E+00	4.12			6.67E+00	4.12E+00
m	45	1896.09	8.74E+00	7.75			8.74E+00	7.75E+00
	46	1915.64	6.72E+00	7.81			6.72E+00	7.81E+00
	47	2102.68	1.00E+01	6.32			1.00E+01	6.32E+00
	48	2123.76	8.00E+00	5.66			8.00E+00	5.66E+00
	49	2203.33	2.45E+01	12.88			2.45E+01	1.29E+01
	50	2342.34	8.00E+00	5.66			8.00E+00	5.66E+00
	51	2613.97	6.78E+01	17.61	1.69E+00	9.96E-01	6.61E+01	1.76E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.981	1460.81	*	10.67	2.07E+01	2.53E+00
CE-141	0.904	145.44	*	48.40	6.61E-01	6.82E-01
TL-208	0.956	583.14	*	30.22	1.21E+00	3.19E-01
		860.37	*	4.48	1.52E+00	1.42E+00
		2614.66	*	35.85	9.60E-01	2.72E-01
BI-212	0.934	727.17	*	11.80	9.87E-01	5.25E-01
		1620.62	*	2.75	2.91E+00	1.74E+00
PB-212	0.883	238.63	*	44.60	1.27E+00	1.66E-01
		300.09		3.41		
BI-214	0.983	609.31	*	46.30	1.12E+00	1.92E-01
		1120.29	*	15.10	1.38E+00	6.95E-01
		1764.49	*	15.80	1.31E+00	4.13E-01

Analysis Report for 1707082-13

HTC-A01-S005-4248-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.983	2204.22	*	4.98	2.33E+00	1.24E+00
PB-214	0.983	295.21	*	19.19	1.15E+00	3.25E-01
		351.92	*	37.19	1.35E+00	2.38E-01
AC-228	0.992	338.32	*	11.40	1.47E+00	5.35E-01
		911.07	*	27.70	1.29E+00	4.32E-01
		969.11	*	16.60	1.34E+00	4.72E-01
PA-234M	1.000	1001.03	*	0.92	6.19E+00	5.33E+00
AM-243	0.981	74.67	*	66.00	2.71E-01	6.68E-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 : 8/15/2017 10:05:52AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	2	77.38	2.19286E-01	6.55	Tol.	TI-44
	3	93.04	4.68017E-02	33.05	Tol.	GA-67
	4	129.06	2.35834E-02	57.95		
	6	153.20	2.14767E-02	60.15	Tol.	CS-136
	7	187.30	8.75379E-02	17.40		
	8	199.65	1.36554E-02	59.52		
	9	210.15	3.09987E-02	32.89	Tol.	CM-243
m	11	242.16	5.00244E-02	21.72		
	12	269.62	2.29286E-02	31.04		
	16	431.77	7.92081E-03	62.51		
	17	461.88	1.44189E-02	45.53		
	18	510.77	2.08351E-02	33.99		
m	21	619.94	7.13822E-03	73.99		
	23	767.31	1.00363E-02	46.15		
	24	840.96	1.75338E-02	50.72		
M	27	964.78	6.84057E-03	39.41	Sum	
	31	1203.91	2.12328E-02	43.71		
M	32	1355.89	5.66035E-03	31.23		
m	33	1363.84	3.57287E-03	65.74		
	34	1377.67	5.59028E-03	47.14		
	36	1566.60	3.39583E-03	50.92		

Analysis Report for 1707082-13

HTC-A01-S005-4248-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	38	1637.99	1.88889E-03	59.05	Sum	
	39	1701.87	2.14506E-03	44.98		
	40	1729.03	6.11111E-03	21.32	Sum	
M	41	1736.35	2.00677E-03	23.98		
m	42	1739.26	2.17007E-03	42.45		
M	44	1891.60	1.85306E-03	30.90		
m	45	1896.09	2.42820E-03	44.31		
	46	1915.64	1.86728E-03	58.09		
	47	2102.68	2.77778E-03	31.62	S-Esc	
	48	2123.76	2.22222E-03	35.36		
	50	2342.34	2.22222E-03	35.36		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.98	1460.81	*	10.67	2.07E+01	2.53E+00
CE-141	0.90	145.44	*	48.40	6.61E-01	6.82E-01
TL-208	0.95	583.14	*	30.22	1.21E+00	3.19E-01
		860.37	*	4.48	1.52E+00	1.42E+00
		2614.66	*	35.85	9.60E-01	2.72E-01
BI-212	0.93	727.17	*	11.80	9.87E-01	5.25E-01
		1620.62	*	2.75	2.91E+00	1.74E+00
PB-212	0.88	238.63	*	44.60	1.27E+00	1.66E-01
		300.09		3.41		
BI-214	0.98	609.31	*	46.30	1.12E+00	1.92E-01
		1120.29	*	15.10	1.38E+00	6.95E-01
		1764.49	*	15.80	1.31E+00	4.13E-01
		2204.22	*	4.98	2.33E+00	1.24E+00
PB-214	0.98	295.21	*	19.19	1.15E+00	3.25E-01
		351.92	*	37.19	1.35E+00	2.38E-01
AC-228	0.99	338.32	*	11.40	1.47E+00	5.35E-01
		911.07	*	27.70	1.29E+00	4.32E-01

Analysis Report for 1707082-13

HTC-A01-S005-4248-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
AC-228	0.99	969.11	*	16.60	1.34E+00	4.72E-01
PA-234M	1.00	1001.03	*	0.92	6.19E+00	5.33E+00
AM-243	0.98	74.67	*	66.00	2.71E-01	6.68E-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	0.981	2.07E+01	2.53E+00	
CE-141	0.904	6.61E-01	6.82E-01	
TL-208	0.956	1.07E+00	2.05E-01	
BI-212	0.934	1.15E+00	5.02E-01	
PB-212	0.883	1.27E+00	1.66E-01	
BI-214	0.983	1.19E+00	1.67E-01	
PB-214	0.983	1.28E+00	1.92E-01	
AC-228	0.992	1.35E+00	2.74E-01	
PA-234M	1.000	6.19E+00	5.33E+00	
AM-243	0.981	2.71E-01	6.68E-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 1707082-13

HTC-A01-S005-4248-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 10:05:52AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	2	77.38	2.19286E-01	6.55	Tol.	TI-44
	3	93.04	4.68017E-02	33.05	Tol.	GA-67
	4	129.06	2.35834E-02	57.95		
	6	153.20	2.14767E-02	60.15	Tol.	CS-136
	7	187.30	8.75379E-02	17.40		
	8	199.65	1.36554E-02	59.52		
	9	210.15	3.09987E-02	32.89	Tol.	CM-243
m	11	242.16	5.00244E-02	21.72		
	12	269.62	2.29286E-02	31.04		
	16	431.77	7.92081E-03	62.51		
	17	461.88	1.44189E-02	45.53		
	18	510.77	2.08351E-02	33.99		
m	21	619.94	7.13822E-03	73.99		
	23	767.31	1.00363E-02	46.15		
	24	840.96	1.75338E-02	50.72		
M	27	964.78	6.84057E-03	39.41	Sum	
	31	1203.91	2.12328E-02	43.71		
M	32	1355.89	5.66035E-03	31.23		
m	33	1363.84	3.57287E-03	65.74		
	34	1377.67	5.59028E-03	47.14		
	36	1566.60	3.39583E-03	50.92		
	38	1637.99	1.88889E-03	59.05	Sum	
	39	1701.87	2.14506E-03	44.98		
	40	1729.03	6.11111E-03	21.32	Sum	
M	41	1736.35	2.00677E-03	23.98		
m	42	1739.26	2.17007E-03	42.45		
M	44	1891.60	1.85306E-03	30.90		
m	45	1896.09	2.42820E-03	44.31		
	46	1915.64	1.86728E-03	58.09		
	47	2102.68	2.77778E-03	31.62	S-Esc	
	48	2123.76	2.22222E-03	35.36		
	50	2342.34	2.22222E-03	35.36		

Analysis Report for 1707082-13

HTC-A01-S005-4248-01

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	-2.80E-01	2.26E+00	2.26E+00
+		NA-22	1274.54		99.94	-6.67E-03	1.05E-01	1.05E-01
+	@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@		2754.09		99.86	1.00E+26		1.00E+26
+		AL-26	1808.65		99.76	2.67E-02	8.35E-02	8.35E-02
+		K-40	1460.81	*	10.67	2.07E+01	1.25E+00	1.25E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	-3.94E-02	6.36E-02	6.36E-02
			78.34		96.00	2.33E-01		8.17E-02
+		SC-46	889.25		99.98	8.79E-03	1.76E-01	1.76E-01
			1120.51		99.99	3.72E-01		3.32E-01
+		V-48	983.52		99.98	4.52E-01	4.73E+00	4.73E+00
			1312.10		97.50	1.43E+00		6.40E+00
+		CR-51	320.08		9.83	-2.97E+00	6.35E+00	6.35E+00
+		MN-54	834.83		99.97	-1.81E-02	1.04E-01	1.04E-01
+		CO-56	846.75		99.96	5.86E-02	1.92E-01	1.92E-01
			1037.75		14.03	-3.76E-01		1.42E+00
			1238.25		67.00	3.28E-01		4.61E-01
			1771.40		15.51	7.03E-02		1.05E+00
			2598.48		16.90	-1.41E-01		5.18E-01
+		CO-57	122.06		85.51	1.86E-02	6.71E-02	6.71E-02
			136.48		10.60	-1.58E-01		5.34E-01
+		CO-58	810.76		99.40	-1.11E-03	1.94E-01	1.94E-01
+		FE-59	1099.22		56.50	-1.88E-01	7.78E-01	7.78E-01
			1291.56		43.20	4.18E-01		9.24E-01
+		CO-60	1173.22		100.00	1.06E-02	1.01E-01	1.09E-01
			1332.49		100.00	-3.73E-02		1.01E-01
+		ZN-65	1115.52		50.75	-4.38E-02	2.59E-01	2.59E-01
+		GA-67	93.31		35.70	1.57E+08	7.99E+07	7.99E+07
			208.95		2.24	9.16E+08		1.47E+09
			300.22		16.00	5.17E+07		2.05E+08
+		SE-75	121.11		16.70	-7.15E-02	1.31E-01	4.54E-01

Analysis Report for 1707082-13

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00	59.20	-2.64E-02	1.31E-01	1.31E-01
		264.65	59.80	-1.07E-02		1.63E-01
		279.53	25.20	1.61E-01		4.47E-01
		400.65	11.40	6.29E-01		1.08E+00
+	RB-82	776.52	13.00	2.63E+00	8.41E+00	8.41E+00
+	RB-83	520.41	46.00	-6.30E-03	3.17E-01	3.17E-01
		529.64	30.30	1.24E-01		5.31E-01
		552.65	16.40	-3.72E-01		9.23E-01
+	KR-85	513.99	0.43	-1.41E+00	2.13E+01	2.13E+01
+	SR-85	513.99	99.27	-1.66E-02	2.51E-01	2.51E-01
+	Y-88	898.02	93.40	2.73E-02	9.33E-02	1.72E-01
		1836.01	99.38	-1.90E-01		9.33E-02
+	MO-93	263.06	56.72	2.19E-02	7.21E-02	1.04E-01
		684.67	99.68	-2.69E-02		7.21E-02
		1477.11	99.08	1.28E-02		7.98E-02
+	NB-93M	16.57	9.43	-3.98E+00	6.76E+01	6.76E+01
+	NB-94	702.63	100.00	1.41E-02	8.62E-02	8.77E-02
		871.10	100.00	-4.85E-03		8.62E-02
+	NB-95	765.79	99.81	2.98E-01	6.16E-01	6.16E-01
+	NB-95M	235.69	25.00	1.86E+06	2.88E+07	2.88E+07
+	ZR-95	724.18	43.70	3.73E-03	4.33E-01	6.09E-01
		756.72	55.30	1.59E-01		4.33E-01
+	MO-99	181.06	6.20	1.97E+09	1.26E+10	1.62E+10
		739.58	12.80	1.17E+09		1.26E+10
		778.00	4.50	1.54E+09		3.62E+10
+	RU-103	497.08	89.00	1.27E-01	4.11E-01	4.11E-01
+	RU-106	621.84	9.80	-4.97E-02	9.26E-01	9.26E-01
+	AG-108M	433.93	89.90	-5.97E-03	7.76E-02	7.76E-02
		614.37	90.40	-3.42E-01		9.56E-02
		722.95	90.50	1.76E-03		9.90E-02
+	CD-109	88.03	3.72	5.68E-01	1.85E+00	1.85E+00
+	AG-110M	657.75	93.14	-5.99E-02	1.11E-01	1.11E-01
		677.61	10.53	-1.24E-02		9.66E-01
		706.67	16.46	4.35E-01		6.99E-01
		763.93	21.98	3.44E-02		4.99E-01
		884.67	71.63	-4.84E-02		1.45E-01
		1384.27	23.94	1.60E-01		4.21E-01
+	CD-113M	263.70	0.02	2.32E+01	2.49E+02	2.49E+02
+	SN-113	255.12	1.93	1.40E-01	1.99E-01	5.36E+00
		391.69	64.90	4.96E-02		1.99E-01
+	TE123M	159.00	84.10	1.26E-02	9.96E-02	9.96E-02
+	SB-124	602.71	97.87	6.19E-04	2.28E-01	2.28E-01
		645.85	7.26	-6.84E-01		2.88E+00
		722.78	11.10	4.23E-02		2.38E+00
		1691.02	49.00	4.76E-02		4.31E-01
+	I-125	35.49	6.49	-1.28E+00	5.71E+00	5.71E+00
+	SB-125	176.33	6.89	-4.11E-01	2.38E-01	7.31E-01
		427.89	29.33	1.26E-02		2.38E-01

Analysis Report for 1707082-13

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-125	463.38	10.35	1.27E-01	2.38E-01	7.67E-01
		600.56	17.80	1.95E-01		4.66E-01
		635.90	11.32	7.51E-02		7.01E-01
+	SB-126	414.70	83.30	-7.27E+00	1.59E+01	1.60E+01
		666.33	99.60	-1.19E+01		1.64E+01
		695.00	99.60	-8.95E-01		1.59E+01
		720.50	53.80	1.03E+00		3.00E+01
+	SN-126	87.57	37.00	4.96E-02	1.62E-01	1.62E-01
+	SB-127	473.00	25.00	-2.21E+06	4.53E+06	6.13E+06
		685.20	35.70	-1.69E+06		4.53E+06
		783.80	14.70	2.73E+06		1.22E+07
+	I-129	29.78	57.00	-5.70E-02	3.86E-01	3.86E-01
		33.60	13.20	3.38E-01		1.13E+00
		39.58	7.52	-1.06E-02		1.32E+00
+	I-131	284.30	6.05	-5.32E+02	2.79E+02	3.41E+03
		364.48	81.20	1.72E+01		2.79E+02
		636.97	7.26	-8.95E+02		3.33E+03
		722.89	1.80	2.95E+02		1.66E+04
+	TE-132	49.72	13.10	-3.10E+08	3.65E+07	2.61E+08
		228.16	88.00	-3.18E+06		3.65E+07
+	BA-133	81.00	33.00	-7.59E-01	1.66E-01	1.75E-01
		302.84	17.80	3.88E-01		3.66E-01
		356.01	60.00	8.02E-02		1.66E-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	3.79E+04	3.79E+04
+	CS-134	563.23	8.38	-4.78E-01	1.02E-01	8.63E-01
		569.32	15.43	7.77E-02		5.21E-01
		604.70	97.60	1.46E-02		1.02E-01
		795.84	85.40	2.82E-02		1.13E-01
		801.93	8.73	-2.50E-01		1.05E+00
+	CS-135	268.24	16.00	2.37E-01	4.04E-01	4.04E-01
+	@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41	28.60	1.00E+26		1.00E+26
	@	1678.03	9.54	1.00E+26		1.00E+26
+	CS-136	153.22	7.46	6.16E+01	1.13E+01	9.85E+01
		163.89	4.61	-2.58E+01		1.50E+02
		176.55	13.56	-2.78E+01		4.96E+01
		273.65	12.66	-4.07E+01		7.39E+01
		340.57	48.50	4.06E+01		2.58E+01
		818.50	99.70	3.25E-01		1.13E+01
		1048.07	79.60	2.60E+00		1.76E+01
		1235.34	19.70	1.78E+01		9.55E+01
+	CS-137	661.65	85.12	5.90E-02	1.09E-01	1.09E-01
+	LA-138	788.74	34.00	-1.06E-01	1.18E-01	2.22E-01
		1435.80	66.00	-9.21E-03		1.18E-01
+	CE-139	165.85	80.35	1.56E-02	9.91E-02	9.91E-02
+	BA-140	162.64	6.70	-1.13E+01	4.74E+01	1.20E+02
		304.84	4.50	-1.09E+02		2.16E+02
		423.70	3.20	9.49E+01		3.45E+02

Analysis Report for 1707082-13

HTC-A01-S005-4248-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		BA-140	437.55		2.00	2.01E+02	4.74E+01	5.86E+02
			537.32		25.00	-5.52E+00		4.74E+01
+		LA-140	328.77		20.50	9.64E+00	1.59E+01	5.34E+01
			487.03		45.50	2.50E+00		2.40E+01
			815.85		23.50	-2.60E+00		5.35E+01
			1596.49		95.49	7.67E-01		1.59E+01
+		CE-141	145.44	*	48.40	6.61E-01	9.56E-01	9.56E-01
+	@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26
	@		293.26		42.00	1.00E+26		1.00E+26
	@		664.55		5.20	1.00E+26		1.00E+26
+		CE-144	133.54		10.80	-5.06E-02	5.27E-01	5.27E-01
+		PM-144	476.78		42.00	-7.51E-02	9.49E-02	1.99E-01
			618.01		98.60	4.86E-02		9.49E-02
			696.49		99.49	3.01E-02		1.01E-01
+		PM-145	36.85		21.70	-9.75E-02	2.90E-01	5.34E-01
			37.36		39.70	8.10E-02		2.90E-01
			42.30		15.10	-5.93E-01		5.73E-01
			72.40		2.31	-6.82E+00		2.94E+00
+		PM-146	453.90		39.94	2.37E-02	1.79E-01	1.79E-01
			735.90		14.01	1.16E-01		5.69E-01
			747.13		13.10	6.77E-03		6.35E-01
+		ND-147	91.11		28.90	-1.34E+01	7.92E+01	7.92E+01
			531.02		13.10	1.13E+01		2.14E+02
+		PM-149	285.90		3.10	1.68E+12	1.32E+13	1.32E+13
+		EU-152	121.78		20.50	6.18E-02	2.23E-01	2.23E-01
			244.69		5.40	1.30E-01		1.39E+00
			344.27		19.13	1.13E-01		3.55E-01
			778.89		9.20	2.59E-01		9.01E-01
			964.01		10.40	-1.42E+00		1.06E+00
			1085.78		7.22	-2.54E-01		1.42E+00
			1112.02		9.60	3.84E-01		1.12E+00
			1407.95		14.94	-8.17E-02		6.03E-01
+		GD-153	97.43		31.30	8.15E-02	1.93E-01	1.93E-01
			103.18		22.20	-1.35E-01		2.59E-01
+		EU-154	123.07		40.50	1.64E-02	1.12E-01	1.12E-01
			723.30		19.70	8.24E-03		4.64E-01
			873.19		11.50	-4.98E-02		7.79E-01
			996.32		10.30	-5.07E-03		8.24E-01
			1004.76		17.90	7.35E-03		4.83E-01
			1274.45		35.50	-1.79E-02		2.81E-01
+		EU-155	86.50		30.90	1.96E-01	2.03E-01	2.03E-01
			105.30		20.70	1.24E-01		2.25E-01
+		EU-156	811.77		10.40	-1.42E+01	5.17E+01	5.17E+01
			1153.47		7.20	-6.13E+00		1.16E+02
			1230.71		8.90	-1.99E+01		9.93E+01
+		HO-166M	184.41		72.60	1.12E-01	8.63E-02	8.63E-02
			280.45		29.60	1.47E-02		2.17E-01
			410.94		11.10	-1.06E-01		6.40E-01
			711.69		54.10	-2.03E-02		1.46E-01

Analysis Report for 1707082-13

HTC-A01-S005-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TM-171	66.72		0.14	-5.79E+01	4.82E+01	4.82E+01
+	HF-172	67.35		5.31	-7.72E-01	4.55E-01	1.25E+00
		125.81		11.30	-2.67E-01		4.55E-01
+	LU-172	181.53		20.60	7.17E+02	2.87E+03	4.14E+03
		900.72		29.81	-3.11E+03		5.00E+03
		1093.66		62.50	6.91E+02		2.87E+03
+	LU-173	100.72		5.24	1.10E-01	3.63E-01	9.81E-01
		272.11		21.20	-9.39E-02		3.63E-01
+	HF-175	343.40		84.00	6.42E-02	2.02E-01	2.02E-01
+	LU-176	88.34		13.30	2.50E-01	6.18E-02	4.55E-01
		201.83		86.00	-4.76E-03		6.18E-02
		306.78		94.00	-2.09E-02		6.33E-02
+	HF-181	133.02		41.70	-5.24E-02	4.06E-01	5.05E-01
		345.85		17.20	5.79E-01		1.75E+00
		482.03		82.80	-2.70E-02		4.06E-01
+	TA-182	67.75		41.20	-1.59E-01	2.57E-01	2.57E-01
		1121.30		34.90	1.26E+00		7.98E-01
		1189.05		16.23	-1.50E-01		1.20E+00
		1221.41		26.98	-3.78E-02		7.55E-01
		1231.02		11.44	-3.74E-01		1.86E+00
+	IR-192	308.46		29.68	-1.09E-01	3.34E-01	4.94E-01
		468.07		48.10	-4.81E-02		3.34E-01
+	HG-203	279.19		77.30	8.87E-02	3.42E-01	3.42E-01
+	TL-204	374.74		94.11	5.11E-02	7.79E-02	7.79E-02
		899.15		99.16	1.64E-02		9.44E-02
		911.74		91.10	3.74E-01		1.80E-01
+	BI-207	569.67		97.72	7.13E-02	7.97E-02	7.97E-02
		1063.62		74.90	4.20E-02		1.29E-01
+	TL-208	583.14	*	30.22	1.21E+00	2.03E-01	4.27E-01
		860.37	*	4.48	1.52E+00		2.28E+00
		2614.66	*	35.85	9.60E-01		2.03E-01
+	BI-210M	262.00		45.00	1.80E-03	1.29E-01	1.29E-01
		300.00		23.00	7.36E-02		2.91E-01
+	PB-210	46.50		4.25	1.63E+00	1.92E+00	1.92E+00
+	PB-211	404.84		2.90	-1.79E+00	2.27E+00	2.27E+00
		831.96		2.90	-1.06E+00		2.88E+00
+	BI-212	727.17	*	11.80	9.87E-01	7.85E-01	7.85E-01
		1620.62	*	2.75	2.91E+00		2.29E+00
+	PB-212	238.63	*	44.60	1.27E+00	2.33E-01	2.33E-01
		300.09		3.41	4.96E-01		1.96E+00
+	BI-214	609.31	*	46.30	1.12E+00	3.28E-01	4.04E-01
		1120.29	*	15.10	1.38E+00		1.05E+00
		1764.49	*	15.80	1.31E+00		3.28E-01
		2204.22	*	4.98	2.33E+00		1.55E+00
+	PB-214	295.21	*	19.19	1.15E+00	2.80E-01	4.63E-01
		351.92	*	37.19	1.35E+00		2.80E-01
+	RN-219	401.80		6.50	4.13E-01	1.08E+00	1.08E+00
+	RA-223	323.87		3.88	-1.41E+00	1.58E+00	1.58E+00

Analysis Report for 1707082-13

HTC-A01-S005-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98		3.95	1.78E+01	3.11E+00	3.11E+00
+	RA-225	40.00		31.00	-2.06E-01	2.56E+01	2.56E+01
+	RA-226	186.21		3.28	3.27E+00	1.98E+00	1.98E+00
+	TH-227	50.10		8.40	-9.63E-01	8.12E-01	8.12E-01
		236.00		11.50	5.72E-02		8.88E-01
		256.20		6.30	-1.97E-01		9.25E-01
+	AC-228	338.32	*	11.40	1.47E+00	6.23E-01	7.93E-01
		911.07	*	27.70	1.29E+00		6.23E-01
		969.11	*	16.60	1.34E+00		9.45E-01
+	TH-230	48.44		16.90	3.74E-03	4.44E-01	4.44E-01
		62.85		4.60	2.69E+00		1.49E+00
		67.67		0.37	-1.00E+01		1.62E+01
+	PA-231	283.67		1.60	1.37E-01	2.78E+00	3.92E+00
		302.67		2.30	2.95E+00		2.78E+00
+	TH-231	25.64		14.70	5.86E-01	8.85E-01	2.83E+00
		84.21		6.40	-3.72E-01		8.85E-01
+	PA-233	311.98		38.60	1.11E+00	1.85E+00	1.85E+00
+	PA-234	131.20		20.40	1.61E-01	2.41E-01	2.41E-01
		733.99		8.80	-7.38E-02		8.06E-01
		946.00		12.00	-1.23E-01		6.40E-01
+	PA-234M	1001.03	*	0.92	6.19E+00	8.34E+00	8.34E+00
+	TH-234	63.29		3.80	1.87E+00	1.80E+00	1.80E+00
+	U-235	143.76		10.50	1.64E-01	4.68E-01	4.68E-01
		163.35		4.70	-1.78E-01		1.03E+00
		205.31		4.70	7.67E-02		1.34E+00
+	NP-237	86.50		12.60	4.63E-01	4.80E-01	4.80E-01
+	NP-239	106.10		22.70	1.18E+11	2.13E+11	2.13E+11
		228.18		10.70	-5.66E+10		6.50E+11
		277.60		14.10	2.41E+11		5.02E+11
+	AM-241	59.54		35.90	5.56E-02	1.73E-01	1.73E-01
+	AM-243	74.67	*	66.00	2.71E-01	2.92E-01	2.92E-01
+	CM-243	209.75		3.29	2.06E+00	4.73E-01	2.07E+00
		228.14		10.60	-5.35E-02		6.14E-01
		277.60		14.00	2.27E-01		4.73E-01

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

Analysis Report for 1707082-13

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NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	2.26E+00	2.26E+00	-2.80E-01	1.07E+00
	NA-22	1274.54		99.94	1.05E-01	1.05E-01	-6.67E-03	4.78E-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	8.35E-02	8.35E-02	2.67E-02	3.61E-02
+	K-40	1460.81	*	10.67	1.25E+00	1.25E+00	2.07E+01	5.81E-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	6.36E-02	6.36E-02	-3.94E-02	3.12E-02
		78.34		96.00	8.17E-02		2.33E-01	4.02E-02
	SC-46	889.25		99.98	1.76E-01	1.76E-01	8.79E-03	8.14E-02
		1120.51		99.99	3.32E-01		3.72E-01	1.58E-01
	V-48	983.52		99.98	4.73E+00	4.73E+00	4.52E-01	2.16E+00
		1312.10		97.50	6.40E+00		1.43E+00	2.94E+00
	CR-51	320.08		9.83	6.35E+00	6.35E+00	-2.97E+00	3.04E+00
	MN-54	834.83		99.97	1.04E-01	1.04E-01	-1.81E-02	4.83E-02
	CO-56	846.75		99.96	1.92E-01	1.92E-01	5.86E-02	8.94E-02
		1037.75		14.03	1.42E+00		-3.76E-01	6.53E-01
		1238.25		67.00	4.61E-01		3.28E-01	2.16E-01
		1771.40		15.51	1.05E+00		7.03E-02	4.43E-01
		2598.48		16.90	5.18E-01		-1.41E-01	1.64E-01
	CO-57	122.06		85.51	6.71E-02	6.71E-02	1.86E-02	3.26E-02
		136.48		10.60	5.34E-01		-1.58E-01	2.59E-01
	CO-58	810.76		99.40	1.94E-01	1.94E-01	-1.11E-03	8.98E-02
	FE-59	1099.22		56.50	7.78E-01	7.78E-01	-1.88E-01	3.60E-01
		1291.56		43.20	9.24E-01		4.18E-01	4.19E-01
	CO-60	1173.22		100.00	1.09E-01	1.01E-01	1.06E-02	5.06E-02
		1332.49		100.00	1.01E-01		-3.73E-02	4.59E-02
	ZN-65	1115.52		50.75	2.59E-01	2.59E-01	-4.38E-02	1.19E-01
	GA-67	93.31		35.70	7.99E+07	7.99E+07	1.57E+08	3.91E+07
		208.95		2.24	1.47E+09		9.16E+08	7.17E+08
		300.22		16.00	2.05E+08		5.17E+07	9.86E+07
	SE-75	121.11		16.70	4.54E-01	1.31E-01	-7.15E-02	2.20E-01
		136.00		59.20	1.31E-01		-2.64E-02	6.35E-02
		264.65		59.80	1.63E-01		-1.07E-02	7.84E-02
		279.53		25.20	4.47E-01		1.61E-01	2.16E-01
		400.65		11.40	1.08E+00		6.29E-01	5.19E-01
	RB-82	776.52		13.00	8.41E+00	8.41E+00	2.63E+00	3.93E+00
	RB-83	520.41		46.00	3.17E-01	3.17E-01	-6.30E-03	1.49E-01
		529.64		30.30	5.31E-01		1.24E-01	2.52E-01
		552.65		16.40	9.23E-01		-3.72E-01	4.35E-01
	KR-85	513.99		0.43	2.13E+01	2.13E+01	-1.41E+00	1.02E+01
	SR-85	513.99		99.27	2.51E-01	2.51E-01	-1.66E-02	1.20E-01

Analysis Report for 1707082-13

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
Y-88	898.02	93.40	1.72E-01	9.33E-02	2.73E-02	7.97E-02
	1836.01	99.38	9.33E-02		-1.90E-01	3.62E-02
MO-93	263.06	56.72	1.04E-01	7.21E-02	2.19E-02	4.99E-02
	684.67	99.68	7.21E-02		-2.69E-02	3.35E-02
	1477.11	99.08	7.98E-02		1.28E-02	3.50E-02
NB-93M	16.57	9.43	6.76E+01	6.76E+01	-3.98E+00	3.30E+01
NB-94	702.63	100.00	8.77E-02	8.62E-02	1.41E-02	4.13E-02
	871.10	100.00	8.62E-02		-4.85E-03	4.00E-02
NB-95	765.79	99.81	6.16E-01	6.16E-01	2.98E-01	2.90E-01
NB-95M	235.69	25.00	2.88E+07	2.88E+07	1.86E+06	1.41E+07
ZR-95	724.18	43.70	6.09E-01	4.33E-01	3.73E-03	2.88E-01
	756.72	55.30	4.33E-01		1.59E-01	2.03E-01
MO-99	181.06	6.20	1.62E+10	1.26E+10	1.97E+09	7.86E+09
	739.58	12.80	1.26E+10		1.17E+09	5.89E+09
	778.00	4.50	3.62E+10		1.54E+09	1.69E+10
RU-103	497.08	89.00	4.11E-01	4.11E-01	1.27E-01	1.95E-01
RU-106	621.84	9.80	9.26E-01	9.26E-01	-4.97E-02	4.35E-01
AG-108M	433.93	89.90	7.76E-02	7.76E-02	-5.97E-03	3.70E-02
	614.37	90.40	9.56E-02		-3.42E-01	4.53E-02
	722.95	90.50	9.90E-02		1.76E-03	4.66E-02
CD-109	88.03	3.72	1.85E+00	1.85E+00	5.68E-01	9.07E-01
AG-110M	657.75	93.14	1.11E-01	1.11E-01	-5.99E-02	5.24E-02
	677.61	10.53	9.66E-01		-1.24E-02	4.52E-01
	706.67	16.46	6.99E-01		4.35E-01	3.29E-01
	763.93	21.98	4.99E-01		3.44E-02	2.33E-01
	884.67	71.63	1.45E-01		-4.84E-02	6.67E-02
	1384.27	23.94	4.21E-01		1.60E-01	1.86E-01
CD-113M	263.70	0.02	2.49E+02	2.49E+02	2.32E+01	1.20E+02
SN-113	255.12	1.93	5.36E+00	1.99E-01	1.40E-01	2.59E+00
	391.69	64.90	1.99E-01		4.96E-02	9.55E-02
TE123M	159.00	84.10	9.96E-02	9.96E-02	1.26E-02	4.83E-02
SB-124	602.71	97.87	2.28E-01	2.28E-01	6.19E-04	1.07E-01
	645.85	7.26	2.88E+00		-6.84E-01	1.34E+00
	722.78	11.10	2.38E+00		4.23E-02	1.12E+00
	1691.02	49.00	4.31E-01		4.76E-02	1.84E-01
I-125	35.49	6.49	5.71E+00	5.71E+00	-1.28E+00	2.78E+00
SB-125	176.33	6.89	7.31E-01	2.38E-01	-4.11E-01	3.54E-01
	427.89	29.33	2.38E-01		1.26E-02	1.13E-01
	463.38	10.35	7.67E-01		1.27E-01	3.66E-01
	600.56	17.80	4.66E-01		1.95E-01	2.20E-01
	635.90	11.32	7.01E-01		7.51E-02	3.29E-01
SB-126	414.70	83.30	1.60E+01	1.59E+01	-7.27E+00	7.61E+00
	666.33	99.60	1.64E+01		-1.19E+01	7.75E+00
	695.00	99.60	1.59E+01		-8.95E-01	7.46E+00
	720.50	53.80	3.00E+01		1.03E+00	1.41E+01
SN-126	87.57	37.00	1.62E-01	1.62E-01	4.96E-02	7.93E-02
SB-127	473.00	25.00	6.13E+06	4.53E+06	-2.21E+06	2.90E+06
	685.20	35.70	4.53E+06		-1.69E+06	2.11E+06
	783.80	14.70	1.22E+07		2.73E+06	5.67E+06
I-129	29.78	57.00	3.86E-01	3.86E-01	-5.70E-02	1.88E-01
	33.60	13.20	1.13E+00		3.38E-01	5.48E-01
	39.58	7.52	1.32E+00		-1.06E-02	6.41E-01
I-131	284.30	6.05	3.41E+03	2.79E+02	-5.32E+02	1.64E+03

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	I-131	364.48		81.20	2.79E+02	2.79E+02	1.72E+01	1.34E+02
		636.97		7.26	3.33E+03		-8.95E+02	1.56E+03
		722.89		1.80	1.66E+04		2.95E+02	7.82E+03
	TE-132	49.72		13.10	2.61E+08	3.65E+07	-3.10E+08	1.27E+08
		228.16		88.00	3.65E+07		-3.18E+06	1.77E+07
	BA-133	81.00		33.00	1.75E-01	1.66E-01	-7.59E-01	8.56E-02
		302.84		17.80	3.66E-01		3.88E-01	1.76E-01
		356.01		60.00	1.66E-01		8.02E-02	8.05E-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	3.79E+04	3.79E+04	-1.64E+05	1.85E+04
	CS-134	563.23		8.38	8.63E-01	1.02E-01	-4.78E-01	4.04E-01
		569.32		15.43	5.21E-01		7.77E-02	2.46E-01
		604.70		97.60	1.02E-01		1.46E-02	4.85E-02
		795.84		85.40	1.13E-01		2.82E-02	5.30E-02
		801.93		8.73	1.05E+00		-2.50E-01	4.88E-01
	CS-135	268.24		16.00	4.04E-01	4.04E-01	2.37E-01	1.95E-01
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	9.85E+01	1.13E+01	6.16E+01	4.79E+01
		163.89		4.61	1.50E+02		-2.58E+01	7.28E+01
		176.55		13.56	4.96E+01		-2.78E+01	2.40E+01
		273.65		12.66	7.39E+01		-4.07E+01	3.57E+01
		340.57		48.50	2.58E+01		4.06E+01	1.25E+01
		818.50		99.70	1.13E+01		3.25E-01	5.26E+00
		1048.07		79.60	1.76E+01		2.60E+00	8.17E+00
		1235.34		19.70	9.55E+01		1.78E+01	4.47E+01
	CS-137	661.65		85.12	1.09E-01	1.09E-01	5.90E-02	5.19E-02
	LA-138	788.74		34.00	2.22E-01	1.18E-01	-1.06E-01	1.03E-01
		1435.80		66.00	1.18E-01		-9.21E-03	5.20E-02
	CE-139	165.85		80.35	9.91E-02	9.91E-02	1.56E-02	4.80E-02
	BA-140	162.64		6.70	1.20E+02	4.74E+01	-1.13E+01	5.81E+01
		304.84		4.50	2.16E+02		-1.09E+02	1.03E+02
		423.70		3.20	3.45E+02		9.49E+01	1.64E+02
		437.55		2.00	5.86E+02		2.01E+02	2.80E+02
		537.32		25.00	4.74E+01		-5.52E+00	2.24E+01
	LA-140	328.77		20.50	5.34E+01	1.59E+01	9.64E+00	2.57E+01
		487.03		45.50	2.40E+01		2.50E+00	1.14E+01
		815.85		23.50	5.35E+01		-2.60E+00	2.47E+01
		1596.49		95.49	1.59E+01		7.67E-01	7.08E+00
+	CE-141	145.44	*	48.40	9.56E-01	9.56E-01	6.61E-01	4.68E-01
@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		293.26		42.00	1.00E+26		1.00E+26	1.00E+20
@		664.55		5.20	1.00E+26		1.00E+26	1.00E+20
	CE-144	133.54		10.80	5.27E-01	5.27E-01	-5.06E-02	2.56E-01
	PM-144	476.78		42.00	1.99E-01	9.49E-02	-7.51E-02	9.43E-02
		618.01		98.60	9.49E-02		4.86E-02	4.47E-02
		696.49		99.49	1.01E-01		3.01E-02	4.73E-02
	PM-145	36.85		21.70	5.34E-01	2.90E-01	-9.75E-02	2.60E-01
		37.36		39.70	2.90E-01		8.10E-02	1.41E-01
		42.30		15.10	5.73E-01		-5.93E-01	2.79E-01
		72.40		2.31	2.94E+00		-6.82E+00	1.44E+00
	PM-146	453.90		39.94	1.79E-01	1.79E-01	2.37E-02	8.50E-02

Analysis Report for 1707082-13

HTC-A01-S005-4248-01

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	5.69E-01	1.79E-01	1.16E-01	2.65E-01
	747.13	13.10	6.35E-01		6.77E-03	2.96E-01
ND-147	91.11	28.90	7.92E+01	7.92E+01	-1.34E+01	3.88E+01
	531.02	13.10	2.14E+02		1.13E+01	1.01E+02
PM-149	285.90	3.10	1.32E+13	1.32E+13	1.68E+12	6.34E+12
EU-152	121.78	20.50	2.23E-01	2.23E-01	6.18E-02	1.08E-01
	244.69	5.40	1.39E+00		1.30E-01	6.74E-01
	344.27	19.13	3.55E-01		1.13E-01	1.70E-01
	778.89	9.20	9.01E-01		2.59E-01	4.20E-01
	964.01	10.40	1.06E+00		-1.42E+00	4.98E-01
	1085.78	7.22	1.42E+00		-2.54E-01	6.55E-01
	1112.02	9.60	1.12E+00		3.84E-01	5.22E-01
	1407.95	14.94	6.03E-01		-8.17E-02	2.70E-01
GD-153	97.43	31.30	1.93E-01	1.93E-01	8.15E-02	9.40E-02
	103.18	22.20	2.59E-01		-1.35E-01	1.26E-01
EU-154	123.07	40.50	1.12E-01	1.12E-01	1.64E-02	5.46E-02
	723.30	19.70	4.64E-01		8.24E-03	2.18E-01
	873.19	11.50	7.79E-01		-4.98E-02	3.62E-01
	996.32	10.30	8.24E-01		-5.07E-03	3.78E-01
	1004.76	17.90	4.83E-01		7.35E-03	2.22E-01
	1274.45	35.50	2.81E-01		-1.79E-02	1.28E-01
EU-155	86.50	30.90	2.03E-01	2.03E-01	1.96E-01	9.96E-02
	105.30	20.70	2.25E-01		1.24E-01	1.09E-01
EU-156	811.77	10.40	5.17E+01	5.17E+01	-1.42E+01	2.38E+01
	1153.47	7.20	1.16E+02		-6.13E+00	5.42E+01
	1230.71	8.90	9.93E+01		-1.99E+01	4.63E+01
HO-166M	184.41	72.60	8.63E-02	8.63E-02	1.12E-01	4.20E-02
	280.45	29.60	2.17E-01		1.47E-02	1.05E-01
	410.94	11.10	6.40E-01		-1.06E-01	3.06E-01
	711.69	54.10	1.46E-01		-2.03E-02	6.80E-02
TM-171	66.72	0.14	4.82E+01	4.82E+01	-5.79E+01	2.36E+01
HF-172	67.35	5.31	1.25E+00	4.55E-01	-7.72E-01	6.10E-01
	125.81	11.30	4.55E-01		-2.67E-01	2.21E-01
LU-172	181.53	20.60	4.14E+03	2.87E+03	7.17E+02	2.00E+03
	900.72	29.81	5.00E+03		-3.11E+03	2.32E+03
	1093.66	62.50	2.87E+03		6.91E+02	1.33E+03
LU-173	100.72	5.24	9.81E-01	3.63E-01	1.10E-01	4.78E-01
	272.11	21.20	3.63E-01		-9.39E-02	1.76E-01
HF-175	343.40	84.00	2.02E-01	2.02E-01	6.42E-02	9.71E-02
LU-176	88.34	13.30	4.55E-01	6.18E-02	2.50E-01	2.23E-01
	201.83	86.00	6.18E-02		-4.76E-03	2.99E-02
	306.78	94.00	6.33E-02		-2.09E-02	3.04E-02
HF-181	133.02	41.70	5.05E-01	4.06E-01	-5.24E-02	2.45E-01
	345.85	17.20	1.75E+00		5.79E-01	8.37E-01
	482.03	82.80	4.06E-01		-2.70E-02	1.93E-01
TA-182	67.75	41.20	2.57E-01	2.57E-01	-1.59E-01	1.26E-01
	1121.30	34.90	7.98E-01		1.26E+00	3.79E-01
	1189.05	16.23	1.20E+00		-1.50E-01	5.55E-01
	1221.41	26.98	7.55E-01		-3.78E-02	3.51E-01
	1231.02	11.44	1.86E+00		-3.74E-01	8.68E-01
IR-192	308.46	29.68	4.94E-01	3.34E-01	-1.09E-01	2.37E-01
	468.07	48.10	3.34E-01		-4.81E-02	1.58E-01
HG-203	279.19	77.30	3.42E-01	3.42E-01	8.87E-02	1.65E-01

Analysis Report for 1707082-13

HTC-A01-S005-4248-01

	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	7.79E-02	7.79E-02	5.11E-02	3.74E-02
		899.15		99.16	9.44E-02		1.64E-02	4.39E-02
		911.74		91.10	1.80E-01		3.74E-01	8.63E-02
	BI-207	569.67		97.72	7.97E-02	7.97E-02	7.13E-02	3.77E-02
		1063.62		74.90	1.29E-01		4.20E-02	5.98E-02
+	TL-208	583.14	*	30.22	4.27E-01	2.03E-01	1.21E+00	2.07E-01
		860.37	*	4.48	2.28E+00		1.52E+00	1.07E+00
		2614.66	*	35.85	2.03E-01		9.60E-01	8.17E-02
	BI-210M	262.00		45.00	1.29E-01	1.29E-01	1.80E-03	6.21E-02
		300.00		23.00	2.91E-01		7.36E-02	1.40E-01
	PB-210	46.50		4.25	1.92E+00	1.92E+00	1.63E+00	9.37E-01
	PB-211	404.84		2.90	2.27E+00	2.27E+00	-1.79E+00	1.08E+00
		831.96		2.90	2.88E+00		-1.06E+00	1.34E+00
+	BI-212	727.17	*	11.80	7.85E-01	7.85E-01	9.87E-01	3.70E-01
		1620.62	*	2.75	2.29E+00		2.91E+00	9.58E-01
+	PB-212	238.63	*	44.60	2.33E-01	2.33E-01	1.27E+00	1.14E-01
		300.09		3.41	1.96E+00		4.96E-01	9.47E-01
+	BI-214	609.31	*	46.30	4.04E-01	3.28E-01	1.12E+00	1.97E-01
		1120.29	*	15.10	1.05E+00		1.38E+00	4.97E-01
		1764.49	*	15.80	3.28E-01		1.31E+00	1.29E-01
		2204.22	*	4.98	1.55E+00		2.33E+00	6.44E-01
+	PB-214	295.21	*	19.19	4.63E-01	2.80E-01	1.15E+00	2.25E-01
		351.92	*	37.19	2.80E-01		1.35E+00	1.36E-01
	RN-219	401.80		6.50	1.08E+00	1.08E+00	4.13E-01	5.18E-01
	RA-223	323.87		3.88	1.58E+00	1.58E+00	-1.41E+00	7.55E-01
	RA-224	240.98		3.95	3.11E+00	3.11E+00	1.78E+01	1.53E+00
	RA-225	40.00		31.00	2.56E+01	2.56E+01	-2.06E-01	1.25E+01
	RA-226	186.21		3.28	1.98E+00	1.98E+00	3.27E+00	9.64E-01
	TH-227	50.10		8.40	8.12E-01	8.12E-01	-9.63E-01	3.96E-01
		236.00		11.50	8.88E-01		5.72E-02	4.35E-01
		256.20		6.30	9.25E-01		-1.97E-01	4.46E-01
+	AC-228	338.32	*	11.40	7.93E-01	6.23E-01	1.47E+00	3.85E-01
		911.07	*	27.70	6.23E-01		1.29E+00	3.00E-01
		969.11	*	16.60	9.45E-01		1.34E+00	4.52E-01
	TH-230	48.44		16.90	4.44E-01	4.44E-01	3.74E-03	2.17E-01
		62.85		4.60	1.49E+00		2.69E+00	7.33E-01
		67.67		0.37	1.62E+01		-1.00E+01	7.94E+00
	PA-231	283.67		1.60	3.92E+00	2.78E+00	1.37E-01	1.89E+00
		302.67		2.30	2.78E+00		2.95E+00	1.34E+00
	TH-231	25.64		14.70	2.83E+00	8.85E-01	5.86E-01	1.38E+00
		84.21		6.40	8.85E-01		-3.72E-01	4.33E-01
	PA-233	311.98		38.60	1.85E+00	1.85E+00	1.11E+00	8.91E-01
	PA-234	131.20		20.40	2.41E-01	2.41E-01	1.61E-01	1.17E-01
		733.99		8.80	8.06E-01		-7.38E-02	3.73E-01
		946.00		12.00	6.40E-01		-1.23E-01	2.93E-01
+	PA-234M	1001.03	*	0.92	8.34E+00	8.34E+00	6.19E+00	3.79E+00
	TH-234	63.29		3.80	1.80E+00	1.80E+00	1.87E+00	8.85E-01
	U-235	143.76		10.50	4.68E-01	4.68E-01	1.64E-01	2.28E-01
		163.35		4.70	1.03E+00		-1.78E-01	5.01E-01
		205.31		4.70	1.34E+00		7.67E-02	6.51E-01
	NP-237	86.50		12.60	4.80E-01	4.80E-01	4.63E-01	2.36E-01
	NP-239	106.10		22.70	2.13E+11	2.13E+11	1.18E+11	1.04E+11
		228.18		10.70	6.50E+11		-5.66E+10	3.16E+11

Analysis Report for 1707082-13

HTC-A01-S005-4248-01

	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	5.02E+11	2.13E+11	2.41E+11	2.42E+11
	AM-241	59.54		35.90	1.73E-01	1.73E-01	5.56E-02	8.44E-02
+	AM-243	74.67	*	66.00	2.92E-01	2.92E-01	2.71E-01	1.45E-01
	CM-243	209.75		3.29	2.07E+00	4.73E-01	2.06E+00	1.01E+00
		228.14		10.60	6.14E-01		-5.35E-02	2.98E-01
		277.60		14.00	4.73E-01		2.27E-01	2.28E-01

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

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-S005-4248-01

Elapsed Live time: 3600
Elapsed Real Time: 3609

Channel								
1:	0	0	0	0	0	0	0	0
9:	6	170	161	168	137	108	96	119
17:	108	114	75	101	75	89	95	85
25:	103	109	92	105	94	88	77	105
33:	100	86	81	108	98	95	97	109
41:	105	98	103	95	100	131	177	121
49:	102	113	104	119	113	125	126	134
57:	125	134	138	113	142	150	196	245
65:	180	145	161	155	144	154	160	153
73:	168	204	332	361	414	533	235	151
81:	118	125	135	143	177	134	179	223
89:	169	157	156	177	211	206	116	106
97:	92	79	96	125	92	86	72	97
105:	94	85	96	84	84	77	89	87
113:	115	87	88	76	81	78	76	85
121:	75	84	76	95	73	83	96	87
129:	108	114	78	88	74	78	65	78
137:	72	77	70	81	77	64	79	94
145:	91	90	80	70	65	75	75	85
153:	88	89	91	78	73	66	79	65
161:	77	64	76	57	79	71	74	73
169:	73	60	61	52	63	69	54	56
177:	63	62	59	76	63	61	64	57
185:	82	133	156	93	67	79	71	66
193:	54	47	58	65	50	63	64	77
201:	59	57	44	69	62	59	55	58
209:	74	95	79	53	57	48	45	35
217:	59	52	47	44	51	60	55	47
225:	54	55	51	60	47	53	55	52
233:	63	57	59	53	51	193	427	274
241:	105	115	113	48	38	45	41	38
249:	33	39	33	38	33	30	38	34
257:	42	39	32	40	39	34	42	26
265:	23	29	29	37	43	58	65	31
273:	36	40	31	38	43	50	41	30
281:	44	23	39	32	37	30	36	35
289:	31	35	30	34	33	50	128	142
297:	73	28	20	41	34	34	20	32
305:	26	37	16	22	36	19	36	28
313:	35	26	31	36	20	28	24	20
321:	28	18	34	26	24	21	29	41
329:	45	25	23	26	32	29	19	27
337:	32	76	99	65	29	27	28	26
345:	35	25	25	19	20	43	77	212
353:	201	59	34	24	36	21	25	25
361:	25	18	35	24	29	29	23	21

369:	19	31	17	27	29	27	21	34

Sample Title: HTC-A01-S005-4248-01

Channel								
377:	25	19	20	14	25	21	22	30
385:	25	28	24	31	26	31	16	29
393:	28	35	20	22	21	21	27	29
401:	26	20	18	28	14	20	18	21
409:	18	33	29	21	19	17	21	34
417:	20	14	22	18	19	27	15	14
425:	21	18	19	11	18	17	19	22
433:	25	15	18	13	25	21	26	13
441:	26	16	20	18	28	22	11	16
449:	17	16	18	18	18	20	19	15
457:	16	18	17	20	24	22	22	28
465:	16	13	14	19	18	15	13	20
473:	18	19	13	9	15	20	15	24
481:	18	21	11	14	18	18	18	6
489:	16	10	12	12	18	20	9	19
497:	16	16	17	9	12	11	10	17
505:	11	19	13	17	23	31	58	49
513:	18	16	11	11	11	17	9	20
521:	14	12	8	13	17	13	18	20
529:	10	18	12	15	18	12	15	13
537:	20	11	7	20	17	10	9	17
545:	13	10	8	13	17	12	14	7
553:	15	11	20	11	20	12	15	15
561:	12	10	9	12	7	10	15	14
569:	20	13	8	12	20	8	8	15
577:	12	11	13	12	11	46	99	79
585:	43	15	17	15	11	13	15	19
593:	11	11	13	8	10	18	11	9
601:	13	13	19	10	13	10	16	48
609:	115	133	50	12	12	5	13	7
617:	12	16	8	21	12	9	11	15
625:	7	8	14	8	10	12	12	12
633:	16	9	7	18	4	13	9	11
641:	7	13	8	7	7	15	10	6
649:	13	11	12	14	10	8	9	11
657:	15	9	7	13	19	28	14	11
665:	20	15	9	16	7	10	19	11
673:	8	9	11	11	7	12	15	11
681:	8	11	14	7	11	5	3	8
689:	10	12	13	10	9	13	18	8
697:	11	10	10	12	16	4	14	16
705:	11	16	14	12	12	9	9	8
713:	12	10	9	11	7	10	10	11
721:	16	7	9	14	11	20	25	13
729:	11	8	5	5	9	6	10	6
737:	11	9	11	8	12	8	9	11
745:	9	8	14	3	10	11	12	8
753:	6	10	12	11	10	15	7	10
761:	14	5	9	7	13	14	8	23
769:	17	12	8	11	9	13	6	7
777:	10	17	6	10	7	6	8	4
785:	14	11	7	6	6	8	6	8
793:	6	15	14	12	9	7	9	11

801:	9	8	8	11	7	15	9	11

Sample Title: HTC-A01-S005-4248-01

Channel								
809:	11	4	7	4	6	8	6	3
817:	10	10	7	12	6	6	10	6
825:	10	11	7	7	8	7	14	10
833:	6	4	9	13	12	5	11	6
841:	8	10	10	7	7	8	9	7
849:	8	11	5	2	6	7	8	3
857:	4	7	10	18	18	12	8	2
865:	10	4	10	9	8	5	10	10
873:	10	5	12	7	11	7	7	8
881:	7	8	5	7	9	5	5	8
889:	8	10	8	4	7	4	5	11
897:	9	11	9	6	4	8	8	10
905:	15	12	10	5	13	30	62	48
913:	18	9	5	8	5	6	11	10
921:	3	5	8	7	9	10	7	8
929:	5	11	6	6	9	14	10	7
937:	4	8	9	10	2	5	4	6
945:	4	2	7	7	8	6	12	8
953:	6	7	10	9	5	2	8	5
961:	6	5	6	14	17	10	20	23
969:	47	21	12	8	8	10	6	9
977:	7	3	5	5	3	7	5	7
985:	8	4	4	7	3	8	5	9
993:	4	8	10	6	2	6	5	9
1001:	8	11	6	1	5	5	8	6
1009:	7	8	4	3	9	4	10	9
1017:	11	10	10	6	6	3	7	4
1025:	3	9	15	7	4	13	10	10
1033:	12	5	8	9	3	7	6	5
1041:	4	5	8	7	10	6	4	10
1049:	7	9	8	6	7	7	3	7
1057:	0	2	8	5	4	3	9	9
1065:	6	12	7	4	5	8	5	5
1073:	4	7	4	11	8	6	9	6
1081:	6	7	7	10	5	9	8	5
1089:	9	8	12	8	7	8	8	10
1097:	5	8	4	8	9	9	7	12
1105:	3	6	7	5	7	14	8	5
1113:	6	7	10	9	4	9	28	34
1121:	29	10	7	12	4	7	10	4
1129:	8	6	11	13	11	5	9	7
1137:	5	9	11	4	7	6	13	4
1145:	10	8	9	9	11	12	5	8
1153:	5	13	13	6	6	11	8	6
1161:	11	4	11	6	12	8	7	13
1169:	3	5	12	8	6	8	9	3
1177:	7	5	6	11	5	11	9	15
1185:	6	8	5	9	7	9	6	10
1193:	6	13	12	11	6	9	9	9
1201:	6	5	12	4	10	7	11	11
1209:	12	14	11	7	1	6	9	9
1217:	6	13	10	5	4	11	4	10
1225:	8	10	6	5	15	7	9	6

1233:	12	8	12	11	13	13	10	12

Sample Title: HTC-A01-S005-4248-01

Channel								
1241:	7	5	4	4	9	9	8	11
1249:	3	6	7	4	5	9	9	6
1257:	8	5	8	6	8	5	4	8
1265:	2	7	10	7	4	6	5	5
1273:	4	6	7	7	3	6	6	9
1281:	9	7	10	6	5	5	3	8
1289:	4	7	3	3	3	4	1	3
1297:	7	4	2	10	6	5	8	4
1305:	3	2	5	4	8	6	8	4
1313:	6	7	2	4	6	6	3	6
1321:	3	7	8	5	7	4	9	6
1329:	5	2	5	5	7	4	6	6
1337:	5	2	3	5	9	4	1	3
1345:	7	2	2	3	6	6	5	2
1353:	0	5	9	4	10	7	8	3
1361:	3	3	2	8	1	2	1	2
1369:	2	4	3	2	4	2	1	2
1377:	11	8	8	1	1	2	5	1
1385:	4	0	6	1	3	3	3	2
1393:	1	2	1	3	4	4	9	2
1401:	5	2	8	2	4	4	2	5
1409:	7	2	1	4	3	2	2	4
1417:	2	1	3	3	1	1	2	1
1425:	2	3	2	2	3	5	0	4
1433:	3	1	4	2	2	2	4	3
1441:	4	3	2	4	1	1	2	1
1449:	5	1	3	1	2	1	3	3
1457:	10	27	89	240	198	60	10	2
1465:	6	4	0	2	3	2	0	3
1473:	3	4	2	0	4	1	1	0
1481:	2	1	2	3	2	1	2	2
1489:	1	2	1	1	0	1	1	2
1497:	3	0	0	3	1	3	0	2
1505:	4	2	2	4	6	5	3	2
1513:	1	1	3	0	2	0	4	3
1521:	3	3	1	0	2	1	4	1
1529:	3	3	4	0	1	0	1	2
1537:	2	2	1	0	2	0	4	3
1545:	1	1	2	2	1	0	0	1
1553:	2	2	1	1	1	0	3	1
1561:	0	1	3	1	1	2	5	3
1569:	2	2	0	2	1	2	1	1
1577:	2	2	1	2	3	1	0	2
1585:	1	3	5	3	4	4	2	6
1593:	4	1	2	5	0	1	0	3
1601:	1	3	1	1	1	0	1	0
1609:	2	0	0	2	1	1	2	0
1617:	2	3	0	5	4	5	2	5
1625:	0	0	5	2	3	2	3	2
1633:	1	1	2	0	2	1	4	0
1641:	0	0	3	2	0	1	2	3
1649:	2	1	3	1	0	0	3	0
1657:	2	4	1	2	0	4	1	1

1665:	0	1	2	1	0	3	1	1

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Channel								
1673:	1	2	0	1	1	0	0	2
1681:	3	0	0	0	1	1	2	0
1689:	0	1	2	1	1	2	2	1
1697:	1	1	0	3	1	3	1	1
1705:	0	0	1	0	1	1	1	0
1713:	2	1	0	1	1	1	1	0
1721:	0	0	0	0	1	0	2	6
1729:	6	5	2	0	0	0	0	3
1737:	0	2	5	1	0	0	1	0
1745:	2	0	1	1	0	1	1	2
1753:	0	0	1	1	0	0	0	0
1761:	5	2	15	16	10	2	3	1
1769:	0	1	1	2	0	1	1	2
1777:	0	0	3	0	0	1	1	1
1785:	0	2	0	1	1	0	0	2
1793:	0	1	2	1	0	0	1	4
1801:	0	1	2	3	0	3	3	2
1809:	1	0	1	1	0	1	1	2
1817:	1	0	0	0	1	0	1	2
1825:	2	1	0	0	0	2	6	0
1833:	0	1	0	1	0	0	1	1
1841:	2	2	1	1	1	2	3	2
1849:	2	1	1	4	0	2	1	0
1857:	1	1	1	0	0	0	2	1
1865:	1	0	0	1	2	1	2	0
1873:	2	0	0	0	2	2	1	1
1881:	0	2	0	1	1	0	1	1
1889:	1	0	4	1	1	0	3	1
1897:	3	2	0	0	1	0	1	1
1905:	0	1	0	2	0	0	1	1
1913:	1	0	0	1	3	2	0	1
1921:	0	1	1	1	0	2	1	1
1929:	2	0	2	1	0	0	2	2
1937:	1	2	1	1	1	1	2	0
1945:	1	1	0	0	1	2	2	2
1953:	0	2	3	2	1	1	2	0
1961:	0	1	0	2	1	1	1	0
1969:	0	1	1	1	0	1	1	1
1977:	1	3	1	3	1	2	0	0
1985:	0	0	0	1	3	0	0	0
1993:	1	1	3	0	0	0	1	1
2001:	0	1	0	1	0	0	0	0
2009:	0	1	0	1	0	2	0	1
2017:	1	0	2	0	0	0	2	2
2025:	2	0	3	1	0	2	1	1
2033:	2	0	1	0	0	0	0	0
2041:	0	0	0	2	0	4	2	0
2049:	1	2	0	2	0	0	2	0
2057:	1	0	0	1	0	1	0	0
2065:	1	2	0	1	1	0	1	0
2073:	0	0	2	2	0	3	2	0
2081:	1	2	1	1	2	1	0	0
2089:	1	0	0	0	0	0	0	1

2097:	3	0	0	1	2	1	5	1

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

2529:	1	1	0	1	0	0	1	0

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Channel								
2537:	0	1	0	0	0	0	0	0
2545:	1	1	0	0	1	0	0	0
2553:	0	1	0	0	0	0	0	1
2561:	0	1	0	1	0	0	0	0
2569:	0	0	0	0	0	1	1	0
2577:	0	0	1	1	0	0	0	1
2585:	0	0	0	2	0	1	1	0
2593:	0	0	0	0	1	0	0	0
2601:	0	0	0	0	1	0	0	1
2609:	0	3	2	15	16	21	9	2
2617:	1	1	0	0	1	1	0	0
2625:	0	0	0	1	1	0	0	0
2633:	0	0	0	0	0	0	0	2
2641:	0	0	1	0	0	0	0	0
2649:	1	1	1	0	0	0	0	1
2657:	0	0	0	0	0	0	0	1
2665:	0	0	0	0	0	0	1	0
2673:	1	1	0	0	0	0	0	0
2681:	0	1	0	0	0	0	0	0
2689:	0	0	1	0	0	0	0	0
2697:	0	0	0	0	1	0	0	0
2705:	0	0	0	0	0	0	0	2
2713:	0	1	1	0	0	1	0	0
2721:	0	0	0	1	1	0	0	0
2729:	0	0	0	0	0	0	0	0
2737:	0	0	0	0	0	0	0	1
2745:	0	1	0	0	1	1	1	1
2753:	0	1	0	0	0	0	0	0
2761:	0	0	0	0	0	0	0	0
2769:	0	0	1	0	1	0	0	0
2777:	0	2	0	1	0	0	0	0
2785:	0	0	0	0	0	0	0	0
2793:	0	1	0	0	0	0	1	0
2801:	0	0	0	0	0	0	0	0
2809:	0	0	1	0	1	0	1	0
2817:	1	0	0	1	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	0	0	0	0	0
2849:	0	1	0	0	0	0	0	0
2857:	0	0	0	0	1	0	0	0
2865:	2	0	0	0	0	0	0	1
2873:	0	0	0	0	1	1	0	0
2881:	1	0	0	0	0	0	0	0
2889:	0	0	0	0	1	1	0	0
2897:	0	0	0	0	0	0	1	0
2905:	0	0	0	0	0	1	0	0
2913:	0	1	0	1	0	0	0	0
2921:	0	0	0	0	0	0	0	1
2929:	0	0	1	0	0	1	0	1
2937:	1	0	0	0	1	0	0	0
2945:	0	1	0	1	0	0	0	0
2953:	1	0	1	0	0	0	0	0

2961:	1	0	0	0	0	0	0	0

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Channel								
2969:	0	1	0	0	0	0	0	0
2977:	1	0	0	0	0	0	0	0
2985:	0	0	0	1	0	0	0	0
2993:	0	0	0	0	0	0	0	1
3001:	0	0	0	0	0	0	1	0
3009:	0	0	0	0	0	0	0	1
3017:	0	0	0	0	0	0	1	1
3025:	0	0	0	1	0	0	0	1
3033:	0	0	1	0	0	0	1	0
3041:	0	0	0	0	0	0	0	0
3049:	0	1	1	0	0	0	0	1
3057:	1	0	1	1	0	0	0	0
3065:	0	1	0	0	0	0	0	1
3073:	0	0	0	0	0	0	0	0
3081:	0	0	0	0	0	0	0	0
3089:	0	0	0	0	0	0	0	0
3097:	0	0	0	0	0	0	0	0
3105:	0	0	0	0	0	0	1	0
3113:	1	0	0	0	0	0	0	0
3121:	0	0	0	0	0	1	0	0
3129:	0	1	0	0	0	0	0	0
3137:	2	0	0	0	1	0	0	0
3145:	1	0	0	0	0	0	0	0
3153:	0	0	0	0	0	0	0	0
3161:	0	0	0	0	0	1	0	0
3169:	0	0	0	1	0	0	0	0
3177:	0	0	1	1	0	0	0	0
3185:	0	0	0	0	0	0	0	0
3193:	0	0	2	0	0	0	0	0
3201:	0	0	0	0	0	0	0	0
3209:	1	0	0	0	0	0	0	0
3217:	0	0	0	0	0	0	0	0
3225:	0	0	1	0	0	1	0	0
3233:	0	0	0	0	0	1	0	0
3241:	0	0	0	0	0	0	3	0
3249:	0	1	1	0	1	0	0	0
3257:	1	0	0	0	0	0	1	0
3265:	0	0	0	0	1	0	0	0
3273:	0	0	0	0	0	0	0	0
3281:	0	0	0	0	0	0	0	0
3289:	0	1	0	0	0	0	0	0
3297:	0	0	0	0	0	0	1	0
3305:	0	1	2	0	0	0	0	1
3313:	1	0	0	0	0	0	0	0
3321:	0	0	0	0	0	0	0	0
3329:	0	0	0	0	0	0	0	0
3337:	0	0	2	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	1	0
3369:	0	0	0	0	0	0	0	0
3377:	0	0	0	2	0	0	0	1
3385:	0	0	0	0	0	0	0	0

3393:	1	0	0	0	0	0	0	0

Sample Title: HTC-A01-S005-4248-01

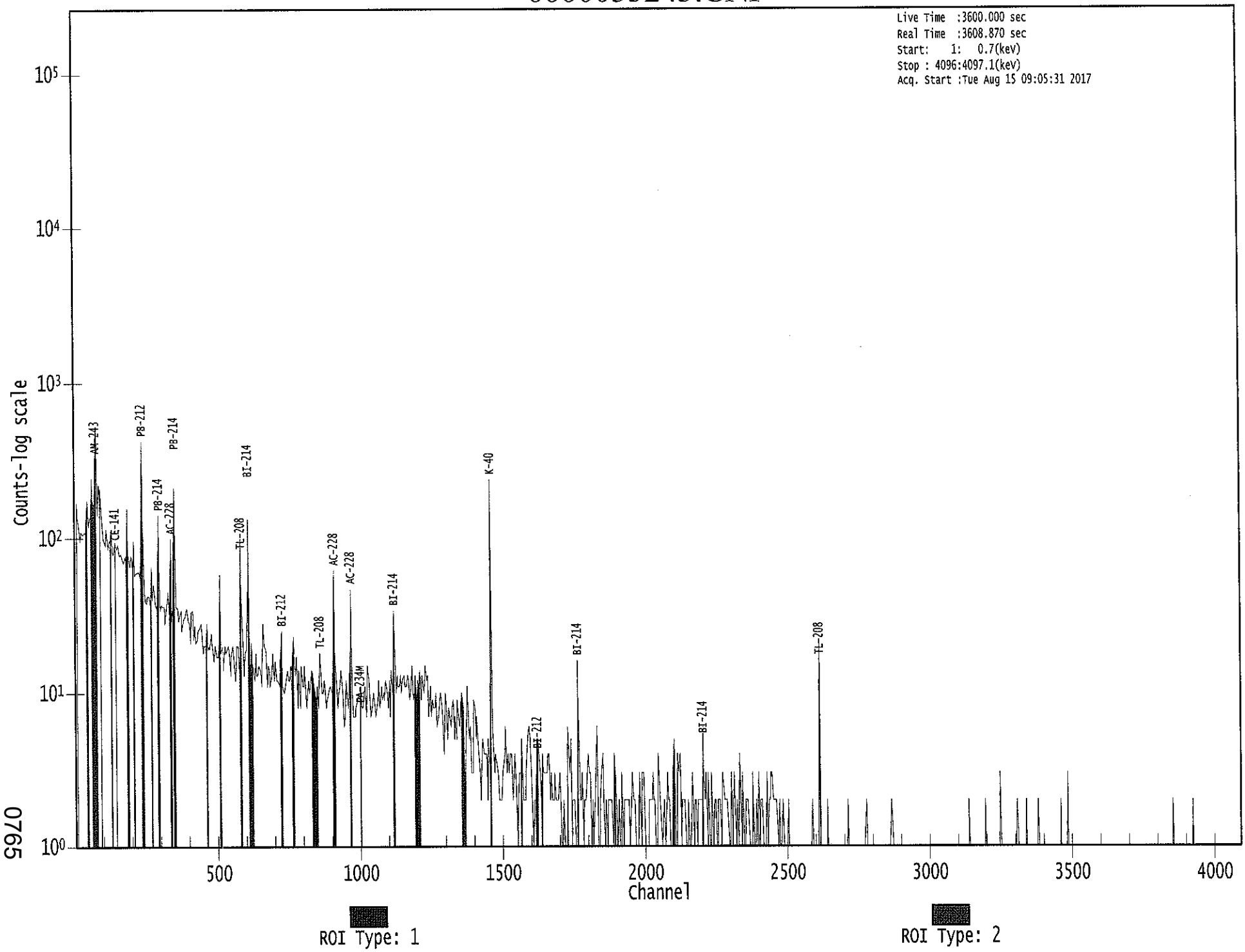
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	1	0	0	0	1	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	1	1	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	1	1	0	0	0	0
3449:	1	0	0	1	0	0	0	0
3457:	0	0	0	2	0	0	0	0
3465:	0	0	0	0	0	1	0	0
3473:	0	0	0	1	0	0	0	0
3481:	0	0	0	3	0	0	0	0
3489:	0	0	1	0	0	0	0	0
3497:	0	0	0	0	1	0	0	0
3505:	0	0	0	0	0	0	0	1
3513:	0	0	0	0	0	0	0	0
3521:	0	1	0	0	0	0	1	0
3529:	0	0	1	0	0	0	0	0
3537:	0	0	0	0	0	0	0	1
3545:	0	0	0	0	0	0	0	0
3553:	0	0	0	0	0	1	1	0
3561:	0	0	0	0	0	0	0	0
3569:	0	0	0	0	0	0	0	0
3577:	1	0	0	0	0	1	0	0
3585:	0	0	1	0	0	0	1	0
3593:	0	0	0	0	0	0	0	1
3601:	0	0	0	0	0	0	0	0
3609:	0	1	0	0	0	0	0	0
3617:	0	0	0	0	0	0	0	0
3625:	0	0	1	0	0	0	0	0
3633:	0	0	1	0	0	0	0	0
3641:	0	0	0	0	0	1	0	0
3649:	0	0	0	0	0	0	0	0
3657:	1	0	0	0	0	0	0	0
3665:	0	0	0	0	0	0	0	1
3673:	0	0	0	0	1	0	0	0
3681:	0	0	0	0	0	0	0	0
3689:	0	1	0	0	1	0	0	0
3697:	0	0	0	0	0	0	1	0
3705:	0	0	0	0	0	0	0	0
3713:	0	0	0	0	0	0	0	0
3721:	0	0	0	0	0	0	0	0
3729:	0	0	0	0	0	0	1	1
3737:	0	0	0	1	0	0	0	0
3745:	0	1	0	0	0	0	0	0
3753:	0	0	0	0	0	0	0	0
3761:	0	0	0	0	0	0	0	0
3769:	0	0	1	0	0	0	0	0
3777:	0	0	0	0	0	0	0	0
3785:	0	0	0	0	0	0	0	0
3793:	0	0	0	0	0	0	0	0
3801:	0	0	1	0	0	0	0	0
3809:	0	0	0	0	0	1	0	0
3817:	0	0	0	0	0	1	0	0

3825:	0	0	0	1	0	0	0	1

Sample Title: HTC-A01-S005-4248-01

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

0000055243.CNF



0765

Apex-Gamma

8/15

Analysis Report for 1707082-14

HTC-A01-S006-0006-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707082-14
Sample Description	: HTC-A01-S006-0006-01
Sample Type	: SOIL
Sample Size	: 6.055E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 6:36:13AM
Acquisition Started	: 8/15/2017 9:05:38AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3607.8 seconds
Dead Time	: 0.22 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 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	: 55244

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/16/17

Analysis Report for 1707082-14

HTC-A01-S006-0006-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/15/2017 10:06:18AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	62.60	61.65	0.0000	0.00
2	76.11	75.17	0.0000	0.00
3	87.14	86.20	0.0000	0.00
4	89.94	89.00	0.0000	0.00
5	93.08	92.14	0.0000	0.00
6	129.92	128.99	0.0000	0.00
7	185.24	184.33	0.0000	0.00
8	238.78	237.89	0.0000	0.00
9	242.19	241.30	0.0000	0.00
10	270.08	269.20	0.0000	0.00
11	277.19	276.32	0.0000	0.00
12	295.26	294.39	0.0000	0.00
13	300.81	299.94	0.0000	0.00
14	324.52	323.66	0.0000	0.00
15	328.14	327.28	0.0000	0.00
16	338.12	337.27	0.0000	0.00
17	352.05	351.20	0.0000	0.00
18	463.72	462.90	0.0000	0.00
19	511.95	511.15	0.0000	0.00
20	561.83	561.05	0.0000	0.00
21	582.96	582.19	0.0000	0.00
22	609.05	608.29	0.0000	0.00
23	662.56	661.82	0.0000	0.00
24	727.92	727.21	0.0000	0.00
25	832.84	832.17	0.0000	0.00
26	859.70	859.04	0.0000	0.00
27	911.05	910.42	0.0000	0.00
28	968.34	967.73	0.0000	0.00
29	975.70	975.10	0.0000	0.00
30	1064.02	1063.45	0.0000	0.00
31	1081.01	1080.45	0.0000	0.00
32	1092.80	1092.24	0.0000	0.00
33	1119.94	1119.40	0.0000	0.00
34	1210.72	1210.22	0.0000	0.00
35	1237.72	1237.24	0.0000	0.00
36	1460.60	1460.22	0.0000	0.00
37	1749.18	1748.96	0.0000	0.00
38	1764.88	1764.67	0.0000	0.00
39	2030.80	2030.74	0.0000	0.00
40	2038.42	2038.36	0.0000	0.00
41	2103.68	2103.67	0.0000	0.00
42	2281.82	2281.92	0.0000	0.00

Analysis Report for 1707082-14

HTC-A01-S006-0006-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	2614.30	2614.61	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707082-14

HTC-A01-S006-0006-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 10:06:18AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	62.60	58 -	66	61.65	1.49E+02	108.51	1.73E+03	3.71
	2	76.11	69 -	81	75.17	1.02E+03	160.09	2.51E+03	4.11
M	3	87.14	82 -	95	86.20	1.83E+02	84.80	1.10E+03	2.18
m	4	89.94	82 -	95	89.00	1.31E+02	86.99	1.04E+03	2.19
m	5	93.08	82 -	95	92.14	2.04E+02	83.43	9.80E+02	2.19
	6	129.92	125 -	134	128.99	9.14E+01	92.56	1.16E+03	2.39
	7	185.24	179 -	189	184.33	1.62E+02	87.78	9.42E+02	2.54
M	8	238.78	233 -	246	237.89	5.63E+02	70.34	4.65E+02	2.42
m	9	242.19	233 -	246	241.30	1.50E+02	75.34	4.50E+02	2.82
	10	270.08	266 -	273	269.20	4.84E+01	51.88	4.17E+02	2.39
	11	277.19	274 -	279	276.32	4.12E+01	42.08	3.22E+02	1.27
M	12	295.26	289 -	302	294.39	1.88E+02	49.26	3.22E+02	2.49
m	13	300.81	289 -	302	299.94	7.24E+01	34.41	1.85E+02	2.18
M	14	324.52	322 -	331	323.66	3.21E+01	19.31	7.54E+01	2.36
m	15	328.14	322 -	331	327.28	4.54E+01	45.24	2.77E+02	2.89
	16	338.12	332 -	343	337.27	1.52E+02	59.73	3.63E+02	2.94
	17	352.05	347 -	355	351.20	2.39E+02	57.45	3.62E+02	2.86
	18	463.72	459 -	466	462.90	3.40E+01	35.89	1.92E+02	2.62
	19	511.95	504 -	518	511.15	1.42E+02	55.87	2.65E+02	3.66
	20	561.83	559 -	564	561.05	2.25E+01	23.11	8.70E+01	1.35
	21	582.96	576 -	587	582.19	1.32E+02	51.38	2.64E+02	2.02
	22	609.05	603 -	612	608.29	1.82E+02	39.13	1.15E+02	2.20
	23	662.56	658 -	666	661.82	3.00E+01	31.10	1.30E+02	3.67
	24	727.92	721 -	733	727.21	6.19E+01	41.63	1.72E+02	3.00
	25	832.84	822 -	844	832.17	6.29E+01	53.78	1.96E+02	15.49
	26	859.70	855 -	862	859.04	2.31E+01	21.73	6.19E+01	2.73
	27	911.05	905 -	917	910.42	8.75E+01	39.57	1.43E+02	2.88
M	28	968.34	962 -	977	967.73	3.95E+01	35.61	1.35E+02	3.95
m	29	975.70	962 -	977	975.10	1.77E+01	18.06	4.15E+01	3.24
	30	1064.02	1059 -	1067	1063.45	2.37E+01	18.93	4.07E+01	3.01
	31	1081.01	1077 -	1083	1080.45	1.85E+01	18.53	4.90E+01	3.11
	32	1092.80	1088 -	1097	1092.24	3.10E+01	23.32	6.00E+01	4.86
	33	1119.94	1115 -	1124	1119.40	2.93E+01	29.21	1.05E+02	2.79
	34	1210.72	1204 -	1214	1210.22	4.23E+01	26.56	7.15E+01	4.66
	35	1237.72	1233 -	1240	1237.24	2.09E+01	24.25	8.41E+01	3.81
	36	1460.60	1454 -	1466	1460.22	4.50E+02	44.96	2.53E+01	2.80
	37	1749.18	1746 -	1752	1748.96	6.56E+00	6.65	2.88E+00	1.11
	38	1764.88	1759 -	1770	1764.67	2.83E+01	12.65	5.48E+00	2.33
	39	2030.80	2026 -	2033	2030.74	5.75E+00	6.93	4.50E+00	1.20
	40	2038.42	2035 -	2041	2038.36	1.10E+01	6.63	0.00E+00	4.59

Analysis Report for 1707082-14

HTC-A01-S006-0006-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	2103.68	2099 -	2108	2103.67	8.00E+00	10.10	1.00E+01	1.75
42	2281.82	2277 -	2285	2281.92	8.68E+00	8.02	4.64E+00	3.69
43	2614.30	2609 -	2618	2614.61	5.42E+01	15.91	5.51E+00	2.81

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 10:06:18AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	62.60	58 -	66	1.49E+02	108.51	1.73E+03	8.69E+01
	2	76.11	69 -	81	1.02E+03	160.09	2.51E+03	1.21E+02
M	3	87.14	82 -	95	1.83E+02	84.80	1.10E+03	5.46E+01
m	4	89.94	82 -	95	1.31E+02	86.99	1.04E+03	5.30E+01
m	5	93.08	82 -	95	2.04E+02	83.43	9.80E+02	5.15E+01
	6	129.92	125 -	134	9.14E+01	92.56	1.16E+03	7.44E+01
	7	185.24	179 -	189	1.62E+02	87.78	9.42E+02	6.90E+01
M	8	238.78	233 -	246	5.63E+02	70.34	4.65E+02	3.54E+01
m	9	242.19	233 -	246	1.50E+02	75.34	4.50E+02	3.49E+01
	10	270.08	266 -	273	4.84E+01	51.88	4.17E+02	4.11E+01
	11	277.19	274 -	279	4.12E+01	42.08	3.22E+02	3.29E+01
M	12	295.26	289 -	302	1.88E+02	49.26	3.22E+02	2.95E+01
m	13	300.81	289 -	302	7.24E+01	34.41	1.85E+02	2.24E+01
M	14	324.52	322 -	331	3.21E+01	19.31	7.54E+01	1.43E+01
m	15	328.14	322 -	331	4.54E+01	45.24	2.77E+02	2.74E+01
	16	338.12	332 -	343	1.52E+02	59.73	3.63E+02	4.47E+01
	17	352.05	347 -	355	2.39E+02	57.45	3.62E+02	3.98E+01
	18	463.72	459 -	466	3.40E+01	35.89	1.92E+02	2.79E+01
	19	511.95	504 -	518	1.42E+02	55.87	2.65E+02	4.15E+01
	20	561.83	559 -	564	2.25E+01	23.11	8.70E+01	1.73E+01
	21	582.96	576 -	587	1.32E+02	51.38	2.64E+02	3.78E+01
	22	609.05	603 -	612	1.82E+02	39.13	1.15E+02	2.33E+01
	23	662.56	658 -	666	3.00E+01	31.10	1.30E+02	2.39E+01
	24	727.92	721 -	733	6.19E+01	41.63	1.72E+02	3.17E+01

Analysis Report for 1707082-14

HTC-A01-S006-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	25	832.84	822 -	844	6.29E+01	53.78	1.96E+02	4.22E+01
	26	859.70	855 -	862	2.31E+01	21.73	6.19E+01	1.60E+01
	27	911.05	905 -	917	8.75E+01	39.57	1.43E+02	2.87E+01
M	28	968.34	962 -	977	3.95E+01	35.61	1.35E+02	1.91E+01
m	29	975.70	962 -	977	1.77E+01	18.06	4.15E+01	1.06E+01
	30	1064.02	1059 -	1067	2.37E+01	18.93	4.07E+01	1.33E+01
	31	1081.01	1077 -	1083	1.85E+01	18.53	4.90E+01	1.35E+01
	32	1092.80	1088 -	1097	3.10E+01	23.32	6.00E+01	1.68E+01
	33	1119.94	1115 -	1124	2.93E+01	29.21	1.05E+02	2.23E+01
	34	1210.72	1204 -	1214	4.23E+01	26.56	7.15E+01	1.90E+01
	35	1237.72	1233 -	1240	2.09E+01	24.25	8.41E+01	1.85E+01
	36	1460.60	1454 -	1466	4.50E+02	44.96	2.53E+01	1.22E+01
	37	1749.18	1746 -	1752	6.56E+00	6.65	2.88E+00	3.49E+00
	38	1764.88	1759 -	1770	2.83E+01	12.65	5.48E+00	5.63E+00
	39	2030.80	2026 -	2033	5.75E+00	6.93	4.50E+00	4.11E+00
	40	2038.42	2035 -	2041	1.10E+01	6.63	0.00E+00	0.00E+00
	41	2103.68	2099 -	2108	8.00E+00	10.10	1.00E+01	6.88E+00
	42	2281.82	2277 -	2285	8.68E+00	8.02	4.64E+00	4.47E+00
	43	2614.30	2609 -	2618	5.42E+01	15.91	5.51E+00	4.93E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/15/2017 10:06:18AM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	62.60	58 -	66	61.65	1.49E+02	108.51	1.73E+03	TH-230 TH-234
	2	76.11	69 -	81	75.17	1.02E+03	160.09	2.51E+03	.....
M	3	87.14	82 -	95	86.20	1.83E+02	84.80	1.10E+03	SN-126 NP-237 EU-155

Analysis Report for 1707082-14

HTC-A01-S006-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									CD-109
m	4	89.94	82 -	95	89.00	1.31E+02	86.99	1.04E+03	.....
m	5	93.08	82 -	95	92.14	2.04E+02	83.43	9.80E+02	GA-67
	6	129.92	125 -	134	128.99	9.14E+01	92.56	1.16E+03	.....
	7	185.24	179 -	189	184.33	1.62E+02	87.78	9.42E+02	HO-166M
									RA-226
M	8	238.78	233 -	246	237.89	5.63E+02	70.34	4.65E+02	PB-212
m	9	242.19	233 -	246	241.30	1.50E+02	75.34	4.50E+02	.....
	10	270.08	266 -	273	269.20	4.84E+01	51.88	4.17E+02	.....
	11	277.19	274 -	279	276.32	4.12E+01	42.08	3.22E+02	CM-243
									NP-239
M	12	295.26	289 -	302	294.39	1.88E+02	49.26	3.22E+02	PB-214
m	13	300.81	289 -	302	299.94	7.24E+01	34.41	1.85E+02	GA-67
									PB-212
									BI-210M
M	14	324.52	322 -	331	323.66	3.21E+01	19.31	7.54E+01	RA-223
m	15	328.14	322 -	331	327.28	4.54E+01	45.24	2.77E+02	LA-140
	16	338.12	332 -	343	337.27	1.52E+02	59.73	3.63E+02	AC-228
	17	352.05	347 -	355	351.20	2.39E+02	57.45	3.62E+02	PB-214
	18	463.72	459 -	466	462.90	3.40E+01	35.89	1.92E+02	SB-125
	19	511.95	504 -	518	511.15	1.42E+02	55.87	2.65E+02	.....
	20	561.83	559 -	564	561.05	2.25E+01	23.11	8.70E+01	.....
	21	582.96	576 -	587	582.19	1.32E+02	51.38	2.64E+02	TL-208
	22	609.05	603 -	612	608.29	1.82E+02	39.13	1.15E+02	BI-214
	23	662.56	658 -	666	661.82	3.00E+01	31.10	1.30E+02	CS-137
	24	727.92	721 -	733	727.21	6.19E+01	41.63	1.72E+02	BI-212
	25	832.84	822 -	844	832.17	6.29E+01	53.78	1.96E+02	PB-211
	26	859.70	855 -	862	859.04	2.31E+01	21.73	6.19E+01	TL-208
	27	911.05	905 -	917	910.42	8.75E+01	39.57	1.43E+02	AC-228
									TL-204
M	28	968.34	962 -	977	967.73	3.95E+01	35.61	1.35E+02	AC-228
m	29	975.70	962 -	977	975.10	1.77E+01	18.06	4.15E+01	.....
	30	1064.02	1059 -	1067	1063.45	2.37E+01	18.93	4.07E+01	BI-207
	31	1081.01	1077 -	1083	1080.45	1.85E+01	18.53	4.90E+01	.....
	32	1092.80	1088 -	1097	1092.24	3.10E+01	23.32	6.00E+01	LU-172
	33	1119.94	1115 -	1124	1119.40	2.93E+01	29.21	1.05E+02	BI-214
									SC-46
	34	1210.72	1204 -	1214	1210.22	4.23E+01	26.56	7.15E+01	.....
	35	1237.72	1233 -	1240	1237.24	2.09E+01	24.25	8.41E+01	CO-56
	36	1460.60	1454 -	1466	1460.22	4.50E+02	44.96	2.53E+01	K-40
	37	1749.18	1746 -	1752	1748.96	6.56E+00	6.65	2.88E+00	.....
	38	1764.88	1759 -	1770	1764.67	2.83E+01	12.65	5.48E+00	BI-214
	39	2030.80	2026 -	2033	2030.74	5.75E+00	6.93	4.50E+00	.....
	40	2038.42	2035 -	2041	2038.36	1.10E+01	6.63	0.00E+00	.....
	41	2103.68	2099 -	2108	2103.67	8.00E+00	10.10	1.00E+01	.....
	42	2281.82	2277 -	2285	2281.92	8.68E+00	8.02	4.64E+00	.....
	43	2614.30	2609 -	2618	2614.61	5.42E+01	15.91	5.51E+00	TL-208

Analysis Report for 1707082-14

HTC-A01-S006-0006-01

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 : 8/15/2017 10:06:18AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	62.60	1.49E+02	108.51	2.14E-02	1.62E-03
	2	76.11	1.02E+03	160.09	2.32E-02	1.91E-03
M	3	87.14	1.83E+02	84.80	2.37E-02	2.15E-03
m	4	89.94	1.31E+02	86.99	2.37E-02	2.14E-03
m	5	93.08	2.04E+02	83.43	2.37E-02	2.09E-03
	6	129.92	9.14E+01	92.56	2.15E-02	1.62E-03
	7	185.24	1.62E+02	87.78	1.70E-02	1.40E-03
M	8	238.78	5.63E+02	70.34	1.36E-02	1.14E-03
m	9	242.19	1.50E+02	75.34	1.34E-02	1.13E-03
	10	270.08	4.84E+01	51.88	1.21E-02	9.91E-04
	11	277.19	4.12E+01	42.08	1.18E-02	9.56E-04
M	12	295.26	1.88E+02	49.26	1.10E-02	9.13E-04
m	13	300.81	7.24E+01	34.41	1.08E-02	9.01E-04
M	14	324.52	3.21E+01	19.31	1.00E-02	8.52E-04
m	15	328.14	4.54E+01	45.24	9.91E-03	8.44E-04
	16	338.12	1.52E+02	59.73	9.60E-03	8.23E-04
	17	352.05	2.39E+02	57.45	9.21E-03	7.94E-04
	18	463.72	3.40E+01	35.89	6.93E-03	6.81E-04
	19	511.95	1.42E+02	55.87	6.27E-03	6.61E-04
	20	561.83	2.25E+01	23.11	5.71E-03	6.40E-04
	21	582.96	1.32E+02	51.38	5.51E-03	6.31E-04
	22	609.05	1.82E+02	39.13	5.28E-03	6.21E-04
	23	662.56	3.00E+01	31.10	4.86E-03	5.98E-04
	24	727.92	6.19E+01	41.63	4.45E-03	5.16E-04
	25	832.84	6.29E+01	53.78	3.93E-03	3.84E-04
	26	859.70	2.31E+01	21.73	3.81E-03	3.50E-04
	27	911.05	8.75E+01	39.57	3.62E-03	2.99E-04
M	28	968.34	3.95E+01	35.61	3.43E-03	2.85E-04
m	29	975.70	1.77E+01	18.06	3.40E-03	2.84E-04
	30	1064.02	2.37E+01	18.93	3.15E-03	2.63E-04
	31	1081.01	1.85E+01	18.53	3.11E-03	2.59E-04
	32	1092.80	3.10E+01	23.32	3.08E-03	2.56E-04
	33	1119.94	2.93E+01	29.21	3.02E-03	2.50E-04
	34	1210.72	4.23E+01	26.56	2.82E-03	2.35E-04

Analysis Report for 1707082-14

HTC-A01-S006-0006-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
35	1237.72	2.09E+01	24.25	2.76E-03	2.33E-04
36	1460.60	4.50E+02	44.96	2.39E-03	2.08E-04
37	1749.18	6.56E+00	6.65	2.02E-03	1.64E-04
38	1764.88	2.83E+01	12.65	2.00E-03	1.62E-04
39	2030.80	5.75E+00	6.93	1.73E-03	1.51E-04
40	2038.42	1.10E+01	6.63	1.72E-03	1.51E-04
41	2103.68	8.00E+00	10.10	1.67E-03	1.51E-04
42	2281.82	8.68E+00	8.02	1.52E-03	1.51E-04
43	2614.30	5.42E+01	15.91	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 : 8/15/2017 10:06:18AM

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	62.60	1.49E+02	108.51	5.43E+01	8.76E+00	9.51E+01	1.09E+02
	2	76.11	1.02E+03	160.09	1.43E+01	8.48E+00	1.01E+03	1.60E+02
M	3	87.14	1.83E+02	84.80			1.83E+02	8.48E+01
m	4	89.94	1.31E+02	86.99			1.31E+02	8.70E+01
m	5	93.08	2.04E+02	83.43	6.28E+01	7.82E+00	1.41E+02	8.38E+01
	6	129.92	9.14E+01	92.56			9.14E+01	9.26E+01
	7	185.24	1.62E+02	87.78	2.54E+01	6.86E+00	1.37E+02	8.80E+01
M	8	238.78	5.63E+02	70.34	8.10E+00	6.12E+00	5.55E+02	7.06E+01
m	9	242.19	1.50E+02	75.34			1.50E+02	7.53E+01
	10	270.08	4.84E+01	51.88	4.54E+00	5.58E+00	4.39E+01	5.22E+01
	11	277.19	4.12E+01	42.08			4.12E+01	4.21E+01
M	12	295.26	1.88E+02	49.26			1.88E+02	4.93E+01
m	13	300.81	7.24E+01	34.41			7.24E+01	3.44E+01
M	14	324.52	3.21E+01	19.31			3.21E+01	1.93E+01
m	15	328.14	4.54E+01	45.24			4.54E+01	4.52E+01
	16	338.12	1.52E+02	59.73			1.52E+02	5.97E+01
	17	352.05	2.39E+02	57.45			2.39E+02	5.74E+01
	18	463.72	3.40E+01	35.89			3.40E+01	3.59E+01
	19	511.95	1.42E+02	55.87	3.93E+01	5.03E+00	1.02E+02	5.61E+01
	20	561.83	2.25E+01	23.11			2.25E+01	2.31E+01
	21	582.96	1.32E+02	51.38			1.32E+02	5.14E+01

Analysis Report for 1707082-14

HTC-A01-S006-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	22	609.05	1.82E+02	39.13			1.82E+02	3.91E+01
	23	662.56	3.00E+01	31.10	9.72E-01	3.37E+00	2.90E+01	3.13E+01
	24	727.92	6.19E+01	41.63			6.19E+01	4.16E+01
	25	832.84	6.29E+01	53.78			6.29E+01	5.38E+01
	26	859.70	2.31E+01	21.73			2.31E+01	2.17E+01
	27	911.05	8.75E+01	39.57	5.69E-01	2.37E+00	8.69E+01	3.96E+01
M	28	968.34	3.95E+01	35.61			3.95E+01	3.56E+01
m	29	975.70	1.77E+01	18.06			1.77E+01	1.81E+01
	30	1064.02	2.37E+01	18.93	4.88E-01	1.52E+00	2.32E+01	1.90E+01
	31	1081.01	1.85E+01	18.53			1.85E+01	1.85E+01
	32	1092.80	3.10E+01	23.32			3.10E+01	2.33E+01
	33	1119.94	2.93E+01	29.21			2.93E+01	2.92E+01
	34	1210.72	4.23E+01	26.56			4.23E+01	2.66E+01
	35	1237.72	2.09E+01	24.25			2.09E+01	2.42E+01
	36	1460.60	4.50E+02	44.96	1.35E+00	1.57E+00	4.49E+02	4.50E+01
	37	1749.18	6.56E+00	6.65			6.56E+00	6.65E+00
	38	1764.88	2.83E+01	12.65			2.83E+01	1.26E+01
	39	2030.80	5.75E+00	6.93			5.75E+00	6.93E+00
	40	2038.42	1.10E+01	6.63			1.10E+01	6.63E+00
	41	2103.68	8.00E+00	10.10			8.00E+00	1.01E+01
	42	2281.82	8.68E+00	8.02			8.68E+00	8.02E+00
	43	2614.30	5.42E+01	15.91			5.42E+01	1.59E+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 : 8/15/2017 10:06:18AM

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	62.60	1.49E+02	108.51	5.43E+01	8.76E+00	9.51E+01	1.09E+02
	2	76.11	1.02E+03	160.09	1.43E+01	8.48E+00	1.01E+03	1.60E+02
M	3	87.14	1.83E+02	84.80			1.83E+02	8.48E+01
m	4	89.94	1.31E+02	86.99			1.31E+02	8.70E+01
m	5	93.08	2.04E+02	83.43	6.28E+01	7.82E+00	1.41E+02	8.38E+01
	6	129.92	9.14E+01	92.56			9.14E+01	9.26E+01

Analysis Report for 1707082-14

HTC-A01-S006-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	7	185.24	1.62E+02	87.78	2.54E+01	6.86E+00	1.37E+02	8.80E+01
M	8	238.78	5.63E+02	70.34	8.10E+00	6.12E+00	5.55E+02	7.06E+01
m	9	242.19	1.50E+02	75.34			1.50E+02	7.53E+01
	10	270.08	4.84E+01	51.88	4.54E+00	5.58E+00	4.39E+01	5.22E+01
	11	277.19	4.12E+01	42.08			4.12E+01	4.21E+01
M	12	295.26	1.88E+02	49.26			1.88E+02	4.93E+01
m	13	300.81	7.24E+01	34.41			7.24E+01	3.44E+01
M	14	324.52	3.21E+01	19.31			3.21E+01	1.93E+01
m	15	328.14	4.54E+01	45.24			4.54E+01	4.52E+01
	16	338.12	1.52E+02	59.73			1.52E+02	5.97E+01
	17	352.05	2.39E+02	57.45			2.39E+02	5.74E+01
	18	463.72	3.40E+01	35.89			3.40E+01	3.59E+01
	19	511.95	1.42E+02	55.87	3.93E+01	5.03E+00	1.02E+02	5.61E+01
	20	561.83	2.25E+01	23.11			2.25E+01	2.31E+01
	21	582.96	1.32E+02	51.38			1.32E+02	5.14E+01
	22	609.05	1.82E+02	39.13			1.82E+02	3.91E+01
	23	662.56	3.00E+01	31.10	9.72E-01	3.37E+00	2.90E+01	3.13E+01
	24	727.92	6.19E+01	41.63			6.19E+01	4.16E+01
	25	832.84	6.29E+01	53.78			6.29E+01	5.38E+01
	26	859.70	2.31E+01	21.73			2.31E+01	2.17E+01
	27	911.05	8.75E+01	39.57	5.69E-01	2.37E+00	8.69E+01	3.96E+01
M	28	968.34	3.95E+01	35.61			3.95E+01	3.56E+01
m	29	975.70	1.77E+01	18.06			1.77E+01	1.81E+01
	30	1064.02	2.37E+01	18.93	4.88E-01	1.52E+00	2.32E+01	1.90E+01
	31	1081.01	1.85E+01	18.53			1.85E+01	1.85E+01
	32	1092.80	3.10E+01	23.32			3.10E+01	2.33E+01
	33	1119.94	2.93E+01	29.21			2.93E+01	2.92E+01
	34	1210.72	4.23E+01	26.56			4.23E+01	2.66E+01
	35	1237.72	2.09E+01	24.25			2.09E+01	2.42E+01
	36	1460.60	4.50E+02	44.96	1.35E+00	1.57E+00	4.49E+02	4.50E+01
	37	1749.18	6.56E+00	6.65			6.56E+00	6.65E+00
	38	1764.88	2.83E+01	12.65			2.83E+01	1.26E+01
	39	2030.80	5.75E+00	6.93			5.75E+00	6.93E+00
	40	2038.42	1.10E+01	6.63			1.10E+01	6.63E+00
	41	2103.68	8.00E+00	10.10			8.00E+00	1.01E+01
	42	2281.82	8.68E+00	8.02			8.68E+00	8.02E+00
	43	2614.30	5.42E+01	15.91			5.42E+01	1.59E+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 1707082-14

HTC-A01-S006-0006-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.993	1460.81	*	10.67	2.19E+01	2.94E+00
CD-109	0.880	88.03	*	3.72	2.96E+00	1.41E+00
SN-126	0.971	87.57	*	37.00	2.58E-01	1.22E-01
CS-137	0.877	661.65	*	85.12	8.75E-02	9.49E-02
EU-155	0.324	86.50	*	30.90	3.21E-01	1.52E-01
		105.30		20.70		
TL-208	0.983	583.14	*	30.22	9.83E-01	3.99E-01
		860.37	*	4.48	1.67E+00	1.58E+00
		2614.66	*	35.85	1.47E+00	4.63E-01
BI-212	0.705	727.17	*	11.80	1.46E+00	9.98E-01
		1620.62		2.75		
PB-212	0.991	238.63	*	44.60	1.14E+00	1.73E-01
		300.09	*	3.41	2.43E+00	1.17E+00
BI-214	0.923	609.31	*	46.30	9.22E-01	2.26E-01
		1120.29	*	15.10	7.97E-01	7.98E-01
		1764.49	*	15.80	1.11E+00	5.05E-01
		2204.22		4.98		
PB-214	0.998	295.21	*	19.19	1.10E+00	3.03E-01
		351.92	*	37.19	8.65E-01	2.21E-01
RA-223	0.934	323.87	*	3.88	1.02E+00	6.22E-01
RA-226	0.861	186.21	*	3.28	3.04E+00	5.91E+00
AC-228	0.971	338.32	*	11.40	1.72E+00	6.92E-01
		911.07	*	27.70	1.08E+00	4.98E-01
		969.11	*	16.60	8.62E-01	7.79E-01
TH-234	0.926	63.29	*	3.80	1.45E+00	1.66E+00
NP-237	0.938	86.50	*	12.60	7.59E-01	3.59E-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 10:06:18AM
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 1707082-14

HTC-A01-S006-0006-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	76.11	2.79835E-01	7.96		
m	4	89.94	3.63670E-02	33.22		
m	5	93.08	3.92588E-02	29.64	Tol.	GA-67
	6	129.92	2.53890E-02	50.63		
m	9	242.19	4.16158E-02	25.14		
	10	270.08	1.21907E-02	59.45		
	11	277.19	1.14508E-02	51.04	Tol.	NP-239 CM-243
m	15	328.14	1.26011E-02	49.86	Tol.	LA-140
	18	463.72	9.44444E-03	52.78	Tol.	SB-125
	19	511.95	2.84468E-02	27.39		
	20	561.83	6.25421E-03	51.32		
	25	832.84	1.74672E-02	42.76	Tol.	PB-211
m	29	975.70	4.92573E-03	50.91		
	30	1064.02	6.43654E-03	40.97	Tol.	BI-207
	31	1081.01	5.13889E-03	50.09		
	32	1092.80	8.61111E-03	37.62	Tol.	LU-172
	34	1210.72	1.17415E-02	31.41		
	35	1237.72	5.81349E-03	57.93		
	37	1749.18	1.82292E-03	50.68		
	39	2030.80	1.59722E-03	60.25	Sum	
	40	2038.42	3.05556E-03	30.15		
	41	2103.68	2.22222E-03	63.12	S-Esc	
	42	2281.82	2.41162E-03	46.16		

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	2.19E+01	2.94E+00
CD-109	0.88	88.03	*	3.72	2.96E+00	1.41E+00
SN-126	0.97	87.57	*	37.00	2.58E-01	1.22E-01
CS-137	0.87	661.65	*	85.12	8.75E-02	9.49E-02

Analysis Report for 1707082-14

HTC-A01-S006-0006-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
EU-155	0.32	86.50	*	30.90	3.21E-01	1.52E-01
		105.30		20.70		
TL-208	0.98	583.14	*	30.22	9.83E-01	3.99E-01
		860.37	*	4.48	1.67E+00	1.58E+00
		2614.66	*	35.85	1.47E+00	4.63E-01
BI-212	0.70	727.17	*	11.80	1.46E+00	9.98E-01
		1620.62		2.75		
PB-212	0.99	238.63	*	44.60	1.14E+00	1.73E-01
		300.09	*	3.41	2.43E+00	1.17E+00
BI-214	0.92	609.31	*	46.30	9.22E-01	2.26E-01
		1120.29	*	15.10	7.97E-01	7.98E-01
		1764.49	*	15.80	1.11E+00	5.05E-01
		2204.22		4.98		
PB-214	0.99	295.21	*	19.19	1.10E+00	3.03E-01
		351.92	*	37.19	8.65E-01	2.21E-01
RA-223	0.93	323.87	*	3.88	1.02E+00	6.22E-01
RA-226	0.86	186.21	*	3.28	3.04E+00	5.91E+00
AC-228	0.97	338.32	*	11.40	1.72E+00	6.92E-01
		911.07	*	27.70	1.08E+00	4.98E-01
		969.11	*	16.60	8.62E-01	7.79E-01
TH-234	0.92	63.29	*	3.80	1.45E+00	1.66E+00
NP-237	0.93	86.50	*	12.60	7.59E-01	3.59E-01

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.993	2.19E+01	2.94E+00	
?	CD-109	0.880	2.96E+00	1.41E+00	
?	SN-126	0.971	2.58E-01	1.22E-01	
	CS-137	0.877	8.75E-02	9.49E-02	
?	EU-155	0.324	3.21E-01	1.52E-01	

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	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	TL-208	0.983	1.21E+00	2.97E-01	
	BI-212	0.705	1.46E+00	9.98E-01	
	PB-212	0.991	1.16E+00	1.71E-01	
	BI-214	0.923	9.43E-01	2.00E-01	
	PB-214	0.998	9.48E-01	1.78E-01	
	RA-223	0.934	1.02E+00	6.22E-01	
	RA-226	0.861	3.04E+00	5.91E+00	
	AC-228	0.971	1.20E+00	3.59E-01	
	TH-234	0.926	1.45E+00	1.66E+00	
?	NP-237	0.938	7.59E-01	3.59E-01	

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

Errors quoted at 2.000sigma

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UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 10:06:18AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	76.11	2.79835E-01	7.96		
m	4	89.94	3.63670E-02	33.22		
m	5	93.08	3.92588E-02	29.64	Tol.	GA-67
	6	129.92	2.53890E-02	50.63		
m	9	242.19	4.16158E-02	25.14		
	10	270.08	1.21907E-02	59.45		
	11	277.19	1.14508E-02	51.04	Tol.	NP-239 CM-243
m	15	328.14	1.26011E-02	49.86	Tol.	LA-140
	18	463.72	9.44444E-03	52.78	Tol.	SB-125
	19	511.95	2.84468E-02	27.39		
	20	561.83	6.25421E-03	51.32		
	25	832.84	1.74672E-02	42.76	Tol.	PB-211
m	29	975.70	4.92573E-03	50.91		
	30	1064.02	6.43654E-03	40.97	Tol.	BI-207
	31	1081.01	5.13889E-03	50.09		
	32	1092.80	8.61111E-03	37.62	Tol.	LU-172
	34	1210.72	1.17415E-02	31.41		
	35	1237.72	5.81349E-03	57.93		
	37	1749.18	1.82292E-03	50.68		
	39	2030.80	1.59722E-03	60.25	Sum	
	40	2038.42	3.05556E-03	30.15		
	41	2103.68	2.22222E-03	63.12	S-Esc	
	42	2281.82	2.41162E-03	46.16		

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 1707082-14

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NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	-1.41E-01	2.69E+00	2.69E+00
+		NA-22	1274.54		99.94	-4.04E-02	1.51E-01	1.51E-01
+	@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@		2754.09		99.86	1.00E+26		1.00E+26
+		AL-26	1808.65		99.76	-2.55E-02	4.69E-02	4.69E-02
+		K-40	1460.81	*	10.67	2.19E+01	1.34E+00	1.34E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	-7.13E-03	7.84E-02	7.84E-02
			78.34		96.00	4.08E-01		1.01E-01
+		SC-46	889.25		99.98	-2.04E-03	2.43E-01	2.43E-01
			1120.51		99.99	2.52E-01		3.90E-01
+		V-48	983.52		99.98	2.18E+00	7.32E+00	7.32E+00
			1312.10		97.50	-5.82E-01		8.60E+00
+		CR-51	320.08		9.83	-3.92E-01	7.19E+00	7.19E+00
+		MN-54	834.83		99.97	-6.82E-02	1.56E-01	1.56E-01
+		CO-56	846.75		99.96	-3.28E-02	2.54E-01	2.54E-01
			1037.75		14.03	2.66E-01		2.30E+00
			1238.25		67.00	3.96E-02		6.76E-01
			1771.40		15.51	-1.23E-01		1.21E+00
			2598.48		16.90	1.30E-01		9.58E-01
+		CO-57	122.06		85.51	2.74E-02	8.32E-02	8.32E-02
			136.48		10.60	1.09E-01		6.71E-01
+		CO-58	810.76		99.40	4.16E-02	2.95E-01	2.95E-01
+		FE-59	1099.22		56.50	2.80E-01	1.05E+00	1.05E+00
			1291.56		43.20	-2.06E-01		1.37E+00
+		CO-60	1173.22		100.00	-3.34E-02	1.52E-01	1.55E-01
			1332.49		100.00	-2.03E-02		1.52E-01
+		ZN-65	1115.52		50.75	1.61E-02	4.02E-01	4.02E-01
+		GA-67	93.31		35.70	1.10E+08	9.71E+07	9.71E+07
			208.95		2.24	4.83E+08		1.52E+09
			300.22		16.00	-3.85E+08		2.55E+08
+		SE-75	121.11		16.70	-1.73E-01	1.63E-01	5.60E-01
			136.00		59.20	2.55E-03		1.63E-01
			264.65		59.80	-4.49E-02		1.89E-01
			279.53		25.20	6.35E-02		5.22E-01
			400.65		11.40	-1.76E-01		1.20E+00
+		RB-82	776.52		13.00	-5.28E+00	1.12E+01	1.12E+01
+		RB-83	520.41		46.00	-7.21E-02	3.55E-01	3.55E-01
			529.64		30.30	-3.39E-02		5.40E-01
			552.65		16.40	-3.97E-01		1.11E+00
+		KR-85	513.99		0.43	3.67E+01	2.93E+01	2.93E+01
+		SR-85	513.99		99.27	4.31E-01	3.45E-01	3.45E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	Y-88	898.02		93.40	-3.34E-03	1.29E-01	2.36E-01
		1836.01		99.38	-5.59E-02		1.29E-01
+	MO-93	263.06		56.72	-4.79E-02	1.01E-01	1.19E-01
		684.67		99.68	3.93E-02		1.15E-01
		1477.11		99.08	1.77E-02		1.01E-01
+	NB-93M	16.57		9.43	1.60E+01	7.89E+00	7.89E+00
+	NB-94	702.63		100.00	-3.55E-02	1.13E-01	1.16E-01
		871.10		100.00	-3.93E-02		1.13E-01
+	NB-95	765.79		99.81	-4.16E-03	8.20E-01	8.20E-01
+	NB-95M	235.69		25.00	5.68E+07	3.17E+07	3.17E+07
+	ZR-95	724.18		43.70	9.12E-02	6.07E-01	9.06E-01
		756.72		55.30	-1.63E-01		6.07E-01
+	MO-99	181.06		6.20	5.85E+08	2.05E+10	2.05E+10
		739.58		12.80	1.43E+10		2.08E+10
		778.00		4.50	-3.45E+10		4.98E+10
+	RU-103	497.08		89.00	-1.13E-01	4.78E-01	4.78E-01
+	RU-106	621.84		9.80	-6.68E-01	1.15E+00	1.15E+00
+	AG-108M	433.93		89.90	-3.64E-02	8.49E-02	8.49E-02
		614.37		90.40	1.62E-02		1.03E-01
		722.95		90.50	2.56E-02		1.47E-01
+	CD-109	88.03	*	3.72	2.96E+00	3.52E+00	3.52E+00
+	AG-110M	657.75		93.14	-4.28E-02	1.50E-01	1.50E-01
		677.61		10.53	-2.05E-01		1.35E+00
		706.67		16.46	-1.11E-02		9.37E-01
		763.93		21.98	-5.67E-01		7.03E-01
		884.67		71.63	6.37E-03		2.09E-01
		1384.27		23.94	-2.98E-01		6.59E-01
+	CD-113M	263.70		0.02	-1.27E+02	2.83E+02	2.83E+02
+	SN-113	255.12		1.93	-2.26E+00	1.96E-01	5.97E+00
		391.69		64.90	-6.08E-02		1.96E-01
+	TE123M	159.00		84.10	-8.47E-02	1.20E-01	1.20E-01
+	SB-124	602.71		97.87	1.66E-02	2.83E-01	2.83E-01
		645.85		7.26	-4.91E-01		3.51E+00
		722.78		11.10	6.16E-01		3.54E+00
		1691.02		49.00	-2.67E-01		5.39E-01
+	I-125	35.49		6.49	-3.97E+00	5.12E+00	5.12E+00
+	SB-125	176.33		6.89	2.10E-01	2.82E-01	9.63E-01
		427.89		29.33	-6.74E-02		2.82E-01
		463.38		10.35	6.81E-01		1.00E+00
		600.56		17.80	2.24E-02		5.26E-01
		635.90		11.32	-8.08E-02		8.67E-01
+	SB-126	414.70		83.30	-3.69E-01	1.92E+01	1.92E+01
		666.33		99.60	9.93E-01		2.28E+01
		695.00		99.60	4.11E-01		2.24E+01
		720.50		53.80	-1.19E+01		4.01E+01
+	SN-126	87.57	*	37.00	2.58E-01	3.08E-01	3.08E-01
+	SB-127	473.00		25.00	2.99E+06	7.26E+06	8.11E+06
		685.20		35.70	2.47E+06		7.26E+06

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		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		SB-127	783.80		14.70	1.40E+06	7.26E+06	1.99E+07
+		I-129	29.78		57.00	1.01E-01	2.80E-01	2.80E-01
			33.60		13.20	-1.81E-01		9.43E-01
			39.58		7.52	1.55E-01		1.33E+00
+		I-131	284.30		6.05	-5.28E+02	3.11E+02	3.83E+03
			364.48		81.20	7.01E+01		3.11E+02
			636.97		7.26	-1.11E+03		4.14E+03
			722.89		1.80	4.29E+03		2.47E+04
+		TE-132	49.72		13.10	1.25E+08	4.00E+07	3.16E+08
			228.16		88.00	1.39E+06		4.00E+07
+		BA-133	81.00		33.00	-4.36E-01	1.76E-01	2.29E-01
			302.84		17.80	-6.50E-03		4.54E-01
			356.01		60.00	4.60E-02		1.76E-01
+	@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+		XE-133	81.00		38.00	-9.45E+04	4.96E+04	4.96E+04
+		CS-134	563.23		8.38	-1.85E-02	1.18E-01	1.22E+00
			569.32		15.43	1.94E-01		6.30E-01
			604.70		97.60	-1.47E-03		1.18E-01
			795.84		85.40	6.08E-02		1.72E-01
			801.93		8.73	-8.29E-01		1.44E+00
+		CS-135	268.24		16.00	3.92E-02	4.74E-01	4.74E-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	2.60E+01	1.66E+01	1.17E+02
			163.89		4.61	6.59E+01		1.90E+02
			176.55		13.56	1.69E+01		6.54E+01
			273.65		12.66	-4.82E+01		8.45E+01
			340.57		48.50	2.81E+01		2.69E+01
			818.50		99.70	1.01E+01		1.66E+01
			1048.07		79.60	1.96E-01		2.38E+01
			1235.34		19.70	-1.73E+00		1.33E+02
+		CS-137	661.65	*	85.12	8.75E-02	1.54E-01	1.54E-01
+		LA-138	788.74		34.00	-3.52E-02	1.86E-01	3.96E-01
			1435.80		66.00	-2.12E-02		1.86E-01
+		CE-139	165.85		80.35	6.27E-02	1.24E-01	1.24E-01
+		BA-140	162.64		6.70	3.89E+01	5.68E+01	1.50E+02
			304.84		4.50	4.22E+01		2.69E+02
			423.70		3.20	-2.41E+00		4.06E+02
			437.55		2.00	2.44E+02		6.91E+02
			537.32		25.00	-2.52E+00		5.68E+01
+		LA-140	328.77		20.50	5.42E+00	2.23E+01	6.28E+01
			487.03		45.50	5.37E+00		3.06E+01
			815.85		23.50	4.90E+01		8.46E+01
			1596.49		95.49	-5.61E-01		2.23E+01
+		CE-141	145.44		48.40	7.09E-02	8.96E-01	8.96E-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

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CE-144	133.54		10.80	-3.09E-02	6.63E-01	6.63E-01
+	PM-144	476.78		42.00	3.07E-02	1.17E-01	2.43E-01
		618.01		98.60	2.10E-02		1.17E-01
		696.49		99.49	2.17E-03		1.40E-01
+	PM-145	36.85		21.70	1.59E-01	2.72E-01	5.09E-01
		37.36		39.70	8.50E-02		2.72E-01
		42.30		15.10	-5.19E-01		6.17E-01
		72.40		2.31	-7.06E+00		3.71E+00
+	PM-146	453.90		39.94	-2.53E-02	2.12E-01	2.12E-01
		735.90		14.01	-2.43E-02		8.93E-01
		747.13		13.10	-2.77E-01		9.81E-01
+	ND-147	91.11		28.90	1.80E+02	1.00E+02	1.00E+02
		531.02		13.10	-1.80E+01		2.24E+02
+	PM-149	285.90		3.10	1.17E+12	1.45E+13	1.45E+13
+	EU-152	121.78		20.50	9.08E-02	2.76E-01	2.76E-01
		244.69		5.40	-2.00E+00		1.45E+00
		344.27		19.13	5.20E-02		3.59E-01
		778.89		9.20	-3.21E-01		1.28E+00
		964.01		10.40	2.23E-01		1.58E+00
		1085.78		7.22	2.16E-01		1.87E+00
		1112.02		9.60	-1.60E-01		1.39E+00
		1407.95		14.94	2.87E-01		9.90E-01
+	GD-153	97.43		31.30	1.03E-01	2.54E-01	2.54E-01
		103.18		22.20	-4.71E-02		3.31E-01
+	EU-154	123.07		40.50	4.35E-02	1.40E-01	1.40E-01
		723.30		19.70	7.44E-02		7.40E-01
		873.19		11.50	-1.94E-02		1.06E+00
		996.32		10.30	2.11E-01		1.32E+00
		1004.76		17.90	-3.29E-01		7.15E-01
		1274.45		35.50	-1.08E-01		4.05E-01
+	EU-155	86.50	*	30.90	3.21E-01	2.80E-01	3.82E-01
		105.30		20.70	-8.71E-03		2.80E-01
+	EU-156	811.77		10.40	-5.21E+01	8.03E+01	8.03E+01
		1153.47		7.20	-1.84E+01		1.47E+02
		1230.71		8.90	7.97E+00		1.32E+02
+	HO-166M	184.41		72.60	1.58E-01	1.03E-01	1.03E-01
		280.45		29.60	5.31E-02		2.54E-01
		410.94		11.10	3.84E-01		7.70E-01
		711.69		54.10	2.10E-01		2.29E-01
+	TM-171	66.72		0.14	-5.31E+00	5.88E+01	5.88E+01
+	HF-172	67.35		5.31	-1.40E-01	5.79E-01	1.55E+00
		125.81		11.30	1.75E-01		5.79E-01
+	LU-172	181.53		20.60	-8.20E+03	4.20E+03	5.38E+03
		900.72		29.81	1.47E+03		7.17E+03
		1093.66		62.50	2.59E+03		4.20E+03
+	LU-173	100.72		5.24	-1.17E-01	4.14E-01	1.21E+00
		272.11		21.20	1.36E-01		4.14E-01
+	HF-175	343.40		84.00	2.96E-02	2.04E-01	2.04E-01
+	LU-176	88.34		13.30	2.01E-01	7.65E-02	5.56E-01

Analysis Report for 1707082-14

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LU-176	201.83		86.00	4.97E-02	7.65E-02	8.16E-02
		306.78		94.00	6.72E-03		7.65E-02
+	HF-181	133.02		41.70	1.42E-01	4.61E-01	6.66E-01
		345.85		17.20	2.68E-01		1.85E+00
		482.03		82.80	-5.41E-02		4.61E-01
+	TA-182	67.75		41.20	-2.88E-02	3.17E-01	3.17E-01
		1121.30		34.90	8.37E-01		9.30E-01
		1189.05		16.23	6.77E-01		1.82E+00
		1221.41		26.98	5.57E-01		1.10E+00
		1231.02		11.44	2.78E-01		2.48E+00
+	IR-192	308.46		29.68	4.03E-02	4.52E-01	5.72E-01
		468.07		48.10	1.46E-02		4.52E-01
+	HG-203	279.19		77.30	-1.93E-02	4.00E-01	4.00E-01
+	TL-204	374.74		94.11	-1.43E-03	7.91E-02	7.91E-02
		899.15		99.16	2.05E-02		1.29E-01
		911.74		91.10	2.39E-01		2.19E-01
+	BI-207	569.67		97.72	2.83E-02	9.17E-02	9.17E-02
		1063.62		74.90	7.64E-02		1.77E-01
+	TL-208	583.14	*	30.22	9.83E-01	3.40E-01	5.83E-01
		860.37	*	4.48	1.67E+00		2.52E+00
		2614.66	*	35.85	1.47E+00		3.40E-01
+	BI-210M	262.00		45.00	-6.68E-03	1.49E-01	1.49E-01
		300.00		23.00	-5.48E-01		3.62E-01
+	PB-210	46.50		4.25	1.54E+00	2.13E+00	2.13E+00
+	PB-211	404.84		2.90	4.49E-01	2.83E+00	2.83E+00
		831.96		2.90	1.17E+00		4.56E+00
+	BI-212	727.17	*	11.80	1.46E+00	1.56E+00	1.56E+00
		1620.62		2.75	-4.43E-01		4.05E+00
+	PB-212	238.63	*	44.60	1.14E+00	2.91E-01	2.91E-01
		300.09	*	3.41	2.43E+00		3.89E+00
+	BI-214	609.31	*	46.30	9.22E-01	2.51E-01	2.51E-01
		1120.29	*	15.10	7.97E-01		1.29E+00
		1764.49	*	15.80	1.11E+00		5.49E-01
		2204.22		4.98	-3.15E-01		2.74E+00
+	PB-214	295.21	*	19.19	1.10E+00	2.98E-01	6.98E-01
		351.92	*	37.19	8.65E-01		2.98E-01
+	RN-219	401.80		6.50	3.47E-01	1.25E+00	1.25E+00
+	RA-223	323.87	*	3.88	1.02E+00	2.20E+00	2.20E+00
+	RA-224	240.98		3.95	1.44E+01	3.29E+00	3.29E+00
+	RA-225	40.00		31.00	3.05E+00	2.60E+01	2.60E+01
+	RA-226	186.21	*	3.28	3.04E+00	3.17E+00	3.17E+00
+	TH-227	50.10		8.40	3.89E-01	9.77E-01	9.86E-01
		236.00		11.50	1.75E+00		9.77E-01
		256.20		6.30	5.62E-01		1.09E+00
+	AC-228	338.32	*	11.40	1.72E+00	7.45E-01	1.04E+00
		911.07	*	27.70	1.08E+00		7.45E-01
		969.11	*	16.60	8.62E-01		1.53E+00
+	TH-230	48.44		16.90	2.22E-01	5.08E-01	5.08E-01

Analysis Report for 1707082-14

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TH-230	62.85		4.60	2.07E+00	5.08E-01	1.73E+00
		67.67		0.37	-1.82E+00		2.00E+01
+	PA-231	283.67		1.60	-5.96E-01	3.45E+00	4.32E+00
		302.67		2.30	-4.94E-02		3.45E+00
+	TH-231	25.64		14.70	2.71E-01	1.05E+00	1.57E+00
		84.21		6.40	-1.33E+00		1.05E+00
+	PA-233	311.98		38.60	-5.36E-01	1.95E+00	1.95E+00
+	PA-234	131.20		20.40	3.32E-01	3.05E-01	3.05E-01
		733.99		8.80	-4.52E-01		1.36E+00
		946.00		12.00	-2.81E-01		1.06E+00
+	PA-234M	1001.03		0.92	9.77E+00	1.44E+01	1.44E+01
+	TH-234	63.29	*	3.80	1.45E+00	2.73E+00	2.73E+00
+	U-235	143.76		10.50	-1.06E-01	5.46E-01	5.46E-01
		163.35		4.70	3.39E-01		1.30E+00
		205.31		4.70	-1.67E+00		1.43E+00
+	NP-237	86.50	*	12.60	7.59E-01	9.04E-01	9.04E-01
+	NP-239	106.10		22.70	9.20E+10	2.65E+11	2.65E+11
		228.18		10.70	2.47E+10		7.13E+11
		277.60		14.10	3.05E+11		5.86E+11
+	AM-241	59.54		35.90	2.55E-02	2.15E-01	2.15E-01
+	AM-243	74.67		66.00	6.44E-01	1.55E-01	1.55E-01
+	CM-243	209.75		3.29	1.29E+00	5.52E-01	2.14E+00
		228.14		10.60	2.33E-02		6.74E-01
		277.60		14.00	2.87E-01		5.52E-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 1707082-14

HTC-A01-S006-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	2.69E+00	2.69E+00	-1.41E-01	1.26E+00
	NA-22	1274.54		99.94	1.51E-01	1.51E-01	-4.04E-02	6.89E-02
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	4.69E-02	4.69E-02	-2.55E-02	1.48E-02
+	K-40	1460.81	*	10.67	1.34E+00	1.34E+00	2.19E+01	6.05E-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	7.84E-02	7.84E-02	-7.13E-03	3.84E-02
		78.34		96.00	1.01E-01		4.08E-01	4.99E-02
	SC-46	889.25		99.98	2.43E-01	2.43E-01	-2.04E-03	1.11E-01
		1120.51		99.99	3.90E-01		2.52E-01	1.83E-01
	V-48	983.52		99.98	7.32E+00	7.32E+00	2.18E+00	3.37E+00
		1312.10		97.50	8.60E+00		-5.82E-01	3.91E+00
	CR-51	320.08		9.83	7.19E+00	7.19E+00	-3.92E-01	3.42E+00
	MN-54	834.83		99.97	1.56E-01	1.56E-01	-6.82E-02	7.26E-02
	CO-56	846.75		99.96	2.54E-01	2.54E-01	-3.28E-02	1.17E-01
		1037.75		14.03	2.30E+00		2.66E-01	1.06E+00
		1238.25		67.00	6.76E-01		3.96E-02	3.17E-01
		1771.40		15.51	1.21E+00		-1.23E-01	4.78E-01
		2598.48		16.90	9.58E-01		1.30E-01	3.03E-01
	CO-57	122.06		85.51	8.32E-02	8.32E-02	2.74E-02	4.05E-02
		136.48		10.60	6.71E-01		1.09E-01	3.26E-01
	CO-58	810.76		99.40	2.95E-01	2.95E-01	4.16E-02	1.37E-01
	FE-59	1099.22		56.50	1.05E+00	1.05E+00	2.80E-01	4.82E-01
		1291.56		43.20	1.37E+00		-2.06E-01	6.22E-01
	CO-60	1173.22		100.00	1.55E-01	1.52E-01	-3.34E-02	7.14E-02
		1332.49		100.00	1.52E-01		-2.03E-02	6.92E-02
	ZN-65	1115.52		50.75	4.02E-01	4.02E-01	1.61E-02	1.87E-01
	GA-67	93.31		35.70	9.71E+07	9.71E+07	1.10E+08	4.76E+07
		208.95		2.24	1.52E+09		4.83E+08	7.36E+08
		300.22		16.00	2.55E+08		-3.85E+08	1.23E+08
	SE-75	121.11		16.70	5.60E-01	1.63E-01	-1.73E-01	2.72E-01
		136.00		59.20	1.63E-01		2.55E-03	7.94E-02
		264.65		59.80	1.89E-01		-4.49E-02	9.07E-02
		279.53		25.20	5.22E-01		6.35E-02	2.51E-01
		400.65		11.40	1.20E+00		-1.76E-01	5.70E-01
	RB-82	776.52		13.00	1.12E+01	1.12E+01	-5.28E+00	5.19E+00
	RB-83	520.41		46.00	3.55E-01	3.55E-01	-7.21E-02	1.65E-01
		529.64		30.30	5.40E-01		-3.39E-02	2.51E-01
		552.65		16.40	1.11E+00		-3.97E-01	5.17E-01
	KR-85	513.99		0.43	2.93E+01	2.93E+01	3.67E+01	1.40E+01
	SR-85	513.99		99.27	3.45E-01	3.45E-01	4.31E-01	1.65E-01
	Y-88	898.02		93.40	2.36E-01	1.29E-01	-3.34E-03	1.09E-01
		1836.01		99.38	1.29E-01		-5.59E-02	4.82E-02
	MO-93	263.06		56.72	1.19E-01	1.01E-01	-4.79E-02	5.70E-02
		684.67		99.68	1.15E-01		3.93E-02	5.41E-02
		1477.11		99.08	1.01E-01		1.77E-02	4.34E-02
	NB-93M	16.57		9.43	7.89E+00	7.89E+00	1.60E+01	3.82E+00
	NB-94	702.63		100.00	1.16E-01	1.13E-01	-3.55E-02	5.43E-02
		871.10		100.00	1.13E-01		-3.93E-02	5.19E-02
	NB-95	765.79		99.81	8.20E-01	8.20E-01	-4.16E-03	3.84E-01
	NB-95M	235.69		25.00	3.17E+07	3.17E+07	5.68E+07	1.55E+07
	ZR-95	724.18		43.70	9.06E-01	6.07E-01	9.12E-02	4.29E-01

Analysis Report for 1707082-14

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	ZR-95	756.72		55.30	6.07E-01	6.07E-01	-1.63E-01	2.84E-01
	MO-99	181.06		6.20	2.05E+10	2.05E+10	5.85E+08	9.92E+09
		739.58		12.80	2.08E+10		1.43E+10	9.80E+09
		778.00		4.50	4.98E+10		-3.45E+10	2.31E+10
	RU-103	497.08		89.00	4.78E-01	4.78E-01	-1.13E-01	2.23E-01
	RU-106	621.84		9.80	1.15E+00	1.15E+00	-6.68E-01	5.35E-01
	AG-108M	433.93		89.90	8.49E-02	8.49E-02	-3.64E-02	3.99E-02
		614.37		90.40	1.03E-01		1.62E-02	4.77E-02
		722.95		90.50	1.47E-01		2.56E-02	6.95E-02
+	CD-109	88.03	*	3.72	3.52E+00	3.52E+00	2.96E+00	1.74E+00
	AG-110M	657.75		93.14	1.50E-01	1.50E-01	-4.28E-02	7.02E-02
		677.61		10.53	1.35E+00		-2.05E-01	6.30E-01
		706.67		16.46	9.37E-01		-1.11E-02	4.39E-01
		763.93		21.98	7.03E-01		-5.67E-01	3.28E-01
		884.67		71.63	2.09E-01		6.37E-03	9.65E-02
		1384.27		23.94	6.59E-01		-2.98E-01	2.93E-01
	CD-113M	263.70		0.02	2.83E+02	2.83E+02	-1.27E+02	1.36E+02
	SN-113	255.12		1.93	5.97E+00	1.96E-01	-2.26E+00	2.86E+00
		391.69		64.90	1.96E-01		-6.08E-02	9.25E-02
	TE123M	159.00		84.10	1.20E-01	1.20E-01	-8.47E-02	5.84E-02
	SB-124	602.71		97.87	2.83E-01	2.83E-01	1.66E-02	1.32E-01
		645.85		7.26	3.51E+00		-4.91E-01	1.62E+00
		722.78		11.10	3.54E+00		6.16E-01	1.67E+00
		1691.02		49.00	5.39E-01		-2.67E-01	2.21E-01
	I-125	35.49		6.49	5.12E+00	5.12E+00	-3.97E+00	2.49E+00
	SB-125	176.33		6.89	9.63E-01	2.82E-01	2.10E-01	4.67E-01
		427.89		29.33	2.82E-01		-6.74E-02	1.33E-01
		463.38		10.35	1.00E+00		6.81E-01	4.75E-01
		600.56		17.80	5.26E-01		2.24E-02	2.44E-01
		635.90		11.32	8.67E-01		-8.08E-02	4.02E-01
	SB-126	414.70		83.30	1.92E+01	1.92E+01	-3.69E-01	9.12E+00
		666.33		99.60	2.28E+01		9.93E-01	1.07E+01
		695.00		99.60	2.24E+01		4.11E-01	1.05E+01
		720.50		53.80	4.01E+01		-1.19E+01	1.87E+01
+	SN-126	87.57	*	37.00	3.08E-01	3.08E-01	2.58E-01	1.52E-01
	SB-127	473.00		25.00	8.11E+06	7.26E+06	2.99E+06	3.83E+06
		685.20		35.70	7.26E+06		2.47E+06	3.40E+06
		783.80		14.70	1.99E+07		1.40E+06	9.31E+06
	I-129	29.78		57.00	2.80E-01	2.80E-01	1.01E-01	1.36E-01
		33.60		13.20	9.43E-01		-1.81E-01	4.59E-01
		39.58		7.52	1.33E+00		1.55E-01	6.46E-01
	I-131	284.30		6.05	3.83E+03	3.11E+02	-5.28E+02	1.84E+03
		364.48		81.20	3.11E+02		7.01E+01	1.48E+02
		636.97		7.26	4.14E+03		-1.11E+03	1.91E+03
		722.89		1.80	2.47E+04		4.29E+03	1.17E+04
	TE-132	49.72		13.10	3.16E+08	4.00E+07	1.25E+08	1.55E+08
		228.16		88.00	4.00E+07		1.39E+06	1.94E+07
	BA-133	81.00		33.00	2.29E-01	1.76E-01	-4.36E-01	1.12E-01
		302.84		17.80	4.54E-01		-6.50E-03	2.18E-01
		356.01		60.00	1.76E-01		4.60E-02	8.51E-02
@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	XE-133	81.00		38.00	4.96E+04	4.96E+04	-9.45E+04	2.43E+04
	CS-134	563.23		8.38	1.22E+00	1.18E-01	-1.85E-02	5.70E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CS-134	569.32		15.43	6.30E-01	1.18E-01	1.94E-01	2.94E-01
		604.70		97.60	1.18E-01		-1.47E-03	5.53E-02
		795.84		85.40	1.72E-01		6.08E-02	8.10E-02
		801.93		8.73	1.44E+00		-8.29E-01	6.69E-01
	CS-135	268.24		16.00	4.74E-01	4.74E-01	3.92E-02	2.28E-01
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	1.17E+02	1.66E+01	2.60E+01	5.70E+01
		163.89		4.61	1.90E+02		6.59E+01	9.23E+01
		176.55		13.56	6.54E+01		1.69E+01	3.17E+01
		273.65		12.66	8.45E+01		-4.82E+01	4.07E+01
		340.57		48.50	2.69E+01		2.81E+01	1.29E+01
		818.50		99.70	1.66E+01		1.01E+01	7.72E+00
		1048.07		79.60	2.38E+01		1.96E-01	1.09E+01
		1235.34		19.70	1.33E+02		-1.73E+00	6.21E+01
+	CS-137	661.65	*	85.12	1.54E-01	1.54E-01	8.75E-02	7.28E-02
	LA-138	788.74		34.00	3.96E-01	1.86E-01	-3.52E-02	1.86E-01
		1435.80		66.00	1.86E-01		-2.12E-02	8.27E-02
	CE-139	165.85		80.35	1.24E-01	1.24E-01	6.27E-02	6.02E-02
	BA-140	162.64		6.70	1.50E+02	5.68E+01	3.89E+01	7.27E+01
		304.84		4.50	2.69E+02		4.22E+01	1.29E+02
		423.70		3.20	4.06E+02		-2.41E+00	1.92E+02
		437.55		2.00	6.91E+02		2.44E+02	3.27E+02
		537.32		25.00	5.68E+01		-2.52E+00	2.66E+01
	LA-140	328.77		20.50	6.28E+01	2.23E+01	5.42E+00	3.00E+01
		487.03		45.50	3.06E+01		5.37E+00	1.44E+01
		815.85		23.50	8.46E+01		4.90E+01	3.94E+01
		1596.49		95.49	2.23E+01		-5.61E-01	9.83E+00
	CE-141	145.44		48.40	8.96E-01	8.96E-01	7.09E-02	4.35E-01
@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		293.26		42.00	1.00E+26		1.00E+26	1.00E+20
@		664.55		5.20	1.00E+26		1.00E+26	1.00E+20
	CE-144	133.54		10.80	6.63E-01	6.63E-01	-3.09E-02	3.22E-01
	PM-144	476.78		42.00	2.43E-01	1.17E-01	3.07E-02	1.14E-01
		618.01		98.60	1.17E-01		2.10E-02	5.47E-02
		696.49		99.49	1.40E-01		2.17E-03	6.57E-02
	PM-145	36.85		21.70	5.09E-01	2.72E-01	1.59E-01	2.48E-01
		37.36		39.70	2.72E-01		8.50E-02	1.32E-01
		42.30		15.10	6.17E-01		-5.19E-01	3.01E-01
		72.40		2.31	3.71E+00		-7.06E+00	1.82E+00
	PM-146	453.90		39.94	2.12E-01	2.12E-01	-2.53E-02	9.98E-02
		735.90		14.01	8.93E-01		-2.43E-02	4.18E-01
		747.13		13.10	9.81E-01		-2.77E-01	4.60E-01
	ND-147	91.11		28.90	1.00E+02	1.00E+02	1.80E+02	4.92E+01
		531.02		13.10	2.24E+02		-1.80E+01	1.04E+02
	PM-149	285.90		3.10	1.45E+13	1.45E+13	1.17E+12	6.96E+12
	EU-152	121.78		20.50	2.76E-01	2.76E-01	9.08E-02	1.34E-01
		244.69		5.40	1.45E+00		-2.00E+00	7.03E-01
		344.27		19.13	3.59E-01		5.20E-02	1.70E-01
		778.89		9.20	1.28E+00		-3.21E-01	5.94E-01
		964.01		10.40	1.58E+00		2.23E-01	7.44E-01
		1085.78		7.22	1.87E+00		2.16E-01	8.57E-01

Analysis Report for 1707082-14

HTC-A01-S006-0006-01

	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	1.39E+00	2.76E-01	-1.60E-01	6.35E-01
		1407.95		14.94	9.90E-01		2.87E-01	4.49E-01
	GD-153	97.43		31.30	2.54E-01	2.54E-01	1.03E-01	1.24E-01
		103.18		22.20	3.31E-01		-4.71E-02	1.61E-01
	EU-154	123.07		40.50	1.40E-01	1.40E-01	4.35E-02	6.79E-02
		723.30		19.70	7.40E-01		7.44E-02	3.50E-01
		873.19		11.50	1.06E+00		-1.94E-02	4.91E-01
		996.32		10.30	1.32E+00		2.11E-01	6.11E-01
		1004.76		17.90	7.15E-01		-3.29E-01	3.29E-01
		1274.45		35.50	4.05E-01		-1.08E-01	1.85E-01
+	EU-155	86.50	*	30.90	3.82E-01	2.80E-01	3.21E-01	1.89E-01
		105.30		20.70	2.80E-01		-8.71E-03	1.36E-01
	EU-156	811.77		10.40	8.03E+01	8.03E+01	-5.21E+01	3.72E+01
		1153.47		7.20	1.47E+02		-1.84E+01	6.78E+01
		1230.71		8.90	1.32E+02		7.97E+00	6.11E+01
	HO-166M	184.41		72.60	1.03E-01	1.03E-01	1.58E-01	5.00E-02
		280.45		29.60	2.54E-01		5.31E-02	1.22E-01
		410.94		11.10	7.70E-01		3.84E-01	3.66E-01
		711.69		54.10	2.29E-01		2.10E-01	1.08E-01
	TM-171	66.72		0.14	5.88E+01	5.88E+01	-5.31E+00	2.88E+01
	HF-172	67.35		5.31	1.55E+00	5.79E-01	-1.40E-01	7.58E-01
		125.81		11.30	5.79E-01		1.75E-01	2.82E-01
	LU-172	181.53		20.60	5.38E+03	4.20E+03	-8.20E+03	2.61E+03
		900.72		29.81	7.17E+03		1.47E+03	3.33E+03
		1093.66		62.50	4.20E+03		2.59E+03	1.95E+03
	LU-173	100.72		5.24	1.21E+00	4.14E-01	-1.17E-01	5.90E-01
		272.11		21.20	4.14E-01		1.36E-01	1.99E-01
	HF-175	343.40		84.00	2.04E-01	2.04E-01	2.96E-02	9.68E-02
	LU-176	88.34		13.30	5.56E-01	7.65E-02	2.01E-01	2.73E-01
		201.83		86.00	8.16E-02		4.97E-02	3.96E-02
		306.78		94.00	7.65E-02		6.72E-03	3.66E-02
	HF-181	133.02		41.70	6.66E-01	4.61E-01	1.42E-01	3.24E-01
		345.85		17.20	1.85E+00		2.68E-01	8.78E-01
		482.03		82.80	4.61E-01		-5.41E-02	2.17E-01
	TA-182	67.75		41.20	3.17E-01	3.17E-01	-2.88E-02	1.55E-01
		1121.30		34.90	9.30E-01		8.37E-01	4.37E-01
		1189.05		16.23	1.82E+00		6.77E-01	8.44E-01
		1221.41		26.98	1.10E+00		5.57E-01	5.11E-01
		1231.02		11.44	2.48E+00		2.78E-01	1.15E+00
	IR-192	308.46		29.68	5.72E-01	4.52E-01	4.03E-02	2.73E-01
		468.07		48.10	4.52E-01		1.46E-02	2.14E-01
	HG-203	279.19		77.30	4.00E-01	4.00E-01	-1.93E-02	1.92E-01
	TL-204	374.74		94.11	7.91E-02	7.91E-02	-1.43E-03	3.74E-02
		899.15		99.16	1.29E-01		2.05E-02	5.95E-02
		911.74		91.10	2.19E-01		2.39E-01	1.04E-01
	BI-207	569.67		97.72	9.17E-02	9.17E-02	2.83E-02	4.28E-02
		1063.62		74.90	1.77E-01		7.64E-02	8.14E-02
+	TL-208	583.14	*	30.22	5.83E-01	3.40E-01	9.83E-01	2.82E-01
		860.37	*	4.48	2.52E+00		1.67E+00	1.16E+00
		2614.66	*	35.85	3.40E-01		1.47E+00	1.33E-01
	BI-210M	262.00		45.00	1.49E-01	1.49E-01	-6.68E-03	7.17E-02
		300.00		23.00	3.62E-01		-5.48E-01	1.74E-01
	PB-210	46.50		4.25	2.13E+00	2.13E+00	1.54E+00	1.04E+00

Analysis Report for 1707082-14

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PB-211	404.84		2.90	2.83E+00	2.83E+00	4.49E-01	1.34E+00
		831.96		2.90	4.56E+00		1.17E+00	2.13E+00
+	BI-212	727.17	*	11.80	1.56E+00	1.56E+00	1.46E+00	7.49E-01
		1620.62		2.75	4.05E+00		-4.43E-01	1.74E+00
+	PB-212	238.63	*	44.60	2.91E-01	2.91E-01	1.14E+00	1.43E-01
		300.09	*	3.41	3.89E+00		2.43E+00	1.90E+00
+	BI-214	609.31	*	46.30	2.51E-01	2.51E-01	9.22E-01	1.18E-01
		1120.29	*	15.10	1.29E+00		7.97E-01	6.08E-01
		1764.49	*	15.80	5.49E-01		1.11E+00	2.21E-01
		2204.22		4.98	2.74E+00		-3.15E-01	1.16E+00
+	PB-214	295.21	*	19.19	6.98E-01	2.98E-01	1.10E+00	3.41E-01
		351.92	*	37.19	2.98E-01		8.65E-01	1.44E-01
	RN-219	401.80		6.50	1.25E+00	1.25E+00	3.47E-01	5.92E-01
+	RA-223	323.87	*	3.88	2.20E+00	2.20E+00	1.02E+00	1.06E+00
	RA-224	240.98		3.95	3.29E+00	3.29E+00	1.44E+01	1.61E+00
	RA-225	40.00		31.00	2.60E+01	2.60E+01	3.05E+00	1.27E+01
+	RA-226	186.21	*	3.28	3.17E+00	3.17E+00	3.04E+00	1.55E+00
	TH-227	50.10		8.40	9.86E-01	9.77E-01	3.89E-01	4.82E-01
		236.00		11.50	9.77E-01		1.75E+00	4.78E-01
		256.20		6.30	1.09E+00		5.62E-01	5.26E-01
+	AC-228	338.32	*	11.40	1.04E+00	7.45E-01	1.72E+00	5.07E-01
		911.07	*	27.70	7.45E-01		1.08E+00	3.56E-01
		969.11	*	16.60	1.53E+00		8.62E-01	7.34E-01
	TH-230	48.44		16.90	5.08E-01	5.08E-01	2.22E-01	2.48E-01
		62.85		4.60	1.73E+00		2.07E+00	8.48E-01
		67.67		0.37	2.00E+01		-1.82E+00	9.78E+00
	PA-231	283.67		1.60	4.32E+00	3.45E+00	-5.96E-01	2.07E+00
		302.67		2.30	3.45E+00		-4.94E-02	1.66E+00
	TH-231	25.64		14.70	1.57E+00	1.05E+00	2.71E-01	7.67E-01
		84.21		6.40	1.05E+00		-1.33E+00	5.12E-01
	PA-233	311.98		38.60	1.95E+00	1.95E+00	-5.36E-01	9.29E-01
	PA-234	131.20		20.40	3.05E-01	3.05E-01	3.32E-01	1.49E-01
		733.99		8.80	1.36E+00		-4.52E-01	6.39E-01
		946.00		12.00	1.06E+00		-2.81E-01	4.91E-01
	PA-234M	1001.03		0.92	1.44E+01	1.44E+01	9.77E+00	6.66E+00
+	TH-234	63.29	*	3.80	2.73E+00	2.73E+00	1.45E+00	1.34E+00
	U-235	143.76		10.50	5.46E-01	5.46E-01	-1.06E-01	2.65E-01
		163.35		4.70	1.30E+00		3.39E-01	6.33E-01
		205.31		4.70	1.43E+00		-1.67E+00	6.91E-01
+	NP-237	86.50	*	12.60	9.04E-01	9.04E-01	7.59E-01	4.46E-01
	NP-239	106.10		22.70	2.65E+11	2.65E+11	9.20E+10	1.29E+11
		228.18		10.70	7.13E+11		2.47E+10	3.45E+11
		277.60		14.10	5.86E+11		3.05E+11	2.82E+11
	AM-241	59.54		35.90	2.15E-01	2.15E-01	2.55E-02	1.05E-01
	AM-243	74.67		66.00	1.55E-01	1.55E-01	6.44E-01	7.62E-02
	CM-243	209.75		3.29	2.14E+00	5.52E-01	1.29E+00	1.04E+00
		228.14		10.60	6.74E-01		2.33E-02	3.26E-01
		277.60		14.00	5.52E-01		2.87E-01	2.66E-01

Analysis Report for 1707082-14

HTC-A01-S006-0006-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A01-S006-0006-01

Elapsed Live time: 3600
Elapsed Real Time: 3608

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	9	82
17:	84	87	78	64	60	74	77	51
25:	69	64	72	57	61	69	74	47
33:	64	50	67	69	66	75	82	69
41:	61	74	71	83	97	105	90	87
49:	90	77	91	88	74	82	81	90
57:	95	74	98	120	132	130	149	106
65:	107	99	113	111	110	136	129	138
73:	180	289	261	335	294	129	101	90
81:	85	85	99	101	104	157	151	122
89:	136	116	130	152	134	87	57	76
97:	61	85	85	66	55	60	74	74
105:	74	71	71	56	71	60	56	70
113:	73	71	67	57	56	58	59	63
121:	50	57	67	80	47	69	67	92
129:	92	72	58	67	58	51	57	49
137:	53	58	62	45	58	53	59	62
145:	56	51	45	66	58	57	61	63
153:	61	62	48	65	46	43	46	47
161:	58	64	52	54	50	49	58	46
169:	40	45	51	44	58	50	50	46
177:	54	39	45	44	56	52	51	74
185:	97	85	45	40	44	43	40	40
193:	42	53	47	39	46	50	48	58
201:	48	44	48	52	37	46	33	72
209:	51	50	33	37	35	34	32	33
217:	30	28	51	40	35	42	43	47
225:	40	38	34	48	42	35	33	44
233:	33	45	38	71	184	269	151	93
241:	77	73	36	32	30	22	27	31
249:	31	22	17	33	26	23	29	32
257:	32	38	32	28	22	26	20	27
265:	31	20	34	34	45	45	30	30
273:	19	34	29	36	49	24	30	24
281:	28	29	27	18	24	24	25	26
289:	28	17	25	20	48	100	70	45
297:	26	27	32	48	39	11	24	25
305:	23	22	26	14	26	25	15	20
313:	17	17	22	17	27	22	19	18
321:	11	12	27	21	18	29	27	34
329:	23	19	15	21	23	20	23	35
337:	56	59	40	14	19	13	11	15
345:	18	20	17	17	30	72	105	92
353:	47	21	19	24	23	25	21	11
361:	24	23	20	11	14	17	13	14

369:	17	11	9	20	16	12	11	16

Sample Title: HTC-A01-S006-0006-01

Channel								
377:	17	16	14	14	16	18	20	18
385:	20	12	14	13	8	14	15	14
393:	17	14	20	16	11	17	14	15
401:	16	18	20	15	17	13	17	18
409:	14	22	14	23	14	12	13	22
417:	15	14	16	10	11	12	22	19
425:	10	13	11	15	11	12	15	11
433:	8	9	12	18	17	16	16	15
441:	10	19	18	12	18	11	15	14
449:	19	18	16	11	15	12	7	11
457:	7	17	7	14	11	27	24	21
465:	16	10	14	11	14	17	15	13
473:	14	14	10	9	12	16	13	8
481:	12	10	9	11	13	13	11	13
489:	13	11	10	7	12	10	3	18
497:	12	10	7	11	17	12	10	12
505:	16	9	8	15	29	40	38	30
513:	16	13	15	16	8	9	5	15
521:	8	6	7	10	11	9	4	10
529:	7	6	9	11	9	4	10	12
537:	12	9	13	10	13	8	9	13
545:	9	4	10	13	12	11	7	11
553:	9	9	5	13	9	12	5	21
561:	14	9	13	4	9	5	17	9
569:	8	9	5	13	8	9	5	14
577:	12	10	14	14	19	52	67	25
585:	11	15	11	14	8	17	7	10
593:	4	13	9	9	8	9	12	7
601:	10	6	5	11	14	9	28	51
609:	76	31	9	5	7	10	11	10
617:	9	10	8	8	11	9	8	8
625:	14	14	7	5	7	9	8	13
633:	11	9	6	8	5	4	10	7
641:	9	10	8	5	3	6	7	8
649:	5	9	13	6	3	1	7	11
657:	10	5	11	11	14	15	14	10
665:	9	6	8	10	5	9	10	5
673:	6	6	11	10	10	7	3	7
681:	11	10	9	8	5	8	8	9
689:	5	11	7	10	5	4	10	8
697:	11	10	9	10	9	7	8	8
705:	9	5	9	11	11	10	9	7
713:	7	12	8	3	3	7	10	9
721:	7	8	11	8	18	17	22	11
729:	12	12	7	10	5	6	6	10
737:	6	13	12	6	15	11	12	7
745:	8	5	9	7	9	9	12	7
753:	8	8	9	5	5	15	6	8
761:	8	8	6	8	9	7	7	21
769:	3	8	12	7	4	7	4	7
777:	5	8	7	9	6	8	10	10
785:	14	3	7	10	8	10	12	8
793:	8	12	10	5	8	12	6	5

801:	7	3	7	4	5	10	9	7

Sample Title: HTC-A01-S006-0006-01

Channel								
809:	8	0	7	6	3	7	7	6
817:	13	6	6	3	6	2	5	9
825:	8	6	7	13	8	13	6	4
833:	7	6	7	6	7	8	11	5
841:	8	8	5	2	7	2	5	8
849:	4	6	11	5	8	6	4	8
857:	5	7	11	11	7	1	5	10
865:	4	5	5	4	5	6	6	8
873:	4	3	6	6	8	5	9	5
881:	2	6	8	6	4	5	6	5
889:	1	6	8	3	5	4	2	7
897:	7	7	2	7	8	5	6	6
905:	5	9	2	11	22	33	32	14
913:	5	7	3	9	7	4	4	6
921:	5	6	5	3	8	6	9	6
929:	6	7	5	8	4	7	6	4
937:	3	6	4	6	4	7	3	3
945:	3	6	12	7	6	7	10	5
953:	2	5	5	5	2	4	7	7
961:	9	7	7	9	14	11	12	17
969:	18	8	7	5	4	4	12	5
977:	2	4	4	2	6	7	2	6
985:	5	9	3	4	5	6	3	4
993:	9	6	3	4	5	3	9	8
1001:	6	5	4	6	2	1	8	4
1009:	6	8	7	6	6	6	9	11
1017:	10	4	7	5	4	12	4	5
1025:	5	2	6	6	5	6	11	2
1033:	8	3	7	5	3	5	9	8
1041:	5	2	7	4	3	5	4	4
1049:	6	5	8	9	4	5	6	8
1057:	2	3	1	4	4	7	4	11
1065:	6	6	1	4	4	5	3	7
1073:	4	7	4	3	4	5	6	10
1081:	7	10	1	6	6	3	4	2
1089:	4	8	10	8	10	7	6	4
1097:	2	4	5	4	4	5	11	6
1105:	4	4	5	3	4	4	1	5
1113:	8	5	5	3	7	12	12	18
1121:	9	6	6	4	7	4	4	6
1129:	8	6	3	5	5	4	4	6
1137:	5	6	6	3	7	7	2	6
1145:	3	8	7	4	4	7	7	4
1153:	4	5	2	8	5	8	3	4
1161:	8	5	10	2	7	8	2	7
1169:	4	3	4	5	3	10	12	2
1177:	5	10	3	7	3	4	8	5
1185:	5	5	8	7	7	4	7	9
1193:	7	5	3	5	6	9	7	2
1201:	10	7	5	3	4	5	8	5
1209:	12	9	14	6	10	2	3	6
1217:	5	4	9	8	5	5	6	11
1225:	4	5	7	2	10	8	4	6

1233:	3	6	5	11	12	9	12	5

Sample Title: HTC-A01-S006-0006-01

Channel								
1241:	7	12	8	11	5	10	6	9
1249:	6	4	4	6	5	6	7	3
1257:	3	6	4	3	6	7	2	5
1265:	1	4	5	2	5	5	2	5
1273:	3	5	5	3	1	7	8	6
1281:	3	9	3	10	4	4	2	4
1289:	2	8	3	6	2	1	5	3
1297:	3	2	2	3	4	7	8	1
1305:	2	5	6	2	4	4	4	2
1313:	2	5	6	5	6	1	4	2
1321:	6	3	4	3	3	5	1	5
1329:	5	5	5	3	3	7	1	2
1337:	5	4	7	4	7	2	5	1
1345:	1	2	2	2	3	4	4	1
1353:	2	4	4	3	5	2	3	2
1361:	2	3	0	1	2	3	6	2
1369:	2	4	3	3	5	0	2	5
1377:	5	7	0	3	0	3	1	2
1385:	2	5	3	3	2	3	5	2
1393:	3	2	1	2	3	4	1	4
1401:	2	4	3	5	5	0	4	5
1409:	2	3	5	3	4	3	0	1
1417:	1	0	4	0	0	5	4	0
1425:	1	3	3	4	3	2	1	4
1433:	2	2	1	5	2	1	3	2
1441:	3	2	3	1	1	3	2	1
1449:	0	3	0	3	2	1	2	2
1457:	7	20	93	156	120	52	7	1
1465:	2	0	1	2	1	2	2	0
1473:	1	1	2	1	2	1	1	2
1481:	1	1	0	1	3	2	0	0
1489:	0	2	1	2	2	1	0	4
1497:	0	2	3	2	4	1	0	1
1505:	3	2	1	2	2	4	2	2
1513:	1	0	0	2	0	0	2	2
1521:	2	1	0	2	3	0	0	3
1529:	0	2	1	1	3	0	1	0
1537:	2	2	1	2	0	2	0	2
1545:	2	2	2	2	0	4	1	1
1553:	0	2	1	1	2	2	2	2
1561:	0	2	0	1	1	0	1	1
1569:	1	3	0	0	2	0	0	1
1577:	1	0	1	3	1	0	1	1
1585:	0	2	4	6	6	2	0	5
1593:	4	3	1	2	1	2	1	0
1601:	1	3	2	1	0	2	1	0
1609:	1	0	2	1	3	1	2	0
1617:	0	1	4	1	2	3	1	1
1625:	1	2	1	1	1	3	3	0
1633:	1	0	1	1	2	0	1	2
1641:	1	2	0	2	0	0	1	1
1649:	0	2	0	2	1	2	0	1
1657:	0	1	0	2	0	3	2	1

1665:	0	1	2	1	1	2	0	0

Sample Title: HTC-A01-S006-0006-01

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

2097:	0	1	0	0	1	2	4	2

Sample Title: HTC-A01-S006-0006-01

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

2529:	0	0	1	0	0	1	1	1

Sample Title: HTC-A01-S006-0006-01

Channel								
2537:	2	2	1	1	0	0	0	0
2545:	1	0	0	0	0	0	0	0
2553:	1	0	0	0	0	0	0	0
2561:	0	0	0	1	1	0	0	0
2569:	1	0	1	1	0	0	0	0
2577:	0	2	1	0	0	0	0	0
2585:	1	0	1	1	0	0	0	0
2593:	0	0	1	0	0	0	0	0
2601:	0	0	0	0	0	0	1	1
2609:	0	1	1	1	6	19	16	11
2617:	2	0	0	0	0	0	0	0
2625:	0	0	0	0	1	1	0	0
2633:	0	0	0	0	0	0	2	0
2641:	0	0	0	0	0	0	0	0
2649:	0	0	0	0	0	0	1	0
2657:	0	0	0	1	1	0	0	0
2665:	0	1	0	0	0	0	0	0
2673:	0	0	0	0	0	0	0	0
2681:	1	0	0	0	0	1	0	0
2689:	0	0	0	0	0	0	1	0
2697:	0	0	1	0	0	0	0	0
2705:	0	0	0	0	0	0	1	0
2713:	0	0	0	0	0	0	1	0
2721:	1	0	0	0	1	0	0	0
2729:	0	0	0	0	0	0	0	0
2737:	0	0	0	0	0	0	0	1
2745:	1	0	0	0	2	0	1	0
2753:	0	0	0	0	0	0	0	0
2761:	0	0	0	0	1	0	0	0
2769:	0	0	0	0	0	0	1	0
2777:	1	0	0	0	0	0	0	0
2785:	0	0	1	0	1	0	0	0
2793:	0	0	0	0	0	1	0	0
2801:	0	0	0	0	0	0	1	0
2809:	0	0	0	1	0	1	1	0
2817:	0	0	0	0	0	0	0	1
2825:	0	0	0	0	0	0	0	0
2833:	0	0	1	0	0	0	0	1
2841:	0	0	0	0	0	0	0	0
2849:	0	1	0	0	0	0	0	0
2857:	0	0	0	0	0	0	1	0
2865:	0	0	0	0	0	0	1	0
2873:	0	0	0	0	1	0	0	0
2881:	0	0	0	0	0	0	0	0
2889:	1	0	0	0	0	0	0	0
2897:	0	0	0	0	0	0	0	0
2905:	0	0	0	0	0	0	0	0
2913:	0	0	0	0	1	0	0	0
2921:	0	1	0	0	1	1	0	0
2929:	0	0	0	0	0	0	0	0
2937:	1	1	0	1	0	0	0	0
2945:	1	0	1	0	0	0	0	0
2953:	0	0	0	0	0	0	0	0

2961:	1	0	1	0	0	0	0	0

Sample Title: HTC-A01-S006-0006-01

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

3393:	0	0	1	0	0	0	0	0

Sample Title: HTC-A01-S006-0006-01

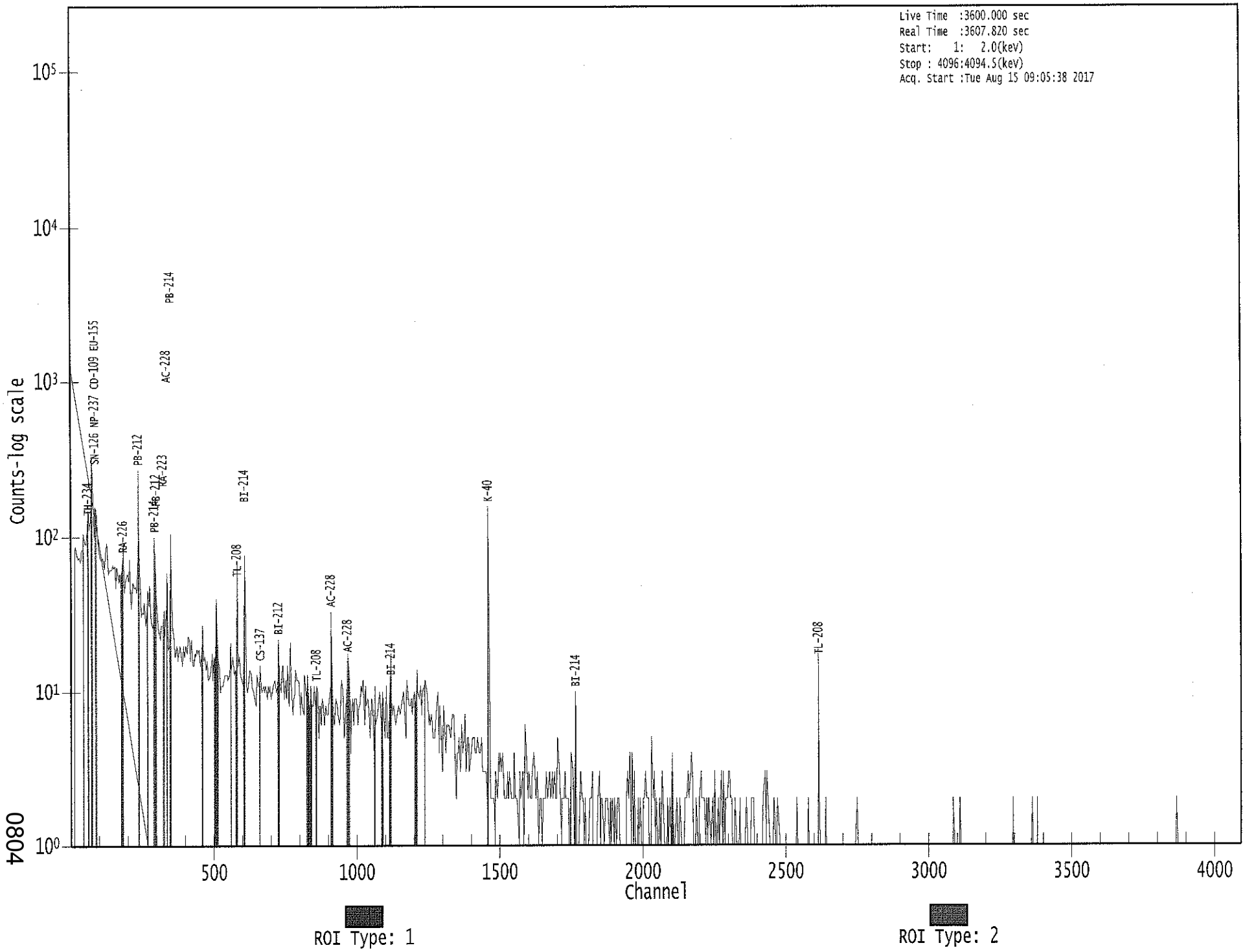
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	1	0	0	0	0	1	0
3417:	1	0	0	1	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	1	0	0	0	0	1
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	1
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	1	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S006-0006-01

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

0000055244.CNF



0804

Apex-Gamma

Analysis Report for 1707082-15

HTC-A01-S006-0612-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707082-15
Sample Description	: HTC-A01-S006-0612-01
Sample Type	: SOIL
Sample Size	: 6.772E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 6:36:43AM
Acquisition Started	: 8/15/2017 10:23:07AM
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)	: 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	: 55249

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/16/17

Analysis Report for 1707082-15

HTC-A01-S006-0612-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/15/2017 11:23:11AM
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	47.04	47.66	0.0000	0.00
2	62.83	63.43	0.0000	0.00
3	74.72	75.31	0.0000	0.00
4	77.14	77.73	0.0000	0.00
5	92.59	93.17	0.0000	0.00
6	128.73	129.27	0.0000	0.00
7	162.23	162.74	0.0000	0.00
8	185.65	186.13	0.0000	0.00
9	209.13	209.58	0.0000	0.00
10	238.60	239.02	0.0000	0.00
11	241.81	242.23	0.0000	0.00
12	270.96	271.36	0.0000	0.00
13	278.24	278.62	0.0000	0.00
14	294.83	295.20	0.0000	0.00
15	327.56	327.89	0.0000	0.00
16	338.56	338.88	0.0000	0.00
17	351.87	352.18	0.0000	0.00
18	388.94	389.21	0.0000	0.00
19	463.05	463.25	0.0000	0.00
20	510.78	510.93	0.0000	0.00
21	522.66	522.80	0.0000	0.00
22	583.20	583.28	0.0000	0.00
23	609.23	609.28	0.0000	0.00
24	709.95	709.90	0.0000	0.00
25	717.54	717.49	0.0000	0.00
26	727.62	727.55	0.0000	0.00
27	755.94	755.85	0.0000	0.00
28	769.48	769.37	0.0000	0.00
29	795.15	795.01	0.0000	0.00
30	806.03	805.89	0.0000	0.00
31	861.25	861.05	0.0000	0.00
32	911.40	911.15	0.0000	0.00
33	915.46	915.20	0.0000	0.00
34	969.47	969.16	0.0000	0.00
35	988.39	988.06	0.0000	0.00
36	1121.23	1120.77	0.0000	0.00
37	1139.32	1138.84	0.0000	0.00
38	1155.26	1154.76	0.0000	0.00
39	1238.48	1237.91	0.0000	0.00
40	1280.02	1279.40	0.0000	0.00
41	1377.24	1376.52	0.0000	0.00
42	1403.83	1403.09	0.0000	0.00

Analysis Report for 1707082-15

HTC-A01-S006-0612-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1408.46	1407.72	0.0000	0.00
44	1414.03	1413.28	0.0000	0.00
45	1456.72	1455.93	0.0000	0.00
46	1461.40	1460.61	0.0000	0.00
47	1510.35	1509.51	0.0000	0.00
48	1539.00	1538.13	0.0000	0.00
49	1590.92	1589.99	0.0000	0.00
50	1620.87	1619.92	0.0000	0.00
51	1630.21	1629.25	0.0000	0.00
52	1729.15	1728.09	0.0000	0.00
53	1736.23	1735.16	0.0000	0.00
54	1764.98	1763.88	0.0000	0.00
55	1775.07	1773.96	0.0000	0.00
56	1855.75	1854.57	0.0000	0.00
57	2088.46	2087.05	0.0000	0.00
58	2102.88	2101.46	0.0000	0.00
59	2204.95	2203.43	0.0000	0.00
60	2280.67	2279.08	0.0000	0.00
61	2287.55	2285.95	0.0000	0.00
62	2313.51	2311.89	0.0000	0.00
63	2334.53	2332.89	0.0000	0.00
64	2349.13	2347.47	0.0000	0.00
65	2363.13	2361.46	0.0000	0.00
66	2611.91	2610.00	0.0000	0.00
67	2615.16	2613.25	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707082-15

HTC-A01-S006-0612-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 11:23:11AM

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	47.04	44 -	51	47.66	1.41E+02	91.24	1.30E+03	1.92
	2	62.83	60 -	66	63.43	1.92E+02	104.07	1.83E+03	1.39
M	3	74.72	71 -	81	75.31	4.29E+02	94.05	1.29E+03	1.81
m	4	77.14	71 -	81	77.73	7.40E+02	101.56	1.26E+03	1.82
	5	92.59	90 -	97	93.17	3.79E+02	116.60	1.94E+03	1.47
	6	128.73	126 -	133	129.27	9.24E+01	89.67	1.28E+03	2.19
	7	162.23	161 -	165	162.74	5.08E+01	55.95	6.54E+02	1.96
	8	185.65	181 -	190	186.13	2.31E+02	100.22	1.30E+03	1.65
	9	209.13	206 -	212	209.58	1.00E+02	68.79	7.81E+02	2.27
M	10	238.60	235 -	245	239.02	9.60E+02	77.93	4.79E+02	1.68
m	11	241.81	235 -	245	242.23	2.62E+02	83.40	5.53E+02	2.09
	12	270.96	268 -	275	271.36	7.10E+01	64.65	6.36E+02	1.72
	13	278.24	275 -	282	278.62	5.92E+01	58.92	5.38E+02	4.40
	14	294.83	291 -	299	295.20	2.07E+02	76.70	7.86E+02	1.89
	15	327.56	324 -	331	327.89	4.79E+01	55.39	4.78E+02	1.38
	16	338.56	335 -	343	338.88	2.10E+02	60.93	4.44E+02	1.86
	17	351.87	347 -	356	352.18	5.12E+02	76.34	5.40E+02	1.79
	18	388.94	387 -	391	389.21	2.89E+01	30.80	1.82E+02	1.87
	19	463.05	459 -	467	463.25	4.06E+01	48.57	3.39E+02	1.73
	20	510.78	507 -	518	510.93	2.05E+02	57.69	3.17E+02	2.62
	21	522.66	519 -	526	522.80	3.02E+01	36.61	2.02E+02	1.44
	22	583.20	579 -	586	583.28	2.91E+02	50.56	2.32E+02	1.99
	23	609.23	604 -	614	609.28	4.06E+02	60.73	2.77E+02	2.06
	24	709.95	708 -	712	709.90	2.40E+01	20.62	7.40E+01	3.05
	25	717.54	713 -	721	717.49	3.50E+01	32.80	1.44E+02	1.46
	26	727.62	724 -	732	727.55	6.38E+01	37.82	1.82E+02	1.63
	27	755.94	753 -	759	755.85	2.63E+01	24.87	9.14E+01	3.18
	28	769.48	766 -	774	769.37	3.70E+01	34.48	1.56E+02	2.09
	29	795.15	791 -	800	795.01	4.20E+01	38.70	1.90E+02	1.80
	30	806.03	803 -	808	805.89	1.78E+01	22.96	8.84E+01	1.99
	31	861.25	857 -	866	861.05	5.39E+01	36.10	1.56E+02	2.22
M	32	911.40	907 -	918	911.15	2.00E+02	34.54	7.36E+01	1.86
m	33	915.46	907 -	918	915.20	2.33E+01	29.02	9.58E+01	2.20
	34	969.47	966 -	973	969.16	7.68E+01	40.99	2.22E+02	2.07
	35	988.39	986 -	990	988.06	2.34E+01	15.60	3.12E+01	1.13
	36	1121.23	1117 -	1126	1120.77	8.38E+01	40.31	1.82E+02	2.24
	37	1139.32	1136 -	1141	1138.84	2.05E+01	20.88	6.91E+01	1.75
	38	1155.26	1151 -	1159	1154.76	2.39E+01	28.32	1.10E+02	5.40
	39	1238.48	1233 -	1243	1237.91	5.77E+01	40.87	1.91E+02	3.11
	40	1280.02	1275 -	1285	1279.40	2.89E+01	28.61	9.43E+01	6.46

Analysis Report for 1707082-15

HTC-A01-S006-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1377.24	1372 -	1381	1376.52	2.87E+01	19.90	4.06E+01	1.95
M	42	1403.83	1401 -	1417	1403.09	1.17E+01	10.16	1.78E+01	2.89
m	43	1408.46	1401 -	1417	1407.72	2.55E+01	17.24	2.43E+01	2.89
m	44	1414.03	1401 -	1417	1413.28	1.25E+01	15.53	1.31E+01	2.89
M	45	1456.72	1454 -	1470	1455.93	2.20E+01	10.20	4.15E+00	2.77
m	46	1461.40	1454 -	1470	1460.61	1.08E+03	67.51	2.38E+01	2.24
	47	1510.35	1506 -	1514	1509.51	1.78E+01	16.67	3.24E+01	2.86
	48	1539.00	1535 -	1540	1538.13	9.50E+00	7.28	3.00E+00	1.56
	49	1590.92	1581 -	1599	1589.99	2.81E+01	27.74	5.78E+01	7.72
	50	1620.87	1616 -	1623	1619.92	1.16E+01	11.83	1.48E+01	2.84
	51	1630.21	1624 -	1633	1629.25	2.30E+01	12.73	1.00E+01	3.05
	52	1729.15	1723 -	1731	1728.09	2.20E+01	9.38	0.00E+00	2.52
	53	1736.23	1733 -	1738	1735.16	7.00E+00	6.40	2.00E+00	3.60
	54	1764.98	1757 -	1768	1763.88	7.70E+01	17.55	0.00E+00	2.83
	55	1775.07	1770 -	1776	1773.96	6.50E+00	6.65	3.00E+00	2.06
	56	1855.75	1853 -	1857	1854.57	7.00E+00	5.29	0.00E+00	1.47
	57	2088.46	2084 -	2089	2087.05	5.50E+00	6.08	3.00E+00	2.38
	58	2102.88	2097 -	2109	2101.46	3.05E+01	17.05	2.11E+01	5.74
	59	2204.95	2199 -	2207	2203.43	2.58E+01	11.50	4.50E+00	2.71
	60	2280.67	2274 -	2282	2279.08	8.62E+00	9.62	8.77E+00	1.39
	61	2287.55	2284 -	2288	2285.95	4.50E+00	5.50	3.00E+00	2.88
	62	2313.51	2309 -	2315	2311.89	9.00E+00	6.00	0.00E+00	1.66
	63	2334.53	2328 -	2338	2332.89	1.02E+01	12.76	1.57E+01	6.77
	64	2349.13	2345 -	2351	2347.47	8.50E+00	8.51	7.00E+00	3.59
	65	2363.13	2356 -	2367	2361.46	1.14E+01	13.71	1.73E+01	2.37
M	66	2611.91	2609 -	2619	2610.00	8.73E+00	0.00	0.00E+00	2.49
m	67	2615.16	2609 -	2619	2613.25	1.11E+02	22.54	0.00E+00	2.73

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 11:23:11AM

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	47.04	44 -	51	1.41E+02	91.24	1.30E+03	7.24E+01

Analysis Report for 1707082-15

HTC-A01-S006-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	2	62.83	60 -	66	1.92E+02	104.07	1.83E+03	8.25E+01
M	3	74.72	71 -	81	4.29E+02	94.05	1.29E+03	5.90E+01
m	4	77.14	71 -	81	7.40E+02	101.56	1.26E+03	5.85E+01
	5	92.59	90 -	97	3.79E+02	116.60	1.94E+03	9.04E+01
	6	128.73	126 -	133	9.24E+01	89.67	1.28E+03	7.20E+01
	7	162.23	161 -	165	5.08E+01	55.95	6.54E+02	4.45E+01
	8	185.65	181 -	190	2.31E+02	100.22	1.30E+03	7.85E+01
	9	209.13	206 -	212	1.00E+02	68.79	7.81E+02	5.41E+01
M	10	238.60	235 -	245	9.60E+02	77.93	4.79E+02	3.60E+01
m	11	241.81	235 -	245	2.62E+02	83.40	5.53E+02	3.86E+01
	12	270.96	268 -	275	7.10E+01	64.65	6.36E+02	5.13E+01
	13	278.24	275 -	282	5.92E+01	58.92	5.38E+02	4.68E+01
	14	294.83	291 -	299	2.07E+02	76.70	7.86E+02	2.39E+01
	15	327.56	324 -	331	4.79E+01	55.39	4.78E+02	4.41E+01
	16	338.56	335 -	343	2.10E+02	60.93	4.44E+02	4.41E+01
	17	351.87	347 -	356	5.12E+02	76.34	5.40E+02	5.05E+01
	18	388.94	387 -	391	2.89E+01	30.80	1.82E+02	2.37E+01
	19	463.05	459 -	467	4.06E+01	48.57	3.39E+02	3.85E+01
	20	510.78	507 -	518	2.05E+02	57.69	3.17E+02	4.12E+01
	21	522.66	519 -	526	3.02E+01	36.61	2.02E+02	2.87E+01
	22	583.20	579 -	586	2.91E+02	50.56	2.32E+02	3.07E+01
	23	609.23	604 -	614	4.06E+02	60.73	2.77E+02	3.74E+01
	24	709.95	708 -	712	2.40E+01	20.62	7.40E+01	1.49E+01
	25	717.54	713 -	721	3.50E+01	32.80	1.44E+02	2.51E+01
	26	727.62	724 -	732	6.38E+01	37.82	1.82E+02	2.82E+01
	27	755.94	753 -	759	2.63E+01	24.87	9.14E+01	1.86E+01
	28	769.48	766 -	774	3.70E+01	34.48	1.56E+02	2.65E+01
	29	795.15	791 -	800	4.20E+01	38.70	1.90E+02	3.00E+01
	30	806.03	803 -	808	1.78E+01	22.96	8.84E+01	1.75E+01
	31	861.25	857 -	866	5.39E+01	36.10	1.56E+02	3.58E+01
M	32	911.40	907 -	918	2.00E+02	34.54	7.36E+01	1.41E+01
m	33	915.46	907 -	918	2.33E+01	29.02	9.58E+01	1.61E+01
	34	969.47	966 -	973	7.68E+01	40.99	2.22E+02	3.05E+01
	35	988.39	986 -	990	2.34E+01	15.60	3.12E+01	1.01E+01
	36	1121.23	1117 -	1126	8.38E+01	40.31	1.82E+02	2.95E+01
	37	1139.32	1136 -	1141	2.05E+01	20.88	6.91E+01	1.55E+01
	38	1155.26	1151 -	1159	2.39E+01	28.32	1.10E+02	2.18E+01
	39	1238.48	1233 -	1243	5.77E+01	40.87	1.91E+02	3.12E+01
	40	1280.02	1275 -	1285	2.89E+01	28.61	9.43E+01	2.18E+01
	41	1377.24	1372 -	1381	2.87E+01	19.90	4.06E+01	1.38E+01
M	42	1403.83	1401 -	1417	1.17E+01	10.16	1.78E+01	6.93E+00
m	43	1408.46	1401 -	1417	2.55E+01	17.24	2.43E+01	8.11E+00
m	44	1414.03	1401 -	1417	1.25E+01	15.53	1.31E+01	5.94E+00
M	45	1456.72	1454 -	1470	2.20E+01	10.20	4.15E+00	3.35E+00
m	46	1461.40	1454 -	1470	1.08E+03	67.51	2.38E+01	8.02E+00
	47	1510.35	1506 -	1514	1.78E+01	16.67	3.24E+01	1.18E+01
	48	1539.00	1535 -	1540	9.50E+00	7.28	3.00E+00	3.18E+00
	49	1590.92	1581 -	1599	2.81E+01	27.74	5.78E+01	2.11E+01
	50	1620.87	1616 -	1623	1.16E+01	11.83	1.48E+01	7.96E+00
	51	1630.21	1624 -	1633	2.30E+01	12.73	1.00E+01	6.88E+00
	52	1729.15	1723 -	1731	2.20E+01	9.38	0.00E+00	0.00E+00

Analysis Report for 1707082-15

HTC-A01-S006-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	53	1736.23	1733 -	1738	7.00E+00	6.40	2.00E+00	2.96E+00
	54	1764.98	1757 -	1768	7.70E+01	17.55	0.00E+00	0.00E+00
	55	1775.07	1770 -	1776	6.50E+00	6.65	3.00E+00	3.51E+00
	56	1855.75	1853 -	1857	7.00E+00	5.29	0.00E+00	0.00E+00
	57	2088.46	2084 -	2089	5.50E+00	6.08	3.00E+00	3.18E+00
	58	2102.88	2097 -	2109	3.05E+01	17.05	2.11E+01	1.07E+01
	59	2204.95	2199 -	2207	2.58E+01	11.50	4.50E+00	4.45E+00
	60	2280.67	2274 -	2282	8.62E+00	9.62	8.77E+00	6.26E+00
	61	2287.55	2284 -	2288	4.50E+00	5.50	3.00E+00	2.88E+00
	62	2313.51	2309 -	2315	9.00E+00	6.00	0.00E+00	0.00E+00
	63	2334.53	2328 -	2338	1.02E+01	12.76	1.57E+01	9.08E+00
	64	2349.13	2345 -	2351	8.50E+00	8.51	7.00E+00	5.10E+00
	65	2363.13	2356 -	2367	1.14E+01	13.71	1.73E+01	9.82E+00
M	66	2611.91	2609 -	2619	8.73E+00	0.00	0.00E+00	0.00E+00
m	67	2615.16	2609 -	2619	1.11E+02	22.54	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 : 8/15/2017 11:23:11AM

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	47.04	44 -	51	47.66	1.41E+02	91.24	1.30E+03	PB-210
	2	62.83	60 -	66	63.43	1.92E+02	104.07	1.83E+03	TH-230
									TH-234
M	3	74.72	71 -	81	75.31	4.29E+02	94.05	1.29E+03	AM-243
m	4	77.14	71 -	81	77.73	7.40E+02	101.56	1.26E+03	.....
	5	92.59	90 -	97	93.17	3.79E+02	116.60	1.94E+03	GA-67
	6	128.73	126 -	133	129.27	9.24E+01	89.67	1.28E+03	.....
	7	162.23	161 -	165	162.74	5.08E+01	55.95	6.54E+02	BA-140
	8	185.65	181 -	190	186.13	2.31E+02	100.22	1.30E+03	RA-226
	9	209.13	206 -	212	209.58	1.00E+02	68.79	7.81E+02	GA-67

Analysis Report for 1707082-15

HTC-A01-S006-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									CM-243
M	10	238.60	235 -	245	239.02	9.60E+02	77.93	4.79E+02	PB-212
m	11	241.81	235 -	245	242.23	2.62E+02	83.40	5.53E+02	RA-224
	12	270.96	268 -	275	271.36	7.10E+01	64.65	6.36E+02	.....
	13	278.24	275 -	282	278.62	5.92E+01	58.92	5.38E+02	CM-243
									NP-239
									HG-203
	14	294.83	291 -	299	295.20	2.07E+02	76.70	7.86E+02	PB-214
	15	327.56	324 -	331	327.89	4.79E+01	55.39	4.78E+02	.....
	16	338.56	335 -	343	338.88	2.10E+02	60.93	4.44E+02	AC-228
	17	351.87	347 -	356	352.18	5.12E+02	76.34	5.40E+02	PB-214
	18	388.94	387 -	391	389.21	2.89E+01	30.80	1.82E+02	.....
	19	463.05	459 -	467	463.25	4.06E+01	48.57	3.39E+02	SB-125
	20	510.78	507 -	518	510.93	2.05E+02	57.69	3.17E+02	.....
	21	522.66	519 -	526	522.80	3.02E+01	36.61	2.02E+02	.....
	22	583.20	579 -	586	583.28	2.91E+02	50.56	2.32E+02	TL-208
	23	609.23	604 -	614	609.28	4.06E+02	60.73	2.77E+02	BI-214
	24	709.95	708 -	712	709.90	2.40E+01	20.62	7.40E+01	.....
	25	717.54	713 -	721	717.49	3.50E+01	32.80	1.44E+02	.....
	26	727.62	724 -	732	727.55	6.38E+01	37.82	1.82E+02	BI-212
	27	755.94	753 -	759	755.85	2.63E+01	24.87	9.14E+01	ZR-95
	28	769.48	766 -	774	769.37	3.70E+01	34.48	1.56E+02	.....
	29	795.15	791 -	800	795.01	4.20E+01	38.70	1.90E+02	CS-134
	30	806.03	803 -	808	805.89	1.78E+01	22.96	8.84E+01	.....
	31	861.25	857 -	866	861.05	5.39E+01	36.10	1.56E+02	TL-208
M	32	911.40	907 -	918	911.15	2.00E+02	34.54	7.36E+01	AC-228
									TL-204
m	33	915.46	907 -	918	915.20	2.33E+01	29.02	9.58E+01	.....
	34	969.47	966 -	973	969.16	7.68E+01	40.99	2.22E+02	AC-228
	35	988.39	986 -	990	988.06	2.34E+01	15.60	3.12E+01	.....
	36	1121.23	1117 -	1126	1120.77	8.38E+01	40.31	1.82E+02	TA-182
									SC-46
									BI-214
	37	1139.32	1136 -	1141	1138.84	2.05E+01	20.88	6.91E+01	.....
	38	1155.26	1151 -	1159	1154.76	2.39E+01	28.32	1.10E+02	.....
	39	1238.48	1233 -	1243	1237.91	5.77E+01	40.87	1.91E+02	CO-56
	40	1280.02	1275 -	1285	1279.40	2.89E+01	28.61	9.43E+01	.....
	41	1377.24	1372 -	1381	1376.52	2.87E+01	19.90	4.06E+01	.....
M	42	1403.83	1401 -	1417	1403.09	1.17E+01	10.16	1.78E+01	.....
m	43	1408.46	1401 -	1417	1407.72	2.55E+01	17.24	2.43E+01	EU-152
m	44	1414.03	1401 -	1417	1413.28	1.25E+01	15.53	1.31E+01	.....
M	45	1456.72	1454 -	1470	1455.93	2.20E+01	10.20	4.15E+00	.....
m	46	1461.40	1454 -	1470	1460.61	1.08E+03	67.51	2.38E+01	K-40
	47	1510.35	1506 -	1514	1509.51	1.78E+01	16.67	3.24E+01	.....
	48	1539.00	1535 -	1540	1538.13	9.50E+00	7.28	3.00E+00	.....
	49	1590.92	1581 -	1599	1589.99	2.81E+01	27.74	5.78E+01	.....
	50	1620.87	1616 -	1623	1619.92	1.16E+01	11.83	1.48E+01	BI-212
	51	1630.21	1624 -	1633	1629.25	2.30E+01	12.73	1.00E+01	.....
	52	1729.15	1723 -	1731	1728.09	2.20E+01	9.38	0.00E+00	.....
	53	1736.23	1733 -	1738	1735.16	7.00E+00	6.40	2.00E+00	.....
	54	1764.98	1757 -	1768	1763.88	7.70E+01	17.55	0.00E+00	BI-214
	55	1775.07	1770 -	1776	1773.96	6.50E+00	6.65	3.00E+00	.....
	56	1855.75	1853 -	1857	1854.57	7.00E+00	5.29	0.00E+00	.....
	57	2088.46	2084 -	2089	2087.05	5.50E+00	6.08	3.00E+00	.....

Analysis Report for 1707082-15

HTC-A01-S006-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	58	2102.88	2097 -	2109	2101.46	3.05E+01	17.05	2.11E+01	.....
	59	2204.95	2199 -	2207	2203.43	2.58E+01	11.50	4.50E+00	BI-214
	60	2280.67	2274 -	2282	2279.08	8.62E+00	9.62	8.77E+00	.....
	61	2287.55	2284 -	2288	2285.95	4.50E+00	5.50	3.00E+00	.....
	62	2313.51	2309 -	2315	2311.89	9.00E+00	6.00	0.00E+00	.....
	63	2334.53	2328 -	2338	2332.89	1.02E+01	12.76	1.57E+01	.....
	64	2349.13	2345 -	2351	2347.47	8.50E+00	8.51	7.00E+00	.....
	65	2363.13	2356 -	2367	2361.46	1.14E+01	13.71	1.73E+01	.....
M	66	2611.91	2609 -	2619	2610.00	8.73E+00	0.00	0.00E+00	.....
m	67	2615.16	2609 -	2619	2613.25	1.11E+02	22.54	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 : 8/15/2017 11:23:11AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	47.04	1.41E+02	91.24	2.48E-02	2.22E-03
	2	62.83	1.92E+02	104.07	2.70E-02	2.25E-03
M	3	74.72	4.29E+02	94.05	2.75E-02	2.38E-03
m	4	77.14	7.40E+02	101.56	2.75E-02	2.40E-03
	5	92.59	3.79E+02	116.60	2.73E-02	2.45E-03
	6	128.73	9.24E+01	89.67	2.54E-02	1.94E-03
	7	162.23	5.08E+01	55.95	2.32E-02	1.76E-03
	8	185.65	2.31E+02	100.22	2.17E-02	1.68E-03
	9	209.13	1.00E+02	68.79	2.04E-02	1.61E-03
M	10	238.60	9.60E+02	77.93	1.89E-02	1.53E-03
m	11	241.81	2.62E+02	83.40	1.87E-02	1.52E-03
	12	270.96	7.10E+01	64.65	1.74E-02	1.43E-03
	13	278.24	5.92E+01	58.92	1.71E-02	1.41E-03
	14	294.83	2.07E+02	76.70	1.65E-02	1.37E-03
	15	327.56	4.79E+01	55.39	1.53E-02	1.29E-03
	16	338.56	2.10E+02	60.93	1.49E-02	1.27E-03
	17	351.87	5.12E+02	76.34	1.45E-02	1.24E-03
	18	388.94	2.89E+01	30.80	1.35E-02	1.15E-03
	19	463.05	4.06E+01	48.57	1.19E-02	1.10E-03
	20	510.78	2.05E+02	57.69	1.10E-02	1.07E-03

Analysis Report for 1707082-15

HTC-A01-S006-0612-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	21	522.66	3.02E+01	36.61	1.08E-02	1.06E-03
	22	583.20	2.91E+02	50.56	9.96E-03	1.02E-03
	23	609.23	4.06E+02	60.73	9.63E-03	1.01E-03
	24	709.95	2.40E+01	20.62	8.57E-03	8.95E-04
	25	717.54	3.50E+01	32.80	8.50E-03	8.83E-04
	26	727.62	6.38E+01	37.82	8.41E-03	8.67E-04
	27	755.94	2.63E+01	24.87	8.17E-03	8.22E-04
	28	769.48	3.70E+01	34.48	8.06E-03	8.01E-04
	29	795.15	4.20E+01	38.70	7.86E-03	7.60E-04
	30	806.03	1.78E+01	22.96	7.78E-03	7.43E-04
	31	861.25	5.39E+01	36.10	7.39E-03	6.55E-04
M	32	911.40	2.00E+02	34.54	7.08E-03	5.91E-04
m	33	915.46	2.33E+01	29.02	7.06E-03	5.90E-04
	34	969.47	7.68E+01	40.99	6.76E-03	5.69E-04
	35	988.39	2.34E+01	15.60	6.67E-03	5.62E-04
	36	1121.23	8.38E+01	40.31	6.07E-03	5.11E-04
	37	1139.32	2.05E+01	20.88	6.00E-03	5.04E-04
	38	1155.26	2.39E+01	28.32	5.94E-03	4.98E-04
	39	1238.48	5.77E+01	40.87	5.64E-03	4.76E-04
	40	1280.02	2.89E+01	28.61	5.51E-03	4.67E-04
	41	1377.24	2.87E+01	19.90	5.22E-03	4.44E-04
M	42	1403.83	1.17E+01	10.16	5.15E-03	4.38E-04
m	43	1408.46	2.55E+01	17.24	5.14E-03	4.37E-04
m	44	1414.03	1.25E+01	15.53	5.12E-03	4.36E-04
M	45	1456.72	2.20E+01	10.20	5.02E-03	4.26E-04
m	46	1461.40	1.08E+03	67.51	5.00E-03	4.25E-04
	47	1510.35	1.78E+01	16.67	4.89E-03	4.13E-04
	48	1539.00	9.50E+00	7.28	4.82E-03	4.07E-04
	49	1590.92	2.81E+01	27.74	4.71E-03	3.95E-04
	50	1620.87	1.16E+01	11.83	4.65E-03	3.88E-04
	51	1630.21	2.30E+01	12.73	4.63E-03	3.86E-04
	52	1729.15	2.20E+01	9.38	4.44E-03	3.63E-04
	53	1736.23	7.00E+00	6.40	4.43E-03	3.61E-04
	54	1764.98	7.70E+01	17.55	4.37E-03	3.54E-04
	55	1775.07	6.50E+00	6.65	4.36E-03	3.52E-04
	56	1855.75	7.00E+00	5.29	4.22E-03	3.38E-04
	57	2088.46	5.50E+00	6.08	3.88E-03	3.38E-04
	58	2102.88	3.05E+01	17.05	3.86E-03	3.38E-04
	59	2204.95	2.58E+01	11.50	3.74E-03	3.38E-04
	60	2280.67	8.62E+00	9.62	3.65E-03	3.38E-04
	61	2287.55	4.50E+00	5.50	3.64E-03	3.38E-04
	62	2313.51	9.00E+00	6.00	3.61E-03	3.38E-04
	63	2334.53	1.02E+01	12.76	3.59E-03	3.38E-04
	64	2349.13	8.50E+00	8.51	3.57E-03	3.38E-04
	65	2363.13	1.14E+01	13.71	3.56E-03	3.38E-04
M	66	2611.91	8.73E+00	0.00	3.31E-03	3.38E-04
m	67	2615.16	1.11E+02	22.54	3.31E-03	3.38E-04

Analysis Report for 1707082-15

HTC-A01-S006-0612-01

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 : 8/15/2017 11:23:11AM

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	47.04	1.41E+02	91.24	3.93E+01	8.32E+00	1.02E+02	9.16E+01
	2	62.83	1.92E+02	104.07	9.62E+01	1.46E+01	9.62E+01	1.05E+02
M	3	74.72	4.29E+02	94.05			4.29E+02	9.41E+01
m	4	77.14	7.40E+02	101.56			7.40E+02	1.02E+02
	5	92.59	3.79E+02	116.60	1.35E+02	2.05E+01	2.43E+02	1.18E+02
	6	128.73	9.24E+01	89.67			9.24E+01	8.97E+01
	7	162.23	5.08E+01	55.95			5.08E+01	5.60E+01
	8	185.65	2.31E+02	100.22	4.68E+01	7.65E+00	1.84E+02	1.01E+02
	9	209.13	1.00E+02	68.79			1.00E+02	6.88E+01
M	10	238.60	9.60E+02	77.93	2.06E+01	6.26E+00	9.39E+02	7.82E+01
m	11	241.81	2.62E+02	83.40			2.62E+02	8.34E+01
	12	270.96	7.10E+01	64.65			7.10E+01	6.47E+01
	13	278.24	5.92E+01	58.92			5.92E+01	5.89E+01
	14	294.83	2.07E+02	76.70			2.07E+02	7.67E+01
	15	327.56	4.79E+01	55.39			4.79E+01	5.54E+01
	16	338.56	2.10E+02	60.93			2.10E+02	6.09E+01
	17	351.87	5.12E+02	76.34	3.12E+00	4.40E+00	5.09E+02	7.65E+01
	18	388.94	2.89E+01	30.80			2.89E+01	3.08E+01
	19	463.05	4.06E+01	48.57			4.06E+01	4.86E+01
	20	510.78	2.05E+02	57.69	7.85E+01	5.73E+00	1.27E+02	5.80E+01
	21	522.66	3.02E+01	36.61			3.02E+01	3.66E+01
	22	583.20	2.91E+02	50.56			2.91E+02	5.06E+01
	23	609.23	4.06E+02	60.73	6.00E+00	4.13E+00	4.00E+02	6.09E+01
	24	709.95	2.40E+01	20.62			2.40E+01	2.06E+01
	25	717.54	3.50E+01	32.80			3.50E+01	3.28E+01
	26	727.62	6.38E+01	37.82			6.38E+01	3.78E+01
	27	755.94	2.63E+01	24.87			2.63E+01	2.49E+01
	28	769.48	3.70E+01	34.48			3.70E+01	3.45E+01
	29	795.15	4.20E+01	38.70			4.20E+01	3.87E+01
	30	806.03	1.78E+01	22.96			1.78E+01	2.30E+01
	31	861.25	5.39E+01	36.10	3.72E-01	2.26E+00	5.36E+01	3.62E+01
M	32	911.40	2.00E+02	34.54	5.15E+00	3.10E+00	1.95E+02	3.47E+01
m	33	915.46	2.33E+01	29.02			2.33E+01	2.90E+01
	34	969.47	7.68E+01	40.99	0.00E+00	0.00E+00	7.68E+01	4.10E+01
	35	988.39	2.34E+01	15.60			2.34E+01	1.56E+01

Analysis Report for 1707082-15

HTC-A01-S006-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	36	1121.23	8.38E+01	40.31			8.38E+01	4.03E+01
	37	1139.32	2.05E+01	20.88			2.05E+01	2.09E+01
	38	1155.26	2.39E+01	28.32			2.39E+01	2.83E+01
	39	1238.48	5.77E+01	40.87			5.77E+01	4.09E+01
	40	1280.02	2.89E+01	28.61			2.89E+01	2.86E+01
	41	1377.24	2.87E+01	19.90			2.87E+01	1.99E+01
M	42	1403.83	1.17E+01	10.16			1.17E+01	1.02E+01
m	43	1408.46	2.55E+01	17.24			2.55E+01	1.72E+01
m	44	1414.03	1.25E+01	15.53			1.25E+01	1.55E+01
M	45	1456.72	2.20E+01	10.20			2.20E+01	1.02E+01
m	46	1461.40	1.08E+03	67.51	4.04E+00	2.32E+00	1.08E+03	6.76E+01
	47	1510.35	1.78E+01	16.67			1.78E+01	1.67E+01
	48	1539.00	9.50E+00	7.28			9.50E+00	7.28E+00
	49	1590.92	2.81E+01	27.74			2.81E+01	2.77E+01
	50	1620.87	1.16E+01	11.83			1.16E+01	1.18E+01
	51	1630.21	2.30E+01	12.73			2.30E+01	1.27E+01
	52	1729.15	2.20E+01	9.38			2.20E+01	9.38E+00
	53	1736.23	7.00E+00	6.40			7.00E+00	6.40E+00
	54	1764.98	7.70E+01	17.55			7.70E+01	1.75E+01
	55	1775.07	6.50E+00	6.65			6.50E+00	6.65E+00
	56	1855.75	7.00E+00	5.29			7.00E+00	5.29E+00
	57	2088.46	5.50E+00	6.08			5.50E+00	6.08E+00
	58	2102.88	3.05E+01	17.05			3.05E+01	1.71E+01
	59	2204.95	2.58E+01	11.50			2.58E+01	1.15E+01
	60	2280.67	8.62E+00	9.62			8.62E+00	9.62E+00
	61	2287.55	4.50E+00	5.50			4.50E+00	5.50E+00
	62	2313.51	9.00E+00	6.00			9.00E+00	6.00E+00
	63	2334.53	1.02E+01	12.76			1.02E+01	1.28E+01
	64	2349.13	8.50E+00	8.51			8.50E+00	8.51E+00
	65	2363.13	1.14E+01	13.71			1.14E+01	1.37E+01
M	66	2611.91	8.73E+00	0.00			8.73E+00	0.00E+00
m	67	2615.16	1.11E+02	22.54	6.52E+00	1.61E+00	1.05E+02	2.26E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/15/2017 11:23:11AM

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 1707082-15

HTC-A01-S006-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	47.04	1.41E+02	91.24	3.93E+01	8.32E+00	1.02E+02	9.16E+01
	2	62.83	1.92E+02	104.07	9.62E+01	1.46E+01	9.62E+01	1.05E+02
M	3	74.72	4.29E+02	94.05			4.29E+02	9.41E+01
m	4	77.14	7.40E+02	101.56			7.40E+02	1.02E+02
	5	92.59	3.79E+02	116.60	1.35E+02	2.05E+01	2.43E+02	1.18E+02
	6	128.73	9.24E+01	89.67			9.24E+01	8.97E+01
	7	162.23	5.08E+01	55.95			5.08E+01	5.60E+01
	8	185.65	2.31E+02	100.22	4.68E+01	7.65E+00	1.84E+02	1.01E+02
	9	209.13	1.00E+02	68.79			1.00E+02	6.88E+01
M	10	238.60	9.60E+02	77.93	2.06E+01	6.26E+00	9.39E+02	7.82E+01
m	11	241.81	2.62E+02	83.40			2.62E+02	8.34E+01
	12	270.96	7.10E+01	64.65			7.10E+01	6.47E+01
	13	278.24	5.92E+01	58.92			5.92E+01	5.89E+01
	14	294.83	2.07E+02	76.70			2.07E+02	7.67E+01
	15	327.56	4.79E+01	55.39			4.79E+01	5.54E+01
	16	338.56	2.10E+02	60.93			2.10E+02	6.09E+01
	17	351.87	5.12E+02	76.34	3.12E+00	4.40E+00	5.09E+02	7.65E+01
	18	388.94	2.89E+01	30.80			2.89E+01	3.08E+01
	19	463.05	4.06E+01	48.57			4.06E+01	4.86E+01
	20	510.78	2.05E+02	57.69	7.85E+01	5.73E+00	1.27E+02	5.80E+01
	21	522.66	3.02E+01	36.61			3.02E+01	3.66E+01
	22	583.20	2.91E+02	50.56			2.91E+02	5.06E+01
	23	609.23	4.06E+02	60.73	6.00E+00	4.13E+00	4.00E+02	6.09E+01
	24	709.95	2.40E+01	20.62			2.40E+01	2.06E+01
	25	717.54	3.50E+01	32.80			3.50E+01	3.28E+01
	26	727.62	6.38E+01	37.82			6.38E+01	3.78E+01
	27	755.94	2.63E+01	24.87			2.63E+01	2.49E+01
	28	769.48	3.70E+01	34.48			3.70E+01	3.45E+01
	29	795.15	4.20E+01	38.70			4.20E+01	3.87E+01
	30	806.03	1.78E+01	22.96			1.78E+01	2.30E+01
	31	861.25	5.39E+01	36.10	3.72E-01	2.26E+00	5.36E+01	3.62E+01
M	32	911.40	2.00E+02	34.54	5.15E+00	3.10E+00	1.95E+02	3.47E+01
m	33	915.46	2.33E+01	29.02			2.33E+01	2.90E+01
	34	969.47	7.68E+01	40.99	0.00E+00	0.00E+00	7.68E+01	4.10E+01
	35	988.39	2.34E+01	15.60			2.34E+01	1.56E+01
	36	1121.23	8.38E+01	40.31			8.38E+01	4.03E+01
	37	1139.32	2.05E+01	20.88			2.05E+01	2.09E+01
	38	1155.26	2.39E+01	28.32			2.39E+01	2.83E+01
	39	1238.48	5.77E+01	40.87			5.77E+01	4.09E+01
	40	1280.02	2.89E+01	28.61			2.89E+01	2.86E+01
	41	1377.24	2.87E+01	19.90			2.87E+01	1.99E+01
M	42	1403.83	1.17E+01	10.16			1.17E+01	1.02E+01
m	43	1408.46	2.55E+01	17.24			2.55E+01	1.72E+01
m	44	1414.03	1.25E+01	15.53			1.25E+01	1.55E+01
M	45	1456.72	2.20E+01	10.20			2.20E+01	1.02E+01
m	46	1461.40	1.08E+03	67.51	4.04E+00	2.32E+00	1.08E+03	6.76E+01
	47	1510.35	1.78E+01	16.67			1.78E+01	1.67E+01
	48	1539.00	9.50E+00	7.28			9.50E+00	7.28E+00
	49	1590.92	2.81E+01	27.74			2.81E+01	2.77E+01
	50	1620.87	1.16E+01	11.83			1.16E+01	1.18E+01
	51	1630.21	2.30E+01	12.73			2.30E+01	1.27E+01
	52	1729.15	2.20E+01	9.38			2.20E+01	9.38E+00
	53	1736.23	7.00E+00	6.40			7.00E+00	6.40E+00
	54	1764.98	7.70E+01	17.55			7.70E+01	1.75E+01

Analysis Report for 1707082-15

HTC-A01-S006-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	55	1775.07	6.50E+00	6.65			6.50E+00	6.65E+00
	56	1855.75	7.00E+00	5.29			7.00E+00	5.29E+00
	57	2088.46	5.50E+00	6.08			5.50E+00	6.08E+00
	58	2102.88	3.05E+01	17.05			3.05E+01	1.71E+01
	59	2204.95	2.58E+01	11.50			2.58E+01	1.15E+01
	60	2280.67	8.62E+00	9.62			8.62E+00	9.62E+00
	61	2287.55	4.50E+00	5.50			4.50E+00	5.50E+00
	62	2313.51	9.00E+00	6.00			9.00E+00	6.00E+00
	63	2334.53	1.02E+01	12.76			1.02E+01	1.28E+01
	64	2349.13	8.50E+00	8.51			8.50E+00	8.51E+00
	65	2363.13	1.14E+01	13.71			1.14E+01	1.37E+01
M	66	2611.91	8.73E+00	0.00			8.73E+00	0.00E+00
m	67	2615.16	1.11E+02	22.54	6.52E+00	1.61E+00	1.05E+02	2.26E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.945	1460.81	*	10.67	2.24E+01	2.41E+00
TL-208	0.972	583.14	*	30.22	1.07E+00	2.16E-01
		860.37	*	4.48	1.79E+00	1.22E+00
		2614.66	*	35.85	9.81E-01	2.34E-01
PB-210	0.955	46.50	*	4.25	1.08E+00	9.77E-01
BI-212	0.972	727.17	*	11.80	7.13E-01	4.29E-01
		1620.62	*	2.75	1.00E+00	1.03E+00
PB-212	0.894	238.63	*	44.60	1.24E+00	1.44E-01
		300.09		3.41		
BI-214	0.962	609.31	*	46.30	9.93E-01	1.83E-01
		1120.29	*	15.10	1.01E+00	4.95E-01
		1764.49	*	15.80	1.24E+00	2.99E-01
		2204.22	*	4.98	1.53E+00	6.99E-01
PB-214	0.992	295.21	*	19.19	7.26E-01	2.76E-01
		351.92	*	37.19	1.04E+00	1.80E-01
RA-224	0.895	240.98	*	3.95	3.94E+00	1.29E+00
RA-226	0.952	186.21	*	3.28	2.86E+00	5.47E+00
AC-228	0.983	338.32	*	11.40	1.37E+00	4.13E-01

Analysis Report for 1707082-15

HTC-A01-S006-0612-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
AC-228	0.983	911.07	*	27.70	1.10E+00	2.16E-01
		969.11	*	16.60	7.58E-01	4.10E-01
TH-234	0.966	63.29	*	3.80	1.04E+00	1.14E+00
AM-243	1.000	74.67	*	66.00	2.62E-01	6.18E-02
CM-243	0.336	209.75	*	3.29	1.67E+00	1.15E+00
		228.14		10.60		
		277.60	*	14.00	2.76E-01	2.75E-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 11:23:11AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	4	77.14	2.05563E-01	6.86		
	5	92.59	6.76311E-02	24.31	Tol.	GA-67
	6	128.73	2.56761E-02	48.50		
	7	162.23	1.41189E-02	55.04		
	12	270.96	1.97137E-02	45.55	Sum	
	15	327.56	1.32956E-02	57.86		
	18	388.94	8.02083E-03	53.34		
	19	463.05	1.12897E-02	59.75	Sum	
	20	510.78	3.52572E-02	22.84		
	21	522.66	8.40013E-03	60.52		
	24	709.95	6.67350E-03	42.92		
	25	717.54	9.72222E-03	46.86		
	27	755.94	7.30903E-03	47.27	Tol.	ZR-95
	28	769.48	1.02742E-02	46.61	Sum	
	29	795.15	1.16667E-02	46.08	Sum	
	30	806.03	4.95072E-03	64.40		
m	33	915.46	6.48335E-03	62.17		
	35	988.39	6.49573E-03	33.36		
	37	1139.32	5.68687E-03	51.00	Sum	
	38	1155.26	6.63150E-03	59.31	Sum	
	39	1238.48	1.60294E-02	35.42	Tol.	CO-56
	40	1280.02	8.02083E-03	49.53		

Analysis Report for 1707082-15

HTC-A01-S006-0612-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	41	1377.24	7.97619E-03	34.65		
M	42	1403.83	3.25865E-03	43.31		
m	43	1408.46	7.08890E-03	33.78	Tol.	EU-152
m	44	1414.03	3.46366E-03	62.28		
M	45	1456.72	6.11783E-03	23.15		
	47	1510.35	4.94281E-03	46.83		
	48	1539.00	2.63889E-03	38.32		
	49	1590.92	7.81189E-03	49.32		
	51	1630.21	6.38889E-03	27.67		
	52	1729.15	6.11111E-03	21.32		
	53	1736.23	1.94444E-03	45.74		
	55	1775.07	1.80556E-03	51.17		
	56	1855.75	1.94444E-03	37.80		
	57	2088.46	1.52778E-03	55.30		
	58	2102.88	8.46206E-03	27.99	Sum	
	60	2280.67	2.39316E-03	55.82	Sum	
	61	2287.55	1.25000E-03	61.11		
	62	2313.51	2.50000E-03	33.33		
	63	2334.53	2.82407E-03	62.74		
	64	2349.13	2.36111E-03	50.09	Sum	
	65	2363.13	3.15278E-03	60.40		
M	66	2611.91	2.42612E-03	0.00		

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	0.94	1460.81	*	10.67	2.24E+01	2.41E+00
TL-208	0.97	583.14	*	30.22	1.07E+00	2.16E-01
		860.37	*	4.48	1.79E+00	1.22E+00
		2614.66	*	35.85	9.81E-01	2.34E-01
PB-210	0.95	46.50	*	4.25	1.08E+00	9.77E-01
BI-212	0.97	727.17	*	11.80	7.13E-01	4.29E-01

Analysis Report for 1707082-15

HTC-A01-S006-0612-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-212	0.97	1620.62	*	2.75	1.00E+00	1.03E+00
PB-212	0.89	238.63	*	44.60	1.24E+00	1.44E-01
		300.09		3.41		
BI-214	0.96	609.31	*	46.30	9.93E-01	1.83E-01
		1120.29	*	15.10	1.01E+00	4.95E-01
		1764.49	*	15.80	1.24E+00	2.99E-01
		2204.22	*	4.98	1.53E+00	6.99E-01
PB-214	0.99	295.21	*	19.19	7.26E-01	2.76E-01
		351.92	*	37.19	1.04E+00	1.80E-01
RA-224	0.89	240.98	*	3.95	3.94E+00	1.29E+00
RA-226	0.95	186.21	*	3.28	2.86E+00	5.47E+00
AC-228	0.98	338.32	*	11.40	1.37E+00	4.13E-01
		911.07	*	27.70	1.10E+00	2.16E-01
		969.11	*	16.60	7.58E-01	4.10E-01
TH-234	0.96	63.29	*	3.80	1.04E+00	1.14E+00
AM-243	1.00	74.67	*	66.00	2.62E-01	6.18E-02
CM-243	0.33	209.75	*	3.29	1.67E+00	1.15E+00
		228.14		10.60		
		277.60	*	14.00	2.76E-01	2.75E-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	0.945	2.24E+01	2.41E+00	
X	HG-203	0.847			
	TL-208	0.972	1.04E+00	1.57E-01	
	PB-210	0.955	1.08E+00	9.77E-01	
	BI-212	0.972	7.56E-01	3.96E-01	
	PB-212	0.894	1.24E+00	1.44E-01	
	BI-214	0.962	1.08E+00	1.46E-01	
	PB-214	0.992	9.49E-01	1.51E-01	

Analysis Report for 1707082-15

HTC-A01-S006-0612-01

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
RA-224	0.895	3.94E+00	1.29E+00	
RA-226	0.952	2.86E+00	5.47E+00	
AC-228	0.983	1.09E+00	1.74E-01	
TH-234	0.966	1.04E+00	1.14E+00	
AM-243	1.000	2.62E-01	6.18E-02	
CM-243	0.336	3.51E-01	2.68E-01	

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

Errors quoted at 2.000sigma

Analysis Report for 1707082-15

HTC-A01-S006-0612-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 11:23:11AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	4	77.14	2.05563E-01	6.86		
	5	92.59	6.76311E-02	24.31	Tol.	GA-67
	6	128.73	2.56761E-02	48.50		
	7	162.23	1.41189E-02	55.04		
	12	270.96	1.97137E-02	45.55	Sum	
	15	327.56	1.32956E-02	57.86		
	18	388.94	8.02083E-03	53.34		
	19	463.05	1.12897E-02	59.75	Sum	
	20	510.78	3.52572E-02	22.84		
	21	522.66	8.40013E-03	60.52		
	24	709.95	6.67350E-03	42.92		
	25	717.54	9.72222E-03	46.86		
	27	755.94	7.30903E-03	47.27	Tol.	ZR-95
	28	769.48	1.02742E-02	46.61	Sum	
	29	795.15	1.16667E-02	46.08	Sum	
	30	806.03	4.95072E-03	64.40		
m	33	915.46	6.48335E-03	62.17		
	35	988.39	6.49573E-03	33.36		
	37	1139.32	5.68687E-03	51.00	Sum	
	38	1155.26	6.63150E-03	59.31	Sum	
	39	1238.48	1.60294E-02	35.42	Tol.	CO-56
	40	1280.02	8.02083E-03	49.53		
	41	1377.24	7.97619E-03	34.65		
M	42	1403.83	3.25865E-03	43.31		
m	43	1408.46	7.08890E-03	33.78	Tol.	EU-152
m	44	1414.03	3.46366E-03	62.28		
M	45	1456.72	6.11783E-03	23.15		
	47	1510.35	4.94281E-03	46.83		
	48	1539.00	2.63889E-03	38.32		
	49	1590.92	7.81189E-03	49.32		
	51	1630.21	6.38889E-03	27.67		
	52	1729.15	6.11111E-03	21.32		
	53	1736.23	1.94444E-03	45.74		
	55	1775.07	1.80556E-03	51.17		
	56	1855.75	1.94444E-03	37.80		

Analysis Report for 1707082-15

HTC-A01-S006-0612-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	57	2088.46	1.52778E-03	55.30		
	58	2102.88	8.46206E-03	27.99	Sum	
	60	2280.67	2.39316E-03	55.82	Sum	
	61	2287.55	1.25000E-03	61.11		
	62	2313.51	2.50000E-03	33.33		
	63	2334.53	2.82407E-03	62.74		
	64	2349.13	2.36111E-03	50.09	Sum	
	65	2363.13	3.15278E-03	60.40		
M	66	2611.91	2.42612E-03	0.00		

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	-7.38E-01	1.57E+00	1.57E+00
+	NA-22	1274.54		99.94	-9.77E-03	6.83E-02	6.83E-02
+	@ NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@	2754.09		99.86	1.00E+26		1.00E+26
+	AL-26	1808.65		99.76	-2.58E-02	3.10E-02	3.10E-02
+	K-40	1460.81	*	10.67	2.24E+01	8.75E-01	8.75E-01
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	1.88E-02	5.44E-02	5.44E-02
		78.34		96.00	1.61E-01		7.25E-02
+	SC-46	889.25		99.98	-3.46E-02	1.26E-01	1.26E-01
		1120.51		99.99	2.86E-01		2.35E-01
+	V-48	983.52		99.98	-1.00E+00	3.42E+00	3.42E+00
		1312.10		97.50	-8.93E-01		3.79E+00
+	CR-51	320.08		9.83	-4.84E-01	5.27E+00	5.27E+00
+	MN-54	834.83		99.97	-2.56E-02	8.23E-02	8.23E-02
+	CO-56	846.75		99.96	-1.11E-01	1.23E-01	1.23E-01
		1037.75		14.03	5.12E-02		1.05E+00
		1238.25		67.00	3.46E-01		3.55E-01
		1771.40		15.51	-2.26E+00		4.04E-01

Analysis Report for 1707082-15

HTC-A01-S006-0612-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CO-56	2598.48	16.90	9.05E-02	1.23E-01	4.20E-01
+	CO-57	122.06	85.51	1.47E-02	6.34E-02	6.34E-02
		136.48	10.60	5.93E-02		5.10E-01
+	CO-58	810.76	99.40	0.00E+00	1.46E-01	1.46E-01
+	FE-59	1099.22	56.50	2.58E-01	5.69E-01	5.69E-01
		1291.56	43.20	1.71E-01		6.94E-01
+	CO-60	1173.22	100.00	-2.16E-02	6.97E-02	8.71E-02
		1332.49	100.00	-4.21E-03		6.97E-02
+	ZN-65	1115.52	50.75	5.76E-02	1.92E-01	1.92E-01
+	GA-67	93.31	35.70	1.68E+08	8.04E+07	8.04E+07
		208.95	2.24	1.26E+09		1.13E+09
		300.22	16.00	5.38E+07		1.67E+08
+	SE-75	121.11	16.70	1.57E-01	1.24E-01	4.41E-01
		136.00	59.20	1.44E-02		1.24E-01
		264.65	59.80	1.86E-02		1.48E-01
		279.53	25.20	2.22E-01		3.65E-01
		400.65	11.40	7.69E-02		8.01E-01
+	RB-82	776.52	13.00	-1.88E+00	5.02E+00	5.02E+00
+	RB-83	520.41	46.00	1.60E-01	2.57E-01	2.57E-01
		529.64	30.30	-6.08E-02		3.53E-01
		552.65	16.40	1.64E-02		6.40E-01
+	KR-85	513.99	0.43	9.69E+00	1.66E+01	1.66E+01
+	SR-85	513.99	99.27	1.14E-01	1.95E-01	1.95E-01
+	Y-88	898.02	93.40	-3.88E-02	7.27E-02	1.16E-01
		1836.01	99.38	-1.00E-02		7.27E-02
+	MO-93	263.06	56.72	-5.48E-02	4.46E-02	8.66E-02
		684.67	99.68	1.99E-03		5.69E-02
		1477.11	99.08	-1.41E-03		4.46E-02
+	NB-93M	16.57	9.43	-1.02E-01	4.51E-01	4.51E-01
+	NB-94	702.63	100.00	1.68E-02	5.69E-02	5.69E-02
		871.10	100.00	3.43E-02		6.50E-02
+	NB-95	765.79	99.81	2.26E-02	4.37E-01	4.37E-01
+	NB-95M	235.69	25.00	-1.17E+08	1.62E+07	1.62E+07
+	ZR-95	724.18	43.70	-1.67E-02	2.87E-01	4.10E-01
		756.72	55.30	-1.61E-03		2.87E-01
+	MO-99	181.06	6.20	-2.70E+10	8.79E+09	1.50E+10
		739.58	12.80	7.00E+08		8.79E+09
		778.00	4.50	-4.31E+09		2.46E+10
+	RU-103	497.08	89.00	8.18E-02	3.02E-01	3.02E-01
+	RU-106	621.84	9.80	-2.50E-02	6.64E-01	6.64E-01
+	AG-108M	433.93	89.90	-1.05E-03	5.40E-02	5.40E-02
		614.37	90.40	-1.15E-02		6.69E-02
		722.95	90.50	-2.90E-03		6.08E-02
+	CD-109	88.03	3.72	1.01E+00	1.79E+00	1.79E+00
+	AG-110M	657.75	93.14	-4.29E-02	8.65E-02	8.65E-02
		677.61	10.53	2.04E-01		7.58E-01
		706.67	16.46	-2.95E-02		4.46E-01
		763.93	21.98	1.16E-01		3.73E-01

Analysis Report for 1707082-15

HTC-A01-S006-0612-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	AG-110M	884.67	71.63	3.33E-02	8.65E-02	1.08E-01
		1384.27	23.94	1.16E-01		3.11E-01
+	CD-113M	263.70	0.02	-2.72E+01	2.20E+02	2.20E+02
+	SN-113	255.12	1.93	9.88E-01	1.44E-01	3.90E+00
		391.69	64.90	1.14E-02		1.44E-01
+	TE123M	159.00	84.10	-3.09E-02	8.79E-02	8.79E-02
+	SB-124	602.71	97.87	-5.36E-03	1.67E-01	1.67E-01
		645.85	7.26	-6.68E-02		2.44E+00
		722.78	11.10	-6.99E-02		1.46E+00
		1691.02	49.00	3.84E-02		2.69E-01
+	I-125	35.49	6.49	-9.02E-01	2.19E+00	2.19E+00
+	SB-125	176.33	6.89	7.69E-03	1.81E-01	6.87E-01
		427.89	29.33	1.57E-02		1.81E-01
		463.38	10.35	3.50E-01		6.05E-01
		600.56	17.80	-1.22E-02		3.29E-01
		635.90	11.32	-2.10E-01		4.70E-01
+	SB-126	414.70	83.30	-8.36E+00	1.16E+01	1.18E+01
		666.33	99.60	-4.87E+00		1.23E+01
		695.00	99.60	2.51E-01		1.16E+01
		720.50	53.80	-9.41E-01		2.08E+01
+	SN-126	87.57	37.00	2.63E-02	1.54E-01	1.54E-01
+	SB-127	473.00	25.00	8.26E+05	3.61E+06	4.83E+06
		685.20	35.70	1.26E+05		3.61E+06
		783.80	14.70	7.34E+06		1.11E+07
+	I-129	29.78	57.00	-3.40E-02	9.06E-02	9.06E-02
		33.60	13.20	-9.05E-02		3.80E-01
		39.58	7.52	-1.26E-01		6.07E-01
+	I-131	284.30	6.05	-1.47E+03	2.08E+02	2.72E+03
		364.48	81.20	5.12E+01		2.08E+02
		636.97	7.26	-1.16E+03		2.31E+03
		722.89	1.80	-4.90E+02		1.03E+04
+	TE-132	49.72	13.10	-2.20E+08	2.51E+07	1.73E+08
		228.16	88.00	-6.63E+06		2.51E+07
+	BA-133	81.00	33.00	3.11E-02	1.17E-01	1.52E-01
		302.84	17.80	9.49E-02		3.04E-01
		356.01	60.00	1.12E-02		1.17E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	6.78E+03	3.32E+04	3.32E+04
+	CS-134	563.23	8.38	3.07E-01	7.02E-02	7.72E-01
		569.32	15.43	8.82E-02		4.30E-01
		604.70	97.60	-8.31E-03		7.02E-02
		795.84	85.40	8.20E-02		9.37E-02
		801.93	8.73	7.10E-02		7.19E-01
+	CS-135	268.24	16.00	2.94E-02	3.61E-01	3.61E-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	-4.05E-02	7.28E+00	8.50E+01
		163.89	4.61	7.20E+01		1.40E+02

Analysis Report for 1707082-15

HTC-A01-S006-0612-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CS-136	176.55	13.56	5.23E-01	7.28E+00	4.67E+01
		273.65	12.66	-8.01E+00		6.25E+01
		340.57	48.50	4.53E+01		2.06E+01
		818.50	99.70	-3.64E+00		7.28E+00
		1048.07	79.60	3.02E+00		1.31E+01
		1235.34	19.70	2.15E+01		7.09E+01
+	CS-137	661.65	85.12	5.15E-02	8.34E-02	8.34E-02
+	LA-138	788.74	34.00	5.27E-03	7.06E-02	1.85E-01
		1435.80	66.00	-7.04E-03		7.06E-02
+	CE-139	165.85	80.35	1.44E-03	8.78E-02	8.78E-02
+	BA-140	162.64	6.70	3.26E+01	3.42E+01	1.10E+02
		304.84	4.50	-1.31E+02		1.79E+02
		423.70	3.20	-2.96E-02		2.70E+02
		437.55	2.00	9.96E+01		4.33E+02
		537.32	25.00	1.09E+01		3.42E+01
+	LA-140	328.77	20.50	2.11E+01	9.35E+00	4.39E+01
		487.03	45.50	-1.04E-01		1.79E+01
		815.85	23.50	-1.76E+01		3.66E+01
		1596.49	95.49	-2.14E-02		9.35E+00
+	CE-141	145.44	48.40	1.45E-01	6.78E-01	6.78E-01
+	@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26
	@	293.26	42.00	1.00E+26		1.00E+26
	@	664.55	5.20	1.00E+26		1.00E+26
+	CE-144	133.54	10.80	8.73E-02	5.02E-01	5.02E-01
+	PM-144	476.78	42.00	-4.30E-02	6.51E-02	1.42E-01
		618.01	98.60	-2.66E-02		6.51E-02
		696.49	99.49	1.45E-02		7.37E-02
+	PM-145	36.85	21.70	-5.81E-02	1.22E-01	2.21E-01
		37.36	39.70	1.58E-02		1.22E-01
		42.30	15.10	-6.54E-02		2.96E-01
		72.40	2.31	-3.30E+00		2.60E+00
+	PM-146	453.90	39.94	3.52E-02	1.41E-01	1.41E-01
		735.90	14.01	-2.20E-02		4.14E-01
		747.13	13.10	1.16E-01		4.48E-01
+	ND-147	91.11	28.90	1.41E+02	8.08E+01	8.08E+01
		531.02	13.10	6.82E+01		1.52E+02
+	PM-149	285.90	3.10	7.59E+11	1.08E+13	1.08E+13
+	EU-152	121.78	20.50	7.50E-02	2.11E-01	2.11E-01
		244.69	5.40	2.32E-01		9.68E-01
		344.27	19.13	-4.37E-02		2.69E-01
		778.89	9.20	-1.74E-01		6.06E-01
		964.01	10.40	3.83E-01		8.08E-01
		1085.78	7.22	-4.88E-01		8.66E-01
		1112.02	9.60	1.78E-01		8.24E-01
		1407.95	14.94	4.08E-02		4.59E-01
+	GD-153	97.43	31.30	3.54E-03	1.84E-01	1.84E-01
		103.18	22.20	1.52E-02		2.47E-01
+	EU-154	123.07	40.50	1.34E-02	1.06E-01	1.06E-01
		723.30	19.70	-1.36E-02		2.85E-01

Analysis Report for 1707082-15

HTC-A01-S006-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-154	873.19		11.50	1.21E-01	1.06E-01	5.56E-01
		996.32		10.30	3.38E-01		7.08E-01
		1004.76		17.90	-3.62E-02		3.92E-01
		1274.45		35.50	-2.62E-02		1.83E-01
+	EU-155	86.50		30.90	7.89E-02	1.88E-01	1.88E-01
		105.30		20.70	-2.07E-03		2.10E-01
+	EU-156	811.77		10.40	1.62E+01	4.30E+01	4.30E+01
		1153.47		7.20	2.23E+01		7.60E+01
		1230.71		8.90	2.83E+01		7.12E+01
+	HO-166M	184.41		72.60	1.53E-01	7.88E-02	7.88E-02
		280.45		29.60	-2.33E-02		1.75E-01
		410.94		11.10	4.91E-01		5.13E-01
		711.69		54.10	7.20E-02		1.11E-01
+	TM-171	66.72		0.14	1.38E+01	4.07E+01	4.07E+01
+	HF-172	67.35		5.31	3.67E-01	4.17E-01	1.06E+00
		125.81		11.30	4.71E-02		4.17E-01
+	LU-172	181.53		20.60	-6.85E+03	1.99E+03	3.82E+03
		900.72		29.81	2.54E+03		3.81E+03
		1093.66		62.50	2.92E+02		1.99E+03
+	LU-173	100.72		5.24	1.59E-01	2.99E-01	9.18E-01
		272.11		21.20	-5.30E-02		2.99E-01
+	HF-175	343.40		84.00	-2.49E-02	1.56E-01	1.56E-01
+	LU-176	88.34		13.30	2.45E-01	5.14E-02	4.36E-01
		201.83		86.00	-2.44E-03		5.26E-02
		306.78		94.00	2.66E-05		5.14E-02
+	HF-181	133.02		41.70	8.37E-02	2.74E-01	4.81E-01
		345.85		17.20	-2.25E-01		1.35E+00
		482.03		82.80	-4.93E-02		2.74E-01
+	TA-182	67.75		41.20	7.60E-02	2.20E-01	2.20E-01
		1121.30		34.90	7.70E-01		5.51E-01
		1189.05		16.23	-2.34E-01		8.42E-01
		1221.41		26.98	3.54E-01		5.75E-01
		1231.02		11.44	5.31E-01		1.33E+00
+	IR-192	308.46		29.68	-1.82E-01	2.62E-01	3.92E-01
		468.07		48.10	-7.96E-03		2.62E-01
+	HG-203	279.19	*	77.30	2.02E-01	3.28E-01	3.28E-01
+	TL-204	374.74		94.11	-4.22E-03	5.71E-02	5.71E-02
		899.15		99.16	-2.03E-02		6.54E-02
		911.74		91.10	3.29E-01		1.38E-01
+	BI-207	569.67		97.72	3.04E-03	6.27E-02	6.27E-02
		1063.62		74.90	1.27E-02		8.62E-02
+	TL-208	583.14	*	30.22	1.07E+00	1.08E-01	2.36E-01
		860.37	*	4.48	1.79E+00		2.49E+00
		2614.66	*	35.85	9.81E-01		1.08E-01
+	BI-210M	262.00		45.00	-8.40E-02	1.06E-01	1.06E-01
		300.00		23.00	1.01E-01		2.43E-01
+	PB-210	46.50	*	4.25	1.08E+00	1.59E+00	1.59E+00
+	PB-211	404.84		2.90	-1.32E+00	1.79E+00	1.79E+00
		831.96		2.90	-4.66E-01		2.26E+00

Analysis Report for 1707082-15

HTC-A01-S006-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BI-212	727.17	*	11.80	7.13E-01	6.60E-01	6.60E-01
		1620.62	*	2.75	1.00E+00		1.62E+00
+	PB-212	238.63	*	44.60	1.24E+00	1.83E-01	1.83E-01
		300.09		3.41	6.78E-01		1.64E+00
+	BI-214	609.31	*	46.30	9.93E-01	4.34E-02	1.94E-01
		1120.29	*	15.10	1.01E+00		7.47E-01
		1764.49	*	15.80	1.24E+00		4.34E-02
		2204.22	*	4.98	1.53E+00		6.92E-01
+	PB-214	295.21	*	19.19	7.26E-01	2.14E-01	4.20E-01
		351.92	*	37.19	1.04E+00		2.14E-01
+	RN-219	401.80		6.50	8.76E-02	8.05E-01	8.05E-01
+	RA-223	323.87		3.88	-1.98E-01	1.31E+00	1.31E+00
+	RA-224	240.98	*	3.95	3.94E+00	2.09E+00	2.09E+00
+	RA-225	40.00		31.00	4.26E+00	1.23E+01	1.23E+01
+	RA-226	186.21	*	3.28	2.86E+00	2.52E+00	2.52E+00
+	TH-227	50.10		8.40	-1.24E-01	4.93E-01	5.36E-01
		236.00		11.50	-3.57E+00		4.93E-01
		256.20		6.30	1.60E-01		7.83E-01
+	AC-228	338.32	*	11.40	1.37E+00	3.20E-01	5.91E-01
		911.07	*	27.70	1.10E+00		3.20E-01
		969.11	*	16.60	7.58E-01		6.29E-01
+	TH-230	48.44		16.90	2.72E-01	2.86E-01	2.86E-01
		62.85		4.60	1.94E+00		1.24E+00
		67.67		0.37	4.78E+00		1.38E+01
+	PA-231	283.67		1.60	-1.49E+00	2.31E+00	3.11E+00
		302.67		2.30	7.21E-01		2.31E+00
+	TH-231	25.64		14.70	-3.37E+00	4.36E-01	4.36E-01
		84.21		6.40	-2.41E-01		8.27E-01
+	PA-233	311.98		38.60	4.03E-02	1.40E+00	1.40E+00
+	PA-234	131.20		20.40	8.95E-03	2.19E-01	2.19E-01
		733.99		8.80	-3.83E-02		6.53E-01
		946.00		12.00	-1.34E-02		4.99E-01
+	PA-234M	1001.03		0.92	6.94E-01	7.90E+00	7.90E+00
+	TH-234	63.29	*	3.80	1.04E+00	1.87E+00	1.87E+00
+	U-235	143.76		10.50	3.09E-01	4.28E-01	4.28E-01
		163.35		4.70	4.95E-01		9.64E-01
		205.31		4.70	-7.99E-02		9.45E-01
+	NP-237	86.50		12.60	1.87E-01	4.45E-01	4.45E-01
+	NP-239	106.10		22.70	-8.11E+08	2.05E+11	2.05E+11
		228.18		10.70	-1.19E+11		4.50E+11
		277.60		14.10	1.74E+11		4.13E+11
+	AM-241	59.54		35.90	-8.94E-04	1.40E-01	1.40E-01
+	AM-243	74.67	*	66.00	2.62E-01	1.37E-01	1.37E-01
+	CM-243	209.75	*	3.29	1.67E+00	4.18E-01	1.85E+00
		228.14		10.60	-1.10E-01		4.18E-01
		277.60	*	14.00	2.76E-01		4.49E-01

Analysis Report for 1707082-15

HTC-A01-S006-0612-01

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated
@ = Half-life too short to be able to perform the decay correction
? = 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	1.57E+00	1.57E+00	-7.38E-01	7.45E-01
	NA-22	1274.54		99.94	6.83E-02	6.83E-02	-9.77E-03	3.12E-02
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	3.10E-02	3.10E-02	-2.58E-02	1.20E-02
+	K-40	1460.81	*	10.67	8.75E-01	8.75E-01	2.24E+01	4.09E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	5.44E-02	5.44E-02	1.88E-02	2.66E-02
		78.34		96.00	7.25E-02		1.61E-01	3.57E-02
	SC-46	889.25		99.98	1.26E-01	1.26E-01	-3.46E-02	5.83E-02
		1120.51		99.99	2.35E-01		2.86E-01	1.12E-01
	V-48	983.52		99.98	3.42E+00	3.42E+00	-1.00E+00	1.58E+00
		1312.10		97.50	3.79E+00		-8.93E-01	1.72E+00
	CR-51	320.08		9.83	5.27E+00	5.27E+00	-4.84E-01	2.53E+00
	MN-54	834.83		99.97	8.23E-02	8.23E-02	-2.56E-02	3.87E-02
	CO-56	846.75		99.96	1.23E-01	1.23E-01	-1.11E-01	5.69E-02
		1037.75		14.03	1.05E+00		5.12E-02	4.86E-01
		1238.25		67.00	3.55E-01		3.46E-01	1.68E-01
		1771.40		15.51	4.04E-01		-2.26E+00	1.51E-01
		2598.48		16.90	4.20E-01		9.05E-02	1.49E-01
	CO-57	122.06		85.51	6.34E-02	6.34E-02	1.47E-02	3.08E-02
		136.48		10.60	5.10E-01		5.93E-02	2.48E-01
	CO-58	810.76		99.40	1.46E-01	1.46E-01	0.00E+00	6.79E-02
	FE-59	1099.22		56.50	5.69E-01	5.69E-01	2.58E-01	2.66E-01
		1291.56		43.20	6.94E-01		1.71E-01	3.19E-01
	CO-60	1173.22		100.00	8.71E-02	6.97E-02	-2.16E-02	4.09E-02
		1332.49		100.00	6.97E-02		-4.21E-03	3.19E-02
	ZN-65	1115.52		50.75	1.92E-01	1.92E-01	5.76E-02	8.98E-02
	GA-67	93.31		35.70	8.04E+07	8.04E+07	1.68E+08	3.94E+07

Analysis Report for 1707082-15

HTC-A01-S006-0612-01

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	1.13E+09	8.04E+07	1.26E+09	5.47E+08
	300.22	16.00	1.67E+08		5.38E+07	8.07E+07
SE-75	121.11	16.70	4.41E-01	1.24E-01	1.57E-01	2.14E-01
	136.00	59.20	1.24E-01		1.44E-02	6.00E-02
	264.65	59.80	1.48E-01		1.86E-02	7.17E-02
	279.53	25.20	3.65E-01		2.22E-01	1.76E-01
	400.65	11.40	8.01E-01		7.69E-02	3.83E-01
RB-82	776.52	13.00	5.02E+00	5.02E+00	-1.88E+00	2.32E+00
RB-83	520.41	46.00	2.57E-01	2.57E-01	1.60E-01	1.22E-01
	529.64	30.30	3.53E-01		-6.08E-02	1.67E-01
	552.65	16.40	6.40E-01		1.64E-02	3.01E-01
KR-85	513.99	0.43	1.66E+01	1.66E+01	9.69E+00	7.98E+00
SR-85	513.99	99.27	1.95E-01	1.95E-01	1.14E-01	9.39E-02
Y-88	898.02	93.40	1.16E-01	7.27E-02	-3.88E-02	5.37E-02
	1836.01	99.38	7.27E-02		-1.00E-02	2.98E-02
MO-93	263.06	56.72	8.66E-02	4.46E-02	-5.48E-02	4.18E-02
	684.67	99.68	5.69E-02		1.99E-03	2.67E-02
	1477.11	99.08	4.46E-02		-1.41E-03	1.92E-02
NB-93M	16.57	9.43	4.51E-01	4.51E-01	-1.02E-01	2.11E-01
NB-94	702.63	100.00	5.69E-02	5.69E-02	1.68E-02	2.67E-02
	871.10	100.00	6.50E-02		3.43E-02	3.05E-02
NB-95	765.79	99.81	4.37E-01	4.37E-01	2.26E-02	2.07E-01
NB-95M	235.69	25.00	1.62E+07	1.62E+07	-1.17E+08	7.86E+06
ZR-95	724.18	43.70	4.10E-01	2.87E-01	-1.67E-02	1.94E-01
	756.72	55.30	2.87E-01		-1.61E-03	1.34E-01
MO-99	181.06	6.20	1.50E+10	8.79E+09	-2.70E+10	7.30E+09
	739.58	12.80	8.79E+09		7.00E+08	4.11E+09
	778.00	4.50	2.46E+10		-4.31E+09	1.14E+10
RU-103	497.08	89.00	3.02E-01	3.02E-01	8.18E-02	1.43E-01
RU-106	621.84	9.80	6.64E-01	6.64E-01	-2.50E-02	3.13E-01
AG-108M	433.93	89.90	5.40E-02	5.40E-02	-1.05E-03	2.57E-02
	614.37	90.40	6.69E-02		-1.15E-02	3.17E-02
	722.95	90.50	6.08E-02		-2.90E-03	2.85E-02
CD-109	88.03	3.72	1.79E+00	1.79E+00	1.01E+00	8.80E-01
AG-110M	657.75	93.14	8.65E-02	8.65E-02	-4.29E-02	4.09E-02
	677.61	10.53	7.58E-01		2.04E-01	3.58E-01
	706.67	16.46	4.46E-01		-2.95E-02	2.09E-01
	763.93	21.98	3.73E-01		1.16E-01	1.75E-01
	884.67	71.63	1.08E-01		3.33E-02	5.04E-02
	1384.27	23.94	3.11E-01		1.16E-01	1.40E-01
CD-113M	263.70	0.02	2.20E+02	2.20E+02	-2.72E+01	1.07E+02
SN-113	255.12	1.93	3.90E+00	1.44E-01	9.88E-01	1.87E+00
	391.69	64.90	1.44E-01		1.14E-02	6.89E-02
TE123M	159.00	84.10	8.79E-02	8.79E-02	-3.09E-02	4.27E-02
SB-124	602.71	97.87	1.67E-01	1.67E-01	-5.36E-03	7.86E-02
	645.85	7.26	2.44E+00		-6.68E-02	1.15E+00
	722.78	11.10	1.46E+00		-6.99E-02	6.85E-01
	1691.02	49.00	2.69E-01		3.84E-02	1.14E-01
I-125	35.49	6.49	2.19E+00	2.19E+00	-9.02E-01	1.06E+00
SB-125	176.33	6.89	6.87E-01	1.81E-01	7.69E-03	3.33E-01
	427.89	29.33	1.81E-01		1.57E-02	8.61E-02
	463.38	10.35	6.05E-01		3.50E-01	2.89E-01
	600.56	17.80	3.29E-01		-1.22E-02	1.55E-01

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
SB-125	635.90	11.32	4.70E-01	1.81E-01	-2.10E-01	2.20E-01
SB-126	414.70	83.30	1.18E+01	1.16E+01	-8.36E+00	5.65E+00
	666.33	99.60	1.23E+01		-4.87E+00	5.81E+00
	695.00	99.60	1.16E+01		2.51E-01	5.48E+00
	720.50	53.80	2.08E+01		-9.41E-01	9.79E+00
SN-126	87.57	37.00	1.54E-01	1.54E-01	2.63E-02	7.54E-02
SB-127	473.00	25.00	4.83E+06	3.61E+06	8.26E+05	2.30E+06
	685.20	35.70	3.61E+06		1.26E+05	1.70E+06
	783.80	14.70	1.11E+07		7.34E+06	5.25E+06
I-129	29.78	57.00	9.06E-02	9.06E-02	-3.40E-02	4.39E-02
	33.60	13.20	3.80E-01		-9.05E-02	1.84E-01
	39.58	7.52	6.07E-01		-1.26E-01	2.95E-01
I-131	284.30	6.05	2.72E+03	2.08E+02	-1.47E+03	1.31E+03
	364.48	81.20	2.08E+02		5.12E+01	9.98E+01
	636.97	7.26	2.31E+03		-1.16E+03	1.08E+03
	722.89	1.80	1.03E+04		-4.90E+02	4.80E+03
TE-132	49.72	13.10	1.73E+08	2.51E+07	-2.20E+08	8.42E+07
	228.16	88.00	2.51E+07		-6.63E+06	1.21E+07
BA-133	81.00	33.00	1.52E-01	1.17E-01	3.11E-02	7.44E-02
	302.84	17.80	3.04E-01		9.49E-02	1.47E-01
	356.01	60.00	1.17E-01		1.12E-02	5.67E-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	3.32E+04	3.32E+04	6.78E+03	1.62E+04
CS-134	563.23	8.38	7.72E-01	7.02E-02	3.07E-01	3.67E-01
	569.32	15.43	4.30E-01		8.82E-02	2.05E-01
	604.70	97.60	7.02E-02		-8.31E-03	3.34E-02
	795.84	85.40	9.37E-02		8.20E-02	4.44E-02
	801.93	8.73	7.19E-01		7.10E-02	3.35E-01
CS-135	268.24	16.00	3.61E-01	3.61E-01	2.94E-02	1.75E-01
@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41	28.60	1.00E+26		1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		1.00E+26	1.00E+20
CS-136	153.22	7.46	8.50E+01	7.28E+00	-4.05E-02	4.13E+01
	163.89	4.61	1.40E+02		7.20E+01	6.82E+01
	176.55	13.56	4.67E+01		5.23E-01	2.26E+01
	273.65	12.66	6.25E+01		-8.01E+00	3.03E+01
	340.57	48.50	2.06E+01		4.53E+01	1.00E+01
	818.50	99.70	7.28E+00		-3.64E+00	3.36E+00
	1048.07	79.60	1.31E+01		3.02E+00	6.15E+00
	1235.34	19.70	7.09E+01		2.15E+01	3.35E+01
CS-137	661.65	85.12	8.34E-02	8.34E-02	5.15E-02	3.97E-02
LA-138	788.74	34.00	1.85E-01	7.06E-02	5.27E-03	8.69E-02
	1435.80	66.00	7.06E-02		-7.04E-03	3.08E-02
CE-139	165.85	80.35	8.78E-02	8.78E-02	1.44E-03	4.26E-02
BA-140	162.64	6.70	1.10E+02	3.42E+01	3.26E+01	5.32E+01
	304.84	4.50	1.79E+02		-1.31E+02	8.61E+01
	423.70	3.20	2.70E+02		-2.96E-02	1.29E+02
	437.55	2.00	4.33E+02		9.96E+01	2.06E+02
	537.32	25.00	3.42E+01		1.09E+01	1.62E+01
LA-140	328.77	20.50	4.39E+01	9.35E+00	2.11E+01	2.12E+01
	487.03	45.50	1.79E+01		-1.04E-01	8.48E+00
	815.85	23.50	3.66E+01		-1.76E+01	1.69E+01
	1596.49	95.49	9.35E+00		-2.14E-02	4.13E+00

Analysis Report for 1707082-15

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CE-141	145.44	48.40	6.78E-01	6.78E-01	1.45E-01	3.29E-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	5.02E-01	5.02E-01	8.73E-02	2.44E-01
PM-144	476.78	42.00	1.42E-01	6.51E-02	-4.30E-02	6.73E-02
	618.01	98.60	6.51E-02		-2.66E-02	3.06E-02
	696.49	99.49	7.37E-02		1.45E-02	3.48E-02
PM-145	36.85	21.70	2.21E-01	1.22E-01	-5.81E-02	1.07E-01
	37.36	39.70	1.22E-01		1.58E-02	5.94E-02
	42.30	15.10	2.96E-01		-6.54E-02	1.44E-01
	72.40	2.31	2.60E+00		-3.30E+00	1.28E+00
PM-146	453.90	39.94	1.41E-01	1.41E-01	3.52E-02	6.71E-02
	735.90	14.01	4.14E-01		-2.20E-02	1.94E-01
	747.13	13.10	4.48E-01		1.16E-01	2.09E-01
ND-147	91.11	28.90	8.08E+01	8.08E+01	1.41E+02	3.97E+01
	531.02	13.10	1.52E+02		6.82E+01	7.20E+01
PM-149	285.90	3.10	1.08E+13	1.08E+13	7.59E+11	5.20E+12
EU-152	121.78	20.50	2.11E-01	2.11E-01	7.50E-02	1.03E-01
	244.69	5.40	9.68E-01		2.32E-01	4.69E-01
	344.27	19.13	2.69E-01		-4.37E-02	1.29E-01
	778.89	9.20	6.06E-01		-1.74E-01	2.83E-01
	964.01	10.40	8.08E-01		3.83E-01	3.83E-01
	1085.78	7.22	8.66E-01		-4.88E-01	3.99E-01
	1112.02	9.60	8.24E-01		1.78E-01	3.86E-01
	1407.95	14.94	4.59E-01		4.08E-02	2.10E-01
GD-153	97.43	31.30	1.84E-01	1.84E-01	3.54E-03	8.98E-02
	103.18	22.20	2.47E-01		1.52E-02	1.20E-01
EU-154	123.07	40.50	1.06E-01	1.06E-01	1.34E-02	5.16E-02
	723.30	19.70	2.85E-01		-1.36E-02	1.33E-01
	873.19	11.50	5.56E-01		1.21E-01	2.60E-01
	996.32	10.30	7.08E-01		3.38E-01	3.32E-01
	1004.76	17.90	3.92E-01		-3.62E-02	1.83E-01
	1274.45	35.50	1.83E-01		-2.62E-02	8.38E-02
EU-155	86.50	30.90	1.88E-01	1.88E-01	7.89E-02	9.22E-02
	105.30	20.70	2.10E-01		-2.07E-03	1.02E-01
EU-156	811.77	10.40	4.30E+01	4.30E+01	1.62E+01	2.01E+01
	1153.47	7.20	7.60E+01		2.23E+01	3.54E+01
	1230.71	8.90	7.12E+01		2.83E+01	3.34E+01
HO-166M	184.41	72.60	7.88E-02	7.88E-02	1.53E-01	3.84E-02
	280.45	29.60	1.75E-01		-2.33E-02	8.43E-02
	410.94	11.10	5.13E-01		4.91E-01	2.46E-01
	711.69	54.10	1.11E-01		7.20E-02	5.23E-02
TM-171	66.72	0.14	4.07E+01	4.07E+01	1.38E+01	1.99E+01
HF-172	67.35	5.31	1.06E+00	4.17E-01	3.67E-01	5.19E-01
	125.81	11.30	4.17E-01		4.71E-02	2.03E-01
LU-172	181.53	20.60	3.82E+03	1.99E+03	-6.85E+03	1.85E+03
	900.72	29.81	3.81E+03		2.54E+03	1.79E+03
	1093.66	62.50	1.99E+03		2.92E+02	9.31E+02
LU-173	100.72	5.24	9.18E-01	2.99E-01	1.59E-01	4.47E-01
	272.11	21.20	2.99E-01		-5.30E-02	1.45E-01
HF-175	343.40	84.00	1.56E-01	1.56E-01	-2.49E-02	7.51E-02
LU-176	88.34	13.30	4.36E-01	5.14E-02	2.45E-01	2.14E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	LU-176	201.83		86.00	5.26E-02	5.14E-02	-2.44E-03	2.55E-02
		306.78		94.00	5.14E-02		2.66E-05	2.47E-02
	HF-181	133.02		41.70	4.81E-01	2.74E-01	8.37E-02	2.34E-01
		345.85		17.20	1.35E+00		-2.25E-01	6.50E-01
		482.03		82.80	2.74E-01		-4.93E-02	1.30E-01
	TA-182	67.75		41.20	2.20E-01	2.20E-01	7.60E-02	1.08E-01
		1121.30		34.90	5.51E-01		7.70E-01	2.63E-01
		1189.05		16.23	8.42E-01		-2.34E-01	3.93E-01
		1221.41		26.98	5.75E-01		3.54E-01	2.70E-01
		1231.02		11.44	1.33E+00		5.31E-01	6.25E-01
	IR-192	308.46		29.68	3.92E-01	2.62E-01	-1.82E-01	1.88E-01
		468.07		48.10	2.62E-01		-7.96E-03	1.24E-01
	HG-203	279.19	*	77.30	3.28E-01	3.28E-01	2.02E-01	1.59E-01
	TL-204	374.74		94.11	5.71E-02	5.71E-02	-4.22E-03	2.73E-02
		899.15		99.16	6.54E-02		-2.03E-02	3.05E-02
		911.74		91.10	1.38E-01		3.29E-01	6.68E-02
	BI-207	569.67		97.72	6.27E-02	6.27E-02	3.04E-03	2.98E-02
		1063.62		74.90	8.62E-02		1.27E-02	3.99E-02
+	TL-208	583.14	*	30.22	2.36E-01	1.08E-01	1.07E+00	1.13E-01
		860.37	*	4.48	2.49E+00		1.79E+00	1.20E+00
		2614.66	*	35.85	1.08E-01		9.81E-01	4.12E-02
	BI-210M	262.00		45.00	1.06E-01	1.06E-01	-8.40E-02	5.13E-02
		300.00		23.00	2.43E-01		1.01E-01	1.18E-01
+	PB-210	46.50	*	4.25	1.59E+00	1.59E+00	1.08E+00	7.80E-01
	PB-211	404.84		2.90	1.79E+00	1.79E+00	-1.32E+00	8.54E-01
		831.96		2.90	2.26E+00		-4.66E-01	1.06E+00
+	BI-212	727.17	*	11.80	6.60E-01	6.60E-01	7.13E-01	3.15E-01
		1620.62	*	2.75	1.62E+00		1.00E+00	6.91E-01
+	PB-212	238.63	*	44.60	1.83E-01	1.83E-01	1.24E+00	8.98E-02
		300.09		3.41	1.64E+00		6.78E-01	7.94E-01
+	BI-214	609.31	*	46.30	1.94E-01	4.34E-02	9.93E-01	9.38E-02
		1120.29	*	15.10	7.47E-01		1.01E+00	3.57E-01
		1764.49	*	15.80	4.34E-02		1.24E+00	0.00E+00
		2204.22	*	4.98	6.92E-01		1.53E+00	2.65E-01
+	PB-214	295.21	*	19.19	4.20E-01	2.14E-01	7.26E-01	2.05E-01
		351.92	*	37.19	2.14E-01		1.04E+00	1.04E-01
	RN-219	401.80		6.50	8.05E-01	8.05E-01	8.76E-02	3.85E-01
	RA-223	323.87		3.88	1.31E+00	1.31E+00	-1.98E-01	6.32E-01
+	RA-224	240.98	*	3.95	2.09E+00	2.09E+00	3.94E+00	1.02E+00
	RA-225	40.00		31.00	1.23E+01	1.23E+01	4.26E+00	5.97E+00
+	RA-226	186.21	*	3.28	2.52E+00	2.52E+00	2.86E+00	1.24E+00
	TH-227	50.10		8.40	5.36E-01	4.93E-01	-1.24E-01	2.61E-01
		236.00		11.50	4.93E-01		-3.57E+00	2.40E-01
		256.20		6.30	7.83E-01		1.60E-01	3.78E-01
+	AC-228	338.32	*	11.40	5.91E-01	3.20E-01	1.37E+00	2.87E-01
		911.07	*	27.70	3.20E-01		1.10E+00	1.53E-01
		969.11	*	16.60	6.29E-01		7.58E-01	3.01E-01
	TH-230	48.44		16.90	2.86E-01	2.86E-01	2.72E-01	1.40E-01
		62.85		4.60	1.24E+00		1.94E+00	6.08E-01
		67.67		0.37	1.38E+01		4.78E+00	6.77E+00
	PA-231	283.67		1.60	3.11E+00	2.31E+00	-1.49E+00	1.50E+00
		302.67		2.30	2.31E+00		7.21E-01	1.12E+00
	TH-231	25.64		14.70	4.36E-01	4.36E-01	-3.37E+00	2.12E-01

Analysis Report for 1707082-15

HTC-A01-S006-0612-01

	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	8.27E-01	4.36E-01	-2.41E-01	4.05E-01
	PA-233	311.98		38.60	1.40E+00	1.40E+00	4.03E-02	6.75E-01
	PA-234	131.20		20.40	2.19E-01	2.19E-01	8.95E-03	1.06E-01
		733.99		8.80	6.53E-01		-3.83E-02	3.06E-01
		946.00		12.00	4.99E-01		-1.34E-02	2.31E-01
	PA-234M	1001.03		0.92	7.90E+00	7.90E+00	6.94E-01	3.70E+00
+	TH-234	63.29	*	3.80	1.87E+00	1.87E+00	1.04E+00	9.19E-01
	U-235	143.76		10.50	4.28E-01	4.28E-01	3.09E-01	2.08E-01
		163.35		4.70	9.64E-01		4.95E-01	4.68E-01
		205.31		4.70	9.45E-01		-7.99E-02	4.57E-01
	NP-237	86.50		12.60	4.45E-01	4.45E-01	1.87E-01	2.18E-01
	NP-239	106.10		22.70	2.05E+11	2.05E+11	-8.11E+08	9.99E+10
		228.18		10.70	4.50E+11		-1.19E+11	2.17E+11
		277.60		14.10	4.13E+11		1.74E+11	2.00E+11
	AM-241	59.54		35.90	1.40E-01	1.40E-01	-8.94E-04	6.86E-02
+	AM-243	74.67	*	66.00	1.37E-01	1.37E-01	2.62E-01	6.75E-02
+	CM-243	209.75	*	3.29	1.85E+00	4.18E-01	1.67E+00	9.00E-01
		228.14		10.60	4.18E-01		-1.10E-01	2.02E-01
		277.60	*	14.00	4.49E-01		2.76E-01	2.18E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

Analysis Report for 1707082-15

HTC-A01-S006-0612-01

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

Sample Title: HTC-A01-S006-0612-01

Elapsed Live time: 3600
Elapsed Real Time: 3601

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	2	65	74	72	161	548	121
25:	72	84	69	63	67	61	69	78
33:	78	74	71	79	88	61	85	87
41:	82	70	76	81	79	103	135	109
49:	100	90	92	74	110	109	91	103
57:	108	107	130	123	151	138	174	244
65:	148	131	138	144	156	132	132	146
73:	141	188	357	329	398	512	184	132
81:	103	144	130	153	164	121	195	240
89:	135	188	156	138	319	210	118	122
97:	96	94	103	93	89	90	87	79
105:	91	104	100	75	92	90	107	85
113:	87	77	86	80	92	84	85	78
121:	89	88	78	100	74	78	84	89
129:	116	108	92	84	83	84	66	97
137:	76	70	87	72	73	89	74	93
145:	84	88	75	66	73	76	86	78
153:	75	84	81	78	82	74	67	61
161:	62	92	81	80	63	73	75	69
169:	79	65	61	76	65	73	78	70
177:	57	78	63	68	70	63	76	87
185:	79	184	131	58	80	52	71	62
193:	63	69	64	64	55	75	55	62
201:	63	67	60	60	63	61	70	40
209:	97	101	76	46	56	62	45	56
217:	55	73	57	57	51	61	53	61
225:	61	51	52	65	38	61	39	54
233:	55	54	47	54	48	209	620	240
241:	103	160	128	58	38	52	48	38
249:	36	47	38	37	46	44	40	39
257:	45	39	38	33	30	39	38	36
265:	39	42	52	44	47	58	71	48
273:	51	34	36	32	52	51	39	40
281:	43	35	30	33	36	36	34	35
289:	50	34	31	53	38	43	153	157
297:	49	35	41	66	40	28	32	29
305:	33	31	24	38	28	25	31	28
313:	35	37	19	30	24	28	32	30
321:	24	31	33	29	39	22	37	62
329:	40	24	34	24	32	21	25	16
337:	32	88	127	49	39	30	26	26
345:	26	26	30	31	22	35	96	295
353:	179	40	23	31	21	30	26	18
361:	23	24	36	22	27	20	24	23

369:	23	26	19	29	25	18	27	30

Sample Title: HTC-A01-S006-0612-01

Channel								
377:	21	25	24	32	17	24	18	26
385:	15	21	21	23	34	29	13	20
393:	33	20	26	28	22	28	23	26
401:	21	20	21	30	23	21	20	24
409:	27	40	28	21	17	32	18	14
417:	24	22	28	16	18	27	20	23
425:	19	24	21	23	20	13	14	19
433:	14	18	20	21	18	22	16	25
441:	23	19	23	14	17	14	21	16
449:	16	24	25	16	21	18	18	23
457:	26	15	21	22	14	17	40	41
465:	14	18	23	16	17	23	17	19
473:	16	16	23	13	20	14	12	15
481:	9	29	11	15	15	12	20	18
489:	11	17	17	7	15	12	17	22
497:	22	18	10	11	17	15	22	17
505:	16	16	8	21	33	75	75	45
513:	22	26	16	14	12	17	11	19
521:	15	19	17	25	15	10	13	15
529:	16	9	17	10	17	21	13	11
537:	16	15	11	15	12	11	18	17
545:	15	12	17	18	11	13	7	15
553:	12	15	15	10	10	11	13	13
561:	20	16	20	18	17	21	13	21
569:	19	15	19	22	21	12	23	20
577:	10	9	18	15	18	38	151	130
585:	26	11	20	19	18	17	16	14
593:	13	14	13	16	19	17	15	20
601:	13	12	9	10	16	16	19	44
609:	182	177	33	14	16	17	14	10
617:	9	14	12	14	14	11	17	11
625:	10	7	21	14	11	11	12	17
633:	12	7	11	9	10	10	12	12
641:	11	13	13	12	17	15	13	16
649:	16	18	16	18	13	10	6	21
657:	12	10	16	11	31	32	21	14
665:	14	21	14	10	15	10	10	10
673:	15	14	18	17	10	17	11	15
681:	12	12	10	11	15	8	14	10
689:	8	11	13	12	12	13	18	9
697:	16	11	16	11	13	10	9	13
705:	11	13	5	8	16	12	17	8
713:	8	13	14	8	11	11	21	13
721:	8	8	8	10	7	17	42	26
729:	19	10	10	14	8	7	13	11
737:	13	15	5	11	8	11	7	9
745:	7	11	12	12	11	10	6	11
753:	5	12	13	16	15	5	6	5
761:	11	12	10	17	12	9	16	14
769:	23	18	11	9	11	4	11	7
777:	6	5	9	6	18	12	12	16
785:	19	17	12	11	14	9	10	9
793:	16	16	28	19	12	10	11	6

801:	13	8	12	5	11	14	15	5

Sample Title: HTC-A01-S006-0612-01

Channel								
809:	6	10	10	12	13	9	13	7
817:	6	2	2	7	12	8	9	11
825:	6	7	11	11	18	8	11	12
833:	6	12	15	18	11	11	18	18
841:	9	8	15	8	7	8	9	13
849:	4	3	15	10	9	9	13	8
857:	12	10	14	20	26	15	10	12
865:	8	5	6	9	15	5	12	14
873:	8	12	13	5	6	6	6	8
881:	10	6	11	6	16	8	4	8
889:	6	7	11	12	4	12	0	6
897:	9	17	6	9	10	7	17	12
905:	7	4	7	12	7	44	102	66
913:	11	12	18	10	10	7	7	12
921:	7	10	7	4	5	7	17	7
929:	5	5	7	8	10	18	20	7
937:	6	6	10	8	9	7	5	5
945:	9	6	8	8	14	10	6	12
953:	8	7	11	5	10	11	6	4
961:	8	13	16	16	23	12	19	32
969:	53	39	7	13	13	10	14	4
977:	13	11	6	5	6	10	10	6
985:	2	8	8	6	15	2	2	9
993:	11	6	10	11	13	11	12	10
1001:	9	10	10	14	7	11	6	12
1009:	7	10	7	5	8	14	5	6
1017:	5	9	9	7	10	8	7	7
1025:	4	10	5	5	3	6	9	5
1033:	9	9	9	8	8	7	6	8
1041:	9	7	9	5	14	17	9	5
1049:	10	7	10	14	6	8	8	8
1057:	13	5	10	4	5	6	4	9
1065:	16	9	5	7	8	6	8	8
1073:	9	9	6	7	5	10	8	12
1081:	7	4	6	6	12	8	5	6
1089:	7	12	7	4	12	13	8	11
1097:	10	11	14	5	11	7	4	6
1105:	6	8	7	10	16	10	8	9
1113:	10	11	11	12	8	7	19	42
1121:	39	17	15	10	10	8	9	13
1129:	6	14	6	11	10	6	9	6
1137:	9	11	15	8	6	3	13	10
1145:	9	10	5	5	8	6	4	10
1153:	7	13	11	13	12	5	4	10
1161:	6	11	8	9	8	8	12	14
1169:	16	11	10	7	12	12	14	15
1177:	10	13	5	9	8	8	9	13
1185:	12	8	13	10	11	5	9	10
1193:	8	12	6	9	10	12	10	10
1201:	10	11	13	8	9	3	13	10
1209:	16	8	7	7	18	11	10	10
1217:	9	21	12	11	12	8	10	9
1225:	8	6	11	19	10	11	9	9

1233:	10	9	11	18	22	24	16	15

Sample Title: HTC-A01-S006-0612-01

Channel								
1241:	10	10	8	8	12	11	8	10
1249:	7	6	15	5	7	5	8	10
1257:	7	7	6	6	5	7	6	7
1265:	7	7	7	3	7	7	8	7
1273:	4	3	5	8	4	10	9	11
1281:	5	12	3	4	5	4	5	7
1289:	5	7	11	3	6	7	4	8
1297:	8	2	7	9	4	6	7	5
1305:	9	7	4	2	6	3	3	12
1313:	5	4	6	7	6	5	5	6
1321:	3	2	8	5	4	7	7	4
1329:	10	9	2	7	3	2	8	9
1337:	4	3	3	4	2	2	3	3
1345:	5	3	2	7	5	3	2	2
1353:	3	8	4	1	3	4	4	1
1361:	2	4	1	3	5	5	3	3
1369:	3	4	1	1	4	5	1	4
1377:	14	12	3	3	2	4	5	4
1385:	6	3	3	3	2	4	3	5
1393:	3	3	5	5	1	9	3	2
1401:	2	4	7	2	3	1	11	8
1409:	7	6	4	5	3	6	1	2
1417:	1	0	1	3	1	3	4	0
1425:	5	2	5	4	2	2	1	2
1433:	1	2	4	3	2	2	3	4
1441:	0	0	2	3	1	3	2	4
1449:	2	3	0	0	1	0	6	4
1457:	9	22	100	399	405	157	26	13
1465:	11	4	5	1	1	1	5	1
1473:	4	4	0	1	1	2	1	1
1481:	2	1	0	3	0	0	3	2
1489:	2	3	0	1	3	3	5	3
1497:	4	1	2	0	3	2	2	7
1505:	1	2	5	3	8	4	5	3
1513:	4	0	4	2	2	2	1	3
1521:	1	1	1	3	1	5	3	3
1529:	2	0	5	1	1	1	0	1
1537:	1	6	3	0	0	2	3	2
1545:	0	4	0	1	2	2	1	0
1553:	3	3	0	1	3	2	3	1
1561:	1	1	0	3	1	0	1	0
1569:	1	0	2	3	0	1	1	2
1577:	2	1	1	1	1	1	2	2
1585:	3	1	7	6	2	3	5	5
1593:	6	6	2	1	1	3	0	4
1601:	0	2	3	4	2	0	1	2
1609:	2	2	3	5	2	2	2	1
1617:	2	2	4	4	5	1	0	1
1625:	2	3	2	0	5	5	7	3
1633:	0	1	1	1	0	0	5	0
1641:	1	3	0	1	2	2	3	1
1649:	0	2	1	1	2	1	1	0
1657:	2	1	2	2	3	4	0	1

1665:	2	2	2	3	3	0	2	1

Sample Title: HTC-A01-S006-0612-01

Channel								
1673:	2	0	2	0	2	4	2	0
1681:	2	2	1	1	2	1	1	2
1689:	2	1	3	2	0	1	1	1
1697:	0	2	0	2	0	1	2	2
1705:	1	2	0	2	2	1	2	0
1713:	2	3	2	1	3	2	0	0
1721:	2	0	0	2	3	0	0	4
1729:	7	6	0	0	1	2	2	2
1737:	1	0	0	1	3	1	2	1
1745:	1	1	2	0	1	1	3	2
1753:	1	1	0	0	0	2	1	2
1761:	1	2	15	24	23	6	1	0
1769:	0	0	0	1	1	3	3	0
1777:	1	0	1	1	1	3	2	0
1785:	1	1	0	0	1	0	1	1
1793:	2	1	0	0	0	0	3	1
1801:	0	1	1	3	1	0	2	1
1809:	0	0	0	4	0	2	1	2
1817:	3	2	0	1	0	1	1	1
1825:	1	0	2	0	0	4	0	1
1833:	0	0	2	2	0	2	1	0
1841:	1	1	2	4	2	3	4	4
1849:	2	4	1	0	0	4	2	1
1857:	0	0	0	1	0	1	1	0
1865:	0	1	2	2	1	1	1	3
1873:	1	1	0	2	0	2	1	1
1881:	2	0	2	1	4	2	1	0
1889:	1	0	1	1	2	2	1	3
1897:	1	1	1	0	1	2	0	0
1905:	2	0	1	0	1	1	0	0
1913:	1	0	0	2	2	3	3	1
1921:	2	2	1	0	0	1	2	1
1929:	0	0	0	2	1	1	0	0
1937:	3	1	2	2	0	1	0	2
1945:	0	0	0	1	2	1	0	0
1953:	2	1	0	0	0	1	0	1
1961:	1	2	3	1	0	2	0	1
1969:	0	1	2	2	2	0	0	1
1977:	0	0	1	1	0	1	1	1
1985:	0	3	0	1	1	0	2	1
1993:	0	1	0	0	0	0	1	0
2001:	0	1	1	0	2	0	0	1
2009:	2	0	0	1	1	0	2	1
2017:	2	0	1	1	1	1	2	3
2025:	1	1	0	0	1	0	1	1
2033:	1	3	0	0	1	1	1	0
2041:	1	1	1	0	0	1	1	0
2049:	2	4	0	0	1	0	0	0
2057:	1	1	0	1	1	1	0	1
2065:	1	1	1	0	0	1	1	1
2073:	1	1	1	2	1	2	0	0
2081:	0	1	1	0	0	2	3	2
2089:	0	0	0	2	0	1	0	1

2097:	0	4	4	5	7	5	6	3

Sample Title: HTC-A01-S006-0612-01

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

2529:	0	0	0	0	0	1	1	0

Sample Title: HTC-A01-S006-0612-01

Channel								
2537:	0	0	1	0	0	0	0	0
2545:	0	0	0	0	0	0	0	0
2553:	0	1	0	1	0	0	1	0
2561:	1	1	0	0	0	1	0	2
2569:	0	1	0	0	0	1	0	0
2577:	0	1	0	1	0	0	0	1
2585:	0	0	0	1	0	0	0	0
2593:	0	0	0	1	0	0	0	0
2601:	1	0	0	0	1	0	1	0
2609:	0	4	3	18	39	38	20	5
2617:	2	2	0	0	0	0	1	0
2625:	0	0	0	0	0	2	0	0
2633:	0	1	0	0	0	1	0	0
2641:	0	0	0	1	1	1	0	0
2649:	0	0	0	0	0	0	1	0
2657:	0	0	0	1	1	0	0	1
2665:	0	0	1	0	0	0	0	0
2673:	1	0	0	0	0	0	0	0
2681:	0	0	0	2	0	0	0	1
2689:	0	0	0	0	0	0	1	1
2697:	0	0	1	2	0	1	0	1
2705:	0	0	0	0	1	1	0	0
2713:	0	0	1	2	0	0	0	0
2721:	0	0	0	1	1	0	0	2
2729:	0	0	0	0	0	0	0	0
2737:	0	0	0	0	0	0	0	0
2745:	0	0	1	0	0	0	2	0
2753:	0	0	0	0	0	0	0	0
2761:	0	0	0	0	0	0	0	0
2769:	0	0	2	0	0	0	0	0
2777:	0	0	0	0	0	0	0	1
2785:	0	0	2	0	0	2	0	0
2793:	0	0	0	0	0	0	0	0
2801:	0	0	0	0	0	0	0	1
2809:	0	0	0	2	0	1	0	0
2817:	1	1	0	0	0	0	1	0
2825:	1	0	0	0	1	1	0	0
2833:	1	1	0	0	1	0	0	0
2841:	0	0	2	0	0	1	0	2
2849:	0	0	0	0	1	0	1	0
2857:	1	0	0	1	0	0	1	1
2865:	0	0	1	1	1	0	0	0
2873:	0	0	0	0	1	0	0	1
2881:	1	1	0	0	0	1	0	0
2889:	0	0	0	0	0	1	2	0
2897:	0	0	0	2	0	0	0	1
2905:	0	0	0	0	2	0	0	0
2913:	0	0	0	1	0	0	1	0
2921:	0	0	0	1	0	0	1	0
2929:	0	0	1	0	0	0	0	0
2937:	0	0	0	0	1	1	2	0
2945:	0	0	0	0	1	0	0	0
2953:	1	0	1	1	0	2	0	0

2961:	0	0	0	0	0	0	0	1

Sample Title: HTC-A01-S006-0612-01

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

3393:	0	0	1	0	0	0	1	0

Sample Title: HTC-A01-S006-0612-01

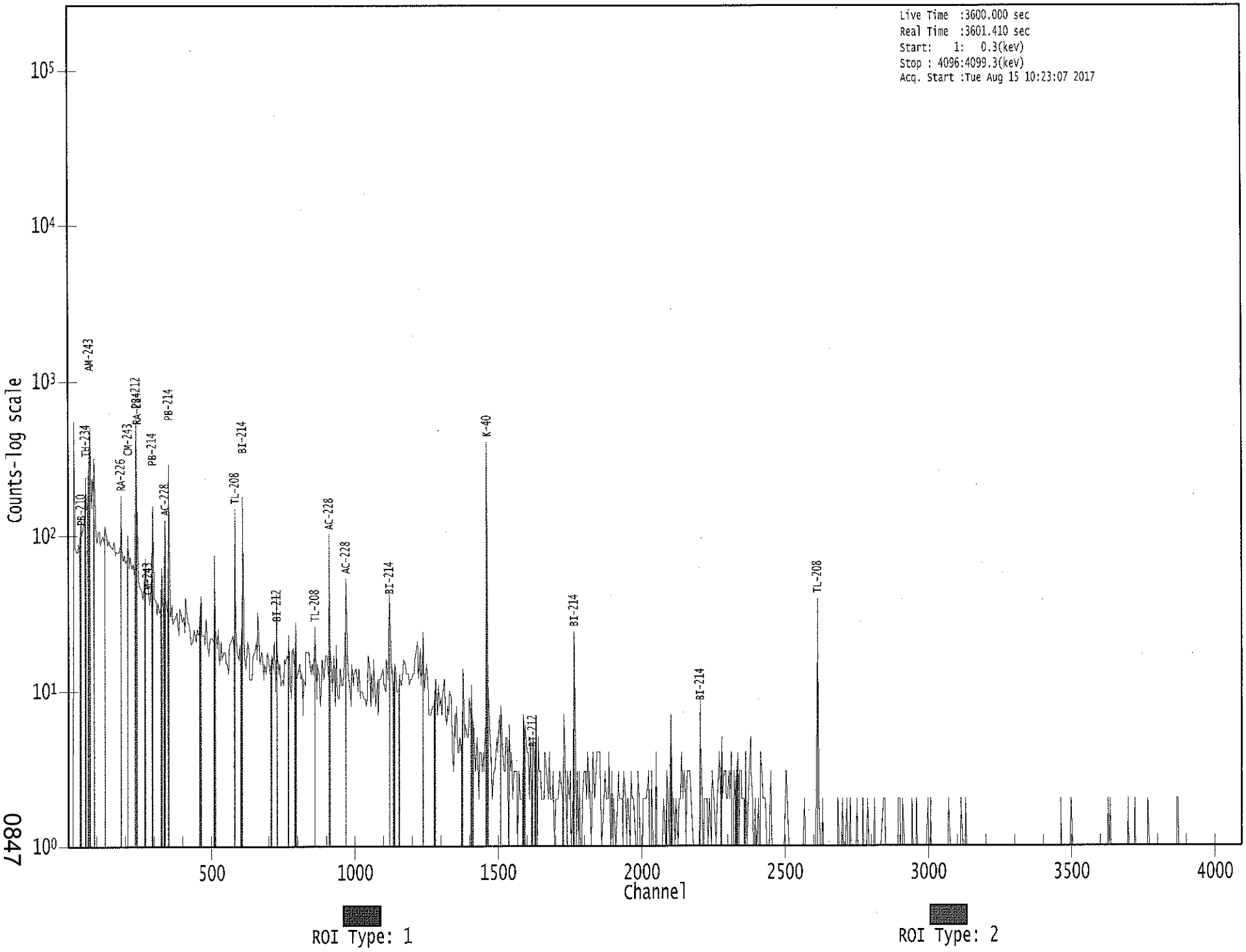
Channel								
3401:	0	0	0	0	0	1	0	1
3409:	1	1	0	0	0	1	0	0
3417:	1	0	1	0	0	0	0	0
3425:	0	0	0	0	0	0	0	1
3433:	1	0	1	0	0	0	0	0
3441:	1	0	0	0	0	0	0	1
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	2	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	1	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	1	0	0	0
3497:	2	0	0	0	0	0	1	0
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	1
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	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	1	0	0
3577:	0	0	0	0	0	0	0	0
3585:	1	0	1	0	0	0	0	0
3593:	0	0	0	1	0	0	0	0
3601:	0	0	0	0	0	0	0	0
3609:	0	0	0	0	0	0	0	0
3617:	0	0	0	0	0	0	0	0
3625:	0	2	0	1	0	1	0	0
3633:	0	2	0	0	0	0	0	0
3641:	0	0	0	0	1	0	1	0
3649:	0	0	0	0	0	0	0	0
3657:	1	0	0	0	0	0	0	0
3665:	0	0	0	1	0	0	1	0
3673:	0	1	0	0	0	0	0	0
3681:	0	0	0	0	0	0	0	0
3689:	0	0	0	0	0	0	0	2
3697:	0	0	0	0	0	1	0	0
3705:	0	0	0	0	0	0	0	0
3713:	0	0	0	0	0	0	2	0
3721:	0	1	0	0	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	1	1	0
3753:	0	0	0	0	1	0	1	1
3761:	0	0	0	0	2	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:	1	0	0	0	0	0	0	0
3817:	0	0	0	0	0	0	0	0

3825:	0	0	0	0	0	1	0	0

Sample Title: HTC-A01-S006-0612-01

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

0000055249.CNF



0847

Apex-Gamma

8/15

Analysis Report for 1707082-16

HTC-A01-S006-1218-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707082-16
Sample Description	: HTC-A01-S006-1218-01
Sample Type	: SOIL
Sample Size	: 6.342E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 6:37:13AM
Acquisition Started	: 8/15/2017 10:23:13AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3608.3 seconds
Dead Time	: 0.23 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 9 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55250

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/16/17

Analysis Report for 1707082-16

HTC-A01-S006-1218-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/15/2017 11:23:39AM
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	47.79	48.10	0.0000	0.00
2	75.16	75.46	0.0000	0.00
3	77.62	77.92	0.0000	0.00
4	88.53	88.82	0.0000	0.00
5	185.81	186.07	0.0000	0.00
6	209.24	209.49	0.0000	0.00
7	238.96	239.20	0.0000	0.00
8	242.27	242.52	0.0000	0.00
9	270.24	270.47	0.0000	0.00
10	295.37	295.60	0.0000	0.00
11	338.51	338.72	0.0000	0.00
12	352.10	352.31	0.0000	0.00
13	511.03	511.18	0.0000	0.00
14	547.51	547.66	0.0000	0.00
15	554.75	554.89	0.0000	0.00
16	559.76	559.90	0.0000	0.00
17	583.47	583.60	0.0000	0.00
18	609.45	609.57	0.0000	0.00
19	614.83	614.95	0.0000	0.00
20	661.44	661.55	0.0000	0.00
21	742.75	742.83	0.0000	0.00
22	762.76	762.83	0.0000	0.00
23	794.88	794.94	0.0000	0.00
24	893.63	893.66	0.0000	0.00
25	911.39	911.41	0.0000	0.00
26	968.78	968.78	0.0000	0.00
27	1007.26	1007.25	0.0000	0.00
28	1074.74	1074.71	0.0000	0.00
29	1119.97	1119.92	0.0000	0.00
30	1342.84	1342.72	0.0000	0.00
31	1376.67	1376.53	0.0000	0.00
32	1400.19	1400.04	0.0000	0.00
33	1460.47	1460.30	0.0000	0.00
34	1508.35	1508.17	0.0000	0.00
35	1591.40	1591.19	0.0000	0.00
36	1618.16	1617.94	0.0000	0.00
37	1661.92	1661.69	0.0000	0.00
38	1728.04	1727.78	0.0000	0.00
39	1763.85	1763.58	0.0000	0.00
40	1847.15	1846.86	0.0000	0.00
41	2102.21	2101.83	0.0000	0.00
42	2127.75	2127.36	0.0000	0.00

Analysis Report for 1707082-16

HTC-A01-S006-1218-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	2203.47	2203.05	0.0000	0.00
44	2253.55	2253.11	0.0000	0.00
45	2361.39	2360.92	0.0000	0.00
46	2613.75	2613.20	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707082-16

HTC-A01-S006-1218-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 11:23:39AM

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	47.79	44 -	51	48.10	1.25E+02	95.41	1.43E+03	1.17
M	2	75.16	71 -	81	75.46	5.02E+02	113.17	1.61E+03	2.43
m	3	77.62	71 -	81	77.92	6.53E+02	112.38	1.45E+03	2.24
	4	88.53	86 -	91	88.82	1.02E+02	92.77	1.64E+03	2.95
	5	185.81	182 -	190	186.07	1.67E+02	81.83	9.28E+02	2.27
	6	209.24	206 -	214	209.49	1.15E+02	71.95	7.28E+02	4.79
M	7	238.96	234 -	245	239.20	7.21E+02	75.52	4.46E+02	2.26
m	8	242.27	234 -	245	242.52	1.60E+02	69.53	3.57E+02	2.04
	9	270.24	268 -	273	270.47	4.64E+01	44.10	3.53E+02	1.70
	10	295.37	292 -	298	295.60	2.01E+02	53.32	3.71E+02	2.22
	11	338.51	335 -	341	338.72	8.50E+01	45.68	3.16E+02	1.57
	12	352.10	349 -	355	352.31	3.59E+02	54.55	2.81E+02	2.03
	13	511.03	507 -	516	511.18	1.58E+02	46.34	2.19E+02	1.98
	14	547.51	544 -	551	547.66	3.21E+01	30.20	1.28E+02	4.59
M	15	554.75	552 -	570	554.89	2.34E+01	24.04	8.60E+01	2.82
m	16	559.76	552 -	570	559.90	2.11E+01	30.53	1.33E+02	2.83
	17	583.47	579 -	588	583.60	1.85E+02	45.37	1.84E+02	2.29
M	18	609.45	604 -	618	609.57	2.65E+02	42.99	1.32E+02	2.64
m	19	614.83	604 -	618	614.95	1.93E+01	31.94	1.02E+02	3.48
	20	661.44	658 -	665	661.55	3.28E+01	28.77	1.16E+02	1.79
	21	742.75	739 -	745	742.83	1.92E+01	20.99	6.57E+01	1.70
	22	762.76	760 -	765	762.83	2.69E+01	19.87	5.81E+01	2.16
	23	794.88	790 -	798	794.94	3.59E+01	29.02	1.06E+02	2.22
	24	893.63	892 -	898	893.66	1.65E+01	19.60	6.10E+01	1.25
	25	911.39	907 -	916	911.41	1.01E+02	33.05	9.31E+01	2.88
	26	968.78	965 -	973	968.78	4.17E+01	36.85	1.81E+02	1.88
	27	1007.26	1005 -	1010	1007.25	1.28E+01	16.58	4.45E+01	1.51
	28	1074.74	1071 -	1078	1074.71	1.85E+01	20.20	5.49E+01	1.97
	29	1119.97	1114 -	1124	1119.92	5.99E+01	33.22	1.14E+02	2.93
	30	1342.84	1338 -	1347	1342.72	1.48E+01	16.31	2.85E+01	2.56
	31	1376.67	1372 -	1381	1376.53	1.35E+01	17.29	3.50E+01	1.38
	32	1400.19	1394 -	1405	1400.04	2.10E+01	21.63	4.80E+01	2.00
	33	1460.47	1454 -	1467	1460.30	6.10E+02	53.66	4.83E+01	2.65
	34	1508.35	1506 -	1510	1508.17	5.68E+00	8.31	1.06E+01	2.46
	35	1591.40	1587 -	1595	1591.19	1.83E+01	14.47	1.74E+01	1.76
	36	1618.16	1614 -	1621	1617.94	1.70E+01	8.25	0.00E+00	3.78
	37	1661.92	1656 -	1665	1661.69	1.04E+01	12.12	1.52E+01	1.80
	38	1728.04	1724 -	1732	1727.78	1.55E+01	9.60	5.06E+00	1.40
	39	1763.85	1759 -	1767	1763.58	4.48E+01	14.43	4.38E+00	3.45
	40	1847.15	1844 -	1849	1846.86	6.00E+00	7.35	6.00E+00	1.18

Analysis Report for 1707082-16

HTC-A01-S006-1218-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	2102.21	2098 -	2105	2101.83	1.20E+01	8.49	4.07E+00	1.86
42	2127.75	2124 -	2129	2127.36	6.69E+00	6.40	2.63E+00	1.26
43	2203.47	2198 -	2208	2203.05	2.00E+01	8.94	0.00E+00	4.07
44	2253.55	2250 -	2255	2253.11	4.58E+00	5.74	2.83E+00	1.84
45	2361.39	2357 -	2364	2360.92	1.20E+01	6.93	0.00E+00	2.66
46	2613.75	2609 -	2617	2613.20	5.50E+01	14.83	0.00E+00	3.19

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 11:23:39AM

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	47.79	44 -	51	1.25E+02	95.41	1.43E+03	7.63E+01
M	2	75.16	71 -	81	5.02E+02	113.17	1.61E+03	6.60E+01
m	3	77.62	71 -	81	6.53E+02	112.38	1.45E+03	6.26E+01
	4	88.53	86 -	91	1.02E+02	92.77	1.64E+03	7.44E+01
	5	185.81	182 -	190	1.67E+02	81.83	9.28E+02	6.38E+01
	6	209.24	206 -	214	1.15E+02	71.95	7.28E+02	5.65E+01
M	7	238.96	234 -	245	7.21E+02	75.52	4.46E+02	3.47E+01
m	8	242.27	234 -	245	1.60E+02	69.53	3.57E+02	3.11E+01
	9	270.24	268 -	273	4.64E+01	44.10	3.53E+02	3.45E+01
	10	295.37	292 -	298	2.01E+02	53.32	3.71E+02	3.71E+01
	11	338.51	335 -	341	8.50E+01	45.68	3.16E+02	3.44E+01
	12	352.10	349 -	355	3.59E+02	54.55	2.81E+02	3.23E+01
	13	511.03	507 -	516	1.58E+02	46.34	2.19E+02	3.20E+01
	14	547.51	544 -	551	3.21E+01	30.20	1.28E+02	2.30E+01
M	15	554.75	552 -	570	2.34E+01	24.04	8.60E+01	1.52E+01
m	16	559.76	552 -	570	2.11E+01	30.53	1.33E+02	1.90E+01
	17	583.47	579 -	588	1.85E+02	45.37	1.84E+02	2.98E+01
M	18	609.45	604 -	618	2.65E+02	42.99	1.32E+02	1.89E+01
m	19	614.83	604 -	618	1.93E+01	31.94	1.02E+02	1.66E+01
	20	661.44	658 -	665	3.28E+01	28.77	1.16E+02	2.17E+01
	21	742.75	739 -	745	1.92E+01	20.99	6.57E+01	1.57E+01

Analysis Report for 1707082-16

HTC-A01-S006-1218-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
22	762.76	760 -	765	2.69E+01	19.87	5.81E+01	1.39E+01
23	794.88	790 -	798	3.59E+01	29.02	1.06E+02	2.17E+01
24	893.63	892 -	898	1.65E+01	19.60	6.10E+01	1.47E+01
25	911.39	907 -	916	1.01E+02	33.05	9.31E+01	2.15E+01
26	968.78	965 -	973	4.17E+01	36.85	1.81E+02	2.84E+01
27	1007.26	1005 -	1010	1.28E+01	16.58	4.45E+01	1.23E+01
28	1074.74	1071 -	1078	1.85E+01	20.20	5.49E+01	1.50E+01
29	1119.97	1114 -	1124	5.99E+01	33.22	1.14E+02	2.42E+01
30	1342.84	1338 -	1347	1.48E+01	16.31	2.85E+01	1.18E+01
31	1376.67	1372 -	1381	1.35E+01	17.29	3.50E+01	1.29E+01
32	1400.19	1394 -	1405	2.10E+01	21.63	4.80E+01	1.61E+01
33	1460.47	1454 -	1467	6.10E+02	53.66	4.83E+01	1.72E+01
34	1508.35	1506 -	1510	5.68E+00	8.31	1.06E+01	5.59E+00
35	1591.40	1587 -	1595	1.83E+01	14.47	1.74E+01	9.59E+00
36	1618.16	1614 -	1621	1.70E+01	8.25	0.00E+00	0.00E+00
37	1661.92	1656 -	1665	1.04E+01	12.12	1.52E+01	8.44E+00
38	1728.04	1724 -	1732	1.55E+01	9.60	5.06E+00	4.53E+00
39	1763.85	1759 -	1767	4.48E+01	14.43	4.38E+00	4.43E+00
40	1847.15	1844 -	1849	6.00E+00	7.35	6.00E+00	4.50E+00
41	2102.21	2098 -	2105	1.20E+01	8.49	4.07E+00	4.04E+00
42	2127.75	2124 -	2129	6.69E+00	6.40	2.63E+00	3.10E+00
43	2203.47	2198 -	2208	2.00E+01	8.94	0.00E+00	0.00E+00
44	2253.55	2250 -	2255	4.58E+00	5.74	2.83E+00	3.15E+00
45	2361.39	2357 -	2364	1.20E+01	6.93	0.00E+00	0.00E+00
46	2613.75	2609 -	2617	5.50E+01	14.83	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 : 8/15/2017 11:23:39AM

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 1707082-16

HTC-A01-S006-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	47.79	44 -	51	48.10	1.25E+02	95.41	1.43E+03	TH-230
M	2	75.16	71 -	81	75.46	5.02E+02	113.17	1.61E+03	AM-243
m	3	77.62	71 -	81	77.92	6.53E+02	112.38	1.45E+03	TI-44
	4	88.53	86 -	91	88.82	1.02E+02	92.77	1.64E+03	LU-176
									CD-109
									SN-126
	5	185.81	182 -	190	186.07	1.67E+02	81.83	9.28E+02	RA-226
	6	209.24	206 -	214	209.49	1.15E+02	71.95	7.28E+02	GA-67
									CM-243
M	7	238.96	234 -	245	239.20	7.21E+02	75.52	4.46E+02	PB-212
m	8	242.27	234 -	245	242.52	1.60E+02	69.53	3.57E+02	.....
	9	270.24	268 -	273	270.47	4.64E+01	44.10	3.53E+02	.....
	10	295.37	292 -	298	295.60	2.01E+02	53.32	3.71E+02	PB-214
	11	338.51	335 -	341	338.72	8.50E+01	45.68	3.16E+02	AC-228
	12	352.10	349 -	355	352.31	3.59E+02	54.55	2.81E+02	PB-214
	13	511.03	507 -	516	511.18	1.58E+02	46.34	2.19E+02	.....
	14	547.51	544 -	551	547.66	3.21E+01	30.20	1.28E+02	.....
M	15	554.75	552 -	570	554.89	2.34E+01	24.04	8.60E+01	.....
m	16	559.76	552 -	570	559.90	2.11E+01	30.53	1.33E+02	.....
	17	583.47	579 -	588	583.60	1.85E+02	45.37	1.84E+02	TL-208
M	18	609.45	604 -	618	609.57	2.65E+02	42.99	1.32E+02	BI-214
m	19	614.83	604 -	618	614.95	1.93E+01	31.94	1.02E+02	AG-108M
	20	661.44	658 -	665	661.55	3.28E+01	28.77	1.16E+02	CS-137
	21	742.75	739 -	745	742.83	1.92E+01	20.99	6.57E+01	.....
	22	762.76	760 -	765	762.83	2.69E+01	19.87	5.81E+01	.....
	23	794.88	790 -	798	794.94	3.59E+01	29.02	1.06E+02	CS-134
	24	893.63	892 -	898	893.66	1.65E+01	19.60	6.10E+01	.....
	25	911.39	907 -	916	911.41	1.01E+02	33.05	9.31E+01	AC-228
									TL-204
	26	968.78	965 -	973	968.78	4.17E+01	36.85	1.81E+02	AC-228
	27	1007.26	1005 -	1010	1007.25	1.28E+01	16.58	4.45E+01	.....
	28	1074.74	1071 -	1078	1074.71	1.85E+01	20.20	5.49E+01	.....
	29	1119.97	1114 -	1124	1119.92	5.99E+01	33.22	1.14E+02	BI-214
									SC-46
	30	1342.84	1338 -	1347	1342.72	1.48E+01	16.31	2.85E+01	.....
	31	1376.67	1372 -	1381	1376.53	1.35E+01	17.29	3.50E+01	.....
	32	1400.19	1394 -	1405	1400.04	2.10E+01	21.63	4.80E+01	.....
	33	1460.47	1454 -	1467	1460.30	6.10E+02	53.66	4.83E+01	K-40
	34	1508.35	1506 -	1510	1508.17	5.68E+00	8.31	1.06E+01	.....
	35	1591.40	1587 -	1595	1591.19	1.83E+01	14.47	1.74E+01	.....
	36	1618.16	1614 -	1621	1617.94	1.70E+01	8.25	0.00E+00	.....
	37	1661.92	1656 -	1665	1661.69	1.04E+01	12.12	1.52E+01	.....
	38	1728.04	1724 -	1732	1727.78	1.55E+01	9.60	5.06E+00	.....
	39	1763.85	1759 -	1767	1763.58	4.48E+01	14.43	4.38E+00	BI-214
	40	1847.15	1844 -	1849	1846.86	6.00E+00	7.35	6.00E+00	.....
	41	2102.21	2098 -	2105	2101.83	1.20E+01	8.49	4.07E+00	.....
	42	2127.75	2124 -	2129	2127.36	6.69E+00	6.40	2.63E+00	.....
	43	2203.47	2198 -	2208	2203.05	2.00E+01	8.94	0.00E+00	BI-214
	44	2253.55	2250 -	2255	2253.11	4.58E+00	5.74	2.83E+00	.....
	45	2361.39	2357 -	2364	2360.92	1.20E+01	6.93	0.00E+00	.....
	46	2613.75	2609 -	2617	2613.20	5.50E+01	14.83	0.00E+00	TL-208

Analysis Report for 1707082-16

HTC-A01-S006-1218-01

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 : 8/15/2017 11:23:39AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	47.79	1.25E+02	95.41	1.80E-02	1.73E-03
M	2	75.16	5.02E+02	113.17	2.65E-02	2.02E-03
m	3	77.62	6.53E+02	112.38	2.68E-02	2.06E-03
	4	88.53	1.02E+02	92.77	2.72E-02	2.26E-03
	5	185.81	1.67E+02	81.83	1.96E-02	1.55E-03
	6	209.24	1.15E+02	71.95	1.79E-02	1.46E-03
M	7	238.96	7.21E+02	75.52	1.61E-02	1.34E-03
m	8	242.27	1.60E+02	69.53	1.59E-02	1.33E-03
	9	270.24	4.64E+01	44.10	1.45E-02	1.21E-03
	10	295.37	2.01E+02	53.32	1.35E-02	1.15E-03
	11	338.51	8.50E+01	45.68	1.19E-02	1.06E-03
	12	352.10	3.59E+02	54.55	1.15E-02	1.03E-03
	13	511.03	1.58E+02	46.34	8.25E-03	7.94E-04
	14	547.51	3.21E+01	30.20	7.75E-03	7.46E-04
M	15	554.75	2.34E+01	24.04	7.66E-03	7.36E-04
m	16	559.76	2.11E+01	30.53	7.60E-03	7.30E-04
	17	583.47	1.85E+02	45.37	7.32E-03	6.98E-04
M	18	609.45	2.65E+02	42.99	7.04E-03	6.64E-04
m	19	614.83	1.93E+01	31.94	6.98E-03	6.57E-04
	20	661.44	3.28E+01	28.77	6.54E-03	5.95E-04
	21	742.75	1.92E+01	20.99	5.90E-03	5.23E-04
	22	762.76	2.69E+01	19.87	5.76E-03	5.05E-04
	23	794.88	3.59E+01	29.02	5.55E-03	4.77E-04
	24	893.63	1.65E+01	19.60	5.01E-03	3.90E-04
	25	911.39	1.01E+02	33.05	4.92E-03	3.84E-04
	26	968.78	4.17E+01	36.85	4.67E-03	3.74E-04
	27	1007.26	1.28E+01	16.58	4.51E-03	3.68E-04
	28	1074.74	1.85E+01	20.20	4.27E-03	3.57E-04
	29	1119.97	5.99E+01	33.22	4.12E-03	3.50E-04
	30	1342.84	1.48E+01	16.31	3.54E-03	2.94E-04
	31	1376.67	1.35E+01	17.29	3.47E-03	2.89E-04
	32	1400.19	2.10E+01	21.63	3.42E-03	2.85E-04
	33	1460.47	6.10E+02	53.66	3.31E-03	2.75E-04
	34	1508.35	5.68E+00	8.31	3.23E-03	2.67E-04

Analysis Report for 1707082-16

HTC-A01-S006-1218-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
35	1591.40	1.83E+01	14.47	3.10E-03	2.54E-04
36	1618.16	1.70E+01	8.25	3.06E-03	2.50E-04
37	1661.92	1.04E+01	12.12	3.00E-03	2.43E-04
38	1728.04	1.55E+01	9.60	2.91E-03	2.32E-04
39	1763.85	4.48E+01	14.43	2.87E-03	2.27E-04
40	1847.15	6.00E+00	7.35	2.77E-03	2.15E-04
41	2102.21	1.20E+01	8.49	2.54E-03	2.15E-04
42	2127.75	6.69E+00	6.40	2.52E-03	2.15E-04
43	2203.47	2.00E+01	8.94	2.46E-03	2.15E-04
44	2253.55	4.58E+00	5.74	2.43E-03	2.15E-04
45	2361.39	1.20E+01	6.93	2.36E-03	2.15E-04
46	2613.75	5.50E+01	14.83	2.24E-03	2.15E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/15/2017 11:23:39AM

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	47.79	1.25E+02	95.41			1.25E+02	9.54E+01
M	2	75.16	5.02E+02	113.17			5.02E+02	1.13E+02
m	3	77.62	6.53E+02	112.38			6.53E+02	1.12E+02
	4	88.53	1.02E+02	92.77			1.02E+02	9.28E+01
	5	185.81	1.67E+02	81.83	3.36E+01	5.83E+00	1.33E+02	8.20E+01
	6	209.24	1.15E+02	71.95			1.15E+02	7.19E+01
M	7	238.96	7.21E+02	75.52	1.14E+01	5.08E+00	7.10E+02	7.57E+01
m	8	242.27	1.60E+02	69.53			1.60E+02	6.95E+01
	9	270.24	4.64E+01	44.10			4.64E+01	4.41E+01
	10	295.37	2.01E+02	53.32			2.01E+02	5.33E+01
	11	338.51	8.50E+01	45.68	0.00E+00	0.00E+00	8.50E+01	4.57E+01
	12	352.10	3.59E+02	54.55			3.59E+02	5.46E+01
	13	511.03	1.58E+02	46.34	5.38E+01	4.80E+00	1.04E+02	4.66E+01
	14	547.51	3.21E+01	30.20			3.21E+01	3.02E+01
M	15	554.75	2.34E+01	24.04			2.34E+01	2.40E+01
m	16	559.76	2.11E+01	30.53			2.11E+01	3.05E+01
	17	583.47	1.85E+02	45.37	1.58E+00	2.86E+00	1.83E+02	4.55E+01
M	18	609.45	2.65E+02	42.99	3.58E+00	2.96E+00	2.61E+02	4.31E+01

Analysis Report for 1707082-16

HTC-A01-S006-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	19	614.83	1.93E+01	31.94			1.93E+01	3.19E+01
	20	661.44	3.28E+01	28.77			3.28E+01	2.88E+01
	21	742.75	1.92E+01	20.99			1.92E+01	2.10E+01
	22	762.76	2.69E+01	19.87			2.69E+01	1.99E+01
	23	794.88	3.59E+01	29.02			3.59E+01	2.90E+01
	24	893.63	1.65E+01	19.60			1.65E+01	1.96E+01
	25	911.39	1.01E+02	33.05			1.01E+02	3.30E+01
	26	968.78	4.17E+01	36.85			4.17E+01	3.69E+01
	27	1007.26	1.28E+01	16.58			1.28E+01	1.66E+01
	28	1074.74	1.85E+01	20.20			1.85E+01	2.02E+01
	29	1119.97	5.99E+01	33.22			5.99E+01	3.32E+01
	30	1342.84	1.48E+01	16.31			1.48E+01	1.63E+01
	31	1376.67	1.35E+01	17.29			1.35E+01	1.73E+01
	32	1400.19	2.10E+01	21.63			2.10E+01	2.16E+01
	33	1460.47	6.10E+02	53.66	3.11E+00	2.06E+00	6.07E+02	5.37E+01
	34	1508.35	5.68E+00	8.31			5.68E+00	8.31E+00
	35	1591.40	1.83E+01	14.47			1.83E+01	1.45E+01
	36	1618.16	1.70E+01	8.25			1.70E+01	8.25E+00
	37	1661.92	1.04E+01	12.12			1.04E+01	1.21E+01
	38	1728.04	1.55E+01	9.60			1.55E+01	9.60E+00
	39	1763.85	4.48E+01	14.43			4.48E+01	1.44E+01
	40	1847.15	6.00E+00	7.35			6.00E+00	7.35E+00
	41	2102.21	1.20E+01	8.49			1.20E+01	8.49E+00
	42	2127.75	6.69E+00	6.40			6.69E+00	6.40E+00
	43	2203.47	2.00E+01	8.94			2.00E+01	8.94E+00
	44	2253.55	4.58E+00	5.74			4.58E+00	5.74E+00
	45	2361.39	1.20E+01	6.93			1.20E+01	6.93E+00
	46	2613.75	5.50E+01	14.83	1.69E+00	9.96E-01	5.33E+01	1.49E+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 : 8/15/2017 11:23:39AM

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.

Analysis Report for 1707082-16

HTC-A01-S006-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	47.79	1.25E+02	95.41			1.25E+02	9.54E+01
M	2	75.16	5.02E+02	113.17			5.02E+02	1.13E+02
m	3	77.62	6.53E+02	112.38			6.53E+02	1.12E+02
	4	88.53	1.02E+02	92.77			1.02E+02	9.28E+01
	5	185.81	1.67E+02	81.83	3.36E+01	5.83E+00	1.33E+02	8.20E+01
	6	209.24	1.15E+02	71.95			1.15E+02	7.19E+01
M	7	238.96	7.21E+02	75.52	1.14E+01	5.08E+00	7.10E+02	7.57E+01
m	8	242.27	1.60E+02	69.53			1.60E+02	6.95E+01
	9	270.24	4.64E+01	44.10			4.64E+01	4.41E+01
	10	295.37	2.01E+02	53.32			2.01E+02	5.33E+01
	11	338.51	8.50E+01	45.68	0.00E+00	0.00E+00	8.50E+01	4.57E+01
	12	352.10	3.59E+02	54.55			3.59E+02	5.46E+01
	13	511.03	1.58E+02	46.34	5.38E+01	4.80E+00	1.04E+02	4.66E+01
	14	547.51	3.21E+01	30.20			3.21E+01	3.02E+01
M	15	554.75	2.34E+01	24.04			2.34E+01	2.40E+01
m	16	559.76	2.11E+01	30.53			2.11E+01	3.05E+01
	17	583.47	1.85E+02	45.37	1.58E+00	2.86E+00	1.83E+02	4.55E+01
M	18	609.45	2.65E+02	42.99	3.58E+00	2.96E+00	2.61E+02	4.31E+01
m	19	614.83	1.93E+01	31.94			1.93E+01	3.19E+01
	20	661.44	3.28E+01	28.77			3.28E+01	2.88E+01
	21	742.75	1.92E+01	20.99			1.92E+01	2.10E+01
	22	762.76	2.69E+01	19.87			2.69E+01	1.99E+01
	23	794.88	3.59E+01	29.02			3.59E+01	2.90E+01
	24	893.63	1.65E+01	19.60			1.65E+01	1.96E+01
	25	911.39	1.01E+02	33.05			1.01E+02	3.30E+01
	26	968.78	4.17E+01	36.85			4.17E+01	3.69E+01
	27	1007.26	1.28E+01	16.58			1.28E+01	1.66E+01
	28	1074.74	1.85E+01	20.20			1.85E+01	2.02E+01
	29	1119.97	5.99E+01	33.22			5.99E+01	3.32E+01
	30	1342.84	1.48E+01	16.31			1.48E+01	1.63E+01
	31	1376.67	1.35E+01	17.29			1.35E+01	1.73E+01
	32	1400.19	2.10E+01	21.63			2.10E+01	2.16E+01
	33	1460.47	6.10E+02	53.66	3.11E+00	2.06E+00	6.07E+02	5.37E+01
	34	1508.35	5.68E+00	8.31			5.68E+00	8.31E+00
	35	1591.40	1.83E+01	14.47			1.83E+01	1.45E+01
	36	1618.16	1.70E+01	8.25			1.70E+01	8.25E+00
	37	1661.92	1.04E+01	12.12			1.04E+01	1.21E+01
	38	1728.04	1.55E+01	9.60			1.55E+01	9.60E+00
	39	1763.85	4.48E+01	14.43			4.48E+01	1.44E+01
	40	1847.15	6.00E+00	7.35			6.00E+00	7.35E+00
	41	2102.21	1.20E+01	8.49			1.20E+01	8.49E+00
	42	2127.75	6.69E+00	6.40			6.69E+00	6.40E+00
	43	2203.47	2.00E+01	8.94			2.00E+01	8.94E+00
	44	2253.55	4.58E+00	5.74			4.58E+00	5.74E+00
	45	2361.39	1.20E+01	6.93			1.20E+01	6.93E+00
	46	2613.75	5.50E+01	14.83	1.69E+00	9.96E-01	5.33E+01	1.49E+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 1707082-16

HTC-A01-S006-1218-01

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	0.982	1460.81	*	10.67	2.03E+01	2.50E+00
CD-109	0.962	88.03	*	3.72	1.37E+00	1.26E+00
SN-126	0.864	87.57	*	37.00	1.20E-01	1.10E-01
CS-137	0.993	661.65	*	85.12	7.01E-02	6.19E-02
TL-208	0.817	583.14	*	30.22	9.81E-01	2.61E-01
		860.37		4.48		
		2614.66	*	35.85	7.86E-01	2.32E-01
PB-212	0.880	238.63	*	44.60	1.17E+00	1.58E-01
		300.09		3.41		
BI-214	0.977	609.31	*	46.30	9.49E-01	1.80E-01
		1120.29	*	15.10	1.14E+00	6.40E-01
		1764.49	*	15.80	1.17E+00	3.88E-01
		2204.22	*	4.98	1.93E+00	8.79E-01
PB-214	0.995	295.21	*	19.19	9.19E-01	2.57E-01
		351.92	*	37.19	9.90E-01	1.75E-01
RA-226	0.974	186.21	*	3.28	2.46E+00	4.74E+00
AC-228	0.985	338.32	*	11.40	7.39E-01	4.02E-01
		911.07	*	27.70	8.81E-01	2.95E-01
		969.11	*	16.60	6.37E-01	5.66E-01
TH-230	0.545	48.44	*	16.90	4.86E-01	3.74E-01
		62.85		4.60		
		67.67		0.37		
AM-243	0.962	74.67	*	66.00	3.39E-01	8.07E-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 : 8/15/2017 11:23:39AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Analysis Report for 1707082-16

HTC-A01-S006-1218-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	3	77.62	1.81355E-01	8.61		
	6	209.24	3.18896E-02	31.33	Tol.	CM-243
m	8	242.27	4.44102E-02	21.75		
	9	270.24	1.28893E-02	47.52		
	13	511.03	2.90112E-02	22.30		
	14	547.51	8.91059E-03	47.07		
M	15	554.75	6.51261E-03	51.27		
m	16	559.76	5.86705E-03	72.27		
m	19	614.83	5.35356E-03	82.86	Tol.	AG-108M
	21	742.75	5.32051E-03	54.80	D-Esc	
	22	762.76	7.48264E-03	36.89		
	23	794.88	9.97815E-03	40.39	Sum	
	24	893.63	4.58333E-03	59.38		
	27	1007.26	3.54365E-03	65.00		
	28	1074.74	5.15097E-03	54.46		
	30	1342.84	4.09962E-03	55.25		
	31	1376.67	3.75000E-03	64.04		
	32	1400.19	5.83333E-03	51.51		
	34	1508.35	1.57828E-03	73.10	Sum	
	35	1591.40	5.08230E-03	39.53	D-Esc	
	36	1618.16	4.72222E-03	24.25		
	37	1661.92	2.89352E-03	58.20		
	38	1728.04	4.29784E-03	31.04		
	40	1847.15	1.66667E-03	61.24		
	41	2102.21	3.32341E-03	35.46	S-Esc	
	42	2127.75	1.85764E-03	47.87		
	44	2253.55	1.27315E-03	62.67		
	45	2361.39	3.33333E-03	28.87		

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 1707082-16

HTC-A01-S006-1218-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.98	1460.81	*	10.67	2.03E+01	2.50E+00
CD-109	0.96	88.03	*	3.72	1.37E+00	1.26E+00
SN-126	0.86	87.57	*	37.00	1.20E-01	1.10E-01
CS-137	0.99	661.65	*	85.12	7.01E-02	6.19E-02
TL-208	0.81	583.14	*	30.22	9.81E-01	2.61E-01
		860.37		4.48		
		2614.66	*	35.85	7.86E-01	2.32E-01
PB-212	0.88	238.63	*	44.60	1.17E+00	1.58E-01
		300.09		3.41		
BI-214	0.97	609.31	*	46.30	9.49E-01	1.80E-01
		1120.29	*	15.10	1.14E+00	6.40E-01
		1764.49	*	15.80	1.17E+00	3.88E-01
		2204.22	*	4.98	1.93E+00	8.79E-01
PB-214	0.99	295.21	*	19.19	9.19E-01	2.57E-01
		351.92	*	37.19	9.90E-01	1.75E-01
RA-226	0.97	186.21	*	3.28	2.46E+00	4.74E+00
AC-228	0.98	338.32	*	11.40	7.39E-01	4.02E-01
		911.07	*	27.70	8.81E-01	2.95E-01
		969.11	*	16.60	6.37E-01	5.66E-01
TH-230	0.54	48.44	*	16.90	4.86E-01	3.74E-01
		62.85		4.60		
		67.67		0.37		
AM-243	0.96	74.67	*	66.00	3.39E-01	8.07E-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	0.982	2.03E+01	2.50E+00	
?	CD-109	0.962	1.37E+00	1.26E+00	
?	SN-126	0.864	1.20E-01	1.10E-01	
	CS-137	0.993	7.01E-02	6.19E-02	

Analysis Report for 1707082-16

HTC-A01-S006-1218-01

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
TL-208	0.817	8.72E-01	1.73E-01	
PB-212	0.880	1.17E+00	1.58E-01	
BI-214	0.977	1.03E+00	1.56E-01	
PB-214	0.995	9.68E-01	1.44E-01	
RA-226	0.974	2.46E+00	4.74E+00	
AC-228	0.985	8.02E-01	2.19E-01	
TH-230	0.545	4.86E-01	3.74E-01	
AM-243	0.962	3.39E-01	8.07E-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 1707082-16

HTC-A01-S006-1218-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 11:23:39AM
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	77.62	1.81355E-01	8.61		
	6	209.24	3.18896E-02	31.33	Tol.	CM-243
m	8	242.27	4.44102E-02	21.75		
	9	270.24	1.28893E-02	47.52		
	13	511.03	2.90112E-02	22.30		
	14	547.51	8.91059E-03	47.07		
M	15	554.75	6.51261E-03	51.27		
m	16	559.76	5.86705E-03	72.27		
m	19	614.83	5.35356E-03	82.86	Tol.	AG-108M
	21	742.75	5.32051E-03	54.80	D-Esc	
	22	762.76	7.48264E-03	36.89		
	23	794.88	9.97815E-03	40.39	Sum	
	24	893.63	4.58333E-03	59.38		
	27	1007.26	3.54365E-03	65.00		
	28	1074.74	5.15097E-03	54.46		
	30	1342.84	4.09962E-03	55.25		
	31	1376.67	3.75000E-03	64.04		
	32	1400.19	5.83333E-03	51.51		
	34	1508.35	1.57828E-03	73.10	Sum	
	35	1591.40	5.08230E-03	39.53	D-Esc	
	36	1618.16	4.72222E-03	24.25		
	37	1661.92	2.89352E-03	58.20		
	38	1728.04	4.29784E-03	31.04		
	40	1847.15	1.66667E-03	61.24		
	41	2102.21	3.32341E-03	35.46	S-Esc	
	42	2127.75	1.85764E-03	47.87		
	44	2253.55	1.27315E-03	62.67		
	45	2361.39	3.33333E-03	28.87		

Analysis Report for 1707082-16

HTC-A01-S006-1218-01

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	2.42E-01	2.19E+00	2.19E+00
+	NA-22	1274.54		99.94	-1.54E-02	9.96E-02	9.96E-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	1.35E-02	7.34E-02	7.34E-02
+	K-40	1460.81	*	10.67	2.03E+01	1.27E+00	1.27E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-3.17E-02	5.99E-02	5.99E-02
		78.34		96.00	1.75E-01		7.43E-02
+	SC-46	889.25		99.98	-7.42E-02	1.42E-01	1.42E-01
		1120.51		99.99	4.44E-01		3.10E-01
+	V-48	983.52		99.98	-1.85E+00	5.30E+00	5.30E+00
		1312.10		97.50	1.91E-01		5.90E+00
+	CR-51	320.08		9.83	-1.26E+00	6.31E+00	6.31E+00
+	MN-54	834.83		99.97	-2.74E-03	1.00E-01	1.00E-01
+	CO-56	846.75		99.96	5.93E-02	2.03E-01	2.03E-01
		1037.75		14.03	-1.13E-02		1.43E+00
		1238.25		67.00	2.51E-01		4.45E-01
		1771.40		15.51	-5.10E-02		1.02E+00
		2598.48		16.90	2.14E-01		7.69E-01
+	CO-57	122.06		85.51	-5.75E-02	5.93E-02	5.93E-02
		136.48		10.60	-6.26E-02		5.30E-01
+	CO-58	810.76		99.40	-1.10E-02	1.76E-01	1.76E-01
+	FE-59	1099.22		56.50	-1.01E-01	6.78E-01	6.78E-01
		1291.56		43.20	-1.22E-01		8.40E-01
+	CO-60	1173.22		100.00	-1.16E-02	9.69E-02	1.08E-01
		1332.49		100.00	2.92E-02		9.69E-02
+	ZN-65	1115.52		50.75	3.13E-02	2.55E-01	2.55E-01
+	GA-67	93.31		35.70	7.90E+07	7.52E+07	7.52E+07
		208.95		2.24	1.13E+09		1.38E+09
		300.22		16.00	5.42E+07		2.13E+08
+	SE-75	121.11		16.70	-8.73E-02	1.31E-01	4.25E-01

Analysis Report for 1707082-16

HTC-A01-S006-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00		59.20	2.81E-02	1.31E-01	1.31E-01
		264.65		59.80	-1.95E-02		1.57E-01
		279.53		25.20	1.59E-01		4.22E-01
		400.65		11.40	-1.84E-01		9.16E-01
+	RB-82	776.52		13.00	-4.82E+00	7.50E+00	7.50E+00
+	RB-83	520.41		46.00	-4.42E-03	2.96E-01	2.96E-01
		529.64		30.30	1.37E-01		4.75E-01
		552.65		16.40	4.68E-03		8.71E-01
+	KR-85	513.99		0.43	2.70E+01	2.30E+01	2.30E+01
+	SR-85	513.99		99.27	3.18E-01	2.70E-01	2.70E-01
+	Y-88	898.02		93.40	2.58E-02	1.11E-01	1.65E-01
		1836.01		99.38	-7.89E-03		1.11E-01
+	MO-93	263.06		56.72	2.63E-03	6.17E-02	1.00E-01
		684.67		99.68	3.33E-02		7.54E-02
		1477.11		99.08	-2.78E-02		6.17E-02
+	NB-93M	16.57		9.43	-4.23E+01	6.20E+01	6.20E+01
+	NB-94	702.63		100.00	5.84E-02	8.16E-02	8.81E-02
		871.10		100.00	1.65E-03		8.16E-02
+	NB-95	765.79		99.81	2.93E-02	5.93E-01	5.93E-01
+	NB-95M	235.69		25.00	1.44E+07	2.63E+07	2.63E+07
+	ZR-95	724.18		43.70	-8.46E-02	3.29E-01	5.49E-01
		756.72		55.30	4.56E-02		3.29E-01
+	MO-99	181.06		6.20	-8.69E+08	1.20E+10	1.55E+10
		739.58		12.80	1.48E+09		1.20E+10
		778.00		4.50	-9.14E+09		3.53E+10
+	RU-103	497.08		89.00	1.42E-01	3.91E-01	3.91E-01
+	RU-106	621.84		9.80	-1.03E-01	8.45E-01	8.45E-01
+	AG-108M	433.93		89.90	-2.89E-02	6.32E-02	6.32E-02
		614.37		90.40	-1.80E-01		9.95E-02
		722.95		90.50	-5.76E-02		9.21E-02
+	CD-109	88.03	*	3.72	1.37E+00	2.05E+00	2.05E+00
+	AG-110M	657.75		93.14	-4.91E-03	1.00E-01	1.00E-01
		677.61		10.53	-9.41E-02		8.56E-01
		706.67		16.46	-7.71E-02		6.67E-01
		763.93		21.98	-7.90E-02		5.10E-01
		884.67		71.63	-5.32E-02		1.35E-01
		1384.27		23.94	1.18E-01		4.17E-01
+	CD-113M	263.70		0.02	-2.72E+01	2.46E+02	2.46E+02
+	SN-113	255.12		1.93	-2.35E+00	1.69E-01	4.90E+00
		391.69		64.90	-9.71E-02		1.69E-01
+	TE123M	159.00		84.10	-3.31E-02	9.32E-02	9.32E-02
+	SB-124	602.71		97.87	8.38E-02	2.19E-01	2.19E-01
		645.85		7.26	-8.06E-01		2.86E+00
		722.78		11.10	-1.39E+00		2.22E+00
		1691.02		49.00	-1.57E-01		3.63E-01
+	I-125	35.49		6.49	-1.17E+00	5.47E+00	5.47E+00
+	SB-125	176.33		6.89	4.90E-02	2.38E-01	7.19E-01
		427.89		29.33	3.05E-02		2.38E-01

Analysis Report for 1707082-16

HTC-A01-S006-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-125	463.38		10.35	2.28E-01	2.38E-01	7.63E-01
		600.56		17.80	3.27E-02		4.19E-01
		635.90		11.32	-2.35E-01		6.12E-01
+	SB-126	414.70		83.30	3.69E+00	1.37E+01	1.53E+01
		666.33		99.60	-2.35E+00		1.37E+01
		695.00		99.60	-1.21E+00		1.49E+01
		720.50		53.80	-6.14E+00		2.84E+01
+	SN-126	87.57	*	37.00	1.20E-01	1.79E-01	1.79E-01
+	SB-127	473.00		25.00	-1.85E+06	4.79E+06	6.00E+06
		685.20		35.70	2.12E+06		4.79E+06
		783.80		14.70	1.97E+06		1.25E+07
+	I-129	29.78		57.00	-3.42E-02	3.62E-01	3.62E-01
		33.60		13.20	1.74E-01		1.06E+00
		39.58		7.52	-1.32E-01		1.25E+00
+	I-131	284.30		6.05	-9.93E+02	2.49E+02	3.14E+03
		364.48		81.20	-5.16E+01		2.49E+02
		636.97		7.26	-5.96E+02		3.06E+03
		722.89		1.80	-9.72E+03		1.55E+04
+	TE-132	49.72		13.10	-2.50E+08	3.32E+07	2.53E+08
		228.16		88.00	-2.22E+06		3.32E+07
+	BA-133	81.00		33.00	-8.58E-02	1.46E-01	1.61E-01
		302.84		17.80	1.59E-01		3.63E-01
		356.01		60.00	1.50E-04		1.46E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-1.87E+04	3.51E+04	3.51E+04
+	CS-134	563.23		8.38	-6.56E-01	8.83E-02	8.54E-01
		569.32		15.43	4.72E-02		5.01E-01
		604.70		97.60	-4.97E-03		8.83E-02
		795.84		85.40	1.10E-01		1.20E-01
		801.93		8.73	4.15E-01		9.91E-01
+	CS-135	268.24		16.00	5.54E-02	3.88E-01	3.88E-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	1.02E+01	1.16E+01	8.72E+01
		163.89		4.61	4.17E+01		1.45E+02
		176.55		13.56	3.33E+00		4.89E+01
		273.65		12.66	-9.07E+00		7.14E+01
		340.57		48.50	-5.57E+00		2.18E+01
		818.50		99.70	3.00E+00		1.16E+01
		1048.07		79.60	-9.79E-01		1.68E+01
		1235.34		19.70	2.34E+01		9.28E+01
+	CS-137	661.65	*	85.12	7.01E-02	9.87E-02	9.87E-02
+	LA-138	788.74		34.00	8.21E-02	1.17E-01	2.18E-01
		1435.80		66.00	-3.05E-02		1.17E-01
+	CE-139	165.85		80.35	1.63E-02	9.24E-02	9.24E-02
+	BA-140	162.64		6.70	3.51E+01	4.46E+01	1.14E+02
		304.84		4.50	-4.29E+01		2.17E+02
		423.70		3.20	5.36E+01		3.48E+02

Analysis Report for 1707082-16

HTC-A01-S006-1218-01

		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		BA-140	437.55	2.00	-2.98E+02	4.46E+01	4.81E+02
			537.32	25.00	-1.98E+01		4.46E+01
+		LA-140	328.77	20.50	-1.36E+01	1.41E+01	5.09E+01
			487.03	45.50	9.83E+00		2.41E+01
			815.85	23.50	-3.63E+00		5.34E+01
			1596.49	95.49	1.90E+00		1.41E+01
+		CE-141	145.44	48.40	4.11E-01	6.84E-01	6.84E-01
+	@	CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26
	@		293.26	42.00	1.00E+26		1.00E+26
	@		664.55	5.20	1.00E+26		1.00E+26
+		CE-144	133.54	10.80	-2.22E-01	5.24E-01	5.24E-01
+		PM-144	476.78	42.00	8.83E-02	8.13E-02	1.95E-01
			618.01	98.60	-1.15E-02		8.13E-02
			696.49	99.49	-3.92E-02		9.24E-02
+		PM-145	36.85	21.70	-8.66E-03	2.70E-01	5.11E-01
			37.36	39.70	-7.54E-02		2.70E-01
			42.30	15.10	2.19E-02		5.56E-01
			72.40	2.31	-4.95E+00		2.81E+00
+		PM-146	453.90	39.94	-3.92E-03	1.72E-01	1.72E-01
			735.90	14.01	3.02E-01		5.99E-01
			747.13	13.10	-1.87E-03		5.51E-01
+		ND-147	91.11	28.90	4.99E+00	7.59E+01	7.59E+01
			531.02	13.10	9.68E+01		2.06E+02
+		PM-149	285.90	3.10	-2.42E+12	1.21E+13	1.21E+13
+		EU-152	121.78	20.50	-1.91E-01	1.97E-01	1.97E-01
			244.69	5.40	-4.03E-01		1.25E+00
			344.27	19.13	1.48E-01		3.42E-01
			778.89	9.20	5.77E-02		8.58E-01
			964.01	10.40	-8.75E-02		9.08E-01
			1085.78	7.22	8.69E-01		1.47E+00
			1112.02	9.60	1.07E-01		1.03E+00
			1407.95	14.94	1.95E-01		6.01E-01
+		GD-153	97.43	31.30	-2.54E-01	1.77E-01	1.77E-01
			103.18	22.20	-1.54E-01		2.40E-01
+		EU-154	123.07	40.50	-7.19E-02	1.02E-01	1.02E-01
			723.30	19.70	-2.70E-01		4.31E-01
			873.19	11.50	-5.83E-02		7.25E-01
			996.32	10.30	-3.69E-01		8.46E-01
			1004.76	17.90	1.04E-01		5.32E-01
			1274.45	35.50	-4.14E-02		2.67E-01
+		EU-155	86.50	30.90	9.43E-02	1.91E-01	1.91E-01
			105.30	20.70	-3.83E-02		2.06E-01
+		EU-156	811.77	10.40	-7.03E+00	4.82E+01	4.82E+01
			1153.47	7.20	5.69E+01		1.16E+02
			1230.71	8.90	-1.04E+01		9.15E+01
+		HO-166M	184.41	72.60	1.06E-01	8.03E-02	8.03E-02
			280.45	29.60	3.52E-02		2.05E-01
			410.94	11.10	3.67E-01		6.36E-01
			711.69	54.10	5.87E-02		1.58E-01

Analysis Report for 1707082-16

HTC-A01-S006-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TM-171	66.72		0.14	-1.40E+01	4.56E+01	4.56E+01
+	HF-172	67.35		5.31	-6.22E-01	4.18E-01	1.17E+00
		125.81		11.30	-3.12E-01		4.18E-01
+	LU-172	181.53		20.60	3.32E+01	2.66E+03	4.01E+03
		900.72		29.81	8.16E+02		4.93E+03
		1093.66		62.50	2.91E+02		2.66E+03
+	LU-173	100.72		5.24	2.93E-01	3.52E-01	9.17E-01
		272.11		21.20	1.13E-02		3.52E-01
+	HF-175	343.40		84.00	8.43E-02	1.95E-01	1.95E-01
+	LU-176	88.34		13.30	1.62E-01	5.90E-02	4.39E-01
		201.83		86.00	4.92E-02		6.07E-02
		306.78		94.00	-3.02E-02		5.90E-02
+	HF-181	133.02		41.70	-3.36E-01	3.88E-01	5.01E-01
		345.85		17.20	7.82E-01		1.75E+00
		482.03		82.80	6.18E-02		3.88E-01
+	TA-182	67.75		41.20	-1.28E-01	2.42E-01	2.42E-01
		1121.30		34.90	6.73E-01		7.08E-01
		1189.05		16.23	-6.23E-01		1.13E+00
		1221.41		26.98	-2.73E-01		7.86E-01
		1231.02		11.44	-1.95E-01		1.71E+00
+	IR-192	308.46		29.68	-5.94E-02	3.41E-01	4.56E-01
		468.07		48.10	-1.07E-01		3.41E-01
+	HG-203	279.19		77.30	1.91E-01	3.33E-01	3.33E-01
+	TL-204	374.74		94.11	-1.63E-02	6.30E-02	6.30E-02
		899.15		99.16	3.10E-02		9.27E-02
		911.74		91.10	2.83E-01		1.56E-01
+	BI-207	569.67		97.72	3.02E-03	7.42E-02	7.42E-02
		1063.62		74.90	1.35E-03		1.29E-01
+	TL-208	583.14	*	30.22	9.81E-01	1.08E-01	3.36E-01
		860.37		4.48	6.30E-01		1.99E+00
		2614.66	*	35.85	7.86E-01		1.08E-01
+	BI-210M	262.00		45.00	-4.80E-03	1.25E-01	1.25E-01
		300.00		23.00	7.62E-02		3.00E-01
+	PB-210	46.50		4.25	9.01E-01	1.82E+00	1.82E+00
+	PB-211	404.84		2.90	-1.18E+00	2.16E+00	2.16E+00
		831.96		2.90	-6.23E-01		2.90E+00
+	BI-212	727.17		11.80	2.98E-01	7.66E-01	7.66E-01
		1620.62		2.75	-6.35E-01		3.09E+00
+	PB-212	238.63	*	44.60	1.17E+00	2.06E-01	2.06E-01
		300.09		3.41	5.14E-01		2.02E+00
+	BI-214	609.31	*	46.30	9.49E-01	2.61E-01	2.86E-01
		1120.29	*	15.10	1.14E+00		9.72E-01
		1764.49	*	15.80	1.17E+00		3.02E-01
		2204.22	*	4.98	1.93E+00		2.61E-01
+	PB-214	295.21	*	19.19	9.19E-01	1.86E-01	3.53E-01
		351.92	*	37.19	9.90E-01		1.86E-01
+	RN-219	401.80		6.50	-5.02E-01	9.03E-01	9.03E-01
+	RA-223	323.87		3.88	-5.85E-01	1.53E+00	1.53E+00

Analysis Report for 1707082-16

HTC-A01-S006-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98		3.95	1.55E+01	2.91E+00	2.91E+00
+	RA-225	40.00		31.00	-2.58E+00	2.44E+01	2.44E+01
+	RA-226	186.21	*	3.28	2.46E+00	2.43E+00	2.43E+00
+	TH-227	50.10		8.40	-7.68E-01	7.77E-01	7.77E-01
		236.00		11.50	4.40E-01		8.02E-01
		256.20		6.30	-1.70E-01		8.71E-01
+	AC-228	338.32	*	11.40	7.39E-01	3.98E-01	6.21E-01
		911.07	*	27.70	8.81E-01		3.98E-01
		969.11	*	16.60	6.37E-01		9.09E-01
+	TH-230	48.44	*	16.90	4.86E-01	6.04E-01	6.04E-01
		62.85		4.60	1.17E+00		1.36E+00
		67.67		0.37	-8.09E+00		1.53E+01
+	PA-231	283.67		1.60	-4.03E+00	2.76E+00	3.41E+00
		302.67		2.30	1.21E+00		2.76E+00
+	TH-231	25.64		14.70	-6.36E-01	8.25E-01	2.55E+00
		84.21		6.40	-1.89E-02		8.25E-01
+	PA-233	311.98		38.60	-1.87E-01	1.65E+00	1.65E+00
+	PA-234	131.20		20.40	2.07E-01	2.36E-01	2.36E-01
		733.99		8.80	4.70E-01		9.71E-01
		946.00		12.00	-3.87E-02		7.02E-01
+	PA-234M	1001.03		0.92	2.55E+00	1.02E+01	1.02E+01
+	TH-234	63.29		3.80	1.59E+00	1.64E+00	1.64E+00
+	U-235	143.76		10.50	-2.43E-01	4.01E-01	4.01E-01
		163.35		4.70	2.86E-01		9.92E-01
		205.31		4.70	-1.80E-01		1.25E+00
+	NP-237	86.50		12.60	2.23E-01	4.52E-01	4.52E-01
+	NP-239	106.10		22.70	-3.69E+10	1.98E+11	1.98E+11
		228.18		10.70	-3.97E+10		5.94E+11
		277.60		14.10	3.74E+11		4.99E+11
+	AM-241	59.54		35.90	-5.61E-02	1.68E-01	1.68E-01
+	AM-243	74.67	*	66.00	3.39E-01	1.46E-01	1.46E-01
+	CM-243	209.75		3.29	2.35E+00	4.63E-01	1.94E+00
		228.14		10.60	-3.69E-02		5.52E-01
		277.60		14.00	3.47E-01		4.63E-01

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

Analysis Report for 1707082-16

HTC-A01-S006-1218-01

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	2.19E+00	2.19E+00	2.42E-01	1.04E+00
	NA-22	1274.54		99.94	9.96E-02	9.96E-02	-1.54E-02	4.52E-02
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	7.34E-02	7.34E-02	1.35E-02	3.10E-02
+	K-40	1460.81	*	10.67	1.27E+00	1.27E+00	2.03E+01	5.89E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	5.99E-02	5.99E-02	-3.17E-02	2.93E-02
		78.34		96.00	7.43E-02		1.75E-01	3.65E-02
	SC-46	889.25		99.98	1.42E-01	1.42E-01	-7.42E-02	6.43E-02
		1120.51		99.99	3.10E-01		4.44E-01	1.46E-01
	V-48	983.52		99.98	5.30E+00	5.30E+00	-1.85E+00	2.44E+00
		1312.10		97.50	5.90E+00		1.91E-01	2.68E+00
	CR-51	320.08		9.83	6.31E+00	6.31E+00	-1.26E+00	3.02E+00
	MN-54	834.83		99.97	1.00E-01	1.00E-01	-2.74E-03	4.65E-02
	CO-56	846.75		99.96	2.03E-01	2.03E-01	5.93E-02	9.47E-02
		1037.75		14.03	1.43E+00		-1.13E-02	6.55E-01
		1238.25		67.00	4.45E-01		2.51E-01	2.08E-01
		1771.40		15.51	1.02E+00		-5.10E-02	4.27E-01
		2598.48		16.90	7.69E-01		2.14E-01	2.88E-01
	CO-57	122.06		85.51	5.93E-02	5.93E-02	-5.75E-02	2.87E-02
		136.48		10.60	5.30E-01		-6.26E-02	2.57E-01
	CO-58	810.76		99.40	1.76E-01	1.76E-01	-1.10E-02	8.08E-02
	FE-59	1099.22		56.50	6.78E-01	6.78E-01	-1.01E-01	3.10E-01
		1291.56		43.20	8.40E-01		-1.22E-01	3.76E-01
	CO-60	1173.22		100.00	1.08E-01	9.69E-02	-1.16E-02	4.98E-02
		1332.49		100.00	9.69E-02		2.92E-02	4.38E-02
	ZN-65	1115.52		50.75	2.55E-01	2.55E-01	3.13E-02	1.18E-01
	GA-67	93.31		35.70	7.52E+07	7.52E+07	7.90E+07	3.68E+07
		208.95		2.24	1.38E+09		1.13E+09	6.72E+08
		300.22		16.00	2.13E+08		5.42E+07	1.03E+08
	SE-75	121.11		16.70	4.25E-01	1.31E-01	-8.73E-02	2.06E-01
		136.00		59.20	1.31E-01		2.81E-02	6.37E-02
		264.65		59.80	1.57E-01		-1.95E-02	7.55E-02
		279.53		25.20	4.22E-01		1.59E-01	2.03E-01
		400.65		11.40	9.16E-01		-1.84E-01	4.35E-01
	RB-82	776.52		13.00	7.50E+00	7.50E+00	-4.82E+00	3.47E+00
	RB-83	520.41		46.00	2.96E-01	2.96E-01	-4.42E-03	1.39E-01
		529.64		30.30	4.75E-01		1.37E-01	2.24E-01
		552.65		16.40	8.71E-01		4.68E-03	4.09E-01
	KR-85	513.99		0.43	2.30E+01	2.30E+01	2.70E+01	1.10E+01
	SR-85	513.99		99.27	2.70E-01	2.70E-01	3.18E-01	1.30E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	Y-88	898.02		93.40	1.65E-01	1.11E-01	2.58E-02	7.64E-02
		1836.01		99.38	1.11E-01		-7.89E-03	4.50E-02
	MO-93	263.06		56.72	1.00E-01	6.17E-02	2.63E-03	4.82E-02
		684.67		99.68	7.54E-02		3.33E-02	3.51E-02
		1477.11		99.08	6.17E-02		-2.78E-02	2.58E-02
	NB-93M	16.57		9.43	6.20E+01	6.20E+01	-4.23E+01	3.01E+01
	NB-94	702.63		100.00	8.81E-02	8.16E-02	5.84E-02	4.15E-02
		871.10		100.00	8.16E-02		1.65E-03	3.77E-02
	NB-95	765.79		99.81	5.93E-01	5.93E-01	2.93E-02	2.79E-01
	NB-95M	235.69		25.00	2.63E+07	2.63E+07	1.44E+07	1.29E+07
	ZR-95	724.18		43.70	5.49E-01	3.29E-01	-8.46E-02	2.57E-01
		756.72		55.30	3.29E-01		4.56E-02	1.51E-01
	MO-99	181.06		6.20	1.55E+10	1.20E+10	-8.69E+08	7.49E+09
		739.58		12.80	1.20E+10		1.48E+09	5.55E+09
		778.00		4.50	3.53E+10		-9.14E+09	1.64E+10
	RU-103	497.08		89.00	3.91E-01	3.91E-01	1.42E-01	1.84E-01
	RU-106	621.84		9.80	8.45E-01	8.45E-01	-1.03E-01	3.94E-01
	AG-108M	433.93		89.90	6.32E-02	6.32E-02	-2.89E-02	2.97E-02
		614.37		90.40	9.95E-02		-1.80E-01	4.72E-02
		722.95		90.50	9.21E-02		-5.76E-02	4.31E-02
+	CD-109	88.03	*	3.72	2.05E+00	2.05E+00	1.37E+00	1.00E+00
	AG-110M	657.75		93.14	1.00E-01	1.00E-01	-4.91E-03	4.67E-02
		677.61		10.53	8.56E-01		-9.41E-02	3.97E-01
		706.67		16.46	6.67E-01		-7.71E-02	3.13E-01
		763.93		21.98	5.10E-01		-7.90E-02	2.38E-01
		884.67		71.63	1.35E-01		-5.32E-02	6.17E-02
		1384.27		23.94	4.17E-01		1.18E-01	1.83E-01
	CD-113M	263.70		0.02	2.46E+02	2.46E+02	-2.72E+01	1.18E+02
	SN-113	255.12		1.93	4.90E+00	1.69E-01	-2.35E+00	2.35E+00
		391.69		64.90	1.69E-01		-9.71E-02	8.04E-02
	TE123M	159.00		84.10	9.32E-02	9.32E-02	-3.31E-02	4.51E-02
	SB-124	602.71		97.87	2.19E-01	2.19E-01	8.38E-02	1.03E-01
		645.85		7.26	2.86E+00		-8.06E-01	1.33E+00
		722.78		11.10	2.22E+00		-1.39E+00	1.04E+00
		1691.02		49.00	3.63E-01		-1.57E-01	1.49E-01
	I-125	35.49		6.49	5.47E+00	5.47E+00	-1.17E+00	2.66E+00
	SB-125	176.33		6.89	7.19E-01	2.38E-01	4.90E-02	3.47E-01
		427.89		29.33	2.38E-01		3.05E-02	1.13E-01
		463.38		10.35	7.63E-01		2.28E-01	3.63E-01
		600.56		17.80	4.19E-01		3.27E-02	1.96E-01
		635.90		11.32	6.12E-01		-2.35E-01	2.84E-01
	SB-126	414.70		83.30	1.53E+01	1.37E+01	3.69E+00	7.26E+00
		666.33		99.60	1.37E+01		-2.35E+00	6.37E+00
		695.00		99.60	1.49E+01		-1.21E+00	6.94E+00
		720.50		53.80	2.84E+01		-6.14E+00	1.33E+01
+	SN-126	87.57	*	37.00	1.79E-01	1.79E-01	1.20E-01	8.78E-02
	SB-127	473.00		25.00	6.00E+06	4.79E+06	-1.85E+06	2.83E+06
		685.20		35.70	4.79E+06		2.12E+06	2.23E+06
		783.80		14.70	1.25E+07		1.97E+06	5.81E+06
	I-129	29.78		57.00	3.62E-01	3.62E-01	-3.42E-02	1.76E-01
		33.60		13.20	1.06E+00		1.74E-01	5.13E-01
		39.58		7.52	1.25E+00		-1.32E-01	6.09E-01
	I-131	284.30		6.05	3.14E+03	2.49E+02	-9.93E+02	1.51E+03

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	I-131	364.48		81.20	2.49E+02	2.49E+02	-5.16E+01	1.19E+02
		636.97		7.26	3.06E+03		-5.96E+02	1.42E+03
		722.89		1.80	1.55E+04		-9.72E+03	7.27E+03
	TE-132	49.72		13.10	2.53E+08	3.32E+07	-2.50E+08	1.23E+08
		228.16		88.00	3.32E+07		-2.22E+06	1.60E+07
	BA-133	81.00		33.00	1.61E-01	1.46E-01	-8.58E-02	7.86E-02
		302.84		17.80	3.63E-01		1.59E-01	1.74E-01
		356.01		60.00	1.46E-01		1.50E-04	7.05E-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	3.51E+04	3.51E+04	-1.87E+04	1.71E+04
	CS-134	563.23		8.38	8.54E-01	8.83E-02	-6.56E-01	3.99E-01
		569.32		15.43	5.01E-01		4.72E-02	2.35E-01
		604.70		97.60	8.83E-02		-4.97E-03	4.16E-02
		795.84		85.40	1.20E-01		1.10E-01	5.64E-02
		801.93		8.73	9.91E-01		4.15E-01	4.59E-01
	CS-135	268.24		16.00	3.88E-01	3.88E-01	5.54E-02	1.87E-01
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	8.72E+01	1.16E+01	1.02E+01	4.22E+01
		163.89		4.61	1.45E+02		4.17E+01	7.00E+01
		176.55		13.56	4.89E+01		3.33E+00	2.36E+01
		273.65		12.66	7.14E+01		-9.07E+00	3.45E+01
		340.57		48.50	2.18E+01		-5.57E+00	1.05E+01
		818.50		99.70	1.16E+01		3.00E+00	5.35E+00
		1048.07		79.60	1.68E+01		-9.79E-01	7.76E+00
		1235.34		19.70	9.28E+01		2.34E+01	4.34E+01
+	CS-137	661.65	*	85.12	9.87E-02	9.87E-02	7.01E-02	4.64E-02
	LA-138	788.74		34.00	2.18E-01	1.17E-01	8.21E-02	1.00E-01
		1435.80		66.00	1.17E-01		-3.05E-02	5.13E-02
	CE-139	165.85		80.35	9.24E-02	9.24E-02	1.63E-02	4.47E-02
	BA-140	162.64		6.70	1.14E+02	4.46E+01	3.51E+01	5.54E+01
		304.84		4.50	2.17E+02		-4.29E+01	1.04E+02
		423.70		3.20	3.48E+02		5.36E+01	1.65E+02
		437.55		2.00	4.81E+02		-2.98E+02	2.27E+02
		537.32		25.00	4.46E+01		-1.98E+01	2.10E+01
	LA-140	328.77		20.50	5.09E+01	1.41E+01	-1.36E+01	2.44E+01
		487.03		45.50	2.41E+01		9.83E+00	1.14E+01
		815.85		23.50	5.34E+01		-3.63E+00	2.46E+01
		1596.49		95.49	1.41E+01		1.90E+00	6.15E+00
	CE-141	145.44		48.40	6.84E-01	6.84E-01	4.11E-01	3.32E-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	5.24E-01	5.24E-01	-2.22E-01	2.54E-01
	PM-144	476.78		42.00	1.95E-01	8.13E-02	8.83E-02	9.24E-02
		618.01		98.60	8.13E-02		-1.15E-02	3.79E-02
		696.49		99.49	9.24E-02		-3.92E-02	4.31E-02
	PM-145	36.85		21.70	5.11E-01	2.70E-01	-8.66E-03	2.48E-01
		37.36		39.70	2.70E-01		-7.54E-02	1.31E-01
		42.30		15.10	5.56E-01		2.19E-02	2.71E-01
		72.40		2.31	2.81E+00		-4.95E+00	1.38E+00
	PM-146	453.90		39.94	1.72E-01	1.72E-01	-3.92E-03	8.17E-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
PM-146	735.90	14.01	5.99E-01	1.72E-01	3.02E-01	2.80E-01
	747.13	13.10	5.51E-01		-1.87E-03	2.54E-01
ND-147	91.11	28.90	7.59E+01	7.59E+01	4.99E+00	3.72E+01
	531.02	13.10	2.06E+02		9.68E+01	9.71E+01
PM-149	285.90	3.10	1.21E+13	1.21E+13	-2.42E+12	5.81E+12
EU-152	121.78	20.50	1.97E-01	1.97E-01	-1.91E-01	9.53E-02
	244.69	5.40	1.25E+00		-4.03E-01	6.07E-01
	344.27	19.13	3.42E-01		1.48E-01	1.64E-01
	778.89	9.20	8.58E-01		5.77E-02	3.98E-01
	964.01	10.40	9.08E-01		-8.75E-02	4.21E-01
	1085.78	7.22	1.47E+00		8.69E-01	6.84E-01
	1112.02	9.60	1.03E+00		1.07E-01	4.76E-01
	1407.95	14.94	6.01E-01		1.95E-01	2.68E-01
GD-153	97.43	31.30	1.77E-01	1.77E-01	-2.54E-01	8.60E-02
	103.18	22.20	2.40E-01		-1.54E-01	1.17E-01
EU-154	123.07	40.50	1.02E-01	1.02E-01	-7.19E-02	4.93E-02
	723.30	19.70	4.31E-01		-2.70E-01	2.02E-01
	873.19	11.50	7.25E-01		-5.83E-02	3.35E-01
	996.32	10.30	8.46E-01		-3.69E-01	3.88E-01
	1004.76	17.90	5.32E-01		1.04E-01	2.46E-01
	1274.45	35.50	2.67E-01		-4.14E-02	1.21E-01
EU-155	86.50	30.90	1.91E-01	1.91E-01	9.43E-02	9.35E-02
	105.30	20.70	2.06E-01		-3.83E-02	1.00E-01
EU-156	811.77	10.40	4.82E+01	4.82E+01	-7.03E+00	2.20E+01
	1153.47	7.20	1.16E+02		5.69E+01	5.38E+01
	1230.71	8.90	9.15E+01		-1.04E+01	4.23E+01
HO-166M	184.41	72.60	8.03E-02	8.03E-02	1.06E-01	3.91E-02
	280.45	29.60	2.05E-01		3.52E-02	9.85E-02
	410.94	11.10	6.36E-01		3.67E-01	3.03E-01
	711.69	54.10	1.58E-01		5.87E-02	7.43E-02
TM-171	66.72	0.14	4.56E+01	4.56E+01	-1.40E+01	2.23E+01
HF-172	67.35	5.31	1.17E+00	4.18E-01	-6.22E-01	5.74E-01
	125.81	11.30	4.18E-01		-3.12E-01	2.03E-01
LU-172	181.53	20.60	4.01E+03	2.66E+03	3.32E+01	1.94E+03
	900.72	29.81	4.93E+03		8.16E+02	2.28E+03
	1093.66	62.50	2.66E+03		2.91E+02	1.22E+03
LU-173	100.72	5.24	9.17E-01	3.52E-01	2.93E-01	4.45E-01
	272.11	21.20	3.52E-01		1.13E-02	1.70E-01
HF-175	343.40	84.00	1.95E-01	1.95E-01	8.43E-02	9.34E-02
LU-176	88.34	13.30	4.39E-01	5.90E-02	1.62E-01	2.15E-01
	201.83	86.00	6.07E-02		4.92E-02	2.93E-02
	306.78	94.00	5.90E-02		-3.02E-02	2.82E-02
HF-181	133.02	41.70	5.01E-01	3.88E-01	-3.36E-01	2.43E-01
	345.85	17.20	1.75E+00		7.82E-01	8.38E-01
	482.03	82.80	3.88E-01		6.18E-02	1.84E-01
TA-182	67.75	41.20	2.42E-01	2.42E-01	-1.28E-01	1.18E-01
	1121.30	34.90	7.08E-01		6.73E-01	3.34E-01
	1189.05	16.23	1.13E+00		-6.23E-01	5.20E-01
	1221.41	26.98	7.86E-01		-2.73E-01	3.65E-01
	1231.02	11.44	1.71E+00		-1.95E-01	7.92E-01
IR-192	308.46	29.68	4.56E-01	3.41E-01	-5.94E-02	2.18E-01
	468.07	48.10	3.41E-01		-1.07E-01	1.62E-01
HG-203	279.19	77.30	3.33E-01	3.33E-01	1.91E-01	1.60E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TL-204	374.74		94.11	6.30E-02	6.30E-02	-1.63E-02	2.99E-02
		899.15		99.16	9.27E-02		3.10E-02	4.30E-02
		911.74		91.10	1.56E-01		2.83E-01	7.43E-02
	BI-207	569.67		97.72	7.42E-02	7.42E-02	3.02E-03	3.49E-02
		1063.62		74.90	1.29E-01		1.35E-03	5.95E-02
+	TL-208	583.14	*	30.22	3.36E-01	1.08E-01	9.81E-01	1.61E-01
		860.37		4.48	1.99E+00		6.30E-01	9.28E-01
		2614.66	*	35.85	1.08E-01		7.86E-01	3.38E-02
	BI-210M	262.00		45.00	1.25E-01	1.25E-01	-4.80E-03	6.00E-02
		300.00		23.00	3.00E-01		7.62E-02	1.45E-01
	PB-210	46.50		4.25	1.82E+00	1.82E+00	9.01E-01	8.88E-01
	PB-211	404.84		2.90	2.16E+00	2.16E+00	-1.18E+00	1.03E+00
		831.96		2.90	2.90E+00		-6.23E-01	1.34E+00
	BI-212	727.17		11.80	7.66E-01	7.66E-01	2.98E-01	3.60E-01
		1620.62		2.75	3.09E+00		-6.35E-01	1.35E+00
+	PB-212	238.63	*	44.60	2.06E-01	2.06E-01	1.17E+00	1.01E-01
		300.09		3.41	2.02E+00		5.14E-01	9.77E-01
+	BI-214	609.31	*	46.30	2.86E-01	2.61E-01	9.49E-01	1.38E-01
		1120.29	*	15.10	9.72E-01		1.14E+00	4.60E-01
		1764.49	*	15.80	3.02E-01		1.17E+00	1.16E-01
		2204.22	*	4.98	2.61E-01		1.93E+00	0.00E+00
+	PB-214	295.21	*	19.19	3.53E-01	1.86E-01	9.19E-01	1.70E-01
		351.92	*	37.19	1.86E-01		9.90E-01	8.91E-02
	RN-219	401.80		6.50	9.03E-01	9.03E-01	-5.02E-01	4.27E-01
	RA-223	323.87		3.88	1.53E+00	1.53E+00	-5.85E-01	7.30E-01
	RA-224	240.98		3.95	2.91E+00	2.91E+00	1.55E+01	1.43E+00
	RA-225	40.00		31.00	2.44E+01	2.44E+01	-2.58E+00	1.19E+01
+	RA-226	186.21	*	3.28	2.43E+00	2.43E+00	2.46E+00	1.19E+00
	TH-227	50.10		8.40	7.77E-01	7.77E-01	-7.68E-01	3.78E-01
		236.00		11.50	8.02E-01		4.40E-01	3.92E-01
		256.20		6.30	8.71E-01		-1.70E-01	4.19E-01
+	AC-228	338.32	*	11.40	6.21E-01	3.98E-01	7.39E-01	2.99E-01
		911.07	*	27.70	3.98E-01		8.81E-01	1.87E-01
		969.11	*	16.60	9.09E-01		6.37E-01	4.34E-01
+	TH-230	48.44	*	16.90	6.04E-01	6.04E-01	4.86E-01	2.97E-01
		62.85		4.60	1.36E+00		1.17E+00	6.65E-01
		67.67		0.37	1.53E+01		-8.09E+00	7.46E+00
	PA-231	283.67		1.60	3.41E+00	2.76E+00	-4.03E+00	1.63E+00
		302.67		2.30	2.76E+00		1.21E+00	1.33E+00
	TH-231	25.64		14.70	2.55E+00	8.25E-01	-6.36E-01	1.24E+00
		84.21		6.40	8.25E-01		-1.89E-02	4.03E-01
	PA-233	311.98		38.60	1.65E+00	1.65E+00	-1.87E-01	7.89E-01
	PA-234	131.20		20.40	2.36E-01	2.36E-01	2.07E-01	1.15E-01
		733.99		8.80	9.71E-01		4.70E-01	4.55E-01
		946.00		12.00	7.02E-01		-3.87E-02	3.23E-01
	PA-234M	1001.03		0.92	1.02E+01	1.02E+01	2.55E+00	4.71E+00
	TH-234	63.29		3.80	1.64E+00	1.64E+00	1.59E+00	8.05E-01
	U-235	143.76		10.50	4.01E-01	4.01E-01	-2.43E-01	1.94E-01
		163.35		4.70	9.92E-01		2.86E-01	4.80E-01
		205.31		4.70	1.25E+00		-1.80E-01	6.05E-01
	NP-237	86.50		12.60	4.52E-01	4.52E-01	2.23E-01	2.21E-01
	NP-239	106.10		22.70	1.98E+11	1.98E+11	-3.69E+10	9.63E+10
		228.18		10.70	5.94E+11		-3.97E+10	2.87E+11

Analysis Report for 1707082-16

HTC-A01-S006-1218-01

	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	4.99E+11	1.98E+11	3.74E+11	2.41E+11
	AM-241	59.54		35.90	1.68E-01	1.68E-01	-5.61E-02	8.23E-02
+	AM-243	74.67	*	66.00	1.46E-01	1.46E-01	3.39E-01	7.21E-02
	CM-243	209.75		3.29	1.94E+00	4.63E-01	2.35E+00	9.42E-01
		228.14		10.60	5.52E-01		-3.69E-02	2.67E-01
		277.60		14.00	4.63E-01		3.47E-01	2.23E-01

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

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-S006-1218-01

Elapsed Live time: 3600
Elapsed Real Time: 3608

Channel								
1:	0	0	0	0	0	0	0	0
9:	1	163	166	133	139	140	91	98
17:	99	62	65	72	84	64	72	77
25:	82	72	83	71	88	83	76	82
33:	81	81	87	77	80	89	91	88
41:	93	80	97	89	97	90	147	104
49:	112	106	95	78	104	107	95	104
57:	117	107	132	128	113	144	144	171
65:	156	120	128	151	125	126	134	138
73:	146	190	293	329	327	404	196	141
81:	92	97	98	115	152	124	156	188
89:	134	163	156	115	199	187	112	71
97:	75	94	85	79	68	91	74	63
105:	69	102	71	65	78	70	76	99
113:	77	75	75	63	77	75	77	75
121:	61	72	50	54	81	80	71	67
129:	90	110	77	73	79	70	66	79
137:	73	73	54	72	66	49	59	64
145:	61	62	72	66	47	63	66	63
153:	62	64	66	70	64	64	72	51
161:	53	69	63	53	72	52	55	65
169:	45	55	50	60	50	53	48	63
177:	62	49	53	57	54	48	65	64
185:	68	109	106	68	55	48	56	57
193:	55	63	53	56	70	50	55	60
201:	67	56	45	57	40	37	57	56
209:	61	64	70	49	43	42	42	40
217:	47	40	41	37	39	42	38	47
225:	34	45	38	38	43	38	56	49
233:	36	34	40	46	55	152	348	243
241:	97	96	91	48	22	35	29	23
249:	48	32	33	26	21	32	30	39
257:	25	31	34	36	33	23	30	28
265:	30	31	35	21	35	57	44	40
273:	26	35	38	41	31	43	41	36
281:	27	27	27	21	24	29	20	40
289:	28	29	32	22	29	55	81	114
297:	61	24	28	44	39	30	32	23
305:	23	22	29	23	13	24	21	27
313:	29	20	26	19	25	32	26	15
321:	20	29	17	22	32	16	27	31
329:	32	22	28	27	31	29	21	22
337:	28	49	75	30	18	23	20	23
345:	33	28	30	21	18	25	65	187
353:	141	44	19	22	25	22	25	18
361:	19	17	27	19	18	17	16	22

369:	32	14	21	16	21	10	14	19

Sample Title: HTC-A01-S006-1218-01

Channel								
377:	13	20	19	18	17	22	10	19
385:	20	21	15	28	20	19	17	13
393:	22	25	11	25	22	21	11	16
401:	15	12	19	21	13	14	21	21
409:	20	33	11	25	18	23	20	12
417:	16	14	12	14	18	23	19	20
425:	10	18	22	25	16	19	9	8
433:	19	15	9	15	11	12	15	13
441:	15	19	15	10	18	6	18	10
449:	12	19	12	10	19	17	13	22
457:	18	16	17	18	14	23	34	17
465:	16	13	16	19	13	14	18	9
473:	15	14	12	15	14	18	20	14
481:	10	14	13	22	13	12	13	14
489:	10	13	6	13	12	18	13	13
497:	15	7	13	13	5	14	16	11
505:	17	10	7	14	19	42	72	39
513:	25	18	17	15	11	12	12	14
521:	7	12	10	11	9	11	7	10
529:	15	10	13	18	12	15	6	16
537:	9	15	11	11	14	15	12	8
545:	10	18	15	15	11	12	7	6
553:	6	18	12	16	10	8	19	11
561:	11	15	7	15	6	6	14	17
569:	13	7	14	11	9	12	10	5
577:	10	15	9	12	13	33	80	72
585:	27	16	10	5	9	12	14	9
593:	11	15	9	11	14	10	5	15
601:	15	6	12	9	7	13	13	32
609:	98	96	47	21	10	9	6	16
617:	8	6	6	12	8	9	16	10
625:	5	13	12	21	7	10	10	13
633:	7	10	3	5	13	6	11	9
641:	8	9	14	4	12	6	13	5
649:	9	10	14	15	6	10	6	9
657:	8	6	11	9	15	22	12	9
665:	7	8	10	9	5	12	9	14
673:	5	8	11	8	5	6	13	8
681:	5	11	9	9	9	9	9	7
689:	4	9	9	14	7	6	14	8
697:	10	7	8	13	9	17	11	9
705:	11	17	12	5	12	13	9	12
713:	10	16	8	11	8	6	10	14
721:	11	11	9	5	10	13	20	17
729:	8	13	9	10	11	11	11	12
737:	11	7	4	7	6	7	15	10
745:	3	5	11	9	5	4	8	6
753:	8	4	12	6	5	7	3	3
761:	6	11	18	13	5	8	10	13
769:	14	12	12	13	13	4	11	7
777:	6	10	7	7	8	10	10	5
785:	7	11	6	6	9	7	1	8
793:	8	20	23	12	8	2	6	4

801:	8	8	11	3	14	9	3	7

Sample Title: HTC-A01-S006-1218-01

Channel								
809:	4	4	7	4	8	6	5	7
817:	7	9	6	11	6	8	9	5
825:	4	4	8	7	9	5	15	8
833:	6	8	6	10	11	4	6	6
841:	14	9	6	9	9	4	11	11
849:	12	6	4	10	13	9	5	10
857:	6	3	11	16	13	4	8	8
865:	5	7	3	8	8	8	11	6
873:	3	5	9	7	8	6	6	9
881:	7	10	4	7	6	3	4	5
889:	9	5	2	1	14	8	5	6
897:	6	7	6	6	13	10	3	7
905:	5	8	6	8	5	29	39	35
913:	13	6	6	1	5	4	4	4
921:	4	8	1	2	10	3	9	6
929:	6	8	4	6	12	10	13	11
937:	6	7	9	5	7	3	4	5
945:	13	4	6	8	5	9	7	13
953:	12	5	5	4	7	6	6	6
961:	4	7	6	10	13	5	9	27
969:	39	20	7	6	6	12	6	5
977:	4	7	4	5	7	5	5	10
985:	9	3	8	12	11	3	6	6
993:	7	3	6	8	9	7	2	9
1001:	10	12	5	6	2	6	12	7
1009:	4	4	3	5	6	7	5	7
1017:	6	3	7	3	8	10	7	5
1025:	7	8	0	8	4	6	5	10
1033:	5	5	6	3	10	9	3	6
1041:	4	7	6	1	7	6	8	6
1049:	9	5	6	8	11	5	5	4
1057:	4	4	7	6	9	9	5	4
1065:	10	6	5	6	8	5	3	7
1073:	5	5	11	9	4	2	4	5
1081:	8	6	9	12	7	8	5	10
1089:	5	5	2	13	4	10	9	5
1097:	4	7	7	4	6	5	4	3
1105:	9	11	8	11	4	12	5	5
1113:	11	3	6	5	6	11	26	27
1121:	21	4	6	2	5	11	4	6
1129:	14	9	8	10	5	6	4	9
1137:	5	10	10	6	7	6	8	5
1145:	8	9	6	8	4	6	5	11
1153:	12	8	11	6	5	6	8	6
1161:	7	8	2	6	7	7	9	7
1169:	9	8	8	7	10	2	6	7
1177:	7	7	8	3	6	15	10	4
1185:	10	6	5	8	11	2	7	7
1193:	10	12	7	7	4	7	7	7
1201:	9	6	9	7	4	8	11	4
1209:	7	4	9	7	10	10	7	13
1217:	11	9	10	11	7	7	10	6
1225:	7	12	4	9	4	7	6	9

1233:	6	9	6	9	12	17	11	9

Sample Title: HTC-A01-S006-1218-01

Channel								
1241:	6	7	5	6	6	7	4	9
1249:	12	1	3	4	10	6	2	4
1257:	7	6	6	1	2	4	7	2
1265:	10	4	7	5	3	4	4	5
1273:	5	5	3	6	4	7	6	4
1281:	7	8	5	3	5	5	2	6
1289:	3	3	4	3	1	5	6	3
1297:	5	4	7	3	5	7	4	4
1305:	4	4	7	4	9	4	1	5
1313:	6	4	4	2	6	3	6	6
1321:	2	5	1	3	1	6	4	4
1329:	2	8	7	3	4	3	3	4
1337:	1	3	1	3	3	4	5	6
1345:	2	2	0	2	4	4	5	6
1353:	3	3	2	4	3	4	1	4
1361:	0	5	2	3	2	2	2	3
1369:	0	3	2	0	3	0	3	4
1377:	10	4	4	2	1	4	1	1
1385:	3	6	2	2	2	3	0	5
1393:	3	1	4	4	1	3	5	8
1401:	5	2	5	5	2	2	6	6
1409:	3	0	5	2	1	2	3	2
1417:	0	2	1	0	0	3	4	1
1425:	5	0	4	2	2	3	5	1
1433:	1	3	0	3	4	3	3	3
1441:	4	1	4	0	4	1	0	1
1449:	1	4	2	4	3	1	4	4
1457:	8	32	102	193	201	72	8	1
1465:	3	4	1	2	1	3	1	0
1473:	0	0	1	2	1	0	3	1
1481:	1	4	3	0	1	1	2	0
1489:	0	1	1	3	3	2	1	3
1497:	5	1	1	1	0	5	2	1
1505:	1	0	3	3	5	0	3	0
1513:	2	4	2	2	1	2	0	1
1521:	1	0	4	3	1	1	1	3
1529:	2	1	2	1	1	2	2	1
1537:	2	0	2	0	1	3	0	2
1545:	2	0	4	2	0	0	1	2
1553:	2	0	1	3	2	1	1	2
1561:	1	0	2	1	2	1	1	1
1569:	0	1	4	0	2	0	0	1
1577:	1	0	1	2	2	1	0	5
1585:	0	2	3	3	1	4	8	4
1593:	3	1	0	0	2	2	3	1
1601:	1	2	1	1	2	0	1	1
1609:	2	1	1	2	0	0	2	1
1617:	3	4	4	3	0	0	2	0
1625:	2	3	2	1	4	1	3	1
1633:	1	2	1	2	2	1	0	2
1641:	2	1	1	1	2	0	1	1
1649:	0	2	1	1	1	2	2	0
1657:	1	1	1	2	6	4	0	2

1665:	1	0	2	0	1	1	1	0

Sample Title: HTC-A01-S006-1218-01

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

2097:	0	0	0	1	4	6	1	2

Sample Title: HTC-A01-S006-1218-01

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

2529:	0	0	1	0	0	1	0	1

Sample Title: HTC-A01-S006-1218-01

Channel								
2537:	0	0	0	1	1	1	0	0
2545:	0	1	0	0	0	0	1	0
2553:	1	0	0	0	0	0	0	0
2561:	1	1	0	0	0	0	1	0
2569:	0	0	1	0	1	1	0	0
2577:	0	0	0	0	0	0	1	0
2585:	0	0	1	0	0	0	0	0
2593:	0	1	1	0	0	0	0	0
2601:	1	0	0	0	0	1	0	0
2609:	0	0	4	14	14	16	4	3
2617:	0	0	0	0	0	0	0	0
2625:	0	1	0	1	0	0	0	0
2633:	1	0	0	0	1	0	0	0
2641:	0	0	0	0	0	0	0	0
2649:	0	0	1	1	0	0	0	0
2657:	0	0	1	0	0	0	0	0
2665:	0	0	0	0	0	1	0	0
2673:	1	0	1	0	0	0	0	1
2681:	0	0	1	0	0	0	0	0
2689:	0	1	0	0	0	3	0	1
2697:	0	0	0	0	0	2	0	0
2705:	0	1	0	0	0	0	1	0
2713:	0	1	0	0	0	0	0	0
2721:	0	0	0	0	1	0	0	0
2729:	2	0	0	0	0	0	0	0
2737:	1	0	0	0	0	0	0	1
2745:	0	0	0	0	0	0	0	0
2753:	0	0	0	0	2	0	0	0
2761:	0	0	0	1	0	0	0	1
2769:	0	0	0	0	0	0	0	0
2777:	0	0	0	0	0	0	0	1
2785:	0	0	0	0	1	0	0	0
2793:	0	0	0	0	0	0	0	0
2801:	0	2	0	0	0	0	0	0
2809:	0	0	1	0	0	0	0	0
2817:	0	0	0	2	0	0	0	0
2825:	1	1	0	0	0	0	0	1
2833:	0	0	0	0	0	0	0	0
2841:	0	0	0	0	0	0	1	0
2849:	1	0	0	0	2	0	0	0
2857:	2	1	0	0	0	1	0	0
2865:	0	0	0	0	0	0	0	0
2873:	0	0	0	0	0	0	0	0
2881:	1	0	0	0	0	0	0	0
2889:	0	0	0	0	0	0	0	0
2897:	0	1	2	0	0	1	1	0
2905:	0	0	0	0	1	1	0	0
2913:	0	0	0	1	0	0	0	0
2921:	0	0	0	0	0	1	0	1
2929:	0	0	0	0	0	0	1	0
2937:	0	0	0	0	0	0	1	0
2945:	0	0	0	0	0	0	0	1
2953:	0	0	0	0	0	0	0	0

2961:	0	1	0	0	0	0	0	0

Sample Title: HTC-A01-S006-1218-01

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

3393:	0	0	0	1	0	0	0	0

Sample Title: HTC-A01-S006-1218-01

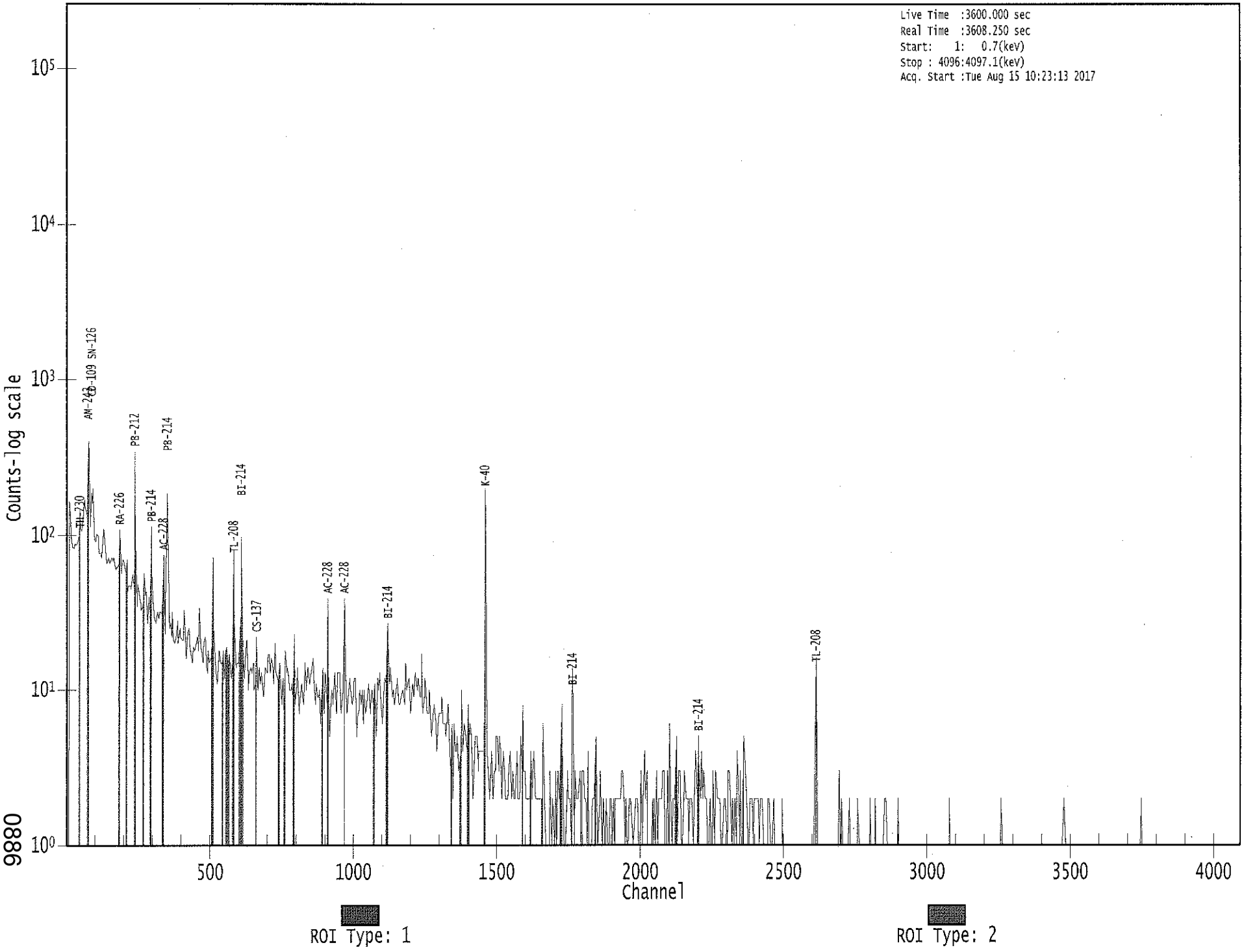
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	1	0	0	0	0	0	0
3417:	1	0	0	1	1	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	1	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	1	0	0	0	0	0	0	1
3457:	0	0	0	1	0	0	0	0
3465:	0	0	0	0	0	0	0	1
3473:	1	1	0	0	2	0	0	0
3481:	0	0	0	1	0	0	0	0
3489:	0	0	0	0	0	1	0	0
3497:	0	0	0	0	0	0	0	1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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S006-1218-01

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

0000055250.CNF



9880

Apex-Gamma

8/15

Analysis Report for 1707082-17

HTC-A01-S006-1824-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707082-17
Sample Description	: HTC-A01-S006-1824-01
Sample Type	: SOIL
Sample Size	: 6.639E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 6:37:39AM
Acquisition Started	: 8/15/2017 10:23:20AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3602.3 seconds
Dead Time	: 0.06 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 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	: 55251

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/16/17

Analysis Report for 1707082-17

HTC-A01-S006-1824-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/15/2017 11:24:01AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	62.88	61.93	0.0000	0.00
2	76.13	75.19	0.0000	0.00
3	86.87	85.93	0.0000	0.00
4	93.18	92.24	0.0000	0.00
5	128.84	127.91	0.0000	0.00
6	186.19	185.28	0.0000	0.00
7	238.75	237.86	0.0000	0.00
8	242.02	241.13	0.0000	0.00
9	291.87	291.00	0.0000	0.00
10	295.24	294.36	0.0000	0.00
11	298.87	298.00	0.0000	0.00
12	338.28	337.42	0.0000	0.00
13	351.97	351.12	0.0000	0.00
14	468.67	467.86	0.0000	0.00
15	510.35	509.55	0.0000	0.00
16	583.14	582.37	0.0000	0.00
17	609.16	608.40	0.0000	0.00
18	727.08	726.36	0.0000	0.00
19	733.28	732.57	0.0000	0.00
20	795.37	794.68	0.0000	0.00
21	906.64	906.00	0.0000	0.00
22	911.19	910.56	0.0000	0.00
23	968.46	967.85	0.0000	0.00
24	1027.77	1027.19	0.0000	0.00
25	1120.10	1119.56	0.0000	0.00
26	1309.40	1308.94	0.0000	0.00
27	1345.81	1345.38	0.0000	0.00
28	1422.18	1421.79	0.0000	0.00
29	1449.16	1448.78	0.0000	0.00
30	1460.65	1460.27	0.0000	0.00
31	1571.02	1570.70	0.0000	0.00
32	1686.11	1685.86	0.0000	0.00
33	1693.51	1693.25	0.0000	0.00
34	1764.15	1763.93	0.0000	0.00
35	1847.37	1847.21	0.0000	0.00
36	1916.00	1915.88	0.0000	0.00
37	2003.91	2003.83	0.0000	0.00
38	2096.68	2096.66	0.0000	0.00
39	2193.27	2193.31	0.0000	0.00
40	2613.74	2614.06	0.0000	0.00

Analysis Report for 1707082-17

HTC-A01-S006-1824-01

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707082-17

HTC-A01-S006-1824-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 11:24:01AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	62.88	57 -	66	61.93	2.30E+02	127.09	2.18E+03	4.62
	2	76.13	71 -	81	75.19	1.00E+03	154.76	2.63E+03	4.13
	3	86.87	83 -	90	85.93	1.28E+02	113.70	2.09E+03	2.13
	4	93.18	90 -	95	92.24	2.35E+02	84.12	1.17E+03	1.95
	5	128.84	125 -	132	127.91	6.99E+01	86.02	1.19E+03	1.96
	6	186.19	181 -	189	185.28	1.66E+02	80.63	8.93E+02	2.66
M	7	238.75	228 -	245	237.86	6.77E+02	76.61	5.28E+02	2.33
m	8	242.02	228 -	245	241.13	1.55E+02	73.61	5.31E+02	2.33
M	9	291.87	289 -	303	291.00	2.80E+01	23.85	1.57E+02	3.15
m	10	295.24	289 -	303	294.36	1.68E+02	46.99	3.05E+02	2.16
m	11	298.87	289 -	303	298.00	4.28E+01	44.41	2.92E+02	2.16
	12	338.28	333 -	342	337.42	1.18E+02	59.53	4.37E+02	2.86
	13	351.97	346 -	356	351.12	3.10E+02	72.38	5.31E+02	2.03
	14	468.67	465 -	472	467.86	3.14E+01	36.93	2.03E+02	1.32
	15	510.35	505 -	514	509.55	1.16E+02	41.17	1.78E+02	2.49
	16	583.14	577 -	585	582.37	1.49E+02	44.40	2.12E+02	2.35
	17	609.16	601 -	613	608.40	2.28E+02	54.86	2.47E+02	2.51
	18	727.08	723 -	730	726.36	4.51E+01	31.11	1.30E+02	2.75
	19	733.28	731 -	735	732.57	1.74E+01	17.36	4.73E+01	2.80
	20	795.37	792 -	797	794.68	2.05E+01	20.98	7.09E+01	2.91
M	21	906.64	904 -	918	906.00	1.11E+01	14.00	4.30E+01	3.31
m	22	911.19	904 -	918	910.56	1.18E+02	35.03	9.42E+01	3.24
	23	968.46	960 -	977	967.85	9.70E+01	46.58	1.62E+02	3.71
	24	1027.77	1021 -	1034	1027.19	2.79E+01	34.37	1.18E+02	8.76
	25	1120.10	1116 -	1125	1119.56	5.43E+01	28.00	8.34E+01	2.39
	26	1309.40	1304 -	1312	1308.94	1.63E+01	16.42	3.13E+01	1.52
	27	1345.81	1334 -	1358	1345.38	3.14E+01	37.01	7.52E+01	11.69
	28	1422.18	1415 -	1429	1421.79	2.25E+01	15.25	1.50E+01	8.34
	29	1449.16	1445 -	1452	1448.78	8.00E+00	8.94	8.00E+00	1.28
	30	1460.65	1456 -	1465	1460.27	4.96E+02	47.19	3.43E+01	2.73
	31	1571.02	1566 -	1574	1570.70	9.79E+00	9.82	8.43E+00	3.17
	32	1686.11	1683 -	1689	1685.86	5.00E+00	6.34	4.00E+00	1.44
	33	1693.51	1690 -	1696	1693.25	7.50E+00	6.95	3.00E+00	2.48
	34	1764.15	1759 -	1768	1763.93	4.50E+01	13.42	0.00E+00	3.82
	35	1847.37	1842 -	1853	1847.21	1.18E+01	13.86	1.85E+01	1.26
	36	1916.00	1912 -	1919	1915.88	8.00E+00	5.66	0.00E+00	1.92
	37	2003.91	2001 -	2006	2003.83	6.00E+00	4.90	0.00E+00	2.74
	38	2096.68	2093 -	2098	2096.66	4.83E+00	5.74	2.33E+00	0.94
	39	2193.27	2190 -	2196	2193.31	5.21E+00	6.34	3.57E+00	2.55
	40	2613.74	2609 -	2618	2614.06	5.20E+01	14.42	0.00E+00	2.11

Analysis Report for 1707082-17

HTC-A01-S006-1824-01

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 11:24:01AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	62.88	57 -	66	2.30E+02	127.09	2.18E+03	1.01E+02
	2	76.13	71 -	81	1.00E+03	154.76	2.63E+03	1.16E+02
	3	86.87	83 -	90	1.28E+02	113.70	2.09E+03	9.16E+01
	4	93.18	90 -	95	2.35E+02	84.12	1.17E+03	6.44E+01
	5	128.84	125 -	132	6.99E+01	86.02	1.19E+03	6.94E+01
	6	186.19	181 -	189	1.66E+02	80.63	8.93E+02	6.28E+01
M	7	238.75	228 -	245	6.77E+02	76.61	5.28E+02	3.78E+01
m	8	242.02	228 -	245	1.55E+02	73.61	5.31E+02	3.79E+01
M	9	291.87	289 -	303	2.80E+01	23.85	1.57E+02	2.06E+01
m	10	295.24	289 -	303	1.68E+02	46.99	3.05E+02	2.87E+01
m	11	298.87	289 -	303	4.28E+01	44.41	2.92E+02	2.81E+01
	12	338.28	333 -	342	1.18E+02	59.53	4.37E+02	4.56E+01
	13	351.97	346 -	356	3.10E+02	72.38	5.31E+02	5.20E+01
	14	468.67	465 -	472	3.14E+01	36.93	2.03E+02	2.89E+01
	15	510.35	505 -	514	1.16E+02	41.17	1.78E+02	2.88E+01
	16	583.14	577 -	585	1.49E+02	44.40	2.12E+02	3.05E+01
	17	609.16	601 -	613	2.28E+02	54.86	2.47E+02	3.77E+01
	18	727.08	723 -	730	4.51E+01	31.11	1.30E+02	2.31E+01
	19	733.28	731 -	735	1.74E+01	17.36	4.73E+01	1.25E+01
	20	795.37	792 -	797	2.05E+01	20.98	7.09E+01	1.56E+01
M	21	906.64	904 -	918	1.11E+01	14.00	4.30E+01	1.08E+01
m	22	911.19	904 -	918	1.18E+02	35.03	9.42E+01	1.60E+01
	23	968.46	960 -	977	9.70E+01	46.58	1.62E+02	3.47E+01
	24	1027.77	1021 -	1034	2.79E+01	34.37	1.18E+02	2.69E+01
	25	1120.10	1116 -	1125	5.43E+01	28.00	8.34E+01	1.96E+01
	26	1309.40	1304 -	1312	1.63E+01	16.42	3.13E+01	1.18E+01
	27	1345.81	1334 -	1358	3.14E+01	37.01	7.52E+01	2.90E+01
	28	1422.18	1415 -	1429	2.25E+01	15.25	1.50E+01	9.81E+00
	29	1449.16	1445 -	1452	8.00E+00	8.94	8.00E+00	5.70E+00
	30	1460.65	1456 -	1465	4.96E+02	47.19	3.43E+01	1.28E+01
	31	1571.02	1566 -	1574	9.79E+00	9.82	8.43E+00	6.23E+00

Analysis Report for 1707082-17

HTC-A01-S006-1824-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
32	1686.11	1683 -	1689	5.00E+00	6.34	4.00E+00	3.70E+00
33	1693.51	1690 -	1696	7.50E+00	6.95	3.00E+00	3.51E+00
34	1764.15	1759 -	1768	4.50E+01	13.42	0.00E+00	0.00E+00
35	1847.37	1842 -	1853	1.18E+01	13.86	1.85E+01	9.90E+00
36	1916.00	1912 -	1919	8.00E+00	5.66	0.00E+00	0.00E+00
37	2003.91	2001 -	2006	6.00E+00	4.90	0.00E+00	0.00E+00
38	2096.68	2093 -	2098	4.83E+00	5.74	2.33E+00	3.04E+00
39	2193.27	2190 -	2196	5.21E+00	6.34	3.57E+00	3.62E+00
40	2613.74	2609 -	2618	5.20E+01	14.42	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 : 8/15/2017 11:24:01AM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	62.88	57 -	66	61.93	2.30E+02	127.09	2.18E+03	TH-230 TH-234
	2	76.13	71 -	81	75.19	1.00E+03	154.76	2.63E+03	.....
	3	86.87	83 -	90	85.93	1.28E+02	113.70	2.09E+03	NP-237 EU-155 SN-126
	4	93.18	90 -	95	92.24	2.35E+02	84.12	1.17E+03	GA-67
	5	128.84	125 -	132	127.91	6.99E+01	86.02	1.19E+03	.....
	6	186.19	181 -	189	185.28	1.66E+02	80.63	8.93E+02	RA-226
M	7	238.75	228 -	245	237.86	6.77E+02	76.61	5.28E+02	PB-212
m	8	242.02	228 -	245	241.13	1.55E+02	73.61	5.31E+02	.....
M	9	291.87	289 -	303	291.00	2.80E+01	23.85	1.57E+02	.....
m	10	295.24	289 -	303	294.36	1.68E+02	46.99	3.05E+02	PB-214
m	11	298.87	289 -	303	298.00	4.28E+01	44.41	2.92E+02	.....
	12	338.28	333 -	342	337.42	1.18E+02	59.53	4.37E+02	AC-228
	13	351.97	346 -	356	351.12	3.10E+02	72.38	5.31E+02	PB-214
	14	468.67	465 -	472	467.86	3.14E+01	36.93	2.03E+02	IR-192

Analysis Report for 1707082-17

HTC-A01-S006-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	15	510.35	505 -	514	509.55	1.16E+02	41.17	1.78E+02	.....
	16	583.14	577 -	585	582.37	1.49E+02	44.40	2.12E+02	TL-208
	17	609.16	601 -	613	608.40	2.28E+02	54.86	2.47E+02	BI-214
	18	727.08	723 -	730	726.36	4.51E+01	31.11	1.30E+02	BI-212
	19	733.28	731 -	735	732.57	1.74E+01	17.36	4.73E+01	PA-234
	20	795.37	792 -	797	794.68	2.05E+01	20.98	7.09E+01	CS-134
M	21	906.64	904 -	918	906.00	1.11E+01	14.00	4.30E+01	.....
m	22	911.19	904 -	918	910.56	1.18E+02	35.03	9.42E+01	AC-228 TL-204
	23	968.46	960 -	977	967.85	9.70E+01	46.58	1.62E+02	AC-228
	24	1027.77	1021 -	1034	1027.19	2.79E+01	34.37	1.18E+02	.....
	25	1120.10	1116 -	1125	1119.56	5.43E+01	28.00	8.34E+01	BI-214 SC-46
	26	1309.40	1304 -	1312	1308.94	1.63E+01	16.42	3.13E+01	.....
	27	1345.81	1334 -	1358	1345.38	3.14E+01	37.01	7.52E+01	.....
	28	1422.18	1415 -	1429	1421.79	2.25E+01	15.25	1.50E+01	.....
	29	1449.16	1445 -	1452	1448.78	8.00E+00	8.94	8.00E+00	.....
	30	1460.65	1456 -	1465	1460.27	4.96E+02	47.19	3.43E+01	K-40
	31	1571.02	1566 -	1574	1570.70	9.79E+00	9.82	8.43E+00	.....
	32	1686.11	1683 -	1689	1685.86	5.00E+00	6.34	4.00E+00	.....
	33	1693.51	1690 -	1696	1693.25	7.50E+00	6.95	3.00E+00	.....
	34	1764.15	1759 -	1768	1763.93	4.50E+01	13.42	0.00E+00	BI-214
	35	1847.37	1842 -	1853	1847.21	1.18E+01	13.86	1.85E+01	.....
	36	1916.00	1912 -	1919	1915.88	8.00E+00	5.66	0.00E+00	.....
	37	2003.91	2001 -	2006	2003.83	6.00E+00	4.90	0.00E+00	.....
	38	2096.68	2093 -	2098	2096.66	4.83E+00	5.74	2.33E+00	.....
	39	2193.27	2190 -	2196	2193.31	5.21E+00	6.34	3.57E+00	.....
	40	2613.74	2609 -	2618	2614.06	5.20E+01	14.42	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 : 8/15/2017 11:24:01AM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
1	62.88	2.30E+02	127.09	2.15E-02	1.63E-03
2	76.13	1.00E+03	154.76	2.32E-02	1.91E-03

Analysis Report for 1707082-17

HTC-A01-S006-1824-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	3	86.87	1.28E+02	113.70	2.37E-02	2.14E-03
	4	93.18	2.35E+02	84.12	2.36E-02	2.09E-03
	5	128.84	6.99E+01	86.02	2.16E-02	1.63E-03
	6	186.19	1.66E+02	80.63	1.69E-02	1.40E-03
M	7	238.75	6.77E+02	76.61	1.36E-02	1.14E-03
m	8	242.02	1.55E+02	73.61	1.34E-02	1.13E-03
M	9	291.87	2.80E+01	23.85	1.12E-02	9.20E-04
m	10	295.24	1.68E+02	46.99	1.10E-02	9.13E-04
m	11	298.87	4.28E+01	44.41	1.09E-02	9.06E-04
	12	338.28	1.18E+02	59.53	9.60E-03	8.23E-04
	13	351.97	3.10E+02	72.38	9.22E-03	7.94E-04
	14	468.67	3.14E+01	36.93	6.86E-03	6.79E-04
	15	510.35	1.16E+02	41.17	6.29E-03	6.61E-04
	16	583.14	1.49E+02	44.40	5.51E-03	6.31E-04
	17	609.16	2.28E+02	54.86	5.27E-03	6.20E-04
	18	727.08	4.51E+01	31.11	4.45E-03	5.17E-04
	19	733.28	1.74E+01	17.36	4.42E-03	5.09E-04
	20	795.37	2.05E+01	20.98	4.09E-03	4.31E-04
M	21	906.64	1.11E+01	14.00	3.64E-03	3.00E-04
m	22	911.19	1.18E+02	35.03	3.62E-03	2.99E-04
	23	968.46	9.70E+01	46.58	3.43E-03	2.85E-04
	24	1027.77	2.79E+01	34.37	3.25E-03	2.72E-04
	25	1120.10	5.43E+01	28.00	3.02E-03	2.50E-04
	26	1309.40	1.63E+01	16.42	2.63E-03	2.29E-04
	27	1345.81	3.14E+01	37.01	2.57E-03	2.25E-04
	28	1422.18	2.25E+01	15.25	2.44E-03	2.14E-04
	29	1449.16	8.00E+00	8.94	2.40E-03	2.10E-04
	30	1460.65	4.96E+02	47.19	2.38E-03	2.08E-04
	31	1571.02	9.79E+00	9.82	2.23E-03	1.91E-04
	32	1686.11	5.00E+00	6.34	2.09E-03	1.74E-04
	33	1693.51	7.50E+00	6.95	2.08E-03	1.73E-04
	34	1764.15	4.50E+01	13.42	2.00E-03	1.62E-04
	35	1847.37	1.18E+01	13.86	1.91E-03	1.51E-04
	36	1916.00	8.00E+00	5.66	1.84E-03	1.51E-04
	37	2003.91	6.00E+00	4.90	1.76E-03	1.51E-04
	38	2096.68	4.83E+00	5.74	1.67E-03	1.51E-04
	39	2193.27	5.21E+00	6.34	1.59E-03	1.51E-04
	40	2613.74	5.20E+01	14.42	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 : 8/15/2017 11:24:01AM

Analysis Report for 1707082-17

HTC-A01-S006-1824-01

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	62.88	2.30E+02	127.09	5.43E+01	8.76E+00	1.76E+02	1.27E+02
	2	76.13	1.00E+03	154.76	1.43E+01	8.48E+00	9.91E+02	1.55E+02
	3	86.87	1.28E+02	113.70			1.28E+02	1.14E+02
	4	93.18	2.35E+02	84.12	6.28E+01	7.82E+00	1.72E+02	8.45E+01
	5	128.84	6.99E+01	86.02			6.99E+01	8.60E+01
	6	186.19	1.66E+02	80.63	2.54E+01	6.86E+00	1.41E+02	8.09E+01
M	7	238.75	6.77E+02	76.61	8.10E+00	6.12E+00	6.69E+02	7.69E+01
m	8	242.02	1.55E+02	73.61			1.55E+02	7.36E+01
M	9	291.87	2.80E+01	23.85			2.80E+01	2.39E+01
m	10	295.24	1.68E+02	46.99			1.68E+02	4.70E+01
m	11	298.87	4.28E+01	44.41			4.28E+01	4.44E+01
	12	338.28	1.18E+02	59.53			1.18E+02	5.95E+01
	13	351.97	3.10E+02	72.38			3.10E+02	7.24E+01
	14	468.67	3.14E+01	36.93			3.14E+01	3.69E+01
	15	510.35	1.16E+02	41.17	3.93E+01	5.03E+00	7.67E+01	4.15E+01
	16	583.14	1.49E+02	44.40			1.49E+02	4.44E+01
	17	609.16	2.28E+02	54.86			2.28E+02	5.49E+01
	18	727.08	4.51E+01	31.11			4.51E+01	3.11E+01
	19	733.28	1.74E+01	17.36			1.74E+01	1.74E+01
	20	795.37	2.05E+01	20.98			2.05E+01	2.10E+01
M	21	906.64	1.11E+01	14.00			1.11E+01	1.40E+01
m	22	911.19	1.18E+02	35.03	5.69E-01	2.37E+00	1.18E+02	3.51E+01
	23	968.46	9.70E+01	46.58			9.70E+01	4.66E+01
	24	1027.77	2.79E+01	34.37			2.79E+01	3.44E+01
	25	1120.10	5.43E+01	28.00			5.43E+01	2.80E+01
	26	1309.40	1.63E+01	16.42			1.63E+01	1.64E+01
	27	1345.81	3.14E+01	37.01			3.14E+01	3.70E+01
	28	1422.18	2.25E+01	15.25			2.25E+01	1.52E+01
	29	1449.16	8.00E+00	8.94			8.00E+00	8.94E+00
	30	1460.65	4.96E+02	47.19	1.35E+00	1.57E+00	4.95E+02	4.72E+01
	31	1571.02	9.79E+00	9.82			9.79E+00	9.82E+00
	32	1686.11	5.00E+00	6.34			5.00E+00	6.34E+00
	33	1693.51	7.50E+00	6.95			7.50E+00	6.95E+00
	34	1764.15	4.50E+01	13.42			4.50E+01	1.34E+01
	35	1847.37	1.18E+01	13.86			1.18E+01	1.39E+01
	36	1916.00	8.00E+00	5.66			8.00E+00	5.66E+00
	37	2003.91	6.00E+00	4.90			6.00E+00	4.90E+00
	38	2096.68	4.83E+00	5.74			4.83E+00	5.74E+00
	39	2193.27	5.21E+00	6.34			5.21E+00	6.34E+00
	40	2613.74	5.20E+01	14.42			5.20E+01	1.44E+01

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

Analysis Report for 1707082-17

HTC-A01-S006-1824-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/15/2017 11:24:01AM

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	62.88	2.30E+02	127.09	5.43E+01	8.76E+00	1.76E+02	1.27E+02
	2	76.13	1.00E+03	154.76	1.43E+01	8.48E+00	9.91E+02	1.55E+02
	3	86.87	1.28E+02	113.70			1.28E+02	1.14E+02
	4	93.18	2.35E+02	84.12	6.28E+01	7.82E+00	1.72E+02	8.45E+01
	5	128.84	6.99E+01	86.02			6.99E+01	8.60E+01
	6	186.19	1.66E+02	80.63	2.54E+01	6.86E+00	1.41E+02	8.09E+01
M	7	238.75	6.77E+02	76.61	8.10E+00	6.12E+00	6.69E+02	7.69E+01
m	8	242.02	1.55E+02	73.61			1.55E+02	7.36E+01
M	9	291.87	2.80E+01	23.85			2.80E+01	2.39E+01
m	10	295.24	1.68E+02	46.99			1.68E+02	4.70E+01
m	11	298.87	4.28E+01	44.41			4.28E+01	4.44E+01
	12	338.28	1.18E+02	59.53			1.18E+02	5.95E+01
	13	351.97	3.10E+02	72.38			3.10E+02	7.24E+01
	14	468.67	3.14E+01	36.93			3.14E+01	3.69E+01
	15	510.35	1.16E+02	41.17	3.93E+01	5.03E+00	7.67E+01	4.15E+01
	16	583.14	1.49E+02	44.40			1.49E+02	4.44E+01
	17	609.16	2.28E+02	54.86			2.28E+02	5.49E+01
	18	727.08	4.51E+01	31.11			4.51E+01	3.11E+01
	19	733.28	1.74E+01	17.36			1.74E+01	1.74E+01
	20	795.37	2.05E+01	20.98			2.05E+01	2.10E+01
M	21	906.64	1.11E+01	14.00			1.11E+01	1.40E+01
m	22	911.19	1.18E+02	35.03	5.69E-01	2.37E+00	1.18E+02	3.51E+01
	23	968.46	9.70E+01	46.58			9.70E+01	4.66E+01
	24	1027.77	2.79E+01	34.37			2.79E+01	3.44E+01
	25	1120.10	5.43E+01	28.00			5.43E+01	2.80E+01
	26	1309.40	1.63E+01	16.42			1.63E+01	1.64E+01
	27	1345.81	3.14E+01	37.01			3.14E+01	3.70E+01
	28	1422.18	2.25E+01	15.25			2.25E+01	1.52E+01
	29	1449.16	8.00E+00	8.94			8.00E+00	8.94E+00
	30	1460.65	4.96E+02	47.19	1.35E+00	1.57E+00	4.95E+02	4.72E+01
	31	1571.02	9.79E+00	9.82			9.79E+00	9.82E+00
	32	1686.11	5.00E+00	6.34			5.00E+00	6.34E+00
	33	1693.51	7.50E+00	6.95			7.50E+00	6.95E+00
	34	1764.15	4.50E+01	13.42			4.50E+01	1.34E+01
	35	1847.37	1.18E+01	13.86			1.18E+01	1.39E+01
	36	1916.00	8.00E+00	5.66			8.00E+00	5.66E+00
	37	2003.91	6.00E+00	4.90			6.00E+00	4.90E+00
	38	2096.68	4.83E+00	5.74			4.83E+00	5.74E+00
	39	2193.27	5.21E+00	6.34			5.21E+00	6.34E+00
	40	2613.74	5.20E+01	14.42			5.20E+01	1.44E+01

Analysis Report for 1707082-17

HTC-A01-S006-1824-01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.996	1460.81	*	10.67	2.20E+01	2.88E+00
SN-126	0.925	87.57	*	37.00	1.66E-01	1.48E-01
EU-155	0.349	86.50	*	30.90	2.06E-01	1.83E-01
		105.30		20.70		
TL-208	0.817	583.14	*	30.22	1.01E+00	3.23E-01
		860.37		4.48		
		2614.66	*	35.85	1.28E+00	3.86E-01
BI-212	0.775	727.17	*	11.80	9.70E-01	6.79E-01
		1620.62		2.75		
PB-212	0.895	238.63	*	44.60	1.25E+00	1.78E-01
		300.09		3.41		
BI-214	0.931	609.31	*	46.30	1.05E+00	2.83E-01
		1120.29	*	15.10	1.35E+00	7.04E-01
		1764.49	*	15.80	1.61E+00	4.98E-01
		2204.22		4.98		
PB-214	1.000	295.21	*	19.19	8.95E-01	2.62E-01
		351.92	*	37.19	1.02E+00	2.55E-01
RA-226	1.000	186.21	*	3.28	2.87E+00	5.51E+00
AC-228	0.979	338.32	*	11.40	1.22E+00	6.24E-01
		911.07	*	27.70	1.33E+00	4.11E-01
		969.11	*	16.60	1.93E+00	9.40E-01
TH-234	0.973	63.29	*	3.80	2.44E+00	1.78E+00
NP-237	0.978	86.50	*	12.60	4.86E-01	4.33E-01

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

Analysis Report for 1707082-17

HTC-A01-S006-1824-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 11:24:01AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	76.13	2.75140E-01	7.82		
	4	93.18	4.78717E-02	24.51		
	5	128.84	1.94244E-02	61.51		
m	8	242.02	4.31837E-02	23.67		
M	9	291.87	7.78386E-03	42.56		
m	11	298.87	1.18956E-02	51.85		
	14	468.67	8.71345E-03	58.87	Tol.	IR-192
	15	510.35	2.13144E-02	27.03		
	19	733.28	4.82046E-03	50.03	Tol.	PA-234
	20	795.37	5.70437E-03	51.07	Sum	
M	21	906.64	3.07207E-03	63.29		
	24	1027.77	7.73946E-03	61.67		
	26	1309.40	4.53993E-03	50.25	Sum	
	27	1345.81	8.71981E-03	58.95		
	28	1422.18	6.25000E-03	33.88		
	29	1449.16	2.22222E-03	55.90		
	31	1571.02	2.71825E-03	50.19		
	32	1686.11	1.38889E-03	63.44		
	33	1693.51	2.08333E-03	46.31		
	35	1847.37	3.26720E-03	58.90	Sum	
	36	1916.00	2.22222E-03	35.36		
	37	2003.91	1.66667E-03	40.82		
	38	2096.68	1.34259E-03	59.43		
	39	2193.27	1.44841E-03	60.84		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Analysis Report for 1707082-17

HTC-A01-S006-1824-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81	*	10.67	2.20E+01	2.88E+00
SN-126	0.92	87.57	*	37.00	1.66E-01	1.48E-01
EU-155	0.34	86.50	*	30.90	2.06E-01	1.83E-01
		105.30		20.70		
TL-208	0.81	583.14	*	30.22	1.01E+00	3.23E-01
		860.37		4.48		
		2614.66	*	35.85	1.28E+00	3.86E-01
BI-212	0.77	727.17	*	11.80	9.70E-01	6.79E-01
		1620.62		2.75		
PB-212	0.89	238.63	*	44.60	1.25E+00	1.78E-01
		300.09		3.41		
BI-214	0.93	609.31	*	46.30	1.05E+00	2.83E-01
		1120.29	*	15.10	1.35E+00	7.04E-01
		1764.49	*	15.80	1.61E+00	4.98E-01
		2204.22		4.98		
PB-214	1.00	295.21	*	19.19	8.95E-01	2.62E-01
		351.92	*	37.19	1.02E+00	2.55E-01
RA-226	1.00	186.21	*	3.28	2.87E+00	5.51E+00
AC-228	0.97	338.32	*	11.40	1.22E+00	6.24E-01
		911.07	*	27.70	1.33E+00	4.11E-01
		969.11	*	16.60	1.93E+00	9.40E-01
TH-234	0.97	63.29	*	3.80	2.44E+00	1.78E+00
NP-237	0.97	86.50	*	12.60	4.86E-01	4.33E-01

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.996	2.20E+01	2.88E+00	
?	SN-126	0.925	1.66E-01	1.48E-01	

Analysis Report for 1707082-17

HTC-A01-S006-1824-01

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
?	EU-155	0.349	2.06E-01	1.83E-01	
	TL-208	0.817	1.12E+00	2.48E-01	
	BI-212	0.775	9.70E-01	6.79E-01	
	PB-212	0.895	1.25E+00	1.78E-01	
	BI-214	0.931	1.21E+00	2.32E-01	
	PB-214	1.000	9.62E-01	1.83E-01	
	RA-226	1.000	2.87E+00	5.51E+00	
	AC-228	0.979	1.37E+00	3.22E-01	
	TH-234	0.973	2.44E+00	1.78E+00	
?	NP-237	0.978	4.86E-01	4.33E-01	

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

Errors quoted at 2.000sigma

Analysis Report for 1707082-17

HTC-A01-S006-1824-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 11:24:01AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	76.13	2.75140E-01	7.82		
	4	93.18	4.78717E-02	24.51		
	5	128.84	1.94244E-02	61.51		
m	8	242.02	4.31837E-02	23.67		
M	9	291.87	7.78386E-03	42.56		
m	11	298.87	1.18956E-02	51.85		
	14	468.67	8.71345E-03	58.87	Tol.	IR-192
	15	510.35	2.13144E-02	27.03		
	19	733.28	4.82046E-03	50.03	Tol.	PA-234
	20	795.37	5.70437E-03	51.07	Sum	
M	21	906.64	3.07207E-03	63.29		
	24	1027.77	7.73946E-03	61.67		
	26	1309.40	4.53993E-03	50.25	Sum	
	27	1345.81	8.71981E-03	58.95		
	28	1422.18	6.25000E-03	33.88		
	29	1449.16	2.22222E-03	55.90		
	31	1571.02	2.71825E-03	50.19		
	32	1686.11	1.38889E-03	63.44		
	33	1693.51	2.08333E-03	46.31		
	35	1847.37	3.26720E-03	58.90	Sum	
	36	1916.00	2.22222E-03	35.36		
	37	2003.91	1.66667E-03	40.82		
	38	2096.68	1.34259E-03	59.43		
	39	2193.27	1.44841E-03	60.84		

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

Analysis Report for 1707082-17

HTC-A01-S006-1824-01

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	2.13E-01	2.56E+00	2.56E+00
+	NA-22	1274.54		99.94	-9.29E-04	1.48E-01	1.48E-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	-1.16E-02	6.98E-02	6.98E-02
+	K-40	1460.81	*	10.67	2.20E+01	1.28E+00	1.28E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-1.07E-02	7.57E-02	7.57E-02
		78.34		96.00	3.50E-01		9.80E-02
+	SC-46	889.25		99.98	3.42E-02	2.74E-01	2.74E-01
		1120.51		99.99	3.70E-01		3.87E-01
+	V-48	983.52		99.98	1.86E+00	7.60E+00	7.60E+00
		1312.10		97.50	1.76E-01		8.56E+00
+	CR-51	320.08		9.83	-2.48E-02	7.80E+00	7.80E+00
+	MN-54	834.83		99.97	-7.93E-02	1.53E-01	1.53E-01
+	CO-56	846.75		99.96	2.31E-02	2.71E-01	2.71E-01
		1037.75		14.03	5.66E-01		2.24E+00
		1238.25		67.00	4.71E-01		6.93E-01
		1771.40		15.51	-9.79E-01		9.03E-01
		2598.48		16.90	5.94E-01		1.56E+00
+	CO-57	122.06		85.51	2.84E-02	8.39E-02	8.39E-02
		136.48		10.60	-1.13E-01		7.02E-01
+	CO-58	810.76		99.40	1.88E-01	3.11E-01	3.11E-01
+	FE-59	1099.22		56.50	-5.72E-01	1.03E+00	1.03E+00
		1291.56		43.20	6.45E-01		1.47E+00
+	CO-60	1173.22		100.00	3.01E-02	1.21E-01	1.74E-01
		1332.49		100.00	2.63E-02		1.21E-01
+	ZN-65	1115.52		50.75	-1.09E-01	3.76E-01	3.76E-01
+	GA-67	93.31		35.70	1.04E+08	9.71E+07	9.71E+07
		208.95		2.24	6.61E+08		1.55E+09
		300.22		16.00	-3.37E+08		2.42E+08
+	SE-75	121.11		16.70	8.87E-02	1.72E-01	5.76E-01
		136.00		59.20	3.11E-02		1.72E-01
		264.65		59.80	-4.12E-02		1.96E-01
		279.53		25.20	1.37E-01		4.88E-01
		400.65		11.40	1.38E-01		1.20E+00
+	RB-82	776.52		13.00	4.46E-01	1.13E+01	1.13E+01
+	RB-83	520.41		46.00	9.31E-02	4.17E-01	4.17E-01
		529.64		30.30	1.93E-01		6.50E-01
		552.65		16.40	-7.78E-02		1.14E+00
+	KR-85	513.99		0.43	1.91E+00	2.52E+01	2.52E+01
+	SR-85	513.99		99.27	2.25E-02	2.97E-01	2.97E-01

Analysis Report for 1707082-17

HTC-A01-S006-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	Y-88	898.02		93.40	9.53E-02	1.98E-01	2.60E-01
		1836.01		99.38	7.22E-02		1.98E-01
+	MO-93	263.06		56.72	1.26E-02	8.91E-02	1.20E-01
		684.67		99.68	-4.68E-02		9.77E-02
		1477.11		99.08	-2.98E-02		8.91E-02
+	NB-93M	16.57		9.43	1.57E+01	7.86E+00	7.86E+00
+	NB-94	702.63		100.00	-5.05E-03	1.18E-01	1.20E-01
		871.10		100.00	-2.06E-02		1.18E-01
+	NB-95	765.79		99.81	2.19E-01	8.30E-01	8.30E-01
+	NB-95M	235.69		25.00	5.80E+07	3.18E+07	3.18E+07
+	ZR-95	724.18		43.70	1.29E-01	5.72E-01	8.75E-01
		756.72		55.30	-2.34E-01		5.72E-01
+	MO-99	181.06		6.20	5.50E+09	1.57E+10	2.04E+10
		739.58		12.80	1.40E+09		1.57E+10
		778.00		4.50	1.60E+09		4.93E+10
+	RU-103	497.08		89.00	6.72E-02	4.76E-01	4.76E-01
+	RU-106	621.84		9.80	-2.12E-01	9.49E-01	9.49E-01
+	AG-108M	433.93		89.90	-3.42E-02	9.07E-02	9.07E-02
		614.37		90.40	1.92E-02		1.01E-01
		722.95		90.50	1.26E-02		1.46E-01
+	CD-109	88.03		3.72	2.19E+00	2.29E+00	2.29E+00
+	AG-110M	657.75		93.14	4.40E-02	1.62E-01	1.62E-01
		677.61		10.53	-1.71E-01		1.35E+00
		706.67		16.46	-1.88E-01		8.90E-01
		763.93		21.98	-3.80E-01		7.13E-01
		884.67		71.63	1.86E-02		2.27E-01
		1384.27		23.94	-5.39E-01		5.76E-01
+	CD-113M	263.70		0.02	-1.23E+02	2.89E+02	2.89E+02
+	SN-113	255.12		1.93	4.88E-01	2.01E-01	6.25E+00
		391.69		64.90	6.06E-03		2.01E-01
+	TE123M	159.00		84.10	-2.33E-02	1.26E-01	1.26E-01
+	SB-124	602.71		97.87	-1.44E-02	2.65E-01	2.65E-01
		645.85		7.26	8.81E-01		4.07E+00
		722.78		11.10	3.03E-01		3.53E+00
		1691.02		49.00	-3.28E-02		5.71E-01
+	I-125	35.49		6.49	-2.73E+00	5.11E+00	5.11E+00
+	SB-125	176.33		6.89	-4.28E-01	2.90E-01	9.48E-01
		427.89		29.33	-9.81E-02		2.90E-01
		463.38		10.35	2.57E-01		9.30E-01
		600.56		17.80	-4.74E-02		5.38E-01
		635.90		11.32	-1.48E-01		8.89E-01
+	SB-126	414.70		83.30	-1.35E+00	1.97E+01	1.97E+01
		666.33		99.60	-1.47E+01		2.14E+01
		695.00		99.60	4.31E-01		2.29E+01
		720.50		53.80	-9.56E-02		4.24E+01
+	SN-126	87.57	*	37.00	1.66E-01	2.40E-01	2.40E-01
+	SB-127	473.00		25.00	5.40E+05	6.21E+06	7.28E+06
		685.20		35.70	-2.97E+06		6.21E+06

Analysis Report for 1707082-17

HTC-A01-S006-1824-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-127	783.80	14.70	4.89E+06	6.21E+06	1.83E+07
+	I-129	29.78	57.00	1.35E-01	2.84E-01	2.84E-01
		33.60	13.20	-2.61E-02		9.49E-01
		39.58	7.52	1.97E-01		1.28E+00
+	I-131	284.30	6.05	-1.39E+03	3.17E+02	3.65E+03
		364.48	81.20	1.31E+02		3.17E+02
		636.97	7.26	-2.36E+03		4.28E+03
		722.89	1.80	2.12E+03		2.47E+04
+	TE-132	49.72	13.10	-1.06E+08	3.77E+07	2.92E+08
		228.16	88.00	-8.25E+05		3.77E+07
+	BA-133	81.00	33.00	-6.90E-01	1.65E-01	2.23E-01
		302.84	17.80	7.75E-03		4.23E-01
		356.01	60.00	1.84E-02		1.65E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-1.51E+05	4.87E+04	4.87E+04
+	CS-134	563.23	8.38	2.58E-01	1.19E-01	1.10E+00
		569.32	15.43	-1.20E-01		6.28E-01
		604.70	97.60	-4.77E-01		1.19E-01
		795.84	85.40	-1.33E-02		1.53E-01
		801.93	8.73	-5.40E-02		1.44E+00
+	CS-135	268.24	16.00	2.85E-01	4.61E-01	4.61E-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	-7.85E+01	1.78E+01	1.16E+02
		163.89	4.61	-1.73E+01		1.90E+02
		176.55	13.56	1.31E+01		6.52E+01
		273.65	12.66	-4.19E+00		8.45E+01
		340.57	48.50	2.40E+01		2.65E+01
		818.50	99.70	1.30E+00		1.78E+01
		1048.07	79.60	-1.36E+01		2.32E+01
		1235.34	19.70	8.86E+01		1.47E+02
+	CS-137	661.65	85.12	-1.87E-03	1.35E-01	1.35E-01
+	LA-138	788.74	34.00	3.95E-02	1.63E-01	3.36E-01
		1435.80	66.00	4.57E-02		1.63E-01
+	CE-139	165.85	80.35	3.69E-02	1.27E-01	1.27E-01
+	BA-140	162.64	6.70	5.23E+00	5.37E+01	1.52E+02
		304.84	4.50	5.50E+01		2.61E+02
		423.70	3.20	-5.82E+01		3.99E+02
		437.55	2.00	4.44E+02		7.11E+02
		537.32	25.00	-9.48E+00		5.37E+01
+	LA-140	328.77	20.50	1.42E+01	1.89E+01	5.98E+01
		487.03	45.50	1.27E+01		3.06E+01
		815.85	23.50	-8.83E+00		8.46E+01
		1596.49	95.49	-1.44E+00		1.89E+01
+	CE-141	145.44	48.40	4.95E-01	9.36E-01	9.36E-01
+	@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26
	@	293.26	42.00	1.00E+26		1.00E+26
	@	664.55	5.20	1.00E+26		1.00E+26

Analysis Report for 1707082-17

HTC-A01-S006-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CE-144	133.54		10.80	-1.50E-01	6.78E-01	6.78E-01
+	PM-144	476.78		42.00	-9.93E-02	1.08E-01	2.18E-01
		618.01		98.60	5.30E-02		1.08E-01
		696.49		99.49	-2.70E-02		1.44E-01
+	PM-145	36.85		21.70	-3.65E-01	2.60E-01	4.87E-01
		37.36		39.70	-1.95E-01		2.60E-01
		42.30		15.10	-6.01E-01		5.91E-01
		72.40		2.31	-2.18E-01		3.60E+00
+	PM-146	453.90		39.94	2.39E-02	2.06E-01	2.06E-01
		735.90		14.01	-2.25E-01		7.34E-01
		747.13		13.10	-1.23E-01		9.21E-01
+	ND-147	91.11		28.90	1.45E+02	9.91E+01	9.91E+01
		531.02		13.10	8.16E+01		2.65E+02
+	PM-149	285.90		3.10	8.47E+11	1.45E+13	1.45E+13
+	EU-152	121.78		20.50	9.41E-02	2.78E-01	2.78E-01
		244.69		5.40	-1.95E-01		1.50E+00
		344.27		19.13	-3.48E-02		3.84E-01
		778.89		9.20	-7.76E-01		1.16E+00
		964.01		10.40	-1.24E+00		1.43E+00
		1085.78		7.22	-5.00E-01		1.95E+00
		1112.02		9.60	-5.19E-01		1.39E+00
		1407.95		14.94	2.87E-01		7.93E-01
+	GD-153	97.43		31.30	-2.16E-03	2.48E-01	2.48E-01
		103.18		22.20	4.12E-02		3.31E-01
+	EU-154	123.07		40.50	2.93E-02	1.42E-01	1.42E-01
		723.30		19.70	1.05E-01		7.14E-01
		873.19		11.50	2.32E-01		1.05E+00
		996.32		10.30	9.45E-01		1.40E+00
		1004.76		17.90	1.09E-01		8.14E-01
		1274.45		35.50	-2.49E-03		3.97E-01
+	EU-155	86.50	*	30.90	2.06E-01	2.77E-01	2.98E-01
		105.30		20.70	-8.58E-03		2.77E-01
+	EU-156	811.77		10.40	7.33E+00	8.55E+01	8.55E+01
		1153.47		7.20	2.50E+01		1.61E+02
		1230.71		8.90	-3.93E+01		1.51E+02
+	HO-166M	184.41		72.60	1.35E-01	9.94E-02	9.94E-02
		280.45		29.60	5.24E-02		2.35E-01
		410.94		11.10	3.14E-02		7.67E-01
		711.69		54.10	-7.50E-02		2.09E-01
+	TM-171	66.72		0.14	1.73E+00	5.71E+01	5.71E+01
+	HF-172	67.35		5.31	4.54E-02	5.77E-01	1.50E+00
		125.81		11.30	2.96E-02		5.77E-01
+	LU-172	181.53		20.60	1.06E+03	3.73E+03	5.34E+03
		900.72		29.81	1.54E+03		7.31E+03
		1093.66		62.50	-4.28E+02		3.73E+03
+	LU-173	100.72		5.24	-5.05E-01	4.06E-01	1.19E+00
		272.11		21.20	1.75E-01		4.06E-01
+	HF-175	343.40		84.00	-1.98E-02	2.19E-01	2.19E-01
+	LU-176	88.34		13.30	5.32E-01	7.42E-02	5.55E-01

Analysis Report for 1707082-17

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LU-176	201.83		86.00	-5.94E-03	7.42E-02	7.56E-02
		306.78		94.00	-1.29E-02		7.42E-02
+	HF-181	133.02		41.70	3.62E-02	4.62E-01	6.67E-01
		345.85		17.20	-1.79E-01		2.02E+00
		482.03		82.80	2.12E-02		4.62E-01
+	TA-182	67.75		41.20	-4.32E-02	3.06E-01	3.06E-01
		1121.30		34.90	9.01E-01		9.10E-01
		1189.05		16.23	-5.71E-01		1.77E+00
		1221.41		26.98	-5.57E-01		1.03E+00
		1231.02		11.44	-8.86E-01		2.86E+00
+	IR-192	308.46		29.68	8.75E-02	4.42E-01	5.87E-01
		468.07		48.10	-1.21E-01		4.42E-01
+	HG-203	279.19		77.30	-1.24E-01	3.69E-01	3.69E-01
+	TL-204	374.74		94.11	-1.54E-02	8.57E-02	8.57E-02
		899.15		99.16	9.25E-02		1.41E-01
		911.74		91.10	3.86E-01		2.32E-01
+	BI-207	569.67		97.72	-1.75E-02	9.15E-02	9.15E-02
		1063.62		74.90	4.81E-02		1.92E-01
+	TL-208	583.14	*	30.22	1.01E+00	6.67E-02	4.33E-01
		860.37		4.48	1.72E+00		2.87E+00
		2614.66	*	35.85	1.28E+00		6.67E-02
+	BI-210M	262.00		45.00	-2.15E-02	1.47E-01	1.47E-01
		300.00		23.00	-4.74E-01		3.40E-01
+	PB-210	46.50		4.25	1.07E+00	1.99E+00	1.99E+00
+	PB-211	404.84		2.90	1.51E+00	2.92E+00	2.92E+00
		831.96		2.90	7.94E-01		4.40E+00
+	BI-212	727.17	*	11.80	9.70E-01	1.05E+00	1.05E+00
		1620.62		2.75	1.22E+00		4.15E+00
+	PB-212	238.63	*	44.60	1.25E+00	3.60E-01	3.60E-01
		300.09		3.41	-3.20E+00		2.29E+00
+	BI-214	609.31	*	46.30	1.05E+00	9.69E-02	3.62E-01
		1120.29	*	15.10	1.35E+00		1.04E+00
		1764.49	*	15.80	1.61E+00		9.69E-02
		2204.22		4.98	1.56E+00		3.14E+00
+	PB-214	295.21	*	19.19	8.95E-01	3.52E-01	7.08E-01
		351.92	*	37.19	1.02E+00		3.52E-01
+	RN-219	401.80		6.50	-2.03E-01	1.22E+00	1.22E+00
+	RA-223	323.87		3.88	-4.53E-01	1.88E+00	1.88E+00
+	RA-224	240.98		3.95	1.62E+01	3.29E+00	3.29E+00
+	RA-225	40.00		31.00	3.88E+00	2.51E+01	2.51E+01
+	RA-226	186.21	*	3.28	2.87E+00	2.65E+00	2.65E+00
+	TH-227	50.10		8.40	-3.27E-01	8.98E-01	8.98E-01
		236.00		11.50	1.77E+00		9.69E-01
		256.20		6.30	4.44E-01		1.08E+00
+	AC-228	338.32	*	11.40	1.22E+00	6.91E-01	9.70E-01
		911.07	*	27.70	1.33E+00		6.91E-01
		969.11	*	16.60	1.93E+00		1.43E+00
+	TH-230	48.44		16.90	4.43E-01	4.81E-01	4.81E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TH-230	62.85		4.60	2.83E+00	4.81E-01	1.73E+00
		67.67		0.37	-2.72E+00		1.93E+01
+	PA-231	283.67		1.60	-1.57E+00	3.22E+00	4.10E+00
		302.67		2.30	5.89E-02		3.22E+00
+	TH-231	25.64		14.70	8.96E-02	1.07E+00	1.54E+00
		84.21		6.40	-9.13E-01		1.07E+00
+	PA-233	311.98		38.60	-1.61E+00	2.06E+00	2.06E+00
+	PA-234	131.20		20.40	1.90E-01	3.00E-01	3.00E-01
		733.99		8.80	-9.18E-01		1.14E+00
		946.00		12.00	-5.33E-01		9.50E-01
+	PA-234M	1001.03		0.92	6.49E-01	1.54E+01	1.54E+01
+	TH-234	63.29	*	3.80	2.44E+00	2.88E+00	2.88E+00
+	U-235	143.76		10.50	-1.54E-01	5.72E-01	5.72E-01
		163.35		4.70	4.54E-02		1.32E+00
		205.31		4.70	-1.16E+00		1.41E+00
+	NP-237	86.50	*	12.60	4.86E-01	7.05E-01	7.05E-01
+	NP-239	106.10		22.70	-2.59E+10	2.65E+11	2.65E+11
		228.18		10.70	-1.48E+10		6.75E+11
		277.60		14.10	1.16E+11		5.61E+11
+	AM-241	59.54		35.90	7.19E-02	2.17E-01	2.17E-01
+	AM-243	74.67		66.00	6.66E-01	1.50E-01	1.50E-01
+	CM-243	209.75		3.29	1.08E+00	5.20E-01	2.18E+00
		228.14		10.60	-1.37E-02		6.28E-01
		277.60		14.00	1.08E-01		5.20E-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 1707082-17

HTC-A01-S006-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	2.56E+00	2.56E+00	2.13E-01	1.21E+00
	NA-22	1274.54		99.94	1.48E-01	1.48E-01	-9.29E-04	6.79E-02
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	6.98E-02	6.98E-02	-1.16E-02	2.70E-02
+	K-40	1460.81	*	10.67	1.28E+00	1.28E+00	2.20E+01	5.79E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	7.57E-02	7.57E-02	-1.07E-02	3.71E-02
		78.34		96.00	9.80E-02		3.50E-01	4.83E-02
	SC-46	889.25		99.98	2.74E-01	2.74E-01	3.42E-02	1.28E-01
		1120.51		99.99	3.87E-01		3.70E-01	1.82E-01
	V-48	983.52		99.98	7.60E+00	7.60E+00	1.86E+00	3.53E+00
		1312.10		97.50	8.56E+00		1.76E-01	3.92E+00
	CR-51	320.08		9.83	7.80E+00	7.80E+00	-2.48E-02	3.74E+00
	MN-54	834.83		99.97	1.53E-01	1.53E-01	-7.93E-02	7.17E-02
	CO-56	846.75		99.96	2.71E-01	2.71E-01	2.31E-02	1.27E-01
		1037.75		14.03	2.24E+00		5.66E-01	1.04E+00
		1238.25		67.00	6.93E-01		4.71E-01	3.27E-01
		1771.40		15.51	9.03E-01		-9.79E-01	3.38E-01
		2598.48		16.90	1.56E+00		5.94E-01	6.18E-01
	CO-57	122.06		85.51	8.39E-02	8.39E-02	2.84E-02	4.09E-02
		136.48		10.60	7.02E-01		-1.13E-01	3.42E-01
	CO-58	810.76		99.40	3.11E-01	3.11E-01	1.88E-01	1.46E-01
	FE-59	1099.22		56.50	1.03E+00	1.03E+00	-5.72E-01	4.77E-01
		1291.56		43.20	1.47E+00		6.45E-01	6.77E-01
	CO-60	1173.22		100.00	1.74E-01	1.21E-01	3.01E-02	8.14E-02
		1332.49		100.00	1.21E-01		2.63E-02	5.46E-02
	ZN-65	1115.52		50.75	3.76E-01	3.76E-01	-1.09E-01	1.75E-01
	GA-67	93.31		35.70	9.71E+07	9.71E+07	1.04E+08	4.77E+07
		208.95		2.24	1.55E+09		6.61E+08	7.55E+08
		300.22		16.00	2.42E+08		-3.37E+08	1.17E+08
	SE-75	121.11		16.70	5.76E-01	1.72E-01	8.87E-02	2.81E-01
		136.00		59.20	1.72E-01		3.11E-02	8.38E-02
		264.65		59.80	1.96E-01		-4.12E-02	9.44E-02
		279.53		25.20	4.88E-01		1.37E-01	2.35E-01
		400.65		11.40	1.20E+00		1.38E-01	5.69E-01
	RB-82	776.52		13.00	1.13E+01	1.13E+01	4.46E-01	5.28E+00
	RB-83	520.41		46.00	4.17E-01	4.17E-01	9.31E-02	1.97E-01
		529.64		30.30	6.50E-01		1.93E-01	3.07E-01
		552.65		16.40	1.14E+00		-7.78E-02	5.37E-01
	KR-85	513.99		0.43	2.52E+01	2.52E+01	1.91E+00	1.20E+01
	SR-85	513.99		99.27	2.97E-01	2.97E-01	2.25E-02	1.42E-01
	Y-88	898.02		93.40	2.60E-01	1.98E-01	9.53E-02	1.22E-01
		1836.01		99.38	1.98E-01		7.22E-02	8.43E-02
	MO-93	263.06		56.72	1.20E-01	8.91E-02	1.26E-02	5.77E-02
		684.67		99.68	9.77E-02		-4.68E-02	4.55E-02
		1477.11		99.08	8.91E-02		-2.98E-02	3.79E-02
	NB-93M	16.57		9.43	7.86E+00	7.86E+00	1.57E+01	3.82E+00
	NB-94	702.63		100.00	1.20E-01	1.18E-01	-5.05E-03	5.66E-02
		871.10		100.00	1.18E-01		-2.06E-02	5.50E-02
	NB-95	765.79		99.81	8.30E-01	8.30E-01	2.19E-01	3.92E-01
	NB-95M	235.69		25.00	3.18E+07	3.18E+07	5.80E+07	1.56E+07
	ZR-95	724.18		43.70	8.75E-01	5.72E-01	1.29E-01	4.16E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	ZR-95	756.72		55.30	5.72E-01	5.72E-01	-2.34E-01	2.68E-01
	MO-99	181.06		6.20	2.04E+10	1.57E+10	5.50E+09	9.89E+09
		739.58		12.80	1.57E+10		1.40E+09	7.29E+09
		778.00		4.50	4.93E+10		1.60E+09	2.30E+10
	RU-103	497.08		89.00	4.76E-01	4.76E-01	6.72E-02	2.24E-01
	RU-106	621.84		9.80	9.49E-01	9.49E-01	-2.12E-01	4.38E-01
	AG-108M	433.93		89.90	9.07E-02	9.07E-02	-3.42E-02	4.31E-02
		614.37		90.40	1.01E-01		1.92E-02	4.73E-02
		722.95		90.50	1.46E-01		1.26E-02	6.95E-02
	CD-109	88.03		3.72	2.29E+00	2.29E+00	2.19E+00	1.12E+00
	AG-110M	657.75		93.14	1.62E-01	1.62E-01	4.40E-02	7.64E-02
		677.61		10.53	1.35E+00		-1.71E-01	6.36E-01
		706.67		16.46	8.90E-01		-1.88E-01	4.18E-01
		763.93		21.98	7.13E-01		-3.80E-01	3.35E-01
		884.67		71.63	2.27E-01		1.86E-02	1.06E-01
		1384.27		23.94	5.76E-01		-5.39E-01	2.55E-01
	CD-113M	263.70		0.02	2.89E+02	2.89E+02	-1.23E+02	1.39E+02
	SN-113	255.12		1.93	6.25E+00	2.01E-01	4.88E-01	3.02E+00
		391.69		64.90	2.01E-01		6.06E-03	9.57E-02
	TE123M	159.00		84.10	1.26E-01	1.26E-01	-2.33E-02	6.12E-02
	SB-124	602.71		97.87	2.65E-01	2.65E-01	-1.44E-02	1.24E-01
		645.85		7.26	4.07E+00		8.81E-01	1.91E+00
		722.78		11.10	3.53E+00		3.03E-01	1.67E+00
		1691.02		49.00	5.71E-01		-3.28E-02	2.41E-01
	I-125	35.49		6.49	5.11E+00	5.11E+00	-2.73E+00	2.49E+00
	SB-125	176.33		6.89	9.48E-01	2.90E-01	-4.28E-01	4.61E-01
		427.89		29.33	2.90E-01		-9.81E-02	1.37E-01
		463.38		10.35	9.30E-01		2.57E-01	4.42E-01
		600.56		17.80	5.38E-01		-4.74E-02	2.52E-01
		635.90		11.32	8.89E-01		-1.48E-01	4.16E-01
	SB-126	414.70		83.30	1.97E+01	1.97E+01	-1.35E+00	9.39E+00
		666.33		99.60	2.14E+01		-1.47E+01	1.01E+01
		695.00		99.60	2.29E+01		4.31E-01	1.08E+01
		720.50		53.80	4.24E+01		-9.56E-02	2.00E+01
+	SN-126	87.57	*	37.00	2.40E-01	2.40E-01	1.66E-01	1.18E-01
	SB-127	473.00		25.00	7.28E+06	6.21E+06	5.40E+05	3.43E+06
		685.20		35.70	6.21E+06		-2.97E+06	2.89E+06
		783.80		14.70	1.83E+07		4.89E+06	8.57E+06
	I-129	29.78		57.00	2.84E-01	2.84E-01	1.35E-01	1.38E-01
		33.60		13.20	9.49E-01		-2.61E-02	4.63E-01
		39.58		7.52	1.28E+00		1.97E-01	6.24E-01
	I-131	284.30		6.05	3.65E+03	3.17E+02	-1.39E+03	1.75E+03
		364.48		81.20	3.17E+02		1.31E+02	1.51E+02
		636.97		7.26	4.28E+03		-2.36E+03	2.00E+03
		722.89		1.80	2.47E+04		2.12E+03	1.17E+04
	TE-132	49.72		13.10	2.92E+08	3.77E+07	-1.06E+08	1.42E+08
		228.16		88.00	3.77E+07		-8.25E+05	1.83E+07
	BA-133	81.00		33.00	2.23E-01	1.65E-01	-6.90E-01	1.10E-01
		302.84		17.80	4.23E-01		7.75E-03	2.04E-01
		356.01		60.00	1.65E-01		1.84E-02	7.96E-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	4.87E+04	4.87E+04	-1.51E+05	2.39E+04
	CS-134	563.23		8.38	1.10E+00	1.19E-01	2.58E-01	5.13E-01

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-134	569.32	15.43	6.28E-01	1.19E-01	-1.20E-01	2.95E-01
	604.70	97.60	1.19E-01		-4.77E-01	5.64E-02
	795.84	85.40	1.53E-01		-1.33E-02	7.16E-02
	801.93	8.73	1.44E+00		-5.40E-02	6.72E-01
CS-135	268.24	16.00	4.61E-01	4.61E-01	2.85E-01	2.23E-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	1.16E+02	1.78E+01	-7.85E+01	5.64E+01
	163.89	4.61	1.90E+02		-1.73E+01	9.26E+01
	176.55	13.56	6.52E+01		1.31E+01	3.17E+01
	273.65	12.66	8.45E+01		-4.19E+00	4.08E+01
	340.57	48.50	2.65E+01		2.40E+01	1.28E+01
	818.50	99.70	1.78E+01		1.30E+00	8.34E+00
	1048.07	79.60	2.32E+01		-1.36E+01	1.07E+01
	1235.34	19.70	1.47E+02		8.86E+01	6.95E+01
CS-137	661.65	85.12	1.35E-01	1.35E-01	-1.87E-03	6.39E-02
LA-138	788.74	34.00	3.36E-01	1.63E-01	3.95E-02	1.57E-01
	1435.80	66.00	1.63E-01		4.57E-02	7.17E-02
CE-139	165.85	80.35	1.27E-01	1.27E-01	3.69E-02	6.20E-02
BA-140	162.64	6.70	1.52E+02	5.37E+01	5.23E+00	7.42E+01
	304.84	4.50	2.61E+02		5.50E+01	1.25E+02
	423.70	3.20	3.99E+02		-5.82E+01	1.89E+02
	437.55	2.00	7.11E+02		4.44E+02	3.38E+02
	537.32	25.00	5.37E+01		-9.48E+00	2.51E+01
LA-140	328.77	20.50	5.98E+01	1.89E+01	1.42E+01	2.87E+01
	487.03	45.50	3.06E+01		1.27E+01	1.44E+01
	815.85	23.50	8.46E+01		-8.83E+00	3.96E+01
	1596.49	95.49	1.89E+01		-1.44E+00	8.25E+00
CE-141	145.44	48.40	9.36E-01	9.36E-01	4.95E-01	4.56E-01
@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	293.26	42.00	1.00E+26		1.00E+26	1.00E+20
@	664.55	5.20	1.00E+26		1.00E+26	1.00E+20
CE-144	133.54	10.80	6.78E-01	6.78E-01	-1.50E-01	3.31E-01
PM-144	476.78	42.00	2.18E-01	1.08E-01	-9.93E-02	1.03E-01
	618.01	98.60	1.08E-01		5.30E-02	5.06E-02
	696.49	99.49	1.44E-01		-2.70E-02	6.79E-02
PM-145	36.85	21.70	4.87E-01	2.60E-01	-3.65E-01	2.38E-01
	37.36	39.70	2.60E-01		-1.95E-01	1.27E-01
	42.30	15.10	5.91E-01		-6.01E-01	2.88E-01
	72.40	2.31	3.60E+00		-2.18E-01	1.77E+00
PM-146	453.90	39.94	2.06E-01	2.06E-01	2.39E-02	9.74E-02
	735.90	14.01	7.34E-01		-2.25E-01	3.41E-01
	747.13	13.10	9.21E-01		-1.23E-01	4.33E-01
ND-147	91.11	28.90	9.91E+01	9.91E+01	1.45E+02	4.87E+01
	531.02	13.10	2.65E+02		8.16E+01	1.25E+02
PM-149	285.90	3.10	1.45E+13	1.45E+13	8.47E+11	6.97E+12
EU-152	121.78	20.50	2.78E-01	2.78E-01	9.41E-02	1.36E-01
	244.69	5.40	1.50E+00		-1.95E-01	7.27E-01
	344.27	19.13	3.84E-01		-3.48E-02	1.83E-01
	778.89	9.20	1.16E+00		-7.76E-01	5.38E-01
	964.01	10.40	1.43E+00		-1.24E+00	6.70E-01
	1085.78	7.22	1.95E+00		-5.00E-01	9.07E-01

Analysis Report for 1707082-17

HTC-A01-S006-1824-01

	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	1.39E+00	2.78E-01	-5.19E-01	6.41E-01
		1407.95		14.94	7.93E-01		2.87E-01	3.55E-01
	GD-153	97.43		31.30	2.48E-01	2.48E-01	-2.16E-03	1.21E-01
		103.18		22.20	3.31E-01		4.12E-02	1.61E-01
	EU-154	123.07		40.50	1.42E-01	1.42E-01	2.93E-02	6.94E-02
		723.30		19.70	7.14E-01		1.05E-01	3.39E-01
		873.19		11.50	1.05E+00		2.32E-01	4.89E-01
		996.32		10.30	1.40E+00		9.45E-01	6.57E-01
		1004.76		17.90	8.14E-01		1.09E-01	3.81E-01
		1274.45		35.50	3.97E-01		-2.49E-03	1.82E-01
+	EU-155	86.50	*	30.90	2.98E-01	2.77E-01	2.06E-01	1.47E-01
		105.30		20.70	2.77E-01		-8.58E-03	1.35E-01
	EU-156	811.77		10.40	8.55E+01	8.55E+01	7.33E+00	4.01E+01
		1153.47		7.20	1.61E+02		2.50E+01	7.54E+01
		1230.71		8.90	1.51E+02		-3.93E+01	7.09E+01
	HO-166M	184.41		72.60	9.94E-02	9.94E-02	1.35E-01	4.85E-02
		280.45		29.60	2.35E-01		5.24E-02	1.13E-01
		410.94		11.10	7.67E-01		3.14E-02	3.66E-01
		711.69		54.10	2.09E-01		-7.50E-02	9.81E-02
	TM-171	66.72		0.14	5.71E+01	5.71E+01	1.73E+00	2.80E+01
	HF-172	67.35		5.31	1.50E+00	5.77E-01	4.54E-02	7.36E-01
		125.81		11.30	5.77E-01		2.96E-02	2.82E-01
	LU-172	181.53		20.60	5.34E+03	3.73E+03	1.06E+03	2.60E+03
		900.72		29.81	7.31E+03		1.54E+03	3.42E+03
		1093.66		62.50	3.73E+03		-4.28E+02	1.73E+03
	LU-173	100.72		5.24	1.19E+00	4.06E-01	-5.05E-01	5.83E-01
		272.11		21.20	4.06E-01		1.75E-01	1.96E-01
	HF-175	343.40		84.00	2.19E-01	2.19E-01	-1.98E-02	1.04E-01
	LU-176	88.34		13.30	5.55E-01	7.42E-02	5.32E-01	2.73E-01
		201.83		86.00	7.56E-02		-5.94E-03	3.67E-02
		306.78		94.00	7.42E-02		-1.29E-02	3.56E-02
	HF-181	133.02		41.70	6.67E-01	4.62E-01	3.62E-02	3.25E-01
		345.85		17.20	2.02E+00		-1.79E-01	9.65E-01
		482.03		82.80	4.62E-01		2.12E-02	2.18E-01
	TA-182	67.75		41.20	3.06E-01	3.06E-01	-4.32E-02	1.50E-01
		1121.30		34.90	9.10E-01		9.01E-01	4.29E-01
		1189.05		16.23	1.77E+00		-5.71E-01	8.26E-01
		1221.41		26.98	1.03E+00		-5.57E-01	4.78E-01
		1231.02		11.44	2.86E+00		-8.86E-01	1.34E+00
	IR-192	308.46		29.68	5.87E-01	4.42E-01	8.75E-02	2.82E-01
		468.07		48.10	4.42E-01		-1.21E-01	2.10E-01
	HG-203	279.19		77.30	3.69E-01	3.69E-01	-1.24E-01	1.78E-01
	TL-204	374.74		94.11	8.57E-02	8.57E-02	-1.54E-02	4.09E-02
		899.15		99.16	1.41E-01		9.25E-02	6.62E-02
		911.74		91.10	2.32E-01		3.86E-01	1.11E-01
	BI-207	569.67		97.72	9.15E-02	9.15E-02	-1.75E-02	4.30E-02
		1063.62		74.90	1.92E-01		4.81E-02	8.95E-02
+	TL-208	583.14	*	30.22	4.33E-01	6.67E-02	1.01E+00	2.07E-01
		860.37		4.48	2.87E+00		1.72E+00	1.34E+00
		2614.66	*	35.85	6.67E-02		1.28E+00	0.00E+00
	BI-210M	262.00		45.00	1.47E-01	1.47E-01	-2.15E-02	7.08E-02
		300.00		23.00	3.40E-01		-4.74E-01	1.64E-01
	PB-210	46.50		4.25	1.99E+00	1.99E+00	1.07E+00	9.74E-01

Analysis Report for 1707082-17

HTC-A01-S006-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PB-211	404.84		2.90	2.92E+00	2.92E+00	1.51E+00	1.39E+00
		831.96		2.90	4.40E+00		7.94E-01	2.07E+00
+	BI-212	727.17	*	11.80	1.05E+00	1.05E+00	9.70E-01	4.97E-01
		1620.62		2.75	4.15E+00		1.22E+00	1.82E+00
+	PB-212	238.63	*	44.60	3.60E-01	3.60E-01	1.25E+00	1.77E-01
		300.09		3.41	2.29E+00		-3.20E+00	1.11E+00
+	BI-214	609.31	*	46.30	3.62E-01	9.69E-02	1.05E+00	1.75E-01
		1120.29	*	15.10	1.04E+00		1.35E+00	4.86E-01
		1764.49	*	15.80	9.69E-02		1.61E+00	0.00E+00
		2204.22		4.98	3.14E+00		1.56E+00	1.38E+00
+	PB-214	295.21	*	19.19	7.08E-01	3.52E-01	8.95E-01	3.47E-01
		351.92	*	37.19	3.52E-01		1.02E+00	1.72E-01
	RN-219	401.80		6.50	1.22E+00	1.22E+00	-2.03E-01	5.81E-01
	RA-223	323.87		3.88	1.88E+00	1.88E+00	-4.53E-01	8.99E-01
	RA-224	240.98		3.95	3.29E+00	3.29E+00	1.62E+01	1.62E+00
	RA-225	40.00		31.00	2.51E+01	2.51E+01	3.88E+00	1.23E+01
+	RA-226	186.21	*	3.28	2.65E+00	2.65E+00	2.87E+00	1.30E+00
	TH-227	50.10		8.40	8.98E-01	8.98E-01	-3.27E-01	4.39E-01
		236.00		11.50	9.69E-01		1.77E+00	4.75E-01
		256.20		6.30	1.08E+00		4.44E-01	5.23E-01
+	AC-228	338.32	*	11.40	9.70E-01	6.91E-01	1.22E+00	4.71E-01
		911.07	*	27.70	6.91E-01		1.33E+00	3.30E-01
		969.11	*	16.60	1.43E+00		1.93E+00	6.90E-01
	TH-230	48.44		16.90	4.81E-01	4.81E-01	4.43E-01	2.35E-01
		62.85		4.60	1.73E+00		2.83E+00	8.47E-01
		67.67		0.37	1.93E+01		-2.72E+00	9.46E+00
	PA-231	283.67		1.60	4.10E+00	3.22E+00	-1.57E+00	1.97E+00
		302.67		2.30	3.22E+00		5.89E-02	1.55E+00
	TH-231	25.64		14.70	1.54E+00	1.07E+00	8.96E-02	7.52E-01
		84.21		6.40	1.07E+00		-9.13E-01	5.26E-01
	PA-233	311.98		38.60	2.06E+00	2.06E+00	-1.61E+00	9.86E-01
	PA-234	131.20		20.40	3.00E-01	3.00E-01	1.90E-01	1.47E-01
		733.99		8.80	1.14E+00		-9.18E-01	5.29E-01
		946.00		12.00	9.50E-01		-5.33E-01	4.39E-01
	PA-234M	1001.03		0.92	1.54E+01	1.54E+01	6.49E-01	7.19E+00
+	TH-234	63.29	*	3.80	2.88E+00	2.88E+00	2.44E+00	1.42E+00
	U-235	143.76		10.50	5.72E-01	5.72E-01	-1.54E-01	2.79E-01
		163.35		4.70	1.32E+00		4.54E-02	6.44E-01
		205.31		4.70	1.41E+00		-1.16E+00	6.83E-01
+	NP-237	86.50	*	12.60	7.05E-01	7.05E-01	4.86E-01	3.47E-01
	NP-239	106.10		22.70	2.65E+11	2.65E+11	-2.59E+10	1.29E+11
		228.18		10.70	6.75E+11		-1.48E+10	3.27E+11
		277.60		14.10	5.61E+11		1.16E+11	2.70E+11
	AM-241	59.54		35.90	2.17E-01	2.17E-01	7.19E-02	1.07E-01
	AM-243	74.67		66.00	1.50E-01	1.50E-01	6.66E-01	7.41E-02
	CM-243	209.75		3.29	2.18E+00	5.20E-01	1.08E+00	1.06E+00
		228.14		10.60	6.28E-01		-1.37E-02	3.04E-01
		277.60		14.00	5.20E-01		1.08E-01	2.51E-01

Analysis Report for 1707082-17

HTC-A01-S006-1824-01

+ = 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

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-S006-1824-01

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	19	103
17:	93	102	91	81	81	79	86	83
25:	60	71	78	80	74	70	97	80
33:	76	65	78	72	76	79	76	91
41:	78	83	72	90	125	107	83	80
49:	102	90	86	79	85	90	100	110
57:	104	110	142	125	141	174	168	127
65:	133	95	126	121	133	145	117	184
73:	229	315	315	374	311	148	115	111
81:	101	122	105	143	147	184	192	134
89:	137	130	158	204	144	111	75	79
97:	87	87	91	86	78	69	72	85
105:	107	85	71	72	80	83	72	99
113:	85	69	88	64	61	73	75	62
121:	88	83	84	69	71	84	81	103
129:	96	76	79	76	80	80	63	68
137:	72	87	65	70	80	83	60	71
145:	75	72	81	75	59	58	77	76
153:	64	74	71	76	82	61	68	49
161:	59	76	63	60	87	56	65	68
169:	69	72	62	56	70	64	51	50
177:	55	53	65	56	50	52	66	83
185:	110	90	69	57	36	58	51	51
193:	73	51	49	50	67	53	44	54
201:	45	55	57	51	44	51	58	75
209:	70	55	46	50	48	59	37	44
217:	49	35	50	52	44	58	38	43
225:	42	46	39	36	44	47	55	53
233:	29	39	56	79	218	339	183	91
241:	109	82	48	40	29	47	27	50
249:	40	32	36	37	37	40	35	43
257:	28	33	38	22	33	31	30	39
265:	36	29	36	36	44	50	27	38
273:	40	41	26	46	45	31	25	28
281:	24	32	33	23	25	24	33	32
289:	21	39	26	33	51	92	83	42
297:	25	43	39	36	25	32	23	24
305:	33	30	26	20	26	35	23	28
313:	28	21	38	36	23	27	23	29
321:	16	27	28	19	31	27	29	30
329:	19	21	23	27	20	30	20	40
337:	62	57	42	21	24	20	21	17
345:	30	21	31	21	32	89	166	101
353:	46	20	27	22	24	24	20	16
361:	20	22	22	28	21	21	19	17

369:	20	21	16	28	17	21	25	21

Sample Title: HTC-A01-S006-1824-01

Channel								
377:	17	20	27	25	15	19	13	15
385:	17	19	16	17	17	27	16	19
393:	16	10	15	19	19	16	15	15
401:	24	18	26	19	19	24	20	20
409:	17	25	24	22	19	19	21	18
417:	20	22	20	12	12	18	20	14
425:	21	16	13	15	19	19	14	25
433:	10	18	11	22	24	20	25	12
441:	14	8	22	11	12	15	17	14
449:	12	10	23	13	15	19	14	9
457:	16	13	22	14	17	25	27	14
465:	15	16	29	18	15	12	17	11
473:	12	9	16	10	9	16	13	17
481:	15	11	11	13	13	19	14	14
489:	16	10	10	13	21	13	6	10
497:	13	12	12	9	14	15	6	6
505:	6	10	20	22	26	45	35	22
513:	10	9	14	14	16	9	16	16
521:	12	18	12	15	8	16	13	11
529:	15	13	16	17	12	14	9	13
537:	7	13	12	7	11	9	20	17
545:	7	12	15	13	10	13	12	11
553:	13	15	9	14	8	10	9	12
561:	11	11	8	10	12	12	6	15
569:	9	13	11	14	12	16	12	17
577:	7	13	10	14	34	72	71	27
585:	7	16	8	13	8	13	8	9
593:	11	10	12	14	14	9	10	10
601:	9	13	8	13	6	13	42	80
609:	93	42	16	7	9	10	9	13
617:	8	9	7	12	9	3	2	8
625:	5	9	10	9	14	11	14	9
633:	12	17	6	13	7	8	6	15
641:	13	8	15	13	12	14	4	13
649:	7	7	10	9	12	12	9	15
657:	11	6	8	13	18	15	6	16
665:	7	14	7	9	7	10	17	8
673:	16	12	8	12	9	7	8	9
681:	6	11	7	3	7	8	5	8
689:	9	12	11	6	9	10	16	11
697:	14	8	14	11	14	11	4	10
705:	16	10	10	10	3	11	10	8
713:	10	10	12	13	6	9	7	17
721:	9	10	8	11	16	27	19	17
729:	6	6	9	13	9	8	2	5
737:	3	6	5	12	7	11	8	7
745:	10	12	7	8	6	13	10	10
753:	6	7	8	10	10	7	9	9
761:	6	13	10	10	6	7	14	20
769:	10	15	4	12	13	4	4	5
777:	5	10	6	13	6	7	6	7
785:	12	11	6	5	8	8	7	6
793:	10	11	14	11	4	7	6	5

801:	14	9	12	2	10	7	11	5

Sample Title: HTC-A01-S006-1824-01

Channel								
809:	8	10	11	9	5	12	4	7
817:	8	8	10	5	12	12	9	10
825:	9	7	9	9	11	9	4	10
833:	7	8	13	7	9	8	14	9
841:	6	7	4	7	9	12	5	8
849:	10	4	4	9	3	4	4	6
857:	4	6	7	15	18	7	6	7
865:	6	8	6	7	7	8	10	4
873:	6	6	9	8	4	2	9	7
881:	11	9	6	4	9	4	7	11
889:	9	8	8	6	6	4	13	6
897:	12	4	9	8	12	7	5	6
905:	5	12	7	12	25	35	42	26
913:	11	7	11	6	8	5	3	4
921:	7	8	2	6	4	11	9	7
929:	6	2	6	5	10	12	5	4
937:	4	6	6	5	8	5	9	4
945:	3	8	5	2	5	9	9	2
953:	5	12	7	3	6	8	4	5
961:	9	4	7	11	8	18	15	26
969:	17	13	10	4	7	5	7	8
977:	4	5	10	6	5	10	4	8
985:	5	6	4	7	5	4	5	5
993:	11	6	7	7	4	10	8	13
1001:	6	4	9	9	7	10	7	6
1009:	4	8	2	11	4	6	4	8
1017:	7	7	4	5	4	5	6	13
1025:	7	7	6	7	3	3	8	9
1033:	5	4	4	7	5	8	11	7
1041:	10	10	5	10	5	5	7	5
1049:	2	9	5	10	4	8	6	3
1057:	7	5	5	10	10	7	4	8
1065:	6	11	3	5	7	5	8	2
1073:	9	8	3	5	10	4	9	5
1081:	6	4	9	2	7	11	5	7
1089:	7	5	11	4	5	8	6	2
1097:	7	8	6	8	4	8	4	13
1105:	6	6	7	8	8	5	2	4
1113:	4	7	4	2	8	8	22	21
1121:	12	9	5	5	4	6	6	5
1129:	7	4	6	7	5	3	9	6
1137:	10	8	5	3	7	10	8	6
1145:	4	7	8	11	10	9	7	8
1153:	9	6	8	8	3	4	6	7
1161:	14	10	4	14	6	7	9	6
1169:	6	9	7	8	5	12	9	9
1177:	10	9	7	7	12	7	12	12
1185:	5	9	7	7	13	9	3	9
1193:	6	14	3	7	4	11	5	11
1201:	8	11	8	9	8	8	9	11
1209:	8	7	7	9	7	10	12	5
1217:	5	4	7	9	7	9	7	9
1225:	3	10	12	5	11	7	7	11

1233:	8	11	12	12	17	13	11	5

Sample Title: HTC-A01-S006-1824-01

Channel								
1241:	13	7	6	10	4	5	6	7
1249:	4	6	9	8	3	8	3	5
1257:	5	5	8	5	5	6	5	7
1265:	4	6	7	5	1	4	4	6
1273:	5	2	6	4	5	6	7	5
1281:	3	6	6	2	3	5	5	6
1289:	7	7	5	6	5	3	3	5
1297:	1	5	4	4	3	5	2	1
1305:	2	2	2	8	5	5	5	2
1313:	2	2	6	6	5	3	3	6
1321:	1	4	4	2	4	2	4	3
1329:	4	6	2	2	4	2	2	2
1337:	6	8	4	3	2	2	3	3
1345:	3	3	2	8	3	1	1	3
1353:	1	1	1	2	3	0	1	3
1361:	1	4	1	4	2	2	2	3
1369:	2	1	4	2	1	3	4	4
1377:	6	9	3	4	2	2	2	1
1385:	2	1	3	3	5	1	5	4
1393:	4	2	3	4	4	3	2	9
1401:	1	4	3	2	5	3	5	1
1409:	3	0	2	3	2	0	1	3
1417:	1	3	2	1	0	4	5	3
1425:	2	2	1	2	0	1	3	1
1433:	2	4	3	1	1	2	2	2
1441:	2	1	0	0	0	1	1	2
1449:	2	5	1	0	2	4	3	1
1457:	2	26	96	177	139	64	7	1
1465:	0	3	2	2	3	3	1	6
1473:	1	2	2	0	3	1	0	1
1481:	1	1	2	0	1	0	3	0
1489:	0	2	3	2	1	0	2	2
1497:	1	1	3	0	2	2	1	0
1505:	3	3	4	7	4	2	1	0
1513:	3	1	1	3	2	0	1	2
1521:	1	1	2	3	1	0	0	2
1529:	5	0	1	1	3	3	1	2
1537:	1	1	1	1	1	3	1	2
1545:	2	1	1	0	1	2	0	1
1553:	0	1	1	0	0	1	1	1
1561:	2	2	1	0	2	0	1	2
1569:	2	3	1	4	1	0	0	1
1577:	1	0	0	0	3	1	4	1
1585:	1	3	1	4	2	2	5	3
1593:	4	1	1	0	2	1	3	1
1601:	0	2	2	0	3	0	0	0
1609:	1	0	2	0	0	1	3	1
1617:	1	0	4	3	1	3	1	3
1625:	1	0	2	2	3	3	2	1
1633:	3	1	2	0	1	1	3	4
1641:	1	1	1	0	2	1	0	1
1649:	3	1	2	0	1	0	2	1
1657:	0	0	0	2	2	0	0	4

1665:	1	1	0	1	1	0	0	0

Sample Title: HTC-A01-S006-1824-01

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

2097:	5	0	1	1	1	2	2	2

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

2529:	0	1	1	0	0	0	0	0

Sample Title: HTC-A01-S006-1824-01

Channel								
2537:	0	0	1	0	1	1	0	0
2545:	0	0	1	2	0	0	0	0
2553:	0	1	0	0	0	0	0	0
2561:	0	0	1	1	0	1	1	0
2569:	1	1	0	0	0	1	0	1
2577:	0	2	0	0	0	1	0	0
2585:	0	0	0	0	0	0	1	0
2593:	0	0	0	1	0	0	1	1
2601:	1	1	0	0	0	0	0	0
2609:	0	1	1	2	11	20	10	6
2617:	1	0	0	0	0	1	0	0
2625:	0	0	1	0	0	0	0	1
2633:	0	0	0	0	0	0	0	0
2641:	0	0	2	1	0	0	0	0
2649:	0	0	0	0	0	0	0	0
2657:	0	0	0	0	0	0	1	0
2665:	0	0	1	0	0	0	0	0
2673:	0	0	0	1	0	0	0	0
2681:	0	0	0	0	1	0	0	0
2689:	0	0	0	0	0	0	0	1
2697:	0	1	0	0	0	0	0	0
2705:	1	0	0	0	0	0	0	0
2713:	0	0	0	0	1	0	1	0
2721:	1	0	1	1	0	0	0	0
2729:	0	0	0	0	0	1	0	1
2737:	0	1	1	0	0	0	0	1
2745:	0	0	0	0	0	0	0	0
2753:	1	0	0	0	0	0	0	1
2761:	1	1	1	0	0	0	0	0
2769:	0	0	0	0	0	0	0	0
2777:	0	1	0	0	1	0	0	0
2785:	0	0	0	0	0	0	0	0
2793:	0	0	0	1	0	0	0	0
2801:	0	0	0	0	0	0	1	1
2809:	0	0	0	1	1	1	0	0
2817:	0	1	0	0	0	0	0	1
2825:	0	0	0	0	0	0	0	0
2833:	0	0	0	0	0	1	0	1
2841:	0	1	0	0	0	0	0	1
2849:	0	0	0	0	0	0	0	0
2857:	0	0	0	0	0	1	0	0
2865:	0	1	0	0	0	2	0	0
2873:	0	0	0	0	0	1	1	0
2881:	1	0	0	0	0	1	0	0
2889:	0	1	0	0	0	0	0	0
2897:	1	1	3	1	0	0	0	0
2905:	0	0	0	1	0	0	0	1
2913:	0	0	1	0	0	0	0	0
2921:	0	0	0	0	1	0	0	0
2929:	0	0	0	0	0	0	0	0
2937:	0	0	0	0	0	0	0	0
2945:	0	0	0	0	0	0	0	0
2953:	0	0	0	0	0	0	1	1

2961:	0	0	1	0	0	0	1	0

Sample Title: HTC-A01-S006-1824-01

Channel								
2969:	0	0	0	0	2	0	0	0
2977:	0	0	0	0	0	0	1	0
2985:	0	1	0	0	0	0	0	0
2993:	0	0	0	0	0	0	1	1
3001:	1	0	0	0	0	1	0	1
3009:	0	0	0	1	0	0	0	0
3017:	0	0	0	0	0	0	0	1
3025:	0	0	0	3	0	0	0	0
3033:	0	1	0	0	0	0	0	0
3041:	0	1	0	0	0	0	0	0
3049:	0	0	0	0	0	0	0	1
3057:	0	0	0	0	0	0	0	0
3065:	0	0	0	0	0	0	0	0
3073:	0	1	0	1	0	0	0	0
3081:	0	0	0	0	0	0	0	0
3089:	0	1	0	0	0	0	0	0
3097:	0	0	0	0	0	0	0	0
3105:	1	0	0	0	0	0	0	0
3113:	0	0	0	0	0	0	0	0
3121:	0	1	1	0	0	0	0	0
3129:	0	0	1	0	0	0	0	2
3137:	0	1	0	0	1	0	1	1
3145:	0	0	0	0	0	1	0	0
3153:	1	0	0	0	0	0	0	0
3161:	0	0	0	1	0	1	0	1
3169:	0	0	0	0	0	0	0	0
3177:	1	0	0	0	0	0	0	2
3185:	0	0	0	0	1	0	0	1
3193:	0	0	0	0	0	0	1	0
3201:	0	0	0	0	0	0	1	0
3209:	0	0	1	0	0	0	0	0
3217:	0	0	0	0	0	0	0	0
3225:	0	0	0	0	0	0	0	0
3233:	0	0	0	1	0	0	1	0
3241:	0	1	1	0	0	0	0	1
3249:	0	0	0	1	0	0	0	0
3257:	0	0	0	0	0	0	0	0
3265:	0	1	1	0	0	0	0	0
3273:	0	0	0	0	0	0	0	0
3281:	1	0	0	0	0	0	0	0
3289:	0	0	0	0	0	0	0	0
3297:	0	0	0	0	0	0	0	0
3305:	0	1	0	0	0	0	0	0
3313:	0	0	1	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	1	0	0
3345:	0	0	0	0	0	0	1	0
3353:	0	0	0	0	1	1	1	0
3361:	0	0	0	0	0	1	0	0
3369:	0	0	1	0	0	0	1	1
3377:	0	0	0	0	0	1	0	0
3385:	0	0	0	0	0	0	0	0

3393:	0	0	1	0	0	0	0	0

Sample Title: HTC-A01-S006-1824-01

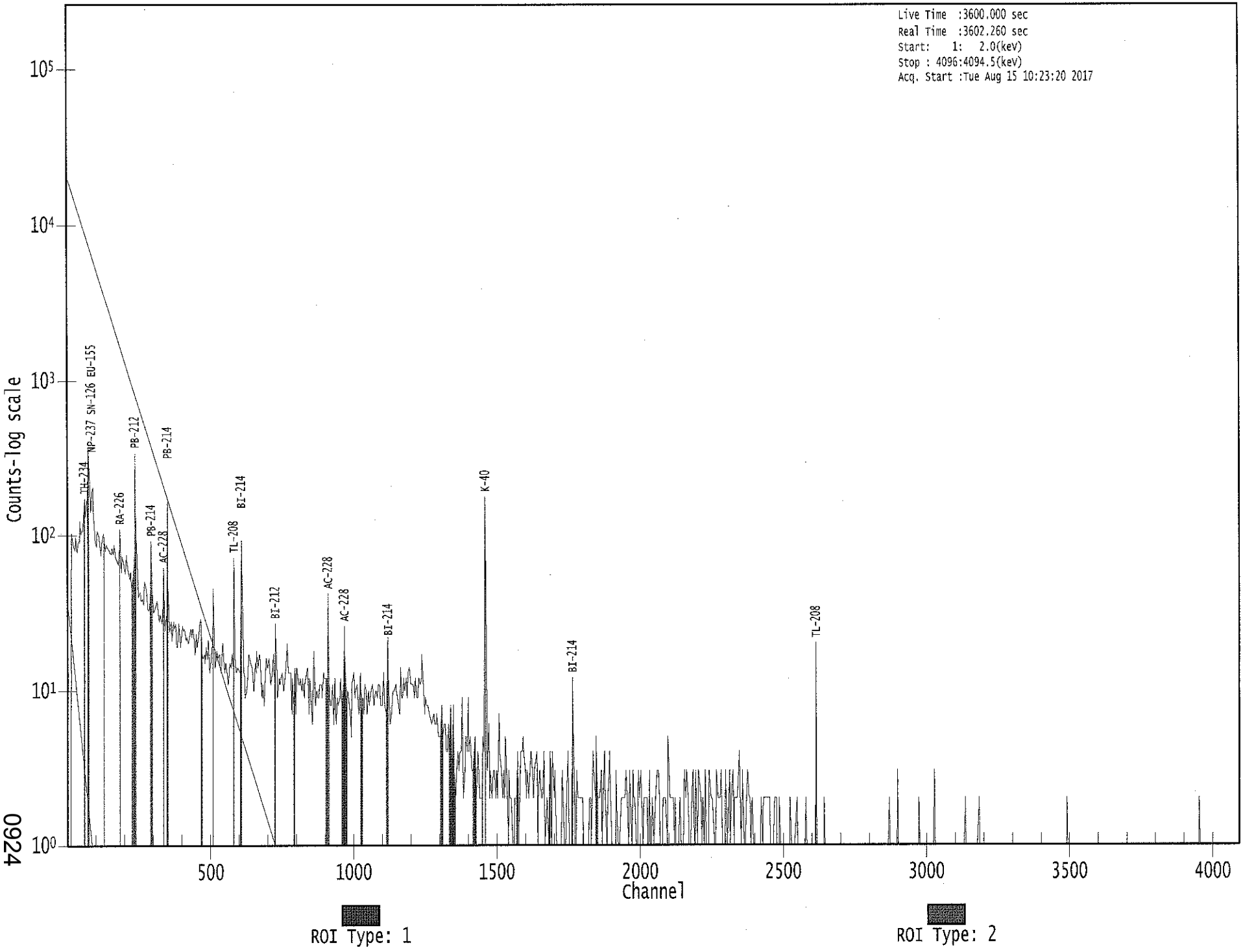
Channel								
3401:	0	0	0	0	0	0	0	1
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	1	0	0	0
3441:	0	1	0	0	0	0	0	0
3449:	0	0	0	0	0	0	0	1
3457:	0	0	0	0	0	0	0	0
3465:	0	0	1	0	0	0	0	1
3473:	0	1	1	0	0	0	0	0
3481:	1	0	0	0	0	0	0	0
3489:	0	0	2	0	1	0	0	0
3497:	0	1	0	0	0	0	0	0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

3825:	1	0	0	0	0	0	0	0

Sample Title: HTC-A01-S006-1824-01

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

0000055251.CNF



0924

Apex-Gamma

8/15

Analysis Report for 1707082-18

HTC-A01-S006-2430-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707082-18
Sample Description	: HTC-A01-S006-2430-01
Sample Type	: SOIL
Sample Size	: 6.903E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 6:38:06AM
Acquisition Started	: 8/15/2017 11:41:01AM
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)	: 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	: 55257

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/16/17

Analysis Report for 1707082-18

HTC-A01-S006-2430-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/15/2017 12:41:05PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	74.72	75.31	0.0000	0.00
2	77.20	77.79	0.0000	0.00
3	87.34	87.92	0.0000	0.00
4	92.71	93.28	0.0000	0.00
5	144.31	144.83	0.0000	0.00
6	185.68	186.16	0.0000	0.00
7	209.36	209.82	0.0000	0.00
8	215.46	215.91	0.0000	0.00
9	221.36	221.80	0.0000	0.00
10	238.57	239.00	0.0000	0.00
11	241.84	242.26	0.0000	0.00
12	257.07	257.48	0.0000	0.00
13	270.10	270.49	0.0000	0.00
14	277.82	278.20	0.0000	0.00
15	295.15	295.52	0.0000	0.00
16	300.17	300.54	0.0000	0.00
17	328.19	328.53	0.0000	0.00
18	338.41	338.74	0.0000	0.00
19	351.97	352.28	0.0000	0.00
20	377.37	377.66	0.0000	0.00
21	390.20	390.47	0.0000	0.00
22	463.01	463.21	0.0000	0.00
23	510.80	510.95	0.0000	0.00
24	515.69	515.84	0.0000	0.00
25	552.15	552.26	0.0000	0.00
26	561.45	561.55	0.0000	0.00
27	583.48	583.56	0.0000	0.00
28	609.52	609.57	0.0000	0.00
29	662.02	662.01	0.0000	0.00
30	727.84	727.78	0.0000	0.00
31	746.61	746.53	0.0000	0.00
32	782.77	782.64	0.0000	0.00
33	785.48	785.36	0.0000	0.00
34	795.15	795.02	0.0000	0.00
35	860.51	860.31	0.0000	0.00
36	882.32	882.10	0.0000	0.00
37	911.51	911.26	0.0000	0.00
38	935.96	935.68	0.0000	0.00
39	965.18	964.88	0.0000	0.00
40	969.33	969.02	0.0000	0.00
41	1046.44	1046.05	0.0000	0.00
42	1120.48	1120.02	0.0000	0.00

Analysis Report for 1707082-18

HTC-A01-S006-2430-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1374.93	1374.22	0.0000	0.00
44	1378.71	1378.00	0.0000	0.00
45	1445.65	1444.87	0.0000	0.00
46	1461.38	1460.59	0.0000	0.00
47	1496.73	1495.90	0.0000	0.00
48	1527.76	1526.90	0.0000	0.00
49	1665.98	1664.98	0.0000	0.00
50	1708.61	1707.57	0.0000	0.00
51	1764.89	1763.80	0.0000	0.00
52	1792.95	1791.83	0.0000	0.00
53	1806.87	1805.73	0.0000	0.00
54	1937.44	1936.18	0.0000	0.00
55	2092.91	2091.50	0.0000	0.00
56	2102.81	2101.39	0.0000	0.00
57	2127.87	2126.43	0.0000	0.00
58	2204.29	2202.77	0.0000	0.00
59	2361.19	2359.52	0.0000	0.00
60	2459.68	2457.92	0.0000	0.00
61	2615.07	2613.16	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707082-18

HTC-A01-S006-2430-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 12:41:05PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	1	74.72	72 -	83	75.31	4.36E+02	95.85	1.47E+03	1.81
m	2	77.20	72 -	83	77.79	6.61E+02	102.13	1.42E+03	1.82
M	3	87.34	83 -	97	87.92	3.12E+02	119.14	1.99E+03	2.95
m	4	92.71	83 -	97	93.28	5.06E+02	110.31	1.52E+03	2.60
	5	144.31	141 -	148	144.83	8.72E+01	84.71	1.13E+03	1.26
	6	185.68	182 -	189	186.16	2.32E+02	82.34	9.73E+02	1.92
	7	209.36	206 -	213	209.82	1.20E+02	73.29	8.13E+02	2.07
	8	215.46	214 -	218	215.91	4.08E+01	47.87	4.70E+02	2.65
	9	221.36	219 -	224	221.80	8.30E+01	53.41	5.00E+02	2.65
M	10	238.57	235 -	247	239.00	8.92E+02	74.97	4.92E+02	1.67
m	11	241.84	235 -	247	242.26	2.48E+02	85.86	6.19E+02	2.39
	12	257.07	254 -	260	257.48	7.66E+01	54.17	4.75E+02	3.32
	13	270.10	267 -	274	270.49	5.57E+01	61.61	5.95E+02	1.98
	14	277.82	275 -	281	278.20	5.55E+01	54.88	5.07E+02	1.23
	15	295.15	292 -	298	295.52	2.69E+02	59.39	4.48E+02	2.02
	16	300.17	299 -	304	300.54	5.93E+01	44.92	3.41E+02	3.56
	17	328.19	327 -	331	328.53	3.32E+01	38.87	3.08E+02	1.83
	18	338.41	334 -	341	338.74	1.51E+02	60.17	5.01E+02	1.80
	19	351.97	348 -	356	352.28	4.78E+02	69.52	4.48E+02	1.80
	20	377.37	374 -	381	377.66	5.62E+01	43.13	2.74E+02	5.19
	21	390.20	388 -	394	390.47	4.20E+01	38.69	2.42E+02	2.20
	22	463.01	460 -	466	463.21	4.41E+01	39.32	2.50E+02	1.31
M	23	510.80	506 -	521	510.95	2.10E+02	44.18	1.82E+02	2.56
m	24	515.69	506 -	521	515.84	2.30E+01	38.83	1.89E+02	2.58
	25	552.15	548 -	556	552.26	3.10E+01	37.51	1.96E+02	2.63
	26	561.45	558 -	565	561.55	3.28E+01	32.68	1.56E+02	3.59
	27	583.48	580 -	589	583.56	3.04E+02	50.94	2.03E+02	1.92
	28	609.52	604 -	615	609.57	4.21E+02	64.65	3.13E+02	2.05
	29	662.02	658 -	666	662.01	9.85E+01	43.09	2.25E+02	1.68
	30	727.84	724 -	732	727.78	5.53E+01	37.12	1.73E+02	2.29
	31	746.61	739 -	755	746.53	6.28E+01	49.86	2.14E+02	11.27
M	32	782.77	779 -	788	782.64	3.60E+01	27.20	9.60E+01	2.59
m	33	785.48	779 -	788	785.36	2.00E+01	27.06	9.60E+01	2.59
	34	795.15	789 -	800	795.02	6.58E+01	39.50	1.62E+02	2.13
	35	860.51	854 -	864	860.31	6.25E+01	36.37	1.43E+02	3.73
	36	882.32	879 -	886	882.10	3.00E+01	23.07	6.99E+01	4.48
	37	911.51	905 -	915	911.26	1.87E+02	48.14	2.11E+02	2.16
	38	935.96	931 -	940	935.68	4.00E+01	28.62	9.19E+01	4.90
M	39	965.18	963 -	976	964.88	2.86E+01	21.24	7.63E+01	2.19
m	40	969.33	963 -	976	969.02	9.08E+01	31.35	9.78E+01	2.39

Analysis Report for 1707082-18

HTC-A01-S006-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1046.44	1043 -	1050	1046.05	1.82E+01	23.07	7.75E+01	2.87
	42	1120.48	1115 -	1125	1120.02	8.65E+01	42.77	1.97E+02	1.97
M	43	1374.93	1372 -	1382	1374.22	1.33E+01	10.74	1.11E+01	2.37
m	44	1378.71	1372 -	1382	1378.00	2.65E+01	13.60	1.60E+01	2.16
	45	1445.65	1440 -	1453	1444.87	1.59E+01	20.83	3.83E+01	3.18
	46	1461.38	1454 -	1467	1460.59	9.92E+02	67.84	7.21E+01	2.21
	47	1496.73	1493 -	1498	1495.90	9.76E+00	12.53	1.85E+01	1.89
	48	1527.76	1522 -	1530	1526.90	1.30E+01	13.00	1.79E+01	4.34
	49	1665.98	1661 -	1667	1664.98	9.70E+00	9.84	1.06E+01	1.32
	50	1708.61	1703 -	1712	1707.57	1.18E+01	10.68	8.38E+00	3.93
	51	1764.89	1759 -	1767	1763.80	6.63E+01	19.52	1.74E+01	1.73
	52	1792.95	1789 -	1794	1791.83	6.00E+00	4.90	0.00E+00	2.74
	53	1806.87	1802 -	1809	1805.73	6.00E+00	8.49	8.00E+00	5.29
	54	1937.44	1932 -	1940	1936.18	7.69E+00	10.62	1.06E+01	2.95
	55	2092.91	2089 -	2093	2091.50	6.00E+00	4.90	0.00E+00	1.16
	56	2102.81	2096 -	2108	2101.39	1.51E+01	15.06	1.98E+01	4.89
	57	2127.87	2123 -	2130	2126.43	9.79E+00	8.00	4.42E+00	2.22
	58	2204.29	2197 -	2207	2202.77	2.57E+01	13.58	1.06E+01	2.73
	59	2361.19	2356 -	2363	2359.52	9.32E+00	7.75	3.36E+00	2.77
	60	2459.68	2454 -	2462	2457.92	6.61E+00	7.50	4.78E+00	1.37
	61	2615.07	2607 -	2618	2613.16	1.24E+02	25.30	1.78E+01	2.16

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 12:41:05PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	1	74.72	72 -	83	4.36E+02	95.85	1.47E+03	6.30E+01
m	2	77.20	72 -	83	6.61E+02	102.13	1.42E+03	6.19E+01
M	3	87.34	83 -	97	3.12E+02	119.14	1.99E+03	7.33E+01
m	4	92.71	83 -	97	5.06E+02	110.31	1.52E+03	6.41E+01
	5	144.31	141 -	148	8.72E+01	84.71	1.13E+03	6.79E+01
	6	185.68	182 -	189	2.32E+02	82.34	9.73E+02	6.29E+01
	7	209.36	206 -	213	1.20E+02	73.29	8.13E+02	5.75E+01

Analysis Report for 1707082-18

HTC-A01-S006-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	8	215.46	214 -	218	4.08E+01	47.87	4.70E+02	3.79E+01
	9	221.36	219 -	224	8.30E+01	53.41	5.00E+02	4.13E+01
M	10	238.57	235 -	247	8.92E+02	74.97	4.92E+02	3.65E+01
m	11	241.84	235 -	247	2.48E+02	85.86	6.19E+02	4.09E+01
	12	257.07	254 -	260	7.66E+01	54.17	4.75E+02	4.21E+01
	13	270.10	267 -	274	5.57E+01	61.61	5.95E+02	4.91E+01
	14	277.82	275 -	281	5.55E+01	54.88	5.07E+02	4.34E+01
	15	295.15	292 -	298	2.69E+02	59.39	4.48E+02	4.07E+01
	16	300.17	299 -	304	5.93E+01	44.92	3.41E+02	3.47E+01
	17	328.19	327 -	331	3.32E+01	38.87	3.08E+02	3.05E+01
	18	338.41	334 -	341	1.51E+02	60.17	5.01E+02	4.52E+01
	19	351.97	348 -	356	4.78E+02	69.52	4.48E+02	4.44E+01
	20	377.37	374 -	381	5.62E+01	43.13	2.74E+02	3.32E+01
	21	390.20	388 -	394	4.20E+01	38.69	2.42E+02	3.00E+01
	22	463.01	460 -	466	4.41E+01	39.32	2.50E+02	3.04E+01
M	23	510.80	506 -	521	2.10E+02	44.18	1.82E+02	2.22E+01
m	24	515.69	506 -	521	2.30E+01	38.83	1.89E+02	2.26E+01
	25	552.15	548 -	556	3.10E+01	37.51	1.96E+02	2.94E+01
	26	561.45	558 -	565	3.28E+01	32.68	1.56E+02	2.52E+01
	27	583.48	580 -	589	3.04E+02	50.94	2.03E+02	3.05E+01
	28	609.52	604 -	615	4.21E+02	64.65	3.13E+02	4.11E+01
	29	662.02	658 -	666	9.85E+01	43.09	2.25E+02	3.14E+01
	30	727.84	724 -	732	5.53E+01	37.12	1.73E+02	2.80E+01
	31	746.61	739 -	755	6.28E+01	49.86	2.14E+02	3.89E+01
M	32	782.77	779 -	788	3.60E+01	27.20	9.60E+01	1.61E+01
m	33	785.48	779 -	788	2.00E+01	27.06	9.60E+01	1.61E+01
	34	795.15	789 -	800	6.58E+01	39.50	1.62E+02	2.96E+01
	35	860.51	854 -	864	6.25E+01	36.37	1.43E+02	2.69E+01
	36	882.32	879 -	886	3.00E+01	23.07	6.99E+01	1.67E+01
	37	911.51	905 -	915	1.87E+02	48.14	2.11E+02	3.26E+01
	38	935.96	931 -	940	4.00E+01	28.62	9.19E+01	2.11E+01
M	39	965.18	963 -	976	2.86E+01	21.24	7.63E+01	1.44E+01
m	40	969.33	963 -	976	9.08E+01	31.35	9.78E+01	1.63E+01
	41	1046.44	1043 -	1050	1.82E+01	23.07	7.75E+01	1.76E+01
	42	1120.48	1115 -	1125	8.65E+01	42.77	1.97E+02	3.17E+01
M	43	1374.93	1372 -	1382	1.33E+01	10.74	1.11E+01	5.48E+00
m	44	1378.71	1372 -	1382	2.65E+01	13.60	1.60E+01	6.58E+00
	45	1445.65	1440 -	1453	1.59E+01	20.83	3.83E+01	1.58E+01
	46	1461.38	1454 -	1467	9.92E+02	67.84	7.21E+01	2.07E+01
	47	1496.73	1493 -	1498	9.76E+00	12.53	1.85E+01	8.93E+00
	48	1527.76	1522 -	1530	1.30E+01	13.00	1.79E+01	8.88E+00
	49	1665.98	1661 -	1667	9.70E+00	9.84	1.06E+01	6.26E+00
	50	1708.61	1703 -	1712	1.18E+01	10.68	8.38E+00	6.72E+00
	51	1764.89	1759 -	1767	6.63E+01	19.52	1.74E+01	8.85E+00
	52	1792.95	1789 -	1794	6.00E+00	4.90	0.00E+00	0.00E+00
	53	1806.87	1802 -	1809	6.00E+00	8.49	8.00E+00	5.70E+00
	54	1937.44	1932 -	1940	7.69E+00	10.62	1.06E+01	7.44E+00
	55	2092.91	2089 -	2093	6.00E+00	4.90	0.00E+00	0.00E+00
	56	2102.81	2096 -	2108	1.51E+01	15.06	1.98E+01	1.06E+01
	57	2127.87	2123 -	2130	9.79E+00	8.00	4.42E+00	4.10E+00
	58	2204.29	2197 -	2207	2.57E+01	13.58	1.06E+01	7.43E+00

Analysis Report for 1707082-18

HTC-A01-S006-2430-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
59	2361.19	2356 -	2363	9.32E+00	7.75	3.36E+00	3.92E+00
60	2459.68	2454 -	2462	6.61E+00	7.50	4.78E+00	4.49E+00
61	2615.07	2607 -	2618	1.24E+02	25.30	1.78E+01	9.85E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/15/2017 12:41:05PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	1	74.72	72 -	83	75.31	4.36E+02	95.85	1.47E+03	AM-243
m	2	77.20	72 -	83	77.79	6.61E+02	102.13	1.42E+03	.....
M	3	87.34	83 -	97	87.92	3.12E+02	119.14	1.99E+03	SN-126
									CD-109
									NP-237
									EU-155
m	4	92.71	83 -	97	93.28	5.06E+02	110.31	1.52E+03	GA-67
	5	144.31	141 -	148	144.83	8.72E+01	84.71	1.13E+03	U-235
	6	185.68	182 -	189	186.16	2.32E+02	82.34	9.73E+02	RA-226
	7	209.36	206 -	213	209.82	1.20E+02	73.29	8.13E+02	CM-243
									GA-67
	8	215.46	214 -	218	215.91	4.08E+01	47.87	4.70E+02	.....
	9	221.36	219 -	224	221.80	8.30E+01	53.41	5.00E+02	.....
M	10	238.57	235 -	247	239.00	8.92E+02	74.97	4.92E+02	PB-212
m	11	241.84	235 -	247	242.26	2.48E+02	85.86	6.19E+02	RA-224
	12	257.07	254 -	260	257.48	7.66E+01	54.17	4.75E+02	TH-227
	13	270.10	267 -	274	270.49	5.57E+01	61.61	5.95E+02	.....
	14	277.82	275 -	281	278.20	5.55E+01	54.88	5.07E+02	CM-243
									NP-239
	15	295.15	292 -	298	295.52	2.69E+02	59.39	4.48E+02	PB-214
	16	300.17	299 -	304	300.54	5.93E+01	44.92	3.41E+02	GA-67
									PB-212
									BI-210M

Analysis Report for 1707082-18

HTC-A01-S006-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	17	328.19	327 -	331	328.53	3.32E+01	38.87	3.08E+02	LA-140
	18	338.41	334 -	341	338.74	1.51E+02	60.17	5.01E+02	AC-228
	19	351.97	348 -	356	352.28	4.78E+02	69.52	4.48E+02	PB-214
	20	377.37	374 -	381	377.66	5.62E+01	43.13	2.74E+02	.....
	21	390.20	388 -	394	390.47	4.20E+01	38.69	2.42E+02	.....
	22	463.01	460 -	466	463.21	4.41E+01	39.32	2.50E+02	SB-125
M	23	510.80	506 -	521	510.95	2.10E+02	44.18	1.82E+02	.....
m	24	515.69	506 -	521	515.84	2.30E+01	38.83	1.89E+02	.....
	25	552.15	548 -	556	552.26	3.10E+01	37.51	1.96E+02	RB-83
	26	561.45	558 -	565	561.55	3.28E+01	32.68	1.56E+02	.....
	27	583.48	580 -	589	583.56	3.04E+02	50.94	2.03E+02	TL-208
	28	609.52	604 -	615	609.57	4.21E+02	64.65	3.13E+02	BI-214
	29	662.02	658 -	666	662.01	9.85E+01	43.09	2.25E+02	CS-137
	30	727.84	724 -	732	727.78	5.53E+01	37.12	1.73E+02	BI-212
	31	746.61	739 -	755	746.53	6.28E+01	49.86	2.14E+02	PM-146
M	32	782.77	779 -	788	782.64	3.60E+01	27.20	9.60E+01	.....
m	33	785.48	779 -	788	785.36	2.00E+01	27.06	9.60E+01	.....
	34	795.15	789 -	800	795.02	6.58E+01	39.50	1.62E+02	CS-134
	35	860.51	854 -	864	860.31	6.25E+01	36.37	1.43E+02	TL-208
	36	882.32	879 -	886	882.10	3.00E+01	23.07	6.99E+01	.....
	37	911.51	905 -	915	911.26	1.87E+02	48.14	2.11E+02	TL-204 AC-228
	38	935.96	931 -	940	935.68	4.00E+01	28.62	9.19E+01	.....
M	39	965.18	963 -	976	964.88	2.86E+01	21.24	7.63E+01	.....
m	40	969.33	963 -	976	969.02	9.08E+01	31.35	9.78E+01	AC-228
	41	1046.44	1043 -	1050	1046.05	1.82E+01	23.07	7.75E+01	.....
	42	1120.48	1115 -	1125	1120.02	8.65E+01	42.77	1.97E+02	SC-46 BI-214 TA-182
M	43	1374.93	1372 -	1382	1374.22	1.33E+01	10.74	1.11E+01	.....
m	44	1378.71	1372 -	1382	1378.00	2.65E+01	13.60	1.60E+01	.....
	45	1445.65	1440 -	1453	1444.87	1.59E+01	20.83	3.83E+01	.....
	46	1461.38	1454 -	1467	1460.59	9.92E+02	67.84	7.21E+01	K-40
	47	1496.73	1493 -	1498	1495.90	9.76E+00	12.53	1.85E+01	.....
	48	1527.76	1522 -	1530	1526.90	1.30E+01	13.00	1.79E+01	.....
	49	1665.98	1661 -	1667	1664.98	9.70E+00	9.84	1.06E+01	.....
	50	1708.61	1703 -	1712	1707.57	1.18E+01	10.68	8.38E+00	.....
	51	1764.89	1759 -	1767	1763.80	6.63E+01	19.52	1.74E+01	BI-214
	52	1792.95	1789 -	1794	1791.83	6.00E+00	4.90	0.00E+00	.....
	53	1806.87	1802 -	1809	1805.73	6.00E+00	8.49	8.00E+00	.....
	54	1937.44	1932 -	1940	1936.18	7.69E+00	10.62	1.06E+01	.....
	55	2092.91	2089 -	2093	2091.50	6.00E+00	4.90	0.00E+00	.....
	56	2102.81	2096 -	2108	2101.39	1.51E+01	15.06	1.98E+01	.....
	57	2127.87	2123 -	2130	2126.43	9.79E+00	8.00	4.42E+00	.....
	58	2204.29	2197 -	2207	2202.77	2.57E+01	13.58	1.06E+01	BI-214
	59	2361.19	2356 -	2363	2359.52	9.32E+00	7.75	3.36E+00	.....
	60	2459.68	2454 -	2462	2457.92	6.61E+00	7.50	4.78E+00	.....
	61	2615.07	2607 -	2618	2613.16	1.24E+02	25.30	1.78E+01	TL-208

Analysis Report for 1707082-18

HTC-A01-S006-2430-01

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/15/2017 12:41:05PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	1	74.72	4.36E+02	95.85	2.75E-02	2.38E-03
m	2	77.20	6.61E+02	102.13	2.75E-02	2.41E-03
M	3	87.34	3.12E+02	119.14	2.74E-02	2.51E-03
m	4	92.71	5.06E+02	110.31	2.73E-02	2.45E-03
	5	144.31	8.72E+01	84.71	2.44E-02	1.85E-03
	6	185.68	2.32E+02	82.34	2.17E-02	1.68E-03
	7	209.36	1.20E+02	73.29	2.04E-02	1.61E-03
	8	215.46	4.08E+01	47.87	2.00E-02	1.59E-03
	9	221.36	8.30E+01	53.41	1.97E-02	1.58E-03
M	10	238.57	8.92E+02	74.97	1.89E-02	1.53E-03
m	11	241.84	2.48E+02	85.86	1.87E-02	1.52E-03
	12	257.07	7.66E+01	54.17	1.80E-02	1.47E-03
	13	270.10	5.57E+01	61.61	1.74E-02	1.43E-03
	14	277.82	5.55E+01	54.88	1.71E-02	1.41E-03
	15	295.15	2.69E+02	59.39	1.64E-02	1.37E-03
	16	300.17	5.93E+01	44.92	1.63E-02	1.36E-03
	17	328.19	3.32E+01	38.87	1.53E-02	1.29E-03
	18	338.41	1.51E+02	60.17	1.50E-02	1.27E-03
	19	351.97	4.78E+02	69.52	1.45E-02	1.24E-03
	20	377.37	5.62E+01	43.13	1.38E-02	1.18E-03
	21	390.20	4.20E+01	38.69	1.35E-02	1.15E-03
	22	463.01	4.41E+01	39.32	1.19E-02	1.10E-03
M	23	510.80	2.10E+02	44.18	1.10E-02	1.07E-03
m	24	515.69	2.30E+01	38.83	1.09E-02	1.07E-03
	25	552.15	3.10E+01	37.51	1.04E-02	1.04E-03
	26	561.45	3.28E+01	32.68	1.03E-02	1.04E-03
	27	583.48	3.04E+02	50.94	9.96E-03	1.02E-03
	28	609.52	4.21E+02	64.65	9.63E-03	1.01E-03
	29	662.02	9.85E+01	43.09	9.04E-03	9.71E-04
	30	727.84	5.53E+01	37.12	8.41E-03	8.67E-04
	31	746.61	6.28E+01	49.86	8.24E-03	8.37E-04
M	32	782.77	3.60E+01	27.20	7.95E-03	7.80E-04
m	33	785.48	2.00E+01	27.06	7.93E-03	7.75E-04
	34	795.15	6.58E+01	39.50	7.86E-03	7.60E-04

Analysis Report for 1707082-18

HTC-A01-S006-2430-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	35	860.51	6.25E+01	36.37	7.40E-03	6.56E-04
	36	882.32	3.00E+01	23.07	7.26E-03	6.21E-04
	37	911.51	1.87E+02	48.14	7.08E-03	5.91E-04
	38	935.96	4.00E+01	28.62	6.94E-03	5.82E-04
M	39	965.18	2.86E+01	21.24	6.79E-03	5.71E-04
m	40	969.33	9.08E+01	31.35	6.76E-03	5.69E-04
	41	1046.44	1.82E+01	23.07	6.39E-03	5.40E-04
	42	1120.48	8.65E+01	42.77	6.07E-03	5.11E-04
M	43	1374.93	1.33E+01	10.74	5.23E-03	4.45E-04
m	44	1378.71	2.65E+01	13.60	5.22E-03	4.44E-04
	45	1445.65	1.59E+01	20.83	5.04E-03	4.28E-04
	46	1461.38	9.92E+02	67.84	5.00E-03	4.25E-04
	47	1496.73	9.76E+00	12.53	4.92E-03	4.16E-04
	48	1527.76	1.30E+01	13.00	4.85E-03	4.09E-04
	49	1665.98	9.70E+00	9.84	4.56E-03	3.77E-04
	50	1708.61	1.18E+01	10.68	4.48E-03	3.67E-04
	51	1764.89	6.63E+01	19.52	4.37E-03	3.54E-04
	52	1792.95	6.00E+00	4.90	4.33E-03	3.48E-04
	53	1806.87	6.00E+00	8.49	4.30E-03	3.45E-04
	54	1937.44	7.69E+00	10.62	4.09E-03	3.38E-04
	55	2092.91	6.00E+00	4.90	3.88E-03	3.38E-04
	56	2102.81	1.51E+01	15.06	3.86E-03	3.38E-04
	57	2127.87	9.79E+00	8.00	3.83E-03	3.38E-04
	58	2204.29	2.57E+01	13.58	3.74E-03	3.38E-04
	59	2361.19	9.32E+00	7.75	3.56E-03	3.38E-04
	60	2459.68	6.61E+00	7.50	3.45E-03	3.38E-04
	61	2615.07	1.24E+02	25.30	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 : 8/15/2017 12:41:05PM

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.
M	1	74.72	4.36E+02	95.85			4.36E+02	9.59E+01
m	2	77.20	6.61E+02	102.13			6.61E+02	1.02E+02
M	3	87.34	3.12E+02	119.14			3.12E+02	1.19E+02

Analysis Report for 1707082-18

HTC-A01-S006-2430-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	4	92.71	5.06E+02	110.31	1.35E+02	2.05E+01	3.71E+02	1.12E+02
	5	144.31	8.72E+01	84.71	1.15E+01	3.83E+00	7.56E+01	8.48E+01
	6	185.68	2.32E+02	82.34	4.68E+01	7.65E+00	1.86E+02	8.27E+01
	7	209.36	1.20E+02	73.29			1.20E+02	7.33E+01
	8	215.46	4.08E+01	47.87			4.08E+01	4.79E+01
	9	221.36	8.30E+01	53.41			8.30E+01	5.34E+01
M	10	238.57	8.92E+02	74.97	2.06E+01	6.26E+00	8.71E+02	7.52E+01
m	11	241.84	2.48E+02	85.86			2.48E+02	8.59E+01
	12	257.07	7.66E+01	54.17			7.66E+01	5.42E+01
	13	270.10	5.57E+01	61.61			5.57E+01	6.16E+01
	14	277.82	5.55E+01	54.88			5.55E+01	5.49E+01
	15	295.15	2.69E+02	59.39			2.69E+02	5.94E+01
	16	300.17	5.93E+01	44.92			5.93E+01	4.49E+01
	17	328.19	3.32E+01	38.87			3.32E+01	3.89E+01
	18	338.41	1.51E+02	60.17			1.51E+02	6.02E+01
	19	351.97	4.78E+02	69.52	3.12E+00	4.40E+00	4.75E+02	6.97E+01
	20	377.37	5.62E+01	43.13			5.62E+01	4.31E+01
	21	390.20	4.20E+01	38.69			4.20E+01	3.87E+01
	22	463.01	4.41E+01	39.32			4.41E+01	3.93E+01
M	23	510.80	2.10E+02	44.18	7.85E+01	5.73E+00	1.32E+02	4.46E+01
m	24	515.69	2.30E+01	38.83			2.30E+01	3.88E+01
	25	552.15	3.10E+01	37.51			3.10E+01	3.75E+01
	26	561.45	3.28E+01	32.68			3.28E+01	3.27E+01
	27	583.48	3.04E+02	50.94			3.04E+02	5.09E+01
	28	609.52	4.21E+02	64.65	6.00E+00	4.13E+00	4.15E+02	6.48E+01
	29	662.02	9.85E+01	43.09			9.85E+01	4.31E+01
	30	727.84	5.53E+01	37.12			5.53E+01	3.71E+01
	31	746.61	6.28E+01	49.86			6.28E+01	4.99E+01
M	32	782.77	3.60E+01	27.20			3.60E+01	2.72E+01
m	33	785.48	2.00E+01	27.06			2.00E+01	2.71E+01
	34	795.15	6.58E+01	39.50			6.58E+01	3.95E+01
	35	860.51	6.25E+01	36.37	3.72E-01	2.26E+00	6.21E+01	3.64E+01
	36	882.32	3.00E+01	23.07			3.00E+01	2.31E+01
	37	911.51	1.87E+02	48.14	5.15E+00	3.10E+00	1.82E+02	4.82E+01
	38	935.96	4.00E+01	28.62			4.00E+01	2.86E+01
M	39	965.18	2.86E+01	21.24			2.86E+01	2.12E+01
m	40	969.33	9.08E+01	31.35	0.00E+00	0.00E+00	9.08E+01	3.14E+01
	41	1046.44	1.82E+01	23.07			1.82E+01	2.31E+01
	42	1120.48	8.65E+01	42.77			8.65E+01	4.28E+01
M	43	1374.93	1.33E+01	10.74			1.33E+01	1.07E+01
m	44	1378.71	2.65E+01	13.60			2.65E+01	1.36E+01
	45	1445.65	1.59E+01	20.83			1.59E+01	2.08E+01
	46	1461.38	9.92E+02	67.84	4.04E+00	2.32E+00	9.88E+02	6.79E+01
	47	1496.73	9.76E+00	12.53			9.76E+00	1.25E+01
	48	1527.76	1.30E+01	13.00			1.30E+01	1.30E+01
	49	1665.98	9.70E+00	9.84			9.70E+00	9.84E+00
	50	1708.61	1.18E+01	10.68			1.18E+01	1.07E+01
	51	1764.89	6.63E+01	19.52			6.63E+01	1.95E+01
	52	1792.95	6.00E+00	4.90			6.00E+00	4.90E+00
	53	1806.87	6.00E+00	8.49			6.00E+00	8.49E+00
	54	1937.44	7.69E+00	10.62			7.69E+00	1.06E+01
	55	2092.91	6.00E+00	4.90			6.00E+00	4.90E+00
	56	2102.81	1.51E+01	15.06			1.51E+01	1.51E+01
	57	2127.87	9.79E+00	8.00			9.79E+00	8.00E+00

Analysis Report for 1707082-18

HTC-A01-S006-2430-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
58	2204.29	2.57E+01	13.58			2.57E+01	1.36E+01
59	2361.19	9.32E+00	7.75			9.32E+00	7.75E+00
60	2459.68	6.61E+00	7.50			6.61E+00	7.50E+00
61	2615.07	1.24E+02	25.30	6.52E+00	1.61E+00	1.18E+02	2.53E+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 : 8/15/2017 12:41:05PM

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.
M	1	74.72	4.36E+02	95.85			4.36E+02	9.59E+01
m	2	77.20	6.61E+02	102.13			6.61E+02	1.02E+02
M	3	87.34	3.12E+02	119.14			3.12E+02	1.19E+02
m	4	92.71	5.06E+02	110.31	1.35E+02	2.05E+01	3.71E+02	1.12E+02
	5	144.31	8.72E+01	84.71	1.15E+01	3.83E+00	7.56E+01	8.48E+01
	6	185.68	2.32E+02	82.34	4.68E+01	7.65E+00	1.86E+02	8.27E+01
	7	209.36	1.20E+02	73.29			1.20E+02	7.33E+01
	8	215.46	4.08E+01	47.87			4.08E+01	4.79E+01
	9	221.36	8.30E+01	53.41			8.30E+01	5.34E+01
M	10	238.57	8.92E+02	74.97	2.06E+01	6.26E+00	8.71E+02	7.52E+01
m	11	241.84	2.48E+02	85.86			2.48E+02	8.59E+01
	12	257.07	7.66E+01	54.17			7.66E+01	5.42E+01
	13	270.10	5.57E+01	61.61			5.57E+01	6.16E+01
	14	277.82	5.55E+01	54.88			5.55E+01	5.49E+01
	15	295.15	2.69E+02	59.39			2.69E+02	5.94E+01
	16	300.17	5.93E+01	44.92			5.93E+01	4.49E+01
	17	328.19	3.32E+01	38.87			3.32E+01	3.89E+01
	18	338.41	1.51E+02	60.17			1.51E+02	6.02E+01
	19	351.97	4.78E+02	69.52	3.12E+00	4.40E+00	4.75E+02	6.97E+01
	20	377.37	5.62E+01	43.13			5.62E+01	4.31E+01
	21	390.20	4.20E+01	38.69			4.20E+01	3.87E+01
	22	463.01	4.41E+01	39.32			4.41E+01	3.93E+01
M	23	510.80	2.10E+02	44.18	7.85E+01	5.73E+00	1.32E+02	4.46E+01
m	24	515.69	2.30E+01	38.83			2.30E+01	3.88E+01

Analysis Report for 1707082-18

HTC-A01-S006-2430-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	25	552.15	3.10E+01	37.51			3.10E+01	3.75E+01
	26	561.45	3.28E+01	32.68			3.28E+01	3.27E+01
	27	583.48	3.04E+02	50.94			3.04E+02	5.09E+01
	28	609.52	4.21E+02	64.65	6.00E+00	4.13E+00	4.15E+02	6.48E+01
	29	662.02	9.85E+01	43.09			9.85E+01	4.31E+01
	30	727.84	5.53E+01	37.12			5.53E+01	3.71E+01
	31	746.61	6.28E+01	49.86			6.28E+01	4.99E+01
M	32	782.77	3.60E+01	27.20			3.60E+01	2.72E+01
m	33	785.48	2.00E+01	27.06			2.00E+01	2.71E+01
	34	795.15	6.58E+01	39.50			6.58E+01	3.95E+01
	35	860.51	6.25E+01	36.37	3.72E-01	2.26E+00	6.21E+01	3.64E+01
	36	882.32	3.00E+01	23.07			3.00E+01	2.31E+01
	37	911.51	1.87E+02	48.14	5.15E+00	3.10E+00	1.82E+02	4.82E+01
	38	935.96	4.00E+01	28.62			4.00E+01	2.86E+01
M	39	965.18	2.86E+01	21.24			2.86E+01	2.12E+01
m	40	969.33	9.08E+01	31.35	0.00E+00	0.00E+00	9.08E+01	3.14E+01
	41	1046.44	1.82E+01	23.07			1.82E+01	2.31E+01
	42	1120.48	8.65E+01	42.77			8.65E+01	4.28E+01
M	43	1374.93	1.33E+01	10.74			1.33E+01	1.07E+01
m	44	1378.71	2.65E+01	13.60			2.65E+01	1.36E+01
	45	1445.65	1.59E+01	20.83			1.59E+01	2.08E+01
	46	1461.38	9.92E+02	67.84	4.04E+00	2.32E+00	9.88E+02	6.79E+01
	47	1496.73	9.76E+00	12.53			9.76E+00	1.25E+01
	48	1527.76	1.30E+01	13.00			1.30E+01	1.30E+01
	49	1665.98	9.70E+00	9.84			9.70E+00	9.84E+00
	50	1708.61	1.18E+01	10.68			1.18E+01	1.07E+01
	51	1764.89	6.63E+01	19.52			6.63E+01	1.95E+01
	52	1792.95	6.00E+00	4.90			6.00E+00	4.90E+00
	53	1806.87	6.00E+00	8.49			6.00E+00	8.49E+00
	54	1937.44	7.69E+00	10.62			7.69E+00	1.06E+01
	55	2092.91	6.00E+00	4.90			6.00E+00	4.90E+00
	56	2102.81	1.51E+01	15.06			1.51E+01	1.51E+01
	57	2127.87	9.79E+00	8.00			9.79E+00	8.00E+00
	58	2204.29	2.57E+01	13.58			2.57E+01	1.36E+01
	59	2361.19	9.32E+00	7.75			9.32E+00	7.75E+00
	60	2459.68	6.61E+00	7.50			6.61E+00	7.50E+00
	61	2615.07	1.24E+02	25.30	6.52E+00	1.61E+00	1.18E+02	2.53E+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 1707082-18

HTC-A01-S006-2430-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.949	1460.81	*	10.67	2.01E+01	2.24E+00
CD-109	0.926	88.03	*	3.72	3.83E+00	1.52E+00
SN-126	0.991	87.57	*	37.00	3.34E-01	1.31E-01
CS-137	0.979	661.65	*	85.12	1.40E-01	6.31E-02
TL-208	0.978	583.14	*	30.22	1.10E+00	2.16E-01
		860.37	*	4.48	2.04E+00	1.21E+00
		2614.66	*	35.85	1.08E+00	2.57E-01
BI-212	0.707	727.17	*	11.80	6.07E-01	4.12E-01
		1620.62		2.75		
PB-212	0.999	238.63	*	44.60	1.13E+00	1.33E-01
		300.09	*	3.41	1.16E+00	8.87E-01
BI-214	0.990	609.31	*	46.30	1.01E+00	1.90E-01
		1120.29	*	15.10	1.03E+00	5.15E-01
		1764.49	*	15.80	1.04E+00	3.19E-01
		2204.22	*	4.98	1.50E+00	8.06E-01
PB-214	0.999	295.21	*	19.19	9.28E-01	2.19E-01
		351.92	*	37.19	9.56E-01	1.62E-01
RA-224	0.889	240.98	*	3.95	3.65E+00	1.30E+00
RA-226	0.956	186.21	*	3.28	2.83E+00	5.34E+00
AC-228	0.982	338.32	*	11.40	9.62E-01	3.92E-01
		911.07	*	27.70	1.01E+00	2.80E-01
		969.11	*	16.60	8.79E-01	3.13E-01
NP-237	0.894	86.50	*	12.60	9.82E-01	3.86E-01
AM-243	1.000	74.67	*	66.00	2.61E-01	6.18E-02
CM-243	0.368	209.75	*	3.29	1.96E+00	1.21E+00
		228.14		10.60		
		277.60	*	14.00	2.53E-01	2.52E-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 12:41:05PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Analysis Report for 1707082-18

HTC-A01-S006-2430-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	2	77.20	1.83740E-01	7.72		
m	4	92.71	1.03066E-01	15.12		
	5	144.31	2.10058E-02	56.07	Tol.	U-235
	8	215.46	1.13225E-02	58.72		
	9	221.36	2.30430E-02	32.19		
	12	257.07	2.12770E-02	35.36	Tol.	TH-227
	13	270.10	1.54796E-02	55.28		
	17	328.19	9.21643E-03	58.57	Sum	
	20	377.37	1.56174E-02	38.35		
	21	390.20	1.16539E-02	46.12		
	22	463.01	1.22617E-02	44.53	Sum	
M	23	510.80	3.65701E-02	16.92		
m	24	515.69	6.38597E-03	84.46	Sum	
	25	552.15	8.62403E-03	60.41	Tol.	RB-83
	26	561.45	9.10035E-03	49.88	Sum	
	31	746.61	1.74469E-02	39.69	Tol.	PM-146
M	32	782.77	1.00023E-02	37.77		
m	33	785.48	5.56155E-03	67.57		
	34	795.15	1.82766E-02	30.01	Sum	
	36	882.32	8.34188E-03	38.40		
	38	935.96	1.11224E-02	35.74	Sum	
M	39	965.18	7.95228E-03	37.09		
	41	1046.44	5.06579E-03	63.24	Sum	
M	43	1374.93	3.69464E-03	40.36		
m	44	1378.71	7.35235E-03	25.69		
	45	1445.65	4.40476E-03	65.69		
	47	1496.73	2.71199E-03	64.17		
	48	1527.76	3.62374E-03	49.83		
	49	1665.98	2.69444E-03	50.70		
	50	1708.61	3.28125E-03	45.19		
	52	1792.95	1.66667E-03	40.82		
	53	1806.87	1.66667E-03	70.71		
	54	1937.44	2.13675E-03	69.02		
	55	2092.91	1.66667E-03	40.82		
	56	2102.81	4.19444E-03	49.86	Sum	
	57	2127.87	2.71991E-03	40.85		
	59	2361.19	2.58838E-03	41.56		
	60	2459.68	1.83642E-03	56.72		

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

Analysis Report for 1707082-18

HTC-A01-S006-2430-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.94	1460.81	*	10.67	2.01E+01	2.24E+00
CD-109	0.92	88.03	*	3.72	3.83E+00	1.52E+00
SN-126	0.99	87.57	*	37.00	3.34E-01	1.31E-01
CS-137	0.97	661.65	*	85.12	1.40E-01	6.31E-02
TL-208	0.97	583.14	*	30.22	1.10E+00	2.16E-01
		860.37	*	4.48	2.04E+00	1.21E+00
		2614.66	*	35.85	1.08E+00	2.57E-01
BI-212	0.70	727.17	*	11.80	6.07E-01	4.12E-01
		1620.62		2.75		
PB-212	0.99	238.63	*	44.60	1.13E+00	1.33E-01
		300.09	*	3.41	1.16E+00	8.87E-01
BI-214	0.99	609.31	*	46.30	1.01E+00	1.90E-01
		1120.29	*	15.10	1.03E+00	5.15E-01
		1764.49	*	15.80	1.04E+00	3.19E-01
		2204.22	*	4.98	1.50E+00	8.06E-01
PB-214	0.99	295.21	*	19.19	9.28E-01	2.19E-01
		351.92	*	37.19	9.56E-01	1.62E-01
RA-224	0.88	240.98	*	3.95	3.65E+00	1.30E+00
RA-226	0.95	186.21	*	3.28	2.83E+00	5.34E+00
AC-228	0.98	338.32	*	11.40	9.62E-01	3.92E-01
		911.07	*	27.70	1.01E+00	2.80E-01
		969.11	*	16.60	8.79E-01	3.13E-01
NP-237	0.89	86.50	*	12.60	9.82E-01	3.86E-01
AM-243	1.00	74.67	*	66.00	2.61E-01	6.18E-02
CM-243	0.36	209.75	*	3.29	1.96E+00	1.21E+00
		228.14		10.60		
		277.60	*	14.00	2.53E-01	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

Analysis Report for 1707082-18

HTC-A01-S006-2430-01

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.949	2.01E+01	2.24E+00	
?	CD-109	0.926	3.83E+00	1.52E+00	
?	SN-126	0.991	3.34E-01	1.31E-01	
	CS-137	0.979	1.40E-01	6.31E-02	
	TL-208	0.978	1.11E+00	1.64E-01	
	BI-212	0.707	6.07E-01	4.12E-01	
	PB-212	0.999	1.13E+00	1.32E-01	
	BI-214	0.990	1.04E+00	1.53E-01	
	PB-214	0.999	9.46E-01	1.30E-01	
	RA-224	0.889	3.65E+00	1.30E+00	
	RA-226	0.956	2.83E+00	5.34E+00	
	AC-228	0.982	9.52E-01	1.84E-01	
?	NP-237	0.894	9.82E-01	3.86E-01	
	AM-243	1.000	2.61E-01	6.18E-02	
	CM-243	0.368	3.25E-01	2.46E-01	

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

Errors quoted at 2.000sigma

Analysis Report for 1707082-18

HTC-A01-S006-2430-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 12:41:05PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	2	77.20	1.83740E-01	7.72		
m	4	92.71	1.03066E-01	15.12		
	5	144.31	2.10058E-02	56.07	Tol.	U-235
	8	215.46	1.13225E-02	58.72		
	9	221.36	2.30430E-02	32.19		
	12	257.07	2.12770E-02	35.36	Tol.	TH-227
	13	270.10	1.54796E-02	55.28		
	17	328.19	9.21643E-03	58.57	Sum	
	20	377.37	1.56174E-02	38.35		
	21	390.20	1.16539E-02	46.12		
	22	463.01	1.22617E-02	44.53	Sum	
M	23	510.80	3.65701E-02	16.92		
m	24	515.69	6.38597E-03	84.46	Sum	
	25	552.15	8.62403E-03	60.41	Tol.	RB-83
	26	561.45	9.10035E-03	49.88	Sum	
	31	746.61	1.74469E-02	39.69	Tol.	PM-146
M	32	782.77	1.00023E-02	37.77		
m	33	785.48	5.56155E-03	67.57		
	34	795.15	1.82766E-02	30.01	Sum	
	36	882.32	8.34188E-03	38.40		
	38	935.96	1.11224E-02	35.74	Sum	
M	39	965.18	7.95228E-03	37.09		
	41	1046.44	5.06579E-03	63.24	Sum	
M	43	1374.93	3.69464E-03	40.36		
m	44	1378.71	7.35235E-03	25.69		
	45	1445.65	4.40476E-03	65.69		
	47	1496.73	2.71199E-03	64.17		
	48	1527.76	3.62374E-03	49.83		
	49	1665.98	2.69444E-03	50.70		
	50	1708.61	3.28125E-03	45.19		
	52	1792.95	1.66667E-03	40.82		
	53	1806.87	1.66667E-03	70.71		
	54	1937.44	2.13675E-03	69.02		
	55	2092.91	1.66667E-03	40.82		
	56	2102.81	4.19444E-03	49.86	Sum	

Analysis Report for 1707082-18

HTC-A01-S006-2430-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
57	2127.87	2.71991E-03	40.85		
59	2361.19	2.58838E-03	41.56		
60	2459.68	1.83642E-03	56.72		

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	-7.79E-01	1.61E+00	1.61E+00
+	NA-22	1274.54		99.94	1.42E-02	7.37E-02	7.37E-02
+	@ NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@	2754.09		99.86	1.00E+26		1.00E+26
+	AL-26	1808.65		99.76	-5.07E-03	4.02E-02	4.02E-02
+	K-40	1460.81	*	10.67	2.01E+01	9.13E-01	9.13E-01
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-1.32E-02	5.30E-02	5.30E-02
		78.34		96.00	1.46E-01		6.99E-02
+	SC-46	889.25		99.98	-9.69E-03	1.09E-01	1.09E-01
		1120.51		99.99	2.43E-01		2.25E-01
+	V-48	983.52		99.98	-1.42E+00	3.37E+00	3.58E+00
		1312.10		97.50	-1.20E+00		3.37E+00
+	CR-51	320.08		9.83	-2.73E+00	5.26E+00	5.26E+00
+	MN-54	834.83		99.97	2.21E-02	7.12E-02	7.12E-02
+	CO-56	846.75		99.96	1.53E-02	1.32E-01	1.32E-01
		1037.75		14.03	3.70E-01		1.04E+00
		1238.25		67.00	1.79E-01		3.15E-01
		1771.40		15.51	-2.12E-01		4.42E-01
		2598.48		16.90	-1.83E-01		5.33E-01
+	CO-57	122.06		85.51	-1.88E-04	6.16E-02	6.16E-02
		136.48		10.60	1.30E-02		5.03E-01
+	CO-58	810.76		99.40	-7.60E-02	1.33E-01	1.33E-01
+	FE-59	1099.22		56.50	-1.55E-01	5.07E-01	5.07E-01
		1291.56		43.20	-9.94E-03		7.21E-01
+	CO-60	1173.22		100.00	-1.58E-02	5.16E-02	7.07E-02

Analysis Report for 1707082-18

HTC-A01-S006-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CO-60	1332.49		100.00	1.00E-03	5.16E-02	5.16E-02
+	ZN-65	1115.52		50.75	-1.24E-02	1.99E-01	1.99E-01
+	GA-67	93.31		35.70	1.86E+08	7.98E+07	7.98E+07
		208.95		2.24	1.23E+09		1.10E+09
		300.22		16.00	-3.38E+08		1.61E+08
+	SE-75	121.11		16.70	-2.04E-01	1.22E-01	4.14E-01
		136.00		59.20	3.14E-03		1.22E-01
		264.65		59.80	6.24E-02		1.42E-01
		279.53		25.20	3.45E-02		3.68E-01
		400.65		11.40	-3.16E-01		7.56E-01
+	RB-82	776.52		13.00	1.74E+00	5.54E+00	5.54E+00
+	RB-83	520.41		46.00	4.12E-03	2.33E-01	2.33E-01
		529.64		30.30	1.16E-01		3.79E-01
		552.65		16.40	3.96E-01		6.83E-01
+	KR-85	513.99		0.43	1.86E+01	1.77E+01	1.77E+01
+	SR-85	513.99		99.27	2.19E-01	2.09E-01	2.09E-01
+	Y-88	898.02		93.40	-8.79E-02	8.94E-02	1.07E-01
		1836.01		99.38	2.18E-02		8.94E-02
+	MO-93	263.06		56.72	1.11E-02	3.91E-02	8.67E-02
		684.67		99.68	-1.21E-02		5.51E-02
		1477.11		99.08	-5.05E-03		3.91E-02
+	NB-93M	16.57		9.43	-2.68E-01	4.30E-01	4.30E-01
+	NB-94	702.63		100.00	9.47E-03	5.47E-02	5.77E-02
		871.10		100.00	-7.31E-03		5.47E-02
+	NB-95	765.79		99.81	3.13E-01	4.64E-01	4.64E-01
+	NB-95M	235.69		25.00	-1.10E+08	1.59E+07	1.59E+07
+	ZR-95	724.18		43.70	7.35E-02	2.67E-01	4.21E-01
		756.72		55.30	-3.71E-03		2.67E-01
+	MO-99	181.06		6.20	-1.16E+09	8.50E+09	1.38E+10
		739.58		12.80	5.64E+08		8.50E+09
		778.00		4.50	-2.17E+09		2.19E+10
+	RU-103	497.08		89.00	-6.15E-02	2.95E-01	2.95E-01
+	RU-106	621.84		9.80	-1.23E-01	6.58E-01	6.58E-01
+	AG-108M	433.93		89.90	-1.68E-02	5.40E-02	5.40E-02
		614.37		90.40	-8.42E-03		7.37E-02
		722.95		90.50	1.93E-02		6.74E-02
+	CD-109	88.03	*	3.72	3.83E+00	3.37E+00	3.37E+00
+	AG-110M	657.75		93.14	1.50E-02	8.96E-02	8.96E-02
		677.61		10.53	2.69E-01		7.22E-01
		706.67		16.46	-6.94E-02		4.50E-01
		763.93		21.98	-1.80E-01		3.76E-01
		884.67		71.63	2.74E-02		1.05E-01
		1384.27		23.94	1.42E-01		2.94E-01
+	CD-113M	263.70		0.02	2.74E+01	2.16E+02	2.16E+02
+	SN-113	255.12		1.93	1.86E+00	1.37E-01	4.04E+00
		391.69		64.90	5.02E-02		1.37E-01
+	TE123M	159.00		84.10	-7.07E-03	8.64E-02	8.64E-02
+	SB-124	602.71		97.87	4.42E-03	1.71E-01	1.71E-01

Analysis Report for 1707082-18

HTC-A01-S006-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-124	645.85		7.26	5.29E-02	1.71E-01	2.27E+00
		722.78		11.10	4.64E-01		1.62E+00
		1691.02		49.00	-1.17E-01		2.84E-01
+	I-125	35.49		6.49	2.11E-01	2.17E+00	2.17E+00
+	SB-125	176.33		6.89	-1.29E-01	1.80E-01	6.32E-01
		427.89		29.33	8.21E-03		1.80E-01
		463.38		10.35	2.92E-01		6.07E-01
		600.56		17.80	1.43E-01		3.46E-01
		635.90		11.32	-5.91E-02		4.87E-01
+	SB-126	414.70		83.30	4.03E+00	1.15E+01	1.20E+01
		666.33		99.60	-5.56E-01		1.21E+01
		695.00		99.60	3.16E+00		1.15E+01
		720.50		53.80	9.15E+00		2.13E+01
+	SN-126	87.57	*	37.00	3.34E-01	2.94E-01	2.94E-01
+	SB-127	473.00		25.00	1.88E+06	3.54E+06	4.91E+06
		685.20		35.70	-7.73E+05		3.54E+06
		783.80		14.70	8.59E+06		9.80E+06
+	I-129	29.78		57.00	-2.63E-02	8.66E-02	8.66E-02
		33.60		13.20	5.80E-03		3.68E-01
		39.58		7.52	-1.46E-01		5.80E-01
+	I-131	284.30		6.05	-1.01E+02	1.96E+02	2.65E+03
		364.48		81.20	1.09E+01		1.96E+02
		636.97		7.26	-6.79E+02		2.35E+03
		722.89		1.80	3.27E+03		1.14E+04
+	TE-132	49.72		13.10	-1.67E+08	2.44E+07	1.66E+08
		228.16		88.00	-1.73E+06		2.44E+07
+	BA-133	81.00		33.00	-4.94E-01	1.15E-01	1.52E-01
		302.84		17.80	2.13E-02		2.89E-01
		356.01		60.00	3.20E-02		1.15E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-1.08E+05	3.33E+04	3.33E+04
+	CS-134	563.23		8.38	1.69E-01	6.97E-02	6.87E-01
		569.32		15.43	1.72E-01		3.85E-01
		604.70		97.60	8.22E-04		6.97E-02
		795.84		85.40	5.90E-02		8.63E-02
		801.93		8.73	-1.93E-01		7.15E-01
+	CS-135	268.24		16.00	1.39E-01	3.29E-01	3.29E-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	-1.10E+01	8.28E+00	8.02E+01
		163.89		4.61	-1.66E+01		1.30E+02
		176.55		13.56	-8.78E+00		4.31E+01
		273.65		12.66	-1.03E+02		5.74E+01
		340.57		48.50	-1.74E+00		1.97E+01
		818.50		99.70	3.93E+00		8.28E+00
		1048.07		79.60	-1.02E+00		1.11E+01
		1235.34		19.70	3.18E+01		6.51E+01
+	CS-137	661.65	*	85.12	1.40E-01	9.33E-02	9.33E-02

Analysis Report for 1707082-18

HTC-A01-S006-2430-01

		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		LA-138	788.74	34.00	-2.81E-02	6.74E-02	1.64E-01
			1435.80	66.00	7.80E-03		6.74E-02
+		CE-139	165.85	80.35	3.23E-02	8.36E-02	8.36E-02
+		BA-140	162.64	6.70	2.33E+01	3.43E+01	1.04E+02
			304.84	4.50	9.47E+00		1.67E+02
			423.70	3.20	8.87E+01		2.57E+02
			437.55	2.00	4.37E+01		4.10E+02
			537.32	25.00	9.22E+00		3.43E+01
+		LA-140	328.77	20.50	-4.02E+00	8.54E+00	4.42E+01
			487.03	45.50	1.00E-01		1.74E+01
			815.85	23.50	9.36E+00		4.05E+01
			1596.49	95.49	-6.51E-01		8.54E+00
+		CE-141	145.44	48.40	4.54E-01	6.85E-01	6.85E-01
+	@	CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26
	@		293.26	42.00	1.00E+26		1.00E+26
	@		664.55	5.20	1.00E+26		1.00E+26
+		CE-144	133.54	10.80	-4.92E-02	4.96E-01	4.96E-01
+		PM-144	476.78	42.00	-3.22E-02	6.71E-02	1.42E-01
			618.01	98.60	1.69E-02		7.17E-02
			696.49	99.49	-3.38E-02		6.71E-02
+		PM-145	36.85	21.70	-3.68E-02	1.20E-01	2.17E-01
			37.36	39.70	9.13E-02		1.20E-01
			42.30	15.10	-2.69E-01		2.81E-01
			72.40	2.31	-4.00E+00		2.59E+00
+		PM-146	453.90	39.94	-4.03E-02	1.31E-01	1.31E-01
			735.90	14.01	1.06E-01		3.58E-01
			747.13	13.10	-2.65E-01		4.25E-01
+		ND-147	91.11	28.90	1.70E+02	8.03E+01	8.03E+01
			531.02	13.10	1.09E+02		1.63E+02
+		PM-149	285.90	3.10	3.87E+12	1.03E+13	1.03E+13
+		EU-152	121.78	20.50	-9.79E-02	1.98E-01	1.98E-01
			244.69	5.40	-1.76E-01		9.26E-01
			344.27	19.13	-4.91E-02		2.67E-01
			778.89	9.20	-7.51E-02		5.82E-01
			964.01	10.40	-8.82E-03		7.38E-01
			1085.78	7.22	-3.17E-02		8.58E-01
			1112.02	9.60	-3.03E-01		7.45E-01
			1407.95	14.94	2.35E-02		3.73E-01
+		GD-153	97.43	31.30	2.11E-02	1.75E-01	1.75E-01
			103.18	22.20	9.99E-02		2.56E-01
+		EU-154	123.07	40.50	-2.77E-02	1.03E-01	1.03E-01
			723.30	19.70	9.03E-02		3.16E-01
			873.19	11.50	1.79E-01		4.99E-01
			996.32	10.30	-5.30E-01		6.10E-01
			1004.76	17.90	2.10E-02		3.95E-01
			1274.45	35.50	3.80E-02		1.98E-01
+		EU-155	86.50	30.90	6.74E-02	1.83E-01	1.83E-01
			105.30	20.70	6.32E-02		2.17E-01
+		EU-156	811.77	10.40	-2.25E+01	3.74E+01	3.74E+01

Analysis Report for 1707082-18

HTC-A01-S006-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-156	1153.47		7.20	7.87E+00	3.74E+01	7.53E+01
		1230.71		8.90	-1.58E+01		6.39E+01
+	HO-166M	184.41		72.60	1.71E-01	7.65E-02	7.65E-02
		280.45		29.60	-1.10E-02		1.78E-01
		410.94		11.10	-1.26E-01		4.78E-01
		711.69		54.10	-1.87E-02		1.04E-01
+	TM-171	66.72		0.14	-7.68E+01	3.90E+01	3.90E+01
+	HF-172	67.35		5.31	-2.58E-01	4.11E-01	1.04E+00
		125.81		11.30	-2.61E-01		4.11E-01
+	LU-172	181.53		20.60	-2.93E+02	2.01E+03	3.47E+03
		900.72		29.81	-1.21E+02		3.44E+03
		1093.66		62.50	1.07E+03		2.01E+03
+	LU-173	100.72		5.24	1.07E-01	2.84E-01	9.04E-01
		272.11		21.20	-1.67E-01		2.84E-01
+	HF-175	343.40		84.00	-2.80E-02	1.51E-01	1.51E-01
+	LU-176	88.34		13.30	-2.55E-01	4.82E-02	4.22E-01
		201.83		86.00	-7.32E-03		4.92E-02
		306.78		94.00	6.85E-03		4.82E-02
+	HF-181	133.02		41.70	-4.72E-02	2.85E-01	4.76E-01
		345.85		17.20	3.55E-01		1.38E+00
		482.03		82.80	1.87E-01		2.85E-01
+	TA-182	67.75		41.20	-5.34E-02	2.14E-01	2.14E-01
		1121.30		34.90	6.09E-01		5.19E-01
		1189.05		16.23	-2.27E-01		7.53E-01
		1221.41		26.98	-2.28E-02		5.07E-01
		1231.02		11.44	-2.94E-01		1.19E+00
+	IR-192	308.46		29.68	-4.32E-02	2.63E-01	3.79E-01
		468.07		48.10	1.22E-02		2.63E-01
+	HG-203	279.19		77.30	2.64E-02	2.82E-01	2.82E-01
+	TL-204	374.74		94.11	4.34E-03	5.46E-02	5.46E-02
		899.15		99.16	-3.79E-02		5.98E-02
		911.74		91.10	3.45E-01		1.36E-01
+	BI-207	569.67		97.72	1.01E-02	5.56E-02	5.56E-02
		1063.62		74.90	2.81E-02		9.43E-02
+	TL-208	583.14	*	30.22	1.10E+00	2.23E-01	2.31E-01
		860.37	*	4.48	2.04E+00		1.86E+00
		2614.66	*	35.85	1.08E+00		2.23E-01
+	BI-210M	262.00		45.00	5.19E-03	1.10E-01	1.10E-01
		300.00		23.00	-6.92E-01		2.41E-01
+	PB-210	46.50		4.25	1.15E+00	1.10E+00	1.10E+00
+	PB-211	404.84		2.90	-4.71E-01	1.75E+00	1.75E+00
		831.96		2.90	-8.35E-01		1.85E+00
+	BI-212	727.17	*	11.80	6.07E-01	6.43E-01	6.43E-01
		1620.62		2.75	2.55E-01		1.81E+00
+	PB-212	238.63	*	44.60	1.13E+00	2.06E-01	2.06E-01
		300.09	*	3.41	1.16E+00		1.42E+00
+	BI-214	609.31	*	46.30	1.01E+00	2.09E-01	2.09E-01
		1120.29	*	15.10	1.03E+00		7.83E-01

Analysis Report for 1707082-18

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	BI-214	1764.49	*	15.80	1.04E+00	2.09E-01	3.21E-01
		2204.22	*	4.98	1.50E+00		1.03E+00
+	PB-214	295.21	*	19.19	9.28E-01	1.85E-01	2.90E-01
		351.92	*	37.19	9.56E-01		1.85E-01
+	RN-219	401.80		6.50	-5.27E-01	7.54E-01	7.54E-01
+	RA-223	323.87		3.88	-1.72E-01	1.35E+00	1.35E+00
+	RA-224	240.98	*	3.95	3.65E+00	2.37E+00	2.37E+00
+	RA-225	40.00		31.00	-4.62E+00	1.15E+01	1.15E+01
+	RA-226	186.21	*	3.28	2.83E+00	2.00E+00	2.00E+00
+	TH-227	50.10		8.40	-4.28E-01	4.80E-01	5.00E-01
		236.00		11.50	-3.31E+00		4.80E-01
		256.20		6.30	4.22E-01		8.15E-01
+	AC-228	338.32	*	11.40	9.62E-01	3.80E-01	5.94E-01
		911.07	*	27.70	1.01E+00		3.80E-01
		969.11	*	16.60	8.79E-01		6.57E-01
+	TH-230	48.44		16.90	1.25E-01	2.69E-01	2.69E-01
		62.85		4.60	1.43E+00		1.18E+00
		67.67		0.37	-3.36E+00		1.35E+01
+	PA-231	283.67		1.60	-1.34E+00	2.20E+00	2.94E+00
		302.67		2.30	1.62E-01		2.20E+00
+	TH-231	25.64		14.70	-2.73E+00	4.20E-01	4.20E-01
		84.21		6.40	-3.66E-01		8.04E-01
+	PA-233	311.98		38.60	8.58E-01	1.45E+00	1.45E+00
+	PA-234	131.20		20.40	5.73E-03	2.13E-01	2.13E-01
		733.99		8.80	2.51E-01		5.64E-01
		946.00		12.00	-2.32E-01		4.77E-01
+	PA-234M	1001.03		0.92	4.39E+00	7.65E+00	7.65E+00
+	TH-234	63.29		3.80	1.82E+00	1.45E+00	1.45E+00
+	U-235	143.76		10.50	1.91E-01	4.20E-01	4.20E-01
		163.35		4.70	-1.14E-01		8.88E-01
		205.31		4.70	-7.12E-02		8.60E-01
+	NP-237	86.50	*	12.60	9.82E-01	8.64E-01	8.64E-01
+	NP-239	106.10		22.70	4.27E+10	2.11E+11	2.11E+11
		228.18		10.70	-3.11E+10		4.39E+11
		277.60		14.10	2.69E+11		4.22E+11
+	AM-241	59.54		35.90	-1.35E-01	1.31E-01	1.31E-01
+	AM-243	74.67	*	66.00	2.61E-01	1.53E-01	1.53E-01
+	CM-243	209.75	*	3.29	1.96E+00	4.02E-01	1.92E+00
		228.14		10.60	-2.85E-02		4.02E-01
		277.60	*	14.00	2.53E-01		4.09E-01

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

Analysis Report for 1707082-18

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NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	1.61E+00	1.61E+00	-7.79E-01	7.62E-01
	NA-22	1274.54		99.94	7.37E-02	7.37E-02	1.42E-02	3.40E-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	4.02E-02	4.02E-02	-5.07E-03	1.67E-02
+	K-40	1460.81	*	10.67	9.13E-01	9.13E-01	2.01E+01	4.29E-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	5.30E-02	5.30E-02	-1.32E-02	2.59E-02
		78.34		96.00	6.99E-02		1.46E-01	3.44E-02
	SC-46	889.25		99.98	1.09E-01	1.09E-01	-9.69E-03	5.01E-02
		1120.51		99.99	2.25E-01		2.43E-01	1.07E-01
	V-48	983.52		99.98	3.58E+00	3.37E+00	-1.42E+00	1.66E+00
		1312.10		97.50	3.37E+00		-1.20E+00	1.52E+00
	CR-51	320.08		9.83	5.26E+00	5.26E+00	-2.73E+00	2.53E+00
	MN-54	834.83		99.97	7.12E-02	7.12E-02	2.21E-02	3.32E-02
	CO-56	846.75		99.96	1.32E-01	1.32E-01	1.53E-02	6.15E-02
		1037.75		14.03	1.04E+00		3.70E-01	4.81E-01
		1238.25		67.00	3.15E-01		1.79E-01	1.49E-01
		1771.40		15.51	4.42E-01		-2.12E-01	1.71E-01
		2598.48		16.90	5.33E-01		-1.83E-01	2.07E-01
	CO-57	122.06		85.51	6.16E-02	6.16E-02	-1.88E-04	2.99E-02
		136.48		10.60	5.03E-01		1.30E-02	2.45E-01
	CO-58	810.76		99.40	1.33E-01	1.33E-01	-7.60E-02	6.19E-02
	FE-59	1099.22		56.50	5.07E-01	5.07E-01	-1.55E-01	2.35E-01
		1291.56		43.20	7.21E-01		-9.94E-03	3.34E-01
	CO-60	1173.22		100.00	7.07E-02	5.16E-02	-1.58E-02	3.28E-02
		1332.49		100.00	5.16E-02		1.00E-03	2.29E-02
	ZN-65	1115.52		50.75	1.99E-01	1.99E-01	-1.24E-02	9.32E-02
	GA-67	93.31		35.70	7.98E+07	7.98E+07	1.86E+08	3.91E+07
		208.95		2.24	1.10E+09		1.23E+09	5.32E+08
		300.22		16.00	1.61E+08		-3.38E+08	7.78E+07
	SE-75	121.11		16.70	4.14E-01	1.22E-01	-2.04E-01	2.01E-01
		136.00		59.20	1.22E-01		3.14E-03	5.93E-02
		264.65		59.80	1.42E-01		6.24E-02	6.86E-02
		279.53		25.20	3.68E-01		3.45E-02	1.78E-01
		400.65		11.40	7.56E-01		-3.16E-01	3.61E-01
	RB-82	776.52		13.00	5.54E+00	5.54E+00	1.74E+00	2.59E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	RB-83	520.41		46.00	2.33E-01	2.33E-01	4.12E-03	1.10E-01
		529.64		30.30	3.79E-01		1.16E-01	1.80E-01
		552.65		16.40	6.83E-01		3.96E-01	3.23E-01
	KR-85	513.99		0.43	1.77E+01	1.77E+01	1.86E+01	8.56E+00
	SR-85	513.99		99.27	2.09E-01	2.09E-01	2.19E-01	1.01E-01
	Y-88	898.02		93.40	1.07E-01	8.94E-02	-8.79E-02	4.93E-02
		1836.01		99.38	8.94E-02		2.18E-02	3.83E-02
	MO-93	263.06		56.72	8.67E-02	3.91E-02	1.11E-02	4.18E-02
		684.67		99.68	5.51E-02		-1.21E-02	2.59E-02
		1477.11		99.08	3.91E-02		-5.05E-03	1.65E-02
	NB-93M	16.57		9.43	4.30E-01	4.30E-01	-2.68E-01	2.00E-01
	NB-94	702.63		100.00	5.77E-02	5.47E-02	9.47E-03	2.72E-02
		871.10		100.00	5.47E-02		-7.31E-03	2.54E-02
	NB-95	765.79		99.81	4.64E-01	4.64E-01	3.13E-01	2.20E-01
	NB-95M	235.69		25.00	1.59E+07	1.59E+07	-1.10E+08	7.72E+06
	ZR-95	724.18		43.70	4.21E-01	2.67E-01	7.35E-02	2.00E-01
		756.72		55.30	2.67E-01		-3.71E-03	1.24E-01
	MO-99	181.06		6.20	1.38E+10	8.50E+09	-1.16E+09	6.67E+09
		739.58		12.80	8.50E+09		5.64E+08	3.97E+09
		778.00		4.50	2.19E+10		-2.17E+09	1.01E+10
	RU-103	497.08		89.00	2.95E-01	2.95E-01	-6.15E-02	1.40E-01
	RU-106	621.84		9.80	6.58E-01	6.58E-01	-1.23E-01	3.10E-01
	AG-108M	433.93		89.90	5.40E-02	5.40E-02	-1.68E-02	2.57E-02
		614.37		90.40	7.37E-02		-8.42E-03	3.51E-02
		722.95		90.50	6.74E-02		1.93E-02	3.18E-02
+	CD-109	88.03	*	3.72	3.37E+00	3.37E+00	3.83E+00	1.67E+00
	AG-110M	657.75		93.14	8.96E-02	8.96E-02	1.50E-02	4.25E-02
		677.61		10.53	7.22E-01		2.69E-01	3.41E-01
		706.67		16.46	4.50E-01		-6.94E-02	2.12E-01
		763.93		21.98	3.76E-01		-1.80E-01	1.77E-01
		884.67		71.63	1.05E-01		2.74E-02	4.86E-02
		1384.27		23.94	2.94E-01		1.42E-01	1.32E-01
	CD-113M	263.70		0.02	2.16E+02	2.16E+02	2.74E+01	1.05E+02
	SN-113	255.12		1.93	4.04E+00	1.37E-01	1.86E+00	1.95E+00
		391.69		64.90	1.37E-01		5.02E-02	6.54E-02
	TE123M	159.00		84.10	8.64E-02	8.64E-02	-7.07E-03	4.19E-02
	SB-124	602.71		97.87	1.71E-01	1.71E-01	4.42E-03	8.07E-02
		645.85		7.26	2.27E+00		5.29E-02	1.07E+00
		722.78		11.10	1.62E+00		4.64E-01	7.66E-01
		1691.02		49.00	2.84E-01		-1.17E-01	1.22E-01
	I-125	35.49		6.49	2.17E+00	2.17E+00	2.11E-01	1.05E+00
	SB-125	176.33		6.89	6.32E-01	1.80E-01	-1.29E-01	3.06E-01
		427.89		29.33	1.80E-01		8.21E-03	8.58E-02
		463.38		10.35	6.07E-01		2.92E-01	2.91E-01
		600.56		17.80	3.46E-01		1.43E-01	1.64E-01
		635.90		11.32	4.87E-01		-5.91E-02	2.29E-01
	SB-126	414.70		83.30	1.20E+01	1.15E+01	4.03E+00	5.72E+00
		666.33		99.60	1.21E+01		-5.56E-01	5.72E+00
		695.00		99.60	1.15E+01		3.16E+00	5.40E+00
		720.50		53.80	2.13E+01		9.15E+00	1.00E+01
+	SN-126	87.57	*	37.00	2.94E-01	2.94E-01	3.34E-01	1.46E-01
	SB-127	473.00		25.00	4.91E+06	3.54E+06	1.88E+06	2.34E+06
		685.20		35.70	3.54E+06		-7.73E+05	1.66E+06

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	SB-127	783.80		14.70	9.80E+06	3.54E+06	8.59E+06	4.61E+06
	I-129	29.78		57.00	8.66E-02	8.66E-02	-2.63E-02	4.19E-02
		33.60		13.20	3.68E-01		5.80E-03	1.78E-01
		39.58		7.52	5.80E-01		-1.46E-01	2.82E-01
	I-131	284.30		6.05	2.65E+03	1.96E+02	-1.01E+02	1.27E+03
		364.48		81.20	1.96E+02		1.09E+01	9.35E+01
		636.97		7.26	2.35E+03		-6.79E+02	1.10E+03
		722.89		1.80	1.14E+04		3.27E+03	5.38E+03
	TE-132	49.72		13.10	1.66E+08	2.44E+07	-1.67E+08	8.08E+07
		228.16		88.00	2.44E+07		-1.73E+06	1.18E+07
	BA-133	81.00		33.00	1.52E-01	1.15E-01	-4.94E-01	7.42E-02
		302.84		17.80	2.89E-01		2.13E-02	1.39E-01
		356.01		60.00	1.15E-01		3.20E-02	5.57E-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	3.33E+04	3.33E+04	-1.08E+05	1.63E+04
	CS-134	563.23		8.38	6.87E-01	6.97E-02	1.69E-01	3.25E-01
		569.32		15.43	3.85E-01		1.72E-01	1.82E-01
		604.70		97.60	6.97E-02		8.22E-04	3.31E-02
		795.84		85.40	8.63E-02		5.90E-02	4.07E-02
		801.93		8.73	7.15E-01		-1.93E-01	3.34E-01
	CS-135	268.24		16.00	3.29E-01	3.29E-01	1.39E-01	1.59E-01
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	8.02E+01	8.28E+00	-1.10E+01	3.89E+01
		163.89		4.61	1.30E+02		-1.66E+01	6.29E+01
		176.55		13.56	4.31E+01		-8.78E+00	2.08E+01
		273.65		12.66	5.74E+01		-1.03E+02	2.77E+01
		340.57		48.50	1.97E+01		-1.74E+00	9.55E+00
		818.50		99.70	8.28E+00		3.93E+00	3.87E+00
		1048.07		79.60	1.11E+01		-1.02E+00	5.14E+00
		1235.34		19.70	6.51E+01		3.18E+01	3.07E+01
+	CS-137	661.65	*	85.12	9.33E-02	9.33E-02	1.40E-01	4.47E-02
	LA-138	788.74		34.00	1.64E-01	6.74E-02	-2.81E-02	7.65E-02
		1435.80		66.00	6.74E-02		7.80E-03	2.93E-02
	CE-139	165.85		80.35	8.36E-02	8.36E-02	3.23E-02	4.05E-02
	BA-140	162.64		6.70	1.04E+02	3.43E+01	2.33E+01	5.07E+01
		304.84		4.50	1.67E+02		9.47E+00	8.02E+01
		423.70		3.20	2.57E+02		8.87E+01	1.23E+02
		437.55		2.00	4.10E+02		4.37E+01	1.95E+02
		537.32		25.00	3.43E+01		9.22E+00	1.62E+01
	LA-140	328.77		20.50	4.42E+01	8.54E+00	-4.02E+00	2.13E+01
		487.03		45.50	1.74E+01		1.00E-01	8.23E+00
		815.85		23.50	4.05E+01		9.36E+00	1.89E+01
		1596.49		95.49	8.54E+00		-6.51E-01	3.73E+00
	CE-141	145.44		48.40	6.85E-01	6.85E-01	4.54E-01	3.33E-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	4.96E-01	4.96E-01	-4.92E-02	2.41E-01
	PM-144	476.78		42.00	1.42E-01	6.71E-02	-3.22E-02	6.71E-02
		618.01		98.60	7.17E-02		1.69E-02	3.40E-02
		696.49		99.49	6.71E-02		-3.38E-02	3.15E-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
PM-145	36.85	21.70	2.17E-01	1.20E-01	-3.68E-02	1.05E-01
	37.36	39.70	1.20E-01		9.13E-02	5.84E-02
	42.30	15.10	2.81E-01		-2.69E-01	1.36E-01
	72.40	2.31	2.59E+00		-4.00E+00	1.27E+00
PM-146	453.90	39.94	1.31E-01	1.31E-01	-4.03E-02	6.26E-02
	735.90	14.01	3.58E-01		1.06E-01	1.66E-01
	747.13	13.10	4.25E-01		-2.65E-01	1.98E-01
ND-147	91.11	28.90	8.03E+01	8.03E+01	1.70E+02	3.94E+01
	531.02	13.10	1.63E+02		1.09E+02	7.73E+01
PM-149	285.90	3.10	1.03E+13	1.03E+13	3.87E+12	4.98E+12
EU-152	121.78	20.50	1.98E-01	1.98E-01	-9.79E-02	9.64E-02
	244.69	5.40	9.26E-01		-1.76E-01	4.48E-01
	344.27	19.13	2.67E-01		-4.91E-02	1.28E-01
	778.89	9.20	5.82E-01		-7.51E-02	2.70E-01
	964.01	10.40	7.38E-01		-8.82E-03	3.48E-01
	1085.78	7.22	8.58E-01		-3.17E-02	3.96E-01
	1112.02	9.60	7.45E-01		-3.03E-01	3.47E-01
	1407.95	14.94	3.73E-01		2.35E-02	1.67E-01
GD-153	97.43	31.30	1.75E-01	1.75E-01	2.11E-02	8.55E-02
	103.18	22.20	2.56E-01		9.99E-02	1.25E-01
EU-154	123.07	40.50	1.03E-01	1.03E-01	-2.77E-02	4.99E-02
	723.30	19.70	3.16E-01		9.03E-02	1.49E-01
	873.19	11.50	4.99E-01		1.79E-01	2.32E-01
	996.32	10.30	6.10E-01		-5.30E-01	2.83E-01
	1004.76	17.90	3.95E-01		2.10E-02	1.85E-01
	1274.45	35.50	1.98E-01		3.80E-02	9.12E-02
EU-155	86.50	30.90	1.83E-01	1.83E-01	6.74E-02	8.96E-02
	105.30	20.70	2.17E-01		6.32E-02	1.06E-01
EU-156	811.77	10.40	3.74E+01	3.74E+01	-2.25E+01	1.73E+01
	1153.47	7.20	7.53E+01		7.87E+00	3.51E+01
	1230.71	8.90	6.39E+01		-1.58E+01	2.98E+01
HO-166M	184.41	72.60	7.65E-02	7.65E-02	1.71E-01	3.73E-02
	280.45	29.60	1.78E-01		-1.10E-02	8.63E-02
	410.94	11.10	4.78E-01		-1.26E-01	2.29E-01
	711.69	54.10	1.04E-01		-1.87E-02	4.89E-02
TM-171	66.72	0.14	3.90E+01	3.90E+01	-7.68E+01	1.91E+01
HF-172	67.35	5.31	1.04E+00	4.11E-01	-2.58E-01	5.06E-01
	125.81	11.30	4.11E-01		-2.61E-01	2.00E-01
LU-172	181.53	20.60	3.47E+03	2.01E+03	-2.93E+02	1.68E+03
	900.72	29.81	3.44E+03		-1.21E+02	1.60E+03
	1093.66	62.50	2.01E+03		1.07E+03	9.39E+02
LU-173	100.72	5.24	9.04E-01	2.84E-01	1.07E-01	4.40E-01
	272.11	21.20	2.84E-01		-1.67E-01	1.38E-01
HF-175	343.40	84.00	1.51E-01	1.51E-01	-2.80E-02	7.26E-02
LU-176	88.34	13.30	4.22E-01	4.82E-02	-2.55E-01	2.07E-01
	201.83	86.00	4.92E-02		-7.32E-03	2.38E-02
	306.78	94.00	4.82E-02		6.85E-03	2.31E-02
HF-181	133.02	41.70	4.76E-01	2.85E-01	-4.72E-02	2.31E-01
	345.85	17.20	1.38E+00		3.55E-01	6.63E-01
	482.03	82.80	2.85E-01		1.87E-01	1.35E-01
TA-182	67.75	41.20	2.14E-01	2.14E-01	-5.34E-02	1.05E-01
	1121.30	34.90	5.19E-01		6.09E-01	2.47E-01
	1189.05	16.23	7.53E-01		-2.27E-01	3.49E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TA-182	1221.41		26.98	5.07E-01	2.14E-01	-2.28E-02	2.37E-01
		1231.02		11.44	1.19E+00		-2.94E-01	5.57E-01
	IR-192	308.46		29.68	3.79E-01	2.63E-01	-4.32E-02	1.82E-01
		468.07		48.10	2.63E-01		1.22E-02	1.25E-01
	HG-203	279.19		77.30	2.82E-01	2.82E-01	2.64E-02	1.37E-01
	TL-204	374.74		94.11	5.46E-02	5.46E-02	4.34E-03	2.61E-02
		899.15		99.16	5.98E-02		-3.79E-02	2.77E-02
		911.74		91.10	1.36E-01		3.45E-01	6.58E-02
	BI-207	569.67		97.72	5.56E-02	5.56E-02	1.01E-02	2.63E-02
		1063.62		74.90	9.43E-02		2.81E-02	4.40E-02
+	TL-208	583.14	*	30.22	2.31E-01	2.23E-01	1.10E+00	1.10E-01
		860.37	*	4.48	1.86E+00		2.04E+00	8.86E-01
		2614.66	*	35.85	2.23E-01		1.08E+00	9.91E-02
	BI-210M	262.00		45.00	1.10E-01	1.10E-01	5.19E-03	5.31E-02
		300.00		23.00	2.41E-01		-6.92E-01	1.17E-01
	PB-210	46.50		4.25	1.10E+00	1.10E+00	1.15E+00	5.34E-01
	PB-211	404.84		2.90	1.75E+00	1.75E+00	-4.71E-01	8.38E-01
		831.96		2.90	1.85E+00		-8.35E-01	8.60E-01
+	BI-212	727.17	*	11.80	6.43E-01	6.43E-01	6.07E-01	3.07E-01
		1620.62		2.75	1.81E+00		2.55E-01	7.92E-01
+	PB-212	238.63	*	44.60	2.06E-01	2.06E-01	1.13E+00	1.01E-01
		300.09	*	3.41	1.42E+00		1.16E+00	6.81E-01
+	BI-214	609.31	*	46.30	2.09E-01	2.09E-01	1.01E+00	1.01E-01
		1120.29	*	15.10	7.83E-01		1.03E+00	3.76E-01
		1764.49	*	15.80	3.21E-01		1.04E+00	1.39E-01
		2204.22	*	4.98	1.03E+00		1.50E+00	4.35E-01
+	PB-214	295.21	*	19.19	2.90E-01	1.85E-01	9.28E-01	1.40E-01
		351.92	*	37.19	1.85E-01		9.56E-01	8.99E-02
	RN-219	401.80		6.50	7.54E-01	7.54E-01	-5.27E-01	3.60E-01
	RA-223	323.87		3.88	1.35E+00	1.35E+00	-1.72E-01	6.48E-01
+	RA-224	240.98	*	3.95	2.37E+00	2.37E+00	3.65E+00	1.16E+00
	RA-225	40.00		31.00	1.15E+01	1.15E+01	-4.62E+00	5.60E+00
+	RA-226	186.21	*	3.28	2.00E+00	2.00E+00	2.83E+00	9.80E-01
	TH-227	50.10		8.40	5.00E-01	4.80E-01	-4.28E-01	2.43E-01
		236.00		11.50	4.80E-01		-3.31E+00	2.33E-01
		256.20		6.30	8.15E-01		4.22E-01	3.94E-01
+	AC-228	338.32	*	11.40	5.94E-01	3.80E-01	9.62E-01	2.88E-01
		911.07	*	27.70	3.80E-01		1.01E+00	1.82E-01
		969.11	*	16.60	6.57E-01		8.79E-01	3.15E-01
	TH-230	48.44		16.90	2.69E-01	2.69E-01	1.25E-01	1.31E-01
		62.85		4.60	1.18E+00		1.43E+00	5.80E-01
		67.67		0.37	1.35E+01		-3.36E+00	6.60E+00
	PA-231	283.67		1.60	2.94E+00	2.20E+00	-1.34E+00	1.41E+00
		302.67		2.30	2.20E+00		1.62E-01	1.06E+00
	TH-231	25.64		14.70	4.20E-01	4.20E-01	-2.73E+00	2.04E-01
		84.21		6.40	8.04E-01		-3.66E-01	3.94E-01
	PA-233	311.98		38.60	1.45E+00	1.45E+00	8.58E-01	6.96E-01
	PA-234	131.20		20.40	2.13E-01	2.13E-01	5.73E-03	1.04E-01
		733.99		8.80	5.64E-01		2.51E-01	2.62E-01
		946.00		12.00	4.77E-01		-2.32E-01	2.21E-01
	PA-234M	1001.03		0.92	7.65E+00	7.65E+00	4.39E+00	3.58E+00
	TH-234	63.29		3.80	1.45E+00	1.45E+00	1.82E+00	7.08E-01
	U-235	143.76		10.50	4.20E-01	4.20E-01	1.91E-01	2.04E-01

Analysis Report for 1707082-18

HTC-A01-S006-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	U-235	163.35		4.70	8.88E-01	4.20E-01	-1.14E-01	4.31E-01
		205.31		4.70	8.60E-01		-7.12E-02	4.15E-01
+	NP-237	86.50	*	12.60	8.64E-01	8.64E-01	9.82E-01	4.28E-01
	NP-239	106.10		22.70	2.11E+11	2.11E+11	4.27E+10	1.03E+11
		228.18		10.70	4.39E+11		-3.11E+10	2.12E+11
		277.60		14.10	4.22E+11		2.69E+11	2.04E+11
	AM-241	59.54		35.90	1.31E-01	1.31E-01	-1.35E-01	6.40E-02
+	AM-243	74.67	*	66.00	1.53E-01	1.53E-01	2.61E-01	7.58E-02
+	CM-243	209.75	*	3.29	1.92E+00	4.02E-01	1.96E+00	9.39E-01
		228.14		10.60	4.02E-01		-2.85E-02	1.94E-01
		277.60	*	14.00	4.09E-01		2.53E-01	1.98E-01

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

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-S006-2430-01

Elapsed Live time: 3600
Elapsed Real Time: 3601

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	2	61	85	78	180	498	138
25:	52	82	64	58	60	69	57	76
33:	73	70	71	80	85	74	75	87
41:	62	67	73	84	76	92	132	106
49:	76	68	101	84	91	97	76	108
57:	108	108	107	115	125	131	165	259
65:	129	140	134	144	138	136	155	152
73:	156	170	359	347	368	489	148	139
81:	136	143	102	165	154	145	182	226
89:	131	161	187	163	283	237	114	110
97:	82	87	94	105	76	101	89	98
105:	91	124	93	94	90	96	93	88
113:	100	74	68	99	85	92	90	74
121:	90	69	86	77	98	76	95	84
129:	117	109	78	83	93	82	74	88
137:	79	83	77	79	70	80	74	113
145:	84	77	83	73	63	78	68	62
153:	63	83	81	75	78	76	67	69
161:	76	69	74	67	68	64	68	71
169:	49	58	63	61	69	77	72	59
177:	53	65	54	54	63	63	63	65
185:	97	182	138	62	49	69	56	46
193:	78	45	58	69	58	67	72	62
201:	62	60	51	47	54	51	55	45
209:	101	99	69	56	51	48	64	64
217:	58	42	49	53	64	59	76	32
225:	46	52	44	46	48	52	54	52
233:	49	54	51	60	40	200	581	229
241:	87	151	99	71	46	49	42	42
249:	38	35	30	35	41	33	40	47
257:	58	54	51	31	32	46	42	38
265:	42	37	39	32	45	64	55	40
273:	39	39	34	37	37	80	50	35
281:	36	36	33	25	33	31	34	40
289:	38	26	22	32	30	36	152	159
297:	58	26	47	54	50	31	32	16
305:	33	26	29	26	33	26	25	34
313:	29	38	39	29	20	28	32	25
321:	34	25	45	31	41	29	30	52
329:	47	34	24	39	37	40	37	19
337:	30	83	118	51	23	26	35	27
345:	32	27	27	26	28	26	75	285
353:	186	32	28	16	31	28	30	22
361:	20	26	32	23	20	18	18	22

369:	24	22	21	26	18	14	24	25

Sample Title: HTC-A01-S006-2430-01

Channel								
377:	27	32	28	27	16	20	20	27
385:	30	24	19	15	31	31	24	20
393:	23	19	16	20	24	25	29	26
401:	16	17	20	23	18	39	19	23
409:	29	28	21	22	22	25	28	22
417:	20	18	18	14	22	17	19	22
425:	23	18	21	18	19	18	21	18
433:	19	24	15	18	14	21	24	22
441:	20	18	13	19	21	22	23	16
449:	19	21	17	20	20	24	20	19
457:	13	26	19	15	19	19	50	30
465:	20	16	21	19	27	21	11	16
473:	24	27	17	18	13	8	20	14
481:	25	10	21	13	16	8	18	19
489:	11	20	12	17	12	19	10	19
497:	18	12	21	12	19	20	19	13
505:	14	8	16	12	33	53	94	60
513:	23	13	23	15	23	13	23	17
521:	11	13	11	16	14	11	12	19
529:	13	14	25	13	21	20	12	15
537:	12	18	16	13	11	10	11	8
545:	13	13	11	13	12	10	20	21
553:	17	12	12	12	8	11	9	16
561:	21	14	18	13	9	11	15	14
569:	8	19	24	16	9	17	16	19
577:	14	12	9	7	11	49	147	95
585:	26	18	21	20	11	12	15	8
593:	11	7	13	9	15	20	17	21
601:	12	16	13	12	15	16	12	45
609:	193	169	42	19	19	19	16	11
617:	18	20	16	10	20	9	13	8
625:	15	8	14	11	9	18	14	11
633:	16	5	14	19	11	4	11	12
641:	12	12	12	15	9	12	17	14
649:	12	10	17	16	16	14	16	13
657:	16	9	12	18	36	63	29	17
665:	16	11	14	13	9	11	14	15
673:	15	10	8	14	12	19	11	16
681:	14	6	13	12	10	17	11	9
689:	12	9	11	18	11	10	11	12
697:	14	15	8	16	14	9	8	11
705:	14	14	8	14	10	12	19	13
713:	13	9	4	13	14	10	9	13
721:	12	16	13	11	10	17	31	30
729:	15	15	5	8	8	11	8	7
737:	11	5	5	8	10	15	12	10
745:	7	9	14	11	9	7	13	13
753:	9	12	6	9	13	6	10	8
761:	9	10	17	10	15	16	15	26
769:	20	14	14	9	20	9	13	5
777:	9	5	7	6	4	24	10	14
785:	8	16	7	4	8	8	14	9
793:	8	12	23	18	11	15	11	10

801:	5	12	10	9	11	12	13	10

Sample Title: HTC-A01-S006-2430-01

Channel								
809:	8	5	8	9	9	7	10	10
817:	12	10	9	7	9	2	10	12
825:	7	9	11	11	8	9	6	11
833:	9	5	8	13	7	12	7	8
841:	4	4	9	12	11	7	9	10
849:	6	8	11	8	6	8	7	11
857:	9	8	13	21	24	12	16	5
865:	7	7	11	7	6	11	10	4
873:	12	4	6	10	9	3	4	8
881:	11	11	12	11	4	4	6	8
889:	7	5	8	5	8	10	7	7
897:	6	11	7	6	6	12	14	13
905:	9	11	8	12	13	42	91	68
913:	17	13	8	8	11	8	8	8
921:	9	9	9	8	11	2	12	10
929:	9	8	4	6	10	12	15	10
937:	11	10	3	5	2	8	7	10
945:	7	9	3	7	9	18	9	8
953:	9	6	7	7	4	6	11	11
961:	13	10	6	18	23	10	12	25
969:	52	28	10	5	13	9	5	1
977:	11	9	10	12	7	6	10	5
985:	6	8	10	10	3	3	10	8
993:	8	12	8	9	4	8	7	12
1001:	18	13	8	8	7	8	9	8
1009:	12	8	9	5	3	1	6	5
1017:	12	7	9	11	9	11	8	9
1025:	4	7	14	5	5	6	10	8
1033:	8	13	7	11	2	13	5	5
1041:	6	4	4	6	10	8	13	5
1049:	5	6	5	9	10	11	6	15
1057:	6	4	10	12	8	7	8	11
1065:	8	13	6	11	4	6	12	7
1073:	4	9	6	3	8	6	7	8
1081:	9	5	8	9	4	11	8	3
1089:	6	6	6	12	9	15	12	10
1097:	10	8	7	4	6	11	8	6
1105:	7	8	10	9	8	6	7	13
1113:	10	7	12	13	12	9	24	43
1121:	27	12	13	9	11	6	10	6
1129:	4	5	9	8	10	10	4	8
1137:	9	4	10	9	10	6	7	10
1145:	6	4	10	9	10	10	5	10
1153:	10	7	13	10	9	7	13	16
1161:	5	9	4	11	11	7	7	10
1169:	6	8	7	13	5	6	8	7
1177:	10	9	5	7	12	10	14	8
1185:	10	5	13	14	4	1	9	8
1193:	6	13	7	12	6	9	7	8
1201:	4	16	5	4	10	11	10	11
1209:	6	7	10	12	4	7	7	8
1217:	8	4	13	5	16	13	11	4
1225:	14	8	13	9	7	9	8	12

1233:	7	11	10	9	12	28	15	6

Sample Title: HTC-A01-S006-2430-01

Channel								
1241:	14	8	12	11	6	13	16	7
1249:	5	8	7	9	6	4	9	4
1257:	6	10	6	6	5	9	4	8
1265:	7	6	6	6	6	4	9	7
1273:	7	5	8	5	7	4	9	4
1281:	10	8	5	7	6	9	6	7
1289:	8	7	8	7	4	11	4	11
1297:	7	6	5	3	9	7	5	5
1305:	6	7	2	4	4	5	5	2
1313:	5	3	7	5	7	5	8	6
1321:	3	5	6	3	2	4	5	3
1329:	2	7	1	4	3	4	1	2
1337:	3	3	3	4	4	9	4	2
1345:	5	5	2	4	4	5	7	4
1353:	4	3	2	5	5	6	6	2
1361:	3	4	2	6	3	5	5	3
1369:	3	5	0	2	3	7	3	6
1377:	8	13	1	4	2	0	3	3
1385:	7	5	5	3	3	6	4	0
1393:	1	0	5	2	1	4	3	2
1401:	3	7	3	3	1	3	7	7
1409:	2	2	2	2	3	5	2	6
1417:	4	0	4	3	3	1	3	2
1425:	1	4	2	2	1	1	2	3
1433:	1	4	2	0	3	2	3	1
1441:	4	3	6	4	5	2	1	1
1449:	2	2	2	2	0	2	3	5
1457:	6	17	94	381	340	110	20	22
1465:	17	5	6	2	1	5	1	2
1473:	2	1	1	0	2	0	4	1
1481:	3	4	3	4	2	0	2	0
1489:	3	4	1	6	3	3	5	6
1497:	2	0	0	3	3	0	2	2
1505:	1	1	3	9	2	5	2	3
1513:	4	3	2	3	1	2	2	1
1521:	3	0	2	1	4	3	5	4
1529:	3	0	1	2	1	1	1	1
1537:	1	2	2	2	0	1	1	1
1545:	5	0	1	0	2	2	1	4
1553:	0	0	2	2	1	1	2	4
1561:	0	2	1	1	2	4	0	2
1569:	3	2	0	4	2	1	0	3
1577:	3	0	0	5	4	0	4	4
1585:	1	2	4	8	3	1	2	7
1593:	4	4	1	1	3	1	2	1
1601:	2	2	0	4	2	1	2	1
1609:	3	0	2	4	0	2	1	1
1617:	1	1	5	2	5	1	1	2
1625:	3	2	3	1	2	6	1	1
1633:	2	2	0	1	1	2	5	2
1641:	2	1	0	3	1	0	2	0
1649:	2	0	2	2	0	2	0	0
1657:	2	2	0	3	0	2	3	1

1665:	3	6	0	0	0	0	0	1

Sample Title: HTC-A01-S006-2430-01

Channel								
1673:	0	2	0	0	2	1	2	1
1681:	0	3	0	1	1	5	1	2
1689:	5	1	2	1	1	4	2	1
1697:	2	2	1	1	0	2	0	1
1705:	2	4	2	3	2	1	1	0
1713:	0	0	1	1	0	3	2	1
1721:	2	4	3	1	2	1	1	2
1729:	7	6	2	0	3	0	3	1
1737:	1	3	0	2	0	1	0	2
1745:	1	1	1	1	0	0	2	0
1753:	1	1	1	1	1	1	0	2
1761:	1	5	17	33	11	6	0	3
1769:	0	1	0	0	0	2	1	1
1777:	1	2	1	2	1	1	1	0
1785:	3	1	1	0	0	0	3	1
1793:	2	0	0	0	2	1	1	2
1801:	0	1	2	0	0	3	2	2
1809:	0	1	0	2	1	1	2	2
1817:	1	0	0	2	0	1	3	3
1825:	1	3	2	0	2	1	0	2
1833:	2	0	2	2	3	1	1	2
1841:	1	2	0	1	1	4	3	3
1849:	1	1	2	3	0	1	0	1
1857:	0	0	0	0	2	2	0	2
1865:	0	0	2	0	1	2	2	1
1873:	2	2	1	2	2	1	1	1
1881:	2	1	0	3	2	0	3	0
1889:	3	1	3	1	5	0	2	0
1897:	2	1	2	2	2	1	2	3
1905:	3	0	3	0	0	2	0	0
1913:	1	3	0	3	1	0	0	0
1921:	0	1	1	0	1	1	1	2
1929:	1	1	2	1	2	0	4	1
1937:	3	1	1	0	0	1	0	1
1945:	2	0	0	1	2	1	2	0
1953:	1	1	1	0	1	1	0	1
1961:	0	2	1	2	0	3	1	0
1969:	1	0	0	3	0	0	0	2
1977:	4	1	2	1	1	1	0	0
1985:	0	0	1	0	2	0	0	1
1993:	0	0	2	2	1	2	0	0
2001:	0	1	3	2	0	2	2	1
2009:	2	2	0	1	3	2	1	2
2017:	3	1	2	1	2	1	1	1
2025:	2	0	3	2	1	1	1	0
2033:	1	1	0	1	1	0	0	2
2041:	0	0	0	0	1	1	4	1
2049:	1	3	2	1	0	1	1	1
2057:	2	0	2	1	1	4	1	2
2065:	1	0	0	3	0	2	0	0
2073:	0	0	0	1	1	1	1	0
2081:	2	1	1	1	1	1	0	0
2089:	0	1	1	4	0	0	0	0

2097:	1	1	0	4	5	3	1	5

Sample Title: HTC-A01-S006-2430-01

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

2529:	0	0	0	0	0	1	0	0

Sample Title: HTC-A01-S006-2430-01

Channel								
2537:	1	0	0	0	2	0	1	1
2545:	2	0	0	0	2	1	1	0
2553:	0	0	0	0	0	0	1	2
2561:	1	0	0	0	2	1	0	0
2569:	0	1	1	0	0	1	1	1
2577:	0	1	1	0	1	1	0	1
2585:	0	0	0	0	0	0	1	0
2593:	2	1	0	0	0	0	1	0
2601:	0	1	1	1	0	0	1	1
2609:	1	1	9	24	48	27	12	5
2617:	2	2	0	1	0	0	0	0
2625:	0	0	0	0	0	1	0	0
2633:	0	0	0	0	0	0	0	0
2641:	0	0	1	0	0	0	0	1
2649:	0	0	1	0	0	0	0	1
2657:	0	0	0	0	0	0	0	0
2665:	0	1	0	0	0	0	0	0
2673:	1	0	2	0	0	0	1	0
2681:	1	0	0	1	0	1	0	0
2689:	0	0	0	0	0	0	1	0
2697:	0	0	0	0	0	0	1	0
2705:	1	1	0	0	0	1	2	0
2713:	0	1	0	2	0	1	1	0
2721:	0	0	1	0	0	1	1	0
2729:	1	0	0	1	0	0	1	1
2737:	0	0	0	1	1	0	1	0
2745:	0	0	0	1	1	0	0	0
2753:	0	0	0	1	0	0	0	1
2761:	0	0	0	0	0	0	0	0
2769:	0	0	0	0	0	0	0	0
2777:	0	0	0	0	0	0	1	0
2785:	0	0	0	0	0	0	0	0
2793:	1	0	0	0	0	0	0	0
2801:	0	0	0	0	0	0	1	0
2809:	0	0	0	1	0	1	2	0
2817:	0	1	0	0	0	0	0	0
2825:	0	0	0	0	1	0	1	0
2833:	0	2	1	0	1	0	0	0
2841:	0	1	1	1	0	0	0	0
2849:	1	0	0	0	1	0	0	0
2857:	0	0	0	0	0	0	0	0
2865:	0	0	0	0	0	0	0	0
2873:	0	0	1	0	0	0	0	0
2881:	0	1	0	1	0	0	1	0
2889:	0	1	0	0	0	1	1	0
2897:	0	0	0	0	0	0	0	0
2905:	1	0	1	0	0	0	0	0
2913:	0	0	0	0	0	0	1	0
2921:	0	0	0	0	0	1	1	0
2929:	0	0	0	0	0	0	0	0
2937:	0	0	0	1	0	0	0	0
2945:	0	0	1	0	1	0	0	0
2953:	0	0	1	0	0	1	0	0

2961:	1	0	2	1	0	2	0	0

Sample Title: HTC-A01-S006-2430-01

Channel								
2969:	1	0	0	0	0	0	0	0
2977:	0	0	0	0	0	0	0	0
2985:	0	0	0	0	0	0	0	0
2993:	0	0	1	0	1	1	0	0
3001:	0	0	0	0	0	0	2	0
3009:	0	0	0	0	0	0	0	0
3017:	0	0	0	0	0	0	0	1
3025:	0	0	0	0	0	0	0	0
3033:	0	0	0	0	1	0	0	0
3041:	0	0	1	0	0	0	0	0
3049:	0	0	1	0	0	1	0	0
3057:	1	0	0	0	0	0	1	0
3065:	0	2	0	0	0	0	0	0
3073:	0	0	0	0	0	1	0	0
3081:	0	0	0	0	0	0	0	0
3089:	0	0	0	0	0	0	0	0
3097:	1	0	0	0	1	0	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	1	0	0	0
3129:	0	0	1	0	0	0	0	0
3137:	1	1	0	0	0	0	1	0
3145:	0	0	0	0	1	0	1	1
3153:	1	0	0	0	0	0	0	0
3161:	1	0	0	0	0	0	0	0
3169:	0	0	0	0	1	1	0	0
3177:	0	0	0	0	0	0	0	0
3185:	0	0	0	0	0	0	0	0
3193:	1	2	0	0	1	0	0	0
3201:	0	1	0	0	0	0	0	0
3209:	0	0	1	0	1	0	0	0
3217:	0	0	0	0	1	1	0	0
3225:	0	0	0	0	0	0	0	1
3233:	0	0	0	1	0	0	0	1
3241:	0	0	0	0	0	0	3	0
3249:	0	0	0	0	0	2	1	0
3257:	0	0	1	0	0	0	0	0
3265:	0	0	0	0	0	0	0	1
3273:	0	1	2	0	0	2	0	0
3281:	1	0	0	0	0	0	0	2
3289:	1	0	0	0	0	0	0	0
3297:	0	0	0	0	0	1	0	0
3305:	0	0	0	0	0	0	0	0
3313:	2	0	0	1	0	0	0	0
3321:	0	0	0	0	0	0	0	0
3329:	1	0	0	0	0	0	0	0
3337:	0	1	0	0	0	0	0	1
3345:	0	0	0	0	0	0	0	0
3353:	1	0	0	0	0	0	0	0
3361:	0	0	0	1	0	1	0	0
3369:	0	0	0	0	0	0	0	0
3377:	0	0	0	0	0	0	1	0
3385:	0	1	0	1	0	0	0	1

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S006-2430-01

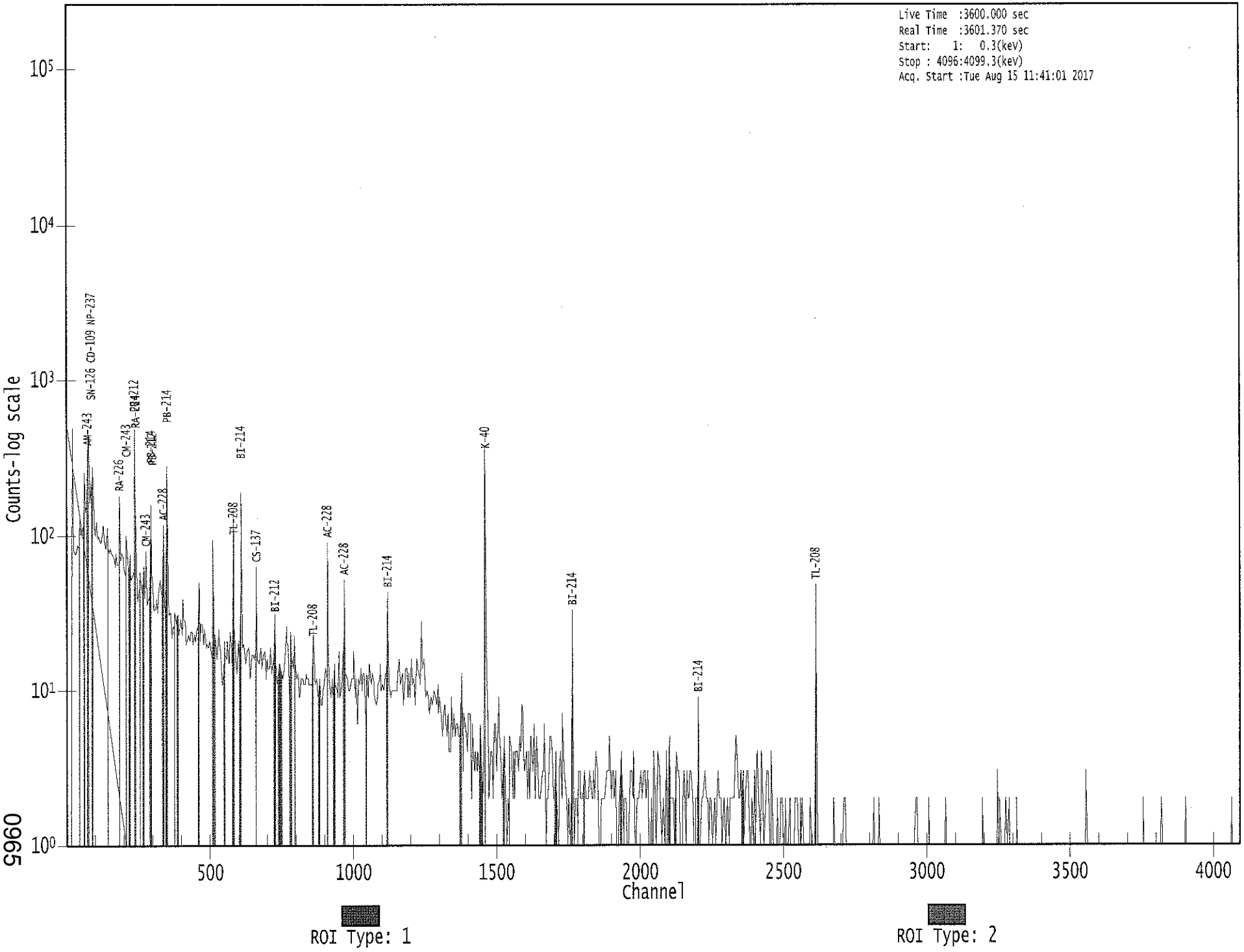
Channel								
3401:	0	0	0	1	0	0	0	1
3409:	0	0	1	1	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	1	0	0	0	0	0	0
3441:	0	1	1	0	0	0	0	0
3449:	0	0	0	0	0	1	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	1	1	0	0	1	1	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	1	1	0	0	0	0
3505:	0	0	1	1	0	0	0	0
3513:	0	0	0	0	0	0	0	0
3521:	1	0	0	0	0	0	1	1
3529:	0	0	0	0	0	0	0	0
3537:	0	0	0	1	0	0	0	0
3545:	0	0	0	1	0	0	0	0
3553:	0	0	3	0	0	0	0	1
3561:	0	0	1	0	0	1	1	0
3569:	0	0	0	0	0	0	0	0
3577:	1	0	0	0	0	0	1	0
3585:	0	0	0	0	0	1	0	0
3593:	0	0	0	0	0	0	0	0
3601:	0	0	0	0	0	1	0	0
3609:	0	0	0	0	0	0	0	0
3617:	0	0	0	0	0	0	0	0
3625:	0	0	0	0	0	0	1	0
3633:	0	0	0	0	0	0	0	1
3641:	0	0	0	1	0	0	0	0
3649:	0	0	0	0	0	0	0	0
3657:	0	1	0	1	1	0	0	0
3665:	0	1	0	0	0	0	0	0
3673:	0	0	1	0	0	0	0	1
3681:	1	1	0	0	0	0	0	0
3689:	0	0	0	0	0	0	0	0
3697:	0	0	0	0	0	1	0	0
3705:	0	1	0	0	0	1	0	1
3713:	0	1	0	0	0	0	0	0
3721:	0	0	0	0	0	0	0	0
3729:	0	0	0	0	0	1	0	0
3737:	0	0	0	0	0	0	0	0
3745:	0	0	0	0	0	0	0	0
3753:	1	0	2	0	0	0	0	0
3761:	0	0	0	0	0	0	0	0
3769:	0	1	1	0	0	0	0	0
3777:	0	0	0	0	0	0	0	0
3785:	0	1	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	1	0	0	0	1	0
3817:	0	1	2	0	0	0	1	0

3825:	0	0	0	0	0	0	0	1

Sample Title: HTC-A01-S006-2430-01

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

0000055257.CNF



9960

Apex-Gamma

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Analysis Report for 1707082-19

HTC-A01-S006-3036-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707082-19
Sample Description	: HTC-A01-S006-3036-01
Sample Type	: SOIL
Sample Size	: 6.457E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 6:38:34AM
Acquisition Started	: 8/15/2017 11:41:10AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3610.1 seconds
Dead Time	: 0.28 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 9 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55258

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/16/17

Analysis Report for 1707082-19

HTC-A01-S006-3036-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/15/2017 12:41:33PM
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	75.15	75.45	0.0000	0.00
2	77.52	77.82	0.0000	0.00
3	87.45	87.75	0.0000	0.00
4	92.62	92.92	0.0000	0.00
5	147.39	147.67	0.0000	0.00
6	186.40	186.67	0.0000	0.00
7	209.37	209.62	0.0000	0.00
8	239.57	239.82	0.0000	0.00
9	277.49	277.72	0.0000	0.00
10	288.05	288.28	0.0000	0.00
11	295.35	295.58	0.0000	0.00
12	300.95	301.17	0.0000	0.00
13	328.42	328.64	0.0000	0.00
14	338.43	338.64	0.0000	0.00
15	352.11	352.32	0.0000	0.00
16	464.97	465.14	0.0000	0.00
17	510.97	511.13	0.0000	0.00
18	583.32	583.45	0.0000	0.00
19	609.50	609.62	0.0000	0.00
20	661.99	662.09	0.0000	0.00
21	666.70	666.80	0.0000	0.00
22	727.90	727.98	0.0000	0.00
23	836.10	836.15	0.0000	0.00
24	862.60	862.63	0.0000	0.00
25	911.12	911.14	0.0000	0.00
26	965.45	965.45	0.0000	0.00
27	968.83	968.83	0.0000	0.00
28	1036.99	1036.97	0.0000	0.00
29	1114.05	1114.00	0.0000	0.00
30	1120.27	1120.22	0.0000	0.00
31	1154.34	1154.28	0.0000	0.00
32	1160.26	1160.19	0.0000	0.00
33	1172.72	1172.66	0.0000	0.00
34	1303.77	1303.66	0.0000	0.00
35	1410.34	1410.19	0.0000	0.00
36	1420.13	1419.97	0.0000	0.00
37	1448.23	1448.07	0.0000	0.00
38	1460.31	1460.14	0.0000	0.00
39	1499.90	1499.72	0.0000	0.00
40	1586.97	1586.76	0.0000	0.00
41	1592.45	1592.24	0.0000	0.00
42	1604.64	1604.43	0.0000	0.00

Analysis Report for 1707082-19

HTC-A01-S006-3036-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1637.26	1637.03	0.0000	0.00
44	1660.27	1660.04	0.0000	0.00
45	1729.52	1729.26	0.0000	0.00
46	1736.26	1736.00	0.0000	0.00
47	1764.12	1763.85	0.0000	0.00
48	1807.64	1807.36	0.0000	0.00
49	1827.43	1827.14	0.0000	0.00
50	2102.19	2101.81	0.0000	0.00
51	2175.49	2175.09	0.0000	0.00
52	2202.83	2202.42	0.0000	0.00
53	2281.84	2281.40	0.0000	0.00
54	2300.48	2300.03	0.0000	0.00
55	2350.34	2349.88	0.0000	0.00
56	2613.48	2612.93	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707082-19

HTC-A01-S006-3036-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 12:41:33PM

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)
M	1	75.15	71 -	82	75.45	4.00E+02	102.65	1.59E+03	2.00
m	2	77.52	71 -	82	77.82	7.17E+02	119.05	1.76E+03	2.31
M	3	87.45	83 -	97	87.75	3.49E+02	116.76	1.91E+03	3.61
m	4	92.62	83 -	97	92.92	2.78E+02	96.69	1.34E+03	2.43
	5	147.39	145 -	150	147.67	5.86E+01	65.84	8.13E+02	2.94
	6	186.40	183 -	190	186.67	1.82E+02	75.60	8.30E+02	1.58
	7	209.37	207 -	212	209.62	4.64E+01	57.38	6.13E+02	1.92
	8	239.57	234 -	245	239.82	9.54E+02	106.02	9.23E+02	2.08
	9	277.49	275 -	281	277.72	5.06E+01	47.53	3.61E+02	1.67
	10	288.05	285 -	291	288.28	3.60E+01	45.22	3.38E+02	2.81
	11	295.35	292 -	298	295.58	2.23E+02	50.09	2.94E+02	2.12
	12	300.95	300 -	304	301.17	3.19E+01	37.28	2.84E+02	1.22
	13	328.42	326 -	331	328.64	4.17E+01	37.97	2.51E+02	3.47
	14	338.43	333 -	342	338.64	1.84E+02	59.46	4.00E+02	1.97
	15	352.11	348 -	355	352.32	3.83E+02	57.52	2.96E+02	2.17
	16	464.97	461 -	471	465.14	4.17E+01	50.82	3.01E+02	2.86
	17	510.97	507 -	515	511.13	1.37E+02	44.46	2.19E+02	2.88
	18	583.32	578 -	588	583.45	2.81E+02	55.33	2.58E+02	2.05
	19	609.50	605 -	615	609.62	3.00E+02	48.40	1.49E+02	2.29
M	20	661.99	658 -	669	662.09	4.89E+01	29.94	1.22E+02	2.19
m	21	666.70	658 -	669	666.80	2.04E+01	20.70	7.32E+01	2.19
	22	727.90	724 -	733	727.98	6.19E+01	34.34	1.28E+02	2.39
	23	836.10	834 -	838	836.15	1.68E+01	16.51	4.64E+01	2.50
	24	862.60	855 -	870	862.63	5.00E+01	45.12	1.82E+02	7.22
	25	911.12	906 -	917	911.14	1.33E+02	48.33	2.18E+02	2.33
M	26	965.45	962 -	973	965.45	4.11E+01	29.80	1.04E+02	2.59
m	27	968.83	962 -	973	968.83	7.08E+01	25.77	6.63E+01	2.15
	28	1036.99	1032 -	1044	1036.97	3.22E+01	31.87	1.06E+02	8.78
M	29	1114.05	1112 -	1125	1114.00	1.30E+01	16.59	5.42E+01	2.20
m	30	1120.27	1112 -	1125	1120.22	6.21E+01	26.48	7.27E+01	2.43
	31	1154.34	1152 -	1157	1154.28	1.75E+01	17.66	4.90E+01	2.86
	32	1160.26	1158 -	1163	1160.19	1.98E+01	17.78	4.64E+01	2.78
	33	1172.72	1170 -	1175	1172.66	2.22E+01	17.64	4.36E+01	3.36
	34	1303.77	1301 -	1308	1303.66	2.05E+01	18.55	4.30E+01	3.66
	35	1410.34	1403 -	1417	1410.19	2.13E+01	23.87	4.53E+01	9.52
	36	1420.13	1418 -	1422	1419.97	8.96E+00	8.41	8.08E+00	2.37
	37	1448.23	1445 -	1451	1448.07	9.08E+00	11.54	1.78E+01	1.55
	38	1460.31	1453 -	1466	1460.14	5.60E+02	51.17	4.20E+01	2.60
	39	1499.90	1497 -	1502	1499.72	1.20E+01	8.83	6.00E+00	1.70
M	40	1586.97	1581 -	1595	1586.76	9.79E+00	11.49	1.88E+01	2.62

Analysis Report for 1707082-19

HTC-A01-S006-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
m	41	1592.45	1581 -	1595	1592.24	1.83E+01	12.00	1.22E+01	2.63
	42	1604.64	1601 -	1606	1604.43	6.00E+00	7.35	6.00E+00	1.18
	43	1637.26	1635 -	1639	1637.03	7.00E+00	6.18	2.00E+00	2.91
	44	1660.27	1656 -	1662	1660.04	5.07E+00	6.34	3.86E+00	1.90
	45	1729.52	1726 -	1731	1729.26	1.09E+01	9.33	8.20E+00	1.84
	46	1736.26	1733 -	1738	1736.00	7.00E+00	5.29	0.00E+00	2.50
	47	1764.12	1760 -	1768	1763.85	3.85E+01	14.58	9.00E+00	3.16
	48	1807.64	1803 -	1810	1807.36	4.86E+00	6.63	4.29E+00	3.30
	49	1827.43	1823 -	1830	1827.14	7.00E+00	5.29	0.00E+00	1.92
	50	2102.19	2098 -	2104	2101.81	1.49E+01	10.81	1.03E+01	1.70
	51	2175.49	2172 -	2178	2175.09	5.33E+00	7.78	7.33E+00	1.47
	52	2202.83	2199 -	2206	2202.42	1.54E+01	9.17	3.24E+00	1.65
	53	2281.84	2278 -	2285	2281.40	1.00E+01	6.32	0.00E+00	1.16
	54	2300.48	2297 -	2303	2300.03	6.50E+00	6.65	3.00E+00	2.06
	55	2350.34	2347 -	2353	2349.88	6.33E+00	7.78	5.33E+00	1.49
	56	2613.48	2607 -	2617	2612.93	7.35E+01	18.28	5.04E+00	2.82

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 12:41:33PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	1	75.15	71 -	82	4.00E+02	102.65	1.59E+03	6.56E+01
m	2	77.52	71 -	82	7.17E+02	119.05	1.76E+03	6.89E+01
M	3	87.45	83 -	97	3.49E+02	116.76	1.91E+03	7.18E+01
m	4	92.62	83 -	97	2.78E+02	96.69	1.34E+03	6.02E+01
	5	147.39	145 -	150	5.86E+01	65.84	8.13E+02	5.26E+01
	6	186.40	183 -	190	1.82E+02	75.60	8.30E+02	5.81E+01
	7	209.37	207 -	212	4.64E+01	57.38	6.13E+02	4.58E+01
	8	239.57	234 -	245	9.54E+02	106.02	9.23E+02	7.08E+01
	9	277.49	275 -	281	5.06E+01	47.53	3.61E+02	3.73E+01
	10	288.05	285 -	291	3.60E+01	45.22	3.38E+02	3.58E+01
	11	295.35	292 -	298	2.23E+02	50.09	2.94E+02	3.31E+01
	12	300.95	300 -	304	3.19E+01	37.28	2.84E+02	2.92E+01

Analysis Report for 1707082-19

HTC-A01-S006-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	13	328.42	326 -	331	4.17E+01	37.97	2.51E+02	2.94E+01
	14	338.43	333 -	342	1.84E+02	59.46	4.00E+02	4.35E+01
	15	352.11	348 -	355	3.83E+02	57.52	2.96E+02	3.46E+01
	16	464.97	461 -	471	4.17E+01	50.82	3.01E+02	4.04E+01
	17	510.97	507 -	515	1.37E+02	44.46	2.19E+02	3.11E+01
	18	583.32	578 -	588	2.81E+02	55.33	2.58E+02	3.62E+01
	19	609.50	605 -	615	3.00E+02	48.40	1.49E+02	2.78E+01
M	20	661.99	658 -	669	4.89E+01	29.94	1.22E+02	1.81E+01
m	21	666.70	658 -	669	2.04E+01	20.70	7.32E+01	1.41E+01
	22	727.90	724 -	733	6.19E+01	34.34	1.28E+02	2.51E+01
	23	836.10	834 -	838	1.68E+01	16.51	4.64E+01	1.18E+01
	24	862.60	855 -	870	5.00E+01	45.12	1.82E+02	3.52E+01
	25	911.12	906 -	917	1.33E+02	48.33	2.18E+02	3.49E+01
M	26	965.45	962 -	973	4.11E+01	29.80	1.04E+02	1.68E+01
m	27	968.83	962 -	973	7.08E+01	25.77	6.63E+01	1.34E+01
	28	1036.99	1032 -	1044	3.22E+01	31.87	1.06E+02	2.45E+01
M	29	1114.05	1112 -	1125	1.30E+01	16.59	5.42E+01	1.21E+01
m	30	1120.27	1112 -	1125	6.21E+01	26.48	7.27E+01	1.40E+01
	31	1154.34	1152 -	1157	1.75E+01	17.66	4.90E+01	1.28E+01
	32	1160.26	1158 -	1163	1.98E+01	17.78	4.64E+01	1.26E+01
	33	1172.72	1170 -	1175	2.22E+01	17.64	4.36E+01	1.23E+01
	34	1303.77	1301 -	1308	2.05E+01	18.55	4.30E+01	1.33E+01
	35	1410.34	1403 -	1417	2.13E+01	23.87	4.53E+01	1.81E+01
	36	1420.13	1418 -	1422	8.96E+00	8.41	8.08E+00	4.86E+00
	37	1448.23	1445 -	1451	9.08E+00	11.54	1.78E+01	8.09E+00
	38	1460.31	1453 -	1466	5.60E+02	51.17	4.20E+01	1.60E+01
	39	1499.90	1497 -	1502	1.20E+01	8.83	6.00E+00	4.50E+00
M	40	1586.97	1581 -	1595	9.79E+00	11.49	1.88E+01	7.12E+00
m	41	1592.45	1581 -	1595	1.83E+01	12.00	1.22E+01	5.75E+00
	42	1604.64	1601 -	1606	6.00E+00	7.35	6.00E+00	4.50E+00
	43	1637.26	1635 -	1639	7.00E+00	6.18	2.00E+00	2.63E+00
	44	1660.27	1656 -	1662	5.07E+00	6.34	3.86E+00	3.67E+00
	45	1729.52	1726 -	1731	1.09E+01	9.33	8.20E+00	5.42E+00
	46	1736.26	1733 -	1738	7.00E+00	5.29	0.00E+00	0.00E+00
	47	1764.12	1760 -	1768	3.85E+01	14.58	9.00E+00	6.29E+00
	48	1807.64	1803 -	1810	4.86E+00	6.63	4.29E+00	4.07E+00
	49	1827.43	1823 -	1830	7.00E+00	5.29	0.00E+00	0.00E+00
	50	2102.19	2098 -	2104	1.49E+01	10.81	1.03E+01	6.22E+00
	51	2175.49	2172 -	2178	5.33E+00	7.78	7.33E+00	5.14E+00
	52	2202.83	2199 -	2206	1.54E+01	9.17	3.24E+00	3.90E+00
	53	2281.84	2278 -	2285	1.00E+01	6.32	0.00E+00	0.00E+00
	54	2300.48	2297 -	2303	6.50E+00	6.65	3.00E+00	3.51E+00
	55	2350.34	2347 -	2353	6.33E+00	7.78	5.33E+00	4.87E+00
	56	2613.48	2607 -	2617	7.35E+01	18.28	5.04E+00	5.22E+00

Analysis Report for 1707082-19

HTC-A01-S006-3036-01

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/15/2017 12:41:33PM

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
M	1	75.15	71 -	82	75.45	4.00E+02	102.65	1.59E+03	AM-243
m	2	77.52	71 -	82	77.82	7.17E+02	119.05	1.76E+03	TI-44
M	3	87.45	83 -	97	87.75	3.49E+02	116.76	1.91E+03	SN-126
									CD-109
									LU-176
									NP-237
									EU-155
m	4	92.62	83 -	97	92.92	2.78E+02	96.69	1.34E+03	GA-67
	5	147.39	145 -	150	147.67	5.86E+01	65.84	8.13E+02	.....
	6	186.40	183 -	190	186.67	1.82E+02	75.60	8.30E+02	RA-226
	7	209.37	207 -	212	209.62	4.64E+01	57.38	6.13E+02	CM-243
									GA-67
	8	239.57	234 -	245	239.82	9.54E+02	106.02	9.23E+02	PB-212
	9	277.49	275 -	281	277.72	5.06E+01	47.53	3.61E+02	CM-243
									NP-239
	10	288.05	285 -	291	288.28	3.60E+01	45.22	3.38E+02	.....
	11	295.35	292 -	298	295.58	2.23E+02	50.09	2.94E+02	PB-214
	12	300.95	300 -	304	301.17	3.19E+01	37.28	2.84E+02	GA-67
									PB-212
									BI-210M
	13	328.42	326 -	331	328.64	4.17E+01	37.97	2.51E+02	LA-140
	14	338.43	333 -	342	338.64	1.84E+02	59.46	4.00E+02	AC-228
	15	352.11	348 -	355	352.32	3.83E+02	57.52	2.96E+02	PB-214
	16	464.97	461 -	471	465.14	4.17E+01	50.82	3.01E+02	.....
	17	510.97	507 -	515	511.13	1.37E+02	44.46	2.19E+02	.....
	18	583.32	578 -	588	583.45	2.81E+02	55.33	2.58E+02	TL-208
	19	609.50	605 -	615	609.62	3.00E+02	48.40	1.49E+02	BI-214
M	20	661.99	658 -	669	662.09	4.89E+01	29.94	1.22E+02	CS-137
m	21	666.70	658 -	669	666.80	2.04E+01	20.70	7.32E+01	SB-126
	22	727.90	724 -	733	727.98	6.19E+01	34.34	1.28E+02	BI-212

Analysis Report for 1707082-19

HTC-A01-S006-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	23	836.10	834 -	838	836.15	1.68E+01	16.51	4.64E+01	.....
	24	862.60	855 -	870	862.63	5.00E+01	45.12	1.82E+02	.....
	25	911.12	906 -	917	911.14	1.33E+02	48.33	2.18E+02	AC-228
									TL-204
M	26	965.45	962 -	973	965.45	4.11E+01	29.80	1.04E+02	.....
m	27	968.83	962 -	973	968.83	7.08E+01	25.77	6.63E+01	AC-228
	28	1036.99	1032 -	1044	1036.97	3.22E+01	31.87	1.06E+02	CO-56
M	29	1114.05	1112 -	1125	1114.00	1.30E+01	16.59	5.42E+01	.....
m	30	1120.27	1112 -	1125	1120.22	6.21E+01	26.48	7.27E+01	BI-214
									SC-46
	31	1154.34	1152 -	1157	1154.28	1.75E+01	17.66	4.90E+01	EU-156
	32	1160.26	1158 -	1163	1160.19	1.98E+01	17.78	4.64E+01	.....
	33	1172.72	1170 -	1175	1172.66	2.22E+01	17.64	4.36E+01	CO-60
	34	1303.77	1301 -	1308	1303.66	2.05E+01	18.55	4.30E+01	.....
	35	1410.34	1403 -	1417	1410.19	2.13E+01	23.87	4.53E+01	.....
	36	1420.13	1418 -	1422	1419.97	8.96E+00	8.41	8.08E+00	.....
	37	1448.23	1445 -	1451	1448.07	9.08E+00	11.54	1.78E+01	.....
	38	1460.31	1453 -	1466	1460.14	5.60E+02	51.17	4.20E+01	K-40
	39	1499.90	1497 -	1502	1499.72	1.20E+01	8.83	6.00E+00	.....
M	40	1586.97	1581 -	1595	1586.76	9.79E+00	11.49	1.88E+01	.....
m	41	1592.45	1581 -	1595	1592.24	1.83E+01	12.00	1.22E+01	.....
	42	1604.64	1601 -	1606	1604.43	6.00E+00	7.35	6.00E+00	.....
	43	1637.26	1635 -	1639	1637.03	7.00E+00	6.18	2.00E+00	.....
	44	1660.27	1656 -	1662	1660.04	5.07E+00	6.34	3.86E+00	.....
	45	1729.52	1726 -	1731	1729.26	1.09E+01	9.33	8.20E+00	.....
	46	1736.26	1733 -	1738	1736.00	7.00E+00	5.29	0.00E+00	.....
	47	1764.12	1760 -	1768	1763.85	3.85E+01	14.58	9.00E+00	BI-214
	48	1807.64	1803 -	1810	1807.36	4.86E+00	6.63	4.29E+00	.....
	49	1827.43	1823 -	1830	1827.14	7.00E+00	5.29	0.00E+00	.....
	50	2102.19	2098 -	2104	2101.81	1.49E+01	10.81	1.03E+01	.....
	51	2175.49	2172 -	2178	2175.09	5.33E+00	7.78	7.33E+00	.....
	52	2202.83	2199 -	2206	2202.42	1.54E+01	9.17	3.24E+00	.....
	53	2281.84	2278 -	2285	2281.40	1.00E+01	6.32	0.00E+00	.....
	54	2300.48	2297 -	2303	2300.03	6.50E+00	6.65	3.00E+00	.....
	55	2350.34	2347 -	2353	2349.88	6.33E+00	7.78	5.33E+00	.....
	56	2613.48	2607 -	2617	2612.93	7.35E+01	18.28	5.04E+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 : 8/15/2017 12:41:33PM

Analysis Report for 1707082-19

HTC-A01-S006-3036-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	1	75.15	4.00E+02	102.65	2.65E-02	2.02E-03
m	2	77.52	7.17E+02	119.05	2.68E-02	2.06E-03
M	3	87.45	3.49E+02	116.76	2.72E-02	2.25E-03
m	4	92.62	2.78E+02	96.69	2.71E-02	2.24E-03
	5	147.39	5.86E+01	65.84	2.29E-02	1.84E-03
	6	186.40	1.82E+02	75.60	1.96E-02	1.55E-03
	7	209.37	4.64E+01	57.38	1.79E-02	1.46E-03
	8	239.57	9.54E+02	106.02	1.61E-02	1.34E-03
	9	277.49	5.06E+01	47.53	1.42E-02	1.19E-03
	10	288.05	3.60E+01	45.22	1.38E-02	1.16E-03
	11	295.35	2.23E+02	50.09	1.35E-02	1.15E-03
	12	300.95	3.19E+01	37.28	1.32E-02	1.14E-03
	13	328.42	4.17E+01	37.97	1.23E-02	1.08E-03
	14	338.43	1.84E+02	59.46	1.19E-02	1.06E-03
	15	352.11	3.83E+02	57.52	1.15E-02	1.03E-03
	16	464.97	4.17E+01	50.82	8.99E-03	8.55E-04
	17	510.97	1.37E+02	44.46	8.25E-03	7.94E-04
	18	583.32	2.81E+02	55.33	7.32E-03	6.98E-04
	19	609.50	3.00E+02	48.40	7.04E-03	6.64E-04
M	20	661.99	4.89E+01	29.94	6.54E-03	5.94E-04
m	21	666.70	2.04E+01	20.70	6.49E-03	5.90E-04
	22	727.90	6.19E+01	34.34	6.00E-03	5.36E-04
	23	836.10	1.68E+01	16.51	5.31E-03	4.41E-04
	24	862.60	5.00E+01	45.12	5.16E-03	4.17E-04
	25	911.12	1.33E+02	48.33	4.92E-03	3.84E-04
M	26	965.45	4.11E+01	29.80	4.68E-03	3.75E-04
m	27	968.83	7.08E+01	25.77	4.67E-03	3.74E-04
	28	1036.99	3.22E+01	31.87	4.40E-03	3.63E-04
M	29	1114.05	1.30E+01	16.59	4.14E-03	3.51E-04
m	30	1120.27	6.21E+01	26.48	4.12E-03	3.50E-04
	31	1154.34	1.75E+01	17.66	4.01E-03	3.44E-04
	32	1160.26	1.98E+01	17.78	4.00E-03	3.43E-04
	33	1172.72	2.22E+01	17.64	3.96E-03	3.41E-04
	34	1303.77	2.05E+01	18.55	3.63E-03	3.04E-04
	35	1410.34	2.13E+01	23.87	3.40E-03	2.83E-04
	36	1420.13	8.96E+00	8.41	3.38E-03	2.82E-04
	37	1448.23	9.08E+00	11.54	3.33E-03	2.77E-04
	38	1460.31	5.60E+02	51.17	3.31E-03	2.75E-04
	39	1499.90	1.20E+01	8.83	3.24E-03	2.69E-04
M	40	1586.97	9.79E+00	11.49	3.10E-03	2.55E-04
m	41	1592.45	1.83E+01	12.00	3.09E-03	2.54E-04
	42	1604.64	6.00E+00	7.35	3.08E-03	2.52E-04
	43	1637.26	7.00E+00	6.18	3.03E-03	2.47E-04
	44	1660.27	5.07E+00	6.34	3.00E-03	2.43E-04
	45	1729.52	1.09E+01	9.33	2.91E-03	2.32E-04
	46	1736.26	7.00E+00	5.29	2.90E-03	2.31E-04
	47	1764.12	3.85E+01	14.58	2.87E-03	2.27E-04
	48	1807.64	4.86E+00	6.63	2.82E-03	2.20E-04
	49	1827.43	7.00E+00	5.29	2.79E-03	2.16E-04
	50	2102.19	1.49E+01	10.81	2.54E-03	2.15E-04

Analysis Report for 1707082-19

HTC-A01-S006-3036-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
51	2175.49	5.33E+00	7.78	2.48E-03	2.15E-04
52	2202.83	1.54E+01	9.17	2.47E-03	2.15E-04
53	2281.84	1.00E+01	6.32	2.41E-03	2.15E-04
54	2300.48	6.50E+00	6.65	2.40E-03	2.15E-04
55	2350.34	6.33E+00	7.78	2.37E-03	2.15E-04
56	2613.48	7.35E+01	18.28	2.24E-03	2.15E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/15/2017 12:41:33PM

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.
M	1	75.15	4.00E+02	102.65			4.00E+02	1.03E+02
m	2	77.52	7.17E+02	119.05			7.17E+02	1.19E+02
M	3	87.45	3.49E+02	116.76			3.49E+02	1.17E+02
m	4	92.62	2.78E+02	96.69	7.43E+01	4.99E+00	2.04E+02	9.68E+01
	5	147.39	5.86E+01	65.84	1.93E-01	1.17E+00	5.84E+01	6.59E+01
	6	186.40	1.82E+02	75.60	3.36E+01	5.83E+00	1.49E+02	7.58E+01
	7	209.37	4.64E+01	57.38			4.64E+01	5.74E+01
	8	239.57	9.54E+02	106.02	1.14E+01	5.08E+00	9.42E+02	1.06E+02
	9	277.49	5.06E+01	47.53			5.06E+01	4.75E+01
	10	288.05	3.60E+01	45.22			3.60E+01	4.52E+01
	11	295.35	2.23E+02	50.09			2.23E+02	5.01E+01
	12	300.95	3.19E+01	37.28			3.19E+01	3.73E+01
	13	328.42	4.17E+01	37.97			4.17E+01	3.80E+01
	14	338.43	1.84E+02	59.46	0.00E+00	0.00E+00	1.84E+02	5.95E+01
	15	352.11	3.83E+02	57.52			3.83E+02	5.75E+01
	16	464.97	4.17E+01	50.82			4.17E+01	5.08E+01
	17	510.97	1.37E+02	44.46	5.38E+01	4.80E+00	8.27E+01	4.47E+01
	18	583.32	2.81E+02	55.33	1.58E+00	2.86E+00	2.79E+02	5.54E+01
	19	609.50	3.00E+02	48.40	3.58E+00	2.96E+00	2.96E+02	4.85E+01
M	20	661.99	4.89E+01	29.94			4.89E+01	2.99E+01
m	21	666.70	2.04E+01	20.70			2.04E+01	2.07E+01
	22	727.90	6.19E+01	34.34			6.19E+01	3.43E+01
	23	836.10	1.68E+01	16.51			1.68E+01	1.65E+01
	24	862.60	5.00E+01	45.12			5.00E+01	4.51E+01

Analysis Report for 1707082-19

HTC-A01-S006-3036-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	25	911.12	1.33E+02	48.33			1.33E+02	4.83E+01
M	26	965.45	4.11E+01	29.80			4.11E+01	2.98E+01
m	27	968.83	7.08E+01	25.77			7.08E+01	2.58E+01
	28	1036.99	3.22E+01	31.87			3.22E+01	3.19E+01
M	29	1114.05	1.30E+01	16.59			1.30E+01	1.66E+01
m	30	1120.27	6.21E+01	26.48			6.21E+01	2.65E+01
	31	1154.34	1.75E+01	17.66			1.75E+01	1.77E+01
	32	1160.26	1.98E+01	17.78			1.98E+01	1.78E+01
	33	1172.72	2.22E+01	17.64	3.07E+00	2.13E+00	1.91E+01	1.78E+01
	34	1303.77	2.05E+01	18.55			2.05E+01	1.85E+01
	35	1410.34	2.13E+01	23.87			2.13E+01	2.39E+01
	36	1420.13	8.96E+00	8.41			8.96E+00	8.41E+00
	37	1448.23	9.08E+00	11.54			9.08E+00	1.15E+01
	38	1460.31	5.60E+02	51.17	3.11E+00	2.06E+00	5.57E+02	5.12E+01
	39	1499.90	1.20E+01	8.83			1.20E+01	8.83E+00
M	40	1586.97	9.79E+00	11.49			9.79E+00	1.15E+01
m	41	1592.45	1.83E+01	12.00			1.83E+01	1.20E+01
	42	1604.64	6.00E+00	7.35			6.00E+00	7.35E+00
	43	1637.26	7.00E+00	6.18			7.00E+00	6.18E+00
	44	1660.27	5.07E+00	6.34			5.07E+00	6.34E+00
	45	1729.52	1.09E+01	9.33			1.09E+01	9.33E+00
	46	1736.26	7.00E+00	5.29			7.00E+00	5.29E+00
	47	1764.12	3.85E+01	14.58			3.85E+01	1.46E+01
	48	1807.64	4.86E+00	6.63			4.86E+00	6.63E+00
	49	1827.43	7.00E+00	5.29			7.00E+00	5.29E+00
	50	2102.19	1.49E+01	10.81			1.49E+01	1.08E+01
	51	2175.49	5.33E+00	7.78			5.33E+00	7.78E+00
	52	2202.83	1.54E+01	9.17			1.54E+01	9.17E+00
	53	2281.84	1.00E+01	6.32			1.00E+01	6.32E+00
	54	2300.48	6.50E+00	6.65			6.50E+00	6.65E+00
	55	2350.34	6.33E+00	7.78			6.33E+00	7.78E+00
	56	2613.48	7.35E+01	18.28	1.69E+00	9.96E-01	7.18E+01	1.83E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/15/2017 12:41:33PM

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

Analysis Report for 1707082-19

HTC-A01-S006-3036-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	1	75.15	4.00E+02	102.65			4.00E+02	1.03E+02
m	2	77.52	7.17E+02	119.05			7.17E+02	1.19E+02
M	3	87.45	3.49E+02	116.76			3.49E+02	1.17E+02
m	4	92.62	2.78E+02	96.69	7.43E+01	4.99E+00	2.04E+02	9.68E+01
	5	147.39	5.86E+01	65.84	1.93E-01	1.17E+00	5.84E+01	6.59E+01
	6	186.40	1.82E+02	75.60	3.36E+01	5.83E+00	1.49E+02	7.58E+01
	7	209.37	4.64E+01	57.38			4.64E+01	5.74E+01
	8	239.57	9.54E+02	106.02	1.14E+01	5.08E+00	9.42E+02	1.06E+02
	9	277.49	5.06E+01	47.53			5.06E+01	4.75E+01
	10	288.05	3.60E+01	45.22			3.60E+01	4.52E+01
	11	295.35	2.23E+02	50.09			2.23E+02	5.01E+01
	12	300.95	3.19E+01	37.28			3.19E+01	3.73E+01
	13	328.42	4.17E+01	37.97			4.17E+01	3.80E+01
	14	338.43	1.84E+02	59.46	0.00E+00	0.00E+00	1.84E+02	5.95E+01
	15	352.11	3.83E+02	57.52			3.83E+02	5.75E+01
	16	464.97	4.17E+01	50.82			4.17E+01	5.08E+01
	17	510.97	1.37E+02	44.46	5.38E+01	4.80E+00	8.27E+01	4.47E+01
	18	583.32	2.81E+02	55.33	1.58E+00	2.86E+00	2.79E+02	5.54E+01
	19	609.50	3.00E+02	48.40	3.58E+00	2.96E+00	2.96E+02	4.85E+01
M	20	661.99	4.89E+01	29.94			4.89E+01	2.99E+01
m	21	666.70	2.04E+01	20.70			2.04E+01	2.07E+01
	22	727.90	6.19E+01	34.34			6.19E+01	3.43E+01
	23	836.10	1.68E+01	16.51			1.68E+01	1.65E+01
	24	862.60	5.00E+01	45.12			5.00E+01	4.51E+01
	25	911.12	1.33E+02	48.33			1.33E+02	4.83E+01
M	26	965.45	4.11E+01	29.80			4.11E+01	2.98E+01
m	27	968.83	7.08E+01	25.77			7.08E+01	2.58E+01
	28	1036.99	3.22E+01	31.87			3.22E+01	3.19E+01
M	29	1114.05	1.30E+01	16.59			1.30E+01	1.66E+01
m	30	1120.27	6.21E+01	26.48			6.21E+01	2.65E+01
	31	1154.34	1.75E+01	17.66			1.75E+01	1.77E+01
	32	1160.26	1.98E+01	17.78			1.98E+01	1.78E+01
	33	1172.72	2.22E+01	17.64	3.07E+00	2.13E+00	1.91E+01	1.78E+01
	34	1303.77	2.05E+01	18.55			2.05E+01	1.85E+01
	35	1410.34	2.13E+01	23.87			2.13E+01	2.39E+01
	36	1420.13	8.96E+00	8.41			8.96E+00	8.41E+00
	37	1448.23	9.08E+00	11.54			9.08E+00	1.15E+01
	38	1460.31	5.60E+02	51.17	3.11E+00	2.06E+00	5.57E+02	5.12E+01
	39	1499.90	1.20E+01	8.83			1.20E+01	8.83E+00
M	40	1586.97	9.79E+00	11.49			9.79E+00	1.15E+01
m	41	1592.45	1.83E+01	12.00			1.83E+01	1.20E+01
	42	1604.64	6.00E+00	7.35			6.00E+00	7.35E+00
	43	1637.26	7.00E+00	6.18			7.00E+00	6.18E+00
	44	1660.27	5.07E+00	6.34			5.07E+00	6.34E+00
	45	1729.52	1.09E+01	9.33			1.09E+01	9.33E+00
	46	1736.26	7.00E+00	5.29			7.00E+00	5.29E+00
	47	1764.12	3.85E+01	14.58			3.85E+01	1.46E+01
	48	1807.64	4.86E+00	6.63			4.86E+00	6.63E+00
	49	1827.43	7.00E+00	5.29			7.00E+00	5.29E+00
	50	2102.19	1.49E+01	10.81			1.49E+01	1.08E+01
	51	2175.49	5.33E+00	7.78			5.33E+00	7.78E+00
	52	2202.83	1.54E+01	9.17			1.54E+01	9.17E+00
	53	2281.84	1.00E+01	6.32			1.00E+01	6.32E+00
	54	2300.48	6.50E+00	6.65			6.50E+00	6.65E+00

Analysis Report for 1707082-19

HTC-A01-S006-3036-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
55	2350.34	6.33E+00	7.78			6.33E+00	7.78E+00
56	2613.48	7.35E+01	18.28	1.69E+00	9.96E-01	7.18E+01	1.83E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.960	1460.81	*	10.67	1.83E+01	2.30E+00
CD-109	0.948	88.03	*	3.72	4.63E+00	1.62E+00
SN-126	0.998	87.57	*	37.00	4.04E-01	1.39E-01
CS-137	0.982	661.65	*	85.12	1.03E-01	6.36E-02
BI-212	0.706	727.17	*	11.80	1.02E+00	5.71E-01
		1620.62		2.75		
PB-212	0.870	238.63	*	44.60	1.53E+00	2.14E-01
		300.09	*	3.41	8.22E-01	9.62E-01
BI-214	0.926	609.31	*	46.30	1.06E+00	2.00E-01
		1120.29	*	15.10	1.16E+00	5.05E-01
		1764.49	*	15.80	9.89E-01	3.82E-01
		2204.22		4.98		
PB-214	0.995	295.21	*	19.19	1.00E+00	2.41E-01
		351.92	*	37.19	1.04E+00	1.81E-01
RA-226	0.994	186.21	*	3.28	2.69E+00	5.11E+00
AC-228	0.996	338.32	*	11.40	1.57E+00	5.26E-01
		911.07	*	27.70	1.14E+00	4.22E-01
		969.11	*	16.60	1.06E+00	3.96E-01
NP-237	0.865	86.50	*	12.60	1.19E+00	4.09E-01
AM-243	0.964	74.67	*	66.00	2.65E-01	7.11E-02
CM-243	0.366	209.75	*	3.29	9.21E-01	1.14E+00
		228.14		10.60		
		277.60	*	14.00	2.98E-01	2.81E-01

Analysis Report for 1707082-19

HTC-A01-S006-3036-01

* = 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 : 8/15/2017 12:41:33PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	2	77.52	1.99208E-01	8.30		
m	4	92.62	5.66001E-02	23.76	Tol.	GA-67
	5	147.39	1.62265E-02	56.36		
	10	288.05	9.99322E-03	62.85		
	13	328.42	1.15835E-02	45.53	Tol.	LA-140
	16	464.97	1.15741E-02	60.99		
	17	510.97	2.29602E-02	27.05	Sum	
	18	583.32	7.75766E-02	9.92	Tol.	TL-208
m	21	666.70	5.66853E-03	50.72	Tol.	SB-126
	23	836.10	4.66667E-03	49.13		
	24	862.60	1.38771E-02	45.16		
M	26	965.45	1.14274E-02	36.22		
	28	1036.99	8.95261E-03	49.45		
M	29	1114.05	3.62428E-03	63.58		
	31	1154.34	4.85450E-03	50.54	Sum	
	32	1160.26	5.50388E-03	44.86		
	33	1172.72	5.30925E-03	46.47	Tol.	CO-60
	34	1303.77	5.69444E-03	45.24		
	35	1410.34	5.92487E-03	55.95		
	36	1420.13	2.48932E-03	46.93		
	37	1448.23	2.52315E-03	63.54		
	39	1499.90	3.33333E-03	36.80		
M	40	1586.97	2.71893E-03	58.69		
m	41	1592.45	5.09412E-03	32.72		
	42	1604.64	1.66667E-03	61.24		
	43	1637.26	1.94444E-03	44.18		
	44	1660.27	1.40873E-03	62.55		
	45	1729.52	3.02778E-03	42.79	Sum	
	46	1736.26	1.94444E-03	37.80		
	48	1807.64	1.34921E-03	68.28		
	49	1827.43	1.94444E-03	37.80		
	50	2102.19	4.13194E-03	36.32	Sum	
	51	2175.49	1.48148E-03	72.92		
	52	2202.83	4.27288E-03	29.79		

Analysis Report for 1707082-19

HTC-A01-S006-3036-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
53	2281.84	2.77778E-03	31.62		
54	2300.48	1.80556E-03	51.17		
55	2350.34	1.75926E-03	61.41		
56	2613.48	1.99406E-02	12.75		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.96	1460.81	*	10.67	1.83E+01	2.30E+00
CD-109	0.94	88.03	*	3.72	4.63E+00	1.62E+00
SN-126	0.99	87.57	*	37.00	4.04E-01	1.39E-01
CS-137	0.98	661.65	*	85.12	1.03E-01	6.36E-02
BI-212	0.70	727.17	*	11.80	1.02E+00	5.71E-01
		1620.62		2.75		
PB-212	0.87	238.63	*	44.60	1.53E+00	2.14E-01
		300.09	*	3.41	8.22E-01	9.62E-01
BI-214	0.92	609.31	*	46.30	1.06E+00	2.00E-01
		1120.29	*	15.10	1.16E+00	5.05E-01
		1764.49	*	15.80	9.89E-01	3.82E-01
		2204.22		4.98		
PB-214	0.99	295.21	*	19.19	1.00E+00	2.41E-01
		351.92	*	37.19	1.04E+00	1.81E-01
RA-226	0.99	186.21	*	3.28	2.69E+00	5.11E+00
AC-228	0.99	338.32	*	11.40	1.57E+00	5.26E-01
		911.07	*	27.70	1.14E+00	4.22E-01
		969.11	*	16.60	1.06E+00	3.96E-01
NP-237	0.86	86.50	*	12.60	1.19E+00	4.09E-01
AM-243	0.96	74.67	*	66.00	2.65E-01	7.11E-02
CM-243	0.36	209.75	*	3.29	9.21E-01	1.14E+00
		228.14		10.60		
		277.60	*	14.00	2.98E-01	2.81E-01

Analysis Report for 1707082-19

HTC-A01-S006-3036-01

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.960	1.83E+01	2.30E+00	
?	CD-109	0.948	4.63E+00	1.62E+00	
?	SN-126	0.998	4.04E-01	1.39E-01	
	CS-137	0.982	1.03E-01	6.36E-02	
	BI-212	0.706	1.02E+00	5.71E-01	
	PB-212	0.870	1.49E+00	2.09E-01	
	BI-214	0.926	1.05E+00	1.67E-01	
	PB-214	0.995	1.03E+00	1.45E-01	
	RA-226	0.994	2.69E+00	5.11E+00	
	AC-228	0.996	1.21E+00	2.53E-01	
?	NP-237	0.865	1.19E+00	4.09E-01	
	AM-243	0.964	2.65E-01	7.11E-02	
	CM-243	0.366	3.33E-01	2.73E-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 1707082-19

HTC-A01-S006-3036-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 12:41:33PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	2	77.52	1.99208E-01	8.30		
m	4	92.62	5.66001E-02	23.76	Tol.	GA-67
	5	147.39	1.62265E-02	56.36		
	10	288.05	9.99322E-03	62.85		
	13	328.42	1.15835E-02	45.53	Tol.	LA-140
	16	464.97	1.15741E-02	60.99		
	17	510.97	2.29602E-02	27.05	Sum	
	18	583.32	7.75766E-02	9.92	Tol.	TL-208
m	21	666.70	5.66853E-03	50.72	Tol.	SB-126
	23	836.10	4.66667E-03	49.13		
	24	862.60	1.38771E-02	45.16		
M	26	965.45	1.14274E-02	36.22		
	28	1036.99	8.95261E-03	49.45		
M	29	1114.05	3.62428E-03	63.58		
	31	1154.34	4.85450E-03	50.54	Sum	
	32	1160.26	5.50388E-03	44.86		
	33	1172.72	5.30925E-03	46.47	Tol.	CO-60
	34	1303.77	5.69444E-03	45.24		
	35	1410.34	5.92487E-03	55.95		
	36	1420.13	2.48932E-03	46.93		
	37	1448.23	2.52315E-03	63.54		
	39	1499.90	3.33333E-03	36.80		
M	40	1586.97	2.71893E-03	58.69		
m	41	1592.45	5.09412E-03	32.72		
	42	1604.64	1.66667E-03	61.24		
	43	1637.26	1.94444E-03	44.18		
	44	1660.27	1.40873E-03	62.55		
	45	1729.52	3.02778E-03	42.79	Sum	
	46	1736.26	1.94444E-03	37.80		
	48	1807.64	1.34921E-03	68.28		
	49	1827.43	1.94444E-03	37.80		
	50	2102.19	4.13194E-03	36.32	Sum	
	51	2175.49	1.48148E-03	72.92		
	52	2202.83	4.27288E-03	29.79		
	53	2281.84	2.77778E-03	31.62		

Analysis Report for 1707082-19

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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
54	2300.48	1.80556E-03	51.17		
55	2350.34	1.75926E-03	61.41		
56	2613.48	1.99406E-02	12.75		

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	8.20E-01	2.29E+00	2.29E+00
+	NA-22	1274.54		99.94	-6.74E-03	1.08E-01	1.08E-01
+	@ NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@	2754.09		99.86	1.00E+26		1.00E+26
+	AL-26	1808.65		99.76	0.00E+00	6.22E-02	6.22E-02
+	K-40	1460.81	*	10.67	1.83E+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	-5.93E-03	6.16E-02	6.16E-02
		78.34		96.00	1.82E-01		7.64E-02
+	SC-46	889.25		99.98	-2.95E-02	1.76E-01	1.76E-01
		1120.51		99.99	5.01E-01		3.18E-01
+	V-48	983.52		99.98	-9.70E-01	4.68E+00	4.68E+00
		1312.10		97.50	1.43E+00		5.56E+00
+	CR-51	320.08		9.83	-4.61E+00	6.13E+00	6.13E+00
+	MN-54	834.83		99.97	-5.15E-03	9.69E-02	9.69E-02
+	CO-56	846.75		99.96	-2.59E-03	1.81E-01	1.81E-01
		1037.75		14.03	1.00E-01		1.54E+00
		1238.25		67.00	2.18E-02		3.94E-01
		1771.40		15.51	-1.80E-01		7.88E-01
		2598.48		16.90	0.00E+00		8.43E-01
+	CO-57	122.06		85.51	-3.44E-02	6.27E-02	6.27E-02
		136.48		10.60	2.26E-01		5.40E-01
+	CO-58	810.76		99.40	1.37E-03	1.97E-01	1.97E-01
+	FE-59	1099.22		56.50	-3.51E-01	6.98E-01	6.98E-01
		1291.56		43.20	-4.31E-01		1.01E+00
+	CO-60	1173.22		100.00	-1.47E-02	8.45E-02	1.05E-01

Analysis Report for 1707082-19

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CO-60	1332.49		100.00	-1.72E-02	8.45E-02	8.45E-02
+	ZN-65	1115.52		50.75	-6.79E-01	2.48E-01	2.48E-01
+	GA-67	93.31		35.70	1.09E+08	7.68E+07	7.68E+07
		208.95		2.24	5.15E+08		1.41E+09
		300.22		16.00	-4.63E+08		2.07E+08
+	SE-75	121.11		16.70	-1.16E-01	1.26E-01	4.36E-01
		136.00		59.20	-3.29E-02		1.26E-01
		264.65		59.80	-2.47E-02		1.66E-01
		279.53		25.20	1.16E-02		4.07E-01
		400.65		11.40	-5.99E-02		9.65E-01
+	RB-82	776.52		13.00	-2.15E+00	8.18E+00	8.18E+00
+	RB-83	520.41		46.00	-7.64E-02	3.05E-01	3.05E-01
		529.64		30.30	-1.88E-01		4.41E-01
		552.65		16.40	-1.68E-01		8.56E-01
+	KR-85	513.99		0.43	3.33E+00	2.22E+01	2.22E+01
+	SR-85	513.99		99.27	3.92E-02	2.61E-01	2.61E-01
+	Y-88	898.02		93.40	-1.08E-01	1.41E-01	1.51E-01
		1836.01		99.38	6.87E-02		1.41E-01
+	MO-93	263.06		56.72	1.17E-03	7.63E-02	1.04E-01
		684.67		99.68	-2.81E-02		7.63E-02
		1477.11		99.08	3.71E-02		8.74E-02
+	NB-93M	16.57		9.43	-2.27E+01	6.47E+01	6.47E+01
+	NB-94	702.63		100.00	5.79E-03	7.46E-02	8.32E-02
		871.10		100.00	-3.51E-03		7.46E-02
+	NB-95	765.79		99.81	2.52E-01	5.52E-01	5.52E-01
+	NB-95M	235.69		25.00	2.48E+07	2.72E+07	2.72E+07
+	ZR-95	724.18		43.70	8.04E-02	4.32E-01	5.64E-01
		756.72		55.30	1.61E-01		4.32E-01
+	MO-99	181.06		6.20	1.69E+09	1.32E+10	1.57E+10
		739.58		12.80	8.03E+09		1.32E+10
		778.00		4.50	-1.29E+10		3.77E+10
+	RU-103	497.08		89.00	-4.06E-03	3.88E-01	3.88E-01
+	RU-106	621.84		9.80	6.56E-03	8.81E-01	8.81E-01
+	AG-108M	433.93		89.90	-2.36E-02	6.94E-02	6.94E-02
		614.37		90.40	-7.83E-03		8.68E-02
		722.95		90.50	1.36E-02		8.75E-02
+	CD-109	88.03	*	3.72	4.63E+00	3.59E+00	3.59E+00
+	AG-110M	657.75		93.14	-3.79E-03	1.06E-01	1.06E-01
		677.61		10.53	2.15E-01		9.99E-01
		706.67		16.46	-4.80E-01		5.77E-01
		763.93		21.98	-3.32E-01		4.52E-01
		884.67		71.63	-7.12E-02		1.43E-01
		1384.27		23.94	-2.03E-02		4.10E-01
+	CD-113M	263.70		0.02	-2.34E+01	2.54E+02	2.54E+02
+	SN-113	255.12		1.93	2.20E-01	1.80E-01	5.28E+00
		391.69		64.90	6.44E-02		1.80E-01
+	TE123M	159.00		84.10	-2.76E-02	9.23E-02	9.23E-02
+	SB-124	602.71		97.87	1.21E-01	2.33E-01	2.33E-01

Analysis Report for 1707082-19

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		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		SB-124	645.85		7.26	-8.33E-02	2.33E-01	2.93E+00
			722.78		11.10	3.29E-01		2.11E+00
			1691.02		49.00	1.05E-01		4.31E-01
+		I-125	35.49		6.49	-9.82E-01	5.22E+00	5.22E+00
+		SB-125	176.33		6.89	-1.19E-01	2.29E-01	7.35E-01
			427.89		29.33	9.76E-02		2.29E-01
			463.38		10.35	5.85E-01		7.93E-01
			600.56		17.80	1.50E-01		4.60E-01
			635.90		11.32	-1.20E-01		6.64E-01
+		SB-126	414.70		83.30	-6.89E+00	1.48E+01	1.48E+01
			666.33		99.60	-6.08E+00		1.61E+01
			695.00		99.60	1.87E+00		1.70E+01
			720.50		53.80	-4.03E+00		2.64E+01
+		SN-126	87.57	*	37.00	4.04E-01	3.14E-01	3.14E-01
+		SB-127	473.00		25.00	1.13E+06	4.89E+06	5.71E+06
			685.20		35.70	-1.80E+06		4.89E+06
			783.80		14.70	6.93E+06		1.37E+07
+		I-129	29.78		57.00	-2.39E-02	3.61E-01	3.61E-01
			33.60		13.20	5.47E-01		1.03E+00
			39.58		7.52	7.76E-01		1.26E+00
+		I-131	284.30		6.05	8.67E+02	2.65E+02	3.31E+03
			364.48		81.20	6.03E+01		2.65E+02
			636.97		7.26	1.43E+02		3.37E+03
			722.89		1.80	2.31E+03		1.48E+04
+		TE-132	49.72		13.10	-4.14E+08	3.35E+07	2.56E+08
			228.16		88.00	-1.05E+07		3.35E+07
+		BA-133	81.00		33.00	-5.30E-01	1.47E-01	1.69E-01
			302.84		17.80	-5.04E-03		3.71E-01
			356.01		60.00	-4.30E-02		1.47E-01
+	@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+		XE-133	81.00		38.00	-1.16E+05	3.71E+04	3.71E+04
+		CS-134	563.23		8.38	2.02E-01	9.36E-02	9.38E-01
			569.32		15.43	1.70E-01		4.98E-01
			604.70		97.60	5.47E-03		9.36E-02
			795.84		85.40	-1.91E-02		1.03E-01
			801.93		8.73	-3.93E-01		9.39E-01
+		CS-135	268.24		16.00	8.59E-02	3.88E-01	3.88E-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	3.11E+01	1.07E+01	9.13E+01
			163.89		4.61	1.94E+01		1.43E+02
			176.55		13.56	-8.14E+00		5.01E+01
			273.65		12.66	2.35E+01		7.17E+01
			340.57		48.50	-2.50E+00		2.39E+01
			818.50		99.70	1.76E+00		1.07E+01
			1048.07		79.60	-2.54E+00		1.45E+01
			1235.34		19.70	6.58E+00		8.95E+01
+		CS-137	661.65	*	85.12	1.03E-01	1.38E-01	1.38E-01

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		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		LA-138	788.74	34.00	-8.57E-02	1.06E-01	2.26E-01
			1435.80	66.00	-3.84E-02		1.06E-01
+		CE-139	165.85	80.35	3.22E-02	9.24E-02	9.24E-02
+		BA-140	162.64	6.70	-4.55E+01	4.70E+01	1.12E+02
			304.84	4.50	4.15E+01		2.29E+02
			423.70	3.20	1.55E-01		3.28E+02
			437.55	2.00	2.18E+02		5.45E+02
			537.32	25.00	1.32E+01		4.70E+01
+		LA-140	328.77	20.50	2.65E+00	1.50E+01	5.09E+01
			487.03	45.50	-6.32E+00		2.31E+01
			815.85	23.50	2.42E+00		5.16E+01
			1596.49	95.49	1.63E+00		1.50E+01
+		CE-141	145.44	48.40	3.41E-01	7.47E-01	7.47E-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	-1.55E-01	5.00E-01	5.00E-01
+		PM-144	476.78	42.00	2.91E-02	7.99E-02	1.95E-01
			618.01	98.60	1.24E-02		7.99E-02
			696.49	99.49	-5.60E-03		1.06E-01
+		PM-145	36.85	21.70	-4.63E-01	2.68E-01	4.86E-01
			37.36	39.70	6.29E-02		2.68E-01
			42.30	15.10	-5.73E-01		5.36E-01
			72.40	2.31	-6.09E+00		2.81E+00
+		PM-146	453.90	39.94	-3.85E-02	1.62E-01	1.62E-01
			735.90	14.01	3.34E-02		5.27E-01
			747.13	13.10	-6.16E-02		6.33E-01
+		ND-147	91.11	28.90	-2.27E+01	7.61E+01	7.61E+01
			531.02	13.10	-4.75E+01		1.86E+02
+		PM-149	285.90	3.10	3.06E+12	1.32E+13	1.32E+13
+		EU-152	121.78	20.50	-1.14E-01	2.08E-01	2.08E-01
			244.69	5.40	1.28E-01		1.30E+00
			344.27	19.13	-2.09E-02		3.05E-01
			778.89	9.20	-2.38E-01		8.98E-01
			964.01	10.40	-1.66E+00		1.01E+00
			1085.78	7.22	3.47E-01		1.39E+00
			1112.02	9.60	-1.48E-01		1.05E+00
			1407.95	14.94	2.70E-01		6.22E-01
+		GD-153	97.43	31.30	5.31E-02	1.83E-01	1.83E-01
			103.18	22.20	-2.88E-01		2.38E-01
+		EU-154	123.07	40.50	8.82E-03	1.10E-01	1.10E-01
			723.30	19.70	6.39E-02		4.10E-01
			873.19	11.50	-1.57E-01		6.41E-01
			996.32	10.30	-4.05E-02		9.01E-01
			1004.76	17.90	-2.42E-01		4.82E-01
			1274.45	35.50	-1.81E-02		2.91E-01
+		EU-155	86.50	30.90	1.88E-01	1.95E-01	1.95E-01
			105.30	20.70	5.55E-02		2.14E-01
+		EU-156	811.77	10.40	-1.04E-01	5.43E+01	5.43E+01

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-156	1153.47		7.20	-2.56E+00	5.43E+01	1.05E+02
		1230.71		8.90	6.63E+01		1.05E+02
+	HO-166M	184.41		72.60	1.15E-01	8.08E-02	8.08E-02
		280.45		29.60	5.19E-02		1.99E-01
		410.94		11.10	3.97E-01		6.32E-01
		711.69		54.10	2.19E-02		1.52E-01
+	TM-171	66.72		0.14	-2.79E+01	4.63E+01	4.63E+01
+	HF-172	67.35		5.31	-1.16E-01	4.34E-01	1.21E+00
		125.81		11.30	-6.34E-02		4.34E-01
+	LU-172	181.53		20.60	6.31E+02	2.92E+03	3.93E+03
		900.72		29.81	-2.98E+03		4.46E+03
		1093.66		62.50	1.61E+03		2.92E+03
+	LU-173	100.72		5.24	1.69E-01	3.40E-01	9.14E-01
		272.11		21.20	1.68E-01		3.40E-01
+	HF-175	343.40		84.00	-1.19E-02	1.74E-01	1.74E-01
+	LU-176	88.34		13.30	2.44E-01	5.50E-02	4.44E-01
		201.83		86.00	-3.04E-02		5.50E-02
		306.78		94.00	-7.95E-03		6.44E-02
+	HF-181	133.02		41.70	-1.80E-01	4.00E-01	4.85E-01
		345.85		17.20	-1.08E-01		1.57E+00
		482.03		82.80	3.21E-01		4.00E-01
+	TA-182	67.75		41.20	-2.40E-02	2.49E-01	2.49E-01
		1121.30		34.90	1.14E+00		7.41E-01
		1189.05		16.23	-6.61E-01		1.08E+00
		1221.41		26.98	1.46E-01		7.89E-01
		1231.02		11.44	1.24E+00		1.96E+00
+	IR-192	308.46		29.68	1.07E-01	3.22E-01	4.91E-01
		468.07		48.10	-1.99E-01		3.22E-01
+	HG-203	279.19		77.30	-6.70E-02	3.09E-01	3.09E-01
+	TL-204	374.74		94.11	-2.30E-02	6.50E-02	6.50E-02
		899.15		99.16	-6.08E-02		7.93E-02
		911.74		91.10	4.16E-01		1.87E-01
+	BI-207	569.67		97.72	-1.60E-04	7.09E-02	7.09E-02
		1063.62		74.90	-7.37E-03		1.24E-01
+	TL-208	583.14		30.22	1.37E+00	4.75E-01	4.75E-01
		860.37		4.48	6.54E-01		2.06E+00
		2614.66		35.85	1.06E+00		6.23E-01
+	BI-210M	262.00		45.00	-3.47E-02	1.28E-01	1.28E-01
		300.00		23.00	-6.45E-01		2.89E-01
+	PB-210	46.50		4.25	2.71E+00	1.84E+00	1.84E+00
+	PB-211	404.84		2.90	-1.50E+00	2.20E+00	2.20E+00
		831.96		2.90	7.74E-01		2.65E+00
+	BI-212	727.17	*	11.80	1.02E+00	8.68E-01	8.68E-01
		1620.62		2.75	4.29E-02		3.33E+00
+	PB-212	238.63	*	44.60	1.53E+00	2.35E-01	2.35E-01
		300.09	*	3.41	8.22E-01		1.57E+00
+	BI-214	609.31	*	46.30	1.06E+00	2.10E-01	2.10E-01
		1120.29	*	15.10	1.16E+00		1.10E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	BI-214	1764.49	*	15.80	9.89E-01	2.10E-01	3.93E-01
		2204.22		4.98	-3.16E-02		2.13E+00
+	PB-214	295.21	*	19.19	1.00E+00	1.95E-01	3.10E-01
		351.92	*	37.19	1.04E+00		1.95E-01
+	RN-219	401.80		6.50	3.40E-01	9.97E-01	9.97E-01
+	RA-223	323.87		3.88	2.47E-01	1.61E+00	1.61E+00
+	RA-224	240.98		3.95	1.71E+01	3.02E+00	3.02E+00
+	RA-225	40.00		31.00	1.52E+01	2.46E+01	2.46E+01
+	RA-226	186.21	*	3.28	2.69E+00	2.19E+00	2.19E+00
+	TH-227	50.10		8.40	-1.26E+00	7.78E-01	7.78E-01
		236.00		11.50	7.49E-01		8.20E-01
		256.20		6.30	2.43E-01		9.35E-01
+	AC-228	338.32	*	11.40	1.57E+00	6.19E-01	7.66E-01
		911.07	*	27.70	1.14E+00		6.19E-01
		969.11	*	16.60	1.06E+00		8.20E-01
+	TH-230	48.44		16.90	2.76E-01	4.28E-01	4.28E-01
		62.85		4.60	5.32E-01		1.36E+00
		67.67		0.37	-1.51E+00		1.57E+01
+	PA-231	283.67		1.60	9.69E-01	2.82E+00	3.56E+00
		302.67		2.30	-3.84E-02		2.82E+00
+	TH-231	25.64		14.70	-1.10E+00	8.32E-01	2.61E+00
		84.21		6.40	-8.48E-01		8.32E-01
+	PA-233	311.98		38.60	-9.93E-02	1.71E+00	1.71E+00
+	PA-234	131.20		20.40	1.05E-01	2.22E-01	2.22E-01
		733.99		8.80	-1.98E-01		7.52E-01
		946.00		12.00	1.80E-01		7.57E-01
+	PA-234M	1001.03		0.92	1.42E+00	1.07E+01	1.07E+01
+	TH-234	63.29		3.80	8.77E-01	1.64E+00	1.64E+00
+	U-235	143.76		10.50	4.95E-02	4.44E-01	4.44E-01
		163.35		4.70	1.33E-01		9.80E-01
		205.31		4.70	5.14E-02		1.29E+00
+	NP-237	86.50	*	12.60	1.19E+00	9.21E-01	9.21E-01
+	NP-239	106.10		22.70	5.43E+10	2.09E+11	2.09E+11
		228.18		10.70	-1.89E+11		6.01E+11
		277.60		14.10	8.25E+10		4.73E+11
+	AM-241	59.54		35.90	7.81E-02	1.73E-01	1.73E-01
+	AM-243	74.67	*	66.00	2.65E-01	1.62E-01	1.62E-01
+	CM-243	209.75	*	3.29	9.21E-01	4.55E-01	1.87E+00
		228.14		10.60	-1.73E-01		5.50E-01
		277.60	*	14.00	2.98E-01		4.55E-01

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

Analysis Report for 1707082-19

HTC-A01-S006-3036-01

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	2.29E+00	2.29E+00	8.20E-01	1.09E+00
	NA-22	1274.54		99.94	1.08E-01	1.08E-01	-6.74E-03	4.96E-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	6.22E-02	6.22E-02	0.00E+00	2.55E-02
+	K-40	1460.81	*	10.67	1.16E+00	1.16E+00	1.83E+01	5.38E-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	6.16E-02	6.16E-02	-5.93E-03	3.02E-02
		78.34		96.00	7.64E-02		1.82E-01	3.76E-02
	SC-46	889.25		99.98	1.76E-01	1.76E-01	-2.95E-02	8.13E-02
		1120.51		99.99	3.18E-01		5.01E-01	1.51E-01
	V-48	983.52		99.98	4.68E+00	4.68E+00	-9.70E-01	2.13E+00
		1312.10		97.50	5.56E+00		1.43E+00	2.52E+00
	CR-51	320.08		9.83	6.13E+00	6.13E+00	-4.61E+00	2.93E+00
	MN-54	834.83		99.97	9.69E-02	9.69E-02	-5.15E-03	4.48E-02
	CO-56	846.75		99.96	1.81E-01	1.81E-01	-2.59E-03	8.35E-02
		1037.75		14.03	1.54E+00		1.00E-01	7.11E-01
		1238.25		67.00	3.94E-01		2.18E-02	1.83E-01
		1771.40		15.51	7.88E-01		-1.80E-01	3.13E-01
		2598.48		16.90	8.43E-01		0.00E+00	3.27E-01
	CO-57	122.06		85.51	6.27E-02	6.27E-02	-3.44E-02	3.04E-02
		136.48		10.60	5.40E-01		2.26E-01	2.62E-01
	CO-58	810.76		99.40	1.97E-01	1.97E-01	1.37E-03	9.14E-02
	FE-59	1099.22		56.50	6.98E-01	6.98E-01	-3.51E-01	3.20E-01
		1291.56		43.20	1.01E+00		-4.31E-01	4.62E-01
	CO-60	1173.22		100.00	1.05E-01	8.45E-02	-1.47E-02	4.84E-02
		1332.49		100.00	8.45E-02		-1.72E-02	3.77E-02
	ZN-65	1115.52		50.75	2.48E-01	2.48E-01	-6.79E-01	1.14E-01
	GA-67	93.31		35.70	7.68E+07	7.68E+07	1.09E+08	3.76E+07
		208.95		2.24	1.41E+09		5.15E+08	6.84E+08
		300.22		16.00	2.07E+08		-4.63E+08	1.00E+08
	SE-75	121.11		16.70	4.36E-01	1.26E-01	-1.16E-01	2.11E-01
		136.00		59.20	1.26E-01		-3.29E-02	6.13E-02
		264.65		59.80	1.66E-01		-2.47E-02	8.02E-02
		279.53		25.20	4.07E-01		1.16E-02	1.96E-01
		400.65		11.40	9.65E-01		-5.99E-02	4.59E-01
	RB-82	776.52		13.00	8.18E+00	8.18E+00	-2.15E+00	3.81E+00

Analysis Report for 1707082-19

HTC-A01-S006-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	RB-83	520.41		46.00	3.05E-01	3.05E-01	-7.64E-02	1.43E-01
		529.64		30.30	4.41E-01		-1.88E-01	2.06E-01
		552.65		16.40	8.56E-01		-1.68E-01	4.02E-01
	KR-85	513.99		0.43	2.22E+01	2.22E+01	3.33E+00	1.06E+01
	SR-85	513.99		99.27	2.61E-01	2.61E-01	3.92E-02	1.25E-01
	Y-88	898.02		93.40	1.51E-01	1.41E-01	-1.08E-01	6.95E-02
		1836.01		99.38	1.41E-01		6.87E-02	5.98E-02
	MO-93	263.06		56.72	1.04E-01	7.63E-02	1.17E-03	5.03E-02
		684.67		99.68	7.63E-02		-2.81E-02	3.56E-02
		1477.11		99.08	8.74E-02		3.71E-02	3.88E-02
	NB-93M	16.57		9.43	6.47E+01	6.47E+01	-2.27E+01	3.15E+01
	NB-94	702.63		100.00	8.32E-02	7.46E-02	5.79E-03	3.90E-02
		871.10		100.00	7.46E-02		-3.51E-03	3.42E-02
	NB-95	765.79		99.81	5.52E-01	5.52E-01	2.52E-01	2.58E-01
	NB-95M	235.69		25.00	2.72E+07	2.72E+07	2.48E+07	1.33E+07
	ZR-95	724.18		43.70	5.64E-01	4.32E-01	8.04E-02	2.66E-01
		756.72		55.30	4.32E-01		1.61E-01	2.03E-01
	MO-99	181.06		6.20	1.57E+10	1.32E+10	1.69E+09	7.61E+09
		739.58		12.80	1.32E+10		8.03E+09	6.17E+09
		778.00		4.50	3.77E+10		-1.29E+10	1.76E+10
	RU-103	497.08		89.00	3.88E-01	3.88E-01	-4.06E-03	1.83E-01
	RU-106	621.84		9.80	8.81E-01	8.81E-01	6.56E-03	4.13E-01
	AG-108M	433.93		89.90	6.94E-02	6.94E-02	-2.36E-02	3.29E-02
		614.37		90.40	8.68E-02		-7.83E-03	4.09E-02
		722.95		90.50	8.75E-02		1.36E-02	4.09E-02
+	CD-109	88.03	*	3.72	3.59E+00	3.59E+00	4.63E+00	1.78E+00
	AG-110M	657.75		93.14	1.06E-01	1.06E-01	-3.79E-03	4.97E-02
		677.61		10.53	9.99E-01		2.15E-01	4.69E-01
		706.67		16.46	5.77E-01		-4.80E-01	2.68E-01
		763.93		21.98	4.52E-01		-3.32E-01	2.10E-01
		884.67		71.63	1.43E-01		-7.12E-02	6.59E-02
		1384.27		23.94	4.10E-01		-2.03E-02	1.80E-01
	CD-113M	263.70		0.02	2.54E+02	2.54E+02	-2.34E+01	1.23E+02
	SN-113	255.12		1.93	5.28E+00	1.80E-01	2.20E-01	2.55E+00
		391.69		64.90	1.80E-01		6.44E-02	8.61E-02
	TE123M	159.00		84.10	9.23E-02	9.23E-02	-2.76E-02	4.47E-02
	SB-124	602.71		97.87	2.33E-01	2.33E-01	1.21E-01	1.10E-01
		645.85		7.26	2.93E+00		-8.33E-02	1.37E+00
		722.78		11.10	2.11E+00		3.29E-01	9.84E-01
		1691.02		49.00	4.31E-01		1.05E-01	1.83E-01
	I-125	35.49		6.49	5.22E+00	5.22E+00	-9.82E-01	2.54E+00
	SB-125	176.33		6.89	7.35E-01	2.29E-01	-1.19E-01	3.56E-01
		427.89		29.33	2.29E-01		9.76E-02	1.08E-01
		463.38		10.35	7.93E-01		5.85E-01	3.79E-01
		600.56		17.80	4.60E-01		1.50E-01	2.17E-01
		635.90		11.32	6.64E-01		-1.20E-01	3.10E-01
	SB-126	414.70		83.30	1.48E+01	1.48E+01	-6.89E+00	7.01E+00
		666.33		99.60	1.61E+01		-6.08E+00	7.60E+00
		695.00		99.60	1.70E+01		1.87E+00	8.03E+00
		720.50		53.80	2.64E+01		-4.03E+00	1.23E+01
+	SN-126	87.57	*	37.00	3.14E-01	3.14E-01	4.04E-01	1.55E-01
	SB-127	473.00		25.00	5.71E+06	4.89E+06	1.13E+06	2.69E+06
		685.20		35.70	4.89E+06		-1.80E+06	2.28E+06

Analysis Report for 1707082-19

HTC-A01-S006-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	SB-127	783.80		14.70	1.37E+07	4.89E+06	6.93E+06	6.39E+06
	I-129	29.78		57.00	3.61E-01	3.61E-01	-2.39E-02	1.76E-01
		33.60		13.20	1.03E+00		5.47E-01	4.99E-01
		39.58		7.52	1.26E+00		7.76E-01	6.12E-01
	I-131	284.30		6.05	3.31E+03	2.65E+02	8.67E+02	1.59E+03
		364.48		81.20	2.65E+02		6.03E+01	1.27E+02
		636.97		7.26	3.37E+03		1.43E+02	1.58E+03
		722.89		1.80	1.48E+04		2.31E+03	6.92E+03
	TE-132	49.72		13.10	2.56E+08	3.35E+07	-4.14E+08	1.25E+08
		228.16		88.00	3.35E+07		-1.05E+07	1.62E+07
	BA-133	81.00		33.00	1.69E-01	1.47E-01	-5.30E-01	8.27E-02
		302.84		17.80	3.71E-01		-5.04E-03	1.79E-01
		356.01		60.00	1.47E-01		-4.30E-02	7.11E-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	3.71E+04	3.71E+04	-1.16E+05	1.82E+04
	CS-134	563.23		8.38	9.38E-01	9.36E-02	2.02E-01	4.42E-01
		569.32		15.43	4.98E-01		1.70E-01	2.34E-01
		604.70		97.60	9.36E-02		5.47E-03	4.43E-02
		795.84		85.40	1.03E-01		-1.91E-02	4.78E-02
		801.93		8.73	9.39E-01		-3.93E-01	4.34E-01
	CS-135	268.24		16.00	3.88E-01	3.88E-01	8.59E-02	1.87E-01
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	9.13E+01	1.07E+01	3.11E+01	4.43E+01
		163.89		4.61	1.43E+02		1.94E+01	6.94E+01
		176.55		13.56	5.01E+01		-8.14E+00	2.43E+01
		273.65		12.66	7.17E+01		2.35E+01	3.46E+01
		340.57		48.50	2.39E+01		-2.50E+00	1.16E+01
		818.50		99.70	1.07E+01		1.76E+00	4.92E+00
		1048.07		79.60	1.45E+01		-2.54E+00	6.60E+00
		1235.34		19.70	8.95E+01		6.58E+00	4.18E+01
+	CS-137	661.65	*	85.12	1.38E-01	1.38E-01	1.03E-01	6.62E-02
	LA-138	788.74		34.00	2.26E-01	1.06E-01	-8.57E-02	1.05E-01
		1435.80		66.00	1.06E-01		-3.84E-02	4.57E-02
	CE-139	165.85		80.35	9.24E-02	9.24E-02	3.22E-02	4.47E-02
	BA-140	162.64		6.70	1.12E+02	4.70E+01	-4.55E+01	5.42E+01
		304.84		4.50	2.29E+02		4.15E+01	1.10E+02
		423.70		3.20	3.28E+02		1.55E-01	1.56E+02
		437.55		2.00	5.45E+02		2.18E+02	2.59E+02
		537.32		25.00	4.70E+01		1.32E+01	2.22E+01
	LA-140	328.77		20.50	5.09E+01	1.50E+01	2.65E+00	2.44E+01
		487.03		45.50	2.31E+01		-6.32E+00	1.09E+01
		815.85		23.50	5.16E+01		2.42E+00	2.38E+01
		1596.49		95.49	1.50E+01		1.63E+00	6.60E+00
	CE-141	145.44		48.40	7.47E-01	7.47E-01	3.41E-01	3.63E-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	5.00E-01	5.00E-01	-1.55E-01	2.42E-01
	PM-144	476.78		42.00	1.95E-01	7.99E-02	2.91E-02	9.24E-02
		618.01		98.60	7.99E-02		1.24E-02	3.72E-02
		696.49		99.49	1.06E-01		-5.60E-03	5.00E-02

Analysis Report for 1707082-19

HTC-A01-S006-3036-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
PM-145	36.85	21.70	4.86E-01	2.68E-01	-4.63E-01	2.36E-01
	37.36	39.70	2.68E-01		6.29E-02	1.30E-01
	42.30	15.10	5.36E-01		-5.73E-01	2.61E-01
	72.40	2.31	2.81E+00		-6.09E+00	1.38E+00
PM-146	453.90	39.94	1.62E-01	1.62E-01	-3.85E-02	7.65E-02
	735.90	14.01	5.27E-01		3.34E-02	2.44E-01
	747.13	13.10	6.33E-01		-6.16E-02	2.95E-01
ND-147	91.11	28.90	7.61E+01	7.61E+01	-2.27E+01	3.73E+01
	531.02	13.10	1.86E+02		-4.75E+01	8.71E+01
PM-149	285.90	3.10	1.32E+13	1.32E+13	3.06E+12	6.37E+12
EU-152	121.78	20.50	2.08E-01	2.08E-01	-1.14E-01	1.01E-01
	244.69	5.40	1.30E+00		1.28E-01	6.32E-01
	344.27	19.13	3.05E-01		-2.09E-02	1.46E-01
	778.89	9.20	8.98E-01		-2.38E-01	4.18E-01
	964.01	10.40	1.01E+00		-1.66E+00	4.71E-01
	1085.78	7.22	1.39E+00		3.47E-01	6.41E-01
	1112.02	9.60	1.05E+00		-1.48E-01	4.87E-01
	1407.95	14.94	6.22E-01		2.70E-01	2.80E-01
GD-153	97.43	31.30	1.83E-01	1.83E-01	5.31E-02	8.90E-02
	103.18	22.20	2.38E-01		-2.88E-01	1.15E-01
EU-154	123.07	40.50	1.10E-01	1.10E-01	8.82E-03	5.35E-02
	723.30	19.70	4.10E-01		6.39E-02	1.91E-01
	873.19	11.50	6.41E-01		-1.57E-01	2.93E-01
	996.32	10.30	9.01E-01		-4.05E-02	4.16E-01
	1004.76	17.90	4.82E-01		-2.42E-01	2.21E-01
	1274.45	35.50	2.91E-01		-1.81E-02	1.33E-01
EU-155	86.50	30.90	1.95E-01	1.95E-01	1.88E-01	9.55E-02
	105.30	20.70	2.14E-01		5.55E-02	1.04E-01
EU-156	811.77	10.40	5.43E+01	5.43E+01	-1.04E-01	2.51E+01
	1153.47	7.20	1.05E+02		-2.56E+00	4.87E+01
	1230.71	8.90	1.05E+02		6.63E+01	4.89E+01
HO-166M	184.41	72.60	8.08E-02	8.08E-02	1.15E-01	3.93E-02
	280.45	29.60	1.99E-01		5.19E-02	9.56E-02
	410.94	11.10	6.32E-01		3.97E-01	3.02E-01
	711.69	54.10	1.52E-01		2.19E-02	7.12E-02
TM-171	66.72	0.14	4.63E+01	4.63E+01	-2.79E+01	2.27E+01
HF-172	67.35	5.31	1.21E+00	4.34E-01	-1.16E-01	5.91E-01
	125.81	11.30	4.34E-01		-6.34E-02	2.11E-01
LU-172	181.53	20.60	3.93E+03	2.92E+03	6.31E+02	1.90E+03
	900.72	29.81	4.46E+03		-2.98E+03	2.05E+03
	1093.66	62.50	2.92E+03		1.61E+03	1.35E+03
LU-173	100.72	5.24	9.14E-01	3.40E-01	1.69E-01	4.44E-01
	272.11	21.20	3.40E-01		1.68E-01	1.64E-01
HF-175	343.40	84.00	1.74E-01	1.74E-01	-1.19E-02	8.30E-02
LU-176	88.34	13.30	4.44E-01	5.50E-02	2.44E-01	2.18E-01
	201.83	86.00	5.50E-02		-3.04E-02	2.65E-02
	306.78	94.00	6.44E-02		-7.95E-03	3.09E-02
HF-181	133.02	41.70	4.85E-01	4.00E-01	-1.80E-01	2.35E-01
	345.85	17.20	1.57E+00		-1.08E-01	7.49E-01
	482.03	82.80	4.00E-01		3.21E-01	1.90E-01
TA-182	67.75	41.20	2.49E-01	2.49E-01	-2.40E-02	1.22E-01
	1121.30	34.90	7.41E-01		1.14E+00	3.51E-01
	1189.05	16.23	1.08E+00		-6.61E-01	4.94E-01

Analysis Report for 1707082-19

HTC-A01-S006-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TA-182	1221.41		26.98	7.89E-01	2.49E-01	1.46E-01	3.68E-01
		1231.02		11.44	1.96E+00		1.24E+00	9.14E-01
	IR-192	308.46		29.68	4.91E-01	3.22E-01	1.07E-01	2.35E-01
		468.07		48.10	3.22E-01		-1.99E-01	1.52E-01
	HG-203	279.19		77.30	3.09E-01	3.09E-01	-6.70E-02	1.49E-01
	TL-204	374.74		94.11	6.50E-02	6.50E-02	-2.30E-02	3.09E-02
		899.15		99.16	7.93E-02		-6.08E-02	3.63E-02
		911.74		91.10	1.87E-01		4.16E-01	8.97E-02
	BI-207	569.67		97.72	7.09E-02	7.09E-02	-1.60E-04	3.33E-02
		1063.62		74.90	1.24E-01		-7.37E-03	5.72E-02
	TL-208	583.14		30.22	4.75E-01	4.75E-01	1.37E+00	2.31E-01
		860.37		4.48	2.06E+00		6.54E-01	9.62E-01
		2614.66		35.85	6.23E-01		1.06E+00	2.92E-01
	BI-210M	262.00		45.00	1.28E-01	1.28E-01	-3.47E-02	6.16E-02
		300.00		23.00	2.89E-01		-6.45E-01	1.39E-01
	PB-210	46.50		4.25	1.84E+00	1.84E+00	2.71E+00	9.01E-01
	PB-211	404.84		2.90	2.20E+00	2.20E+00	-1.50E+00	1.04E+00
		831.96		2.90	2.65E+00		7.74E-01	1.22E+00
+	BI-212	727.17	*	11.80	8.68E-01	8.68E-01	1.02E+00	4.12E-01
		1620.62		2.75	3.33E+00		4.29E-02	1.48E+00
+	PB-212	238.63	*	44.60	2.35E-01	2.35E-01	1.53E+00	1.15E-01
		300.09	*	3.41	1.57E+00		8.22E-01	7.52E-01
+	BI-214	609.31	*	46.30	2.10E-01	2.10E-01	1.06E+00	1.00E-01
		1120.29	*	15.10	1.10E+00		1.16E+00	5.27E-01
		1764.49	*	15.80	3.93E-01		9.89E-01	1.62E-01
		2204.22		4.98	2.13E+00		-3.16E-02	9.35E-01
+	PB-214	295.21	*	19.19	3.10E-01	1.95E-01	1.00E+00	1.49E-01
		351.92	*	37.19	1.95E-01		1.04E+00	9.39E-02
	RN-219	401.80		6.50	9.97E-01	9.97E-01	3.40E-01	4.75E-01
	RA-223	323.87		3.88	1.61E+00	1.61E+00	2.47E-01	7.72E-01
	RA-224	240.98		3.95	3.02E+00	3.02E+00	1.71E+01	1.48E+00
	RA-225	40.00		31.00	2.46E+01	2.46E+01	1.52E+01	1.20E+01
+	RA-226	186.21	*	3.28	2.19E+00	2.19E+00	2.69E+00	1.07E+00
	TH-227	50.10		8.40	7.78E-01	7.78E-01	-1.26E+00	3.79E-01
		236.00		11.50	8.20E-01		7.49E-01	4.02E-01
		256.20		6.30	9.35E-01		2.43E-01	4.51E-01
+	AC-228	338.32	*	11.40	7.66E-01	6.19E-01	1.57E+00	3.71E-01
		911.07	*	27.70	6.19E-01		1.14E+00	2.98E-01
		969.11	*	16.60	8.20E-01		1.06E+00	3.90E-01
	TH-230	48.44		16.90	4.28E-01	4.28E-01	2.76E-01	2.09E-01
		62.85		4.60	1.36E+00		5.32E-01	6.67E-01
		67.67		0.37	1.57E+01		-1.51E+00	7.69E+00
	PA-231	283.67		1.60	3.56E+00	2.82E+00	9.69E-01	1.71E+00
		302.67		2.30	2.82E+00		-3.84E-02	1.36E+00
	TH-231	25.64		14.70	2.61E+00	8.32E-01	-1.10E+00	1.27E+00
		84.21		6.40	8.32E-01		-8.48E-01	4.07E-01
	PA-233	311.98		38.60	1.71E+00	1.71E+00	-9.93E-02	8.21E-01
	PA-234	131.20		20.40	2.22E-01	2.22E-01	1.05E-01	1.08E-01
		733.99		8.80	7.52E-01		-1.98E-01	3.46E-01
		946.00		12.00	7.57E-01		1.80E-01	3.51E-01
	PA-234M	1001.03		0.92	1.07E+01	1.07E+01	1.42E+00	4.98E+00
	TH-234	63.29		3.80	1.64E+00	1.64E+00	8.77E-01	8.05E-01
	U-235	143.76		10.50	4.44E-01	4.44E-01	4.95E-02	2.15E-01

Analysis Report for 1707082-19

HTC-A01-S006-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	U-235	163.35		4.70	9.80E-01	4.44E-01	1.33E-01	4.75E-01
		205.31		4.70	1.29E+00		5.14E-02	6.27E-01
+	NP-237	86.50	*	12.60	9.21E-01	9.21E-01	1.19E+00	4.56E-01
	NP-239	106.10		22.70	2.09E+11	2.09E+11	5.43E+10	1.02E+11
		228.18		10.70	6.01E+11		-1.89E+11	2.91E+11
		277.60		14.10	4.73E+11		8.25E+10	2.28E+11
	AM-241	59.54		35.90	1.73E-01	1.73E-01	7.81E-02	8.48E-02
+	AM-243	74.67	*	66.00	1.62E-01	1.62E-01	2.65E-01	8.03E-02
+	CM-243	209.75	*	3.29	1.87E+00	4.55E-01	9.21E-01	9.10E-01
		228.14		10.60	5.50E-01		-1.73E-01	2.66E-01
		277.60	*	14.00	4.55E-01		2.98E-01	2.19E-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

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-S006-3036-01

Elapsed Live time: 3600
Elapsed Real Time: 3610

Channel								
1:	0	0	0	0	0	0	0	0
9:	10	159	197	146	158	138	96	108
17:	87	87	92	78	82	79	99	91
25:	72	75	93	87	87	82	69	88
33:	78	78	74	81	70	87	84	111
41:	88	91	86	75	99	108	156	125
49:	98	89	107	96	127	87	104	103
57:	98	125	150	141	139	132	145	188
65:	155	142	138	146	146	143	139	163
73:	140	182	308	338	351	434	221	141
81:	125	120	110	137	141	125	168	214
89:	168	134	161	147	186	191	110	90
97:	95	80	90	93	76	64	86	72
105:	73	100	100	70	78	82	84	92
113:	71	67	74	82	74	72	76	65
121:	74	82	69	73	90	87	73	74
129:	90	83	82	63	74	64	70	74
137:	69	69	90	65	65	72	74	80
145:	69	82	87	85	73	69	57	87
153:	74	73	73	72	55	58	76	63
161:	57	53	73	59	64	64	70	51
169:	51	51	53	68	58	67	55	59
177:	66	61	58	67	58	53	53	53
185:	75	98	154	78	44	42	60	62
193:	45	59	43	47	58	52	61	51
201:	46	49	43	52	52	61	55	52
209:	78	74	53	41	52	59	51	50
217:	52	40	45	46	48	50	49	53
225:	52	50	40	45	42	38	34	36
233:	52	36	39	46	57	137	406	305
241:	113	110	88	45	33	34	47	30
249:	35	28	36	30	38	39	37	31
257:	34	38	38	36	32	29	27	32
265:	40	42	31	30	34	36	50	38
273:	41	30	37	28	41	52	31	25
281:	17	25	32	35	25	28	37	34
289:	37	21	23	17	35	32	86	118
297:	60	22	22	28	52	35	28	31
305:	30	28	29	30	24	24	26	31
313:	25	18	31	24	23	20	17	27
321:	30	22	21	36	26	23	31	34
329:	32	32	15	22	21	26	26	24
337:	28	65	100	52	26	16	21	17
345:	33	15	15	22	20	31	69	149
353:	177	47	16	21	18	18	17	19
361:	23	23	23	20	23	19	25	26

369:	19	22	25	19	19	21	10	19

Sample Title: HTC-A01-S006-3036-01

Channel								
377:	18	19	19	18	24	26	25	18
385:	19	13	21	19	27	23	18	21
393:	23	18	21	18	17	16	15	28
401:	20	19	18	17	20	22	12	22
409:	26	22	28	16	13	28	19	14
417:	23	10	16	21	22	22	10	20
425:	12	16	17	17	15	20	17	12
433:	11	18	19	24	8	21	16	18
441:	15	13	15	12	10	13	12	19
449:	18	19	16	18	17	11	11	13
457:	15	13	16	24	17	22	22	31
465:	18	21	19	11	12	13	6	13
473:	16	12	13	16	12	16	18	24
481:	18	12	16	16	13	5	12	20
489:	10	15	18	13	14	14	12	13
497:	19	8	13	15	13	14	13	15
505:	10	14	12	10	24	43	61	50
513:	26	13	7	16	17	9	15	17
521:	9	9	16	11	10	14	9	5
529:	10	14	14	16	7	11	18	9
537:	17	15	11	15	16	8	17	9
545:	9	12	20	6	16	19	10	6
553:	12	10	8	12	16	10	14	11
561:	17	16	13	9	7	17	12	10
569:	13	5	16	11	13	9	13	8
577:	12	12	16	11	12	46	134	94
585:	39	20	13	13	10	13	16	16
593:	8	6	9	10	15	15	4	15
601:	19	15	13	10	7	12	9	42
609:	118	107	38	18	9	9	5	6
617:	6	8	9	16	12	11	9	13
625:	5	9	17	6	12	7	9	9
633:	8	5	9	12	7	14	13	12
641:	13	10	13	11	8	7	9	12
649:	9	9	9	15	14	12	10	5
657:	13	7	9	13	18	32	22	12
665:	14	10	17	8	5	9	11	10
673:	15	12	10	13	11	5	17	13
681:	12	6	9	11	8	11	6	16
689:	13	9	11	14	13	12	12	14
697:	8	18	13	15	14	13	15	9
705:	6	8	11	6	9	11	15	10
713:	14	9	8	15	7	9	5	8
721:	10	9	11	6	11	13	27	24
729:	14	11	10	4	6	4	8	5
737:	8	8	14	15	5	10	11	4
745:	9	8	11	12	11	11	9	10
753:	12	16	17	10	6	8	8	10
761:	4	10	9	9	13	6	6	17
769:	12	7	9	14	11	8	13	5
777:	9	12	9	9	8	11	14	7
785:	13	6	11	7	4	9	12	5
793:	8	11	12	8	12	3	5	9

801:	11	5	7	9	4	12	9	8

Sample Title: HTC-A01-S006-3036-01

Channel								
809:	13	3	5	11	5	8	6	5
817:	8	7	7	5	5	10	6	4
825:	12	4	3	5	9	10	7	7
833:	4	3	9	11	13	4	7	13
841:	10	6	10	4	8	6	7	10
849:	4	11	6	7	13	5	8	6
857:	8	5	10	17	16	6	6	8
865:	9	15	7	7	7	6	4	7
873:	6	5	7	4	6	8	5	7
881:	6	9	10	5	4	6	8	4
889:	11	10	2	7	7	13	11	6
897:	5	6	5	6	3	9	9	5
905:	9	16	6	3	10	40	71	59
913:	9	7	5	8	8	5	3	4
921:	4	5	7	3	7	8	6	7
929:	4	8	6	8	8	8	12	12
937:	5	8	9	2	6	6	5	8
945:	14	11	4	6	7	7	7	8
953:	5	11	7	3	6	5	5	8
961:	8	7	7	6	22	13	7	35
969:	29	20	8	3	5	4	5	7
977:	8	9	5	8	5	7	3	8
985:	5	5	4	2	10	7	6	6
993:	2	6	4	7	12	7	12	11
1001:	7	8	6	8	6	7	4	3
1009:	10	6	4	5	5	7	7	2
1017:	8	7	3	5	3	7	7	11
1025:	4	5	8	7	7	8	4	3
1033:	10	6	13	6	7	3	3	7
1041:	11	7	5	4	5	5	8	5
1049:	6	5	1	7	6	6	7	4
1057:	6	11	9	8	12	7	5	7
1065:	6	5	4	9	3	8	8	11
1073:	4	7	7	5	12	5	10	5
1081:	7	5	11	5	6	11	5	5
1089:	8	4	8	11	9	6	8	15
1097:	2	8	2	7	6	2	7	11
1105:	7	3	7	6	8	8	2	9
1113:	7	11	5	4	3	7	25	32
1121:	24	11	9	3	5	5	4	6
1129:	5	7	8	3	8	3	1	7
1137:	6	5	6	10	7	7	10	3
1145:	5	7	10	1	7	6	5	2
1153:	11	6	14	6	3	6	8	11
1161:	10	6	2	5	14	8	6	7
1169:	6	3	9	8	12	9	3	3
1177:	7	9	12	7	7	11	6	7
1185:	10	6	8	3	4	10	5	7
1193:	8	11	7	3	9	5	3	8
1201:	5	11	7	7	8	4	8	10
1209:	13	7	5	12	11	8	11	5
1217:	7	12	13	9	8	12	3	6
1225:	12	6	8	9	11	11	11	11

1233:	9	7	4	7	13	14	9	5

Sample Title: HTC-A01-S006-3036-01

Channel								
1241:	4	9	6	8	5	4	4	12
1249:	9	9	4	9	9	7	3	8
1257:	6	6	5	5	5	4	7	6
1265:	7	6	7	3	5	7	4	5
1273:	5	8	7	8	3	4	8	5
1281:	9	5	5	7	5	10	8	8
1289:	6	6	2	3	10	4	7	6
1297:	5	8	4	4	2	11	4	9
1305:	8	2	4	2	3	3	3	4
1313:	5	7	5	2	5	3	3	2
1321:	3	7	5	1	1	2	3	3
1329:	6	2	4	5	4	1	1	4
1337:	5	2	4	3	4	4	2	1
1345:	3	5	2	1	4	1	3	5
1353:	5	6	1	1	0	4	3	3
1361:	2	5	6	5	7	7	2	4
1369:	4	3	4	3	2	4	1	2
1377:	4	3	3	5	1	2	4	2
1385:	3	2	4	1	2	5	2	2
1393:	2	2	2	0	2	2	4	4
1401:	1	4	2	3	3	2	8	6
1409:	5	2	1	1	3	1	3	4
1417:	0	1	3	5	4	0	2	2
1425:	2	2	3	4	0	3	5	4
1433:	2	3	2	1	2	1	3	2
1441:	2	4	1	1	0	3	1	4
1449:	7	2	1	3	0	3	2	1
1457:	7	36	105	200	165	54	3	1
1465:	3	1	2	2	0	2	1	2
1473:	2	5	2	1	1	5	1	3
1481:	1	1	1	1	1	0	1	1
1489:	0	2	1	1	4	2	2	0
1497:	1	3	1	6	4	0	1	0
1505:	1	1	1	3	3	4	3	3
1513:	2	4	1	0	1	4	2	0
1521:	0	5	0	1	0	0	4	2
1529:	2	1	3	4	1	2	1	2
1537:	2	1	2	3	2	3	1	1
1545:	2	0	1	2	4	0	0	2
1553:	1	1	0	2	0	1	1	3
1561:	2	0	1	0	0	1	1	3
1569:	2	1	0	1	1	2	0	0
1577:	1	2	1	3	0	1	3	1
1585:	1	3	5	2	1	1	2	8
1593:	5	1	0	1	2	1	0	1
1601:	0	1	1	2	5	0	1	2
1609:	2	2	2	1	0	1	3	3
1617:	4	0	3	4	2	1	1	3
1625:	1	4	0	1	1	2	1	0
1633:	0	1	0	4	0	4	0	0
1641:	2	5	0	1	1	0	0	1
1649:	3	0	0	3	2	0	1	0
1657:	0	1	1	3	2	0	0	1

1665:	1	0	0	1	3	0	1	0

Sample Title: HTC-A01-S006-3036-01

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

2097:	0	1	0	0	5	10	4	0

Sample Title: HTC-A01-S006-3036-01

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

2529:	1	0	0	0	0	1	1	0

Sample Title: HTC-A01-S006-3036-01

Channel								
2537:	1	0	0	0	1	0	2	0
2545:	0	0	0	0	0	0	0	0
2553:	0	0	0	0	0	0	1	1
2561:	0	0	1	0	0	0	0	0
2569:	1	2	0	0	0	0	1	0
2577:	0	0	0	0	0	0	1	2
2585:	0	2	0	0	1	0	0	0
2593:	0	1	0	1	1	0	0	0
2601:	1	0	2	0	0	0	0	1
2609:	1	2	2	21	24	16	6	3
2617:	0	1	0	0	0	0	0	0
2625:	0	0	0	0	1	0	0	1
2633:	0	0	0	0	0	1	0	0
2641:	0	0	0	0	0	1	0	0
2649:	0	0	0	1	0	0	2	0
2657:	0	1	0	0	0	0	0	1
2665:	0	0	0	0	0	1	0	0
2673:	0	0	0	0	0	0	0	0
2681:	0	0	0	0	0	0	0	0
2689:	1	1	0	0	0	2	0	0
2697:	0	0	1	0	0	0	1	0
2705:	0	0	0	1	0	0	0	0
2713:	0	0	0	0	1	0	0	1
2721:	0	0	1	0	0	0	0	1
2729:	0	1	0	0	0	2	0	0
2737:	0	0	0	0	2	0	1	1
2745:	0	0	0	1	0	0	0	2
2753:	0	0	0	0	0	0	0	1
2761:	0	0	0	0	0	0	0	1
2769:	1	0	0	0	0	1	0	0
2777:	1	0	0	0	0	0	0	0
2785:	0	0	0	1	0	0	0	0
2793:	0	0	0	0	0	0	0	0
2801:	0	0	0	1	1	1	0	1
2809:	0	0	0	0	0	0	0	0
2817:	0	0	0	0	0	0	0	2
2825:	0	0	0	0	0	0	1	0
2833:	0	0	0	0	0	0	0	0
2841:	0	1	0	0	1	0	0	0
2849:	1	1	0	0	0	1	0	0
2857:	0	0	0	0	0	0	0	0
2865:	0	0	0	1	0	1	0	0
2873:	1	0	0	0	0	0	0	0
2881:	0	1	0	1	0	0	0	0
2889:	0	1	0	0	0	0	0	0
2897:	0	0	0	0	0	0	1	0
2905:	0	0	0	0	0	0	0	0
2913:	1	0	0	0	1	0	0	1
2921:	0	0	0	0	0	1	1	0
2929:	1	0	0	0	0	0	0	0
2937:	1	1	0	0	1	1	1	0
2945:	0	0	0	0	0	0	0	0
2953:	0	0	0	1	1	0	0	0

2961:	0	0	0	0	1	0	0	0

Sample Title: HTC-A01-S006-3036-01

Channel								
2969:	0	0	0	0	1	2	1	0
2977:	0	0	1	0	0	0	0	0
2985:	0	0	0	1	1	0	0	0
2993:	0	0	1	0	0	1	0	0
3001:	1	0	0	1	0	0	1	1
3009:	0	0	1	0	0	0	0	1
3017:	0	0	1	0	0	0	0	0
3025:	0	0	0	0	1	0	0	0
3033:	0	0	0	0	0	1	0	0
3041:	0	0	0	0	0	0	0	0
3049:	1	0	0	0	0	0	0	0
3057:	1	0	0	0	0	0	0	1
3065:	0	1	0	0	0	1	0	0
3073:	0	0	0	0	0	0	0	0
3081:	0	0	0	0	0	0	0	0
3089:	0	0	0	0	0	0	1	0
3097:	0	0	1	0	0	0	0	0
3105:	1	1	0	0	0	0	0	0
3113:	0	0	0	0	0	1	0	0
3121:	0	0	0	0	1	0	1	0
3129:	0	1	0	0	0	0	0	0
3137:	0	0	0	0	0	1	0	0
3145:	0	1	0	0	0	0	0	0
3153:	1	1	0	0	0	0	0	0
3161:	0	1	0	0	0	1	0	0
3169:	0	0	0	1	1	0	0	0
3177:	0	0	0	0	1	0	0	0
3185:	0	1	0	0	0	0	0	0
3193:	0	0	0	3	0	0	0	0
3201:	1	0	0	0	0	0	0	0
3209:	0	1	0	0	0	0	0	0
3217:	0	0	0	0	1	1	0	0
3225:	0	0	0	0	0	0	0	0
3233:	0	1	0	0	0	0	0	0
3241:	0	0	0	0	0	0	0	2
3249:	0	0	0	0	0	0	0	0
3257:	0	0	0	1	0	0	0	0
3265:	0	1	0	1	0	0	1	0
3273:	1	0	0	0	0	0	0	0
3281:	2	0	0	1	0	0	0	1
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	0	0
3313:	0	1	0	1	1	0	0	0
3321:	0	1	0	0	0	0	0	0
3329:	0	1	0	0	0	0	0	0
3337:	0	1	0	0	1	0	0	0
3345:	0	0	0	0	0	0	0	0
3353:	0	0	0	0	0	0	0	0
3361:	0	0	0	0	0	0	1	0
3369:	0	0	1	0	0	0	0	0
3377:	0	0	0	0	0	0	0	0
3385:	0	0	0	0	0	0	0	0

3393:	1	0	0	0	0	1	0	0

Sample Title: HTC-A01-S006-3036-01

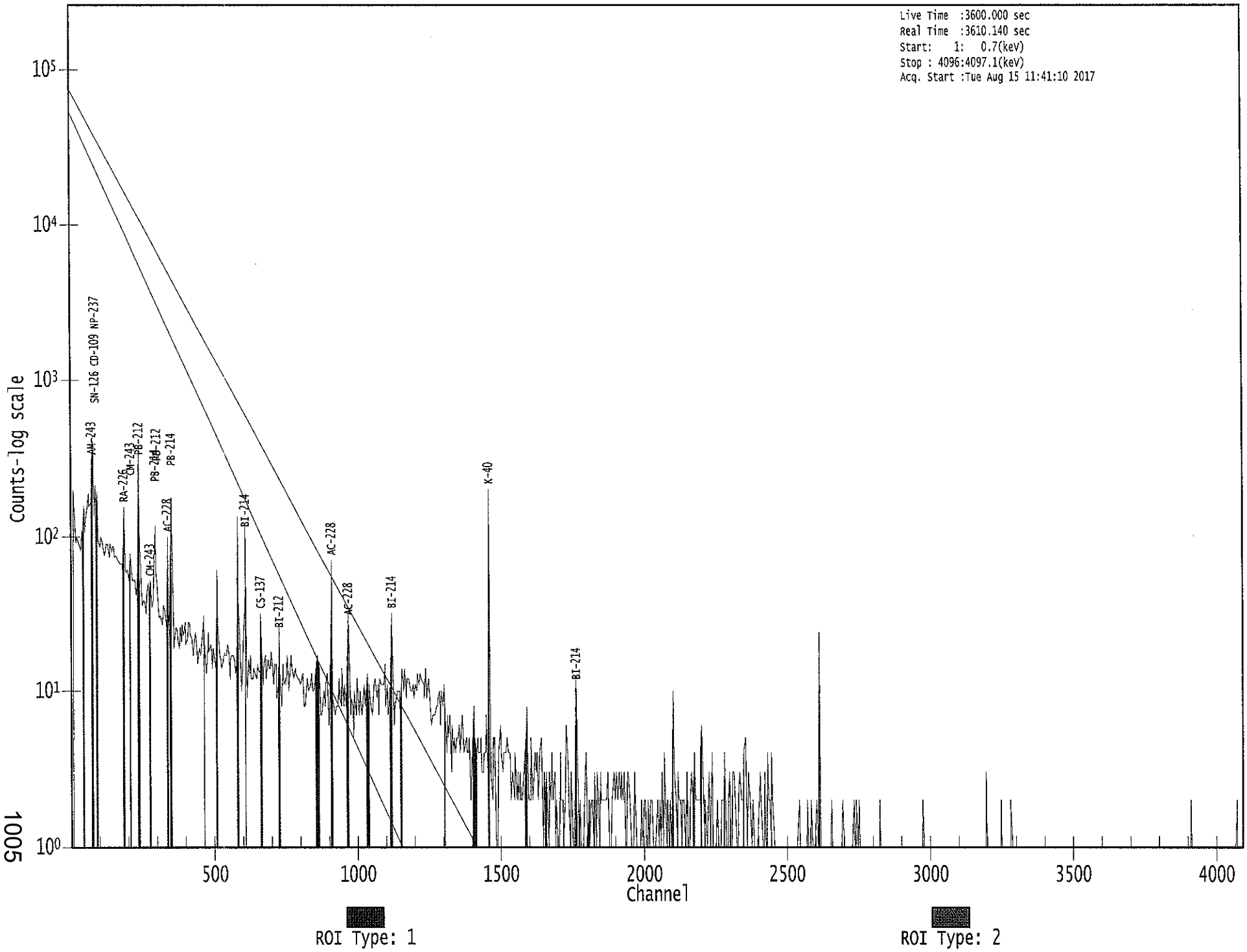
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	1	0	0	0	0	0	0	1
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	1	0	0	0	0	0
3457:	0	0	0	0	0	0	1	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	1	0	0	0	0	0
3489:	0	0	0	0	1	0	0	0
3497:	0	0	1	1	0	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S006-3036-01

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

0000055258.CNF



Apex-Gamma

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Analysis Report for 1707082-20

HTC-A01-S006-3642-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707082-20
Sample Description	: HTC-A01-S006-3642-01
Sample Type	: SOIL
Sample Size	: 6.706E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 6:39:01AM
Acquisition Started	: 8/15/2017 11:41:18AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3637.5 seconds
Dead Time	: 1.03 %
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	: 55259

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/16/17

Analysis Report for 1707082-20

HTC-A01-S006-3642-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/15/2017 12:42:14PM
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	46.92	45.97	0.0000	0.00
2	76.26	75.32	0.0000	0.00
3	87.41	86.47	0.0000	0.00
4	93.03	92.10	0.0000	0.00
5	105.98	105.05	0.0000	0.00
6	128.43	127.50	0.0000	0.00
7	184.74	183.83	0.0000	0.00
8	209.42	208.52	0.0000	0.00
9	239.18	238.29	0.0000	0.00
10	296.38	295.50	0.0000	0.00
11	338.94	338.08	0.0000	0.00
12	351.80	350.95	0.0000	0.00
13	371.35	370.50	0.0000	0.00
14	463.59	462.77	0.0000	0.00
15	497.56	496.76	0.0000	0.00
16	507.80	507.00	0.0000	0.00
17	512.80	512.00	0.0000	0.00
18	531.25	530.46	0.0000	0.00
19	583.07	582.30	0.0000	0.00
20	589.13	588.36	0.0000	0.00
21	609.62	608.86	0.0000	0.00
22	860.44	859.78	0.0000	0.00
23	876.46	875.81	0.0000	0.00
24	910.88	910.25	0.0000	0.00
25	948.43	947.81	0.0000	0.00
26	954.59	953.97	0.0000	0.00
27	964.71	964.10	0.0000	0.00
28	968.83	968.22	0.0000	0.00
29	1019.01	1018.42	0.0000	0.00
30	1095.11	1094.56	0.0000	0.00
31	1107.61	1107.06	0.0000	0.00
32	1119.97	1119.42	0.0000	0.00
33	1236.31	1235.83	0.0000	0.00
34	1297.83	1297.37	0.0000	0.00
35	1348.87	1348.44	0.0000	0.00
36	1380.71	1380.29	0.0000	0.00
37	1404.31	1403.90	0.0000	0.00
38	1460.65	1460.27	0.0000	0.00
39	1497.50	1497.14	0.0000	0.00
40	1572.93	1572.61	0.0000	0.00
41	1592.04	1591.74	0.0000	0.00
42	1621.69	1621.39	0.0000	0.00

Analysis Report for 1707082-20

HTC-A01-S006-3642-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1695.92	1695.66	0.0000	0.00
44	1727.80	1727.56	0.0000	0.00
45	1763.97	1763.75	0.0000	0.00
46	1828.71	1828.53	0.0000	0.00
47	1906.07	1905.94	0.0000	0.00
48	2073.41	2073.37	0.0000	0.00
49	2267.71	2267.80	0.0000	0.00
50	2613.97	2614.29	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707082-20

HTC-A01-S006-3642-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 12:42:14PM

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	46.92	42 -	49	45.97	1.02E+02	86.39	1.18E+03	3.02
	2	76.26	71 -	80	75.32	9.51E+02	136.64	2.11E+03	4.17
	3	87.41	84 -	89	86.47	1.07E+02	89.11	1.51E+03	2.04
	4	93.03	89 -	95	92.10	2.38E+02	92.79	1.34E+03	3.09
	5	105.98	103 -	108	105.05	6.63E+01	67.15	8.57E+02	2.12
	6	128.43	125 -	131	127.50	8.83E+01	71.79	8.75E+02	3.69
	7	184.74	177 -	189	183.83	1.62E+02	109.14	1.32E+03	2.35
	8	209.42	205 -	211	208.52	5.22E+01	61.21	6.36E+02	2.46
	9	239.18	233 -	244	238.29	7.63E+02	99.52	8.52E+02	2.28
	10	296.38	290 -	301	295.50	1.41E+02	80.02	7.23E+02	2.08
	11	338.94	334 -	342	338.08	1.05E+02	54.87	3.94E+02	1.88
	12	351.80	345 -	355	350.95	3.19E+02	66.10	4.13E+02	2.65
	13	371.35	368 -	373	370.50	3.24E+01	32.40	1.81E+02	2.85
	14	463.59	460 -	466	462.77	4.13E+01	32.37	1.53E+02	2.01
	15	497.56	494 -	499	496.76	2.28E+01	26.40	1.18E+02	2.96
M	16	507.80	505 -	519	507.00	2.30E+01	23.27	8.45E+01	2.27
m	17	512.80	505 -	519	512.00	4.07E+01	33.49	1.39E+02	2.27
	18	531.25	528 -	534	530.46	2.40E+01	27.13	1.18E+02	1.29
M	19	583.07	576 -	591	582.30	1.55E+02	36.06	1.06E+02	2.79
m	20	589.13	576 -	591	588.36	2.72E+01	28.00	9.14E+01	2.79
	21	609.62	604 -	615	608.86	2.08E+02	50.95	2.17E+02	2.44
	22	860.44	856 -	863	859.78	2.48E+01	22.54	6.84E+01	2.72
	23	876.46	872 -	881	875.81	2.40E+01	28.21	1.00E+02	2.74
	24	910.88	905 -	915	910.25	9.29E+01	35.20	1.16E+02	2.06
M	25	948.43	945 -	972	947.81	2.23E+01	16.85	3.78E+01	3.26
m	26	954.59	945 -	972	953.97	2.13E+01	25.38	6.94E+01	3.26
m	27	964.71	945 -	972	964.10	2.63E+01	24.17	6.48E+01	2.73
m	28	968.83	945 -	972	968.22	6.57E+01	27.57	7.27E+01	2.80
	29	1019.01	1015 -	1022	1018.42	1.67E+01	21.63	6.46E+01	2.29
	30	1095.11	1092 -	1098	1094.56	1.61E+01	18.65	4.98E+01	2.78
	31	1107.61	1105 -	1109	1107.06	1.46E+01	14.19	3.08E+01	1.96
	32	1119.97	1115 -	1124	1119.42	4.41E+01	29.03	9.59E+01	1.49
	33	1236.31	1232 -	1241	1235.83	3.42E+01	28.41	9.76E+01	6.47
	34	1297.83	1294 -	1301	1297.37	2.09E+01	16.49	3.03E+01	3.97
	35	1348.87	1343 -	1353	1348.44	2.13E+01	16.95	2.55E+01	6.99
	36	1380.71	1370 -	1388	1380.29	2.66E+01	27.60	5.67E+01	14.92
	37	1404.31	1397 -	1411	1403.90	2.91E+01	21.75	3.79E+01	10.87
	38	1460.65	1454 -	1464	1460.27	3.79E+02	43.01	4.65E+01	2.54
	39	1497.50	1492 -	1499	1497.14	6.36E+00	8.72	9.27E+00	1.14
	40	1572.93	1569 -	1574	1572.61	7.91E+00	7.87	6.18E+00	1.33

Analysis Report for 1707082-20

HTC-A01-S006-3642-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1592.04	1588 -	1594	1591.74	1.48E+01	14.49	2.64E+01	2.24
42	1621.69	1618 -	1624	1621.39	7.00E+00	8.03	6.00E+00	3.69
43	1695.92	1691 -	1698	1695.66	6.78E+00	7.21	4.44E+00	2.52
44	1727.80	1721 -	1732	1727.56	1.50E+01	12.49	1.20E+01	4.54
45	1763.97	1758 -	1768	1763.75	2.95E+01	14.16	1.10E+01	3.79
46	1828.71	1825 -	1831	1828.53	8.30E+00	7.23	3.40E+00	2.91
47	1906.07	1902 -	1908	1905.94	6.00E+00	7.78	6.00E+00	2.49
48	2073.41	2068 -	2076	2073.37	5.56E+00	7.23	4.88E+00	1.72
49	2267.71	2264 -	2270	2267.80	5.00E+00	4.47	0.00E+00	1.16
50	2613.97	2610 -	2618	2614.29	3.50E+01	11.83	0.00E+00	2.54

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 12:42:14PM

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	46.92	42 -	49	1.02E+02	86.39	1.18E+03	6.91E+01
	2	76.26	71 -	80	9.51E+02	136.64	2.11E+03	1.00E+02
	3	87.41	84 -	89	1.07E+02	89.11	1.51E+03	7.12E+01
	4	93.03	89 -	95	2.38E+02	92.79	1.34E+03	7.19E+01
	5	105.98	103 -	108	6.63E+01	67.15	8.57E+02	5.35E+01
	6	128.43	125 -	131	8.83E+01	71.79	8.75E+02	5.70E+01
	7	184.74	177 -	189	1.62E+02	109.14	1.32E+03	8.72E+01
	8	209.42	205 -	211	5.22E+01	61.21	6.36E+02	4.89E+01
	9	239.18	233 -	244	7.63E+02	99.52	8.52E+02	6.80E+01
	10	296.38	290 -	301	1.41E+02	80.02	7.23E+02	6.28E+01
	11	338.94	334 -	342	1.05E+02	54.87	3.94E+02	4.18E+01
	12	351.80	345 -	355	3.19E+02	66.10	4.13E+02	4.57E+01
	13	371.35	368 -	373	3.24E+01	32.40	1.81E+02	2.49E+01
	14	463.59	460 -	466	4.13E+01	32.37	1.53E+02	2.44E+01
	15	497.56	494 -	499	2.28E+01	26.40	1.18E+02	2.02E+01
M	16	507.80	505 -	519	2.30E+01	23.27	8.45E+01	1.51E+01
m	17	512.80	505 -	519	4.07E+01	33.49	1.39E+02	1.94E+01

Analysis Report for 1707082-20

HTC-A01-S006-3642-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	18	531.25	528 -	534	2.40E+01	27.13	1.18E+02	2.08E+01
M	19	583.07	576 -	591	1.55E+02	36.06	1.06E+02	1.69E+01
m	20	589.13	576 -	591	2.72E+01	28.00	9.14E+01	1.57E+01
	21	609.62	604 -	615	2.08E+02	50.95	2.17E+02	3.45E+01
	22	860.44	856 -	863	2.48E+01	22.54	6.84E+01	1.66E+01
	23	876.46	872 -	881	2.40E+01	28.21	1.00E+02	2.17E+01
	24	910.88	905 -	915	9.29E+01	35.20	1.16E+02	2.42E+01
M	25	948.43	945 -	972	2.23E+01	16.85	3.78E+01	1.01E+01
m	26	954.59	945 -	972	2.13E+01	25.38	6.94E+01	1.37E+01
m	27	964.71	945 -	972	2.63E+01	24.17	6.48E+01	1.32E+01
m	28	968.83	945 -	972	6.57E+01	27.57	7.27E+01	1.40E+01
	29	1019.01	1015 -	1022	1.67E+01	21.63	6.46E+01	1.65E+01
	30	1095.11	1092 -	1098	1.61E+01	18.65	4.98E+01	1.38E+01
	31	1107.61	1105 -	1109	1.46E+01	14.19	3.08E+01	9.82E+00
	32	1119.97	1115 -	1124	4.41E+01	29.03	9.59E+01	2.12E+01
	33	1236.31	1232 -	1241	3.42E+01	28.41	9.76E+01	2.13E+01
	34	1297.83	1294 -	1301	2.09E+01	16.49	3.03E+01	1.13E+01
	35	1348.87	1343 -	1353	2.13E+01	16.95	2.55E+01	1.17E+01
	36	1380.71	1370 -	1388	2.66E+01	27.60	5.67E+01	2.10E+01
	37	1404.31	1397 -	1411	2.91E+01	21.75	3.79E+01	1.55E+01
	38	1460.65	1454 -	1464	3.79E+02	43.01	4.65E+01	1.50E+01
	39	1497.50	1492 -	1499	6.36E+00	8.72	9.27E+00	5.84E+00
	40	1572.93	1569 -	1574	7.91E+00	7.87	6.18E+00	4.53E+00
	41	1592.04	1588 -	1594	1.48E+01	14.49	2.64E+01	1.01E+01
	42	1621.69	1618 -	1624	7.00E+00	8.03	6.00E+00	4.97E+00
	43	1695.92	1691 -	1698	6.78E+00	7.21	4.44E+00	4.10E+00
	44	1727.80	1721 -	1732	1.50E+01	12.49	1.20E+01	8.05E+00
	45	1763.97	1758 -	1768	2.95E+01	14.16	1.10E+01	7.47E+00
	46	1828.71	1825 -	1831	8.30E+00	7.23	3.40E+00	3.59E+00
	47	1906.07	1902 -	1908	6.00E+00	7.78	6.00E+00	4.97E+00
	48	2073.41	2068 -	2076	5.56E+00	7.23	4.88E+00	4.50E+00
	49	2267.71	2264 -	2270	5.00E+00	4.47	0.00E+00	0.00E+00
	50	2613.97	2610 -	2618	3.50E+01	11.83	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 1707082-20

HTC-A01-S006-3642-01

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/15/2017 12:42:14PM

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	46.92	42 -	49	45.97	1.02E+02	86.39	1.18E+03	PB-210
	2	76.26	71 -	80	75.32	9.51E+02	136.64	2.11E+03	.....
	3	87.41	84 -	89	86.47	1.07E+02	89.11	1.51E+03	SN-126
									CD-109
									NP-237
									EU-155
									LU-176
	4	93.03	89 -	95	92.10	2.38E+02	92.79	1.34E+03	GA-67
	5	105.98	103 -	108	105.05	6.63E+01	67.15	8.57E+02	NP-239
									EU-155
	6	128.43	125 -	131	127.50	8.83E+01	71.79	8.75E+02	.....
	7	184.74	177 -	189	183.83	1.62E+02	109.14	1.32E+03	HO-166M
	8	209.42	205 -	211	208.52	5.22E+01	61.21	6.36E+02	CM-243
									GA-67
	9	239.18	233 -	244	238.29	7.63E+02	99.52	8.52E+02	PB-212
	10	296.38	290 -	301	295.50	1.41E+02	80.02	7.23E+02	.....
	11	338.94	334 -	342	338.08	1.05E+02	54.87	3.94E+02	AC-228
	12	351.80	345 -	355	350.95	3.19E+02	66.10	4.13E+02	PB-214
	13	371.35	368 -	373	370.50	3.24E+01	32.40	1.81E+02	.....
	14	463.59	460 -	466	462.77	4.13E+01	32.37	1.53E+02	SB-125
	15	497.56	494 -	499	496.76	2.28E+01	26.40	1.18E+02	RU-103
M	16	507.80	505 -	519	507.00	2.30E+01	23.27	8.45E+01	.....
m	17	512.80	505 -	519	512.00	4.07E+01	33.49	1.39E+02	.....
	18	531.25	528 -	534	530.46	2.40E+01	27.13	1.18E+02	ND-147
M	19	583.07	576 -	591	582.30	1.55E+02	36.06	1.06E+02	TL-208
m	20	589.13	576 -	591	588.36	2.72E+01	28.00	9.14E+01	.....
	21	609.62	604 -	615	608.86	2.08E+02	50.95	2.17E+02	BI-214
	22	860.44	856 -	863	859.78	2.48E+01	22.54	6.84E+01	TL-208
	23	876.46	872 -	881	875.81	2.40E+01	28.21	1.00E+02	.....
	24	910.88	905 -	915	910.25	9.29E+01	35.20	1.16E+02	AC-228
									TL-204
M	25	948.43	945 -	972	947.81	2.23E+01	16.85	3.78E+01	.....
m	26	954.59	945 -	972	953.97	2.13E+01	25.38	6.94E+01	.....
m	27	964.71	945 -	972	964.10	2.63E+01	24.17	6.48E+01	EU-152
m	28	968.83	945 -	972	968.22	6.57E+01	27.57	7.27E+01	AC-228
	29	1019.01	1015 -	1022	1018.42	1.67E+01	21.63	6.46E+01	.....
	30	1095.11	1092 -	1098	1094.56	1.61E+01	18.65	4.98E+01	.....
	31	1107.61	1105 -	1109	1107.06	1.46E+01	14.19	3.08E+01	.....
	32	1119.97	1115 -	1124	1119.42	4.41E+01	29.03	9.59E+01	BI-214
									SC-46
	33	1236.31	1232 -	1241	1235.83	3.42E+01	28.41	9.76E+01	CS-136

Analysis Report for 1707082-20

HTC-A01-S006-3642-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
34	1297.83	1294 -	1301	1297.37	2.09E+01	16.49	3.03E+01	.....
35	1348.87	1343 -	1353	1348.44	2.13E+01	16.95	2.55E+01	.....
36	1380.71	1370 -	1388	1380.29	2.66E+01	27.60	5.67E+01	.....
37	1404.31	1397 -	1411	1403.90	2.91E+01	21.75	3.79E+01	.....
38	1460.65	1454 -	1464	1460.27	3.79E+02	43.01	4.65E+01	K-40
39	1497.50	1492 -	1499	1497.14	6.36E+00	8.72	9.27E+00	.....
40	1572.93	1569 -	1574	1572.61	7.91E+00	7.87	6.18E+00	.....
41	1592.04	1588 -	1594	1591.74	1.48E+01	14.49	2.64E+01	.....
42	1621.69	1618 -	1624	1621.39	7.00E+00	8.03	6.00E+00	.....
43	1695.92	1691 -	1698	1695.66	6.78E+00	7.21	4.44E+00	.....
44	1727.80	1721 -	1732	1727.56	1.50E+01	12.49	1.20E+01	.....
45	1763.97	1758 -	1768	1763.75	2.95E+01	14.16	1.10E+01	BI-214
46	1828.71	1825 -	1831	1828.53	8.30E+00	7.23	3.40E+00	.....
47	1906.07	1902 -	1908	1905.94	6.00E+00	7.78	6.00E+00	.....
48	2073.41	2068 -	2076	2073.37	5.56E+00	7.23	4.88E+00	.....
49	2267.71	2264 -	2270	2267.80	5.00E+00	4.47	0.00E+00	.....
50	2613.97	2610 -	2618	2614.29	3.50E+01	11.83	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 : 8/15/2017 12:42:14PM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
1	46.92	1.02E+02	86.39	1.66E-02	1.56E-03
2	76.26	9.51E+02	136.64	2.32E-02	1.92E-03
3	87.41	1.07E+02	89.11	2.37E-02	2.15E-03
4	93.03	2.38E+02	92.79	2.37E-02	2.09E-03
5	105.98	6.63E+01	67.15	2.32E-02	1.89E-03
6	128.43	8.83E+01	71.79	2.16E-02	1.63E-03
7	184.74	1.62E+02	109.14	1.70E-02	1.40E-03
8	209.42	5.22E+01	61.21	1.53E-02	1.28E-03
9	239.18	7.63E+02	99.52	1.36E-02	1.14E-03
10	296.38	1.41E+02	80.02	1.10E-02	9.11E-04
11	338.94	1.05E+02	54.87	9.58E-03	8.21E-04
12	351.80	3.19E+02	66.10	9.22E-03	7.94E-04
13	371.35	3.24E+01	32.40	8.72E-03	7.53E-04

Analysis Report for 1707082-20

HTC-A01-S006-3642-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	14	463.59	4.13E+01	32.37	6.94E-03	6.81E-04
	15	497.56	2.28E+01	26.40	6.45E-03	6.67E-04
M	16	507.80	2.30E+01	23.27	6.32E-03	6.62E-04
m	17	512.80	4.07E+01	33.49	6.26E-03	6.60E-04
	18	531.25	2.40E+01	27.13	6.04E-03	6.53E-04
M	19	583.07	1.55E+02	36.06	5.51E-03	6.31E-04
m	20	589.13	2.72E+01	28.00	5.45E-03	6.29E-04
	21	609.62	2.08E+02	50.95	5.27E-03	6.20E-04
	22	860.44	2.48E+01	22.54	3.81E-03	3.49E-04
	23	876.46	2.40E+01	28.21	3.75E-03	3.29E-04
	24	910.88	9.29E+01	35.20	3.62E-03	2.99E-04
M	25	948.43	2.23E+01	16.85	3.49E-03	2.90E-04
m	26	954.59	2.13E+01	25.38	3.47E-03	2.89E-04
m	27	964.71	2.63E+01	24.17	3.44E-03	2.86E-04
m	28	968.83	6.57E+01	27.57	3.43E-03	2.85E-04
	29	1019.01	1.67E+01	21.63	3.28E-03	2.74E-04
	30	1095.11	1.61E+01	18.65	3.08E-03	2.56E-04
	31	1107.61	1.46E+01	14.19	3.04E-03	2.53E-04
	32	1119.97	4.41E+01	29.03	3.02E-03	2.50E-04
	33	1236.31	3.42E+01	28.41	2.77E-03	2.33E-04
	34	1297.83	2.09E+01	16.49	2.65E-03	2.29E-04
	35	1348.87	2.13E+01	16.95	2.56E-03	2.25E-04
	36	1380.71	2.66E+01	27.60	2.51E-03	2.20E-04
	37	1404.31	2.91E+01	21.75	2.47E-03	2.16E-04
	38	1460.65	3.79E+02	43.01	2.38E-03	2.08E-04
	39	1497.50	6.36E+00	8.72	2.33E-03	2.02E-04
	40	1572.93	7.91E+00	7.87	2.23E-03	1.91E-04
	41	1592.04	1.48E+01	14.49	2.20E-03	1.88E-04
	42	1621.69	7.00E+00	8.03	2.17E-03	1.84E-04
	43	1695.92	6.78E+00	7.21	2.08E-03	1.72E-04
	44	1727.80	1.50E+01	12.49	2.04E-03	1.68E-04
	45	1763.97	2.95E+01	14.16	2.00E-03	1.62E-04
	46	1828.71	8.30E+00	7.23	1.93E-03	1.52E-04
	47	1906.07	6.00E+00	7.78	1.85E-03	1.51E-04
	48	2073.41	5.56E+00	7.23	1.69E-03	1.51E-04
	49	2267.71	5.00E+00	4.47	1.53E-03	1.51E-04
	50	2613.97	3.50E+01	11.83	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 : 8/15/2017 12:42:14PM

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

Analysis Report for 1707082-20

HTC-A01-S006-3642-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.92	1.02E+02	86.39	2.70E+01	8.29E+00	7.45E+01	8.68E+01
	2	76.26	9.51E+02	136.64			9.51E+02	1.37E+02
	3	87.41	1.07E+02	89.11			1.07E+02	8.91E+01
	4	93.03	2.38E+02	92.79	6.28E+01	7.82E+00	1.75E+02	9.31E+01
	5	105.98	6.63E+01	67.15			6.63E+01	6.71E+01
	6	128.43	8.83E+01	71.79			8.83E+01	7.18E+01
	7	184.74	1.62E+02	109.14	2.54E+01	6.86E+00	1.36E+02	1.09E+02
	8	209.42	5.22E+01	61.21			5.22E+01	6.12E+01
	9	239.18	7.63E+02	99.52	8.10E+00	6.12E+00	7.55E+02	9.97E+01
	10	296.38	1.41E+02	80.02			1.41E+02	8.00E+01
	11	338.94	1.05E+02	54.87			1.05E+02	5.49E+01
	12	351.80	3.19E+02	66.10			3.19E+02	6.61E+01
	13	371.35	3.24E+01	32.40			3.24E+01	3.24E+01
	14	463.59	4.13E+01	32.37			4.13E+01	3.24E+01
	15	497.56	2.28E+01	26.40			2.28E+01	2.64E+01
M	16	507.80	2.30E+01	23.27			2.30E+01	2.33E+01
m	17	512.80	4.07E+01	33.49			4.07E+01	3.35E+01
	18	531.25	2.40E+01	27.13			2.40E+01	2.71E+01
M	19	583.07	1.55E+02	36.06			1.55E+02	3.61E+01
m	20	589.13	2.72E+01	28.00			2.72E+01	2.80E+01
	21	609.62	2.08E+02	50.95			2.08E+02	5.10E+01
	22	860.44	2.48E+01	22.54			2.48E+01	2.25E+01
	23	876.46	2.40E+01	28.21			2.40E+01	2.82E+01
	24	910.88	9.29E+01	35.20	5.69E-01	2.37E+00	9.23E+01	3.53E+01
M	25	948.43	2.23E+01	16.85			2.23E+01	1.69E+01
m	26	954.59	2.13E+01	25.38			2.13E+01	2.54E+01
m	27	964.71	2.63E+01	24.17			2.63E+01	2.42E+01
m	28	968.83	6.57E+01	27.57			6.57E+01	2.76E+01
	29	1019.01	1.67E+01	21.63			1.67E+01	2.16E+01
	30	1095.11	1.61E+01	18.65			1.61E+01	1.86E+01
	31	1107.61	1.46E+01	14.19			1.46E+01	1.42E+01
	32	1119.97	4.41E+01	29.03			4.41E+01	2.90E+01
	33	1236.31	3.42E+01	28.41			3.42E+01	2.84E+01
	34	1297.83	2.09E+01	16.49			2.09E+01	1.65E+01
	35	1348.87	2.13E+01	16.95			2.13E+01	1.69E+01
	36	1380.71	2.66E+01	27.60			2.66E+01	2.76E+01
	37	1404.31	2.91E+01	21.75			2.91E+01	2.18E+01
	38	1460.65	3.79E+02	43.01	1.35E+00	1.57E+00	3.77E+02	4.30E+01
	39	1497.50	6.36E+00	8.72			6.36E+00	8.72E+00
	40	1572.93	7.91E+00	7.87			7.91E+00	7.87E+00
	41	1592.04	1.48E+01	14.49			1.48E+01	1.45E+01
	42	1621.69	7.00E+00	8.03			7.00E+00	8.03E+00
	43	1695.92	6.78E+00	7.21			6.78E+00	7.21E+00
	44	1727.80	1.50E+01	12.49			1.50E+01	1.25E+01
	45	1763.97	2.95E+01	14.16			2.95E+01	1.42E+01
	46	1828.71	8.30E+00	7.23			8.30E+00	7.23E+00
	47	1906.07	6.00E+00	7.78			6.00E+00	7.78E+00
	48	2073.41	5.56E+00	7.23			5.56E+00	7.23E+00
	49	2267.71	5.00E+00	4.47			5.00E+00	4.47E+00
	50	2613.97	3.50E+01	11.83			3.50E+01	1.18E+01

Analysis Report for 1707082-20

HTC-A01-S006-3642-01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/15/2017 12:42:14PM

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	46.92	1.02E+02	86.39	2.70E+01	8.29E+00	7.45E+01	8.68E+01
	2	76.26	9.51E+02	136.64			9.51E+02	1.37E+02
	3	87.41	1.07E+02	89.11			1.07E+02	8.91E+01
	4	93.03	2.38E+02	92.79	6.28E+01	7.82E+00	1.75E+02	9.31E+01
	5	105.98	6.63E+01	67.15			6.63E+01	6.71E+01
	6	128.43	8.83E+01	71.79			8.83E+01	7.18E+01
	7	184.74	1.62E+02	109.14	2.54E+01	6.86E+00	1.36E+02	1.09E+02
	8	209.42	5.22E+01	61.21			5.22E+01	6.12E+01
	9	239.18	7.63E+02	99.52	8.10E+00	6.12E+00	7.55E+02	9.97E+01
	10	296.38	1.41E+02	80.02			1.41E+02	8.00E+01
	11	338.94	1.05E+02	54.87			1.05E+02	5.49E+01
	12	351.80	3.19E+02	66.10			3.19E+02	6.61E+01
	13	371.35	3.24E+01	32.40			3.24E+01	3.24E+01
	14	463.59	4.13E+01	32.37			4.13E+01	3.24E+01
	15	497.56	2.28E+01	26.40			2.28E+01	2.64E+01
M	16	507.80	2.30E+01	23.27			2.30E+01	2.33E+01
m	17	512.80	4.07E+01	33.49			4.07E+01	3.35E+01
	18	531.25	2.40E+01	27.13			2.40E+01	2.71E+01
M	19	583.07	1.55E+02	36.06			1.55E+02	3.61E+01
m	20	589.13	2.72E+01	28.00			2.72E+01	2.80E+01
	21	609.62	2.08E+02	50.95			2.08E+02	5.10E+01
	22	860.44	2.48E+01	22.54			2.48E+01	2.25E+01
	23	876.46	2.40E+01	28.21			2.40E+01	2.82E+01
	24	910.88	9.29E+01	35.20	5.69E-01	2.37E+00	9.23E+01	3.53E+01
M	25	948.43	2.23E+01	16.85			2.23E+01	1.69E+01
m	26	954.59	2.13E+01	25.38			2.13E+01	2.54E+01
m	27	964.71	2.63E+01	24.17			2.63E+01	2.42E+01
m	28	968.83	6.57E+01	27.57			6.57E+01	2.76E+01
	29	1019.01	1.67E+01	21.63			1.67E+01	2.16E+01
	30	1095.11	1.61E+01	18.65			1.61E+01	1.86E+01
	31	1107.61	1.46E+01	14.19			1.46E+01	1.42E+01
	32	1119.97	4.41E+01	29.03			4.41E+01	2.90E+01

Analysis Report for 1707082-20

HTC-A01-S006-3642-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
33	1236.31	3.42E+01	28.41			3.42E+01	2.84E+01
34	1297.83	2.09E+01	16.49			2.09E+01	1.65E+01
35	1348.87	2.13E+01	16.95			2.13E+01	1.69E+01
36	1380.71	2.66E+01	27.60			2.66E+01	2.76E+01
37	1404.31	2.91E+01	21.75			2.91E+01	2.18E+01
38	1460.65	3.79E+02	43.01	1.35E+00	1.57E+00	3.77E+02	4.30E+01
39	1497.50	6.36E+00	8.72			6.36E+00	8.72E+00
40	1572.93	7.91E+00	7.87			7.91E+00	7.87E+00
41	1592.04	1.48E+01	14.49			1.48E+01	1.45E+01
42	1621.69	7.00E+00	8.03			7.00E+00	8.03E+00
43	1695.92	6.78E+00	7.21			6.78E+00	7.21E+00
44	1727.80	1.50E+01	12.49			1.50E+01	1.25E+01
45	1763.97	2.95E+01	14.16			2.95E+01	1.42E+01
46	1828.71	8.30E+00	7.23			8.30E+00	7.23E+00
47	1906.07	6.00E+00	7.78			6.00E+00	7.78E+00
48	2073.41	5.56E+00	7.23			5.56E+00	7.23E+00
49	2267.71	5.00E+00	4.47			5.00E+00	4.47E+00
50	2613.97	3.50E+01	11.83			3.50E+01	1.18E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.996	1460.81	*	10.67	1.66E+01	2.41E+00
RU-103	0.936	497.08	*	89.00	2.34E-01	2.73E-01
EU-155	0.896	86.50	*	30.90	1.70E-01	1.42E-01
		105.30	*	20.70	1.60E-01	1.63E-01
TL-208	0.962	583.14	*	30.22	1.04E+00	2.70E-01
		860.37	*	4.48	1.63E+00	1.49E+00
		2614.66	*	35.85	8.54E-01	3.06E-01
PB-210	0.972	46.50	*	4.25	1.19E+00	1.39E+00
PB-212	0.853	238.63	*	44.60	1.40E+00	2.19E-01
		300.09		3.41		
BI-214	0.918	609.31	*	46.30	9.52E-01	2.59E-01
		1120.29	*	15.10	1.08E+00	7.20E-01
		1764.49	*	15.80	1.05E+00	5.09E-01

Analysis Report for 1707082-20

HTC-A01-S006-3642-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.918	2204.22		4.98		
PB-214	0.421	295.21		19.19		
		351.92	*	37.19	1.04E+00	2.34E-01
AC-228	0.981	338.32	*	11.40	1.08E+00	5.70E-01
		911.07	*	27.70	1.03E+00	4.03E-01
		969.11	*	16.60	1.29E+00	5.53E-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 12:42:14PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	76.26	2.64141E-01	7.18		
	4	93.03	4.85689E-02	26.63	Sum	
	6	128.43	2.45223E-02	40.66		
	7	184.74	3.78734E-02	40.10	Tol.	HO-166M
	8	209.42	1.44947E-02	58.65	Tol.	GA-67
						CM-243
	10	296.38	3.92501E-02	28.32		
	13	371.35	9.01084E-03	49.95		
	14	463.59	1.14760E-02	39.17	Tol.	SB-125
M	16	507.80	6.38869E-03	50.59		
m	17	512.80	1.13050E-02	41.14		
	18	531.25	6.67503E-03	56.46	Tol.	ND-147
m	20	589.13	7.54933E-03	51.51		
	23	876.46	6.66667E-03	58.78		
M	25	948.43	6.19401E-03	37.79	Sum	
m	26	954.59	5.92715E-03	59.47		
m	27	964.71	7.31352E-03	45.89	Tol.	EU-152
	29	1019.01	4.63435E-03	64.83		
	30	1095.11	4.47832E-03	57.83		
	31	1107.61	4.05556E-03	48.58	Sum	
	33	1236.31	9.50134E-03	41.53	Tol.	CS-136
	34	1297.83	5.79475E-03	39.53		
	35	1348.87	5.90686E-03	39.85		

Analysis Report for 1707082-20

HTC-A01-S006-3642-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
36	1380.71	7.39899E-03	51.80		
37	1404.31	8.07581E-03	37.41		
39	1497.50	1.76768E-03	68.50		
40	1572.93	2.19697E-03	49.78		
41	1592.04	4.10714E-03	49.00	D-Esc	
42	1621.69	1.94444E-03	57.37		
43	1695.92	1.88272E-03	53.20		
44	1727.80	4.16667E-03	41.63		
46	1828.71	2.30556E-03	43.54	Sum	
47	1906.07	1.66667E-03	64.82		
48	2073.41	1.54514E-03	64.97		
49	2267.71	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	0.99	1460.81	*	10.67	1.66E+01	2.41E+00
RU-103	0.93	497.08	*	89.00	2.34E-01	2.73E-01
EU-155	0.89	86.50	*	30.90	1.70E-01	1.42E-01
		105.30	*	20.70	1.60E-01	1.63E-01
TL-208	0.96	583.14	*	30.22	1.04E+00	2.70E-01
		860.37	*	4.48	1.63E+00	1.49E+00
		2614.66	*	35.85	8.54E-01	3.06E-01
PB-210	0.97	46.50	*	4.25	1.19E+00	1.39E+00
PB-212	0.85	238.63	*	44.60	1.40E+00	2.19E-01
		300.09		3.41		
BI-214	0.91	609.31	*	46.30	9.52E-01	2.59E-01
		1120.29	*	15.10	1.08E+00	7.20E-01
		1764.49	*	15.80	1.05E+00	5.09E-01
		2204.22		4.98		
PB-214	0.42	295.21		19.19		
		351.92	*	37.19	1.04E+00	2.34E-01

Analysis Report for 1707082-20

HTC-A01-S006-3642-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
AC-228	0.98	338.32	*	11.40	1.08E+00	5.70E-01
		911.07	*	27.70	1.03E+00	4.03E-01
		969.11	*	16.60	1.29E+00	5.53E-01

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.996	1.66E+01	2.41E+00	
	RU-103	0.936	2.34E-01	2.73E-01	
X	CD-109	0.940			
X	SN-126	0.996			
	EU-155	0.896	1.66E-01	1.07E-01	
	TL-208	0.962	9.72E-01	2.01E-01	
	PB-210	0.972	1.19E+00	1.39E+00	
	PB-212	0.853	1.40E+00	2.19E-01	
	BI-214	0.918	9.82E-01	2.20E-01	
	PB-214	0.421	1.04E+00	2.34E-01	
	AC-228	0.981	1.11E+00	2.83E-01	
X	NP-237	0.877			

? = 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 1707082-20

HTC-A01-S006-3642-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 12:42:14PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	76.26	2.64141E-01	7.18		
	4	93.03	4.85689E-02	26.63	Sum	
	6	128.43	2.45223E-02	40.66		
	7	184.74	3.78734E-02	40.10	Tol.	HO-166M
	8	209.42	1.44947E-02	58.65	Tol.	GA-67
						CM-243
	10	296.38	3.92501E-02	28.32		
	13	371.35	9.01084E-03	49.95		
	14	463.59	1.14760E-02	39.17	Tol.	SB-125
M	16	507.80	6.38869E-03	50.59		
m	17	512.80	1.13050E-02	41.14		
	18	531.25	6.67503E-03	56.46	Tol.	ND-147
m	20	589.13	7.54933E-03	51.51		
	23	876.46	6.66667E-03	58.78		
M	25	948.43	6.19401E-03	37.79	Sum	
m	26	954.59	5.92715E-03	59.47		
m	27	964.71	7.31352E-03	45.89	Tol.	EU-152
	29	1019.01	4.63435E-03	64.83		
	30	1095.11	4.47832E-03	57.83		
	31	1107.61	4.05556E-03	48.58	Sum	
	33	1236.31	9.50134E-03	41.53	Tol.	CS-136
	34	1297.83	5.79475E-03	39.53		
	35	1348.87	5.90686E-03	39.85		
	36	1380.71	7.39899E-03	51.80		
	37	1404.31	8.07581E-03	37.41		
	39	1497.50	1.76768E-03	68.50		
	40	1572.93	2.19697E-03	49.78		
	41	1592.04	4.10714E-03	49.00	D-Esc	
	42	1621.69	1.94444E-03	57.37		
	43	1695.92	1.88272E-03	53.20		
	44	1727.80	4.16667E-03	41.63		
	46	1828.71	2.30556E-03	43.54	Sum	
	47	1906.07	1.66667E-03	64.82		
	48	2073.41	1.54514E-03	64.97		
	49	2267.71	1.38889E-03	44.72		

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

NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	-3.90E-01	2.57E+00	2.57E+00
+		NA-22	1274.54		99.94	-1.72E-02	1.45E-01	1.45E-01
+	@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@		2754.09		99.86	1.00E+26		1.00E+26
+		AL-26	1808.65		99.76	8.52E-03	9.59E-02	9.59E-02
+		K-40	1460.81	*	10.67	1.66E+01	1.46E+00	1.46E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	-4.07E-02	7.48E-02	7.48E-02
			78.34		96.00	3.12E-01		9.31E-02
+		SC-46	889.25		99.98	-9.30E-03	2.67E-01	2.67E-01
			1120.51		99.99	3.02E-01		3.79E-01
+		V-48	983.52		99.98	1.88E+00	7.72E+00	7.72E+00
			1312.10		97.50	2.99E-01		7.90E+00
+		CR-51	320.08		9.83	9.51E-01	7.55E+00	7.55E+00
+		MN-54	834.83		99.97	1.38E-02	1.42E-01	1.42E-01
+		CO-56	846.75		99.96	-9.09E-02	2.25E-01	2.25E-01
			1037.75		14.03	-1.40E+00		2.02E+00
			1238.25		67.00	1.42E-01		5.96E-01
			1771.40		15.51	1.85E-01		1.45E+00
			2598.48		16.90	3.53E-01		1.27E+00
+		CO-57	122.06		85.51	7.67E-03	7.99E-02	7.99E-02
			136.48		10.60	2.19E-01		6.79E-01
+		CO-58	810.76		99.40	-9.18E-02	2.44E-01	2.44E-01
+		FE-59	1099.22		56.50	3.70E-01	1.00E+00	1.00E+00
			1291.56		43.20	-1.26E-01		1.19E+00
+		CO-60	1173.22		100.00	9.69E-02	1.32E-01	1.56E-01
			1332.49		100.00	-1.17E-02		1.32E-01
+		ZN-65	1115.52		50.75	1.27E-01	4.22E-01	4.22E-01
+		GA-67	93.31		35.70	1.15E+08	9.47E+07	9.47E+07
			208.95		2.24	1.49E+08		1.50E+09
			300.22		16.00	-4.12E+08		2.35E+08
+		SE-75	121.11		16.70	3.72E-01	1.62E-01	5.59E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00		59.20	-9.69E-04	1.62E-01	1.62E-01
		264.65		59.80	-1.58E-01		1.81E-01
		279.53		25.20	-2.32E-02		4.71E-01
		400.65		11.40	1.30E-01		1.12E+00
+	RB-82	776.52		13.00	-3.93E+00	9.78E+00	9.78E+00
+	RB-83	520.41		46.00	-2.12E-02	3.69E-01	3.69E-01
		529.64		30.30	-1.67E-01		5.83E-01
		552.65		16.40	7.36E-02		1.09E+00
+	KR-85	513.99		0.43	2.24E+01	2.48E+01	2.48E+01
+	SR-85	513.99		99.27	2.63E-01	2.92E-01	2.92E-01
+	Y-88	898.02		93.40	-1.30E-01	1.88E-01	2.30E-01
		1836.01		99.38	-3.46E-02		1.88E-01
+	MO-93	263.06		56.72	-2.51E-02	9.48E-02	1.15E-01
		684.67		99.68	-7.65E-02		9.53E-02
		1477.11		99.08	4.86E-03		9.48E-02
+	NB-93M	16.57		9.43	1.33E+01	7.44E+00	7.44E+00
+	NB-94	702.63		100.00	6.57E-02	1.17E-01	1.18E-01
		871.10		100.00	6.38E-03		1.17E-01
+	NB-95	765.79		99.81	1.50E-01	7.68E-01	7.68E-01
+	NB-95M	235.69		25.00	5.43E+07	3.06E+07	3.06E+07
+	ZR-95	724.18		43.70	1.65E-01	5.19E-01	8.01E-01
		756.72		55.30	8.56E-02		5.19E-01
+	MO-99	181.06		6.20	-2.01E+10	1.59E+10	2.05E+10
		739.58		12.80	-1.20E+10		1.59E+10
		778.00		4.50	-3.69E+10		4.35E+10
+	RU-103	497.08	*	89.00	2.34E-01	4.43E-01	4.43E-01
+	RU-106	621.84		9.80	1.11E+00	1.19E+00	1.19E+00
+	AG-108M	433.93		89.90	-6.00E-03	8.84E-02	8.84E-02
		614.37		90.40	-1.85E-02		9.94E-02
		722.95		90.50	-1.29E-01		1.30E-01
+	CD-109	88.03	*	3.72	1.57E+00	2.13E+00	2.13E+00
+	AG-110M	657.75		93.14	-6.93E-02	1.51E-01	1.51E-01
		677.61		10.53	5.21E-01		1.32E+00
		706.67		16.46	5.99E-02		8.71E-01
		763.93		21.98	-1.63E-01		6.65E-01
		884.67		71.63	4.64E-02		2.08E-01
		1384.27		23.94	-1.02E-02		6.52E-01
+	CD-113M	263.70		0.02	-4.69E+01	2.80E+02	2.80E+02
+	SN-113	255.12		1.93	-3.27E+00	1.86E-01	5.51E+00
		391.69		64.90	-9.32E-02		1.86E-01
+	TE123M	159.00		84.10	-3.44E-02	1.15E-01	1.15E-01
+	SB-124	602.71		97.87	9.21E-02	2.73E-01	2.73E-01
		645.85		7.26	-5.51E-01		3.41E+00
		722.78		11.10	-3.12E+00		3.12E+00
		1691.02		49.00	-4.33E-02		4.26E-01
+	I-125	35.49		6.49	1.08E+00	5.04E+00	5.04E+00
+	SB-125	176.33		6.89	-3.31E-01	2.57E-01	9.21E-01
		427.89		29.33	-1.52E-01		2.57E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-125	463.38		10.35	2.43E-01	2.57E-01	8.85E-01
		600.56		17.80	1.96E-01		5.19E-01
		635.90		11.32	2.43E-01		8.80E-01
+	SB-126	414.70		83.30	-9.90E+00	1.61E+01	1.61E+01
		666.33		99.60	-9.19E+00		2.10E+01
		695.00		99.60	-4.51E-01		2.04E+01
		720.50		53.80	-1.08E+01		4.14E+01
+	SN-126	87.57	*	37.00	1.37E-01	1.86E-01	1.86E-01
+	SB-127	473.00		25.00	-2.13E+05	6.11E+06	7.13E+06
		685.20		35.70	-4.91E+06		6.11E+06
		783.80		14.70	1.02E+07		1.79E+07
+	I-129	29.78		57.00	2.67E-02	2.64E-01	2.64E-01
		33.60		13.20	4.97E-01		9.19E-01
		39.58		7.52	-1.19E-01		1.22E+00
+	I-131	284.30		6.05	-8.97E+02	2.85E+02	3.69E+03
		364.48		81.20	-4.71E+01		2.85E+02
		636.97		7.26	1.19E+02		4.26E+03
		722.89		1.80	-2.19E+04		2.20E+04
+	TE-132	49.72		13.10	4.53E+07	3.56E+07	2.90E+08
		228.16		88.00	-1.01E+07		3.56E+07
+	BA-133	81.00		33.00	3.96E-02	1.58E-01	2.19E-01
		302.84		17.80	-6.17E-02		4.18E-01
		356.01		60.00	1.76E-02		1.58E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	8.70E+03	4.80E+04	4.80E+04
+	CS-134	563.23		8.38	-1.16E-01	1.10E-01	1.02E+00
		569.32		15.43	1.49E-01		6.47E-01
		604.70		97.60	-2.54E-03		1.10E-01
		795.84		85.40	8.51E-02		1.52E-01
		801.93		8.73	-7.88E-01		1.16E+00
+	CS-135	268.24		16.00	1.02E-01	4.23E-01	4.23E-01
+	@ I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41		28.60	1.00E+26		1.00E+26
	@	1678.03		9.54	1.00E+26		1.00E+26
+	CS-136	153.22		7.46	-7.85E+01	1.71E+01	1.05E+02
		163.89		4.61	1.91E+01		1.80E+02
		176.55		13.56	-2.37E+01		6.32E+01
		273.65		12.66	-3.51E+01		7.72E+01
		340.57		48.50	3.20E+01		2.63E+01
		818.50		99.70	6.04E+00		1.71E+01
		1048.07		79.60	-5.72E+00		2.11E+01
		1235.34		19.70	5.09E+01		1.27E+02
+	CS-137	661.65		85.12	9.68E-02	1.41E-01	1.41E-01
+	LA-138	788.74		34.00	-1.65E-01	1.79E-01	3.37E-01
		1435.80		66.00	7.30E-02		1.79E-01
+	CE-139	165.85		80.35	6.45E-02	1.19E-01	1.19E-01
+	BA-140	162.64		6.70	6.60E+00	5.26E+01	1.43E+02
		304.84		4.50	-4.63E+01		2.54E+02
		423.70		3.20	9.37E+00		3.83E+02

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		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		BA-140	437.55		2.00	8.05E+00	5.26E+01	6.66E+02
			537.32		25.00	2.48E+01		5.26E+01
+		LA-140	328.77		20.50	1.24E+00	2.33E+01	6.10E+01
			487.03		45.50	-1.40E+00		2.81E+01
			815.85		23.50	2.23E+01		7.97E+01
			1596.49		95.49	-2.25E+00		2.33E+01
+		CE-141	145.44		48.40	6.05E-01	8.80E-01	8.80E-01
+	@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26
	@		293.26		42.00	1.00E+26		1.00E+26
	@		664.55		5.20	1.00E+26		1.00E+26
+		CE-144	133.54		10.80	7.95E-02	6.39E-01	6.39E-01
+		PM-144	476.78		42.00	9.42E-02	1.14E-01	2.29E-01
			618.01		98.60	2.74E-02		1.14E-01
			696.49		99.49	-3.93E-02		1.29E-01
+		PM-145	36.85		21.70	-1.11E-01	2.55E-01	4.78E-01
			37.36		39.70	-5.91E-02		2.55E-01
			42.30		15.10	8.23E-02		5.61E-01
			72.40		2.31	2.22E-01		3.40E+00
+		PM-146	453.90		39.94	-1.41E-01	1.90E-01	1.90E-01
			735.90		14.01	1.23E-01		7.91E-01
			747.13		13.10	4.78E-01		8.64E-01
+		ND-147	91.11		28.90	1.38E+02	9.60E+01	9.60E+01
			531.02		13.10	1.00E+02		2.51E+02
+		PM-149	285.90		3.10	-3.65E+12	1.45E+13	1.45E+13
+		EU-152	121.78		20.50	2.54E-02	2.65E-01	2.65E-01
			244.69		5.40	2.05E-01		1.36E+00
			344.27		19.13	1.89E-02		3.94E-01
			778.89		9.20	-5.58E-01		1.06E+00
			964.01		10.40	-1.72E+00		1.47E+00
			1085.78		7.22	4.48E-01		1.79E+00
			1112.02		9.60	2.41E-01		1.46E+00
			1407.95		14.94	1.41E-01		8.14E-01
+		GD-153	97.43		31.30	-4.15E-02	2.38E-01	2.38E-01
			103.18		22.20	-4.78E-02		3.15E-01
+		EU-154	123.07		40.50	9.04E-05	1.35E-01	1.35E-01
			723.30		19.70	1.35E-01		6.53E-01
			873.19		11.50	-1.31E-01		1.07E+00
			996.32		10.30	4.81E-01		1.23E+00
			1004.76		17.90	-5.47E-01		6.39E-01
			1274.45		35.50	-4.62E-02		3.88E-01
+		EU-155	86.50	*	30.90	1.70E-01	2.30E-01	2.30E-01
			105.30	*	20.70	1.60E-01		2.66E-01
+		EU-156	811.77		10.40	2.64E+01	7.41E+01	7.41E+01
			1153.47		7.20	-8.47E+01		1.35E+02
			1230.71		8.90	1.91E+01		1.39E+02
+		HO-166M	184.41		72.60	1.05E-01	9.54E-02	9.54E-02
			280.45		29.60	-1.02E-01		2.29E-01
			410.94		11.10	2.55E-01		7.00E-01
			711.69		54.10	-5.11E-02		1.90E-01

Analysis Report for 1707082-20

HTC-A01-S006-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TM-171	66.72		0.14	1.26E+01	5.63E+01	5.63E+01
+	HF-172	67.35		5.31	3.32E-01	5.45E-01	1.48E+00
		125.81		11.30	-3.69E-02		5.45E-01
+	LU-172	181.53		20.60	-8.02E+03	3.74E+03	5.26E+03
		900.72		29.81	-4.99E+02		6.55E+03
		1093.66		62.50	-1.47E+01		3.74E+03
+	LU-173	100.72		5.24	-1.66E-01	3.70E-01	1.11E+00
		272.11		21.20	-1.95E-03		3.70E-01
+	HF-175	343.40		84.00	1.08E-02	2.25E-01	2.25E-01
+	LU-176	88.34		13.30	-8.92E-02	7.25E-02	5.31E-01
		201.83		86.00	2.84E-02		7.42E-02
		306.78		94.00	-1.69E-03		7.25E-02
+	HF-181	133.02		41.70	3.19E-01	4.53E-01	6.30E-01
		345.85		17.20	9.71E-02		1.94E+00
		482.03		82.80	1.04E-01		4.53E-01
+	TA-182	67.75		41.20	-1.65E-01	3.03E-01	3.03E-01
		1121.30		34.90	5.79E-01		8.69E-01
		1189.05		16.23	1.40E-01		1.63E+00
		1221.41		26.98	-4.37E-01		9.61E-01
		1231.02		11.44	-5.41E-02		2.51E+00
+	IR-192	308.46		29.68	-9.97E-02	3.69E-01	5.43E-01
		468.07		48.10	1.15E-01		3.69E-01
+	HG-203	279.19		77.30	1.67E-01	3.66E-01	3.66E-01
+	TL-204	374.74		94.11	7.06E-03	8.02E-02	8.02E-02
		899.15		99.16	-3.57E-02		1.19E-01
		911.74		91.10	2.93E-01		2.05E-01
+	BI-207	569.67		97.72	2.17E-02	9.42E-02	9.42E-02
		1063.62		74.90	6.51E-03		1.68E-01
+	TL-208	583.14	*	30.22	1.04E+00	6.60E-02	4.98E-01
		860.37	*	4.48	1.63E+00		2.36E+00
		2614.66	*	35.85	8.54E-01		6.60E-02
+	BI-210M	262.00		45.00	1.08E-02	1.45E-01	1.45E-01
		300.00		23.00	-5.73E-01		3.27E-01
+	PB-210	46.50	*	4.25	1.19E+00	2.28E+00	2.28E+00
+	PB-211	404.84		2.90	-1.86E+00	2.53E+00	2.53E+00
		831.96		2.90	-1.08E+00		3.84E+00
+	BI-212	727.17		11.80	5.13E-01	1.07E+00	1.07E+00
		1620.62		2.75	-9.39E-02		3.53E+00
+	PB-212	238.63	*	44.60	1.40E+00	2.58E-01	2.58E-01
		300.09		3.41	-3.86E+00		2.21E+00
+	BI-214	609.31	*	46.30	9.52E-01	3.30E-01	3.30E-01
		1120.29	*	15.10	1.08E+00		1.11E+00
		1764.49	*	15.80	1.05E+00		6.25E-01
		2204.22		4.98	3.58E-01		2.58E+00
+	PB-214	295.21		19.19	4.51E-01	3.08E-01	4.63E-01
		351.92	*	37.19	1.04E+00		3.08E-01
+	RN-219	401.80		6.50	-3.51E-01	1.10E+00	1.10E+00
+	RA-223	323.87		3.88	-1.12E+00	1.81E+00	1.81E+00

Analysis Report for 1707082-20

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98		3.95	1.44E+01	3.09E+00	3.09E+00
+	RA-225	40.00		31.00	-2.33E+00	2.40E+01	2.40E+01
+	RA-226	186.21		3.28	2.14E+00	2.11E+00	2.11E+00
+	TH-227	50.10		8.40	1.38E-01	8.82E-01	8.82E-01
		236.00		11.50	1.64E+00		9.23E-01
		256.20		6.30	-3.91E-01		9.77E-01
+	AC-228	338.32	*	11.40	1.08E+00	5.74E-01	8.86E-01
		911.07	*	27.70	1.03E+00		5.74E-01
		969.11	*	16.60	1.29E+00		1.91E+00
+	TH-230	48.44		16.90	2.06E-01	4.60E-01	4.60E-01
		62.85		4.60	1.25E+00		1.60E+00
		67.67		0.37	-1.04E+01		1.90E+01
+	PA-231	283.67		1.60	-1.00E+00	3.18E+00	4.12E+00
		302.67		2.30	-4.69E-01		3.18E+00
+	TH-231	25.64		14.70	1.71E-01	1.04E+00	1.45E+00
		84.21		6.40	2.00E-01		1.04E+00
+	PA-233	311.98		38.60	-5.61E-02	1.93E+00	1.93E+00
+	PA-234	131.20		20.40	-1.84E-02	2.79E-01	2.79E-01
		733.99		8.80	-6.07E-01		1.29E+00
		946.00		12.00	3.14E-02		9.31E-01
+	PA-234M	1001.03		0.92	1.05E+01	1.35E+01	1.35E+01
+	TH-234	63.29		3.80	1.51E+00	1.93E+00	1.93E+00
+	U-235	143.76		10.50	-1.32E-01	5.42E-01	5.42E-01
		163.35		4.70	5.71E-02		1.24E+00
		205.31		4.70	6.12E-02		1.36E+00
+	NP-237	86.50	*	12.60	4.02E-01	5.45E-01	5.45E-01
+	NP-239	106.10		22.70	3.57E+10	2.66E+11	2.66E+11
		228.18		10.70	-1.81E+11		6.40E+11
		277.60		14.10	3.25E+11		5.50E+11
+	AM-241	59.54		35.90	-7.22E-02	1.98E-01	1.98E-01
+	AM-243	74.67		66.00	6.21E-01	1.42E-01	1.42E-01
+	CM-243	209.75		3.29	7.86E-01	5.02E-01	2.08E+00
		228.14		10.60	-1.65E-01		5.86E-01
		277.60		14.00	2.97E-01		5.02E-01

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

Analysis Report for 1707082-20

HTC-A01-S006-3642-01

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	2.57E+00	2.57E+00	-3.90E-01	1.21E+00
	NA-22	1274.54		99.94	1.45E-01	1.45E-01	-1.72E-02	6.64E-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	9.59E-02	9.59E-02	8.52E-03	4.01E-02
+	K-40	1460.81	*	10.67	1.46E+00	1.46E+00	1.66E+01	6.70E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	7.48E-02	7.48E-02	-4.07E-02	3.67E-02
		78.34		96.00	9.31E-02		3.12E-01	4.59E-02
	SC-46	889.25		99.98	2.67E-01	2.67E-01	-9.30E-03	1.25E-01
		1120.51		99.99	3.79E-01		3.02E-01	1.79E-01
	V-48	983.52		99.98	7.72E+00	7.72E+00	1.88E+00	3.59E+00
		1312.10		97.50	7.90E+00		2.99E-01	3.60E+00
	CR-51	320.08		9.83	7.55E+00	7.55E+00	9.51E-01	3.61E+00
	MN-54	834.83		99.97	1.42E-01	1.42E-01	1.38E-02	6.61E-02
	CO-56	846.75		99.96	2.25E-01	2.25E-01	-9.09E-02	1.04E-01
		1037.75		14.03	2.02E+00		-1.40E+00	9.33E-01
		1238.25		67.00	5.96E-01		1.42E-01	2.79E-01
		1771.40		15.51	1.45E+00		1.85E-01	6.11E-01
		2598.48		16.90	1.27E+00		3.53E-01	4.74E-01
	CO-57	122.06		85.51	7.99E-02	7.99E-02	7.67E-03	3.89E-02
		136.48		10.60	6.79E-01		2.19E-01	3.31E-01
	CO-58	810.76		99.40	2.44E-01	2.44E-01	-9.18E-02	1.12E-01
	FE-59	1099.22		56.50	1.00E+00	1.00E+00	3.70E-01	4.64E-01
		1291.56		43.20	1.19E+00		-1.26E-01	5.36E-01
	CO-60	1173.22		100.00	1.56E-01	1.32E-01	9.69E-02	7.27E-02
		1332.49		100.00	1.32E-01		-1.17E-02	5.98E-02
	ZN-65	1115.52		50.75	4.22E-01	4.22E-01	1.27E-01	1.98E-01
	GA-67	93.31		35.70	9.47E+07	9.47E+07	1.15E+08	4.65E+07
		208.95		2.24	1.50E+09		1.49E+08	7.28E+08
		300.22		16.00	2.35E+08		-4.12E+08	1.13E+08
	SE-75	121.11		16.70	5.59E-01	1.62E-01	3.72E-01	2.72E-01
		136.00		59.20	1.62E-01		-9.69E-04	7.90E-02
		264.65		59.80	1.81E-01		-1.58E-01	8.68E-02
		279.53		25.20	4.71E-01		-2.32E-02	2.26E-01
		400.65		11.40	1.12E+00		1.30E-01	5.33E-01
	RB-82	776.52		13.00	9.78E+00	9.78E+00	-3.93E+00	4.53E+00
	RB-83	520.41		46.00	3.69E-01	3.69E-01	-2.12E-02	1.73E-01
		529.64		30.30	5.83E-01		-1.67E-01	2.74E-01
		552.65		16.40	1.09E+00		7.36E-02	5.12E-01
	KR-85	513.99		0.43	2.48E+01	2.48E+01	2.24E+01	1.18E+01
	SR-85	513.99		99.27	2.92E-01	2.92E-01	2.63E-01	1.39E-01

Analysis Report for 1707082-20

HTC-A01-S006-3642-01

	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	2.30E-01	1.88E-01	-1.30E-01	1.07E-01
		1836.01		99.38	1.88E-01		-3.46E-02	7.96E-02
	MO-93	263.06		56.72	1.15E-01	9.48E-02	-2.51E-02	5.52E-02
		684.67		99.68	9.53E-02		-7.65E-02	4.44E-02
		1477.11		99.08	9.48E-02		4.86E-03	4.08E-02
	NB-93M	16.57		9.43	7.44E+00	7.44E+00	1.33E+01	3.61E+00
	NB-94	702.63		100.00	1.18E-01	1.17E-01	6.57E-02	5.55E-02
		871.10		100.00	1.17E-01		6.38E-03	5.44E-02
	NB-95	765.79		99.81	7.68E-01	7.68E-01	1.50E-01	3.61E-01
	NB-95M	235.69		25.00	3.06E+07	3.06E+07	5.43E+07	1.50E+07
	ZR-95	724.18		43.70	8.01E-01	5.19E-01	1.65E-01	3.79E-01
		756.72		55.30	5.19E-01		8.56E-02	2.42E-01
	MO-99	181.06		6.20	2.05E+10	1.59E+10	-2.01E+10	9.95E+09
		739.58		12.80	1.59E+10		-1.20E+10	7.38E+09
		778.00		4.50	4.35E+10		-3.69E+10	2.01E+10
+	RU-103	497.08	*	89.00	4.43E-01	4.43E-01	2.34E-01	2.07E-01
	RU-106	621.84		9.80	1.19E+00	1.19E+00	1.11E+00	5.59E-01
	AG-108M	433.93		89.90	8.84E-02	8.84E-02	-6.00E-03	4.19E-02
		614.37		90.40	9.94E-02		-1.85E-02	4.65E-02
		722.95		90.50	1.30E-01		-1.29E-01	6.11E-02
	CD-109	88.03	*	3.72	2.13E+00	2.13E+00	1.57E+00	1.04E+00
	AG-110M	657.75		93.14	1.51E-01	1.51E-01	-6.93E-02	7.11E-02
		677.61		10.53	1.32E+00		5.21E-01	6.19E-01
		706.67		16.46	8.71E-01		5.99E-02	4.09E-01
		763.93		21.98	6.65E-01		-1.63E-01	3.11E-01
		884.67		71.63	2.08E-01		4.64E-02	9.68E-02
		1384.27		23.94	6.52E-01		-1.02E-02	2.93E-01
	CD-113M	263.70		0.02	2.80E+02	2.80E+02	-4.69E+01	1.35E+02
	SN-113	255.12		1.93	5.51E+00	1.86E-01	-3.27E+00	2.65E+00
		391.69		64.90	1.86E-01		-9.32E-02	8.79E-02
	TE123M	159.00		84.10	1.15E-01	1.15E-01	-3.44E-02	5.59E-02
	SB-124	602.71		97.87	2.73E-01	2.73E-01	9.21E-02	1.28E-01
		645.85		7.26	3.41E+00		-5.51E-01	1.58E+00
		722.78		11.10	3.12E+00		-3.12E+00	1.47E+00
		1691.02		49.00	4.26E-01		-4.33E-02	1.69E-01
	I-125	35.49		6.49	5.04E+00	5.04E+00	1.08E+00	2.46E+00
	SB-125	176.33		6.89	9.21E-01	2.57E-01	-3.31E-01	4.47E-01
		427.89		29.33	2.57E-01		-1.52E-01	1.21E-01
		463.38		10.35	8.85E-01		2.43E-01	4.20E-01
		600.56		17.80	5.19E-01		1.96E-01	2.42E-01
		635.90		11.32	8.80E-01		2.43E-01	4.12E-01
	SB-126	414.70		83.30	1.61E+01	1.61E+01	-9.90E+00	7.60E+00
		666.33		99.60	2.10E+01		-9.19E+00	9.89E+00
		695.00		99.60	2.04E+01		-4.51E-01	9.58E+00
		720.50		53.80	4.14E+01		-1.08E+01	1.95E+01
	SN-126	87.57	*	37.00	1.86E-01	1.86E-01	1.37E-01	9.11E-02
	SB-127	473.00		25.00	7.13E+06	6.11E+06	-2.13E+05	3.36E+06
		685.20		35.70	6.11E+06		-4.91E+06	2.85E+06
		783.80		14.70	1.79E+07		1.02E+07	8.39E+06
	I-129	29.78		57.00	2.64E-01	2.64E-01	2.67E-02	1.28E-01
		33.60		13.20	9.19E-01		4.97E-01	4.48E-01
		39.58		7.52	1.22E+00		-1.19E-01	5.94E-01
	I-131	284.30		6.05	3.69E+03	2.85E+02	-8.97E+02	1.77E+03

Analysis Report for 1707082-20

HTC-A01-S006-3642-01

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	2.85E+02	2.85E+02	-4.71E+01	1.36E+02
	636.97	7.26	4.26E+03		1.19E+02	1.99E+03
	722.89	1.80	2.20E+04		-2.19E+04	1.03E+04
TE-132	49.72	13.10	2.90E+08	3.56E+07	4.53E+07	1.42E+08
	228.16	88.00	3.56E+07		-1.01E+07	1.72E+07
BA-133	81.00	33.00	2.19E-01	1.58E-01	3.96E-02	1.07E-01
	302.84	17.80	4.18E-01		-6.17E-02	2.01E-01
	356.01	60.00	1.58E-01		1.76E-02	7.63E-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	8.70E+03	2.36E+04
CS-134	563.23	8.38	1.02E+00	1.10E-01	-1.16E-01	4.76E-01
	569.32	15.43	6.47E-01		1.49E-01	3.05E-01
	604.70	97.60	1.10E-01		-2.54E-03	5.17E-02
	795.84	85.40	1.52E-01		8.51E-02	7.13E-02
	801.93	8.73	1.16E+00		-7.88E-01	5.31E-01
CS-135	268.24	16.00	4.23E-01	4.23E-01	1.02E-01	2.04E-01
@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41	28.60	1.00E+26		1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		1.00E+26	1.00E+20
CS-136	153.22	7.46	1.05E+02	1.71E+01	-7.85E+01	5.08E+01
	163.89	4.61	1.80E+02		1.91E+01	8.74E+01
	176.55	13.56	6.32E+01		-2.37E+01	3.07E+01
	273.65	12.66	7.72E+01		-3.51E+01	3.72E+01
	340.57	48.50	2.63E+01		3.20E+01	1.27E+01
	818.50	99.70	1.71E+01		6.04E+00	8.01E+00
	1048.07	79.60	2.11E+01		-5.72E+00	9.71E+00
	1235.34	19.70	1.27E+02		5.09E+01	5.96E+01
CS-137	661.65	85.12	1.41E-01	1.41E-01	9.68E-02	6.66E-02
LA-138	788.74	34.00	3.37E-01	1.79E-01	-1.65E-01	1.58E-01
	1435.80	66.00	1.79E-01		7.30E-02	7.98E-02
CE-139	165.85	80.35	1.19E-01	1.19E-01	6.45E-02	5.77E-02
BA-140	162.64	6.70	1.43E+02	5.26E+01	6.60E+00	6.95E+01
	304.84	4.50	2.54E+02		-4.63E+01	1.22E+02
	423.70	3.20	3.83E+02		9.37E+00	1.81E+02
	437.55	2.00	6.66E+02		8.05E+00	3.16E+02
	537.32	25.00	5.26E+01		2.48E+01	2.46E+01
LA-140	328.77	20.50	6.10E+01	2.33E+01	1.24E+00	2.93E+01
	487.03	45.50	2.81E+01		-1.40E+00	1.32E+01
	815.85	23.50	7.97E+01		2.23E+01	3.72E+01
	1596.49	95.49	2.33E+01		-2.25E+00	1.04E+01
CE-141	145.44	48.40	8.80E-01	8.80E-01	6.05E-01	4.29E-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	6.39E-01	6.39E-01	7.95E-02	3.11E-01
PM-144	476.78	42.00	2.29E-01	1.14E-01	9.42E-02	1.08E-01
	618.01	98.60	1.14E-01		2.74E-02	5.34E-02
	696.49	99.49	1.29E-01		-3.93E-02	6.05E-02
PM-145	36.85	21.70	4.78E-01	2.55E-01	-1.11E-01	2.33E-01
	37.36	39.70	2.55E-01		-5.91E-02	1.24E-01
	42.30	15.10	5.61E-01		8.23E-02	2.73E-01
	72.40	2.31	3.40E+00		2.22E-01	1.67E+00
PM-146	453.90	39.94	1.90E-01	1.90E-01	-1.41E-01	8.96E-02

Analysis Report for 1707082-20

HTC-A01-S006-3642-01

	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	7.91E-01	1.90E-01	1.23E-01	3.70E-01
		747.13		13.10	8.64E-01		4.78E-01	4.04E-01
	ND-147	91.11		28.90	9.60E+01	9.60E+01	1.38E+02	4.72E+01
		531.02		13.10	2.51E+02		1.00E+02	1.18E+02
	PM-149	285.90		3.10	1.45E+13	1.45E+13	-3.65E+12	6.96E+12
	EU-152	121.78		20.50	2.65E-01	2.65E-01	2.54E-02	1.29E-01
		244.69		5.40	1.36E+00		2.05E-01	6.60E-01
		344.27		19.13	3.94E-01		1.89E-02	1.88E-01
		778.89		9.20	1.06E+00		-5.58E-01	4.91E-01
		964.01		10.40	1.47E+00		-1.72E+00	6.92E-01
		1085.78		7.22	1.79E+00		4.48E-01	8.26E-01
		1112.02		9.60	1.46E+00		2.41E-01	6.78E-01
		1407.95		14.94	8.14E-01		1.41E-01	3.65E-01
	GD-153	97.43		31.30	2.38E-01	2.38E-01	-4.15E-02	1.16E-01
		103.18		22.20	3.15E-01		-4.78E-02	1.54E-01
	EU-154	123.07		40.50	1.35E-01	1.35E-01	9.04E-05	6.60E-02
		723.30		19.70	6.53E-01		1.35E-01	3.09E-01
		873.19		11.50	1.07E+00		-1.31E-01	4.99E-01
		996.32		10.30	1.23E+00		4.81E-01	5.73E-01
		1004.76		17.90	6.39E-01		-5.47E-01	2.93E-01
		1274.45		35.50	3.88E-01		-4.62E-02	1.78E-01
+	EU-155	86.50	*	30.90	2.30E-01	2.30E-01	1.70E-01	1.13E-01
		105.30	*	20.70	2.66E-01		1.60E-01	1.30E-01
	EU-156	811.77		10.40	7.41E+01	7.41E+01	2.64E+01	3.44E+01
		1153.47		7.20	1.35E+02		-8.47E+01	6.22E+01
		1230.71		8.90	1.39E+02		1.91E+01	6.50E+01
	HO-166M	184.41		72.60	9.54E-02	9.54E-02	1.05E-01	4.65E-02
		280.45		29.60	2.29E-01		-1.02E-01	1.10E-01
		410.94		11.10	7.00E-01		2.55E-01	3.33E-01
		711.69		54.10	1.90E-01		-5.11E-02	8.87E-02
	TM-171	66.72		0.14	5.63E+01	5.63E+01	1.26E+01	2.76E+01
	HF-172	67.35		5.31	1.48E+00	5.45E-01	3.32E-01	7.26E-01
		125.81		11.30	5.45E-01		-3.69E-02	2.66E-01
	LU-172	181.53		20.60	5.26E+03	3.74E+03	-8.02E+03	2.56E+03
		900.72		29.81	6.55E+03		-4.99E+02	3.04E+03
		1093.66		62.50	3.74E+03		-1.47E+01	1.73E+03
	LU-173	100.72		5.24	1.11E+00	3.70E-01	-1.66E-01	5.42E-01
		272.11		21.20	3.70E-01		-1.95E-03	1.78E-01
	HF-175	343.40		84.00	2.25E-01	2.25E-01	1.08E-02	1.07E-01
	LU-176	88.34		13.30	5.31E-01	7.25E-02	-8.92E-02	2.61E-01
		201.83		86.00	7.42E-02		2.84E-02	3.60E-02
		306.78		94.00	7.25E-02		-1.69E-03	3.47E-02
	HF-181	133.02		41.70	6.30E-01	4.53E-01	3.19E-01	3.07E-01
		345.85		17.20	1.94E+00		9.71E-02	9.26E-01
		482.03		82.80	4.53E-01		1.04E-01	2.14E-01
	TA-182	67.75		41.20	3.03E-01	3.03E-01	-1.65E-01	1.48E-01
		1121.30		34.90	8.69E-01		5.79E-01	4.09E-01
		1189.05		16.23	1.63E+00		1.40E-01	7.56E-01
		1221.41		26.98	9.61E-01		-4.37E-01	4.45E-01
		1231.02		11.44	2.51E+00		-5.41E-02	1.17E+00
	IR-192	308.46		29.68	5.43E-01	3.69E-01	-9.97E-02	2.60E-01
		468.07		48.10	3.69E-01		1.15E-01	1.74E-01
	HG-203	279.19		77.30	3.66E-01	3.66E-01	1.67E-01	1.76E-01

Analysis Report for 1707082-20

HTC-A01-S006-3642-01

	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	8.02E-02	8.02E-02	7.06E-03	3.82E-02
		899.15		99.16	1.19E-01		-3.57E-02	5.52E-02
		911.74		91.10	2.05E-01		2.93E-01	9.77E-02
	BI-207	569.67		97.72	9.42E-02	9.42E-02	2.17E-02	4.44E-02
		1063.62		74.90	1.68E-01		6.51E-03	7.76E-02
+	TL-208	583.14	*	30.22	4.98E-01	6.60E-02	1.04E+00	2.40E-01
		860.37	*	4.48	2.36E+00		1.63E+00	1.09E+00
		2614.66	*	35.85	6.60E-02		8.54E-01	0.00E+00
	BI-210M	262.00		45.00	1.45E-01	1.45E-01	1.08E-02	6.99E-02
		300.00		23.00	3.27E-01		-5.73E-01	1.58E-01
+	PB-210	46.50	*	4.25	2.28E+00	2.28E+00	1.19E+00	1.12E+00
	PB-211	404.84		2.90	2.53E+00	2.53E+00	-1.86E+00	1.20E+00
		831.96		2.90	3.84E+00		-1.08E+00	1.79E+00
	BI-212	727.17		11.80	1.07E+00	1.07E+00	5.13E-01	5.08E-01
		1620.62		2.75	3.53E+00		-9.39E-02	1.51E+00
+	PB-212	238.63	*	44.60	2.58E-01	2.58E-01	1.40E+00	1.27E-01
		300.09		3.41	2.21E+00		-3.86E+00	1.06E+00
+	BI-214	609.31	*	46.30	3.30E-01	3.30E-01	9.52E-01	1.59E-01
		1120.29	*	15.10	1.11E+00		1.08E+00	5.22E-01
		1764.49	*	15.80	6.25E-01		1.05E+00	2.65E-01
		2204.22		4.98	2.58E+00		3.58E-01	1.10E+00
+	PB-214	295.21		19.19	4.63E-01	3.08E-01	4.51E-01	2.25E-01
		351.92	*	37.19	3.08E-01		1.04E+00	1.49E-01
	RN-219	401.80		6.50	1.10E+00	1.10E+00	-3.51E-01	5.23E-01
	RA-223	323.87		3.88	1.81E+00	1.81E+00	-1.12E+00	8.67E-01
	RA-224	240.98		3.95	3.09E+00	3.09E+00	1.44E+01	1.52E+00
	RA-225	40.00		31.00	2.40E+01	2.40E+01	-2.33E+00	1.17E+01
	RA-226	186.21		3.28	2.11E+00	2.11E+00	2.14E+00	1.03E+00
	TH-227	50.10		8.40	8.82E-01	8.82E-01	1.38E-01	4.31E-01
		236.00		11.50	9.23E-01		1.64E+00	4.52E-01
		256.20		6.30	9.77E-01		-3.91E-01	4.70E-01
+	AC-228	338.32	*	11.40	8.86E-01	5.74E-01	1.08E+00	4.29E-01
		911.07	*	27.70	5.74E-01		1.03E+00	2.72E-01
		969.11	*	16.60	1.91E+00		1.29E+00	9.27E-01
	TH-230	48.44		16.90	4.60E-01	4.60E-01	2.06E-01	2.25E-01
		62.85		4.60	1.60E+00		1.25E+00	7.85E-01
		67.67		0.37	1.90E+01		-1.04E+01	9.34E+00
	PA-231	283.67		1.60	4.12E+00	3.18E+00	-1.00E+00	1.98E+00
		302.67		2.30	3.18E+00		-4.69E-01	1.53E+00
	TH-231	25.64		14.70	1.45E+00	1.04E+00	1.71E-01	7.08E-01
		84.21		6.40	1.04E+00		2.00E-01	5.10E-01
	PA-233	311.98		38.60	1.93E+00	1.93E+00	-5.61E-02	9.22E-01
	PA-234	131.20		20.40	2.79E-01	2.79E-01	-1.84E-02	1.36E-01
		733.99		8.80	1.29E+00		-6.07E-01	6.04E-01
		946.00		12.00	9.31E-01		3.14E-02	4.30E-01
	PA-234M	1001.03		0.92	1.35E+01	1.35E+01	1.05E+01	6.25E+00
	TH-234	63.29		3.80	1.93E+00	1.93E+00	1.51E+00	9.47E-01
	U-235	143.76		10.50	5.42E-01	5.42E-01	-1.32E-01	2.64E-01
		163.35		4.70	1.24E+00		5.71E-02	6.02E-01
		205.31		4.70	1.36E+00		6.12E-02	6.61E-01
	NP-237	86.50	*	12.60	5.45E-01	5.45E-01	4.02E-01	2.67E-01
	NP-239	106.10		22.70	2.66E+11	2.66E+11	3.57E+10	1.30E+11
		228.18		10.70	6.40E+11		-1.81E+11	3.09E+11

Analysis Report for 1707082-20

HTC-A01-S006-3642-01

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	5.50E+11	2.66E+11	3.25E+11	2.65E+11
AM-241	59.54	35.90	1.98E-01	1.98E-01	-7.22E-02	9.71E-02
AM-243	74.67	66.00	1.42E-01	1.42E-01	6.21E-01	7.01E-02
CM-243	209.75	3.29	2.08E+00	5.02E-01	7.86E-01	1.01E+00
	228.14	10.60	5.86E-01		-1.65E-01	2.83E-01
	277.60	14.00	5.02E-01		2.97E-01	2.42E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A01-S006-3642-01

Elapsed Live time: 3600
Elapsed Real Time: 3637

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	12	113
17:	93	68	86	74	78	70	78	71
25:	60	78	72	56	62	61	72	82
33:	56	82	82	79	64	76	73	76
41:	77	69	74	77	117	98	111	80
49:	64	84	87	93	85	89	85	84
57:	96	101	100	116	117	155	145	143
65:	109	127	114	134	124	124	105	146
73:	198	297	285	346	309	139	92	88
81:	109	121	131	113	133	181	176	136
89:	121	135	158	163	156	97	79	70
97:	73	78	77	78	71	63	63	91
105:	101	85	83	72	83	77	76	79
113:	71	83	69	58	68	67	79	78
121:	60	76	76	56	65	81	79	90
129:	82	66	63	65	73	68	83	54
137:	56	78	78	64	68	66	68	73
145:	56	72	73	56	52	46	65	63
153:	63	58	47	68	68	55	60	51
161:	48	50	72	65	66	55	56	56
169:	62	47	68	55	45	77	39	47
177:	59	62	59	63	56	47	53	75
185:	104	99	54	49	43	55	47	53
193:	33	58	48	48	43	56	51	51
201:	39	50	49	57	46	45	59	67
209:	72	52	29	53	48	46	33	51
217:	51	43	43	52	43	45	37	38
225:	39	31	36	32	43	44	48	33
233:	43	40	34	78	217	306	165	92
241:	88	62	31	33	34	36	37	28
249:	34	28	30	23	22	26	33	36
257:	31	37	38	38	25	30	33	24
265:	26	34	30	25	49	43	32	27
273:	24	32	34	34	39	35	30	26
281:	27	28	26	36	34	18	36	21
289:	39	29	31	32	41	81	83	39
297:	26	33	40	36	32	22	31	28
305:	22	27	23	25	21	24	25	23
313:	22	21	20	24	26	25	29	24
321:	23	21	30	21	30	19	38	25
329:	27	25	26	29	27	23	22	32
337:	49	67	34	38	21	16	23	23
345:	17	28	20	24	33	88	133	111
353:	32	22	17	18	22	26	18	20
361:	18	14	11	21	22	23	15	20

369:	18	28	21	23	13	14	22	18

Sample Title: HTC-A01-S006-3642-01

Channel								
377:	18	17	15	17	17	17	20	11
385:	18	21	21	20	12	14	16	18
393:	14	11	17	17	22	15	17	14
401:	18	17	16	13	18	16	15	25
409:	27	11	17	13	16	13	14	9
417:	13	15	19	20	16	17	13	17
425:	11	11	11	16	14	13	16	22
433:	13	16	14	21	19	18	19	10
441:	18	14	6	12	17	14	18	16
449:	15	16	10	21	8	13	13	8
457:	15	23	14	16	11	26	32	18
465:	9	6	11	14	9	16	9	11
473:	15	11	17	15	11	14	13	11
481:	12	18	14	12	7	15	10	13
489:	14	8	13	14	12	12	13	20
497:	14	18	5	12	15	15	13	6
505:	10	9	18	10	29	45	29	27
513:	11	13	10	12	13	9	8	14
521:	10	12	12	15	15	7	8	7
529:	20	13	14	13	13	3	15	14
537:	16	10	4	11	9	8	15	7
545:	11	5	8	16	10	8	17	8
553:	13	11	10	9	10	9	9	10
561:	8	10	9	12	6	9	11	13
569:	15	13	14	12	10	15	7	8
577:	9	13	15	10	25	64	55	29
585:	10	7	6	17	8	9	6	5
593:	8	10	3	8	10	3	12	13
601:	8	9	14	7	12	13	26	74
609:	85	44	16	13	7	9	10	6
617:	10	14	12	16	12	7	13	9
625:	3	6	4	11	10	8	8	12
633:	10	14	12	7	12	5	9	9
641:	10	4	6	8	10	11	8	8
649:	8	8	9	15	5	9	7	6
657:	10	6	6	15	28	15	12	10
665:	9	12	8	10	9	4	5	8
673:	10	10	11	8	5	9	13	9
681:	9	7	9	3	4	8	11	2
689:	12	8	9	9	7	9	9	11
697:	6	9	9	11	14	10	13	13
705:	8	9	8	6	7	9	6	7
713:	5	12	10	11	8	10	15	11
721:	8	8	6	10	10	12	25	14
729:	10	10	7	10	14	10	5	6
737:	9	5	6	5	6	8	10	10
745:	6	8	11	8	5	7	5	6
753:	6	8	7	8	8	4	10	6
761:	9	4	6	7	11	10	11	10
769:	15	5	12	7	10	1	6	7
777:	7	4	4	8	3	11	6	8
785:	15	7	9	3	7	11	5	7
793:	12	11	15	8	9	2	8	2

801:	5	4	3	4	7	2	7	2

Sample Title: HTC-A01-S006-3642-01

Channel								
809:	4	5	4	8	6	9	11	5
817:	5	8	10	11	4	10	4	8
825:	12	4	10	6	5	10	3	7
833:	1	8	11	7	9	9	10	6
841:	11	6	4	5	5	7	4	3
849:	7	4	9	1	5	4	3	5
857:	6	4	10	13	13	5	3	6
865:	5	8	13	3	7	4	6	4
873:	10	7	13	6	9	7	7	7
881:	4	6	7	9	8	6	6	5
889:	6	5	12	7	11	10	4	9
897:	6	6	6	4	2	10	7	5
905:	4	8	7	8	12	36	45	15
913:	5	5	6	6	7	2	6	8
921:	5	9	12	4	2	4	7	4
929:	8	7	10	6	8	8	5	8
937:	3	5	6	5	0	6	6	5
945:	1	4	12	5	9	4	4	9
953:	5	12	6	4	4	4	6	6
961:	9	6	8	15	12	11	15	31
969:	27	9	6	2	8	6	5	3
977:	6	6	4	6	10	8	7	7
985:	8	6	5	6	5	3	6	6
993:	7	2	3	5	8	10	7	7
1001:	5	4	5	3	4	2	7	6
1009:	10	5	6	8	5	8	3	5
1017:	8	11	11	4	4	3	3	5
1025:	6	7	8	3	5	7	7	9
1033:	8	8	4	6	4	6	4	5
1041:	5	8	9	4	3	10	2	3
1049:	2	5	6	7	4	3	6	7
1057:	4	4	4	4	10	2	3	5
1065:	8	6	7	5	8	0	7	9
1073:	8	5	10	11	5	5	7	3
1081:	9	4	4	4	3	3	10	3
1089:	9	5	3	6	5	10	7	7
1097:	4	2	4	4	9	8	6	5
1105:	3	7	11	7	2	3	7	9
1113:	9	6	2	7	5	11	24	11
1121:	11	9	5	7	4	6	8	7
1129:	3	5	7	7	9	6	6	5
1137:	9	9	6	4	10	9	4	9
1145:	4	4	6	5	7	5	4	3
1153:	5	8	6	6	3	9	11	9
1161:	4	8	4	5	10	2	9	3
1169:	5	11	5	11	3	7	10	3
1177:	6	5	3	3	6	2	9	9
1185:	7	6	4	8	11	8	6	6
1193:	2	8	6	3	6	9	7	5
1201:	7	9	3	7	5	7	7	8
1209:	6	6	6	6	4	11	2	6
1217:	7	7	5	6	8	7	7	2
1225:	4	11	9	6	8	8	4	3

1233:	11	10	6	10	14	7	11	5

Sample Title: HTC-A01-S006-3642-01

Channel								
1241:	6	6	9	8	7	5	5	8
1249:	6	4	2	4	6	5	6	4
1257:	6	0	5	0	10	2	2	2
1265:	10	4	3	4	5	5	5	5
1273:	5	4	6	4	5	2	4	7
1281:	6	4	2	2	3	4	6	2
1289:	5	1	3	5	3	2	3	9
1297:	8	4	8	2	0	3	7	2
1305:	5	5	4	5	1	3	5	5
1313:	5	1	9	1	4	4	1	4
1321:	2	1	5	4	6	4	3	3
1329:	4	2	6	5	4	2	4	3
1337:	6	4	1	2	7	2	2	3
1345:	5	0	6	1	6	4	5	2
1353:	0	1	2	2	3	0	1	3
1361:	1	2	1	4	2	4	6	1
1369:	3	1	3	5	1	2	0	4
1377:	5	5	2	1	4	4	2	4
1385:	4	6	2	0	2	3	2	5
1393:	4	1	4	1	1	3	3	6
1401:	3	5	2	2	2	4	4	3
1409:	4	4	2	1	2	1	2	3
1417:	1	0	1	3	4	4	1	4
1425:	5	5	2	1	2	1	2	4
1433:	1	1	3	5	2	3	3	3
1441:	0	2	0	1	1	3	1	1
1449:	2	1	4	2	3	3	3	2
1457:	4	20	73	142	99	48	8	0
1465:	2	3	2	3	2	2	1	1
1473:	3	4	2	1	0	2	0	1
1481:	0	0	1	3	0	0	1	1
1489:	1	3	2	0	1	0	1	0
1497:	7	2	0	0	1	2	1	1
1505:	2	1	2	2	1	2	2	2
1513:	0	1	0	1	1	2	0	1
1521:	1	1	2	2	3	1	0	1
1529:	4	1	2	2	2	2	2	0
1537:	2	1	3	2	1	1	2	2
1545:	3	1	1	2	1	2	1	3
1553:	4	0	0	0	1	1	0	3
1561:	2	1	2	1	0	1	0	1
1569:	1	1	0	3	6	0	0	1
1577:	0	1	0	2	0	3	2	0
1585:	2	1	4	2	5	2	5	7
1593:	7	0	2	3	1	1	5	0
1601:	0	2	1	2	1	3	1	1
1609:	0	0	1	1	0	1	2	1
1617:	1	1	0	3	2	2	2	0
1625:	0	1	0	2	1	2	1	1
1633:	2	0	0	1	1	1	2	1
1641:	0	2	1	1	1	1	1	0
1649:	0	1	1	4	1	0	0	2
1657:	3	3	1	4	2	0	0	1

1665:	1	2	0	1	0	1	0	0

Sample Title: HTC-A01-S006-3642-01

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

2097:	3	1	1	2	0	4	4	1

Sample Title: HTC-A01-S006-3642-01

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

2529:	1	0	1	1	0	0	0	0

Sample Title: HTC-A01-S006-3642-01

Channel								
2537:	0	0	0	0	0	1	0	0
2545:	0	0	0	0	0	1	1	1
2553:	0	0	0	0	0	0	0	0
2561:	0	0	0	0	0	0	0	0
2569:	0	1	0	2	0	0	1	1
2577:	0	0	0	0	2	0	0	0
2585:	0	0	0	0	0	1	1	0
2593:	0	0	0	0	0	1	0	0
2601:	2	0	0	0	0	0	0	1
2609:	0	0	1	1	6	11	12	3
2617:	1	0	0	0	0	0	0	0
2625:	0	0	0	1	0	0	1	0
2633:	0	1	1	0	0	0	0	0
2641:	0	0	0	0	1	0	0	1
2649:	0	1	0	0	0	0	0	0
2657:	0	0	0	0	0	0	0	0
2665:	0	0	0	0	0	0	0	0
2673:	0	1	0	1	0	1	0	0
2681:	0	0	1	0	0	0	0	1
2689:	1	1	0	0	0	0	0	0
2697:	0	0	1	0	0	0	1	0
2705:	0	0	0	0	1	0	0	1
2713:	0	0	0	0	0	0	0	0
2721:	0	0	1	0	0	0	1	0
2729:	0	0	0	0	0	1	0	1
2737:	0	0	0	0	2	0	1	0
2745:	0	0	1	0	0	0	1	0
2753:	0	1	0	1	1	0	0	0
2761:	1	1	0	1	0	0	0	0
2769:	1	0	0	0	1	1	0	0
2777:	0	0	0	0	0	0	0	0
2785:	0	0	0	0	1	0	1	0
2793:	0	0	0	0	0	0	0	0
2801:	0	0	0	0	0	0	0	1
2809:	0	0	0	0	0	0	0	0
2817:	0	0	0	0	0	0	0	0
2825:	0	0	0	0	1	1	0	0
2833:	0	1	0	0	0	1	0	0
2841:	1	0	1	0	1	0	0	0
2849:	0	0	0	0	0	1	0	0
2857:	0	0	0	0	0	0	1	0
2865:	0	0	1	0	0	0	0	0
2873:	0	2	0	1	0	0	0	0
2881:	0	0	0	0	1	0	0	1
2889:	0	2	1	1	0	0	0	0
2897:	1	0	0	0	0	1	1	1
2905:	0	0	0	1	0	1	0	1
2913:	0	0	1	0	0	0	0	0
2921:	0	1	0	1	1	1	0	0
2929:	0	0	0	0	0	0	0	0
2937:	0	2	0	0	0	0	1	0
2945:	0	0	0	0	0	0	0	0
2953:	0	1	1	0	0	0	0	0

2961:	0	1	0	0	1	0	0	0

Sample Title: HTC-A01-S006-3642-01

Channel								
2969:	0	0	0	0	0	0	0	2
2977:	0	1	0	0	0	0	0	0
2985:	0	0	0	0	0	0	1	0
2993:	0	0	0	0	0	0	0	1
3001:	0	0	1	1	0	1	0	0
3009:	0	0	0	0	0	0	1	0
3017:	0	0	0	0	0	1	0	0
3025:	0	0	0	0	0	0	0	0
3033:	0	0	0	0	0	0	0	0
3041:	0	0	0	1	0	0	0	0
3049:	0	1	0	0	0	0	0	0
3057:	0	0	0	0	0	0	1	0
3065:	0	1	0	0	1	0	0	0
3073:	0	0	0	0	0	0	0	0
3081:	0	0	1	0	0	0	1	0
3089:	0	0	1	0	0	0	2	0
3097:	1	0	0	0	0	0	0	0
3105:	0	0	0	0	0	0	0	0
3113:	0	3	0	0	0	0	0	1
3121:	0	0	0	0	0	0	0	0
3129:	0	0	0	0	0	1	0	0
3137:	0	0	0	1	0	0	0	0
3145:	0	0	1	0	0	1	0	0
3153:	0	0	0	1	0	0	0	0
3161:	0	0	0	0	0	1	0	0
3169:	0	0	0	0	0	0	0	0
3177:	0	1	0	0	0	0	1	0
3185:	0	0	0	1	0	0	0	0
3193:	0	0	1	0	0	0	0	0
3201:	0	0	1	0	0	0	0	0
3209:	0	0	0	0	0	0	0	0
3217:	0	1	0	0	0	0	0	0
3225:	0	0	0	1	1	0	0	0
3233:	1	0	0	1	0	0	1	0
3241:	0	0	0	0	0	0	0	0
3249:	0	1	0	0	0	0	0	0
3257:	0	0	0	0	0	0	1	0
3265:	0	0	0	1	0	0	0	0
3273:	0	0	0	0	0	0	0	0
3281:	0	1	0	0	0	0	0	0
3289:	0	0	0	1	0	0	0	0
3297:	0	0	0	0	0	0	0	1
3305:	0	1	0	1	0	0	0	0
3313:	0	0	0	0	0	0	0	0
3321:	0	0	0	0	0	1	0	0
3329:	0	0	0	0	0	0	0	0
3337:	1	0	0	0	0	0	1	0
3345:	0	0	1	0	0	0	0	0
3353:	0	2	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: HTC-A01-S006-3642-01

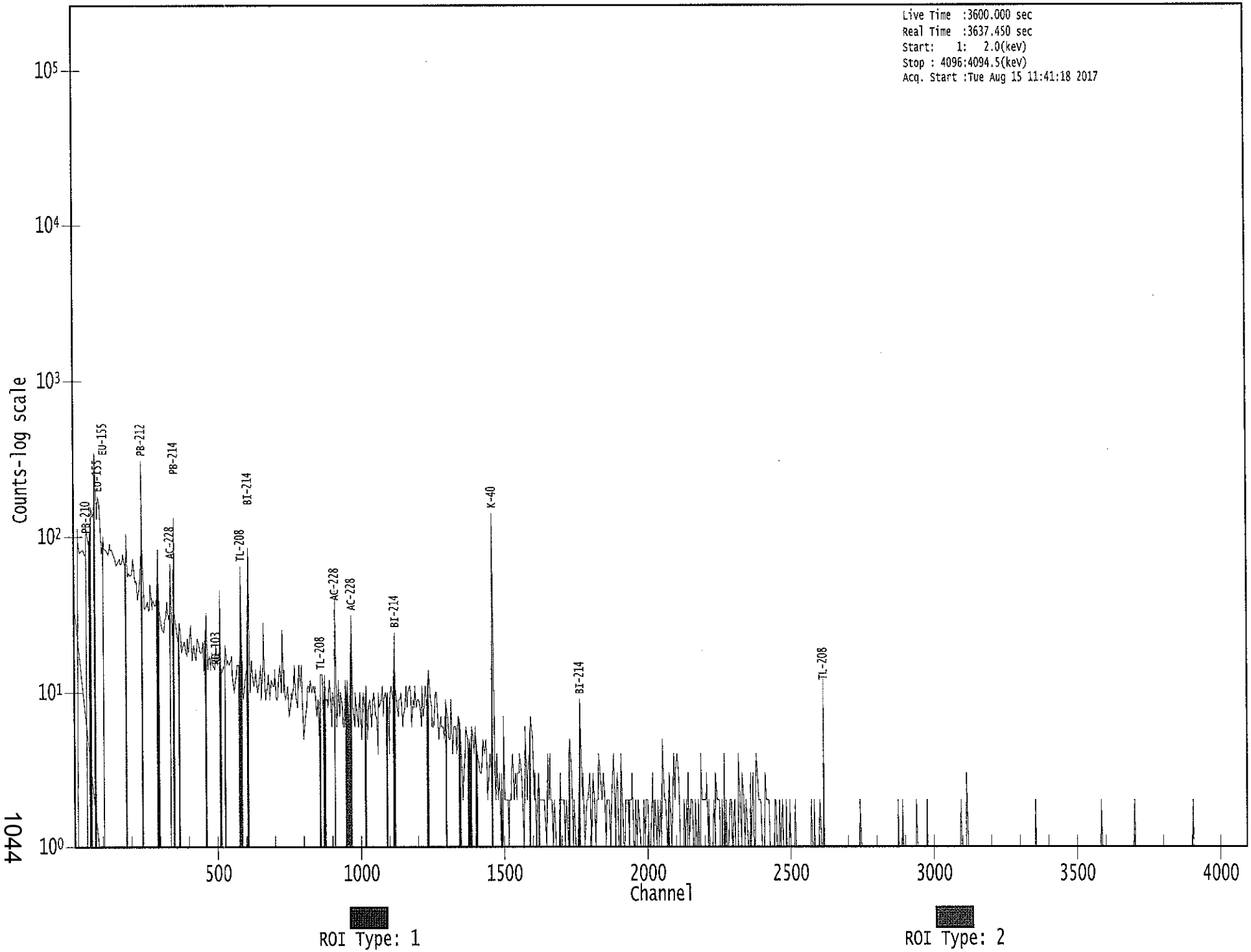
Channel								
3401:	0	0	0	0	1	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	1	0	0	0
3425:	0	0	0	0	0	1	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	1	0	0	1	1
3449:	0	0	0	0	0	1	1	0
3457:	0	0	0	0	0	0	0	0
3465:	1	0	0	0	0	0	0	0
3473:	1	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	1	0	0	0	0	0	0

Sample Title: HTC-A01-S006-3642-01

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

0000055259.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
8/15/17 5:47:33 AM

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000001B.QCK

Detector: GE1
Geometry: <None>
Certificate: <None>
Sample ID: QA Background Ch
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 8/15/17 5:32:19 AM
Measurement Date: 8/15/17 5:32:20 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 900.1 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE1 [SD: 2.2765E+000+/- 1.249]	2.2578E+000	-1.5023E-002 < : : : >

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

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```
*************************************************************************
*****          G E N I E   Q U A L I T Y   A S S U R A N C E          *****
*************************************************************************
```

Last Results Report
8/15/17 5:47:50 AM

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000003B.QCK

Detector: GE3
Geometry: <None>
Certificate: <None>
Sample ID: QA Background Ch
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 8/15/17 5:32:34 AM
Measurement Date: 8/15/17 5:32:36 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 901.8 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE3 [SD: 2.1822E+003+/-1178.1]	1.8510E+003	-2.8108E-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 *****
****

8/15

Last Results Report
8/15/17 5:48:00 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: 8/15/17 5:32:41 AM
Measurement Date: 8/15/17 5:32:42 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: 7.1703E+000+/-131.59]	1.5567E+000	-4.2660E-002 < : : : >

Trend Test: The last 9 samples exhibit a bias trend.

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

```
*********************************************************************
*****          G E N I E   Q U A L I T Y   A S S U R A N C E      *****
*********************************************************************
```

Last Results Report
8/15/17 5:28:06 AM

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000001GAF-16C.QCK

Detector: GE1
Geometry: <None>
Certificate: GAF-16
Sample ID: QA Calibration C
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 10/1/16 12:00:00 PM
Measurement Date: 8/15/17 5:12:22 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 929.1 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	5.9976E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Peak centroid 661.65 kev	6.6180E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Peak centroid 1332.49 ke	1.3325E+003	
Boundary Limits: [1.331E+003, 1.334E+003]		< : : : >
Peak centroid 1836.01 ke	1.8357E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Am-241	1.4243E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Cs-137	1.8142E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Co-60	2.3126E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	2.3413E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Decay corrected activity	1.5100E+004	
Boundary Limits: [1.254E-002, 1.881E-002]		< : : : >
Decay corrected activity	6.7611E+003	
Boundary Limits: [5.134E-003, 7.700E-003]		< : : : >
Decay corrected activity	1.0522E+004	

Boundary Limits: [8.130E-003, 1.220E-002] < : : : >

Decay corrected activity 2.0471E+004
Boundary Limits: [1.690E-002, 2.534E-002] < : : : >

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

8/15

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*********************************************************************
*****          G E N I E   Q U A L I T Y   A S S U R A N C E      *****
*********************************************************************
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Last Results Report
8/15/17 5:28:31 AM

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000003GAS-1602C.QC

Detector: GE3
Geometry: <None>
Certificate: GAS-1602
Sample ID: QA Calibration C
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 10/1/16 12:00:00 PM
Measurement Date: 8/15/17 5:12:44 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 934.7 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	5.9904E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 661.65 kev	6.6156E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Peak centroid 1332.49 ke	1.3320E+003	
Boundary Limits: [1.330E+003, 1.334E+003]		< : : : >
Peak centroid 1836.01 ke	1.8352E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Peak FWHM Am-241	1.9459E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Cs-137	2.3402E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Co-60	2.5008E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	2.7410E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Decay corrected activity	1.5704E+005	
Boundary Limits: [1.189E-001, 1.784E-001]		< : : : >
Decay corrected activity	5.9822E+004	
Boundary Limits: [4.862E-002, 7.293E-002]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		

Decay corrected activity 9.2696E+004
Boundary Limits: [7.700E-002, 1.155E-001] < : : : >
Trend Test: The last 9 samples exhibit a bias trend.

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Decay corrected activity	1.8555E+005	
Boundary Limits: [1.600E-001, 2.400E-001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

C
8/15

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*************************************************************************
*****          G E N I E   Q U A L I T Y   A S S U R A N C E        *****
*************************************************************************
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Last Results Report
8/15/17 5:29:21 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: 8/15/17 5:12:53 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 975.4 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	5.8311E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Peak centroid 661.65 kev	6.6061E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1332.49 ke	1.3318E+003	
Boundary Limits: [1.331E+003, 1.335E+003]		< : : : >
Peak centroid 1836.01 ke	1.8355E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Peak FWHM Am-241	2.0689E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Cs-137	2.5544E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Co-60	2.7440E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	2.9341E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Decay corrected activity	1.2605E+005	
Boundary Limits: [1.196E-001, 1.793E-001]		< : : : >
Decay corrected activity	6.2517E+004	
Boundary Limits: [4.890E-002, 7.335E-002]		< : : : >
Decay corrected activity	8.9490E+004	

Boundary Limits: [7.743E-002, 1.161E-001] < : : : >
Trend Test: The last 9 samples exhibit a bias trend.

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Decay corrected activity	1.8724E+005	
Boundary Limits: [1.609E-001, 2.414E-001]		< : : : >

Flags Key:
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- UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
- BS = Measurement Bias Test (In = Investigate, Ac = Action)