WESTON SOLUTIONS, INC.

PO# 0094759

STANDARD LEVEL IV
REPORT OF ANALYSIS

WORK ORDER #17-07085-OR

September 15, 2017

EBERLINE ANALYTICAL/OAK RIDGE LABORATORY
OAK RIDGE, TN

TABLE OF CONTENTS

SECTION	DESCRIPTION	PAGE
I	Chain of Custody	0004
II	Sample Acknowledgement	0010
III	Case Narrative	0013
IV	Analytical Results Summary	0017
V	Analytical Standard	0032
VI	Quality Control Sample Results Summary	0049
VII	Laboratory Technician's Notes & Run Logs	0060
VIII	Analytical Data (Isotopic Uranium)	0080
IX	Analytical Data (Isotopic Thorium)	0202
X	Analytical Data (Gamma Spectroscopy)	0322
	Last Page Number	1079

Eberline Services – Oak Ridge Laboratory

LABORATORY DATA SUPPORT CHECKLIST

MP-001-3

Eberline Services Work Order # 17-07085

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	JEB	Sample Log-In
		8-22-17	NJL	Data Compilation
		8/22/17	[illegible]	First Technical Data Review
		8/24/17	[illegible]	Second Technical Data Review
		9/7/17	[illegible]	Data Entry/Electronic Deliverable
		9/7/17	[illegible]	Case Narrative
		09/14/17	[illegible]	Electronic Deliverable Proof
		9/14/17	[illegible]	Samples Analyzed within Holding Time Yes? [X] No? [ ]
		9/14/17	[illegible]	QA/QC Review
				Client in Possession of Data Electronic or Hard Copy
				Invoiced by Laboratory

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

Date package approved by: [illegible] 9/14/17

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

17-07085
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-S008-4248-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	08:00	1	16 oz Poly Jar	N	1053.5 g
	HTC-A02-S001-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	10:44	1	16 oz Poly Jar	Y	883.9 g
	HTC-A02-S001-0006-02	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	10:44	1	16 oz Poly Jar	N	878.1 g
	HTC-A02-S001-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	10:41	1	16 oz Poly Jar	N	911.5 g
	HTC-A02-S001-1218-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	10:38	1	16 oz Poly Jar	N	938.7 g
	HTC-A02-S001-1824-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	10:35	1	16 oz Poly Jar	N	959.9 g
	HTC-A02-S001-2430-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	10:32	1	16 oz Poly Jar	N	909.3 g
	HTC-A02-S001-3036-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	10:29	1	16 oz Poly Jar	N	897.7 g
	HTC-A02-S001-3642-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	10:26	1	16 oz Poly Jar	N	880.7 g
	HTC-A02-S002-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	11:57	1	16 oz Poly Jar	N	882.4 g
	HTC-A02-S002-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	11:54	1	16 oz Poly Jar	N	969.6 g
	HTC-A02-S002-1218-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	11:51	1	16 oz Poly Jar	N	975.0 g
	HTC-A02-S002-1824-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	11:48	1	16 oz Poly Jar	N	886.3 g
4	HTC-A02-S002-2430-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	11:45	1	16 oz Poly Jar	N	946.8 g
5	HTC-A02-S002-3036-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	11:42	1	16 oz Poly Jar	N	1097.2 g
6	HTC-A02-S002-3642-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	11:39	1	16 oz Poly Jar	N	1119.5 g
7	HTC-A02-S002-4248-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	11:36	1	16 oz Poly Jar	N	1014.8 g
8 9 10	HTC-A02-S003-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	12:21	1	16 oz Poly Jar	Y	880.1 g
11	HTC-A02-S003-0006-02	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	12:21	1	16 oz Poly Jar	N	863.7 g
12	HTC-A02-S003-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	12:18	1	16 oz Poly Jar	N	856.7 g
13	HTC-A02-S003-1218-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	12:15	1	16 oz Poly Jar	N	830.1 g
14	HTC-A02-S003-1824-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	12:12	1	16 oz Poly Jar	N	708.9 g

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

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

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

0005

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

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

17-07085
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
15	HTC-A02-S003-2430-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	12:09	1	16 oz Poly Jar	N	943.9 g
16	HTC-A02-S003-3036-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	12:06	1	16 oz Poly Jar	N	828.3 g
17	HTC-A02-S003-3642-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	12:03	1	16 oz Poly Jar	N	800.3 g
18	HTC-A02-S003-4248-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	12:00	1	16 oz Poly Jar	N	736.5 g
19	HTC-A02-S004-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:29	1	16 oz Poly Jar	N	Weight N/A
20	HTC-A02-S004-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:27	1	16 oz Poly Jar	N	Weight N/A
	HTC-A02-S004-1218-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:25	1	16 oz Poly Jar	N	Weight N/A
	HTC-A02-S004-1824-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:23	1	16 oz Poly Jar	N	Weight N/A
	HTC-A02-S004-2430-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:21	1	16 oz Poly Jar	N	Weight N/A
	HTC-A02-S004-3036-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:19	1	16 oz Poly Jar	N	Weight N/A
	HTC-A02-S004-3642-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:17	1	16 oz Poly Jar	N	Weight N/A
	HTC-A02-S004-4248-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:15	1	16 oz Poly Jar	N	Weight N/A
	HTC-A03-S001-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:26	1	16 oz Poly Jar	Y	712.01
	HTC-A03-S001-0006-02	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:26	1	16 oz Poly Jar	N	784.5 g
	HTC-A03-S001-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:23	1	16 oz Poly Jar	N	852.4 g
	HTC-A03-S001-1218-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:20	1	16 oz Poly Jar	N	1092.2 g
	HTC-A03-S001-1824-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:17	1	16 oz Poly Jar	N	1084.3 g
	HTC-A03-S001-2430-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:14	1	16 oz Poly Jar	N	937.8 g
	HTC-A03-S001-3036-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:11	1	16 oz Poly Jar	N	1029.5 g
	HTC-A03-S001-3642-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:08	1	16 oz Poly Jar	N	826.3 g
	HTC-A03-S001-4248-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:05	1	16 oz Poly Jar	N	1045.3 g
	HTC-A03-S002-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	09:39	1	16 oz Poly Jar	N	1029.3 g

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

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

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

9000

EBERLINE SERVICES Oak Ridge Laboratory	Internal Chain of Custody	Work Order #	17-07085
		Lab Deadline	8/10/2017
		Analysis	UUISO - Level 4
		Sample Matrix	Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
Report on dry weight basis.	04	51	L1.4
	05	49	L1.4
	06	38	L1.4
	07	38	L1.4
	08	80	L1.4
	09	50	L1.4
	10	50	L1.4
	11	42	L1.4
	12	44	L1.4
Fraction 09 is MS of fraction 08. Fraction 10 is MSD of fraction 08.	13	40	L1.4
	14	39	L1.4
	15	39	L1.4
	16	45	L1.4
	17	37	L1.4
	18	48	L1.4
	19	48	L1.4
	20	138	L1.4

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1145	Key Sai	7-28-17
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1100	Key Sai	7-31-17
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	OB 8/7/17	1230
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible] 8/8/17	1415
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible] 8/8/17	1415
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible] 8/15/17	0949
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	MS 8/19/17	1304
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 #	17-07085
		Lab Deadline	8/10/2017
		Analysis	ThISO - Level 4
		Sample Matrix	Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
Report on dry weight basis.	04	51	L1.4
	05	49	L1.4
	06	38	L1.4
	07	38	L1.4
	08	80	L1.4
	09	50	L1.4
	10	50	L1.4
	11	42	L1.4
	12	44	L1.4
Fraction 09 is MS of fraction 08. Fraction 10 is MSD of fraction 08.	13	40	L1.4
	14	39	L1.4
	15	39	L1.4
	16	45	L1.4
	17	37	L1.4
	18	48	L1.4
	19	48	L1.4
	20	138	L1.4

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1145	[illegible]	7-28-17
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1100	[illegible]	7-31-17
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	JB 8/7/17	1230
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8/8/17 1415
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible] 8/8/17	1415
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible] 8/17/17	0800
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KB 8/17/17	1545
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		

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EBERLINE Oak Ridge Laboratory	Internal Chain of Custody	Work Order #	17-07085
		Lab Deadline	See Comments
		Analysis	Gamma - Level 4
		Sample Matrix	SO

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
Re-Analysis: 2Fractions 04-08 & 11-20 only: 21 day ingrowth: Report Ac228, Bi212, Cs137, K40, Pa234m, Pb212, Ra224, Ra226 from Bi214/Pb214, Ra228 from Ac228, Tl208, Th234 & positives. Report on dry weight basis.	04	51	L1.4
	05	49	L1.4
	06	38	L1.4
	07	38	L1.4
	08	80	L1.4
	11	42	L1.4
	12	44	L1.4
	13	40	L1.4
	14	39	L1.4
~~Original Lab Deadline: 08/15/17~~ Ey 07/19/17 ~~Rerun Lab Deadline: 08/15/17 Fractions 04-08 & 11-20 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.~~	15	39	L1.4
	16	45	L1.4
	17	37	L1.4
	18	48	L1.4
	19	48	L1.4
	20	138	L1.4

	Location (circle one)					Technician Initials	
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	MB Keysaij	7-28-17
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	12/5 Keysaij	7-31-17
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KB 7/31/17	1215
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KB 8/21/17	1453
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	17-07085
Project Name	**Client WO**	**Sample Disp**	**Lab Deadline**	**Internal Deadline**	**Client Deadline**
94759	Case #445	H	08/10/2017	08/14/2017	08/15/2017

Internal ID	Client ID	Sample Date	Matrix	Storage	Gamma	ThtSO	UUISO																				Ttl
01	LCS	07/19/17	SO	L1.4	X	X	X																				3
02	BLANK	07/19/17	SO	L1.4	X	X	X																				3
03	DUP	07/19/17	SO	L1.4	X	X	X																				3
04	HTC-A02-S002-2430-01	05/15/17 11:45	SO	L1.4	X	X	X																				3
05	HTC-A02-S002-3036-01	05/15/17 11:42	SO	L1.4	X	X	X																				3
06	HTC-A02-S002-3642-01	05/15/17 11:39	SO	L1.4	X	X	X																				3
07	HTC-A02-S002-4248-01	05/15/17 11:36	SO	L1.4	X	X	X																				3
08	HTC-A02-S003-0006-01	05/15/17 12:21	SO	L1.4	X	X	X																				3
09	HTC-A02-S003-0006-01 MS	05/15/17 12:21	SO	L1.4		X	X																				2
10	HTC-A02-S003-0006-01 MSD	05/15/17 12:21	SO	L1.4		X	X																				2
11	HTC-A02-S003-0006-02	05/15/17 12:21	SO	L1.4	X	X	X																				3
12	HTC-A02-S003-0612-01	05/15/17 12:18	SO	L1.4	X	X	X																				3
13	HTC-A02-S003-1218-01	05/15/17 12:15	SO	L1.4	X	X	X																				3
14	HTC-A02-S003-1824-01	05/15/17 12:12	SO	L1.4	X	X	X																				3
15	HTC-A02-S003-2430-01	05/15/17 12:09	SO	L1.4	X	X	X																				3
16	HTC-A02-S003-3036-01	05/15/17 12:06	SO	L1.4	X	X	X																				3
17	HTC-A02-S003-3642-01	05/15/17 12:03	SO	L1.4	X	X	X																				3
18	HTC-A02-S003-4248-01	05/15/17 12:00	SO	L1.4	X	X	X																				3
19	HTC-A02-S004-0006-01	05/15/17 08:29	SO	L1.4	X	X	X																				3
20	HTC-A02-S004-0612-01	05/15/17 08:27	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	

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

0014

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Eberline Services – Oak Ridge Laboratory

SAMPLE RECEIPT CHECKLIST
MP-001-2

WORK ORDER # 17-07085

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-42668

September 15, 2017

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

CASE NARRATIVE
Work Order # 17-07085-OR

SAMPLE RECEIPT

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

CLIENT ID	LAB ID	CLIENT ID	LAB ID
HTC-A02-S002-2430-01	17-07085-04	HTC-A02-S003-1218-01	17-07085-13
HTC-A02-S002-3036-01	17-07085-05	HTC-A02-S003-1824-01	17-07085-14
HTC-A02-S002-3642-01	17-07085-06	HTC-A02-S003-2430-01	17-07085-15
HTC-A02-S002-4248-01	17-07085-07	HTC-A02-S003-3036-01	17-07085-16
HTC-A02-S003-0006-01	17-07085-08	HTC-A02-S003-3642-01	17-07085-17
HTC-A02-S003-0006-01 MS	17-07085-09	HTC-A02-S003-4248-01	17-07085-18
HTC-A02-S003-0006-01 MSD	17-07085-10	HTC-A02-S004-0006-01	17-07085-19
HTC-A02-S003-0006-02	17-07085-11	HTC-A02-S004-0612-01	17-07085-20
HTC-A02-S003-0612-01	17-07085-12		

ANALYTICAL METHODS

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

ANALYTICAL RESULTS

Combined Standard Uncertainty is reported at 2-sigma value.

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

SPECIAL CIRCUMSTANCES

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

ANALYTICAL RESULTS CONTINUED

ISOTOPIC URANIUM

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

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

ISOTOPIC THORIUM

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

Samples demonstrated acceptable results for all Thorium determinations. The Thorium-228, Thorium-230 and Thorium-232 method blank demonstrated acceptable results. Chemical recovery was acceptable for all samples. Results for the Thorium-228 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 Radium-226 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.

CERTIFICATION OF ACCURACY

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

M.R. McDougall
Laboratory Manager

Date: 9/15/2017

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

SECTION IV

ANALYTICAL RESULTS SUMMARY

Eberline Analytical
Final Report of Analysis

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

Work Order Details:	
SDG:	17-07085
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											
17-07085-01	LCS	KNOWN	07/19/17 00:00	7/18/2017	8/21/2017	17-07085	Cobalt-60	EPA 901.1 Modified	1.35E+02	5.27E+00			pCi/g
17-07085-01	LCS	KNOWN	07/19/17 00:00	7/18/2017	8/21/2017	17-07085	Cesium-137	EPA 901.1 Modified	8.44E+01	3.38E+00			pCi/g
17-07085-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/21/2017	17-07085	Cobalt-60	EPA 901.1 Modified	1.24E+02	7.50E+00	9.83E+00	1.08E+00	pCi/g
17-07085-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/21/2017	17-07085	Cesium-137	EPA 901.1 Modified	8.12E+01	9.92E+00	1.08E+01	1.49E+00	pCi/g
17-07085-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/21/2017	17-07085	Actinium-228	EPA 901.1 Modified	-6.09E-02	1.29E-01	1.29E-01	1.52E-01	pCi/g
17-07085-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/21/2017	17-07085	Bismuth-212	EPA 901.1 Modified	-1.67E-01	3.11E-01	3.11E-01	3.89E-01	pCi/g
17-07085-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/21/2017	17-07085	Cesium-137	EPA 901.1 Modified	2.02E-02	3.85E-02	3.85E-02	6.22E-02	pCi/g
17-07085-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/21/2017	17-07085	Potassium-40	EPA 901.1 Modified	-3.45E-02	3.50E-01	3.50E-01	5.98E-01	pCi/g
17-07085-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/21/2017	17-07085	Protactinium-234m	EPA 901.1 Modified	8.11E-01	3.43E+00	3.43E+00	5.68E+00	pCi/g
17-07085-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/21/2017	17-07085	Lead-212	EPA 901.1 Modified	1.46E-02	3.65E-02	3.65E-02	5.93E-02	pCi/g
17-07085-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/21/2017	17-07085	Radium-224	EPA 901.1 Modified	3.55E-01	3.93E-01	3.93E-01	6.76E-01	pCi/g
17-07085-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/21/2017	17-07085	Radium-226	EPA 901.1 Modified	1.96E-02	5.09E-02	5.09E-02	9.02E-02	pCi/g
17-07085-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/21/2017	17-07085	Radium-228	EPA 901.1 Modified	-6.09E-02	1.29E-01	1.29E-01	1.52E-01	pCi/g
17-07085-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/21/2017	17-07085	Thorium-234	EPA 901.1 Modified	6.67E-01	3.88E-01	3.90E-01	6.72E-01	pCi/g
17-07085-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/21/2017	17-07085	Thallium-208	EPA 901.1 Modified	-8.87E-03	9.67E-02	9.67E-02	1.50E-01	pCi/g
17-07085-03	DUP	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/21/2017	17-07085	Actinium-228	EPA 901.1 Modified	1.52E+00	3.54E-01	3.63E-01	7.12E-01	pCi/g
17-07085-03	DUP	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/21/2017	17-07085	Bismuth-212	EPA 901.1 Modified	7.71E-01	9.33E-01	9.33E-01	1.56E+00	pCi/g
17-07085-03	DUP	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/21/2017	17-07085	Cesium-137	EPA 901.1 Modified	-4.21E-02	6.44E-02	6.45E-02	1.38E-01	pCi/g
17-07085-03	DUP	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/21/2017	17-07085	Potassium-40	EPA 901.1 Modified	2.19E+01	2.95E+00	3.15E+00	1.48E+00	pCi/g
17-07085-03	DUP	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/21/2017	17-07085	Protactinium-234m	EPA 901.1 Modified	-4.38E+00	1.15E+01	1.15E+01	1.52E+01	pCi/g
17-07085-03	DUP	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/21/2017	17-07085	Lead-212	EPA 901.1 Modified	1.41E+00	1.90E-01	2.03E-01	2.98E-01	pCi/g
17-07085-03	DUP	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/21/2017	17-07085	Radium-224	EPA 901.1 Modified	2.85E+00	1.62E+00	1.63E+00	3.38E+00	pCi/g
17-07085-03	DUP	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/21/2017	17-07085	Radium-226	EPA 901.1 Modified	1.12E+00	2.29E-01	2.36E-01	1.13E-01	pCi/g
17-07085-03	DUP	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/21/2017	17-07085	Radium-228	EPA 901.1 Modified	1.52E+00	3.54E-01	3.63E-01	7.12E-01	pCi/g
17-07085-03	DUP	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/21/2017	17-07085	Thorium-234	EPA 901.1 Modified	1.29E+00	1.48E+00	1.48E+00	2.21E+00	pCi/g
17-07085-03	DUP	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/21/2017	17-07085	Thallium-208	EPA 901.1 Modified	1.32E+00	3.13E-01	3.21E-01	7.76E-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:	17-07085
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
17-07085-04	DO	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/21/2017	17-07085	Actinium-228	EPA 901.1 Modified	1.56E+00	3.08E-01	3.18E-01	5.18E-01	pCi/g
17-07085-04	DO	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/21/2017	17-07085	Bismuth-212	EPA 901.1 Modified	9.03E-01	8.02E-01	8.04E-01	1.31E+00	pCi/g
17-07085-04	DO	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/21/2017	17-07085	Cesium-137	EPA 901.1 Modified	-3.96E-03	1.01E-01	1.01E-01	1.39E-01	pCi/g
17-07085-04	DO	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/21/2017	17-07085	Potassium-40	EPA 901.1 Modified	2.45E+01	3.18E+00	3.42E+00	1.41E+00	pCi/g
17-07085-04	DO	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/21/2017	17-07085	Protactinium-234m	EPA 901.1 Modified	8.99E+00	8.29E+00	8.30E+00	3.47E+01	pCi/g
17-07085-04	DO	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/21/2017	17-07085	Lead-212	EPA 901.1 Modified	1.37E+00	1.91E-01	2.03E-01	3.28E-01	pCi/g
17-07085-04	DO	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/21/2017	17-07085	Radium-224	EPA 901.1 Modified	3.61E+00	1.69E+00	1.70E+00	3.67E+00	pCi/g
17-07085-04	DO	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/21/2017	17-07085	Radium-226	EPA 901.1 Modified	1.15E+00	2.33E-01	2.40E-01	3.55E-01	pCi/g
17-07085-04	DO	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/21/2017	17-07085	Radium-228	EPA 901.1 Modified	1.56E+00	3.08E-01	3.18E-01	5.18E-01	pCi/g
17-07085-04	DO	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/21/2017	17-07085	Thorium-234	EPA 901.1 Modified	1.49E+00	1.46E+00	1.46E+00	2.19E+00	pCi/g
17-07085-04	DO	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/21/2017	17-07085	Thallium-208	EPA 901.1 Modified	1.31E+00	2.91E-01	2.99E-01	7.76E-02	pCi/g
17-07085-05	TRG	HTC-A02-S002-3036-01	05/15/17 11:42	7/18/2017	8/21/2017	17-07085	Actinium-228	EPA 901.1 Modified	1.30E+00	1.82E-01	1.94E-01	2.96E-01	pCi/g
17-07085-05	TRG	HTC-A02-S002-3036-01	05/15/17 11:42	7/18/2017	8/21/2017	17-07085	Bismuth-212	EPA 901.1 Modified	3.41E-01	3.79E-01	3.80E-01	6.23E-01	pCi/g
17-07085-05	TRG	HTC-A02-S002-3036-01	05/15/17 11:42	7/18/2017	8/21/2017	17-07085	Cesium-137	EPA 901.1 Modified	-3.74E-02	5.03E-02	5.03E-02	6.96E-02	pCi/g
17-07085-05	TRG	HTC-A02-S002-3036-01	05/15/17 11:42	7/18/2017	8/21/2017	17-07085	Potassium-40	EPA 901.1 Modified	2.14E+01	2.40E+00	2.64E+00	1.30E+00	pCi/g
17-07085-05	TRG	HTC-A02-S002-3036-01	05/15/17 11:42	7/18/2017	8/21/2017	17-07085	Protactinium-234m	EPA 901.1 Modified	2.33E+00	5.12E+00	5.12E+00	8.28E+00	pCi/g
17-07085-05	TRG	HTC-A02-S002-3036-01	05/15/17 11:42	7/18/2017	8/21/2017	17-07085	Lead-212	EPA 901.1 Modified	1.37E+00	1.50E-01	1.65E-01	2.21E-01	pCi/g
17-07085-05	TRG	HTC-A02-S002-3036-01	05/15/17 11:42	7/18/2017	8/21/2017	17-07085	Radium-224	EPA 901.1 Modified	4.40E+00	1.27E+00	1.29E+00	2.49E+00	pCi/g
17-07085-05	TRG	HTC-A02-S002-3036-01	05/15/17 11:42	7/18/2017	8/21/2017	17-07085	Radium-226	EPA 901.1 Modified	9.08E-01	1.73E-01	1.79E-01	2.40E-01	pCi/g
17-07085-05	TRG	HTC-A02-S002-3036-01	05/15/17 11:42	7/18/2017	8/21/2017	17-07085	Radium-228	EPA 901.1 Modified	1.30E+00	1.82E-01	1.94E-01	2.96E-01	pCi/g
17-07085-05	TRG	HTC-A02-S002-3036-01	05/15/17 11:42	7/18/2017	8/21/2017	17-07085	Thorium-234	EPA 901.1 Modified	1.16E+00	9.33E-01	9.34E-01	1.85E+00	pCi/g
17-07085-05	TRG	HTC-A02-S002-3036-01	05/15/17 11:42	7/18/2017	8/21/2017	17-07085	Thallium-208	EPA 901.1 Modified	1.16E+00	2.25E-01	2.33E-01	3.86E-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:	17-07085
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
17-07085-06	TRG	HTC-A02-S002-3642-01	05/15/17 11:39	7/18/2017	8/21/2017	17-07085	Actinium-228	EPA 901.1 Modified	8.60E-01	1.62E-01	1.68E-01	4.78E-01	pCi/g
17-07085-06	TRG	HTC-A02-S002-3642-01	05/15/17 11:39	7/18/2017	8/21/2017	17-07085	Bismuth-212	EPA 901.1 Modified	7.48E-01	4.02E-01	4.04E-01	6.71E-01	pCi/g
17-07085-06	TRG	HTC-A02-S002-3642-01	05/15/17 11:39	7/18/2017	8/21/2017	17-07085	Cesium-137	EPA 901.1 Modified	-1.55E-02	4.34E-02	4.35E-02	5.97E-02	pCi/g
17-07085-06	TRG	HTC-A02-S002-3642-01	05/15/17 11:39	7/18/2017	8/21/2017	17-07085	Potassium-40	EPA 901.1 Modified	1.55E+01	1.86E+00	2.02E+00	6.10E-01	pCi/g
17-07085-06	TRG	HTC-A02-S002-3642-01	05/15/17 11:39	7/18/2017	8/21/2017	17-07085	Protactinium-234m	EPA 901.1 Modified	2.23E+00	4.10E+00	4.10E+00	6.81E+00	pCi/g
17-07085-06	TRG	HTC-A02-S002-3642-01	05/15/17 11:39	7/18/2017	8/21/2017	17-07085	Lead-212	EPA 901.1 Modified	7.51E-01	9.73E-02	1.05E-01	2.21E-01	pCi/g
17-07085-06	TRG	HTC-A02-S002-3642-01	05/15/17 11:39	7/18/2017	8/21/2017	17-07085	Radium-224	EPA 901.1 Modified	5.08E+00	1.55E+00	1.57E+00	1.98E+00	pCi/g
17-07085-06	TRG	HTC-A02-S002-3642-01	05/15/17 11:39	7/18/2017	8/21/2017	17-07085	Radium-226	EPA 901.1 Modified	8.05E-01	1.18E-01	1.25E-01	1.55E-01	pCi/g
17-07085-06	TRG	HTC-A02-S002-3642-01	05/15/17 11:39	7/18/2017	8/21/2017	17-07085	Radium-228	EPA 901.1 Modified	8.60E-01	1.62E-01	1.68E-01	4.78E-01	pCi/g
17-07085-06	TRG	HTC-A02-S002-3642-01	05/15/17 11:39	7/18/2017	8/21/2017	17-07085	Thorium-234	EPA 901.1 Modified	6.07E-01	6.72E-01	6.72E-01	1.04E+00	pCi/g
17-07085-06	TRG	HTC-A02-S002-3642-01	05/15/17 11:39	7/18/2017	8/21/2017	17-07085	Thallium-208	EPA 901.1 Modified	6.88E-01	1.18E-01	1.23E-01	1.46E-01	pCi/g
17-07085-07	TRG	HTC-A02-S002-4248-01	05/15/17 11:36	7/18/2017	8/21/2017	17-07085	Actinium-228	EPA 901.1 Modified	7.50E-01	2.49E-01	2.52E-01	5.42E-01	pCi/g
17-07085-07	TRG	HTC-A02-S002-4248-01	05/15/17 11:36	7/18/2017	8/21/2017	17-07085	Bismuth-212	EPA 901.1 Modified	7.04E-01	5.39E-01	5.40E-01	8.70E-01	pCi/g
17-07085-07	TRG	HTC-A02-S002-4248-01	05/15/17 11:36	7/18/2017	8/21/2017	17-07085	Cesium-137	EPA 901.1 Modified	1.20E-02	6.13E-02	6.13E-02	9.53E-02	pCi/g
17-07085-07	TRG	HTC-A02-S002-4248-01	05/15/17 11:36	7/18/2017	8/21/2017	17-07085	Potassium-40	EPA 901.1 Modified	1.62E+01	2.11E+00	2.27E+00	1.27E+00	pCi/g
17-07085-07	TRG	HTC-A02-S002-4248-01	05/15/17 11:36	7/18/2017	8/21/2017	17-07085	Protactinium-234m	EPA 901.1 Modified	-1.99E+00	6.30E+00	6.30E+00	9.22E+00	pCi/g
17-07085-07	TRG	HTC-A02-S002-4248-01	05/15/17 11:36	7/18/2017	8/21/2017	17-07085	Lead-212	EPA 901.1 Modified	8.68E-01	1.35E-01	1.42E-01	3.52E-01	pCi/g
17-07085-07	TRG	HTC-A02-S002-4248-01	05/15/17 11:36	7/18/2017	8/21/2017	17-07085	Radium-224	EPA 901.1 Modified	1.37E+01	1.90E+00	2.02E+00	2.94E+00	pCi/g
17-07085-07	TRG	HTC-A02-S002-4248-01	05/15/17 11:36	7/18/2017	8/21/2017	17-07085	Radium-226	EPA 901.1 Modified	1.65E+00	2.09E-01	2.26E-01	2.58E-01	pCi/g
17-07085-07	TRG	HTC-A02-S002-4248-01	05/15/17 11:36	7/18/2017	8/21/2017	17-07085	Radium-228	EPA 901.1 Modified	7.50E-01	2.49E-01	2.52E-01	5.42E-01	pCi/g
17-07085-07	TRG	HTC-A02-S002-4248-01	05/15/17 11:36	7/18/2017	8/21/2017	17-07085	Thorium-234	EPA 901.1 Modified	3.33E+00	1.89E+00	1.89E+00	3.10E+00	pCi/g
17-07085-07	TRG	HTC-A02-S002-4248-01	05/15/17 11:36	7/18/2017	8/21/2017	17-07085	Thallium-208	EPA 901.1 Modified	8.46E-01	1.69E-01	1.74E-01	1.14E-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:	17-07085
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
17-07085-08	TRG	HTC-A02-S003-0006-01	05/15/17 12:21	7/18/2017	8/21/2017	17-07085	Actinium-228	EPA 901.1 Modified	-1.74E-03	4.54E-01	4.54E-01	6.68E-01	pCi/g
17-07085-08	TRG	HTC-A02-S003-0006-01	05/15/17 12:21	7/18/2017	8/21/2017	17-07085	Bismuth-212	EPA 901.1 Modified	5.96E-01	6.59E-01	6.59E-01	1.10E+00	pCi/g
17-07085-08	TRG	HTC-A02-S003-0006-01	05/15/17 12:21	7/18/2017	8/21/2017	17-07085	Cesium-137	EPA 901.1 Modified	-2.02E-01	1.46E-01	1.47E-01	1.95E-01	pCi/g
17-07085-08	TRG	HTC-A02-S003-0006-01	05/15/17 12:21	7/18/2017	8/21/2017	17-07085	Potassium-40	EPA 901.1 Modified	3.87E+00	1.49E+00	1.50E+00	2.25E+00	pCi/g
17-07085-08	TRG	HTC-A02-S003-0006-01	05/15/17 12:21	7/18/2017	8/21/2017	17-07085	Protactinium-234m	EPA 901.1 Modified	2.35E+01	1.63E+01	1.64E+01	2.67E+01	pCi/g
17-07085-08	TRG	HTC-A02-S003-0006-01	05/15/17 12:21	7/18/2017	8/21/2017	17-07085	Lead-212	EPA 901.1 Modified	1.45E-01	1.08E-01	1.08E-01	4.39E-01	pCi/g
17-07085-08	TRG	HTC-A02-S003-0006-01	05/15/17 12:21	7/18/2017	8/21/2017	17-07085	Radium-224	EPA 901.1 Modified	4.54E+01	4.96E+00	5.48E+00	5.70E+00	pCi/g
17-07085-08	TRG	HTC-A02-S003-0006-01	05/15/17 12:21	7/18/2017	8/21/2017	17-07085	Radium-226	EPA 901.1 Modified	2.48E+01	1.35E+00	1.85E+00	5.86E-01	pCi/g
17-07085-08	TRG	HTC-A02-S003-0006-01	05/15/17 12:21	7/18/2017	8/21/2017	17-07085	Radium-228	EPA 901.1 Modified	-1.74E-03	4.54E-01	4.54E-01	6.68E-01	pCi/g
17-07085-08	TRG	HTC-A02-S003-0006-01	05/15/17 12:21	7/18/2017	8/21/2017	17-07085	Thorium-234	EPA 901.1 Modified	1.82E+01	3.54E+00	3.66E+00	5.36E+00	pCi/g
17-07085-08	TRG	HTC-A02-S003-0006-01	05/15/17 12:21	7/18/2017	8/21/2017	17-07085	Thallium-208	EPA 901.1 Modified	4.92E-01	3.56E-01	3.57E-01	3.46E-01	pCi/g
17-07085-11	TRG	HTC-A02-S003-0006-02	05/15/17 12:21	7/18/2017	8/21/2017	17-07085	Actinium-228	EPA 901.1 Modified	2.17E-01	4.67E-01	4.67E-01	6.66E-01	pCi/g
17-07085-11	TRG	HTC-A02-S003-0006-02	05/15/17 12:21	7/18/2017	8/21/2017	17-07085	Bismuth-212	EPA 901.1 Modified	1.20E+00	1.29E+00	1.29E+00	2.15E+00	pCi/g
17-07085-11	TRG	HTC-A02-S003-0006-02	05/15/17 12:21	7/18/2017	8/21/2017	17-07085	Cesium-137	EPA 901.1 Modified	1.39E-01	1.31E-01	1.32E-01	1.93E-01	pCi/g
17-07085-11	TRG	HTC-A02-S003-0006-02	05/15/17 12:21	7/18/2017	8/21/2017	17-07085	Potassium-40	EPA 901.1 Modified	2.96E+00	1.78E+00	1.79E+00	2.83E+00	pCi/g
17-07085-11	TRG	HTC-A02-S003-0006-02	05/15/17 12:21	7/18/2017	8/21/2017	17-07085	Protactinium-234m	EPA 901.1 Modified	3.13E+01	1.45E+01	1.46E+01	2.24E+01	pCi/g
17-07085-11	TRG	HTC-A02-S003-0006-02	05/15/17 12:21	7/18/2017	8/21/2017	17-07085	Lead-212	EPA 901.1 Modified	4.75E-02	8.30E-02	8.30E-02	3.55E-01	pCi/g
17-07085-11	TRG	HTC-A02-S003-0006-02	05/15/17 12:21	7/18/2017	8/21/2017	17-07085	Radium-224	EPA 901.1 Modified	2.20E+01	3.08E+00	3.28E+00	4.36E+00	pCi/g
17-07085-11	TRG	HTC-A02-S003-0006-02	05/15/17 12:21	7/18/2017	8/21/2017	17-07085	Radium-226	EPA 901.1 Modified	1.19E+01	8.74E-01	1.07E+00	4.96E-01	pCi/g
17-07085-11	TRG	HTC-A02-S003-0006-02	05/15/17 12:21	7/18/2017	8/21/2017	17-07085	Radium-228	EPA 901.1 Modified	2.17E-01	4.67E-01	4.67E-01	6.66E-01	pCi/g
17-07085-11	TRG	HTC-A02-S003-0006-02	05/15/17 12:21	7/18/2017	8/21/2017	17-07085	Thorium-234	EPA 901.1 Modified	1.51E+01	4.08E+00	4.15E+00	6.46E+00	pCi/g
17-07085-11	TRG	HTC-A02-S003-0006-02	05/15/17 12:21	7/18/2017	8/21/2017	17-07085	Thallium-208	EPA 901.1 Modified	5.26E-01	3.03E-01	3.04E-01	3.77E-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:	17-07085
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
17-07085-12	TRG	HTC-A02-S003-0612-01	05/15/17 12:18	7/18/2017	8/21/2017	17-07085	Actinium-228	EPA 901.1 Modified	8.65E-01	3.87E-01	3.90E-01	6.94E-01	pCi/g
17-07085-12	TRG	HTC-A02-S003-0612-01	05/15/17 12:18	7/18/2017	8/21/2017	17-07085	Bismuth-212	EPA 901.1 Modified	6.64E-01	6.84E-01	6.85E-01	1.14E+00	pCi/g
17-07085-12	TRG	HTC-A02-S003-0612-01	05/15/17 12:18	7/18/2017	8/21/2017	17-07085	Cesium-137	EPA 901.1 Modified	1.77E-02	6.28E-02	6.28E-02	1.46E-01	pCi/g
17-07085-12	TRG	HTC-A02-S003-0612-01	05/15/17 12:18	7/18/2017	8/21/2017	17-07085	Potassium-40	EPA 901.1 Modified	1.60E+01	2.57E+00	2.70E+00	2.70E+00	pCi/g
17-07085-12	TRG	HTC-A02-S003-0612-01	05/15/17 12:18	7/18/2017	8/21/2017	17-07085	Protactinium-234m	EPA 901.1 Modified	6.77E+00	1.17E+01	1.17E+01	1.83E+01	pCi/g
17-07085-12	TRG	HTC-A02-S003-0612-01	05/15/17 12:18	7/18/2017	8/21/2017	17-07085	Lead-212	EPA 901.1 Modified	8.16E-01	1.75E-01	1.80E-01	3.53E-01	pCi/g
17-07085-12	TRG	HTC-A02-S003-0612-01	05/15/17 12:18	7/18/2017	8/21/2017	17-07085	Radium-224	EPA 901.1 Modified	3.46E+01	3.95E+00	4.33E+00	5.22E+00	pCi/g
17-07085-12	TRG	HTC-A02-S003-0612-01	05/15/17 12:18	7/18/2017	8/21/2017	17-07085	Radium-226	EPA 901.1 Modified	1.38E+01	8.62E-01	1.12E+00	3.73E-01	pCi/g
17-07085-12	TRG	HTC-A02-S003-0612-01	05/15/17 12:18	7/18/2017	8/21/2017	17-07085	Radium-228	EPA 901.1 Modified	8.65E-01	3.87E-01	3.90E-01	6.94E-01	pCi/g
17-07085-12	TRG	HTC-A02-S003-0612-01	05/15/17 12:18	7/18/2017	8/21/2017	17-07085	Thorium-234	EPA 901.1 Modified	1.27E+01	3.77E+00	3.83E+00	6.00E+00	pCi/g
17-07085-12	TRG	HTC-A02-S003-0612-01	05/15/17 12:18	7/18/2017	8/21/2017	17-07085	Thallium-208	EPA 901.1 Modified	8.67E-01	1.73E-01	1.79E-01	2.43E-01	pCi/g
17-07085-13	TRG	HTC-A02-S003-1218-01	05/15/17 12:15	7/18/2017	8/21/2017	17-07085	Actinium-228	EPA 901.1 Modified	1.33E+00	2.38E-01	2.48E-01	4.73E-01	pCi/g
17-07085-13	TRG	HTC-A02-S003-1218-01	05/15/17 12:15	7/18/2017	8/21/2017	17-07085	Bismuth-212	EPA 901.1 Modified	1.04E+00	4.24E-01	4.27E-01	8.17E-01	pCi/g
17-07085-13	TRG	HTC-A02-S003-1218-01	05/15/17 12:15	7/18/2017	8/21/2017	17-07085	Cesium-137	EPA 901.1 Modified	-8.39E-02	6.83E-02	6.84E-02	8.77E-02	pCi/g
17-07085-13	TRG	HTC-A02-S003-1218-01	05/15/17 12:15	7/18/2017	8/21/2017	17-07085	Potassium-40	EPA 901.1 Modified	2.84E+01	3.03E+00	3.36E+00	1.34E+00	pCi/g
17-07085-13	TRG	HTC-A02-S003-1218-01	05/15/17 12:15	7/18/2017	8/21/2017	17-07085	Protactinium-234m	EPA 901.1 Modified	-4.25E-01	6.17E+00	6.17E+00	9.06E+00	pCi/g
17-07085-13	TRG	HTC-A02-S003-1218-01	05/15/17 12:15	7/18/2017	8/21/2017	17-07085	Lead-212	EPA 901.1 Modified	1.66E+00	1.85E-01	2.04E-01	2.87E-01	pCi/g
17-07085-13	TRG	HTC-A02-S003-1218-01	05/15/17 12:15	7/18/2017	8/21/2017	17-07085	Radium-224	EPA 901.1 Modified	4.97E+00	1.74E+00	1.76E+00	3.28E+00	pCi/g
17-07085-13	TRG	HTC-A02-S003-1218-01	05/15/17 12:15	7/18/2017	8/21/2017	17-07085	Radium-226	EPA 901.1 Modified	1.33E+00	2.09E-01	2.19E-01	2.84E-01	pCi/g
17-07085-13	TRG	HTC-A02-S003-1218-01	05/15/17 12:15	7/18/2017	8/21/2017	17-07085	Radium-228	EPA 901.1 Modified	1.33E+00	2.38E-01	2.48E-01	4.73E-01	pCi/g
17-07085-13	TRG	HTC-A02-S003-1218-01	05/15/17 12:15	7/18/2017	8/21/2017	17-07085	Thorium-234	EPA 901.1 Modified	1.26E+00	1.35E+00	1.36E+00	2.26E+00	pCi/g
17-07085-13	TRG	HTC-A02-S003-1218-01	05/15/17 12:15	7/18/2017	8/21/2017	17-07085	Thallium-208	EPA 901.1 Modified	1.38E+00	2.15E-01	2.26E-01	1.78E-01	pCi/g

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

EBERLINE SERVICES

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

Eberline Analytical
Final Report of Analysis

Report To:

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

Work Order Details:

SDG:	**17-07085**
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
17-07085-14	TRG	HTC-A02-S003-1824-01	05/15/17 12:12	7/18/2017	8/21/2017	17-07085	Actinium-228	EPA 901.1 Modified	1.29E+00	2.95E-01	3.02E-01	5.64E-01	pCi/g
17-07085-14	TRG	HTC-A02-S003-1824-01	05/15/17 12:12	7/18/2017	8/21/2017	17-07085	Bismuth-212	EPA 901.1 Modified	1.10E+00	6.29E-01	6.31E-01	9.68E-01	pCi/g
17-07085-14	TRG	HTC-A02-S003-1824-01	05/15/17 12:12	7/18/2017	8/21/2017	17-07085	Cesium-137	EPA 901.1 Modified	-7.52E-02	8.72E-02	8.73E-02	1.13E-01	pCi/g
17-07085-14	TRG	HTC-A02-S003-1824-01	05/15/17 12:12	7/18/2017	8/21/2017	17-07085	Potassium-40	EPA 901.1 Modified	2.59E+01	3.04E+00	3.32E+00	1.10E+00	pCi/g
17-07085-14	TRG	HTC-A02-S003-1824-01	05/15/17 12:12	7/18/2017	8/21/2017	17-07085	Protactinium-234m	EPA 901.1 Modified	8.14E+00	7.34E+00	7.36E+00	1.32E+01	pCi/g
17-07085-14	TRG	HTC-A02-S003-1824-01	05/15/17 12:12	7/18/2017	8/21/2017	17-07085	Lead-212	EPA 901.1 Modified	1.56E+00	2.06E-01	2.21E-01	2.71E-01	pCi/g
17-07085-14	TRG	HTC-A02-S003-1824-01	05/15/17 12:12	7/18/2017	8/21/2017	17-07085	Radium-224	EPA 901.1 Modified	2.19E+01	2.62E+00	2.85E+00	3.90E+00	pCi/g
17-07085-14	TRG	HTC-A02-S003-1824-01	05/15/17 12:12	7/18/2017	8/21/2017	17-07085	Radium-226	EPA 901.1 Modified	1.28E+00	2.03E-01	2.14E-01	2.12E-01	pCi/g
17-07085-14	TRG	HTC-A02-S003-1824-01	05/15/17 12:12	7/18/2017	8/21/2017	17-07085	Radium-228	EPA 901.1 Modified	1.29E+00	2.95E-01	3.02E-01	5.64E-01	pCi/g
17-07085-14	TRG	HTC-A02-S003-1824-01	05/15/17 12:12	7/18/2017	8/21/2017	17-07085	Thorium-234	EPA 901.1 Modified	2.10E+00	1.63E+00	1.63E+00	2.70E+00	pCi/g
17-07085-14	TRG	HTC-A02-S003-1824-01	05/15/17 12:12	7/18/2017	8/21/2017	17-07085	Thallium-208	EPA 901.1 Modified	1.23E+00	2.58E-01	2.65E-01	1.46E-01	pCi/g
17-07085-15	TRG	HTC-A02-S003-2430-01	05/15/17 12:09	7/18/2017	8/21/2017	17-07085	Actinium-228	EPA 901.1 Modified	1.56E+00	2.59E-01	2.71E-01	4.05E-01	pCi/g
17-07085-15	TRG	HTC-A02-S003-2430-01	05/15/17 12:09	7/18/2017	8/21/2017	17-07085	Bismuth-212	EPA 901.1 Modified	9.22E-01	6.60E-01	6.62E-01	1.06E+00	pCi/g
17-07085-15	TRG	HTC-A02-S003-2430-01	05/15/17 12:09	7/18/2017	8/21/2017	17-07085	Cesium-137	EPA 901.1 Modified	-3.70E-02	6.28E-02	6.28E-02	8.88E-02	pCi/g
17-07085-15	TRG	HTC-A02-S003-2430-01	05/15/17 12:09	7/18/2017	8/21/2017	17-07085	Potassium-40	EPA 901.1 Modified	3.43E+01	3.61E+00	4.01E+00	1.28E+00	pCi/g
17-07085-15	TRG	HTC-A02-S003-2430-01	05/15/17 12:09	7/18/2017	8/21/2017	17-07085	Protactinium-234m	EPA 901.1 Modified	9.36E-01	7.31E+00	7.31E+00	1.09E+01	pCi/g
17-07085-15	TRG	HTC-A02-S003-2430-01	05/15/17 12:09	7/18/2017	8/21/2017	17-07085	Lead-212	EPA 901.1 Modified	1.76E+00	1.98E-01	2.17E-01	3.49E-01	pCi/g
17-07085-15	TRG	HTC-A02-S003-2430-01	05/15/17 12:09	7/18/2017	8/21/2017	17-07085	Radium-224	EPA 901.1 Modified	4.83E+00	1.69E+00	1.71E+00	3.94E+00	pCi/g
17-07085-15	TRG	HTC-A02-S003-2430-01	05/15/17 12:09	7/18/2017	8/21/2017	17-07085	Radium-226	EPA 901.1 Modified	1.27E+00	2.07E-01	2.17E-01	3.31E-01	pCi/g
17-07085-15	TRG	HTC-A02-S003-2430-01	05/15/17 12:09	7/18/2017	8/21/2017	17-07085	Radium-228	EPA 901.1 Modified	1.56E+00	2.59E-01	2.71E-01	4.05E-01	pCi/g
17-07085-15	TRG	HTC-A02-S003-2430-01	05/15/17 12:09	7/18/2017	8/21/2017	17-07085	Thorium-234	EPA 901.1 Modified	1.85E+00	1.56E+00	1.56E+00	2.58E+00	pCi/g
17-07085-15	TRG	HTC-A02-S003-2430-01	05/15/17 12:09	7/18/2017	8/21/2017	17-07085	Thallium-208	EPA 901.1 Modified	1.54E+00	2.09E-01	2.23E-01	2.28E-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:	17-07085
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
17-07085-16	TRG	HTC-A02-S003-3036-01	05/15/17 12:06	7/18/2017	8/21/2017	17-07085	Actinium-228	EPA 901.1 Modified	1.39E+00	2.86E-01	2.95E-01	5.02E-01	pCi/g
17-07085-16	TRG	HTC-A02-S003-3036-01	05/15/17 12:06	7/18/2017	8/21/2017	17-07085	Bismuth-212	EPA 901.1 Modified	9.50E-01	7.42E-01	7.44E-01	1.21E+00	pCi/g
17-07085-16	TRG	HTC-A02-S003-3036-01	05/15/17 12:06	7/18/2017	8/21/2017	17-07085	Cesium-137	EPA 901.1 Modified	2.60E-02	6.91E-02	6.91E-02	1.09E-01	pCi/g
17-07085-16	TRG	HTC-A02-S003-3036-01	05/15/17 12:06	7/18/2017	8/21/2017	17-07085	Potassium-40	EPA 901.1 Modified	2.53E+01	3.09E+00	3.36E+00	1.69E+00	pCi/g
17-07085-16	TRG	HTC-A02-S003-3036-01	05/15/17 12:06	7/18/2017	8/21/2017	17-07085	Protactinium-234m	EPA 901.1 Modified	2.45E+00	6.56E+00	6.56E+00	1.06E+01	pCi/g
17-07085-16	TRG	HTC-A02-S003-3036-01	05/15/17 12:06	7/18/2017	8/21/2017	17-07085	Lead-212	EPA 901.1 Modified	1.26E+00	1.55E-01	1.68E-01	2.90E-01	pCi/g
17-07085-16	TRG	HTC-A02-S003-3036-01	05/15/17 12:06	7/18/2017	8/21/2017	17-07085	Radium-224	EPA 901.1 Modified	1.01E+01	2.27E+00	2.33E+00	3.12E+00	pCi/g
17-07085-16	TRG	HTC-A02-S003-3036-01	05/15/17 12:06	7/18/2017	8/21/2017	17-07085	Radium-226	EPA 901.1 Modified	1.03E+00	1.57E-01	1.65E-01	3.27E-01	pCi/g
17-07085-16	TRG	HTC-A02-S003-3036-01	05/15/17 12:06	7/18/2017	8/21/2017	17-07085	Radium-228	EPA 901.1 Modified	1.39E+00	2.86E-01	2.95E-01	5.02E-01	pCi/g
17-07085-16	TRG	HTC-A02-S003-3036-01	05/15/17 12:06	7/18/2017	8/21/2017	17-07085	Thorium-234	EPA 901.1 Modified	1.40E+00	1.01E+00	1.02E+00	1.61E+00	pCi/g
17-07085-16	TRG	HTC-A02-S003-3036-01	05/15/17 12:06	7/18/2017	8/21/2017	17-07085	Thallium-208	EPA 901.1 Modified	1.18E+00	2.04E-01	2.12E-01	2.89E-01	pCi/g
17-07085-17	TRG	HTC-A02-S003-3642-01	05/15/17 12:03	7/18/2017	8/21/2017	17-07085	Actinium-228	EPA 901.1 Modified	1.29E+00	2.87E-01	2.94E-01	5.22E-01	pCi/g
17-07085-17	TRG	HTC-A02-S003-3642-01	05/15/17 12:03	7/18/2017	8/21/2017	17-07085	Bismuth-212	EPA 901.1 Modified	1.60E+00	8.13E-01	8.17E-01	1.27E+00	pCi/g
17-07085-17	TRG	HTC-A02-S003-3642-01	05/15/17 12:03	7/18/2017	8/21/2017	17-07085	Cesium-137	EPA 901.1 Modified	-2.44E-02	6.75E-02	6.75E-02	9.82E-02	pCi/g
17-07085-17	TRG	HTC-A02-S003-3642-01	05/15/17 12:03	7/18/2017	8/21/2017	17-07085	Potassium-40	EPA 901.1 Modified	3.41E+01	3.63E+00	4.03E+00	1.34E+00	pCi/g
17-07085-17	TRG	HTC-A02-S003-3642-01	05/15/17 12:03	7/18/2017	8/21/2017	17-07085	Protactinium-234m	EPA 901.1 Modified	3.15E+00	6.83E+00	6.84E+00	1.11E+01	pCi/g
17-07085-17	TRG	HTC-A02-S003-3642-01	05/15/17 12:03	7/18/2017	8/21/2017	17-07085	Lead-212	EPA 901.1 Modified	1.77E+00	2.04E-01	2.23E-01	3.50E-01	pCi/g
17-07085-17	TRG	HTC-A02-S003-3642-01	05/15/17 12:03	7/18/2017	8/21/2017	17-07085	Radium-224	EPA 901.1 Modified	1.78E+01	2.32E+00	2.49E+00	3.65E+00	pCi/g
17-07085-17	TRG	HTC-A02-S003-3642-01	05/15/17 12:03	7/18/2017	8/21/2017	17-07085	Radium-226	EPA 901.1 Modified	2.34E+00	2.63E-01	2.89E-01	3.22E-01	pCi/g
17-07085-17	TRG	HTC-A02-S003-3642-01	05/15/17 12:03	7/18/2017	8/21/2017	17-07085	Radium-228	EPA 901.1 Modified	1.29E+00	2.87E-01	2.94E-01	5.22E-01	pCi/g
17-07085-17	TRG	HTC-A02-S003-3642-01	05/15/17 12:03	7/18/2017	8/21/2017	17-07085	Thorium-234	EPA 901.1 Modified	2.31E+00	1.90E+00	1.90E+00	3.15E+00	pCi/g
17-07085-17	TRG	HTC-A02-S003-3642-01	05/15/17 12:03	7/18/2017	8/21/2017	17-07085	Thallium-208	EPA 901.1 Modified	1.46E+00	2.27E-01	2.39E-01	2.20E-01	pCi/g

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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:	17-07085
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
17-07085-18	TRG	HTC-A02-S003-4248-01	05/15/17 12:00	7/18/2017	8/21/2017	17-07085	Actinium-228	EPA 901.1 Modified	1.30E+00	2.66E-01	2.75E-01	6.09E-01	pCi/g
17-07085-18	TRG	HTC-A02-S003-4248-01	05/15/17 12:00	7/18/2017	8/21/2017	17-07085	Bismuth-212	EPA 901.1 Modified	8.98E-01	5.20E-01	5.22E-01	9.64E-01	pCi/g
17-07085-18	TRG	HTC-A02-S003-4248-01	05/15/17 12:00	7/18/2017	8/21/2017	17-07085	Cesium-137	EPA 901.1 Modified	-3.07E-02	6.42E-02	6.42E-02	9.14E-02	pCi/g
17-07085-18	TRG	HTC-A02-S003-4248-01	05/15/17 12:00	7/18/2017	8/21/2017	17-07085	Potassium-40	EPA 901.1 Modified	2.83E+01	3.33E+00	3.63E+00	1.30E+00	pCi/g
17-07085-18	TRG	HTC-A02-S003-4248-01	05/15/17 12:00	7/18/2017	8/21/2017	17-07085	Protactinium-234m	EPA 901.1 Modified	3.62E+00	6.56E+00	6.56E+00	1.09E+01	pCi/g
17-07085-18	TRG	HTC-A02-S003-4248-01	05/15/17 12:00	7/18/2017	8/21/2017	17-07085	Lead-212	EPA 901.1 Modified	1.41E+00	1.66E-01	1.81E-01	3.50E-01	pCi/g
17-07085-18	TRG	HTC-A02-S003-4248-01	05/15/17 12:00	7/18/2017	8/21/2017	17-07085	Radium-224	EPA 901.1 Modified	3.03E+00	1.01E+00	1.03E+00	3.95E+00	pCi/g
17-07085-18	TRG	HTC-A02-S003-4248-01	05/15/17 12:00	7/18/2017	8/21/2017	17-07085	Radium-226	EPA 901.1 Modified	1.12E+00	1.65E-01	1.75E-01	1.78E-01	pCi/g
17-07085-18	TRG	HTC-A02-S003-4248-01	05/15/17 12:00	7/18/2017	8/21/2017	17-07085	Radium-228	EPA 901.1 Modified	1.30E+00	2.66E-01	2.75E-01	6.09E-01	pCi/g
17-07085-18	TRG	HTC-A02-S003-4248-01	05/15/17 12:00	7/18/2017	8/21/2017	17-07085	Thorium-234	EPA 901.1 Modified	7.64E-01	1.03E+00	1.03E+00	1.58E+00	pCi/g
17-07085-18	TRG	HTC-A02-S003-4248-01	05/15/17 12:00	7/18/2017	8/21/2017	17-07085	Thallium-208	EPA 901.1 Modified	1.10E+00	1.87E-01	1.95E-01	2.14E-01	pCi/g
17-07085-19	TRG	HTC-A02-S004-0006-01	05/15/17 08:29	7/18/2017	8/21/2017	17-07085	Actinium-228	EPA 901.1 Modified	2.65E+00	4.63E-01	4.82E-01	8.10E-01	pCi/g
17-07085-19	TRG	HTC-A02-S004-0006-01	05/15/17 08:29	7/18/2017	8/21/2017	17-07085	Bismuth-212	EPA 901.1 Modified	2.12E+00	9.65E-01	9.71E-01	1.65E+00	pCi/g
17-07085-19	TRG	HTC-A02-S004-0006-01	05/15/17 08:29	7/18/2017	8/21/2017	17-07085	Cesium-137	EPA 901.1 Modified	2.16E-01	1.05E-01	1.06E-01	2.49E-01	pCi/g
17-07085-19	TRG	HTC-A02-S004-0006-01	05/15/17 08:29	7/18/2017	8/21/2017	17-07085	Potassium-40	EPA 901.1 Modified	2.10E+01	2.76E+00	2.97E+00	1.37E+00	pCi/g
17-07085-19	TRG	HTC-A02-S004-0006-01	05/15/17 08:29	7/18/2017	8/21/2017	17-07085	Protactinium-234m	EPA 901.1 Modified	7.19E-01	1.01E+01	1.01E+01	1.56E+01	pCi/g
17-07085-19	TRG	HTC-A02-S004-0006-01	05/15/17 08:29	7/18/2017	8/21/2017	17-07085	Lead-212	EPA 901.1 Modified	4.05E+00	4.23E-01	4.71E-01	3.31E-01	pCi/g
17-07085-19	TRG	HTC-A02-S004-0006-01	05/15/17 08:29	7/18/2017	8/21/2017	17-07085	Radium-224	EPA 901.1 Modified	4.65E+01	4.72E+00	5.29E+00	5.84E+00	pCi/g
17-07085-19	TRG	HTC-A02-S004-0006-01	05/15/17 08:29	7/18/2017	8/21/2017	17-07085	Radium-226	EPA 901.1 Modified	1.72E+00	2.80E-01	2.93E-01	3.56E-01	pCi/g
17-07085-19	TRG	HTC-A02-S004-0006-01	05/15/17 08:29	7/18/2017	8/21/2017	17-07085	Radium-228	EPA 901.1 Modified	2.65E+00	4.63E-01	4.82E-01	8.10E-01	pCi/g
17-07085-19	TRG	HTC-A02-S004-0006-01	05/15/17 08:29	7/18/2017	8/21/2017	17-07085	Thorium-234	EPA 901.1 Modified	2.95E+00	2.08E+00	2.09E+00	2.81E+00	pCi/g
17-07085-19	TRG	HTC-A02-S004-0006-01	05/15/17 08:29	7/18/2017	8/21/2017	17-07085	Thallium-208	EPA 901.1 Modified	2.88E+00	3.74E-01	4.02E-01	1.64E-01	pCi/g

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

EBERLINE SERVICES

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

Eberline Analytical
Final Report of Analysis

Report To:

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

Work Order Details:

SDG:	**17-07085**
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
17-07085-20	TRG	HTC-A02-S004-0612-01	05/15/17 08:27	7/18/2017	8/21/2017	17-07085	Actinium-228	EPA 901.1 Modified	7.26E+01	3.78E+00	5.31E+00	3.54E+00	pCi/g
17-07085-20	TRG	HTC-A02-S004-0612-01	05/15/17 08:27	7/18/2017	8/21/2017	17-07085	Bismuth-212	EPA 901.1 Modified	4.61E+01	5.94E+00	6.39E+00	5.90E+00	pCi/g
17-07085-20	TRG	HTC-A02-S004-0612-01	05/15/17 08:27	7/18/2017	8/21/2017	17-07085	Cesium-137	EPA 901.1 Modified	5.27E-02	1.92E-01	1.92E-01	6.18E-01	pCi/g
17-07085-20	TRG	HTC-A02-S004-0612-01	05/15/17 08:27	7/18/2017	8/21/2017	17-07085	Potassium-40	EPA 901.1 Modified	1.04E+01	3.11E+00	3.15E+00	5.06E+00	pCi/g
17-07085-20	TRG	HTC-A02-S004-0612-01	05/15/17 08:27	7/18/2017	8/21/2017	17-07085	Protactinium-234m	EPA 901.1 Modified	4.92E+01	3.56E+01	3.57E+01	4.94E+01	pCi/g
17-07085-20	TRG	HTC-A02-S004-0612-01	05/15/17 08:27	7/18/2017	8/21/2017	17-07085	Lead-212	EPA 901.1 Modified	7.26E+01	5.43E+00	6.59E+00	1.61E+00	pCi/g
17-07085-20	TRG	HTC-A02-S004-0612-01	05/15/17 08:27	7/18/2017	8/21/2017	17-07085	Radium-224	EPA 901.1 Modified	1.67E+02	1.71E+01	1.91E+01	1.82E+01	pCi/g
17-07085-20	TRG	HTC-A02-S004-0612-01	05/15/17 08:27	7/18/2017	8/21/2017	17-07085	Radium-226	EPA 901.1 Modified	5.32E+01	3.09E+00	4.12E+00	1.69E+00	pCi/g
17-07085-20	TRG	HTC-A02-S004-0612-01	05/15/17 08:27	7/18/2017	8/21/2017	17-07085	Radium-228	EPA 901.1 Modified	7.26E+01	3.78E+00	5.31E+00	3.54E+00	pCi/g
17-07085-20	TRG	HTC-A02-S004-0612-01	05/15/17 08:27	7/18/2017	8/21/2017	17-07085	Thorium-234	EPA 901.1 Modified	5.47E+01	9.19E+00	9.61E+00	1.36E+01	pCi/g
17-07085-20	TRG	HTC-A02-S004-0612-01	05/15/17 08:27	7/18/2017	8/21/2017	17-07085	Thallium-208	EPA 901.1 Modified	7.42E+01	6.45E+00	7.49E+00	2.38E+00	pCi/g
17-07085-01	LCS	KNOWN	07/19/17 00:00	7/18/2017	8/17/2017	17-07085	Thorium-228	EPA 907.0 Modified	4.87E+00	1.75E-01			pCi/g
17-07085-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/17/2017	17-07085	Thorium-228	EPA 907.0 Modified	5.85E+00	9.53E-01	1.10E+00	9.83E-02	pCi/g
17-07085-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/17/2017	17-07085	Thorium-228	EPA 907.0 Modified	2.01E-01	1.35E-01	1.36E-01	9.93E-02	pCi/g
17-07085-03	DUP	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/17/2017	17-07085	Thorium-228	EPA 907.0 Modified	7.42E-01	2.88E-01	2.96E-01	1.80E-01	pCi/g
17-07085-04	DO	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/17/2017	17-07085	Thorium-228	EPA 907.0 Modified	8.91E-01	3.21E-01	3.32E-01	1.55E-01	pCi/g
17-07085-05	TRG	HTC-A02-S002-3036-01	05/15/17 11:42	7/18/2017	8/17/2017	17-07085	Thorium-228	EPA 907.0 Modified	1.40E+00	4.18E-01	4.38E-01	1.61E-01	pCi/g
17-07085-06	TRG	HTC-A02-S002-3642-01	05/15/17 11:39	7/18/2017	8/17/2017	17-07085	Thorium-228	EPA 907.0 Modified	9.96E-01	2.87E-01	3.02E-01	6.13E-02	pCi/g
17-07085-07	TRG	HTC-A02-S002-4248-01	05/15/17 11:36	7/18/2017	8/17/2017	17-07085	Thorium-228	EPA 907.0 Modified	7.76E-01	2.90E-01	2.99E-01	1.49E-01	pCi/g
17-07085-08	MSO	HTC-A02-S003-0006-01	05/15/17 12:21	7/18/2017	8/17/2017	17-07085	Thorium-228	EPA 907.0 Modified	2.49E-01	1.60E-01	1.62E-01	1.34E-01	pCi/g
17-07085-09	MS	HTC-A02-S003-0006-01 MS	05/15/17 12:21	7/18/2017	8/17/2017	17-07085	Thorium-228	EPA 907.0 Modified	9.00E+00	1.79E+00	1.98E+00	1.17E-01	pCi/g
17-07085-10	MSD	HTC-A02-S003-0006-01 MSD	05/15/17 12:21	7/18/2017	8/17/2017	17-07085	Thorium-228	EPA 907.0 Modified	8.37E+00	1.67E+00	1.84E+00	1.20E-01	pCi/g
17-07085-11	TRG	HTC-A02-S003-0006-02	05/15/17 12:21	7/18/2017	8/17/2017	17-07085	Thorium-228	EPA 907.0 Modified	3.04E-01	2.41E-01	2.43E-01	2.69E-01	pCi/g
17-07085-12	TRG	HTC-A02-S003-0612-01	05/15/17 12:18	7/18/2017	8/17/2017	17-07085	Thorium-228	EPA 907.0 Modified	1.05E+00	2.99E-01	3.15E-01	1.08E-01	pCi/g
17-07085-13	TRG	HTC-A02-S003-1218-01	05/15/17 12:15	7/18/2017	8/17/2017	17-07085	Thorium-228	EPA 907.0 Modified	1.07E+00	3.16E-01	3.32E-01	1.69E-01	pCi/g
17-07085-14	TRG	HTC-A02-S003-1824-01	05/15/17 12:12	7/18/2017	8/17/2017	17-07085	Thorium-228	EPA 907.0 Modified	1.05E+00	2.94E-01	3.10E-01	1.21E-01	pCi/g
17-07085-15	TRG	HTC-A02-S003-2430-01	05/15/17 12:09	7/18/2017	8/17/2017	17-07085	Thorium-228	EPA 907.0 Modified	1.55E+00	4.14E-01	4.39E-01	1.53E-01	pCi/g
17-07085-16	TRG	HTC-A02-S003-3036-01	05/15/17 12:06	7/18/2017	8/17/2017	17-07085	Thorium-228	EPA 907.0 Modified	1.13E+00	3.37E-01	3.53E-01	1.22E-01	pCi/g
17-07085-17	TRG	HTC-A02-S003-3642-01	05/15/17 12:03	7/18/2017	8/17/2017	17-07085	Thorium-228	EPA 907.0 Modified	1.41E+00	4.12E-01	4.33E-01	1.13E-01	pCi/g
17-07085-18	TRG	HTC-A02-S003-4248-01	05/15/17 12:00	7/18/2017	8/17/2017	17-07085	Thorium-228	EPA 907.0 Modified	1.11E+00	3.74E-01	3.89E-01	1.66E-01	pCi/g
17-07085-19	TRG	HTC-A02-S004-0006-01	05/15/17 08:29	7/18/2017	8/17/2017	17-07085	Thorium-228	EPA 907.0 Modified	2.50E+00	6.40E-01	6.82E-01	1.26E-01	pCi/g
17-07085-20	TRG	HTC-A02-S004-0612-01	05/15/17 08:27	7/18/2017	8/17/2017	17-07085	Thorium-228	EPA 907.0 Modified	6.46E+01	1.07E+01	1.23E+01	3.38E-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:	**17-07085**
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
17-07085-01	LCS	KNOWN	07/19/17 00:00	7/18/2017	8/17/2017	17-07085	Thorium-230	EPA 907.0 Modified	5.39E+00	1.45E-01			pCi/g
17-07085-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/17/2017	17-07085	Thorium-230	EPA 907.0 Modified	6.59E+00	1.05E+00	1.33E+00	7.47E-02	pCi/g
17-07085-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/17/2017	17-07085	Thorium-230	EPA 907.0 Modified	4.67E-01	2.16E-01	2.23E-01	1.09E-01	pCi/g
17-07085-03	DUP	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/17/2017	17-07085	Thorium-230	EPA 907.0 Modified	7.61E-01	2.77E-01	2.93E-01	1.28E-01	pCi/g
17-07085-04	DO	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/17/2017	17-07085	Thorium-230	EPA 907.0 Modified	1.14E+00	3.62E-01	3.88E-01	1.01E-01	pCi/g
17-07085-05	TRG	HTC-A02-S002-3036-01	05/15/17 11:42	7/18/2017	8/17/2017	17-07085	Thorium-230	EPA 907.0 Modified	1.34E+00	3.91E-01	4.25E-01	1.07E-01	pCi/g
17-07085-06	TRG	HTC-A02-S002-3642-01	05/15/17 11:39	7/18/2017	8/17/2017	17-07085	Thorium-230	EPA 907.0 Modified	9.23E-01	2.66E-01	2.89E-01	8.43E-02	pCi/g
17-07085-07	TRG	HTC-A02-S002-4248-01	05/15/17 11:36	7/18/2017	8/17/2017	17-07085	Thorium-230	EPA 907.0 Modified	2.35E+00	5.98E-01	6.65E-01	1.04E-01	pCi/g
17-07085-08	MSO	HTC-A02-S003-0006-01	05/15/17 12:21	7/18/2017	8/17/2017	17-07085	Thorium-230	EPA 907.0 Modified	1.00E+01	2.14E+00	2.47E+00	1.22E-01	pCi/g
17-07085-09	MS	HTC-A02-S003-0006-01 MS	05/15/17 12:21	7/18/2017	8/17/2017	17-07085	Thorium-230	EPA 907.0 Modified	1.50E+01	2.84E+00	3.39E+00	8.86E-02	pCi/g
17-07085-10	MSD	HTC-A02-S003-0006-01 MSD	05/15/17 12:21	7/18/2017	8/17/2017	17-07085	Thorium-230	EPA 907.0 Modified	1.65E+01	3.10E+00	3.71E+00	7.97E-02	pCi/g
17-07085-11	TRG	HTC-A02-S003-0006-02	05/15/17 12:21	7/18/2017	8/17/2017	17-07085	Thorium-230	EPA 907.0 Modified	1.30E+01	3.40E+00	3.76E+00	2.80E-01	pCi/g
17-07085-12	TRG	HTC-A02-S003-0612-01	05/15/17 12:18	7/18/2017	8/17/2017	17-07085	Thorium-230	EPA 907.0 Modified	1.19E+01	2.06E+00	2.53E+00	8.84E-02	pCi/g
17-07085-13	TRG	HTC-A02-S003-1218-01	05/15/17 12:15	7/18/2017	8/17/2017	17-07085	Thorium-230	EPA 907.0 Modified	1.64E+00	4.06E-01	4.54E-01	1.04E-01	pCi/g
17-07085-14	TRG	HTC-A02-S003-1824-01	05/15/17 12:12	7/18/2017	8/17/2017	17-07085	Thorium-230	EPA 907.0 Modified	1.37E+00	3.41E-01	3.80E-01	1.05E-01	pCi/g
17-07085-15	TRG	HTC-A02-S003-2430-01	05/15/17 12:09	7/18/2017	8/17/2017	17-07085	Thorium-230	EPA 907.0 Modified	1.32E+00	3.56E-01	3.91E-01	9.04E-02	pCi/g
17-07085-16	TRG	HTC-A02-S003-3036-01	05/15/17 12:06	7/18/2017	8/17/2017	17-07085	Thorium-230	EPA 907.0 Modified	9.69E-01	2.95E-01	3.19E-01	1.03E-01	pCi/g
17-07085-17	TRG	HTC-A02-S003-3642-01	05/15/17 12:03	7/18/2017	8/17/2017	17-07085	Thorium-230	EPA 907.0 Modified	2.31E+00	5.75E-01	6.42E-01	7.15E-02	pCi/g
17-07085-18	TRG	HTC-A02-S003-4248-01	05/15/17 12:00	7/18/2017	8/17/2017	17-07085	Thorium-230	EPA 907.0 Modified	1.36E+00	4.17E-01	4.49E-01	1.47E-01	pCi/g
17-07085-19	TRG	HTC-A02-S004-0006-01	05/15/17 08:29	7/18/2017	8/17/2017	17-07085	Thorium-230	EPA 907.0 Modified	1.80E+00	4.89E-01	5.37E-01	7.61E-02	pCi/g
17-07085-20	TRG	HTC-A02-S004-0612-01	05/15/17 08:27	7/18/2017	8/17/2017	17-07085	Thorium-230	EPA 907.0 Modified	4.45E+01	7.49E+00	9.30E+00	2.36E-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:	**17-07085**
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
17-07085-01	LCS	KNOWN	07/19/17 00:00	7/18/2017	8/17/2017	17-07085	Thorium-232	EPA 907.0 Modified	4.87E+00	1.75E-01			pCi/g
17-07085-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/17/2017	17-07085	Thorium-232	EPA 907.0 Modified	5.85E+00	9.52E-01	1.08E+00	9.34E-02	pCi/g
17-07085-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/17/2017	17-07085	Thorium-232	EPA 907.0 Modified	8.26E-02	9.39E-02	9.41E-02	1.31E-01	pCi/g
17-07085-03	DUP	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/17/2017	17-07085	Thorium-232	EPA 907.0 Modified	7.13E-01	2.65E-01	2.72E-01	1.12E-01	pCi/g
17-07085-04	DO	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/17/2017	17-07085	Thorium-232	EPA 907.0 Modified	7.80E-01	2.81E-01	2.90E-01	9.17E-02	pCi/g
17-07085-05	TRG	HTC-A02-S002-3036-01	05/15/17 11:42	7/18/2017	8/17/2017	17-07085	Thorium-232	EPA 907.0 Modified	1.00E+00	3.21E-01	3.33E-01	1.07E-01	pCi/g
17-07085-06	TRG	HTC-A02-S002-3642-01	05/15/17 11:39	7/18/2017	8/17/2017	17-07085	Thorium-232	EPA 907.0 Modified	7.41E-01	2.30E-01	2.39E-01	7.01E-02	pCi/g
17-07085-07	TRG	HTC-A02-S002-4248-01	05/15/17 11:36	7/18/2017	8/17/2017	17-07085	Thorium-232	EPA 907.0 Modified	8.91E-01	3.07E-01	3.17E-01	1.58E-01	pCi/g
17-07085-08	MSO	HTC-A02-S003-0006-01	05/15/17 12:21	7/18/2017	8/17/2017	17-07085	Thorium-232	EPA 907.0 Modified	2.74E-01	1.65E-01	1.66E-01	1.45E-01	pCi/g
17-07085-09	MS	HTC-A02-S003-0006-01 MS	05/15/17 12:21	7/18/2017	8/17/2017	17-07085	Thorium-232	EPA 907.0 Modified	7.29E+00	1.46E+00	1.60E+00	9.51E-02	pCi/g
17-07085-10	MSD	HTC-A02-S003-0006-01 MSD	05/15/17 12:21	7/18/2017	8/17/2017	17-07085	Thorium-232	EPA 907.0 Modified	7.39E+00	1.48E+00	1.61E+00	9.96E-02	pCi/g
17-07085-11	TRG	HTC-A02-S003-0006-02	05/15/17 12:21	7/18/2017	8/17/2017	17-07085	Thorium-232	EPA 907.0 Modified	4.38E-01	2.67E-01	2.70E-01	1.99E-01	pCi/g
17-07085-12	TRG	HTC-A02-S003-0612-01	05/15/17 12:18	7/18/2017	8/17/2017	17-07085	Thorium-232	EPA 907.0 Modified	8.70E-01	2.55E-01	2.66E-01	8.44E-02	pCi/g
17-07085-13	TRG	HTC-A02-S003-1218-01	05/15/17 12:15	7/18/2017	8/17/2017	17-07085	Thorium-232	EPA 907.0 Modified	1.34E+00	3.52E-01	3.71E-01	1.17E-01	pCi/g
17-07085-14	TRG	HTC-A02-S003-1824-01	05/15/17 12:12	7/18/2017	8/17/2017	17-07085	Thorium-232	EPA 907.0 Modified	9.82E-01	2.70E-01	2.83E-01	6.74E-02	pCi/g
17-07085-15	TRG	HTC-A02-S003-2430-01	05/15/17 12:09	7/18/2017	8/17/2017	17-07085	Thorium-232	EPA 907.0 Modified	1.08E+00	3.12E-01	3.26E-01	1.03E-01	pCi/g
17-07085-16	TRG	HTC-A02-S003-3036-01	05/15/17 12:06	7/18/2017	8/17/2017	17-07085	Thorium-232	EPA 907.0 Modified	1.38E+00	3.73E-01	3.93E-01	9.37E-02	pCi/g
17-07085-17	TRG	HTC-A02-S003-3642-01	05/15/17 12:03	7/18/2017	8/17/2017	17-07085	Thorium-232	EPA 907.0 Modified	1.25E+00	3.68E-01	3.84E-01	1.03E-01	pCi/g
17-07085-18	TRG	HTC-A02-S003-4248-01	05/15/17 12:00	7/18/2017	8/17/2017	17-07085	Thorium-232	EPA 907.0 Modified	1.03E+00	3.43E-01	3.54E-01	1.22E-01	pCi/g
17-07085-19	TRG	HTC-A02-S004-0006-01	05/15/17 08:29	7/18/2017	8/17/2017	17-07085	Thorium-232	EPA 907.0 Modified	3.13E+00	7.48E-01	7.97E-01	1.09E-01	pCi/g
17-07085-20	TRG	HTC-A02-S004-0612-01	05/15/17 08:27	7/18/2017	8/17/2017	17-07085	Thorium-232	EPA 907.0 Modified	5.38E+01	8.94E+00	1.01E+01	1.87E-01	pCi/g

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

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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:	17-07085
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
17-07085-01	LCS	KNOWN	07/19/17 00:00	7/18/2017	8/18/2017	17-07085	Uranium-233/234	EPA 908.0 Modified	7.37E+00	2.65E-01			pCi/g
17-07085-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/18/2017	17-07085	Uranium-233/234	EPA 908.0 Modified	5.62E+00	7.77E-01	8.75E-01	5.63E-02	pCi/g
17-07085-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/18/2017	17-07085	Uranium-233/234	EPA 908.0 Modified	2.89E-02	5.11E-02	5.11E-02	9.19E-02	pCi/g
17-07085-03	DUP	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/18/2017	17-07085	Uranium-233/234	EPA 908.0 Modified	7.38E-01	2.12E-01	2.18E-01	7.90E-02	pCi/g
17-07085-04	DO	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/18/2017	17-07085	Uranium-233/234	EPA 908.0 Modified	7.87E-01	2.18E-01	2.25E-01	8.13E-02	pCi/g
17-07085-05	TRG	HTC-A02-S002-3036-01	05/15/17 11:42	7/18/2017	8/18/2017	17-07085	Uranium-233/234	EPA 908.0 Modified	7.11E-01	2.16E-01	2.22E-01	9.40E-02	pCi/g
17-07085-06	TRG	HTC-A02-S002-3642-01	05/15/17 11:39	7/18/2017	8/18/2017	17-07085	Uranium-233/234	EPA 908.0 Modified	7.16E-01	2.01E-01	2.08E-01	5.17E-02	pCi/g
17-07085-07	TRG	HTC-A02-S002-4248-01	05/15/17 11:36	7/18/2017	8/18/2017	17-07085	Uranium-233/234	EPA 908.0 Modified	1.29E+00	2.92E-01	3.07E-01	7.34E-02	pCi/g
17-07085-08	MSO	HTC-A02-S003-0006-01	05/15/17 12:21	7/18/2017	8/19/2017	17-07085	Uranium-233/234	EPA 908.0 Modified	1.43E+01	1.72E+00	2.00E+00	9.15E-02	pCi/g
17-07085-09	MS	HTC-A02-S003-0006-01 MS	05/15/17 12:21	7/18/2017	8/19/2017	17-07085	Uranium-233/234	EPA 908.0 Modified	2.08E+01	2.49E+00	2.90E+00	8.62E-02	pCi/g
17-07085-10	MSD	HTC-A02-S003-0006-01 MSD	05/15/17 12:21	7/18/2017	8/19/2017	17-07085	Uranium-233/234	EPA 908.0 Modified	1.86E+01	2.20E+00	2.57E+00	1.14E-01	pCi/g
17-07085-11	TRG	HTC-A02-S003-0006-02	05/15/17 12:21	7/18/2017	8/19/2017	17-07085	Uranium-233/234	EPA 908.0 Modified	8.98E+00	1.16E+00	1.33E+00	8.31E-02	pCi/g
17-07085-12	TRG	HTC-A02-S003-0612-01	05/15/17 12:18	7/18/2017	8/19/2017	17-07085	Uranium-233/234	EPA 908.0 Modified	1.11E+01	1.37E+00	1.58E+00	5.92E-02	pCi/g
17-07085-13	TRG	HTC-A02-S003-1218-01	05/15/17 12:15	7/18/2017	8/19/2017	17-07085	Uranium-233/234	EPA 908.0 Modified	1.13E+00	2.67E-01	2.79E-01	8.37E-02	pCi/g
17-07085-14	TRG	HTC-A02-S003-1824-01	05/15/17 12:12	7/18/2017	8/19/2017	17-07085	Uranium-233/234	EPA 908.0 Modified	1.20E+00	2.76E-01	2.89E-01	5.29E-02	pCi/g
17-07085-15	TRG	HTC-A02-S003-2430-01	05/15/17 12:09	7/18/2017	8/19/2017	17-07085	Uranium-233/234	EPA 908.0 Modified	1.25E+00	2.81E-01	2.95E-01	6.00E-02	pCi/g
17-07085-16	TRG	HTC-A02-S003-3036-01	05/15/17 12:06	7/18/2017	8/19/2017	17-07085	Uranium-233/234	EPA 908.0 Modified	9.00E-01	2.53E-01	2.61E-01	7.94E-02	pCi/g
17-07085-17	TRG	HTC-A02-S003-3642-01	05/15/17 12:03	7/18/2017	8/19/2017	17-07085	Uranium-233/234	EPA 908.0 Modified	2.91E+00	5.55E-01	5.92E-01	9.12E-02	pCi/g
17-07085-18	TRG	HTC-A02-S003-4248-01	05/15/17 12:00	7/18/2017	8/19/2017	17-07085	Uranium-233/234	EPA 908.0 Modified	1.45E+00	3.11E-01	3.28E-01	6.10E-02	pCi/g
17-07085-19	TRG	HTC-A02-S004-0006-01	05/15/17 08:29	7/18/2017	8/19/2017	17-07085	Uranium-233/234	EPA 908.0 Modified	1.11E+00	2.73E-01	2.84E-01	7.71E-02	pCi/g
17-07085-20	TRG	HTC-A02-S004-0612-01	05/15/17 08:27	7/18/2017	8/19/2017	17-07085	Uranium-233/234	EPA 908.0 Modified	3.02E+01	3.86E+00	4.42E+00	9.42E-02	pCi/g

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

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Final Report of Analysis

Report To:

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

SDG:	**17-07085**
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
17-07085-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/18/2017	17-07085	Uranium-235/236	EPA 908.0 Modified	4.45E-01	1.65E-01	1.68E-01	6.94E-02	pCi/g
17-07085-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/18/2017	17-07085	Uranium-235/236	EPA 908.0 Modified	4.18E-02	6.25E-02	6.25E-02	1.02E-01	pCi/g
17-07085-03	DUP	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/18/2017	17-07085	Uranium-235/236	EPA 908.0 Modified	1.14E-01	9.10E-02	9.13E-02	9.74E-02	pCi/g
17-07085-04	DO	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/18/2017	17-07085	Uranium-235/236	EPA 908.0 Modified	1.56E-01	1.00E-01	1.01E-01	6.64E-02	pCi/g
17-07085-05	TRG	HTC-A02-S002-3036-01	05/15/17 11:42	7/18/2017	8/18/2017	17-07085	Uranium-235/236	EPA 908.0 Modified	2.23E-01	1.27E-01	1.28E-01	8.41E-02	pCi/g
17-07085-06	TRG	HTC-A02-S002-3642-01	05/15/17 11:39	7/18/2017	8/18/2017	17-07085	Uranium-235/236	EPA 908.0 Modified	5.59E-02	6.07E-02	6.08E-02	7.31E-02	pCi/g
17-07085-07	TRG	HTC-A02-S002-4248-01	05/15/17 11:36	7/18/2017	8/18/2017	17-07085	Uranium-235/236	EPA 908.0 Modified	1.04E-01	8.46E-02	8.49E-02	8.43E-02	pCi/g
17-07085-08	MSO	HTC-A02-S003-0006-01	05/15/17 12:21	7/18/2017	8/19/2017	17-07085	Uranium-235/236	EPA 908.0 Modified	1.70E+00	3.51E-01	3.71E-01	6.58E-02	pCi/g
17-07085-09	MS	HTC-A02-S003-0006-01 MS	05/15/17 12:21	7/18/2017	8/19/2017	17-07085	Uranium-235/236	EPA 908.0 Modified	1.91E+00	3.93E-01	4.16E-01	7.85E-02	pCi/g
17-07085-10	MSD	HTC-A02-S003-0006-01 MSD	05/15/17 12:21	7/18/2017	8/19/2017	17-07085	Uranium-235/236	EPA 908.0 Modified	2.30E+00	4.35E-01	4.65E-01	1.14E-01	pCi/g
17-07085-11	TRG	HTC-A02-S003-0006-02	05/15/17 12:21	7/18/2017	8/19/2017	17-07085	Uranium-235/236	EPA 908.0 Modified	1.16E+00	2.84E-01	2.95E-01	8.63E-02	pCi/g
17-07085-12	TRG	HTC-A02-S003-0612-01	05/15/17 12:18	7/18/2017	8/19/2017	17-07085	Uranium-235/236	EPA 908.0 Modified	1.29E+00	2.97E-01	3.11E-01	7.30E-02	pCi/g
17-07085-13	TRG	HTC-A02-S003-1218-01	05/15/17 12:15	7/18/2017	8/19/2017	17-07085	Uranium-235/236	EPA 908.0 Modified	1.85E-01	1.09E-01	1.09E-01	6.54E-02	pCi/g
17-07085-14	TRG	HTC-A02-S003-1824-01	05/15/17 12:12	7/18/2017	8/19/2017	17-07085	Uranium-235/236	EPA 908.0 Modified	1.98E-01	1.13E-01	1.14E-01	7.48E-02	pCi/g
17-07085-15	TRG	HTC-A02-S003-2430-01	05/15/17 12:09	7/18/2017	8/19/2017	17-07085	Uranium-235/236	EPA 908.0 Modified	1.39E-01	9.80E-02	9.85E-02	9.76E-02	pCi/g
17-07085-16	TRG	HTC-A02-S003-3036-01	05/15/17 12:06	7/18/2017	8/19/2017	17-07085	Uranium-235/236	EPA 908.0 Modified	3.41E-02	5.22E-02	5.23E-02	7.79E-02	pCi/g
17-07085-17	TRG	HTC-A02-S003-3642-01	05/15/17 12:03	7/18/2017	8/19/2017	17-07085	Uranium-235/236	EPA 908.0 Modified	3.52E-01	1.72E-01	1.73E-01	9.53E-02	pCi/g
17-07085-18	TRG	HTC-A02-S003-4248-01	05/15/17 12:00	7/18/2017	8/19/2017	17-07085	Uranium-235/236	EPA 908.0 Modified	1.71E-01	1.04E-01	1.05E-01	6.57E-02	pCi/g
17-07085-19	TRG	HTC-A02-S004-0006-01	05/15/17 08:29	7/18/2017	8/19/2017	17-07085	Uranium-235/236	EPA 908.0 Modified	1.15E-01	8.85E-02	8.89E-02	7.03E-02	pCi/g
17-07085-20	TRG	HTC-A02-S004-0612-01	05/15/17 08:27	7/18/2017	8/19/2017	17-07085	Uranium-235/236	EPA 908.0 Modified	3.86E+00	6.99E-01	7.52E-01	1.04E-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:	**17-07085**
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
17-07085-01	LCS	KNOWN	07/19/17 00:00	7/18/2017	8/18/2017	17-07085	Uranium-238	EPA 908.0 Modified	7.14E+00	2.57E-01			pCi/g
17-07085-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/18/2017	17-07085	Uranium-238	EPA 908.0 Modified	6.45E+00	8.66E-01	9.81E-01	7.03E-02	pCi/g
17-07085-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/18/2017	17-07085	Uranium-238	EPA 908.0 Modified	2.41E-02	4.09E-02	4.10E-02	6.95E-02	pCi/g
17-07085-03	DUP	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/18/2017	17-07085	Uranium-238	EPA 908.0 Modified	6.93E-01	2.03E-01	2.09E-01	5.47E-02	pCi/g
17-07085-04	DO	HTC-A02-S002-2430-01	05/15/17 11:45	7/18/2017	8/18/2017	17-07085	Uranium-238	EPA 908.0 Modified	7.52E-01	2.11E-01	2.17E-01	6.74E-02	pCi/g
17-07085-05	TRG	HTC-A02-S002-3036-01	05/15/17 11:42	7/18/2017	8/18/2017	17-07085	Uranium-238	EPA 908.0 Modified	8.31E-01	2.35E-01	2.42E-01	7.45E-02	pCi/g
17-07085-06	TRG	HTC-A02-S002-3642-01	05/15/17 11:39	7/18/2017	8/18/2017	17-07085	Uranium-238	EPA 908.0 Modified	7.11E-01	2.00E-01	2.07E-01	5.90E-02	pCi/g
17-07085-07	TRG	HTC-A02-S002-4248-01	05/15/17 11:36	7/18/2017	8/18/2017	17-07085	Uranium-238	EPA 908.0 Modified	1.24E+00	2.84E-01	2.98E-01	5.41E-02	pCi/g
17-07085-08	MSO	HTC-A02-S003-0006-01	05/15/17 12:21	7/18/2017	8/19/2017	17-07085	Uranium-238	EPA 908.0 Modified	1.51E+01	1.80E+00	2.10E+00	6.27E-02	pCi/g
17-07085-09	MS	HTC-A02-S003-0006-01 MS	05/15/17 12:21	7/18/2017	8/19/2017	17-07085	Uranium-238	EPA 908.0 Modified	2.14E+01	2.55E+00	2.97E+00	8.58E-02	pCi/g
17-07085-10	MSD	HTC-A02-S003-0006-01 MSD	05/15/17 12:21	7/18/2017	8/19/2017	17-07085	Uranium-238	EPA 908.0 Modified	1.96E+01	2.31E+00	2.70E+00	8.94E-02	pCi/g
17-07085-11	TRG	HTC-A02-S003-0006-02	05/15/17 12:21	7/18/2017	8/19/2017	17-07085	Uranium-238	EPA 908.0 Modified	9.79E+00	1.25E+00	1.43E+00	7.67E-02	pCi/g
17-07085-12	TRG	HTC-A02-S003-0612-01	05/15/17 12:18	7/18/2017	8/19/2017	17-07085	Uranium-238	EPA 908.0 Modified	1.18E+01	1.45E+00	1.68E+00	6.73E-02	pCi/g
17-07085-13	TRG	HTC-A02-S003-1218-01	05/15/17 12:15	7/18/2017	8/19/2017	17-07085	Uranium-238	EPA 908.0 Modified	1.05E+00	2.55E-01	2.66E-01	8.34E-02	pCi/g
17-07085-14	TRG	HTC-A02-S003-1824-01	05/15/17 12:12	7/18/2017	8/19/2017	17-07085	Uranium-238	EPA 908.0 Modified	1.06E+00	2.55E-01	2.66E-01	5.27E-02	pCi/g
17-07085-15	TRG	HTC-A02-S003-2430-01	05/15/17 12:09	7/18/2017	8/19/2017	17-07085	Uranium-238	EPA 908.0 Modified	1.30E+00	2.87E-01	3.01E-01	5.22E-02	pCi/g
17-07085-16	TRG	HTC-A02-S003-3036-01	05/15/17 12:06	7/18/2017	8/19/2017	17-07085	Uranium-238	EPA 908.0 Modified	9.41E-01	2.60E-01	2.68E-01	7.90E-02	pCi/g
17-07085-17	TRG	HTC-A02-S003-3642-01	05/15/17 12:03	7/18/2017	8/19/2017	17-07085	Uranium-238	EPA 908.0 Modified	2.58E+00	5.09E-01	5.41E-01	8.44E-02	pCi/g
17-07085-18	TRG	HTC-A02-S003-4248-01	05/15/17 12:00	7/18/2017	8/19/2017	17-07085	Uranium-238	EPA 908.0 Modified	1.35E+00	2.97E-01	3.12E-01	7.62E-02	pCi/g
17-07085-19	TRG	HTC-A02-S004-0006-01	05/15/17 08:29	7/18/2017	8/19/2017	17-07085	Uranium-238	EPA 908.0 Modified	9.88E-01	2.55E-01	2.65E-01	9.33E-02	pCi/g
17-07085-20	TRG	HTC-A02-S004-0612-01	05/15/17 08:27	7/18/2017	8/19/2017	17-07085	Uranium-238	EPA 908.0 Modified	3.32E+01	4.21E+00	4.83E+00	9.81E-02	pCi/g

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

EBERLINE SERVICES

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

SECTION V

ANALYTICAL STANDARD

QA/QC REVIEWED
Date 1/16/95 Initials

U-8

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

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

Description of Solution

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

b. Chemical form: Uranyl Nitrate in H2O

c. Carrier content: None

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

Radioimpurities

Refer to attached technical data sheet

Radioactive Daughters

Refer to attached technical data sheet

Radionuclide Concentration

(Total U) 0.1228 μCi/g.

Method of Calibration

Activity calculations are based upon known specific activity and mass.

Uncertainty of Measurement

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

NIST Traceability

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

Leak Test(s)

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

Notes

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

ERIC ALLAS
QUALITY CONTROL

29 DECEMBER 1994
Date Signed

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

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

CURRENT DATE: 7/12/2017 0:00

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

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

Radionuclide: $^{234,235,238}U$
Reference Date: 1/1/1995 0:00
Certified Activity: 8.016E+00 µCi
Certified Concentration: µCi per gram

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

Chemical Composition of Standard Solution
Uranyl nitrate in dilute HNO_3

Dilution Instructions:

Dilution Solvent Used: 1M HNO_3

Dilute to a volume of 1000.00 milliliters

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

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

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

Expiration Date: June 28, 2018

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

QC Approval _____ Date: 7/25/17

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

MP-009
Solution Reference # IPL 479-50

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

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

Radionuclide of Interest $^{234,235,238}U$
Parent Solution Conc. 1.7796E+04 dpm/ml

Reference Date 1/1/1995 0:00

Chemical Composition of Standard Solution
Uranly Nitrate in 1M HNO_3

Dilution Instructions:

Dilution Solvent Used 1M HNO_3

SECONDARY VOLUMETRIC DILUTION

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

Final Activity Concentration: 7.1182E+01 dpm/ml

NOTES:

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

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

Isotopic ratios from manufacturer's data sheet

Expiration Date: June 28, 2018

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

QC Approval _____ Date: 7/25/17

RECORD COPY

Tracer Solution for Environmental Analysis & Disequilibrium Studies

Product Description & Measurement Certificate

Description	Principal radionuclide:	**uranium 232** (U-232)	Product code: **UDP10050**
	Daughter Nuclide:	Th-228	Batch Number: 92/232/67
Measurement	Reference date:		01 March 2000
	Radioactive concentration U-232		6.739E+03 becquerels per gram of solution
	which is equivalent to		1.821E-01 microcuries per gram of solution
	Mass of solution		5.356 grams
	Volume of solution		5.035 millilitres
	Total activity of U-232		3.61E+04 becquerels
	which is equivalent to		9.76E-01 microcuries

Method of measurement (see reverse of this certificate)

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

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

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

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

Not measured

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

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

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

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

Approved Signatory

Roger Wiltshire

Project Ref. AE2315

Roger Wiltshire

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

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

CURRENT DATE: 11/7/2016 0:00

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

SOLUTION #: U-10

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

Radionuclide: ^{232}U

Reference Date: 3/1/2000 0:00

Certified Activity: 9.760E-01 µCi

Certified Concentration: µCi per gram

Ampoule /Solution Gross: Weight, Grams

Empty Ampoule: Weight, Grams

Solution Net: Weight, Grams

Total Activity in Ampoule: 0.9760 µCi

Chemical Composition of Standard Solution

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

Dilution Instructions:

Dilution Solvent Used: 2M HNO_3

Dilute to a volume of 1000.00 milliliters

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

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

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

Expiration Date: October 7, 2017

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

QC Approval _____ Date: 11/10/16

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

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

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

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

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

Reference Date 3/1/2000 0:00

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

Dilution Instructions:

Dilution Solvent Used 2M HNO_3

SECONDARY VOLUMETRIC DILUTION

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

Final Activity Concentration: 2.1670E+01 dpm/ml

NOTES:

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

Expiration Date: October 7, 2017

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

QC Approval _____ Date: 11/10/16

Th-18

Isotope Products Laboratories
An Eckert & Ziegler Company

24937 Avenue Tibbitts
Valencia, California 91355

Tel 661•309•1010
Fax 661•257•8303

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

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

Physical Description:

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

Radioimpurities:

None detected (daughters in equilibrium)

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

Method of Calibration:

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

Uncertainty of Measurement:

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

Notes:

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

Ana U Khan — Quality Control

9-Jan-02 — Date Signed

IPL Ref. No.: 867-54

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

CURRENT DATE: 8/16/2017 0:00

SOLUTION REFERENCE #: IPL 867-54

SOLUTION #: Th-18

Principal Radionuclide	Half Life, Years	Half Life, Days
^{228}Th	7.340E+03	2.681E+06

Radionuclide: ^{228}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

$^{228}Th(NO_3)_4$ 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

Solution Reference # MP-009 IPL 867-54 | **Date** 8/16/2017 0:00 | **Solution #** Th-18a

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

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

Reference Date 1/15/2002 0:00

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

Dilution Instructions:

Dilution Solvent Used 0.1M HNO_3

SECONDARY VOLUMETRIC DILUTION

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

Final Activity Concentration: 2.2490E+01 dpm/ml

NOTES:

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

Expiration Date: August 11, 2018

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

QC Approval _____ Date: 8/16/17

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

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

Received
OCT 14 1991
TMA/Eberline
Oak Ridge Lab

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

Description of Solution

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

Radioimpurities

See attached technical data sheet

Radioactive Daughters

See attached technical data sheet

Radionuclide Concentration

0.207 µCi/gram.

Method of Calibration

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

Uncertainty of Measurement

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

NIST Traceability

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

Notes

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

QUALITY CONTROL

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

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

CURRENT DATE: 2/28/2017 0:00

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

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

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

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

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

Dilution Instructions:

Dilution Solvent Used: 0.1N HNO_3

Dilute to a volume of 1000.00 milliliters

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

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

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

Expiration Date: February 1, 2018

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

QC Approval _____ Date: 3/1/17

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

MP-009

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

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

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

Reference Date 11/1/1991 0:00

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

Dilution Instructions:

Dilution Solvent Used 0.1N HNO_3

SECONDARY VOLUMETRIC DILUTION

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

Final Activity Concentration: 2.2999E+01 dpm/ml

NOTES:

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

Expiration Date: February 1, 2018

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

QC Approval _____ Date: 3/1/17

Th-18

Isotope Products Laboratories
An Eckert & Ziegler Company

24937 Avenue Tibbitts
Valencia, California 91355

Tel 661•309•1010
Fax 661•257•8303

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

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

Physical Description:

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

Radioimpurities:

None detected (daughters in equilibrium)

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

Method of Calibration:

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

Uncertainty of Measurement:

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

Notes:

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

Ann U Khan
Quality Control

9-Jan-02
Date Signed

IPL Ref. No.: 867-54

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

Rev.8; 1/10/03
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, %	Uncertainty u_B, %	Uncertainty U, %*	Calibration Method**
Am-241	59.5	1.580E+05	9.600E+03	1.975E+03	0.1	1.8	3.6	4π LS
Cd-109	88.0	4.614E+02	7.668E+04	2.837E+03	0.5	2.0	4.1	HPGe
Co-57	122.1	2.717E+02	2.240E+03	1.917E+03	0.4	1.7	3.4	HPGe
Ce-139	165.9	1.376E+02	2.655E+03	2.124E+03	0.4	1.7	3.6	HPGe
Hg-203	279.2	4.659E+01	6.065E+03	4.947E+03	0.3	1.7	3.5	HPGe
Sn-113	391.7	1.151E+02	4.528E+03	2.942E+03	0.4	1.9	3.9	HPGe
Cs-137	661.7	1.099E+04	2.249E+03	1.914E+03	0.7	1.9	4.1	HPGe
Y-88	898.0	1.066E+02	7.415E+03	6.948E+03	0.7	1.7	3.7	HPGe
Y-88	1836.1			7.356E+03	0.7	1.7	3.7	
Co-60	1173.2	1.925E+03	3.562E+03	3.557E+03	0.7	1.8	3.9	HPGe
Co-60	1332.5			3.561E+03	0.7	1.8	3.9	

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

(Certificate continued on reverse side)

Corporate Office
24937 Avenue Tibbitts Valencia, California 91355

Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia 30318

SECTION VI

QUALITY CONTROL SAMPLE RESULTS SUMMARY

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07085	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		76.32%	15.56%	100.00%	3.60%	7.37E+00	2.65E-01	5.62E+00	8.75E-01	U-8a	3.20E+01	3.60E+00	5.11E-01
U-238		90.32%	15.22%	100.00%	3.60%	7.14E+00	2.57E-01	6.45E+00	9.81E-01	U-8a	3.10E+01	3.60E+00	5.11E-01

Matrix Spike

Analyte	Normalized Difference	MS Actual % Rec	Expected MS Result	Expected MS Uncert	Actual MS Result	Actual MS CSU	Sample Result	Sample CSU	Sample Aliquot	Standard ID	Standard ACT (dpm)	Standard Error %	Standard Added (g)
U-234	0.20	94.78%	6.80E+00	2.45E-01	2.08E+01	2.90E+00	1.43E+01	2.00E+00	1.08E+00	U-8a	3.20E+01	3.60	5.11E-01
U-238	0.20	94.40%	6.59E+00	2.37E-01	2.14E+01	2.97E+00	1.51E+01	2.10E+00	1.08E+00	U-8a	3.10E+01	3.60	5.11E-01

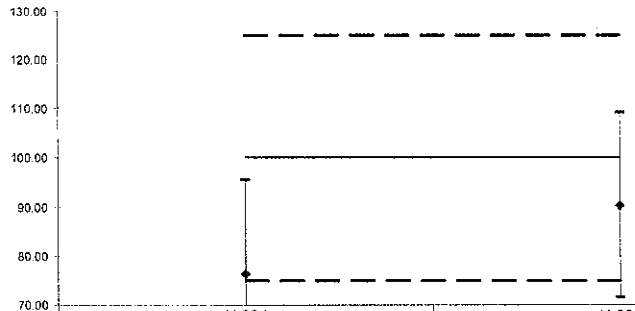
Duplicate Results / QC Summary

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Duplicate Result	Duplicate CSU	LCS Relative Bias	LCS % R		MS % R	MS ND	Rep RPD	Rep ND
U-234	0.31	6.47	7.87E-01	2.25E-01	7.38E-01	2.18E-01	0.76	OK				OK	OK
U-238	0.38	8.13	7.52E-01	2.17E-01	6.93E-01	2.09E-01	0.90	OK				OK	OK
U-235	0.62	31.64	1.56E-01	1.01E-01	1.14E-01	9.13E-02		OK				INV	OK

0050

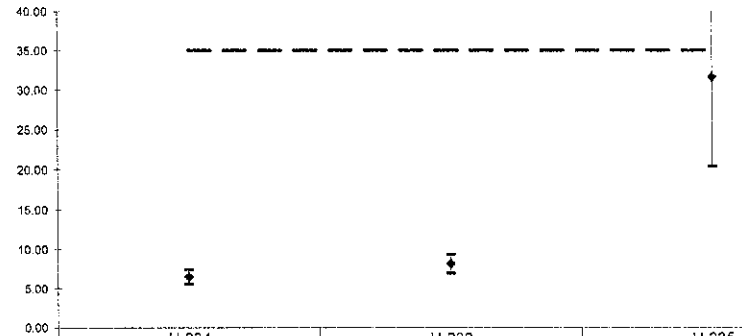
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07085	UUISO Apex	1	pCi	g	Weston Solutions, Inc.

LCS % Recovery



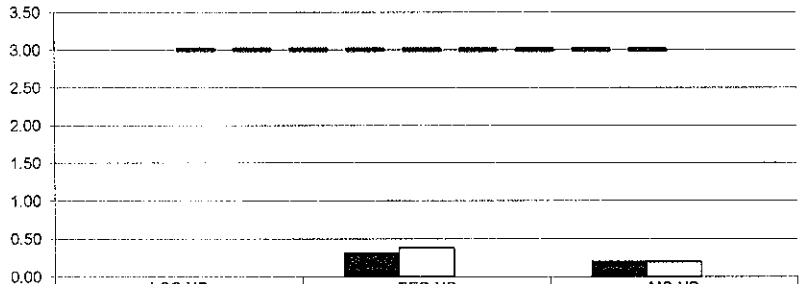
	U-234	U-238
Lower Error	57.16	71.50
Upper Error	95.48	109.14
%R	76.32	90.32
LCL	75	75
Mean	100	100
UCL	125	125

Replicate Sample RPD



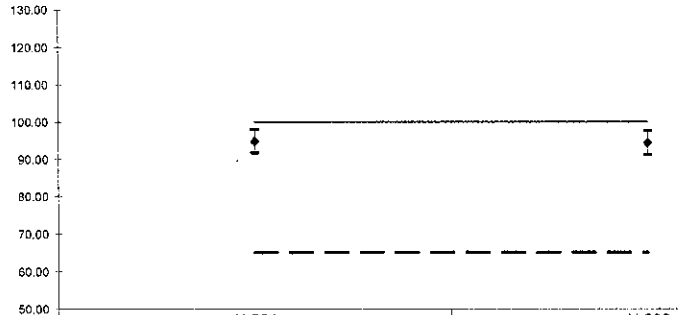
	U-234	U-238	U-235
Lower Error	7.41	9.33	42.90
Upper Error	5.53	6.93	20.38
RPD	6.47	8.13	31.64
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
U-234	0.00	0.31	0.20
U-238	0.00	0.38	0.20
	0.00	0.00	0.00
UCL	3	3	3

Matrix Spike % Recovery



	U-234	U-238
Lower Error	91.64	91.19
Upper Error	97.93	97.61
%R	94.78	94.40
LCL	65	65
Mean	100	100
UCL	135	135

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07085	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		76.32%	15.56%	100.00%	3.60%	7.37E+00	2.65E-01	5.62E+00	8.75E-01	U-8a	3.20E+01	3.60E+00	5.11E-01
U-238		90.32%	15.22%	100.00%	3.60%	7.14E+00	2.57E-01	6.45E+00	9.81E-01	U-8a	3.10E+01	3.60E+00	5.11E-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	1.52	62.45%	6.75E+00	2.43E-01	1.86E+01	2.57E+00	1.43E+01	2.00E+00	1.08E+00	U-8a	3.20E+01	3.60	5.08E-01
U-238	1.19	68.20%	6.54E+00	2.35E-01	1.96E+01	2.70E+00	1.51E+01	2.10E+00	1.08E+00	U-8a	3.10E+01	3.60	5.08E-01

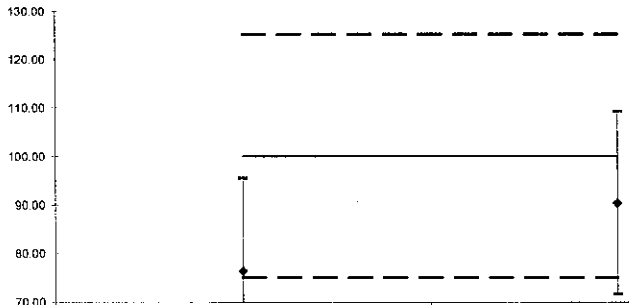
Duplicate Results / QC Summary

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Duplicate Result	Duplicate CSU	LCS Relative Bias	LCS % R		MS % R	MS ND	Rep RPD	Rep ND
U-234	0.31	6.47	7.87E-01	2.25E-01	7.38E-01	2.18E-01	0.76	OK				OK	OK
U-238	0.38	8.13	7.52E-01	2.17E-01	6.93E-01	2.09E-01	0.90	OK				OK	OK
U-235	0.62	31.64	1.56E-01	1.01E-01	1.14E-01	9.13E-02		OK				INV	OK

0052

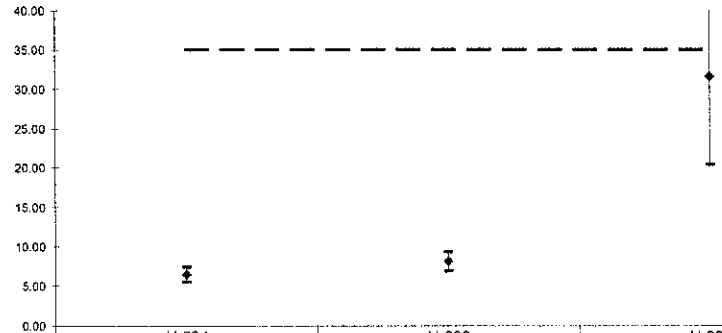
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07085	UUISO Apex	1	pCi	g	Weston Solutions, Inc.

LCS % Recovery



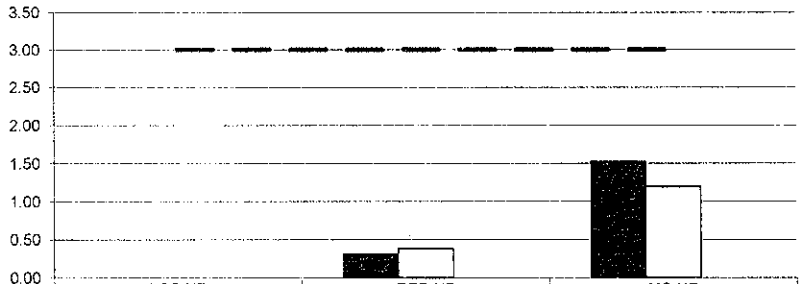
	U-234	U-238
Lower Error	57.16	71.50
Upper Error	95.48	109.14
%R	76.32	90.32
LCL	75	75
Mean	100	100
UCL	125	125

Replicate Sample RPD



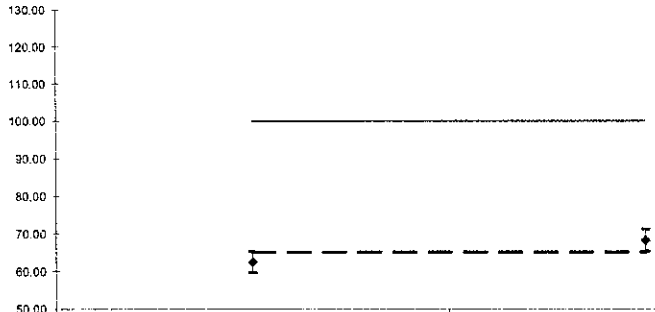
	U-234	U-238	U-235
Lower Error	7.41	9.33	42.90
Upper Error	5.53	6.93	20.38
RPD	6.47	8.13	31.64
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
U-234	0.00	0.31	1.52
U-238	0.00	0.38	1.19
	0.00	0.00	0.00
UCL	3	3	3

Matrix Spike % Recovery



	U-234	U-238
Lower Error	59.64	55.26
Upper Error	65.27	71.14
%R	62.45	68.20
LCL	65	65
Mean	100	100
UCL	135	135

0053

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07085	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		120.15%	18.81%	100.00%	3.60%	4.87E+00	1.75E-01	5.85E+00	1.10E+00	Th-8b	1.04E+02	3.60E+00	1.04E-01
TH-230		122.24%	20.16%	100.00%	2.70%	5.39E+00	1.45E-01	6.59E+00	1.33E+00	Th-1b	2.35E+01	2.70E+00	5.09E-01
TH-232		120.11%	18.51%	100.00%	3.60%	4.87E+00	1.75E-01	5.85E+00	1.08E+00	Th-8b	1.04E+02	3.60E+00	1.04E-01

Matrix Spike

Analyte	Normalized Difference	MS Actual % Rec	Expected MS Result	Expected MS Uncert	Actual MS Result	Actual MS CSU	Sample Result	Sample CSU	Sample Aliquot	Standard ID	Standard ACT (dpm)	Standard Error %	Standard Added (g)
TH-228	1.68	124.15%	7.05E+00	2.54E-01	9.00E+00	1.98E+00	2.49E-01	1.62E-01	1.02E+00	Th-8b	1.04E+02	3.60	1.54E-01
TH-230	0.12	95.09%	5.27E+00	1.42E-01	1.50E+01	3.39E+00	1.00E+01	2.47E+00	1.02E+00	Th-1b	2.35E+01	2.70	5.09E-01
TH-232	0.04	99.50%	7.05E+00	2.54E-01	7.29E+00	1.60E+00	2.74E-01	1.66E-01	1.02E+00	Th-8b	1.04E+02	3.60	1.54E-01

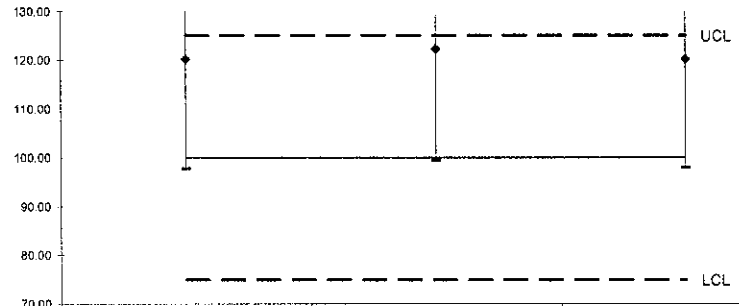
Duplicate Results / QC Summary

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	0.66	18.33	8.91E-01	3.32E-01	7.42E-01	2.96E-01	1.20	OK				OK	OK
TH-230	1.54	40.12	1.14E+00	3.88E-01	7.61E-01	2.93E-01	1.22	OK				INV	OK
TH-232	0.33	8.93	7.80E-01	2.90E-01	7.13E-01	2.72E-01	1.20	OK				OK	OK

0054

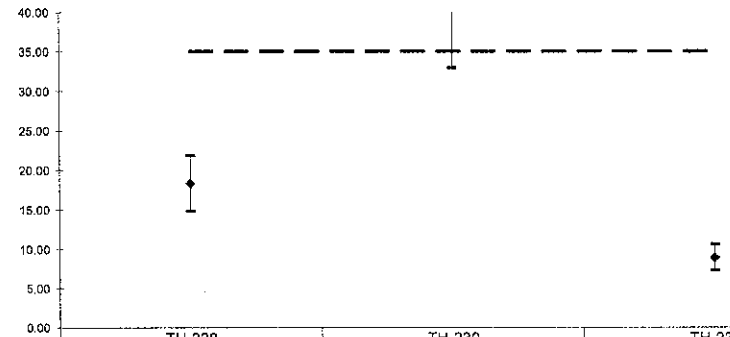
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07085	ThISO Apex	1	pCi	g	Weston Solutions, Inc.

LCS % Recovery



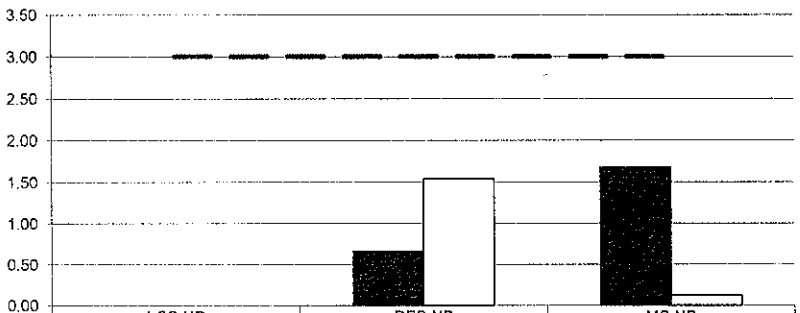
	TH-228	TH-230	TH-232
Lower Error	97.74	99.38	98.00
Upper Error	142.56	145.10	142.23
%R	120.15	122.24	120.11
LCL	75	75	75
Mean	100	100	100
UCL	125	125	125

Replicate Sample RPD



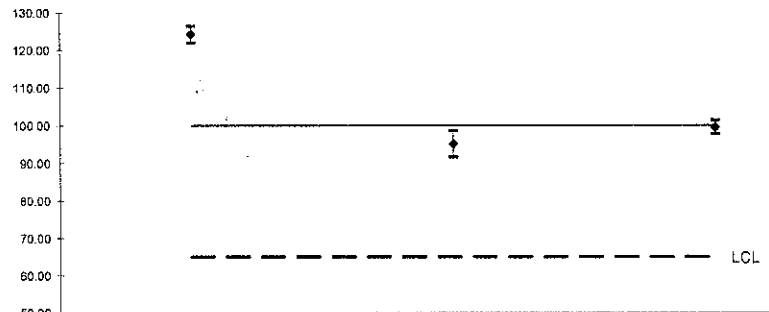
	TH-228	TH-230	TH-232
Lower Error	21.86	47.29	10.61
Upper Error	14.81	32.94	7.25
RPD	18.33	40.12	8.93
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
TH-228	0.00	0.66	1.68
TH-230	0.00	1.54	0.12
UCL	3	3	3

Matrix Spike % Recovery



	TH-228	TH-230	TH-232
Lower Error	121.92	91.55	97.65
Upper Error	126.38	98.62	101.35
%R	124.15	95.09	99.50
LCL	65	65	65
Mean	100	100	100
UCL	135	135	135

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07085	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		120.15%	18.81%	100.00%	3.60%	4.87E+00	1.75E-01	5.85E+00	1.10E+00	Th-8b	1.04E+02	3.60E+00	1.04E-01
TH-230		122.24%	20.16%	100.00%	2.70%	5.39E+00	1.45E-01	6.59E+00	1.33E+00	Th-1b	2.35E+01	2.70E+00	5.09E-01
TH-232		120.11%	18.51%	100.00%	3.60%	4.87E+00	1.75E-01	5.85E+00	1.08E+00	Th-8b	1.04E+02	3.60E+00	1.04E-01

Matrix Spike Duplicate

Analyte	Normalized Difference	MS Actual % Rec	Expected MS Result	Expected MS Uncert	Actual MS Result	Actual MS CSU	Sample Result	Sample CSU	Sample Aliquot	Standard ID	Standard ACT (dpm)	Standard Error %	Standard Added (g)
TH-228	1.04	113.89%	7.13E+00	2.57E-01	8.37E+00	1.84E+00	2.49E-01	1.62E-01	1.02E+00	Th-8b	1.04E+02	3.60	1.56E-01
TH-230	0.56	124.08%	5.27E+00	1.42E-01	1.65E+01	3.71E+00	1.00E+01	2.47E+00	1.02E+00	Th-1b	2.35E+01	2.70	5.09E-01
TH-232	0.02	99.81%	7.13E+00	2.57E-01	7.39E+00	1.60E+00	2.74E-01	1.66E-01	1.02E+00	Th-8b	1.04E+02	3.60	1.56E-01

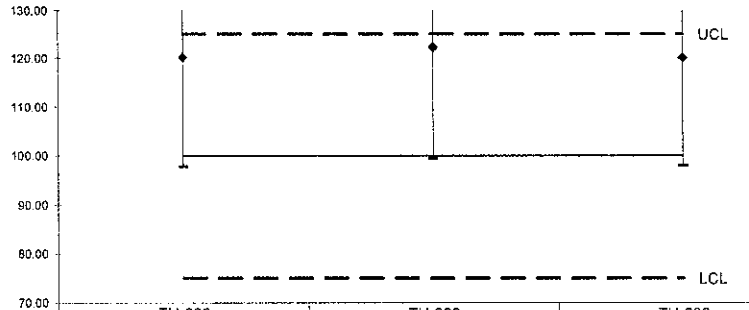
Duplicate Results / QC Summary

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	0.66	18.33	8.91E-01	3.32E-01	7.42E-01	2.96E-01	1.20	OK				OK	OK
TH-230	1.54	40.12	1.14E+00	3.88E-01	7.61E-01	2.93E-01	1.22	OK				INV	OK
TH-232	0.33	8.93	7.80E-01	2.90E-01	7.13E-01	2.72E-01	1.20	OK				OK	OK

0056

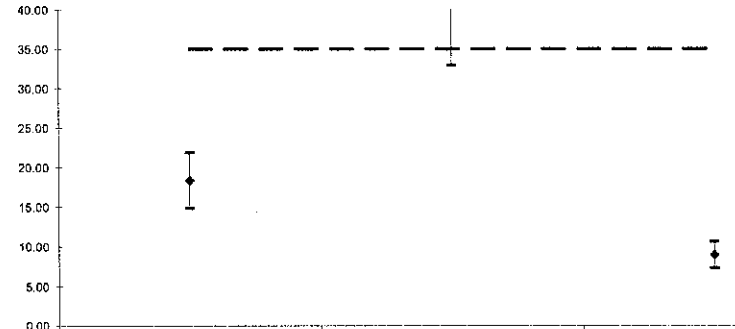
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07085	ThISO Apex	1	pCi	g	Weston Solutions, Inc.

LCS % Recovery



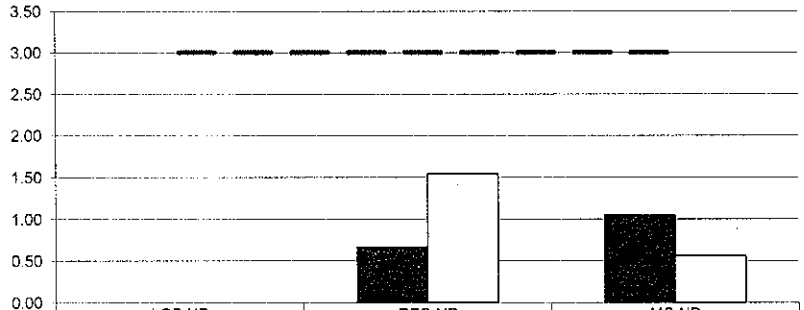
	TH-228	TH-230	TH-232
Lower Error	97.74	99.38	98.00
Upper Error	142.56	145.10	142.23
%R	120.15	122.24	120.11
LCL	75	75	75
Mean	100	100	100
UCL	125	125	125

Replicate Sample RPD



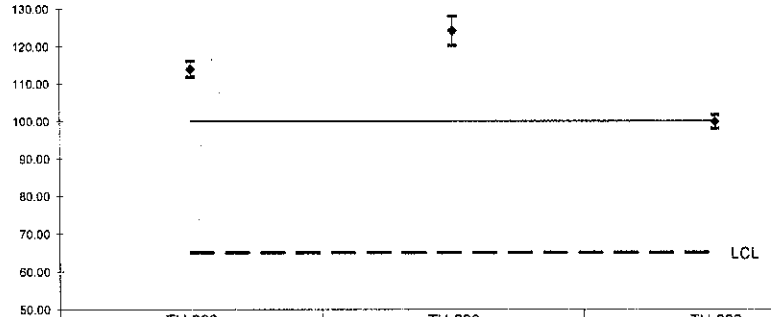
	TH-228	TH-230	TH-232
Lower Error	21.86	47.29	10.61
Upper Error	14.81	32.94	7.25
RPD	18.33	40.12	8.93
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
TH-228	0.00	0.66	1.04
TH-230	0.00	1.54	0.56
UCL	3	3	3

Matrix Spike % Recovery



	TH-228	TH-230	TH-232
Lower Error	111.79	120.22	97.96
Upper Error	115.99	127.93	101.67
%R	113.89	124.08	99.81
LCL	65	65	65
Mean	100	100	100
UCL	135	135	135

0057

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07085	Gamma	2	pCi	g	Weston Solutions, Inc.

Laboratory Control Sample

Analyte		LCS Measured	CSU Measured	LCS Expected	Uncert. Expected	Known	Known Error	Result	CSU	Standard ID	Standard ACT (dpm)	Standard Error	Standard Added (g)
CO-60		91.55%	7.93%	100.00%	3.89%	1.35E+02	5.27E+00	1.24E+02	9.83E+00	GAS-1402	1.35E+02	5.27E+00	7.36E+02
CS-137		96.24%	13.25%	100.00%	4.01%	8.44E+01	3.38E+00	8.12E+01	1.08E+01	GAS-1402	8.44E+01	3.38E+00	7.36E+02

Matrix Spike

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

Replicate Sample

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU
AC-228	0.16	2.49	1.56E+00	3.18E-01	1.52E+00	3.63E-01
K-40	1.10	11.28	2.45E+01	3.42E+00	2.19E+01	3.15E+00
RA-226	0.14	2.13	1.15E+00	2.40E-01	1.12E+00	2.36E-01

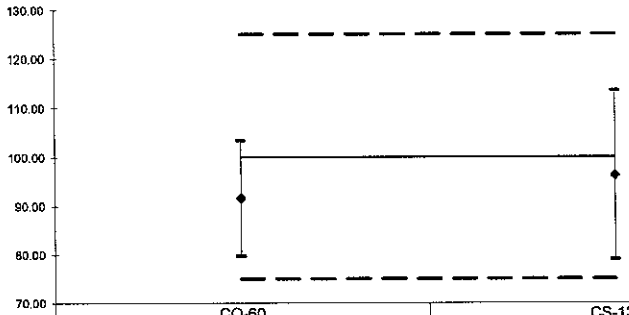
QC Summary

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

0058

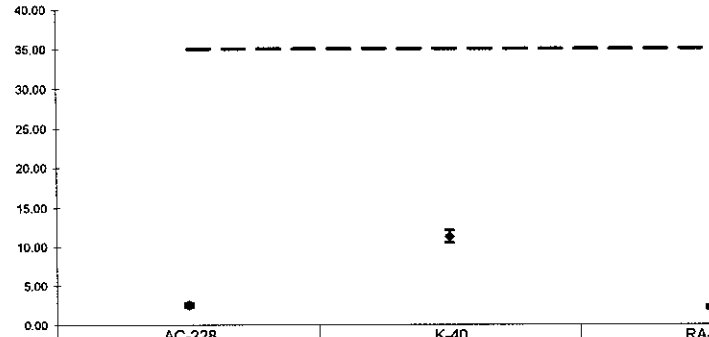
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07085	Gamma	2	pCi	g	Weston Solutions, Inc.

LCS % Recovery



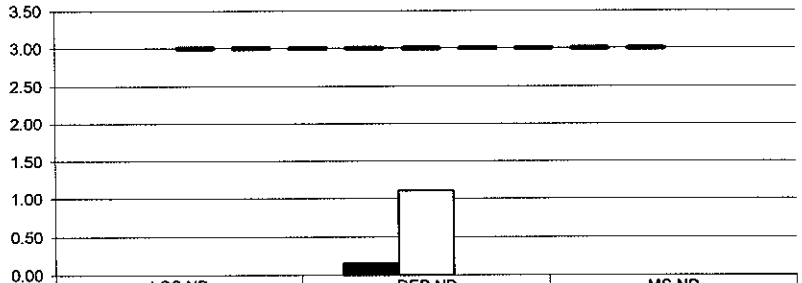
	CO-60	CS-137
Lower Error	79.72	78.99
Upper Error	103.38	113.50
%R	91.55	96.24
LCL	75	75
Mean	100	100
UCL	125	125

Replicate Sample RPD



	AC-228	K-40	RA-226
Lower Error	2.77	12.07	2.35
Upper Error	2.21	10.48	1.91
RPD	2.49	11.28	2.13
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
CO-60	0.00	0.16	0.00
CS-137	0.00	1.10	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	17-07085
Analysis Code	UUISO
Run Number	1

#	Date	Dept	User	Notes
1	08/08/17 13:02	PREP	JHARVEY	ALIQUOTED AND ADDED SPIKES AND TRACERS- ADDED HF AND DRIED SAMPLES DOWN- ADDED MIXED ACIDS AND TOOK SAMPLES TO DRYNESS- SUBMITTED SAMPLES TO SEPARATIONS

J Harvey
8/8/17

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	17-07085
Analysis Code	UUISO
Run Number	1

#	Date	Dept	User	Notes
1	08/08/17 13:02	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	08/17/17 16:36	CHEM	JDEMELAS	Added concentrated HCl to sample beakers and heated to dryness; Added 20 ml 8N HCL to samples and transferred to new, labeled C-Tubes, rinsing with 8N HCl to bring volume to ~35 ml; Preconditioned resin columns with 35 ml 8N HCl; Centrifuged samples and loaded onto columns; Rinsed C-Tubes with 20 ml 8N HCl, centrifuged as needed and loaded onto columns; Rinsed columns with 35 ml 8N HCl – 0.1N NH4I, 35 ml of 6.5N HCl – 0.04N HF, and 10 ml of 6.5N HCl; Eluted Uranium with 50 ml of 0.5N HCl into clean, labeled 100-ml beakers; Dried-down samples on hotplate; Dissolved samples in ~10 ml of concentrated HCl; Transferred to new, labeled C-Tubes with DI H2O. Set samples aside for later precipitation and filtering.

8/17/17

EBERLINE SERVICES

Work Order Analysis Notes

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

Internal Work Order	17-07085
Analysis Code	UUISO
Run Number	1

#	Date	Dept	User	Notes
1	08/08/17 13:02	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	08/17/17 16:36	CHEM	JDEMELAS	Added concentrated HCl to sample beakers and heated to dryness; Added 20 ml 8N HCL to samples and transferred to new, labeled C-Tubes, rinsing with 8N HCl to bring volume to ~35 ml; Preconditioned resin columns with 35 ml 8N HCl; Centrifuged samples and loaded onto columns; Rinsed C-Tubes with 20 ml 8N HCl, centrifuged as needed and loaded onto columns; Rinsed columns with 35 ml 8N HCl – 0.1N NH4I, 35 ml of 6.5N HCl – 0.04N HF, and 10 ml of 6.5N HCl; Eluted Uranium with 50 ml of 0.5N HCl into clean, labeled 100-ml beakers; Dried-down samples on hotplate; Dissolved samples in ~10 ml of concentrated HCl; Transferred to new, labeled C-Tubes with DI H2O. Set samples aside for later precipitation and filtering.
3	08/18/17 05:20	CHEM	TSMITH	Followed steps 12.1.7 to 12.4.5 in AP-005 . (Precipitated and filtered samples for Uranium)

8/18/17
JMN

EBERLINE SERVICES

Reagents Used in an Analysis

Internal Work Order	
17-07085	
Analysis Code	Run
UUISO	1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
019093P	Hydrofluoric Acid	Reagent Grade	JHARVEY	8/8/2017
018971P	Nitric Acid	Reagent Grade	JHARVEY	8/8/2017
019133P	Perchloric Acid	Reagent Grade	JHARVEY	8/8/2017
018550P	Sulfuric Acid	Reagent Grade	JHARVEY	8/8/2017
017344P	Anion Exchange Resin	Reagent Grade	JDEMELAS	8/17/2017
019175S	HCl - HF	6.5N - 0.04N	JDEMELAS	8/17/2017
019067D01	Hydrochloric Acid	0.5N	JDEMELAS	8/17/2017
019168S	Hydrochloric Acid	6.5N	JDEMELAS	8/17/2017
019186S	Hydrochloric Acid	8N	JDEMELAS	8/17/2017
019188S	HCl - NH4I	8N - 0.1M	JDEMELAS	8/17/2017
019134P	Hydrochloric Acid	Reagent Grade	JDEMELAS	8/17/2017
019163S	Carbon substrate	Solution	TSMITH	8/18/2017
019063P	Ethyl Alcohol	1	TSMITH	8/18/2017
019093P	Hydrofluoric Acid	Reagent Grade	TSMITH	8/18/2017
018890S	Neodymium Carrier	1 mg/ml	TSMITH	8/18/2017
019038P	Titanous Chloride	Reagent Grade	TSMITH	8/18/2017

Alpha #1

Date	Sample #	Client	Load Time	CT Time	Analyst	Tech
8/16/17	1708048A(1-4)	USA	1214	2h50m	TH	KB
8/16/17	1707150A(1-2)	Union	1214	2h50m	TH	KB
8/16/17	1708021A (1-6)	TBE	1757	2h50m	Rick	KB
8/17	Daily Pulse	LAB	0520	1m	MA	—
8/17	1707084A(1-6)	Weston	0824	2h5m	TH 2h50	—
8/17/17	1707085A(11-16)	Weston	1117	2h50m	TH	KB
8/17/17	1707083A(13-18	Weston	1415	2h50m	MM	KB
8/18	Daily Pulse	LAB	0413	1m	MA	—
8/18	SGCCK(1-15)	LAB	1100	2h5m	MA	—
8/18	1708021A(1-6)	TBE	0806	2h5m	TH 2h50	—
8/18/17	1707147A(3-5, 8 [illegible])	MPA	1300	2h50m	Rick	KB
8/18/17	System Blkd	Lab	1658	16.40hr	—	KB
8/19/17	Daily Pulser	Lab	0943	10min	NA	KB
8/19/17	1707085A(8-13)	Weston	0959	2h50m	MM	KB

Alpha #3

Date	Sample	Client	Load Time	CT Time	Analyzed	Meas
8/16/17	1707150A (3-4)	UCOR	1510	2h50	Th229	KB
8/16/17	1707150A (1-4)	UCOR	1511	2h50	UU	KB
8/16/17	1708021A (7-19)	TBE	1803	2h50	Ra6	KB
8/16/17	1708022A (1-7)	TBE	1804	2h50	Ra6	KB
8/17	Daily Pulse	NA	0520	1	NA	C
8/17	1708023A (1-13)	TBE	0637	2h5	Ra6	C
8/17	1707084A (7-16)	Weston	0829	2h5	Th Iso	C
8/17	1707084A (17-20)	Weston	0972	2h5	Th Iso	C
8/17	1707085A (1-10)	Weston	0972	2h5	Th Iso	C
8/17/17	1708022A (1-7)	TBE	1118	2h50	Th	KB
8/17/17	Regentest R102ANT (1)	Lab	1119	1 hr	UUNT	KB
8/17/17	1707085A (17-18)	Weston	1121	2h50	Th	KB
8/17/17	1707085A (19-20)	Weston	1234	2h50	Th	KB
8/17/17	1707083A (1-12)	Weston	1237	2h50	UU	KB
8/17/17	1707083A (19-20)	Weston	1415	2h50	UU	KB
8/17/17	1707084A (1-8)	Weston	1414	2h50	UU	KB
8/17/17	1707084A (9-20)	Weston	1634	2h50	UU	KB
8/18	Daily Pulse	KB	0918	1	NA	—
8/18	SECCAL (33-48)	KB	0926	2h3	NA	—
8/18	SECCAL (49-60)	KB	0950	2h3	NA	C
8/18	1708021A (7-19)	TBE	0806	2h5	Th Iso	C
8/18	1708023A (1)	TBE	0806	2h5	Th Iso	C
8/18/17	1708023A (2-11)	TBE	1024	2h50	Th	KB
8/18/17	1708023A (12-13)	TBE	1101	2h50	Th	KB
8/18/17	1707164A (1-4)	ND	1102	2h50	Ra6	KB
8/18/17	1707167A (1-4)	MPA	1103	2h50	Ra6	KB
8/18/17	1708063A (1-4)	UCOR	1104	2h50	UU	KB
8/18	1708063A (6)	UCOR	1318	2h5	UU Iso	C
8/18	1707161A (1-7)	USA	1318	2h5	Th Iso	C
8/18	1707147A (1-5, 8, 10-18)	MPA	1318	2h5	Ra6	C
8/18/17	1707147A (12-18)	MPA	1402	2h50	Ra	KB
8/18/17	1707085A (1-7)	Weston	1403	2h50	UU	KB

Alpha #3

Date	Sample #	Client	Load time	CT Time	Analyzed	Test
8/19/17	Daily Pulsers	Lab	0943	10 mins	NA	KB
8/19/17	1707085A(14-20)	Weston	1000	2h.50	UU	KB
8/19/17	1707086A(1-	Weston	1002	2h.50	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	17-07085
Analysis Code	ThISO
Run Number	1

#	Date	Dept	User	Notes
1	08/08/17 13:02	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
8/8/17

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	17-07085
Analysis Code	ThISO
Run Number	1

#	Date	Dept	User	Notes
1	08/08/17 13:02	PREP	JHARVEY	ALIQUOTED AND ADDED SPIKES AND TRACERS- ADDED HF AND DRIED SAMPLES DOWN- ADDED MIXED ACIDS AND TOOK SAMPLES TO DRYNESS- SUBMITTED SAMPLES TO SEPARATIONS
2	08/16/17 10:50	CHEM	TSMITH	Followed steps 12.2.1 to 12.2.5 in AP-005 . (Column separaiton for Thorium by Eichrom Anion resin)
3	08/17/17 05:00	CHEM	TSMITH	Followed steps 12.2.5 to 12.4.5 in AP-005 . (Precipitated and filtered samples for Thorium)

8-17-17
JMN

EBERLINE SERVICES

Reagents Used in an Analysis

Internal Work Order	
17-07085	
Analysis Code	Run
ThISO	1

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

Alpha #1

Date	Sample #	Client	Load Time	CT Time	Analysis	Tech
16/17	1708048A(1-4)	USA	1214	2h-50-	Th	KB
16/17	1707150A(1-2)	Ucon	1214	2h-50-	Th	KB
16/A	1708021A (1-6)	TBE	1757	2h-50-	Rank	KB
3/17	Daily Pulse	LAB	0520	1-	[illegible]	—
3/17	1707084A(1-6)	Weston	0824	2h5-	TL 750	—
A/A	1707085A(11-16)	Weston	1117	2h-50-	Th	KB

Alpha #3

Date	Sample	Client	Load Time	CT Time	Analyzed	Ma
8/16/17	1707150A (3-4)	UCOR	1510	2h50m	Th229	KB
8/16/17	1707150A (1-4)	UCOR	1511	2h50m	UU	KB
8/16/17	1708021A (7-19)	TBE	1803	2h50m	Rad	KB
8/16/17	1708022A (1-7)	TBE	1804	2h50m	Rad	KB
8/17	Daily Pulse	NA	0520	1m	NA	C
8/17	1708023A (1-13)	TBE	0637	2h5m	Rad	C
8/17	1707084A (7-16)	Weston	0829	2h5m	Th Iso	C
8/17	1707084A (17-20)	Weston	0972	2h5m	Th Iso	C
8/17	1707085A (1-10)	Weston	0972	2h5m	Th Iso	C
8/17/17	1708022A (1-7)	TBE	1118	2h50m	Th	KB
8/17/17	Regontest R102ANT (1)	Lab	1119	1 hr	UUNT	KB
8/17/17	1707085A (17-18)	Weston	1121	2h50m	Th	KB
8/17/17	1707085A (19-20)	Weston	1236	2h50m	Th	KB
8/17/17	1707083A (1-12)	Weston	1237	2h50m	UU	KB

GAMMA NOTES

GE1

DATE	Sample #	Client	Load Time	CT Time	Analysis	Tech
8/18	1707167-03	MRI	0633	15	Be	[illegible]
8/18	1707127-05	Weston	0650	2h	✓	—
8/18	1707127-07	Weston	0751	2h	✓	—
8/18	1707127-10	Weston	0854	2h	✓	—
8/18	1707084-03	Weston	1230	2h	✓	[illegible]
8/18	1707084-04	Weston	1334	2h	✓	
8/18/17	1708088-03	Cabrera	1211	5 mins	Rn222	KB
8/18/17	1708088-04	Cabrera	1217	5 mins	Rn222	KB
8/18/17	1708088-07	Cabrera	1224	5 min	Rn222	KB
8/18/17	1707084-10	Weston	1438	1hr	γ	KB
8/18/17	1707084-13	Weston	1639	1hr	γ	KB
8/18/17	1707084-16	Weston	1640	1hr	γ	KB
8/18/17	1707084-19	Weston	1742	1hr	γ	KB
8/19/17	Daily Blksd	Lab	0602	15 mins	γ	KB
8/19/17	GAF 16	Lab	0618	15 min	γ	KB
8/19/17	1707084-20	Weston	0637	1hr	γ	KB
8/19/17	1707126-03	Weston	0737	1hr	γ	KB
8/19/17	1707126-04	Weston	0837	1hr	γ	KB
8/19/17	1707126-05	Weston	0938	1hr	γ	KB
8/19/17	1707126-06	Weston	1039	1hr	γ	KB
8/19/17	1707126-08	Weston	1139	1hr	γ	KB
8/19/17	System Blksd	Lab	1244	24 hr	γ	KB
8/21	GAF16	LAB	0516	15	γ	[illegible]
8/21	[illegible]	LAB	0546	15	γ	
8/21	1707126-11	Weston	0605	2h	✓	—
8/21	1707126-12	Weston	0707	2h	✓	—
8/21	1707126-17	Weston	0810	2h	✓	—
8/21	1707085-05	Weston	0911	2h	✓	—
8/21	1707126-17	Weston	1012	2h	✓	—
8/21	1707085-13	Weston	1115	2h	✓	[illegible]
8/21/17	1707085-15	Weston	1216	1hr	γ	KB
8/21/17	1707085-17	Weston	1317	1hr	γ	KB

GE 2

DATE	SAMPLE #	Client	Load Time	CT. Time	Analysis	Tech
~~8/17~~	~~GAS / 8/17~~	~~LAB~~				
~~8/17~~	~~8/17~~	~~LAB~~				
8/19/17	System Blksd	Lab	1244	24 hrs	✓	KB
8/21	GAS 1601	LAB	0516	15	✓	
8/21	DailyR	LAB	0544	15	✓	
~~8/21~~	~~1707086-12~~	~~Weston~~	~~0601~~	~~15~~	✓	
8/21	GAS 1601	LAB	0836	15	✓	
8/21	DailyR	LAB	0853	15	✓	
8/21	1707085-06	Weston	0910	15	✓	
8/21	1708081-01	USA	1011	15	Bu	
8/21	1708081-04	USA	1026	15	Bu	
8/21	1708082-03	USA	1042	15	Bu	
8/21	1708082-06	USA	1058	15	Bu	
8/21	~~1707085-12~~	Weston	1114	1h	✓	
8/21/17	1707085-14	Weston	1217	1h	✓	KB
8/21/17	1707085-18	Weston	1315	1h	✓	KB

GE3

DATE	Sample #	Client	Load Time	CT. Time	Analysis	Tech
8/19/17	System Blkgd	Lab	1245	24 hrs	✓	KB
8/21	~~GPS~~/602	LAB	0516	15	✓	[illegible]
8/21	Daily R	LAB	0546	15	✓	
8/21	1707126-13	Weston	0605	[illegible]	✓	—
8/21	1707126-15	Weston	0707	[illegible]	✓	—
8/21	1707126-18	Weston	0810	[illegible]	✓	—
8/21	1707085-07	Weston	0911	[illegible]	✓	—
8/21	1708081-02	USA	1013	15	Ba	—
8/21	1708082-01	USA	1028	15	Ba	—
8/21	1708082-04	USA	1044	15	Ba	—
8/21	1707085-08	Weston	1101	[illegible]	✓	—
8/21/17	1707085-14	Weston	1203	1 hr	✓	KB
8/21/17	1707085-19	Weston	1223	1 hr	✓	KB

GE 4

DATE	Sample #	Client	Load Time	CTI Time	Analysis	Tech
8/21	[illegible]16	KB	0516	15	[illegible]	[illegible]
8/21	[illegible]	KB	0546	15	[illegible]	
8/21	1707126-14	Weston	0605	[illegible]	[illegible]	—
8/21	1707126-16	Weston	0707	[illegible]	[illegible]	—
8/21	1707085-03	Weston	0810	[illegible]	[illegible]	—
8/21	1707085-04	Weston	0911	[illegible]	[illegible]	—
8/21	1708081-03	USA	1013	15	[illegible]	—
8/21	1708082-02	USA	1028	15	[illegible]	—
8/21	1708082-05	USA	1044	15	[illegible]	—
8/21	1707085-11	Weston	1101	[illegible]	[illegible]	[illegible]
8/21/17	1707085-01	Weston	1203	30 mins	[illegible]	KB
8/21/17	1707085-02	Weston	1235	1 hr	[illegible]	KB
8/21/17	1707085-20	Weston	1346	1 hr	[illegible]	KB

SECTION VIII

ANALYTICAL DATA (ISOTOPIC URANIUM)

Work Order	17-07085
Analysis Code	UUISO
Run	1
Date Received	7/18/2017
Lab Deadline	8/10/2017
Client	Weston Solutions, Inc.
Project	94759
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	EPA 908.0 Modified
Instrument Type	Alpha Spectroscopy
Radiometric Tracer	U-232
Radiometric Sol#	U-10a
Tracer Act (dpm/g)	18.32
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		07/19/17 00:00	1.0000E+00
02	MBL	BLANK		07/19/17 00:00	1.0000E+00
03	DUP	HTC-A02-S002-2430-01	51	05/15/17 11:45	1.0349E+00
04	DO	HTC-A02-S002-2430-01	51	05/15/17 11:45	1.0341E+00
05	TRG	HTC-A02-S002-3036-01	49	05/15/17 11:42	1.0416E+00
06	TRG	HTC-A02-S002-3642-01	38	05/15/17 11:39	1.0827E+00
07	TRG	HTC-A02-S002-4248-01	38	05/15/17 11:36	1.0125E+00
08	MSO	HTC-A02-S003-0006-01	80	05/15/17 12:21	1.0832E+00
09	MS	HTC-A02-S003-0006-01	50	05/15/17 11:45	1.0828E+00
10	MSD	HTC-A02-S003-0006-01 MSD	50	05/15/17 12:21	1.0839E+00
11	TRG	HTC-A02-S003-0006-02	42	05/15/17 12:21	1.0664E+00
12	TRG	HTC-A02-S003-0612-01	44	05/15/17 12:18	1.0816E+00
13	TRG	HTC-A02-S003-1218-01	40	05/15/17 12:15	1.0178E+00
14	TRG	HTC-A02-S003-1824-01	39	05/15/17 12:12	1.0076E+00
15	TRG	HTC-A02-S003-2430-01	39	05/15/17 12:09	1.0104E+00
16	TRG	HTC-A02-S003-3036-01	45	05/15/17 12:06	1.0287E+00
17	TRG	HTC-A02-S003-3642-01	37	05/15/17 12:03	1.0262E+00
18	TRG	HTC-A02-S003-4248-01	48	05/15/17 12:00	1.0086E+00
19	TRG	HTC-A02-S004-0006-01	48	05/15/17 08:29	1.0166E+00
20	TRG	HTC-A02-S004-0612-01	138	05/15/17 08:27	1.0850E+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.

17-07085
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	0.6125	11.2		0.00								
02	MBL	0.6122	11.2		0.00								
03	DUP	0.6110	11.2		0.00								
04	DO	0.6117	11.2		0.00								
05	TRG	0.6121	11.2		0.00								
06	TRG	0.6114	11.2		0.00								
07	TRG	0.6109	11.2		0.00								
08	MSO	0.6104	11.2		0.00								
09	MS	0.6112	11.2		0.00								
10	MSD	0.6107	11.2		0.00								
11	TRG	0.6096	11.2		0.00								
12	TRG	0.6105	11.2		0.00								
13	TRG	0.6104	11.2		0.00								
14	TRG	0.6089	11.2		0.00								
15	TRG	0.6095	11.2		0.00								
16	TRG	0.6105	11.2		0.00								
17	TRG	0.6087	11.2		0.00								
18	TRG	0.6094	11.2		0.00								
19	TRG	0.6099	11.2		0.00								
20	TRG	0.6204	11.4		0.00								

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

17-07085
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			08/08/17 13:01	JHARVEY				
02	MBL			08/08/17 13:01	JHARVEY				
03	DUP			08/08/17 13:01	JHARVEY				
04	DO	07/31/17 07:32	KSALLINGS	08/08/17 13:01	JHARVEY				
05	TRG	07/31/17 07:32	KSALLINGS	08/08/17 13:01	JHARVEY				
06	TRG	07/31/17 07:32	KSALLINGS	08/08/17 13:01	JHARVEY				
07	TRG	07/31/17 07:32	KSALLINGS	08/08/17 13:01	JHARVEY				
08	MSO	07/31/17 07:32	KSALLINGS	08/08/17 13:01	JHARVEY				
09	MS	07/31/17 07:32	KSALLINGS	08/08/17 13:01	JHARVEY				
10	MSD	07/31/17 07:32	KSALLINGS	08/08/17 13:01	JHARVEY				
11	TRG	07/31/17 07:32	KSALLINGS	08/08/17 13:01	JHARVEY				
12	TRG	07/31/17 07:32	KSALLINGS	08/08/17 13:01	JHARVEY				
13	TRG	07/31/17 07:32	KSALLINGS	08/08/17 13:01	JHARVEY				
14	TRG	07/31/17 07:32	KSALLINGS	08/08/17 13:01	JHARVEY				
15	TRG	07/31/17 07:32	KSALLINGS	08/08/17 13:01	JHARVEY				
16	TRG	07/31/17 07:32	KSALLINGS	08/08/17 13:01	JHARVEY				
17	TRG	07/31/17 07:32	KSALLINGS	08/08/17 13:01	JHARVEY				
18	TRG	07/31/17 07:32	KSALLINGS	08/08/17 13:01	JHARVEY				
19	TRG	07/31/17 07:32	KSALLINGS	08/08/17 13:01	JHARVEY				
20	TRG	07/31/17 07:32	KSALLINGS	08/08/17 13:01	JHARVEY				

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

Eberline Analytical
Oak Ridge Laboratory

Preliminary Data Report & Analytical Calculations
Work Order: 17-07085-UUISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07085
Analysis Code: UUISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	U-234	LCS	LCS	pCi/g	5.62E+00	7.77E-01	5.63E-02	7.37E+00	76.32	OK		OK	
02	U-234	MBL	BLANK	pCi/g	2.89E-02	5.11E-02	9.19E-02					OK	OK
03	U-234	DUP	HTC-A02-S002-2430-01	pCi/g	7.38E-01	2.12E-01	7.90E-02				OK	OK	
04	U-234	DO	HTC-A02-S002-2430-01	pCi/g	7.87E-01	2.18E-01	8.13E-02					OK	
05	U-234	TRG	HTC-A02-S002-3036-01	pCi/g	7.11E-01	2.16E-01	9.40E-02					OK	
06	U-234	TRG	HTC-A02-S002-3642-01	pCi/g	7.16E-01	2.01E-01	5.17E-02					OK	
07	U-234	TRG	HTC-A02-S002-4248-01	pCi/g	1.29E+00	2.92E-01	7.34E-02					OK	
08	U-234	MSC	HTC-A02-S003-0006-01	pCi/g	1.43E+01	1.72E+00	9.15E-02					OK	
09	U-234	MS	HTC-A02-S003-0006-01	pCi/g	2.08E+01	2.49E+00	8.62E-02					OK	
10	U-234	MSD	HTC-A02-S003-0006-01 MSD	pCi/g	1.86E+01	2.20E+00	1.14E-01					OK	
11	U-234	TRG	HTC-A02-S003-0006-02	pCi/g	8.98E+00	1.16E+00	8.31E-02					OK	
12	U-234	TRG	HTC-A02-S003-0612-01	pCi/g	1.11E+01	1.37E+00	5.92E-02					OK	
13	U-234	TRG	HTC-A02-S003-1218-01	pCi/g	1.13E+00	2.67E-01	8.37E-02					OK	
14	U-234	TRG	HTC-A02-S003-1824-01	pCi/g	1.20E+00	2.76E-01	5.29E-02					OK	
15	U-234	TRG	HTC-A02-S003-2430-01	pCi/g	1.25E+00	2.81E-01	6.00E-02					OK	
16	U-234	TRG	HTC-A02-S003-3036-01	pCi/g	9.00E-01	2.53E-01	7.94E-02					OK	
17	U-234	TRG	HTC-A02-S003-3642-01	pCi/g	2.91E+00	5.55E-01	9.12E-02					OK	
18	U-234	TRG	HTC-A02-S003-4248-01	pCi/g	1.45E+00	3.11E-01	6.10E-02					OK	
19	U-234	TRG	HTC-A02-S004-0006-01	pCi/g	1.11E+00	2.73E-01	7.71E-02					OK	
20	U-234	TRG	HTC-A02-S004-0612-01	pCi/g	3.02E+01	3.86E+00	9.42E-02					OK	

Preliminary Data Report & Analytical Calculations
Work Order: 17-07085-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07085
Client: Weston Solutions, Inc.

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	U-234	LCS	07/19/17 00:00	1.00E+00	124.39	0.00	0.00			
02	U-234	MBL	07/19/17 00:00	1.00E+00	97.08	0.00	0.00			
03	U-234	DUP	05/15/17 11:45	1.03E+00	108.66	0.00	0.00			
04	U-234	DO	05/15/17 11:45	1.03E+00	117.88	0.00	0.00			
05	U-234	TRG	05/15/17 11:42	1.04E+00	104.27	0.00	0.00			
06	U-234	TRG	05/15/17 11:39	1.08E+00	121.97	0.00	0.00			
07	U-234	TRG	05/15/17 11:36	1.01E+00	123.32	0.00	0.00			
08	U-234	MSO	05/15/17 12:21	1.08E+00	140.57	0.00	0.00			
09	U-234	MS	05/15/17 11:45	1.08E+00	107.33	0.00	0.00			
10	U-234	MSD	05/15/17 12:21	1.08E+00	113.48	0.00	0.00			
11	U-234	TRG	05/15/17 12:21	1.07E+00	106.96	0.00	0.00			
12	U-234	TRG	05/15/17 12:18	1.08E+00	115.65	0.00	0.00			
13	U-234	TRG	05/15/17 12:15	1.02E+00	111.11	0.00	0.00			
14	U-234	TRG	05/15/17 12:12	1.01E+00	123.58	0.00	0.00			
15	U-234	TRG	05/15/17 12:09	1.01E+00	121.12	0.00	0.00			
16	U-234	TRG	05/15/17 12:06	1.03E+00	108.03	0.00	0.00			
17	U-234	TRG	05/15/17 12:03	1.03E+00	87.78	0.00	0.00			
18	U-234	TRG	05/15/17 12:00	1.01E+00	129.89	0.00	0.00			
19	U-234	TRG	05/15/17 08:29	1.02E+00	123.86	0.00	0.00			
20	U-234	TRG	05/15/17 08:27	1.09E+00	88.38	0.00	0.00			

Preliminary Data Report & Analytical Calculations
Work Order: 17-07085-UUISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07085
Analysis Code: UUISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	U-234	LCS	08/18/17 14:02		A_Spec	Alpha_040	170	4.78 E+02	2.00 E-03	18.1
02	U-234	MBL	08/18/17 14:02		A_Spec	Alpha_043	170	1.98 E+00	6.00 E-03	18.7
03	U-234	DUP	08/18/17 14:02		A_Spec	Alpha_044	170	5.60 E+01	0.00 E+00	17.9
04	U-234	DO	08/18/17 14:02		A_Spec	Alpha_045	170	6.10 E+01	6.00 E-03	16.9
05	U-234	TRG	08/18/17 14:02		A_Spec	Alpha_046	170	4.98 E+01	7.00 E-03	17.1
06	U-234	TRG	08/18/17 14:02		A_Spec	Alpha_047	170	5.78 E+01	1.00 E-03	16.2
07	U-234	TRG	08/18/17 14:02		A_Spec	Alpha_048	170	9.93 E+01	4.00 E-03	16.3
08	U-234	MSO	08/19/17 09:59		A_Spec	Alpha_003	170.02	1.29 E+03	1.40 E-02	15.6
09	U-234	MS	08/19/17 09:59		A_Spec	Alpha_004	170	1.71 E+03	9.00 E-03	18.8
10	U-234	MSD	08/19/17 09:59		A_Spec	Alpha_010	170	1.61 E+03	2.40 E-02	18.7
11	U-234	TRG	08/19/17 09:59		A_Spec	Alpha_011	170	7.68 E+02	9.00 E-03	19.9
12	U-234	TRG	08/19/17 09:59		A_Spec	Alpha_012	170.02	9.79 E+02	3.00 E-03	18.8
13	U-234	TRG	08/19/17 09:59		A_Spec	Alpha_014	170	8.88 E+01	7.00 E-03	18.5
14	U-234	TRG	08/19/17 10:00		A_Spec	Alpha_033	170	9.48 E+01	1.00 E-03	16.8
15	U-234	TRG	08/19/17 10:00		A_Spec	Alpha_034	170	9.97 E+01	2.00 E-03	17.3
16	U-234	TRG	08/19/17 10:00		A_Spec	Alpha_035	170	5.95 E+01	3.00 E-03	15.8
17	U-234	TRG	08/19/17 10:00		A_Spec	Alpha_036	170	1.80 E+02	4.00 E-03	18.2
18	U-234	TRG	08/19/17 10:00		A_Spec	Alpha_037	170	1.14 E+02	2.00 E-03	15.9
19	U-234	TRG	08/19/17 10:00		A_Spec	Alpha_038	170	8.13 E+01	4.00 E-03	15.4
20	U-234	TRG	08/19/17 10:00		A_Spec	Alpha_039	170	2.02 E+03	6.00 E-03	18.5

Preliminary Data Report & Analytical Calculations
Work Order: 17-07085-UUISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07085
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	6.45E+00	8.66E-01	7.03E-02	7.14E+00	90.32	OK		OK	
02	U-238	MBL	BLANK	pCi/g	2.41E-02	4.09E-02	6.95E-02					OK	OK
03	U-238	DUP	HTC-A02-S002-2430-01	pCi/g	6.93E-01	2.03E-01	5.47E-02				OK	OK	
04	U-238	DO	HTC-A02-S002-2430-01	pCi/g	7.52E-01	2.11E-01	6.74E-02					OK	
05	U-238	TRG	HTC-A02-S002-3036-01	pCi/g	8.31E-01	2.35E-01	7.45E-02					OK	
06	U-238	TRG	HTC-A02-S002-3642-01	pCi/g	7.11E-01	2.00E-01	5.90E-02					OK	
07	U-238	TRG	HTC-A02-S002-4248-01	pCi/g	1.24E+00	2.84E-01	5.41E-02					OK	
08	U-238	MSO	HTC-A02-S003-0006-01	pCi/g	1.51E+01	1.80E+00	6.27E-02					OK	
09	U-238	MS	HTC-A02-S003-0006-01	pCi/g	2.14E+01	2.55E+00	8.58E-02					OK	
10	U-238	MSD	HTC-A02-S003-0006-01 MSD	pCi/g	1.96E+01	2.31E+00	8.94E-02					OK	
11	U-238	TRG	HTC-A02-S003-0006-02	pCi/g	9.79E+00	1.25E+00	7.67E-02					OK	
12	U-238	TRG	HTC-A02-S003-0612-01	pCi/g	1.18E+01	1.45E+00	6.73E-02					OK	
13	U-238	TRG	HTC-A02-S003-1218-01	pCi/g	1.05E+00	2.55E-01	8.34E-02					OK	
14	U-238	TRG	HTC-A02-S003-1824-01	pCi/g	1.06E+00	2.55E-01	5.27E-02					OK	
15	U-238	TRG	HTC-A02-S003-2430-01	pCi/g	1.30E+00	2.87E-01	5.22E-02					OK	
16	U-238	TRG	HTC-A02-S003-3036-01	pCi/g	9.41E-01	2.60E-01	7.90E-02					OK	
17	U-238	TRG	HTC-A02-S003-3642-01	pCi/g	2.58E+00	5.09E-01	8.44E-02					OK	
18	U-238	TRG	HTC-A02-S003-4248-01	pCi/g	1.35E+00	2.97E-01	7.62E-02					OK	
19	U-238	TRG	HTC-A02-S004-0006-01	pCi/g	9.88E-01	2.55E-01	9.33E-02					OK	
20	U-238	TRG	HTC-A02-S004-0612-01	pCi/g	3.32E+01	4.21E+00	9.81E-02					OK	

Z800

Preliminary Data Report & Analytical Calculations
Work Order: 17-07085-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07085
Client: Weston Solutions, Inc.

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	U-238	LCS	07/19/17 00:00	1.00E+00	124.39	0.00	0.00			
02	U-238	MBL	07/19/17 00:00	1.00E+00	97.08	0.00	0.00			
03	U-238	DUP	05/15/17 11:45	1.03E+00	108.66	0.00	0.00			
04	U-238	DO	05/15/17 11:45	1.03E+00	117.88	0.00	0.00			
05	U-238	TRG	05/15/17 11:42	1.04E+00	104.27	0.00	0.00			
06	U-238	TRG	05/15/17 11:39	1.08E+00	121.97	0.00	0.00			
07	U-238	TRG	05/15/17 11:36	1.01E+00	123.32	0.00	0.00			
08	U-238	MSO	05/15/17 12:21	1.08E+00	140.57	0.00	0.00			
09	U-238	MS	05/15/17 11:45	1.08E+00	107.33	0.00	0.00			
10	U-238	MSD	05/15/17 12:21	1.08E+00	113.48	0.00	0.00			
11	U-238	TRG	05/15/17 12:21	1.07E+00	106.96	0.00	0.00			
12	U-238	TRG	05/15/17 12:18	1.08E+00	115.65	0.00	0.00			
13	U-238	TRG	05/15/17 12:15	1.02E+00	111.11	0.00	0.00			
14	U-238	TRG	05/15/17 12:12	1.01E+00	123.58	0.00	0.00			
15	U-238	TRG	05/15/17 12:09	1.01E+00	121.12	0.00	0.00			
16	U-238	TRG	05/15/17 12:06	1.03E+00	108.03	0.00	0.00			
17	U-238	TRG	05/15/17 12:03	1.03E+00	87.78	0.00	0.00			
18	U-238	TRG	05/15/17 12:00	1.01E+00	129.89	0.00	0.00			
19	U-238	TRG	05/15/17 08:29	1.02E+00	123.86	0.00	0.00			
20	U-238	TRG	05/15/17 08:27	1.09E+00	88.38	0.00	0.00			

Preliminary Data Report & Analytical Calculations
Work Order: 17-07085-UUISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07085
Analysis Code: UUISO
Run: 1
6800

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	U-238	LCS	08/18/17 14:02		A_Spec	Alpha_040	170	5.50 E+02	0.00 E+00	18.1
02	U-238	MBL	08/18/17 14:02		A_Spec	Alpha_043	170	1.66 E+00	2.00 E-03	18.7
03	U-238	DUP	08/18/17 14:02		A_Spec	Alpha_044	170	5.28 E+01	1.00 E-03	17.9
04	U-238	DO	08/18/17 14:02		A_Spec	Alpha_045	170	5.85 E+01	3.00 E-03	16.9
05	U-238	TRG	08/18/17 14:02		A_Spec	Alpha_046	170	5.85 E+01	3.00 E-03	17.1
06	U-238	TRG	08/18/17 14:02		A_Spec	Alpha_047	170	5.77 E+01	2.00 E-03	16.2
07	U-238	TRG	08/18/17 14:02		A_Spec	Alpha_048	170	9.58 E+01	1.00 E-03	16.3
08	U-238	MSO	08/19/17 09:59		A_Spec	Alpha_003	170.02	1.36 E+03	4.00 E-03	15.6
09	U-238	MS	08/19/17 09:59		A_Spec	Alpha_004	170	1.77 E+03	9.00 E-03	18.8
10	U-238	MSD	08/19/17 09:59		A_Spec	Alpha_010	170	1.71 E+03	1.20 E-02	18.7
11	U-238	TRG	08/19/17 09:59		A_Spec	Alpha_011	170	8.41 E+02	7.00 E-03	19.9
12	U-238	TRG	08/19/17 09:59		A_Spec	Alpha_012	170.02	1.05 E+03	5.00 E-03	18.8
13	U-238	TRG	08/19/17 09:59		A_Spec	Alpha_014	170	8.28 E+01	7.00 E-03	18.5
14	U-238	TRG	08/19/17 10:00		A_Spec	Alpha_033	170	8.38 E+01	1.00 E-03	16.8
15	U-238	TRG	08/19/17 10:00		A_Spec	Alpha_034	170	1.04 E+02	1.00 E-03	17.3
16	U-238	TRG	08/19/17 10:00		A_Spec	Alpha_035	170	6.25 E+01	3.00 E-03	15.8
17	U-238	TRG	08/19/17 10:00		A_Spec	Alpha_036	170	1.60 E+02	3.00 E-03	18.2
18	U-238	TRG	08/19/17 10:00		A_Spec	Alpha_037	170	1.06 E+02	0.00 E+00	15.9
19	U-238	TRG	08/19/17 10:00		A_Spec	Alpha_038	170	7.26 E+01	8.00 E-03	15.4
20	U-238	TRG	08/19/17 10:00		A_Spec	Alpha_039	170	2.23 E+03	7.00 E-03	18.5

Eberline Analytical
Oak Ridge Laboratory

Preliminary Data Report & Analytical Calculations

Work Order: 17-07085-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07085
Client: Weston Solutions, Inc.
0600

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	U-235	LCS	LCS	pCi/g	4.45E-01	1.65E-01	6.94E-02					OK	
02	U-235	MBL	BLANK	pCi/g	4.18E-02	6.25E-02	1.02E-01					OK	OK
03	U-235	DUP	HTC-A02-S002-2430-01	pCi/g	1.14E-01	9.10E-02	9.74E-02				INV	OK	
04	U-235	DO	HTC-A02-S002-2430-01	pCi/g	1.56E-01	1.00E-01	6.64E-02					OK	
05	U-235	TRG	HTC-A02-S002-3036-01	pCi/g	2.23E-01	1.27E-01	8.41E-02					OK	
06	U-235	TRG	HTC-A02-S002-3642-01	pCi/g	5.59E-02	6.07E-02	7.31E-02					OK	
07	U-235	TRG	HTC-A02-S002-4248-01	pCi/g	1.04E-01	8.46E-02	8.43E-02					OK	
08	U-235	MSO	HTC-A02-S003-0006-01	pCi/g	1.70E+00	3.51E-01	6.58E-02					OK	
09	U-235	MS	HTC-A02-S003-0006-01	pCi/g	1.91E+00	3.93E-01	7.85E-02					OK	
10	U-235	MSD	HTC-A02-S003-0006-01 MSD	pCi/g	2.30E+00	4.35E-01	1.14E-01					OK	
11	U-235	TRG	HTC-A02-S003-0006-02	pCi/g	1.16E+00	2.84E-01	8.63E-02					OK	
12	U-235	TRG	HTC-A02-S003-0612-01	pCi/g	1.29E+00	2.97E-01	7.30E-02					OK	
13	U-235	TRG	HTC-A02-S003-1218-01	pCi/g	1.85E-01	1.09E-01	6.54E-02					OK	
14	U-235	TRG	HTC-A02-S003-1824-01	pCi/g	1.98E-01	1.13E-01	7.48E-02					OK	
15	U-235	TRG	HTC-A02-S003-2430-01	pCi/g	1.39E-01	9.80E-02	9.76E-02					OK	
16	U-235	TRG	HTC-A02-S003-3036-01	pCi/g	3.41E-02	5.22E-02	7.79E-02					OK	
17	U-235	TRG	HTC-A02-S003-3642-01	pCi/g	3.52E-01	1.72E-01	9.53E-02					OK	
18	U-235	TRG	HTC-A02-S003-4248-01	pCi/g	1.71E-01	1.04E-01	6.57E-02					OK	
19	U-235	TRG	HTC-A02-S004-0006-01	pCi/g	1.15E-01	8.85E-02	7.03E-02					OK	
20	U-235	TRG	HTC-A02-S004-0612-01	pCi/g	3.86E+00	6.99E-01	1.04E-01					OK	

Preliminary Data Report & Analytical Calculations
Work Order: 17-07085-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07085
Client: Weston Solutions, Inc.

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	U-235	LCS	07/19/17 00:00	1.00E+00	124.39	0.00	0.00			
02	U-235	MBL	07/19/17 00:00	1.00E+00	97.08	0.00	0.00			
03	U-235	DUP	05/15/17 11:45	1.03E+00	108.66	0.00	0.00			
04	U-235	DO	05/15/17 11:45	1.03E+00	117.88	0.00	0.00			
05	U-235	TRG	05/15/17 11:42	1.04E+00	104.27	0.00	0.00			
06	U-235	TRG	05/15/17 11:39	1.08E+00	121.97	0.00	0.00			
07	U-235	TRG	05/15/17 11:36	1.01E+00	123.32	0.00	0.00			
08	U-235	MSO	05/15/17 12:21	1.08E+00	140.57	0.00	0.00			
09	U-235	MS	05/15/17 11:45	1.08E+00	107.33	0.00	0.00			
10	U-235	MSD	05/15/17 12:21	1.08E+00	113.48	0.00	0.00			
11	U-235	TRG	05/15/17 12:21	1.07E+00	106.96	0.00	0.00			
12	U-235	TRG	05/15/17 12:18	1.08E+00	115.65	0.00	0.00			
13	U-235	TRG	05/15/17 12:15	1.02E+00	111.11	0.00	0.00			
14	U-235	TRG	05/15/17 12:12	1.01E+00	123.58	0.00	0.00			
15	U-235	TRG	05/15/17 12:09	1.01E+00	121.12	0.00	0.00			
16	U-235	TRG	05/15/17 12:06	1.03E+00	108.03	0.00	0.00			
17	U-235	TRG	05/15/17 12:03	1.03E+00	87.78	0.00	0.00			
18	U-235	TRG	05/15/17 12:00	1.01E+00	129.89	0.00	0.00			
19	U-235	TRG	05/15/17 08:29	1.02E+00	123.86	0.00	0.00			
20	U-235	TRG	05/15/17 08:27	1.09E+00	88.38	0.00	0.00			

Preliminary Data Report & Analytical Calculations
Work Order: 17-07085-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07085
Client: Weston Solutions, Inc.

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	U-235	LCS	08/18/17 14:02		A_Spec	Alpha_040	170	3.07 E+01	2.00 E-03	18.1
02	U-235	MBL	08/18/17 14:02		A_Spec	Alpha_043	170	2.32 E+00	4.00 E-03	18.7
03	U-235	DUP	08/18/17 14:02		A_Spec	Alpha_044	170	7.00 E+00	0.00 E+00	17.9
04	U-235	DO	08/18/17 14:02		A_Spec	Alpha_045	170	9.83 E+00	1.00 E-03	16.9
05	U-235	TRG	08/18/17 14:02		A_Spec	Alpha_046	170	1.27 E+01	2.00 E-03	17.1
06	U-235	TRG	08/18/17 14:02		A_Spec	Alpha_047	170	3.66 E+00	2.00 E-03	16.2
07	U-235	TRG	08/18/17 14:02		A_Spec	Alpha_048	170	6.49 E+00	3.00 E-03	16.3
08	U-235	MSO	08/19/17 09:59		A_Spec	Alpha_003	170.02	1.24 E+02	2.00 E-03	15.6
09	U-235	MS	08/19/17 09:59		A_Spec	Alpha_004	170	1.27 E+02	3.00 E-03	18.8
10	U-235	MSD	08/19/17 09:59		A_Spec	Alpha_010	170	1.62 E+02	1.30 E-02	18.7
11	U-235	TRG	08/19/17 09:59		A_Spec	Alpha_011	170	8.02 E+01	5.00 E-03	19.9
12	U-235	TRG	08/19/17 09:59		A_Spec	Alpha_012	170.02	9.25 E+01	3.00 E-03	18.8
13	U-235	TRG	08/19/17 09:59		A_Spec	Alpha_014	170	1.18 E+01	1.00 E-03	18.5
14	U-235	TRG	08/19/17 10:00		A_Spec	Alpha_033	170	1.27 E+01	2.00 E-03	16.8
15	U-235	TRG	08/19/17 10:00		A_Spec	Alpha_034	170	8.98 E+00	6.00 E-03	17.3
16	U-235	TRG	08/19/17 10:00		A_Spec	Alpha_035	170	1.83 E+00	1.00 E-03	15.8
17	U-235	TRG	08/19/17 10:00		A_Spec	Alpha_036	170	1.77 E+01	2.00 E-03	18.2
18	U-235	TRG	08/19/17 10:00		A_Spec	Alpha_037	170	1.08 E+01	1.00 E-03	15.9
19	U-235	TRG	08/19/17 10:00		A_Spec	Alpha_038	170	6.83 E+00	1.00 E-03	15.4
20	U-235	TRG	08/19/17 10:00		A_Spec	Alpha_039	170	2.09 E+02	4.00 E-03	18.5

Count Room Report
Client: Weston Solutions, Inc.

17-07085-UUISO-1 (pCi/g) in SO
Tracer ID: U-10a

Internal Fraction	Sample Desc	Client ID	Sample Date	Sample Aliquot	Tracer Aliquot (g)	Tracer ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	SAF 1*	SAF 2*
01	LCS	LCS	07/19/17 00:00	1.0000	0.6125	11.2210		0.00		
02	MBL	BLANK	07/19/17 00:00	1.0000	0.6122	11.2155		0.00		
03	DUP	HTC-A02-S002-2430-01	05/15/17 11:45	1.0349	0.6110	11.1935		0.00		
04	DO	HTC-A02-S002-2430-01	05/15/17 11:45	1.0341	0.6117	11.2063		0.00		
05	TRG	HTC-A02-S002-3036-01	05/15/17 11:42	1.0416	0.6121	11.2137		0.00		
06	TRG	HTC-A02-S002-3642-01	05/15/17 11:39	1.0827	0.6114	11.2008		0.00		
07	TRG	HTC-A02-S002-4248-01	05/15/17 11:36	1.0125	0.6109	11.1917		0.00		
08	MSO	HTC-A02-S003-0006-01	05/15/17 12:21	1.0832	0.6104	11.1825		0.00		
09	MS	HTC-A02-S003-0006-01	05/15/17 11:45	1.0828	0.6112	11.1972		0.00		
10	MSD	HTC-A02-S003-0006-01 MSD	05/15/17 12:21	1.0839	0.6107	11.1880		0.00		
11	TRG	HTC-A02-S003-0006-02	05/15/17 12:21	1.0664	0.6096	11.1679		0.00		
12	TRG	HTC-A02-S003-0612-01	05/15/17 12:18	1.0816	0.6105	11.1844		0.00		
13	TRG	HTC-A02-S003-1218-01	05/15/17 12:15	1.0178	0.6104	11.1825		0.00		
14	TRG	HTC-A02-S003-1824-01	05/15/17 12:12	1.0076	0.6089	11.1550		0.00		
15	TRG	HTC-A02-S003-2430-01	05/15/17 12:09	1.0104	0.6095	11.1660		0.00		
16	TRG	HTC-A02-S003-3036-01	05/15/17 12:06	1.0287	0.6105	11.1844		0.00		
17	TRG	HTC-A02-S003-3642-01	05/15/17 12:03	1.0262	0.6087	11.1514		0.00		
18	TRG	HTC-A02-S003-4248-01	05/15/17 12:00	1.0086	0.6094	11.1642		0.00		
19	TRG	HTC-A02-S004-0006-01	05/15/17 08:29	1.0166	0.6099	11.1734		0.00		
20	TRG	HTC-A02-S004-0612-01	05/15/17 08:27	1.0850	0.6204	11.3657		0.00		

#3-14

#33-39

0093

Eberline Analytical
Oak Ridge Laboratory

Spike and Tracer Worksheet

Printed: 8/8/2017 1:01 PM

Internal Work Order	Run	Analysis Code	Date	Technician	Technician Initials	Witness Initials
17-07085	1	UUISO	8/8/2017 12:59	JHARVEY	[illegible]	

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	8/8/2017	0.550	0.5111	0.5080		0.5075	7.37	0.265	7.32	0.264	0.00	0.000	7.32	0.263
U-238	U-8a	31.000	8/8/2017	0.550	0.5111	0.5080		0.5075	7.14	0.257	7.09	0.255	0.00	0.000	7.09	0.255

Tracers

fraction	Isotope	Sol #	Activity dpm/g	Solution Date	Volume Used (g)	Approx Addition
01	U-232	U-10a	18.320	8/8/2017	0.6125	0.6600
02	U-232	U-10a	18.320	8/8/2017	0.6122	0.6600
03	U-232	U-10a	18.320	8/8/2017	0.6110	0.6600
04	U-232	U-10a	18.320	8/8/2017	0.6117	0.6600
05	U-232	U-10a	18.320	8/8/2017	0.6121	0.6600
06	U-232	U-10a	18.320	8/8/2017	0.6114	0.6600
07	U-232	U-10a	18.320	8/8/2017	0.6109	0.6600
08	U-232	U-10a	18.320	8/8/2017	0.6104	0.6600
09	U-232	U-10a	18.320	8/8/2017	0.6112	0.6600
10	U-232	U-10a	18.320	8/8/2017	0.6107	0.6600
11	U-232	U-10a	18.320	8/8/2017	0.6096	0.6600
12	U-232	U-10a	18.320	8/8/2017	0.6105	0.6600
13	U-232	U-10a	18.320	8/8/2017	0.6104	0.6600
14	U-232	U-10a	18.320	8/8/2017	0.6089	0.6600
15	U-232	U-10a	18.320	8/8/2017	0.6095	0.6600
16	U-232	U-10a	18.320	8/8/2017	0.6105	0.6600
17	U-232	U-10a	18.320	8/8/2017	0.6087	0.6600
18	U-232	U-10a	18.320	8/8/2017	0.6094	0.6600
19	U-232	U-10a	18.320	8/8/2017	0.6099	0.6600
20	U-232	U-10a	18.320	8/8/2017	0.6204	0.6600

Balance Printer Tapes

Tracer

0.6125 g
0.6122 g
0.6110 g
0.6117 g
0.6121 g
0.6114 g
0.6109 g
0.6104 g
0.6112 g
0.6107 g
0.6096 g
0.6105 g
0.6104 g
0.6089 g
0.6095 g
0.6105 g
0.6087 g
0.6094 g
0.6099 g
0.6204 g

LCS

0.5111 g

Matrix Spike

0.5080 g

0.5075 g

0094

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
17-07085	1	UUISO	grams	8/10/2017	JHARVEY

Lab Fraction	Weston Solutions, Inc. Client ID	Sample Type	Muffle Data Ratio Post/Pre	Dilution Data No of Dils	Dil Factor	Ratio	Aliquot Data Aliquot	Net Equiv	MS Aliquot Data Aliquot	Net Equiv	H-3 Solids Only Water Added (ml)	H3 Dist Aliq
01	LCS	LCS				1.00E+00	1.0000E+00	1.0000E+00				
02	BLANK	MBL				1.00E+00	1.0000E+00	1.0000E+00				
03	HTC-A02-S002-2430-01	DUP				1.00E+00	1.0349E+00	1.0349E+00				
04	HTC-A02-S002-2430-01	DO				1.00E+00	1.0341E+00	1.0341E+00				
05	HTC-A02-S002-3036-01	TRG				1.00E+00	1.0416E+00	1.0416E+00				
06	HTC-A02-S002-3642-01	TRG				1.00E+00	1.0827E+00	1.0827E+00				
07	HTC-A02-S002-4248-01	TRG				1.00E+00	1.0125E+00	1.0125E+00				
08	HTC-A02-S003-0006-01	MSO				1.00E+00	1.0832E+00	1.0832E+00				
09	HTC-A02-S003-0006-01	MS				1.00E+00	1.0828E+00	1.0828E+00				
10	HTC-A02-S003-0006-01 MSD	MSD				1.00E+00	1.0839E+00	1.0839E+00				
11	HTC-A02-S003-0006-02	TRG				1.00E+00	1.0664E+00	1.0664E+00				
12	HTC-A02-S003-0612-01	TRG				1.00E+00	1.0816E+00	1.0816E+00				
13	HTC-A02-S003-1218-01	TRG				1.00E+00	1.0178E+00	1.0178E+00				
14	HTC-A02-S003-1824-01	TRG				1.00E+00	1.0076E+00	1.0076E+00				
15	HTC-A02-S003-2430-01	TRG				1.00E+00	1.0104E+00	1.0104E+00				
16	HTC-A02-S003-3036-01	TRG				1.00E+00	1.0287E+00	1.0287E+00				
17	HTC-A02-S003-3642-01	TRG				1.00E+00	1.0262E+00	1.0262E+00				
18	HTC-A02-S003-4248-01	TRG				1.00E+00	1.0086E+00	1.0086E+00				
19	HTC-A02-S004-0006-01	TRG				1.00E+00	1.0166E+00	1.0166E+00				
20	HTC-A02-S004-0612-01	TRG				1.00E+00	1.0850E+00	1.0850E+00				

Comments	

0095

Technician: JHarvey Date: 8/8/17

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
17-07085	8/10/2017	7/30/2017	7/31/2017	8/1/2017	KSALLINGS

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

Eberline Fraction	Weston Solutions, Inc. Client ID	Tare (g) Pan Wt	Gross (g) Wet Wt.	Gross (g) Dry Wt.	Net (g) Wet Wt.	Net (g) Dry Wt.	Percent Liquid	Percent Solid	Gamma Dry Wt.	Gamma LEPS Wt.	Special Info
04	HTC-A02-S002-2430-01	14.5800	950.0000	791.2200	935.4200	776.6400	16.97%	83.03%	0.0000	0.0000	
05	HTC-A02-S002-3036-01	14.6400	1084.7600	895.5000	1070.1200	880.8600	17.69%	82.31%	0.0000	0.0000	
06	HTC-A02-S002-3642-01	14.7500	1099.6400	940.2400	1084.8900	925.4900	14.69%	85.31%	0.0000	0.0000	
07	HTC-A02-S002-4248-01	14.7700	1008.6200	844.6600	993.8500	829.8900	16.50%	83.50%	0.0000	0.0000	
08	HTC-A02-S003-0006-01	14.5200	890.0800	841.1200	875.5600	826.6000	5.59%	94.41%	0.0000	0.0000	
09	HTC-A02-S003-0006-01 MS	14.7000	855.2800	798.0200	840.5800	783.3200	6.81%	93.19%	0.0000	0.0000	
10	HTC-A02-S003-0006-01 MSD	14.7000	855.2800	798.0200	840.5800	783.3200	6.81%	93.19%	0.0000	0.0000	
11	HTC-A02-S003-0006-02	14.6200	876.7800	823.3800	862.1600	808.7600	6.19%	93.81%	0.0000	0.0000	
12	HTC-A02-S003-0612-01	14.6000	866.2400	735.5100	851.6400	720.9100	15.35%	84.65%	0.0000	0.0000	
13	HTC-A02-S003-1218-01	14.6500	835.8800	699.4500	821.2300	684.8000	16.61%	83.39%	0.0000	0.0000	
14	HTC-A02-S003-1824-01	14.5800	719.4100	607.0900	704.8300	592.5100	15.94%	84.06%	0.0000	0.0000	
15	HTC-A02-S003-2430-01	14.6500	957.5800	795.4000	942.9300	780.7500	17.20%	82.80%	0.0000	0.0000	
16	HTC-A02-S003-3036-01	14.6400	831.2400	696.6200	816.6000	681.9800	16.49%	83.51%	0.0000	0.0000	
17	HTC-A02-S003-3642-01	14.6300	799.2600	656.0800	784.6300	641.4500	18.25%	81.75%	0.0000	0.0000	
18	HTC-A02-S003-4248-01	14.5900	749.6100	618.7200	735.0200	604.1300	17.81%	82.19%	0.0000	0.0000	
19	HTC-A02-S004-0006-01	14.5400	865.1000	569.0200	850.5600	554.4800	34.81%	65.19%	0.0000	0.0000	
20	HTC-A02-S004-0612-01	14.5300	1064.2200	983.1400	1049.6900	968.6100	7.72%	92.28%	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)**

9600

Technician: Kerry Sallings

Date: **Analysis: Rough Prep Logbook**

KB 8/19/17

Apex-Alpha™

Sample Description: SPIKE
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001919
Batch Identification: 1707085A-UU
Sample Identification: 01
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 8/18/2017 6:23:31 AM
Acquisition Date/Time: 8/18/2017 2:02:32 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.613 mL
Effective Efficiency: 0.2256 +/- 0.0121
Counting Efficiency: 0.1813 +/- 0.0031 on 11/18/2016 10:08:48 AM
Chem. Recovery Factor: 1.2439 +/- 0.0700

Control Certificate Name: NatU_U-8A
Chem. Recov. of Control: U-238 0.799417 +/- 0.059823
Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.273	426.98	9.50	1.02	0.00E+000	15.1
U-234		4.729	477.66	8.97	0.34	0.00E+000	7.5
U-235		4.397	30.66	35.63	0.34	0.00E+000	3.7
U-238		4.147	550.00	8.37	0.00	0.00E+000	61.2

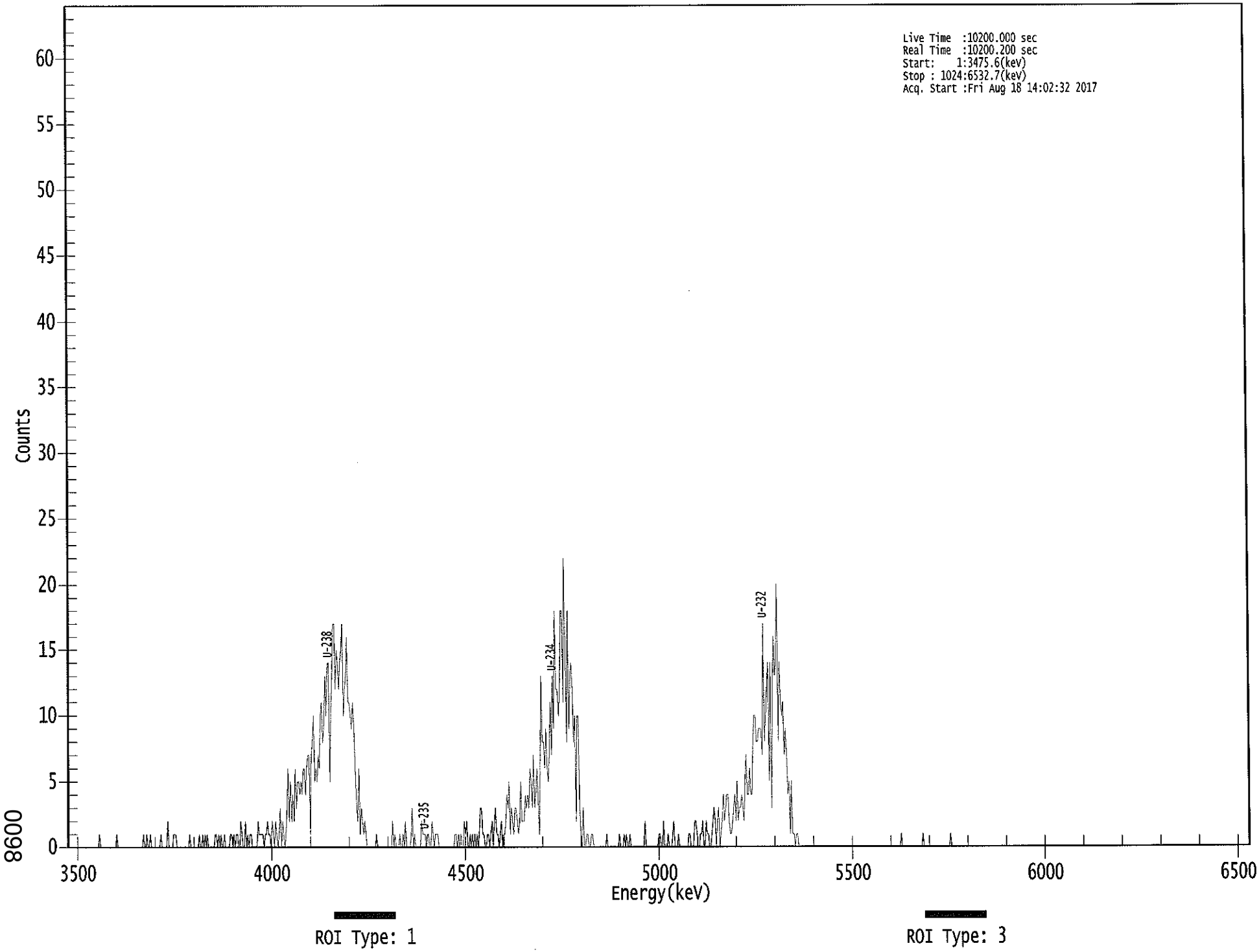
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.994	5302.50*	5.03E+000 +/- 5.29E-001	7.42E-002 +/- 7.80E-003
U-234	0.992	4761.50*	5.62E+000 +/- 7.77E-001	5.63E-002 +/- 5.92E-003
U-235	0.999	4385.50*	4.45E-001 +/- 1.65E-001	6.94E-002 +/- 7.30E-003
U-238	0.990	4184.40*	6.45E+000 +/- 8.66E-001	7.03E-002 +/- 7.39E-003

AG 8/21/17

0000191941.CNF



8600

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

369:	2	3	1	1	0	1	2	0

Sample Title: 01

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

801:	0	0	0	0	0	0	0	0

Sample Title: 01

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

Apex-Alpha™

LB 8/29/17

Sample Description: BLANK
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001919
Batch Identification: 1707085A-UU
Sample Identification: 02
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 8/18/2017 6:23:31 AM
Acquisition Date/Time: 8/18/2017 2:02:34 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.612 mL
Effective Efficiency: 0.1820 +/- 0.0107
Counting Efficiency: 0.1874 +/- 0.0032 on 11/18/2016 10:08:43 AM
Chem. Recovery Factor: 0.9708 +/- 0.0593

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.279	344.30	10.59	1.70	0.00E+000	13.5
U-234		4.684	1.98	176.34	1.02	0.00E+000	3.0
U-235		4.429	2.32	149.12	0.68	0.00E+000	3.0
U-238		4.108	1.66	169.38	0.34	0.00E+000	3.0

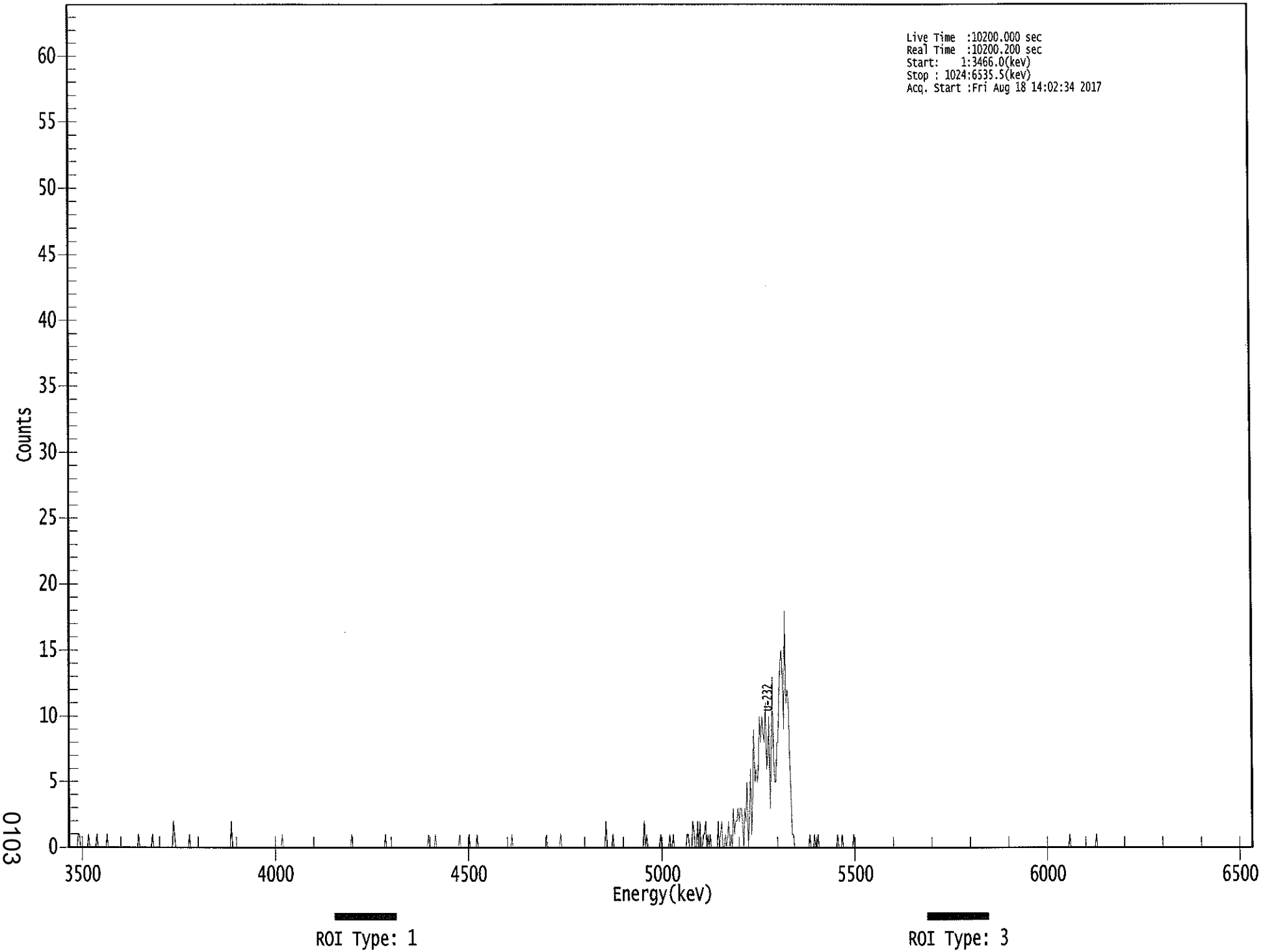
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.996	5302.50*	5.02E+000 +/- 5.78E-001	1.07E-001 +/- 1.23E-002
U-234	0.958	4761.50*	2.89E-002 +/- 5.11E-002	9.19E-002 +/- 1.06E-002
U-235	0.987	4385.50*	4.18E-002 +/- 6.25E-002	1.02E-001 +/- 1.17E-002
U-238	0.959	4184.40*	2.41E-002 +/- 4.09E-002	6.95E-002 +/- 8.00E-003

AG 8/21/17

0000191944.CNF



0103

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

Sample Title: 02

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel								
1:	0	0	0	0	0	0	0	0
9:	1	1	0	0	0	0	0	0
17:	0	1	0	0	0	0	0	0
25:	1	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	1	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	2	1	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	1	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	2	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:	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	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	1	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	1	0
313:	0	0	0	0	1	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	1	0	0	0	0	0	0
345:	0	1	0	0	0	0	0	0
353:	1	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	1	0
385:	0	0	0	0	0	0	0	0
393:	0	0	0	0	0	0	0	0
401:	0	0	0	0	0	0	0	0
409:	0	0	0	0	1	0	0	0
417:	0	0	0	0	0	0	0	0
425:	1	0	0	0	0	0	0	0
433:	0	0	0	0	0	0	0	0
441:	0	0	0	0	0	0	0	0
449:	0	0	0	0	0	0	0	0
457:	0	0	0	0	0	0	0	2
465:	0	0	0	0	0	1	0	0
473:	0	0	0	0	0	0	0	0
481:	0	0	0	0	0	0	0	0
489:	0	0	0	0	0	0	0	0
497:	2	0	1	0	0	0	0	0
505:	0	0	0	0	0	0	1	0
513:	0	0	0	0	0	0	1	0
521:	0	1	0	0	0	0	0	0
529:	0	0	0	0	0	1	1	0
537:	0	0	2	1	0	0	2	0
545:	2	0	0	1	1	2	0	1
553:	0	1	0	0	0	0	0	0
561:	2	0	1	2	0	0	1	0
569:	1	2	0	1	0	3	1	2
577:	2	3	2	3	3	2	0	3
585:	2	5	0	2	6	1	4	9
593:	5	6	5	6	10	8	10	9
601:	8	11	6	7	10	3	7	13
609:	7	5	5	8	8	12	14	15
617:	13	9	18	11	12	11	7	4
625:	1	1	0	0	0	0	0	0
633:	0	0	0	0	0	0	0	1
641:	0	0	0	1	0	0	1	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	1
665:	0	0	0	1	0	0	0	0
673:	0	0	0	0	0	1	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801:	0	0	0	0	0	0	0	0

Sample Title: 02

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

Apex-Alpha™

ICP 8/29/17

Sample Description: HTC-A02-S002-2430-01-DUP
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001919
Batch Identification: 1707085A-UU
Sample Identification: 03
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.035E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:23:31 AM
Acquisition Date/Time: 8/18/2017 2:02:36 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: 0.1948 +/- 0.0111
Counting Efficiency: 0.1793 +/- 0.0030 on 11/18/2016 10:08:42 AM
Chem. Recovery Factor: 1.0866 +/- 0.0646

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.268	367.83	10.22	0.17	0.00E+000	7.9
U-234		4.720	56.00	26.42	0.00	0.00E+000	3.5
U-235		4.417	7.00	79.20	0.00	0.00E+000	3.0
U-238		4.148	52.83	27.02	0.17	0.00E+000	3.4

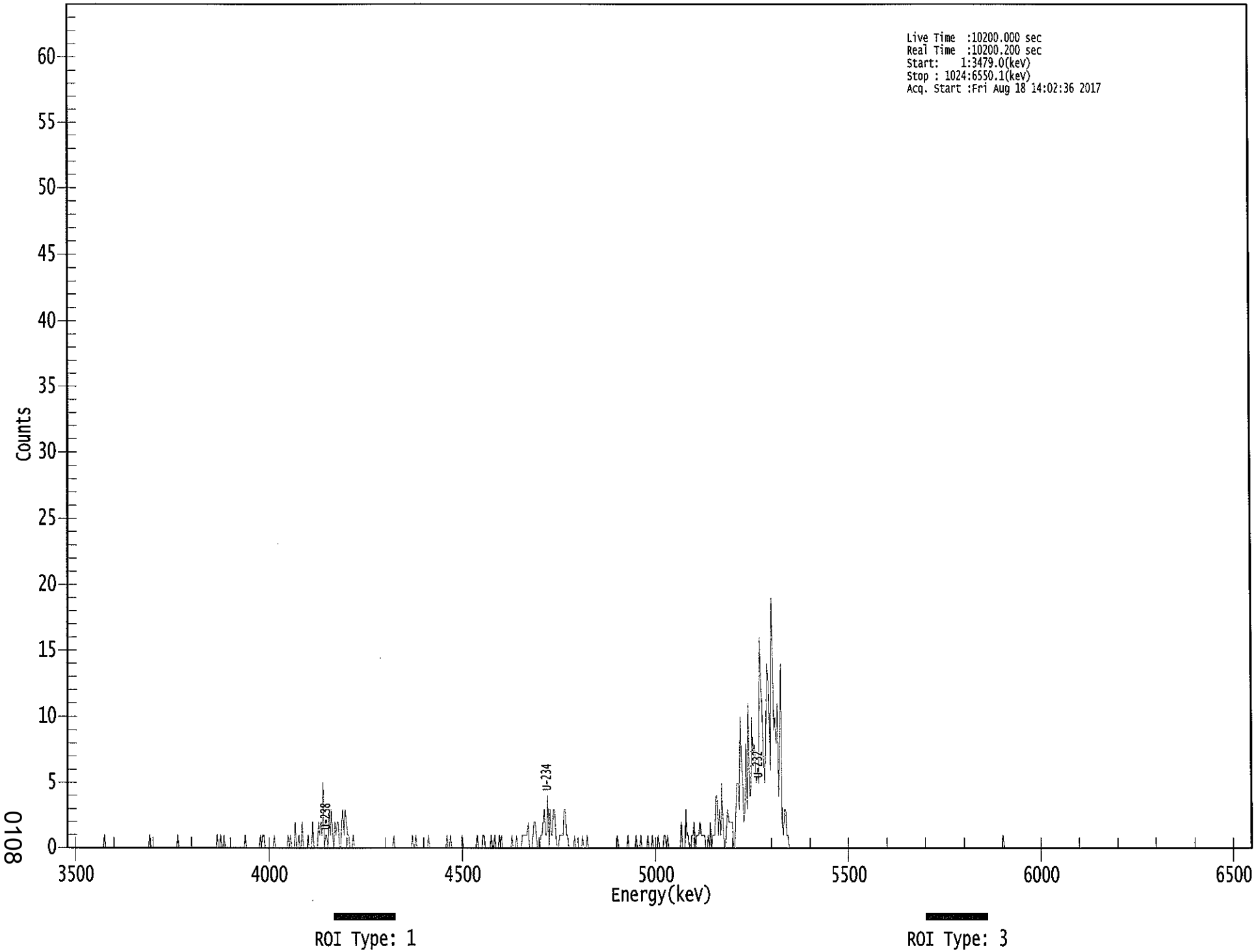
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.991	5302.50*	4.86E+000 +/- 5.43E-001	5.51E-002 +/- 6.16E-003
U-234	0.988	4761.50*	7.38E-001 +/- 2.12E-001	7.90E-002 +/- 8.82E-003
U-235	0.993	4385.50*	1.14E-001 +/- 9.10E-002	9.74E-002 +/- 1.09E-002
U-238	0.991	4184.40*	6.93E-001 +/- 2.03E-001	5.47E-002 +/- 6.12E-003

AG 8/21/17

0000191943.CNF



0108

****
***** 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:	1	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	1
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	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	0	0	0	0	0
129:	0	1	0	0	1	0	0	1
137:	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	0	0	0
153:	0	1	0	0	0	0	0	0
161:	0	0	0	0	0	0	1	0
169:	1	1	0	0	0	0	0	0
177:	0	0	1	0	0	0	0	0
185:	0	0	0	0	0	0	1	0
193:	1	0	0	0	2	0	0	1
201:	0	0	2	0	0	0	0	1
209:	0	0	0	2	0	0	0	0
217:	2	1	2	1	5	0	1	1
225:	0	3	1	3	1	0	2	1
233:	2	2	0	0	2	3	1	3
241:	2	1	1	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	1	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	1	0	0	1	0	0	0
305:	0	0	0	0	0	0	0	1
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	1
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	1	1
361:	0	0	0	0	0	1	0	0

369:	1	0	0	0	1	0	1	0

Sample Title: 03

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

Sample Title: 03

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

KP 8/19/17

Apex-Alpha™

Sample Description: HTC-A02-S002-2430-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001919
Batch Identification: 1707085A-UU
Sample Identification: 04
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.034E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:23:31 AM
Acquisition Date/Time: 8/18/2017 2:02:37 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.612 mL
Effective Efficiency: 0.1990 +/- 0.0112
Counting Efficiency: 0.1688 +/- 0.0029 on 11/18/2016 10:08:40 AM
Chem. Recovery Factor: 1.1788 +/- 0.0696

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.263	376.15	10.12	0.85	0.00E+000	34.3
U-234		4.718	60.98	25.34	1.02	0.00E+000	7.0
U-235		4.403	9.83	63.14	0.17	0.00E+000	3.0
U-238		4.156	58.49	25.76	0.51	0.00E+000	8.2

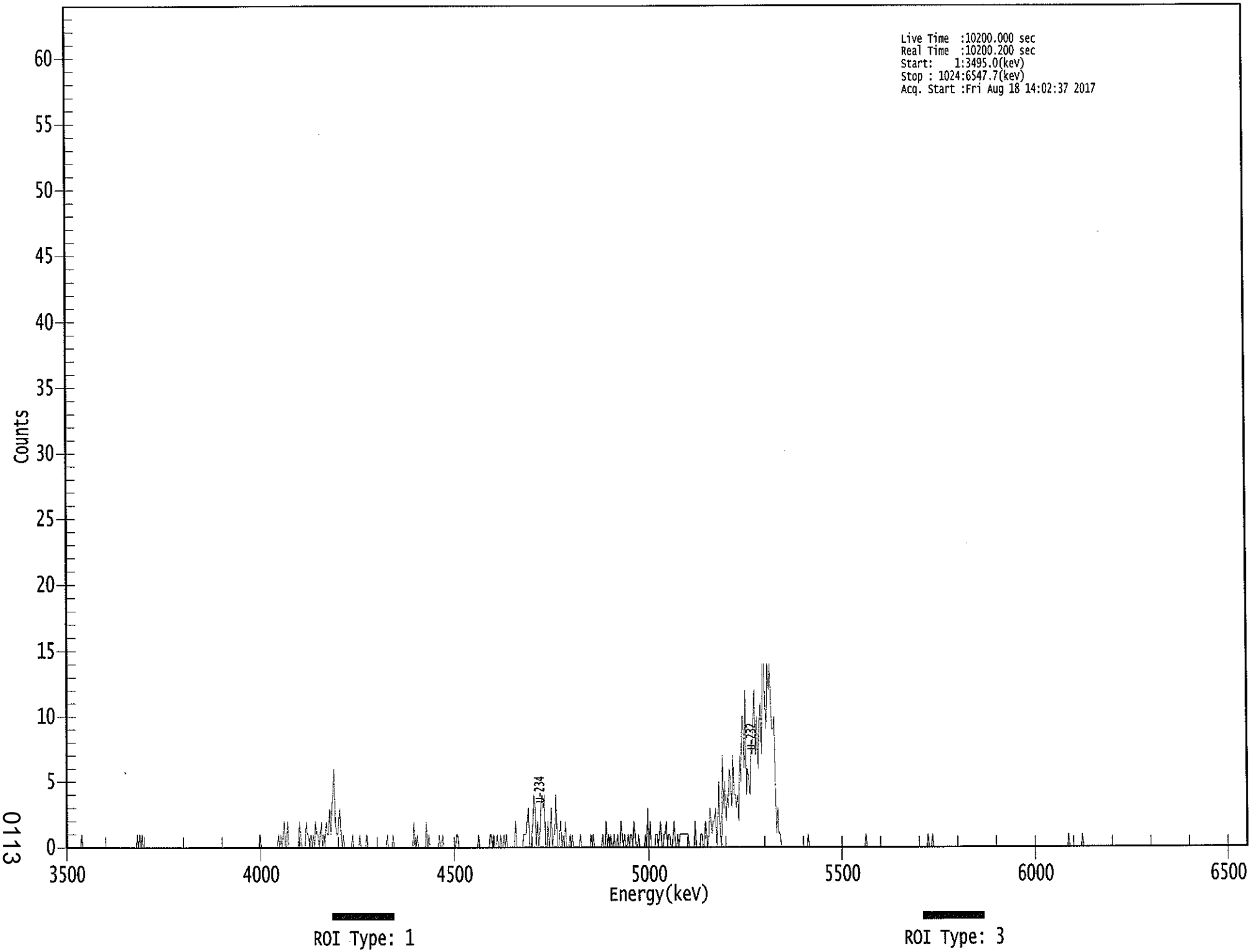
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.989	5302.50*	4.87E+000 +/- 5.39E-001	7.75E-002 +/- 8.58E-003
U-234	0.987	4761.50*	7.87E-001 +/- 2.18E-001	8.13E-002 +/- 9.01E-003
U-235	0.998	4385.50*	1.56E-001 +/- 1.00E-001	6.64E-002 +/- 7.36E-003
U-238	0.994	4184.40*	7.52E-001 +/- 2.11E-001	6.74E-002 +/- 7.47E-003

AG 8/21/17

0000191939.CNF



0113

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

Sample Title: 04

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	1	0	0	1	0	0	1

Sample Title: 04

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

801:	0	0	0	0	0	0	0	0

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

ICB 8/19/17

Sample Description: HTC-A02-S002-3036-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001919
Batch Identification: 1707085A-UU
Sample Identification: 05
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.042E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:23:31 AM
Acquisition Date/Time: 8/18/2017 2:02:39 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.612 mL
Effective Efficiency: 0.1787 +/- 0.0106
Counting Efficiency: 0.1713 +/- 0.0029 on 11/18/2016 10:08:38 AM
Chem. Recovery Factor: 1.0427 +/- 0.0642

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.274	337.98	10.68	1.02	0.00E+000	5.3
U-234		4.723	49.81	28.16	1.19	0.00E+000	10.5
U-235		4.376	12.66	55.94	0.34	0.00E+000	3.0
U-238		4.139	58.49	25.76	0.51	0.00E+000	3.3

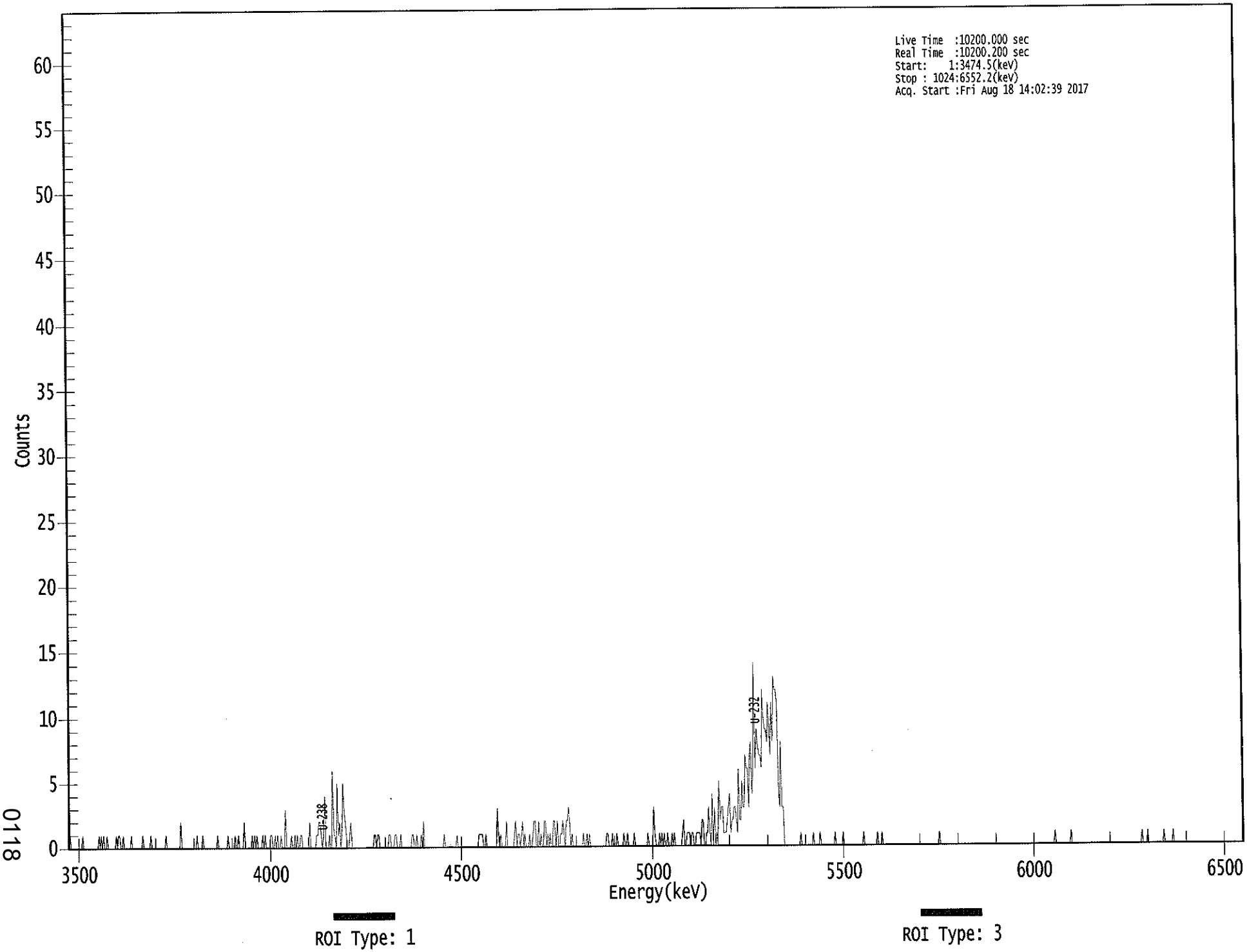
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.994	5302.50*	4.83E+000 +/- 5.61E-001	9.01E-002 +/- 1.04E-002
U-234	0.989	4761.50*	7.11E-001 +/- 2.16E-001	9.40E-002 +/- 1.09E-002
U-235	0.999	4385.50*	2.23E-001 +/- 1.27E-001	8.41E-002 +/- 9.76E-003
U-238	0.985	4184.40*	8.31E-001 +/- 2.35E-001	7.45E-002 +/- 8.64E-003

AG 8/21/17

0000191940.CNF



0118

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

369:	0	0	0	0	3	1	0	1

Sample Title: 05

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

801:	0	0	0	0	0	0	0	0

Sample Title: 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	1	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	1	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	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	1	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	1	0	0	0	0	0	0
961:	0	1	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

KB 8/21/17

Apex-Alpha™

Sample Description: HTC-A02-S002-3642-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001919
Batch Identification: 1707085A-UU
Sample Identification: 06
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.083E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:23:31 AM
Acquisition Date/Time: 8/18/2017 2:02:41 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: 0.1979 +/- 0.0112
Counting Efficiency: 0.1623 +/- 0.0028 on 11/18/2016 10:08:37 AM
Chem. Recovery Factor: 1.2197 +/- 0.0722

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.267	374.00	10.15	0.00	0.00E+000	12.1
U-234		4.721	57.83	25.82	0.17	0.00E+000	5.9
U-235		4.440	3.66	107.87	0.34	0.00E+000	3.0
U-238		4.135	57.66	25.90	0.34	0.00E+000	4.3

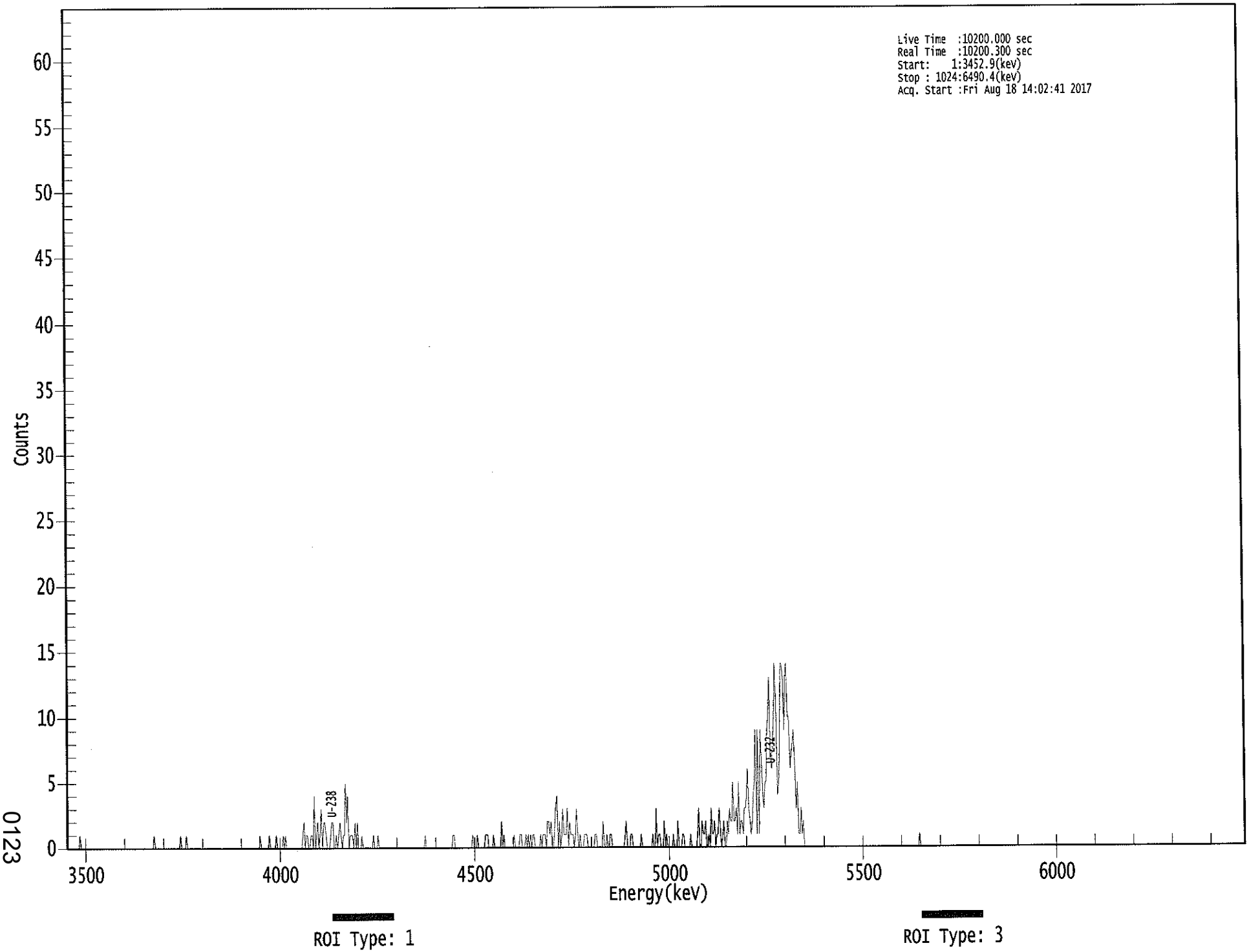
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.991	5302.50*	4.65E+000 +/- 5.16E-001	7.45E-002 +/- 8.27E-003
U-234	0.989	4761.50*	7.16E-001 +/- 2.01E-001	5.17E-002 +/- 5.74E-003
U-235	0.979	4385.50*	5.59E-002 +/- 6.07E-002	7.31E-002 +/- 8.12E-003
U-238	0.983	4184.40*	7.11E-001 +/- 2.00E-001	5.90E-002 +/- 6.55E-003

AG
8/21/17

0000191945.CNF



0123

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

Sample Title: 06

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	1	0	0	0	0	0	0

Sample Title: 06

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

801:	0	0	0	0	0	0	0	0

Sample Title: 06

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

ICB 8/29/17

Apex-Alpha™

Sample Description: HTC-A02-S002-4248-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001919
Batch Identification: 1707085A-UU
Sample Identification: 07
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.013E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:23:31 AM
Acquisition Date/Time: 8/18/2017 2:02:42 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: 0.2014 +/- 0.0113
Counting Efficiency: 0.1633 +/- 0.0028 on 11/18/2016 10:08:35 AM
Chem. Recovery Factor: 1.2332 +/- 0.0725

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.286	380.32	10.06	0.68	0.00E+000	35.6
U-234		4.737	99.32	19.75	0.68	0.00E+000	3.8
U-235		4.379	6.49	80.40	0.51	0.00E+000	3.0
U-238		4.168	95.83	20.04	0.17	0.00E+000	19.3

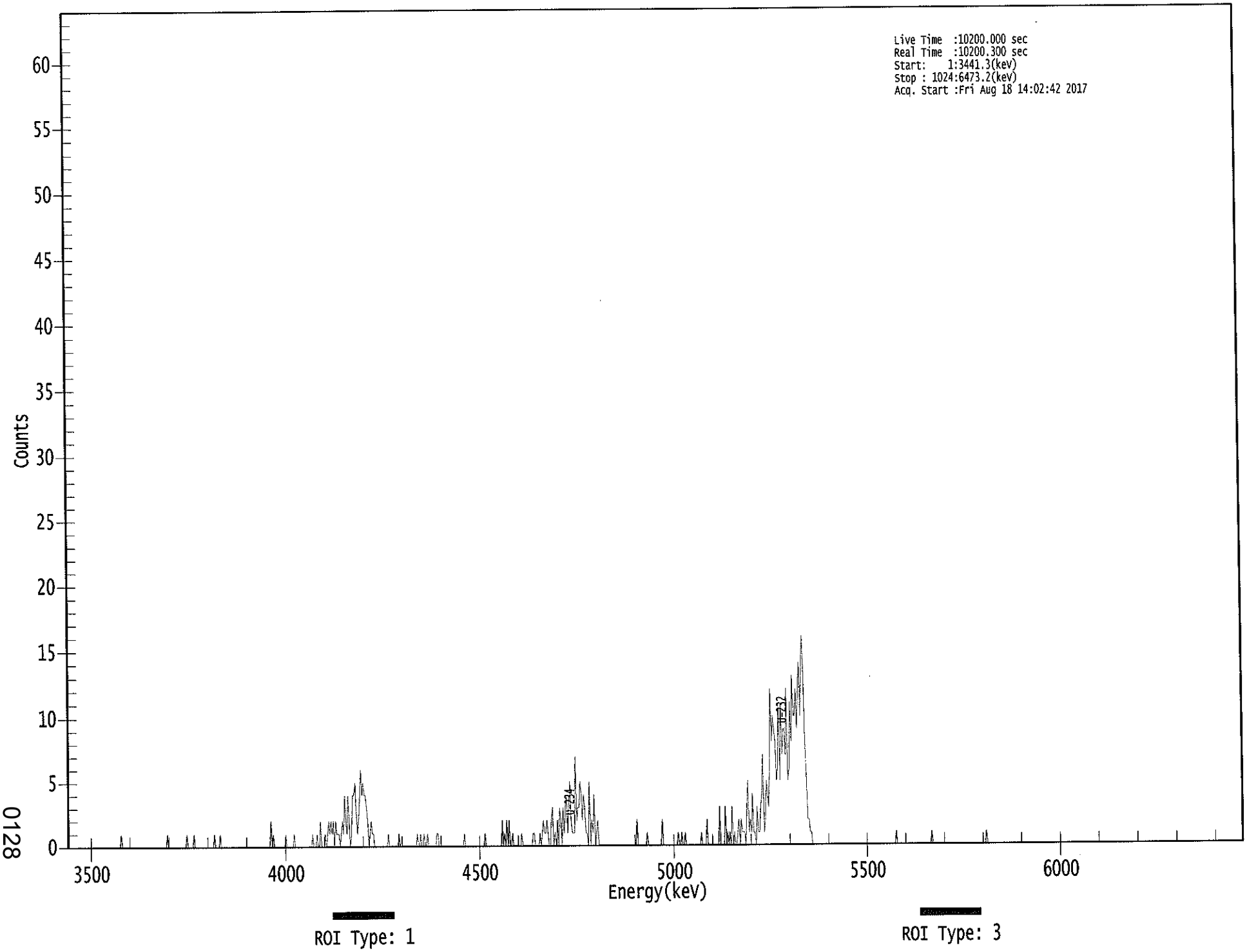
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.998	5302.50*	4.96E+000 +/- 5.47E-001	7.36E-002 +/- 8.12E-003
U-234	0.996	4761.50*	1.29E+000 +/- 2.92E-001	7.34E-002 +/- 8.10E-003
U-235	1.000	4385.50*	1.04E-001 +/- 8.46E-002	8.43E-002 +/- 9.29E-003
U-238	0.998	4184.40*	1.24E+000 +/- 2.84E-001	5.41E-002 +/- 5.96E-003

AG 8/21/17

0000191942.CNF



0128

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

Sample Title: 07

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	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	1	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	1
105:	0	0	0	0	0	1	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	1
129:	0	0	0	0	1	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:	2	0	1	0	0	0	0	0
185:	0	0	0	0	0	1	0	0
193:	0	0	0	0	1	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	1	0	0	0
217:	1	0	0	2	0	0	0	1
225:	0	1	2	1	2	1	2	0
233:	2	1	1	1	0	1	2	1
241:	4	2	1	4	2	0	1	4
249:	4	5	3	1	2	4	6	4
257:	5	4	4	3	2	0	1	2
265:	1	1	0	0	0	0	0	0
273:	0	0	0	0	0	0	1	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	1
305:	0	0	1	0	0	1	0	0
313:	1	0	0	0	0	0	0	0
321:	1	1	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0
345:	1	0	0	0	0	0	0	0
353:	0	0	0	0	0	0	0	0
361:	0	0	1	0	0	0	0	0

369:	0	0	0	0	0	0	0	0

Sample Title: 07

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

801:	0	0	0	0	0	0	0	0

Sample Title: 07

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

Apex-Alpha™

KB 8/19/17

Sample Description: HTC-A02-S003-0006-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification: 1707085A-UU
Sample Identification: 08
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_003
Chamber Serial Number:
Detector Serial Number: 3
Env. Background: System Bkgd 194200
Reagent Blank: <not performed>

Sample Size: 1.083E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:23:31 AM
Acquisition Date/Time: 8/19/2017 9:59:48 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.610 mL
Effective Efficiency: 0.2196 +/- 0.0119
Counting Efficiency: 0.1562 +/- 0.0027 on 11/19/2016 1:08:16 PM
Chem. Recovery Factor: 1.4057 +/- 0.0802

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.268	414.32	9.64	0.68	0.00E+000	15.2
U-234		4.725	1285.62	5.47	2.38	0.00E+000	22.7
U-235		4.408	123.66	17.65	0.34	0.00E+000	4.2
U-238		4.142	1363.32	5.31	0.68	0.00E+000	69.1

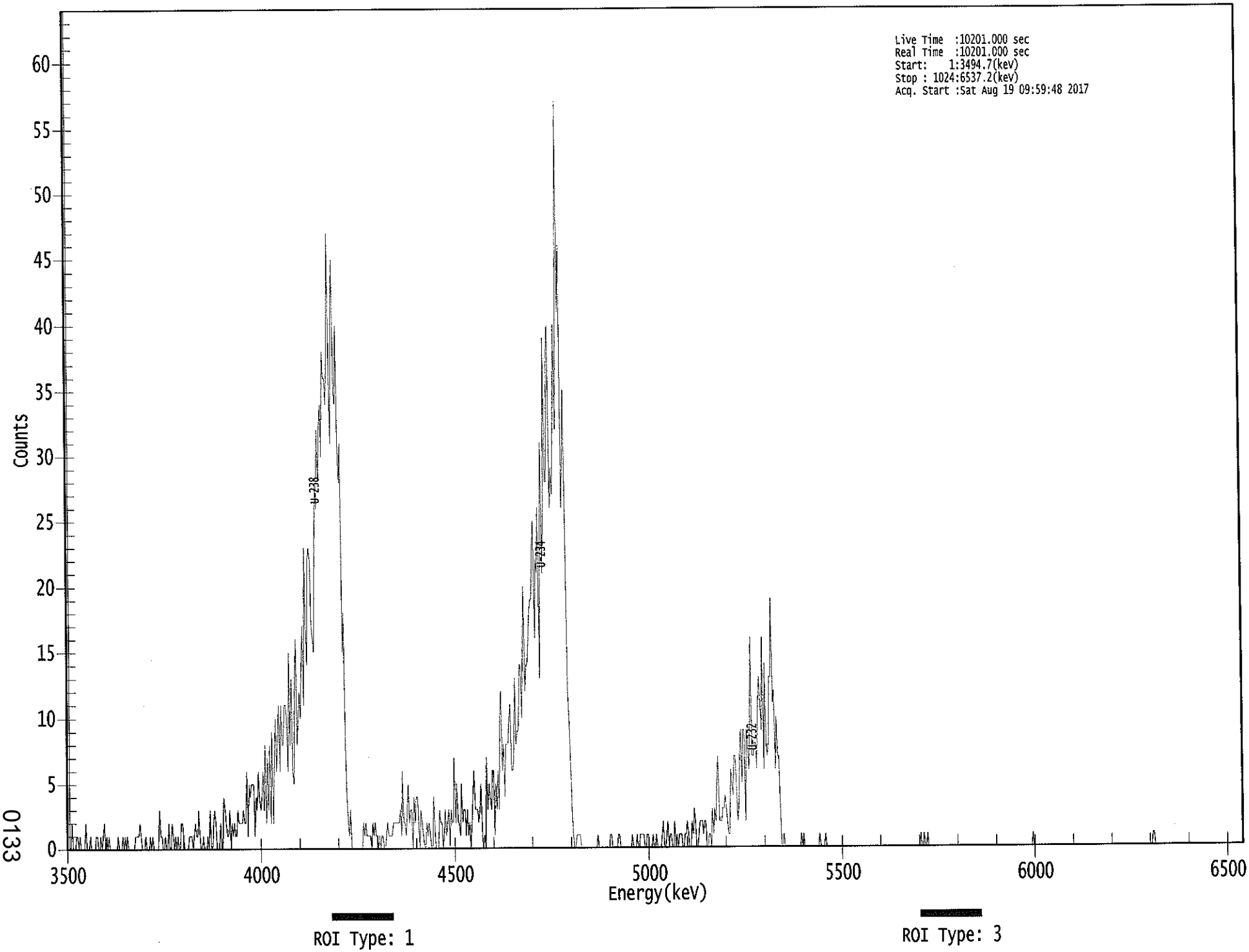
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.991	5302.50*	4.64E+000 +/- 4.93E-001	6.31E-002 +/- 6.72E-003
U-234	0.990	4761.50*	1.43E+001 +/- 1.72E+000	9.15E-002 +/- 9.73E-003
U-235	0.996	4385.50*	1.70E+000 +/- 3.51E-001	6.58E-002 +/- 7.01E-003
U-238	0.987	4184.40*	1.51E+001 +/- 1.80E+000	6.27E-002 +/- 6.67E-003

AG 8/21/17

0000192011.CNF



0133

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

Sample Title: 08

Elapsed Live time: 10201
Elapsed Real Time: 10201

Channel								
1:	10201	10201	0	0	2	0	0	0
9:	1	1	0	1	0	0	0	0
17:	2	0	0	0	1	0	0	0
25:	0	1	1	0	0	1	0	1
33:	2	0	1	0	1	0	0	0
41:	0	0	0	0	1	0	0	0
49:	1	0	1	0	1	0	0	0
57:	0	0	0	1	1	1	1	2
65:	1	0	0	0	1	0	0	0
73:	1	0	1	0	0	0	0	0
81:	3	1	1	0	0	1	0	0
89:	2	0	0	2	1	0	1	0
97:	1	0	0	2	2	1	0	0
105:	0	0	1	1	1	0	1	2
113:	1	1	3	1	0	0	1	0
121:	0	0	1	0	3	0	0	2
129:	3	2	0	0	0	2	0	0
137:	4	3	2	1	1	3	0	2
145:	1	2	1	1	3	2	2	2
153:	2	3	2	2	6	1	5	4
161:	5	5	5	1	4	3	6	4
169:	3	4	6	3	8	2	7	3
177:	8	2	9	2	6	10	6	9
185:	11	6	11	8	8	11	11	10
193:	6	15	8	13	6	5	13	16
201:	8	10	12	10	14	17	11	23
209:	17	14	22	23	22	17	16	15
217:	22	28	26	32	28	32	34	30
225:	38	36	36	34	38	47	36	31
233:	41	45	35	34	40	31	28	31
241:	15	18	8	4	2	1	3	0
249:	0	0	0	0	0	0	0	0
257:	0	2	1	2	1	1	1	1
265:	0	2	1	2	1	1	0	1
273:	0	1	1	0	0	1	2	1
281:	1	1	1	2	2	2	2	2
289:	2	3	1	6	2	2	1	3
297:	5	2	3	3	0	4	2	4
305:	4	2	0	3	2	1	0	0
313:	2	1	2	1	0	0	4	1
321:	0	0	0	3	2	2	0	1
329:	3	1	2	3	0	3	2	2
337:	7	2	5	2	2	1	5	2
345:	3	3	1	3	1	2	0	2
353:	4	6	3	3	3	2	3	5
361:	1	0	1	0	7	3	5	4

369:	3	6	6	1	5	3	6	3

Sample Title: 08

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

801:	0	0	0	0	0	0	0	0

Sample Title: 08

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	1
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	1	1	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 8/29/17

Apex-Alpha™

Sample Description: HTC-A02-S003-0006-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification: 1707085A-UU
Sample Identification: 09
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_004
Chamber Serial Number:
Detector Serial Number: 4
Env. Background: System Bkgd 194201
Reagent Blank: <not performed>

Sample Size: 1.083E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:23:31 AM
Acquisition Date/Time: 8/19/2017 9:59:49 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.611 mL
Effective Efficiency: 0.2021 +/- 0.0113
Counting Efficiency: 0.1883 +/- 0.0032 on 11/19/2016 1:08:17 PM
Chem. Recovery Factor: 1.0733 +/- 0.0630

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.272	381.83	10.03	0.17	0.00E+000	32.7
U-234		4.723	1714.47	4.74	1.53	0.00E+000	30.8
U-235		4.401	127.49	17.40	0.51	0.00E+000	4.3
U-238		4.144	1769.47	4.66	1.53	0.00E+000	77.9

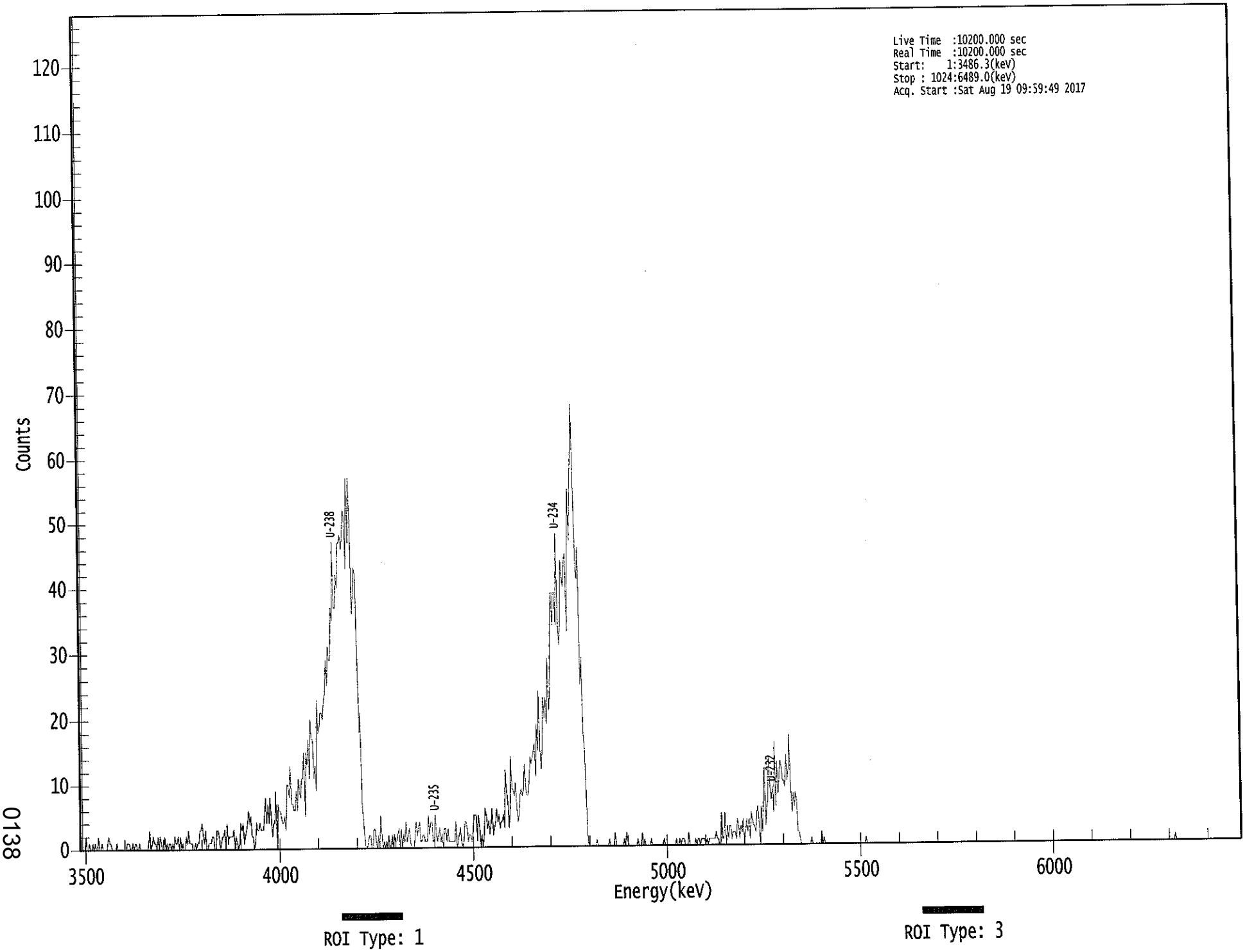
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.994	5302.50*	4.64E+000 +/- 5.11E-001	5.08E-002 +/- 5.58E-003
U-234	0.989	4761.50*	2.08E+001 +/- 2.49E+000	8.62E-002 +/- 9.48E-003
U-235	0.998	4385.50*	1.91E+000 +/- 3.93E-001	7.85E-002 +/- 8.64E-003
U-238	0.988	4184.40*	2.14E+001 +/- 2.55E+000	8.58E-002 +/- 9.44E-003

AG 8/21/17

0000192010.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:	10200	10200	0	0	0	2	0	0
9:	1	0	0	1	0	1	0	0
17:	2	0	0	1	0	0	0	0
25:	1	2	1	1	0	0	0	0
33:	1	0	0	0	0	0	0	0
41:	0	1	1	1	0	0	1	0
49:	1	1	0	0	1	0	0	0
57:	0	0	0	0	1	3	0	1
65:	2	1	1	0	2	0	2	1
73:	0	0	2	0	1	0	1	1
81:	0	1	0	2	1	1	2	0
89:	2	0	1	0	0	2	1	3
97:	1	1	1	0	0	1	0	1
105:	1	3	3	4	2	1	3	0
113:	0	1	1	1	2	2	0	0
121:	3	3	2	0	1	2	2	3
129:	0	4	1	2	2	2	2	3
137:	0	2	1	0	1	4	3	4
145:	1	2	3	4	6	4	5	2
153:	2	0	1	4	3	3	4	3
161:	3	3	5	8	4	7	4	8
169:	5	2	4	4	9	0	7	6
177:	6	5	4	4	5	3	10	10
185:	8	13	7	7	6	6	9	6
193:	11	9	8	11	11	15	5	15
201:	13	17	11	20	17	17	11	13
209:	9	23	18	19	21	21	20	23
217:	24	29	25	31	29	29	37	35
225:	47	37	37	42	40	47	47	48
233:	46	48	52	51	43	57	47	57
241:	50	36	39	43	42	30	18	21
249:	6	5	2	0	0	1	2	2
257:	0	0	3	3	1	0	2	0
265:	5	2	0	1	0	1	0	2
273:	0	0	2	0	2	1	1	2
281:	3	0	3	0	2	1	4	1
289:	2	3	1	0	0	0	2	4
297:	2	3	4	1	1	2	2	1
305:	1	1	5	2	4	4	1	1
313:	5	2	1	2	3	1	2	0
321:	3	3	1	3	1	1	1	1
329:	1	1	4	0	1	2	3	1
337:	0	1	4	4	3	1	2	2
345:	1	2	5	5	5	1	5	3
353:	0	2	0	2	6	5	3	4
361:	2	4	6	2	3	4	6	4

369:	5	3	4	4	5	3	12	9

Sample Title: 09

Channel								
377:	7	3	6	14	9	9	8	10
385:	6	4	5	8	9	8	9	13
393:	9	8	8	10	14	13	14	15
401:	16	11	19	15	24	14	12	16
409:	23	20	23	19	29	21	23	34
417:	39	34	39	39	34	48	34	31
425:	35	44	41	40	44	45	33	45
433:	55	47	56	60	68	56	43	41
441:	46	25	29	18	15	8	1	0
449:	0	0	0	0	0	0	1	0
457:	0	0	0	0	0	0	0	0
465:	0	1	0	0	0	0	2	0
473:	0	0	0	0	0	0	1	0
481:	2	1	0	0	0	0	0	0
489:	0	0	1	0	0	0	2	0
497:	1	0	0	0	0	0	1	0
505:	0	0	0	0	0	0	0	0
513:	0	1	0	0	0	0	0	0
521:	0	0	0	0	1	0	0	1
529:	0	1	1	1	0	0	0	2
537:	0	0	0	0	0	1	0	1
545:	1	0	1	1	1	1	0	1
553:	0	1	1	1	1	1	1	2
561:	1	1	0	0	5	1	1	5
569:	0	3	1	3	3	1	2	2
577:	2	1	4	3	1	3	2	4
585:	0	2	4	2	4	1	5	4
593:	3	3	2	5	6	3	0	6
601:	2	7	12	3	6	7	14	9
609:	7	9	5	16	6	13	8	11
617:	13	12	10	10	9	14	10	12
625:	17	10	5	8	6	8	7	2
633:	2	1	0	0	0	0	0	0
641:	0	0	0	1	0	0	0	0
649:	0	0	0	0	2	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	1	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	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: 09

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

KB 8/29/17

Apex-Alpha™

Sample Description: HTC-A02-S003-0006-01 MSD
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification: 1707085A-UU
Sample Identification: 10
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_010
Chamber Serial Number:
Detector Serial Number: 10
Env. Background: System Bkgd 194202
Reagent Blank: <not performed>

Sample Size: 1.084E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:23:31 AM
Acquisition Date/Time: 8/19/2017 9:59:50 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.611 mL
Effective Efficiency: 0.2124 +/- 0.0117
Counting Efficiency: 0.1872 +/- 0.0032 on 11/19/2016 1:08:16 PM
Chem. Recovery Factor: 1.1348 +/- 0.0655

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.268	400.96	9.82	2.04	0.00E+000	14.0
U-234		4.718	1609.92	4.89	4.08	0.00E+000	70.5
U-235		4.397	161.79	15.53	2.21	0.00E+000	7.1
U-238		4.137	1707.96	4.75	2.04	0.00E+000	69.7

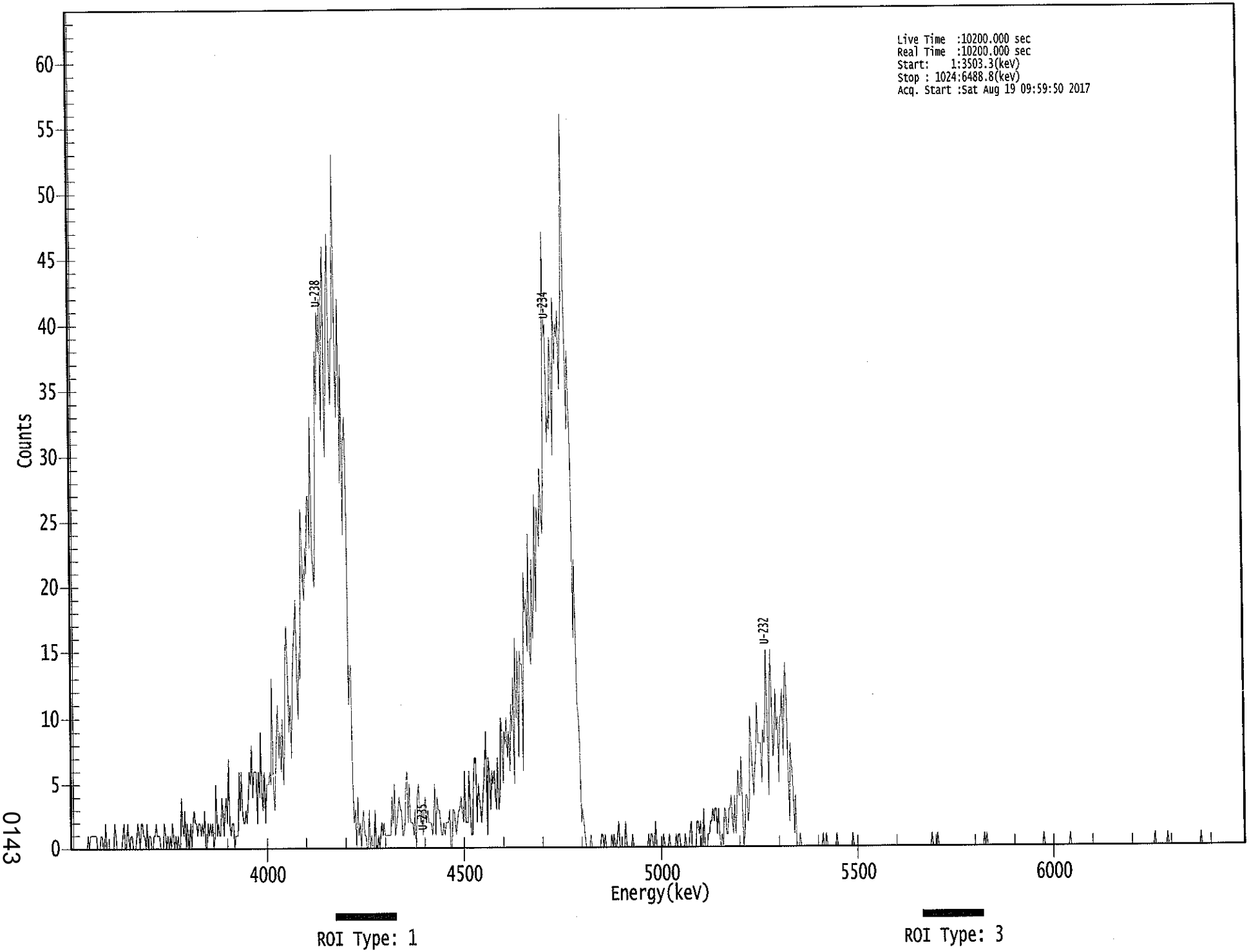
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.992	5302.50*	4.64E+000 +/- 5.01E-001	9.00E-002 +/- 9.73E-003
U-234	0.987	4761.50*	1.86E+001 +/- 2.20E+000	1.14E-001 +/- 1.23E-002
U-235	0.999	4385.50*	2.30E+000 +/- 4.35E-001	1.14E-001 +/- 1.23E-002
U-238	0.984	4184.40*	1.96E+001 +/- 2.31E+000	8.94E-002 +/- 9.66E-003

Aq 8/21/17

0000192012.CNF



****
***** 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:	10200	10200	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	1
17:	0	1	1	1	1	1	1	0
25:	0	0	1	1	0	0	2	0
33:	0	0	0	0	0	0	2	1
41:	0	0	0	0	0	1	2	0
49:	0	2	1	0	1	1	0	0
57:	0	1	2	1	0	2	2	1
65:	1	0	2	0	1	1	0	0
73:	1	1	2	1	1	1	0	0
81:	0	2	1	0	1	0	1	0
89:	2	1	0	1	0	1	0	0
97:	4	2	1	3	0	2	1	0
105:	2	0	2	3	2	2	1	2
113:	2	1	2	1	3	0	0	2
121:	1	2	1	2	0	1	5	1
129:	2	1	1	4	3	1	3	4
137:	2	7	2	1	2	2	0	1
145:	1	1	6	3	6	3	2	2
153:	3	2	4	6	5	8	4	6
161:	6	6	2	6	4	9	4	3
169:	6	2	5	5	5	6	5	13
177:	5	3	6	9	11	7	9	6
185:	10	5	8	15	17	13	9	11
193:	7	13	15	17	19	13	10	15
201:	13	26	24	20	19	23	21	27
209:	27	23	33	23	21	20	27	38
217:	34	41	38	42	32	42	46	30
225:	36	42	47	38	34	39	39	53
233:	41	33	37	42	28	37	24	31
241:	33	27	11	13	14	6	2	3
249:	0	4	1	2	0	2	3	1
257:	1	0	0	3	0	1	0	0
265:	3	0	0	1	0	1	2	1
273:	2	1	1	1	1	1	1	4
281:	2	5	1	2	3	4	3	3
289:	1	1	2	5	6	2	5	2
297:	2	2	1	3	0	4	5	3
305:	2	3	1	3	4	2	3	2
313:	2	2	1	2	5	1	4	3
321:	3	2	1	1	2	1	2	2
329:	2	3	0	0	3	3	2	1
337:	2	3	3	4	3	2	6	2
345:	2	2	6	3	1	1	5	7
353:	7	2	5	4	3	2	4	5
361:	7	9	1	7	6	3	6	5

369:	6	4	3	7	3	4	10	9

Sample Title: 10

Channel								
377:	5	9	8	10	7	9	6	11
385:	9	13	5	16	10	15	7	15
393:	14	14	6	21	18	19	15	24
401:	15	14	22	16	19	27	18	26
409:	25	23	29	26	24	28	47	39
417:	40	31	33	32	39	37	30	42
425:	37	40	39	41	35	39	42	56
433:	44	39	32	38	33	30	16	22
441:	16	11	10	8	2	3	2	1
449:	0	0	0	0	1	0	0	0
457:	0	0	0	0	0	1	1	0
465:	1	0	0	0	0	0	1	0
473:	1	0	0	1	2	0	0	0
481:	0	0	2	0	0	0	0	0
489:	1	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	1	0
505:	1	1	0	0	2	0	0	0
513:	0	0	0	1	0	0	0	0
521:	1	0	0	0	0	0	1	0
529:	1	1	0	0	0	0	1	0
537:	0	0	1	2	0	0	0	0
545:	2	2	1	2	0	0	3	0
553:	0	0	1	1	2	2	3	2
561:	3	3	1	3	1	0	1	0
569:	3	3	1	1	3	3	4	2
577:	1	4	1	3	6	4	4	7
585:	3	0	1	4	4	2	3	10
593:	8	6	4	6	7	11	8	8
601:	8	5	9	8	10	15	10	4
609:	11	15	11	7	8	12	9	10
617:	5	10	10	12	7	12	14	11
625:	6	2	8	6	5	1	4	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	1	0
657:	0	1	0	0	0	0	0	0
665:	0	0	1	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	1	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	1	0	1	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	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	1	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	1	0	0	0	0	0	0	0
953:	0	0	0	1	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	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™

KD 8/29/17

Sample Description:	HTC-A02-S003-0006-02
Spectrum File:	\\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification:	1707085A-UU
Sample Identification:	11
Sample Geometry:	Shelf 2
Procedure Description:	U iso
Detector Name:	Alpha_011
Chamber Serial Number:	
Detector Serial Number:	11
Env. Background:	System Bkgd 194203
Reagent Blank:	<not performed>
Sample Size:	1.066E+000 +/- 0.000E+000 gram
Sample Date/Time:	5/15/2017 6:23:31 AM
Acquisition Date/Time:	8/19/2017 9:59:51 AM
Acquisition Live Time:	170.0 minutes
Acquisition Real Time:	170.0 minutes
Tracer Certificate:	U232_UU-10A
Tracer Quantity:	0.610 mL
Effective Efficiency:	0.2130 +/- 0.0117
Counting Efficiency:	0.1991 +/- 0.0034 on 11/19/2016 1:08:17 PM
Chem. Recovery Factor:	1.0696 +/- 0.0617
Peak Match Tolerance:	0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.264	401.30	9.81	1.70	0.00E+000	5.4
U-234		4.717	768.47	7.08	1.53	0.00E+000	10.1
U-235		4.402	80.15	22.03	0.85	0.00E+000	3.9
U-238		4.143	840.81	6.76	1.19	0.00E+000	12.3

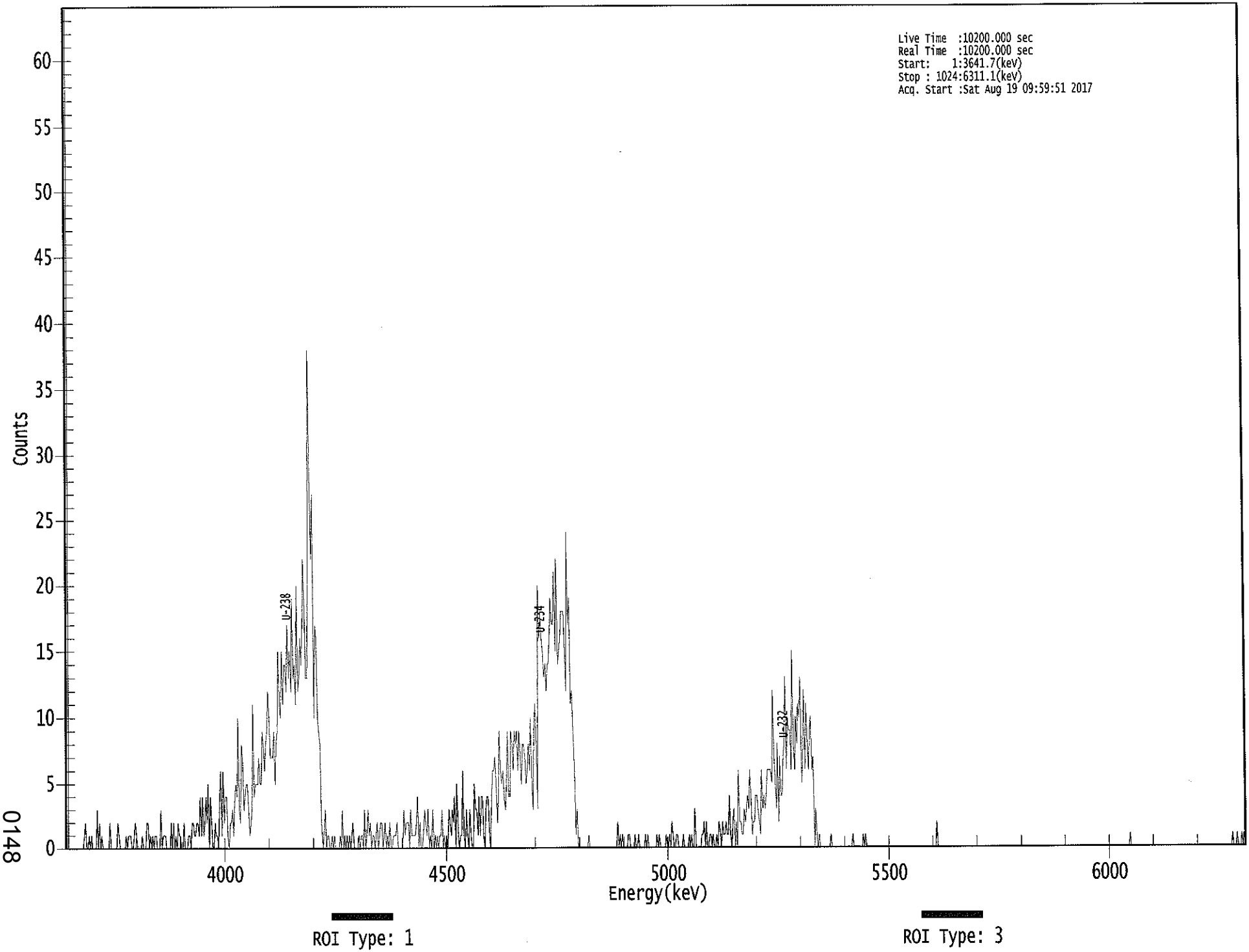
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.989	5302.50*	4.70E+000 +/- 5.08E-001	8.61E-002 +/- 9.29E-003
U-234	0.986	4761.50*	8.98E+000 +/- 1.16E+000	8.31E-002 +/- 8.97E-003
U-235	0.998	4385.50*	1.16E+000 +/- 2.84E-001	8.63E-002 +/- 9.32E-003
U-238	0.988	4184.40*	9.79E+000 +/- 1.25E+000	7.67E-002 +/- 8.28E-003

AG
8/21/17

0000192013.CNF



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

Sample Title: 11

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	4	6	6	7	5	2	4	9

Sample Title: 11

Channel								
377:	6	5	6	4	3	5	9	4
385:	4	9	8	6	9	8	9	6
393:	9	7	5	8	8	7	5	6
401:	8	6	10	5	3	9	11	8
409:	3	20	16	18	16	15	13	14
417:	12	14	14	16	19	17	17	21
425:	15	22	14	15	16	18	18	18
433:	15	12	24	17	19	11	12	9
441:	6	1	3	0	0	0	0	0
449:	0	0	0	0	1	0	0	0
457:	0	0	0	0	0	0	0	0
465:	0	0	0	0	0	0	0	0
473:	0	0	0	0	0	2	0	1
481:	0	1	0	0	0	0	1	1
489:	0	0	0	0	1	0	0	1
497:	0	0	0	0	0	1	0	1
505:	0	0	0	0	0	0	0	1
513:	0	1	0	0	0	0	0	1
521:	0	0	1	0	2	1	0	0
529:	1	1	0	0	0	0	1	0
537:	0	0	0	1	0	1	0	0
545:	3	0	0	0	0	0	1	1
553:	2	0	2	0	0	1	1	0
561:	1	0	0	1	0	2	1	0
569:	2	1	1	2	1	1	4	1
577:	0	2	3	0	2	0	6	2
585:	2	1	1	3	2	3	4	3
593:	6	4	1	2	2	4	4	3
601:	2	1	6	3	4	3	4	6
609:	6	6	6	5	12	7	5	3
617:	8	2	7	4	4	7	8	13
625:	6	10	9	9	6	15	8	6
633:	10	8	11	10	13	5	7	12
641:	6	11	8	6	9	10	6	7
649:	0	3	1	0	1	0	0	0
657:	0	0	0	0	0	0	1	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	1	0	0	0	0	0	0
689:	0	0	1	0	1	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	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	2	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	1	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	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	1	0	0	0	1
1017:	0	0	0	1	0	1	0	0

JCB 8/19/17

Apex-Alpha™

Sample Description: HTC-A02-S003-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification: 1707085A-UU
Sample Identification: 12
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_012
Chamber Serial Number:
Detector Serial Number: 12
Env. Background: System Bkgd 194204
Reagent Blank: <not performed>

Sample Size: 1.082E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:23:31 AM
Acquisition Date/Time: 8/19/2017 9:59:52 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.610 mL
Effective Efficiency: 0.2175 +/- 0.0119
Counting Efficiency: 0.1881 +/- 0.0032 on 11/19/2016 1:08:18 PM
Chem. Recovery Factor: 1.1565 +/- 0.0661

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	410.47	9.70	1.53	0.00E+000	18.9
U-234		4.713	979.49	6.26	0.51	0.00E+000	14.4
U-235		4.405	92.49	20.45	0.51	0.00E+000	4.4
U-238		4.133	1051.15	6.05	0.85	0.00E+000	20.3

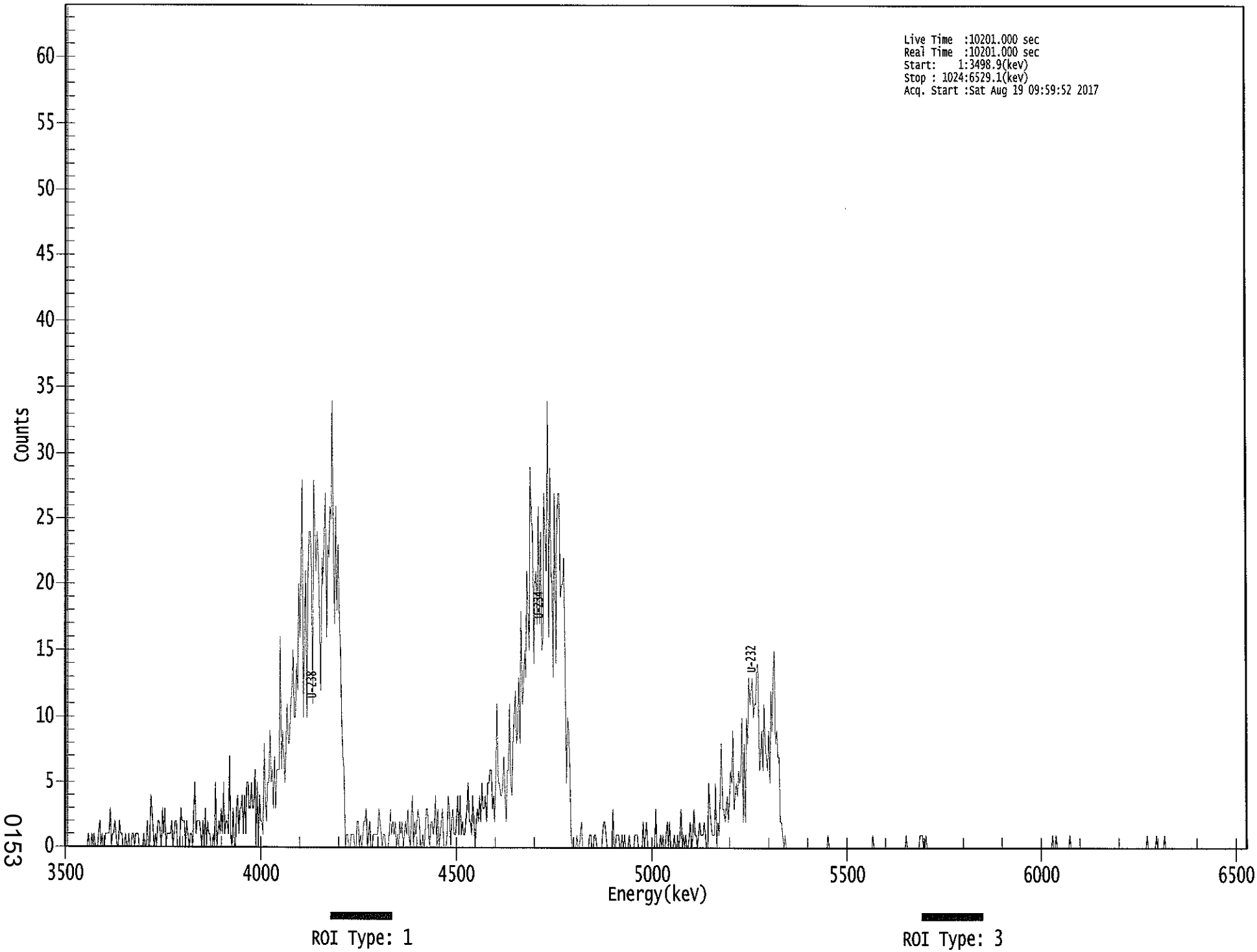
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.987	5302.50*	4.64E+000 +/- 4.97E-001	8.04E-002 +/- 8.60E-003
U-234	0.983	4761.50*	1.11E+001 +/- 1.37E+000	5.92E-002 +/- 6.33E-003
U-235	0.997	4385.50*	1.29E+000 +/- 2.97E-001	7.30E-002 +/- 7.81E-003
U-238	0.982	4184.40*	1.18E+001 +/- 1.45E+000	6.73E-002 +/- 7.19E-003

AG 8/21/17

0000192014.CNF



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

Sample Title: 12

Elapsed Live time: 10201
Elapsed Real Time: 10201

Channel								
1:	10201	10201	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	1	0	0	1
25:	0	1	0	0	0	1	2	0
33:	1	0	0	1	1	1	1	3
41:	0	1	1	2	1	0	0	2
49:	1	1	0	0	1	0	0	1
57:	0	0	1	1	0	1	1	1
65:	0	0	0	0	1	0	0	2
73:	0	0	4	3	1	0	1	0
81:	2	2	1	0	3	1	3	0
89:	1	1	1	1	2	0	1	2
97:	2	0	0	0	3	2	2	2
105:	0	2	1	0	1	1	0	3
113:	5	1	2	2	2	1	0	2
121:	0	3	0	2	1	1	0	0
129:	1	0	5	0	1	2	1	3
137:	1	5	1	2	2	1	7	1
145:	0	3	0	0	3	4	1	3
153:	3	4	1	4	1	5	5	3
161:	3	5	3	3	6	0	5	0
169:	4	2	2	1	8	4	2	5
177:	5	9	5	6	3	7	3	6
185:	6	6	16	6	9	7	5	8
193:	11	8	8	11	12	15	10	10
201:	14	12	20	16	21	28	10	17
209:	21	10	20	24	24	21	11	28
217:	24	21	24	22	17	12	22	20
225:	24	27	16	23	22	26	25	34
233:	22	17	26	18	23	18	15	10
241:	7	6	0	1	1	0	0	1
249:	1	1	0	0	2	2	0	1
257:	0	1	2	2	3	0	1	2
265:	0	0	1	1	1	1	1	3
273:	2	1	0	1	1	0	0	0
281:	1	3	1	2	1	2	0	1
289:	0	2	1	2	0	1	2	1
297:	3	1	0	2	4	0	2	1
305:	2	3	2	0	0	1	0	1
313:	3	3	1	0	2	2	1	2
321:	4	0	3	0	1	2	3	0
329:	0	0	1	4	3	0	2	3
337:	1	1	2	4	1	4	1	2
345:	1	1	2	3	5	2	2	1
353:	4	2	0	2	3	2	4	2
361:	5	3	3	4	2	5	5	6

369:	6	3	4	2	6	11	5	5

Sample Title: 12

Channel								
377:	4	4	5	7	4	2	6	6
385:	11	5	4	8	10	12	8	9
393:	13	8	18	11	12	15	13	21
401:	18	15	29	25	24	14	20	21
409:	17	26	17	24	15	16	27	24
417:	21	34	16	29	21	20	13	27
425:	14	25	27	27	19	20	20	22
433:	13	5	10	9	6	1	0	0
441:	0	0	1	0	0	1	2	0
449:	0	0	0	0	0	1	1	0
457:	0	1	1	0	0	0	0	0
465:	1	2	2	1	0	0	0	0
473:	0	3	0	0	1	1	1	0
481:	0	1	0	1	0	0	0	1
489:	0	0	0	0	1	1	1	0
497:	0	0	0	2	0	1	2	0
505:	0	0	0	0	0	0	3	0
513:	0	0	1	0	1	0	0	1
521:	2	0	2	0	0	0	1	0
529:	0	1	0	1	3	0	1	0
537:	1	0	0	1	2	0	1	3
545:	1	1	0	1	2	1	1	1
553:	2	1	0	0	5	3	2	1
561:	1	1	5	0	2	1	5	8
569:	3	3	2	3	4	2	4	6
577:	5	9	3	4	5	4	6	5
585:	6	10	2	8	2	10	8	13
593:	11	12	13	10	11	11	14	14
601:	6	7	9	6	11	8	7	6
609:	9	5	12	9	13	15	8	9
617:	7	7	2	2	1	0	1	0
625:	0	0	0	0	0	0	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	1	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	1	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	1
729:	0	0	0	0	0	0	0	0
737:	0	0	0	1	1	1	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	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	1	0
857:	0	1	0	0	0	0	0	0
865:	0	0	0	0	0	1	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	1	0	0	0	0	0	0	0
945:	1	0	0	0	0	0	0	1
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

NB 8/19/17

Sample Description: HTC-A02-S003-1218-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification: 1707085A-UU
Sample Identification: 13
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_014
Chamber Serial Number:
Detector Serial Number: 14
Env. Background: System Bkgd 194205
Reagent Blank: <not performed>

Sample Size: 1.018E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:23:31 AM
Acquisition Date/Time: 8/19/2017 9:59:54 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.610 mL
Effective Efficiency: 0.2052 +/- 0.0115
Counting Efficiency: 0.1847 +/- 0.0032 on 11/19/2016 1:08:18 PM
Chem. Recovery Factor: 1.1111 +/- 0.0649

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	387.15	9.97	0.85	0.00E+000	20.4
U-234		4.723	88.81	20.96	1.19	0.00E+000	4.9
U-235		4.383	11.83	57.46	0.17	0.00E+000	2.9
U-238		4.150	82.81	21.72	1.19	0.00E+000	3.9

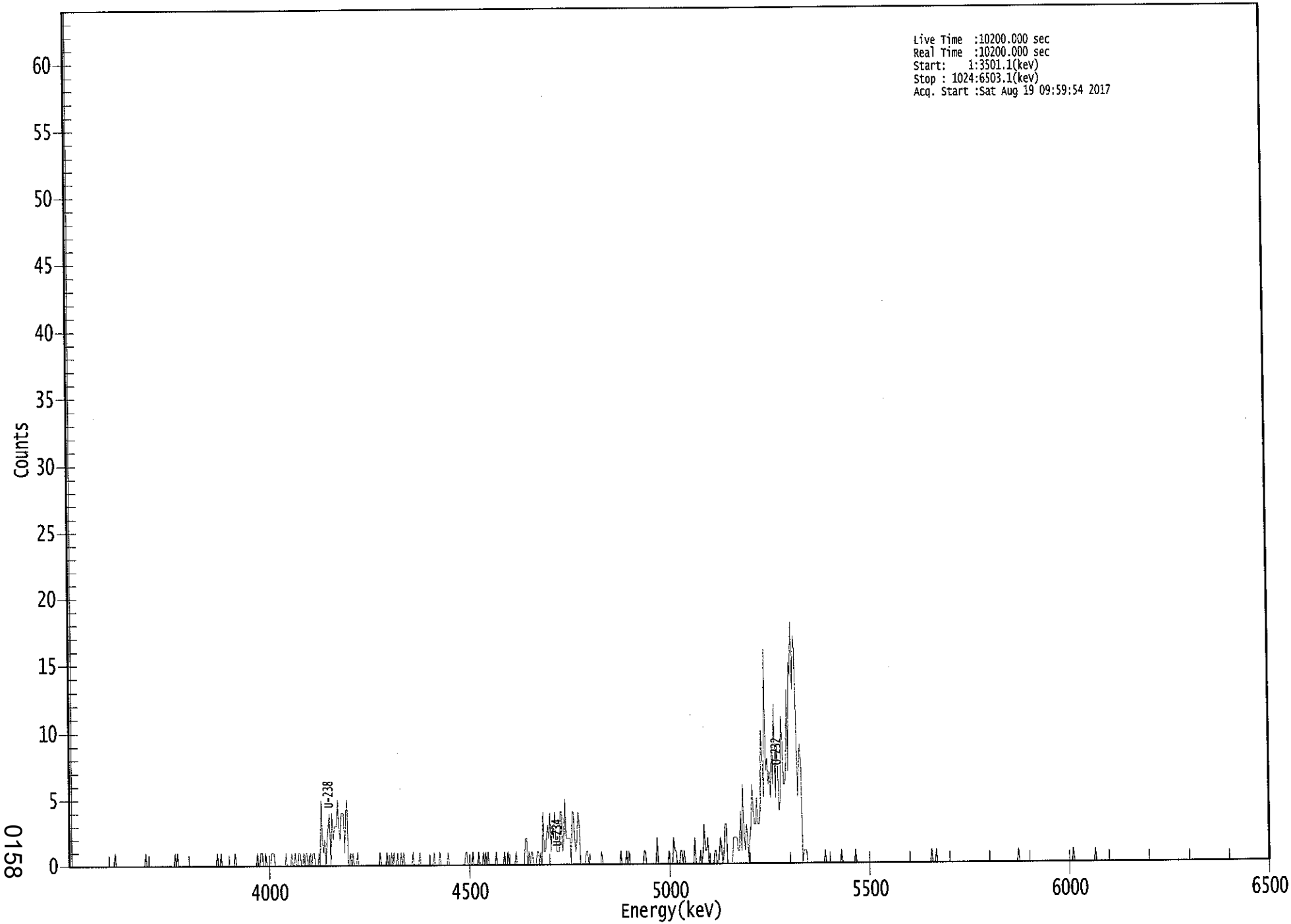
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.992	5302.50*	4.93E+000 +/- 5.40E-001	7.63E-002 +/- 8.35E-003
U-234	0.990	4761.50*	1.13E+000 +/- 2.67E-001	8.37E-002 +/- 9.17E-003
U-235	1.000	4385.50*	1.85E-001 +/- 1.09E-001	6.54E-002 +/- 7.16E-003
U-238	0.991	4184.40*	1.05E+000 +/- 2.55E-001	8.34E-002 +/- 9.13E-003

AG 8/21/17

0000192015.CNF



0158

****
***** 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:	10200	10200	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	1
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	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	1	0	1	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	1	0
129:	0	1	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	0	0	0	0
161:	1	0	0	1	1	0	0	1
169:	0	0	0	0	1	1	1	0
177:	0	0	0	0	0	0	0	0
185:	1	0	0	0	0	1	0	0
193:	1	0	0	1	1	0	0	1
201:	0	1	1	0	0	1	0	1
209:	1	0	0	0	1	0	5	2
217:	1	2	0	2	3	4	0	4
225:	2	3	3	3	5	3	2	4
233:	4	4	1	4	5	0	0	1
241:	0	1	0	0	0	1	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	1	0	0	0	0	0	1	0
273:	0	0	1	0	1	0	0	1
281:	0	0	1	0	1	0	0	0
289:	0	0	0	0	1	0	0	0
297:	0	0	1	0	0	0	0	0
305:	0	0	0	0	0	0	1	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	1	1	0	0	0	0	1
345:	0	0	0	0	1	0	0	0
353:	1	0	1	0	1	0	0	0
361:	0	0	0	1	0	0	0	0

369:	0	0	1	0	0	1	0	0

Sample Title: 13

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

801:	0	0	0	0	0	0	0	0

Sample Title: 13

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

ICB 8/22/17

Sample Description: HTC-A02-S003-1824-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification: 1707085A-UU
Sample Identification: 14
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.008E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:23:31 AM
Acquisition Date/Time: 8/19/2017 10:00:14 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.609 mL
Effective Efficiency: 0.2078 +/- 0.0116
Counting Efficiency: 0.1681 +/- 0.0029 on 11/18/2016 10:08:33 AM
Chem. Recovery Factor: 1.2358 +/- 0.0719

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.274	391.00	9.92	0.00	0.00E+000	25.0
U-234		4.735	94.83	20.15	0.17	0.00E+000	11.3
U-235		4.424	12.66	55.94	0.34	0.00E+000	3.0
U-238		4.136	83.83	21.43	0.17	0.00E+000	7.3

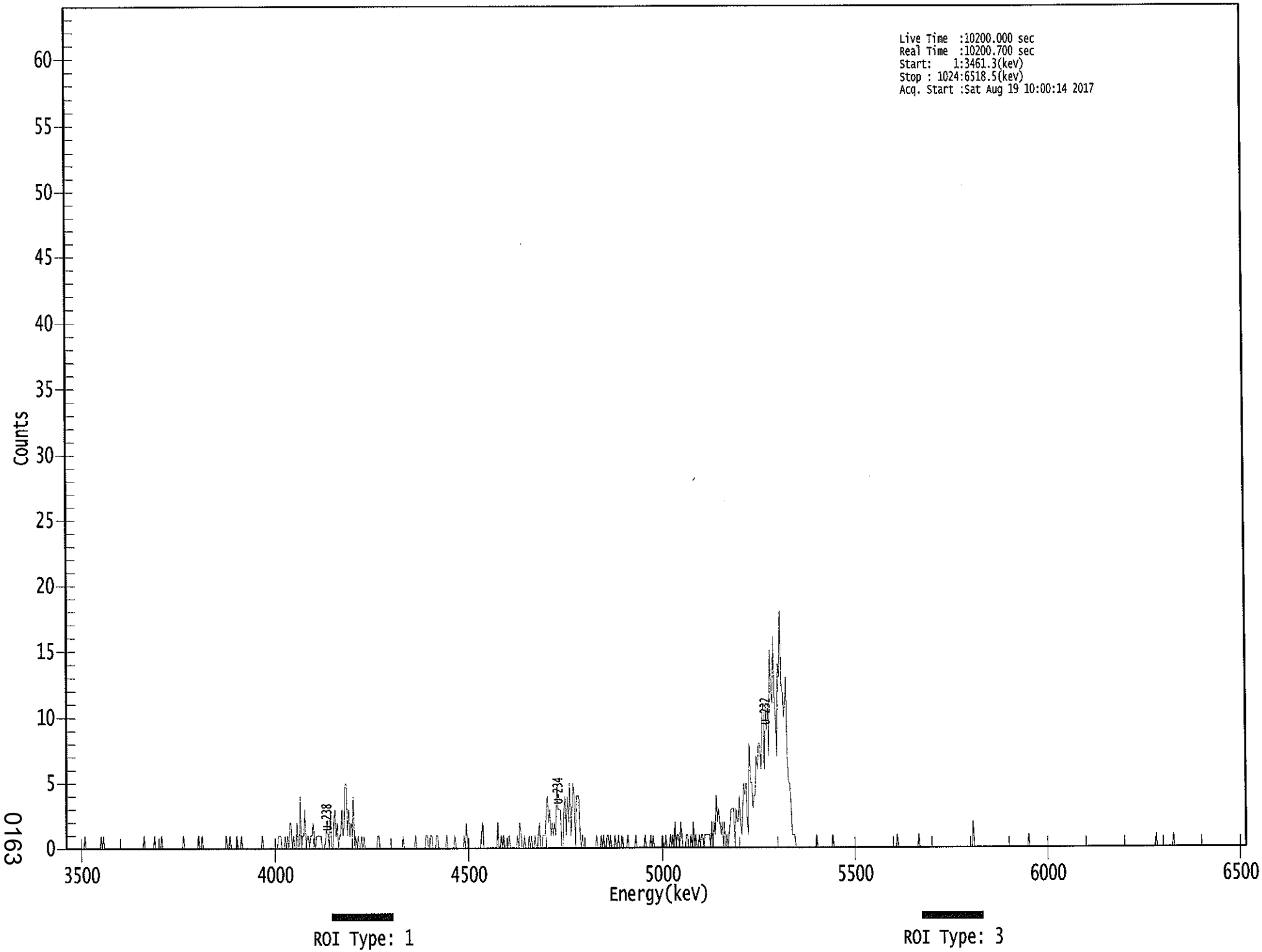
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.994	5302.50*	4.97E+000 +/- 5.42E-001	7.62E-002 +/- 8.31E-003
U-234	0.995	4761.50*	1.20E+000 +/- 2.76E-001	5.29E-002 +/- 5.77E-003
U-235	0.989	4385.50*	1.98E-001 +/- 1.13E-001	7.48E-002 +/- 8.15E-003
U-238	0.984	4184.40*	1.06E+000 +/- 2.55E-001	5.27E-002 +/- 5.75E-003

AG 8/21/17

0000192024.CNF



0163

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

Sample Title: 14

Elapsed Live time: 10200
Elapsed Real Time: 10201

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

369:	0	0	0	0	0	2	0	0

Sample Title: 14

Channel								
377:	1	0	1	0	0	0	0	1
385:	0	0	0	0	0	0	1	0
393:	2	1	0	0	1	0	0	0
401:	1	0	1	0	0	1	0	0
409:	1	2	0	0	1	1	1	3
417:	4	2	3	1	2	1	2	1
425:	5	3	3	3	0	0	3	4
433:	1	4	2	5	1	3	5	4
441:	0	4	4	4	1	0	1	0
449:	0	0	0	0	0	0	0	0
457:	0	0	1	0	0	0	1	0
465:	1	0	0	1	1	0	1	0
473:	0	0	1	0	0	1	0	0
481:	1	0	0	0	0	1	0	0
489:	0	0	0	0	1	0	0	0
497:	0	0	0	0	1	0	0	0
505:	0	1	0	1	0	0	0	0
513:	0	0	0	1	0	0	1	0
521:	0	0	1	0	1	0	2	0
529:	1	1	0	2	1	0	0	0
537:	1	1	0	0	1	0	2	0
545:	1	0	0	1	0	1	1	0
553:	1	1	1	1	1	0	2	0
561:	2	1	4	2	3	2	1	2
569:	0	2	0	1	0	1	2	3
577:	3	3	0	3	2	2	4	2
585:	1	3	5	4	5	2	1	8
593:	5	5	3	4	4	7	6	8
601:	8	6	10	11	6	11	9	11
609:	7	15	12	11	16	11	10	7
617:	14	13	18	12	12	10	11	13
625:	7	5	5	3	1	1	1	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	0
649:	0	1	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	1
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	1
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	1	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	2	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	1	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	1
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

NCB 8/19/17

Apex-Alpha™

Sample Description: HTC-A02-S003-2430-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification: 1707085A-UU
Sample Identification: 15
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.010E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:23:31 AM
Acquisition Date/Time: 8/19/2017 10:00:15 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.609 mL
Effective Efficiency: 0.2093 +/- 0.0116
Counting Efficiency: 0.1728 +/- 0.0029 on 11/18/2016 10:08:58 AM
Chem. Recovery Factor: 1.2112 +/- 0.0702

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	394.32	9.88	0.68	0.00E+000	35.0
U-234		4.732	99.66	19.67	0.34	0.00E+000	6.0
U-235		4.402	8.98	69.62	1.02	0.00E+000	3.0
U-238		4.151	103.83	19.25	0.17	0.00E+000	4.0

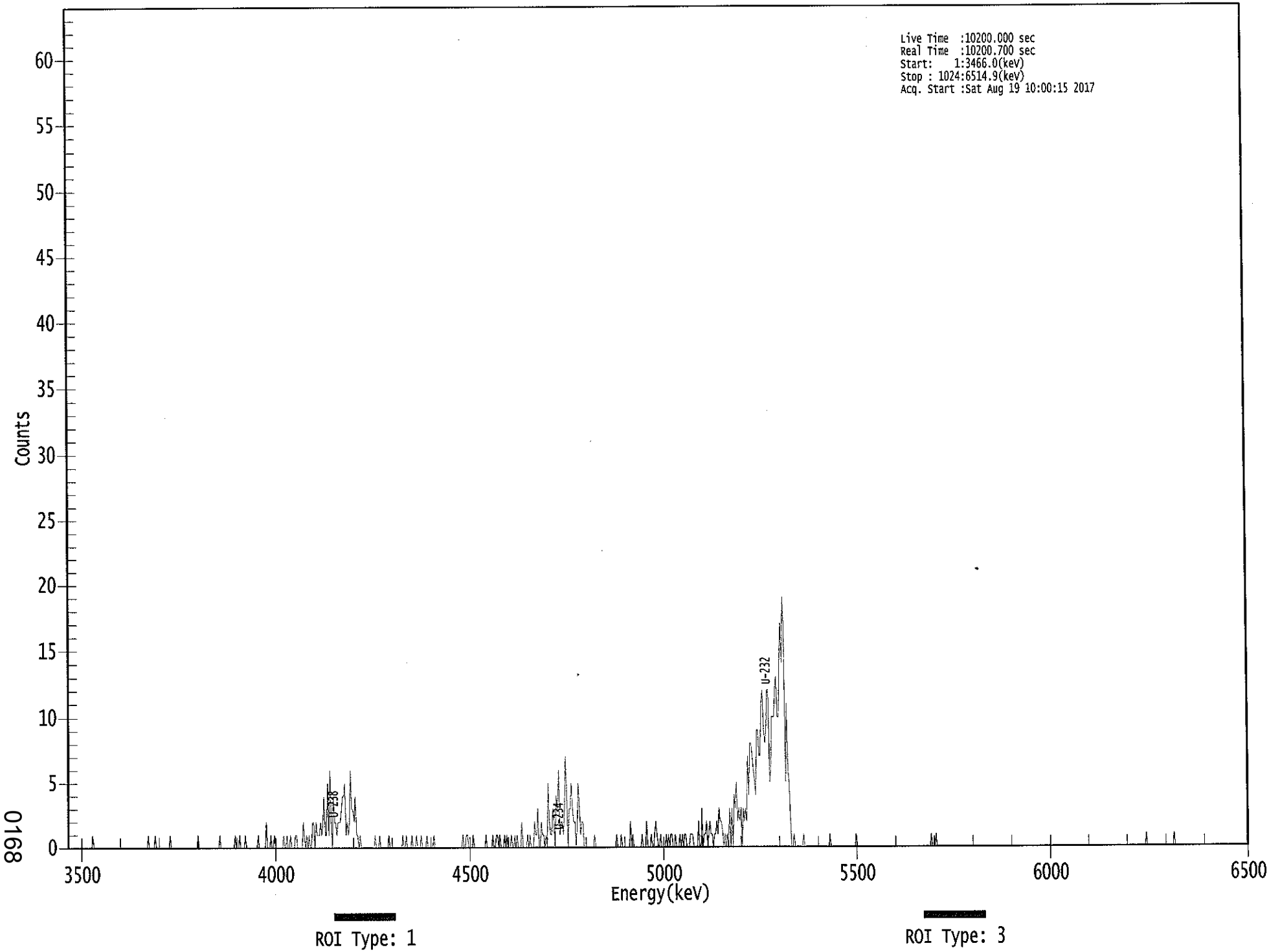
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.992	5302.50*	4.96E+000 +/- 5.39E-001	7.10E-002 +/- 7.71E-003
U-234	0.994	4761.50*	1.25E+000 +/- 2.81E-001	6.00E-002 +/- 6.52E-003
U-235	0.998	4385.50*	1.39E-001 +/- 9.80E-002	9.76E-002 +/- 1.06E-002
U-238	0.992	4184.40*	1.30E+000 +/- 2.87E-001	5.22E-002 +/- 5.67E-003

AG 8/21/17

0000192025.CNF



0168

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

Sample Title: 15

Elapsed Live time: 10200
Elapsed Real Time: 10201

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

369:	0	0	1	1	0	1	0	0

Sample Title: 15

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

801:	0	0	0	0	0	0	0	0

Sample Title: 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	1	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	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

ICB 8/29/17

Apex-Alpha™

Sample Description: HTC-A02-S003-3036-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification: 1707085A-UU
Sample Identification: 16
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.029E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:23:31 AM
Acquisition Date/Time: 8/19/2017 10:00:17 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.610 mL
Effective Efficiency: 0.1707 +/- 0.0103
Counting Efficiency: 0.1580 +/- 0.0027 on 11/18/2016 10:08:56 AM
Chem. Recovery Factor: 1.0803 +/- 0.0678

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.269	322.00	10.94	0.00	0.00E+000	22.8
U-234		4.722	59.49	25.54	0.51	0.00E+000	3.0
U-235		4.360	1.83	152.56	0.17	0.00E+000	6.0
U-238		4.138	62.49	24.91	0.51	0.00E+000	3.5

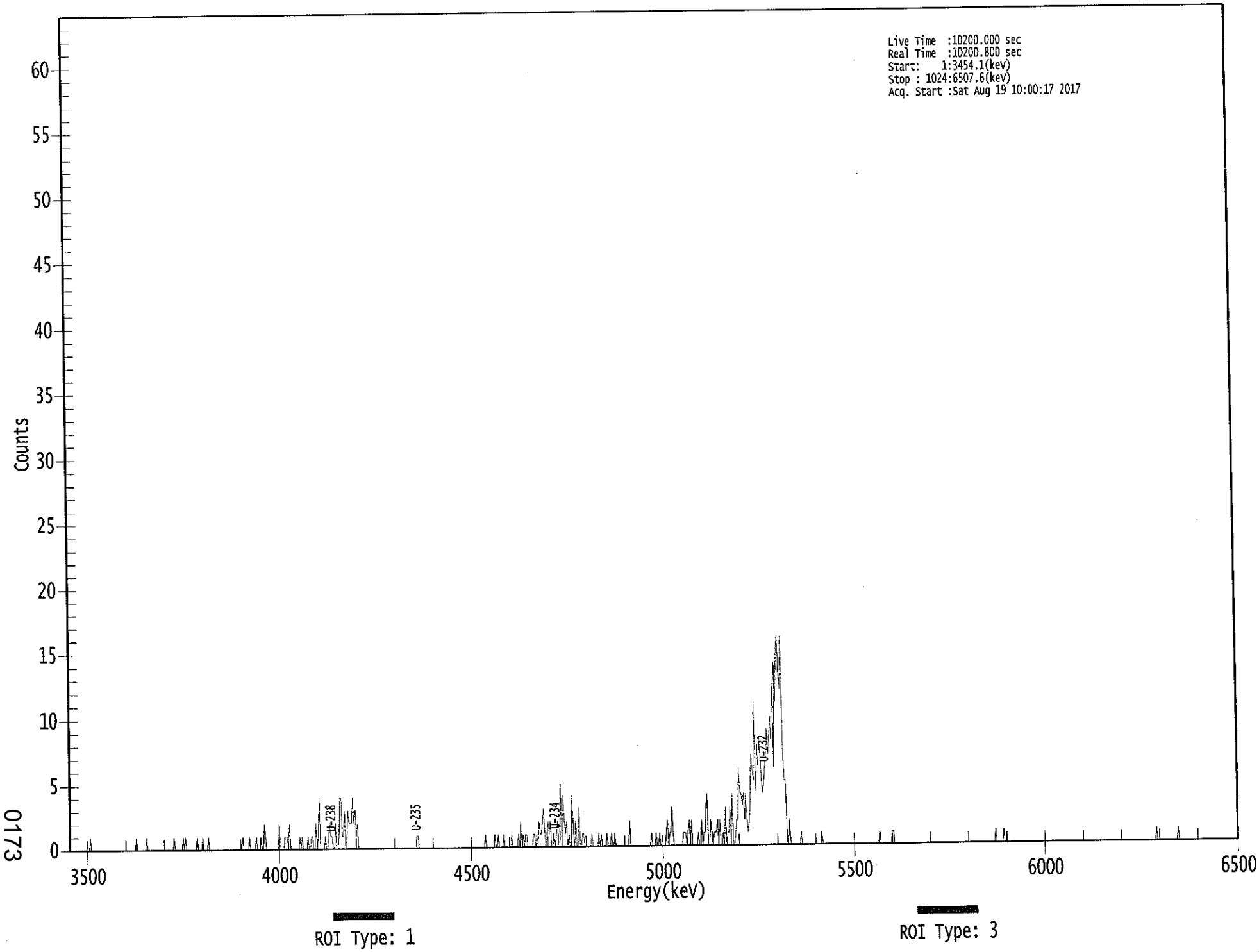
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.992	5302.50*	4.88E+000 +/- 5.78E-001	9.09E-002 +/- 1.08E-002
U-234	0.989	4761.50*	9.00E-001 +/- 2.53E-001	7.94E-002 +/- 9.39E-003
U-235	0.995	4385.50*	3.41E-002 +/- 5.22E-002	7.79E-002 +/- 9.21E-003
U-238	0.985	4184.40*	9.41E-001 +/- 2.60E-001	7.90E-002 +/- 9.35E-003

AG 8/21/17

0000192023.CNF



0173

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

Sample Title: 16

Elapsed Live time: 10200
Elapsed Real Time: 10201

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

369:	0	0	0	1	0	0	1	0

Sample Title: 16

Channel								
377:	0	0	0	1	0	0	0	0
385:	0	0	1	0	0	0	0	0
393:	1	0	2	0	1	0	1	1
401:	0	0	0	0	0	1	1	0
409:	1	0	2	1	1	2	3	1
417:	0	1	2	1	2	0	0	1
425:	0	1	2	0	0	5	0	4
433:	2	1	2	0	1	0	0	4
441:	1	0	2	0	0	3	0	0
449:	1	1	0	0	0	0	0	0
457:	1	0	0	0	0	0	1	0
465:	1	0	0	0	0	1	0	0
473:	0	1	0	0	1	0	0	0
481:	0	0	0	0	0	0	0	0
489:	0	2	0	0	0	0	0	0
497:	0	0	0	0	0	0	0	0
505:	0	0	0	0	1	0	0	0
513:	1	0	0	1	0	0	0	0
521:	0	1	2	0	1	1	3	1
529:	0	0	0	0	0	0	0	0
537:	1	1	1	0	1	2	0	2
545:	0	0	0	0	0	1	0	0
553:	2	0	1	1	3	4	0	0
561:	2	1	0	1	1	1	2	0
569:	2	0	0	1	0	3	0	1
577:	1	3	0	4	0	0	1	2
585:	2	6	4	4	3	4	2	4
593:	2	1	2	3	7	6	5	11
601:	4	8	6	8	7	5	4	5
609:	6	7	9	7	8	10	8	13
617:	6	14	11	15	16	13	12	16
625:	7	5	5	0	0	2	0	0
633:	0	0	0	0	0	0	0	1
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	1	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	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	1
721:	1	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	1	0	0	0	0	0
817:	0	1	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	1
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	1	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

KCB 8/22/17

Sample Description: HTC-A02-S003-3642-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification: 1707085A-UU
Sample Identification: 17
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.026E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:23:31 AM
Acquisition Date/Time: 8/19/2017 10:00:18 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.609 mL
Effective Efficiency: 0.1601 +/- 0.0099
Counting Efficiency: 0.1824 +/- 0.0031 on 11/18/2016 10:08:54 AM
Chem. Recovery Factor: 0.8778 +/- 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	5.265	301.15	11.31	0.85	0.00E+000	4.0
U-234		4.719	180.32	14.63	0.68	0.00E+000	6.5
U-235		4.385	17.66	47.16	0.34	0.00E+000	3.0
U-238		4.145	160.49	15.50	0.51	0.00E+000	8.2

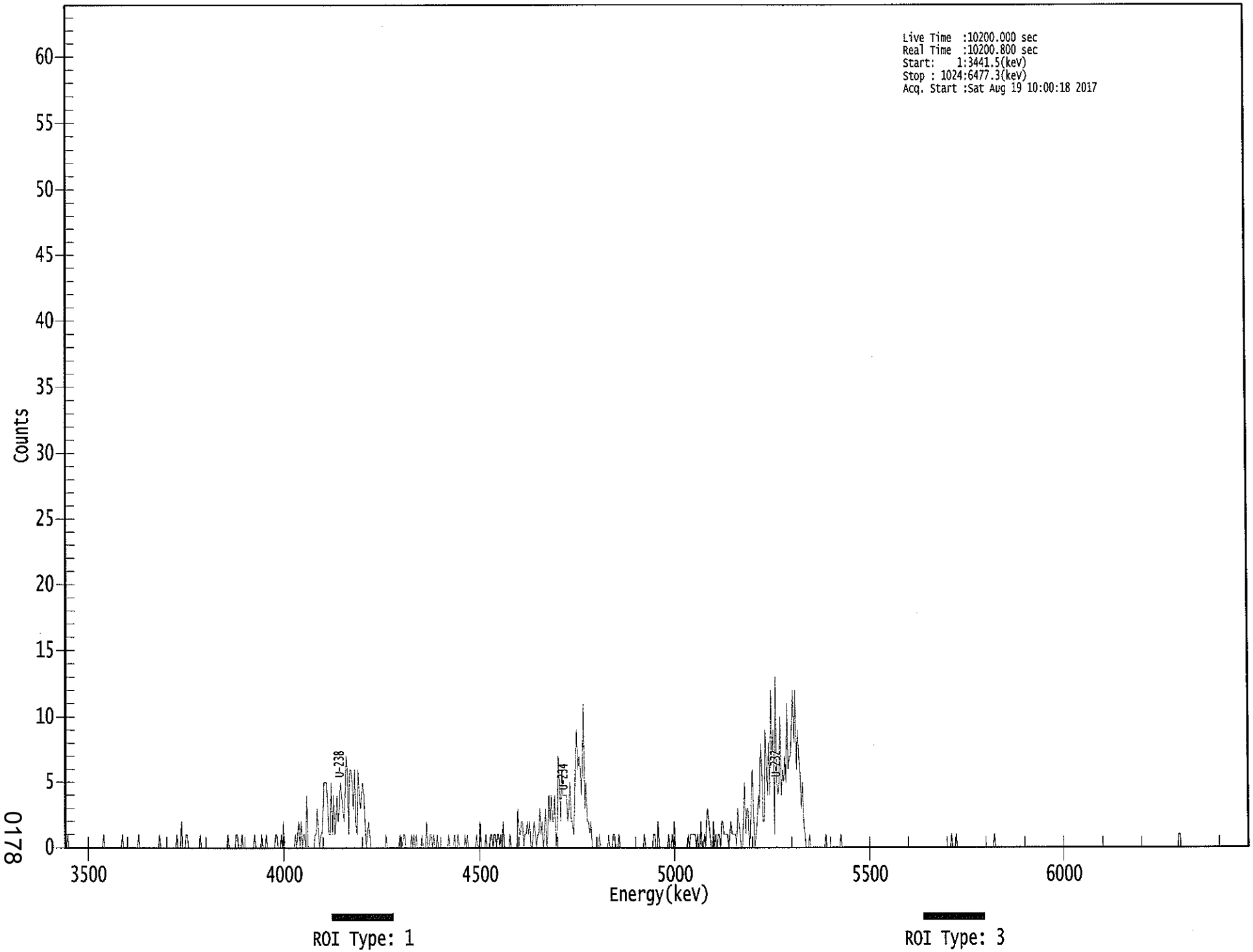
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.990	5302.50*	4.88E+000 +/- 5.94E-001	9.70E-002 +/- 1.18E-002
U-234	0.987	4761.50*	2.91E+000 +/- 5.55E-001	9.12E-002 +/- 1.11E-002
U-235	1.000	4385.50*	3.52E-001 +/- 1.72E-001	9.53E-002 +/- 1.16E-002
U-238	0.989	4184.40*	2.58E+000 +/- 5.09E-001	8.44E-002 +/- 1.03E-002

AG
8/21/17

0000192018.CNF



0178

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

Sample Title: 17

Elapsed Live time: 10200
Elapsed Real Time: 10201

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

369:	0	1	1	0	1	1	0	1

Sample Title: 17

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

801:	0	0	1	0	0	0	0	0

Sample Title: 17

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

KB 8/29/17

Apex-Alpha™

Sample Description: HTC-A02-S003-4248-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification: 1707085A-UU
Sample Identification: 18
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.009E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:23:31 AM
Acquisition Date/Time: 8/19/2017 10:00:20 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.609 mL
Effective Efficiency: 0.2062 +/- 0.0115
Counting Efficiency: 0.1587 +/- 0.0027 on 11/18/2016 10:08:53 AM
Chem. Recovery Factor: 1.2989 +/- 0.0758

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.289	388.32	9.96	0.68	0.00E+000	10.8
U-234		4.739	113.66	18.42	0.34	0.00E+000	4.7
U-235		4.411	10.83	60.10	0.17	0.00E+000	3.0
U-238		4.161	106.00	19.13	0.00	0.00E+000	4.7

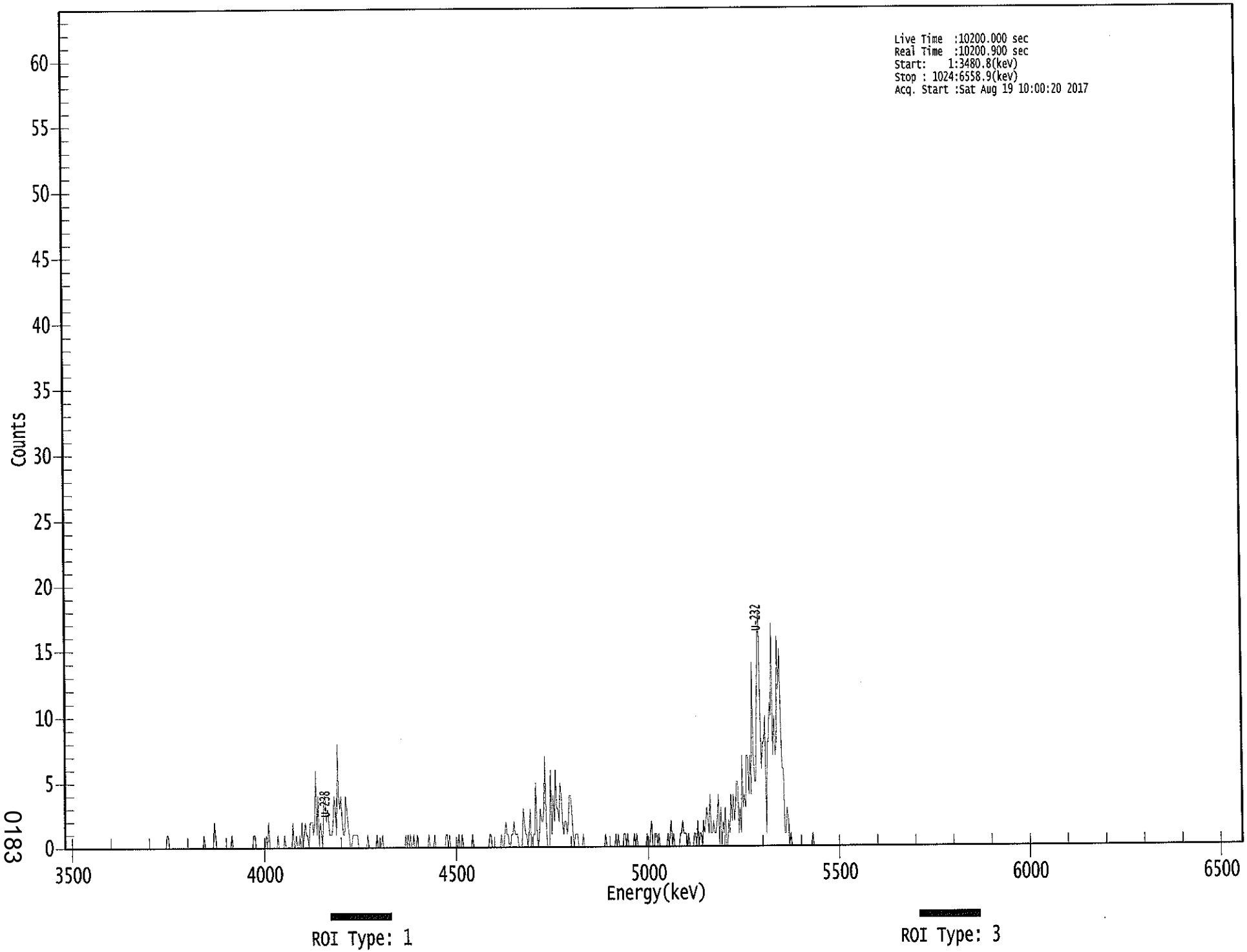
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.999	5302.50*	4.97E+000 +/- 5.43E-001	7.22E-002 +/- 7.89E-003
U-234	0.996	4761.50*	1.45E+000 +/- 3.11E-001	6.10E-002 +/- 6.67E-003
U-235	0.995	4385.50*	1.71E-001 +/- 1.04E-001	6.57E-002 +/- 7.18E-003
U-238	0.996	4184.40*	1.35E+000 +/- 2.97E-001	7.62E-002 +/- 8.33E-003

AG 8/21/17

0000192016.CNF



0183

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

Sample Title: 18

Elapsed Live time: 10200
Elapsed Real Time: 10201

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

369:	1	1	0	0	0	0	0	0

Sample Title: 18

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

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

Apex-Alpha™

ieB 8/29/17

Sample Description:	HTC-A02-S004-0006-01
Spectrum File:	\\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification:	1707085A-UU
Sample Identification:	19
Sample Geometry:	Shelf 2
Procedure Description:	U iso
Detector Name:	Alpha_038
Chamber Serial Number:	04026478B
Detector Serial Number:	91134
Env. Background:	System Bkgd 194212
Reagent Blank:	<not performed>
Sample Size:	1.017E+000 +/- 0.000E+000 gram
Sample Date/Time:	5/15/2017 6:23:31 AM
Acquisition Date/Time:	8/19/2017 10:00:22 AM
Acquisition Live Time:	170.0 minutes
Acquisition Real Time:	170.0 minutes
Tracer Certificate:	U232_UU-10A
Tracer Quantity:	0.610 mL
Effective Efficiency:	0.1912 +/- 0.0110
Counting Efficiency:	0.1543 +/- 0.0027 on 11/18/2016 10:08:51 AM
Chem. Recovery Factor:	1.2386 +/- 0.0744
Peak Match Tolerance:	0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.271	360.32	10.34	0.68	0.00E+000	10.9
U-234		4.725	81.32	21.84	0.68	0.00E+000	3.7
U-235		4.387	6.83	76.08	0.17	0.00E+000	3.0
U-238		4.139	72.64	23.25	1.36	0.00E+000	4.0

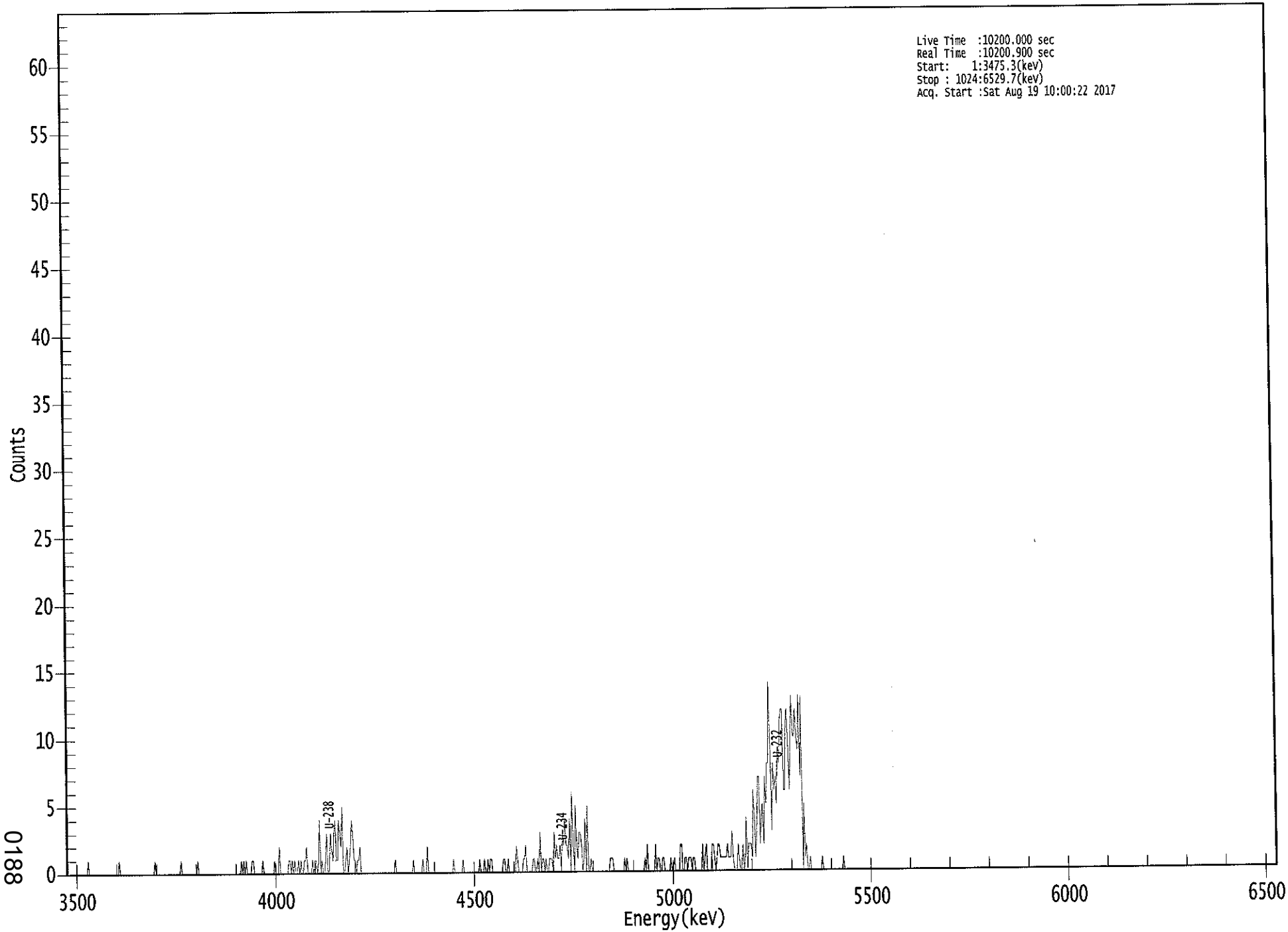
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.993	5302.50*	4.94E+000 +/- 5.57E-001	7.73E-002 +/- 8.71E-003
U-234	0.991	4761.50*	1.11E+000 +/- 2.73E-001	7.71E-002 +/- 8.69E-003
U-235	1.000	4385.50*	1.15E-001 +/- 8.85E-002	7.03E-002 +/- 7.93E-003
U-238	0.985	4184.40*	9.88E-001 +/- 2.55E-001	9.33E-002 +/- 1.05E-002

AG 8/21/17

0000192017.CNF



0188

****
***** 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: 10201

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

369:	1	1	0	0	1	0	0	0

Sample Title: 19

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

801:	0	0	0	0	0	0	0	0

Sample Title: 19

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

VCB 8/29/17

Sample Description: HTC-A02-S004-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification: 1707085A-UU
Sample Identification: 20
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.085E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:23:31 AM
Acquisition Date/Time: 8/19/2017 10:00:24 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.620 mL
Effective Efficiency: 0.1637 +/- 0.0100
Counting Efficiency: 0.1852 +/- 0.0031 on 11/18/2016 10:08:50 AM
Chem. Recovery Factor: 0.8838 +/- 0.0561

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	5.250	313.79	11.11	2.21	0.00E+000	6.7
U-234		4.707	2022.98	4.36	1.02	0.00E+000	87.3
U-235		4.397	209.32	13.57	0.68	0.00E+000	5.8
U-238		4.128	2227.81	4.15	1.19	0.00E+000	85.5

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.981	5302.50*	4.70E+000 +/- 5.64E-001	1.20E-001 +/- 1.44E-002
U-234	0.979	4761.50*	3.02E+001 +/- 3.86E+000	9.42E-002 +/- 1.13E-002
U-235	0.999	4385.50*	3.86E+000 +/- 6.99E-001	1.04E-001 +/- 1.25E-002
U-238	0.978	4184.40*	3.32E+001 +/- 4.21E+000	9.81E-002 +/- 1.18E-002

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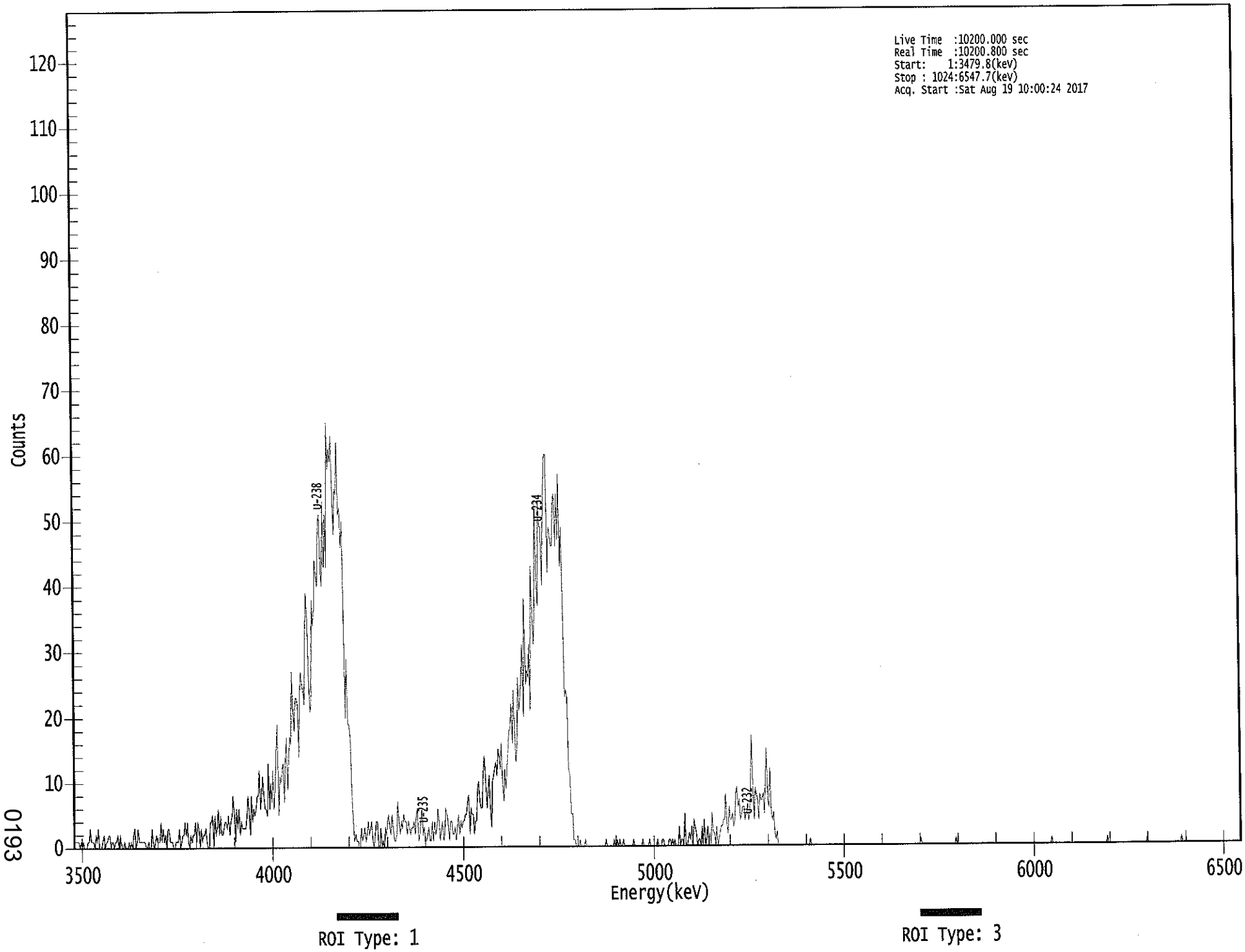
8/21/17

0000192026.CNF



0193

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

Sample Title: 20

Elapsed Live time: 10200
Elapsed Real Time: 10201

Channel								
1:	1	1	1	1	1	0	1	0
9:	1	0	0	0	1	1	3	1
17:	1	1	0	2	1	3	0	0
25:	0	1	2	0	1	1	2	2
33:	0	1	1	0	1	1	2	0
41:	2	1	0	0	1	0	0	0
49:	1	0	1	0	2	3	0	1
57:	3	1	1	1	1	1	1	0
65:	0	1	0	0	3	1	0	1
73:	2	1	1	1	4	1	3	1
81:	2	0	3	3	1	1	1	0
89:	0	1	1	1	3	0	1	2
97:	2	4	2	4	1	0	2	1
105:	2	2	4	1	4	3	0	3
113:	1	2	2	3	1	0	0	4
121:	4	5	0	5	2	3	6	2
129:	5	2	2	3	4	4	3	5
137:	2	4	5	8	5	1	6	3
145:	6	2	4	3	3	3	3	5
153:	8	5	2	8	4	6	5	6
161:	8	8	12	6	8	11	8	6
169:	6	5	13	6	10	7	12	6
177:	10	14	19	5	11	10	12	13
185:	7	13	17	9	14	17	16	27
193:	21	18	23	23	22	14	24	27
201:	25	24	22	33	39	35	27	21
209:	22	38	34	37	44	41	40	50
217:	51	42	40	53	43	51	43	65
225:	58	61	59	63	54	48	55	54
233:	62	51	52	46	50	35	20	29
241:	19	19	17	9	4	1	2	1
249:	1	0	0	3	1	2	3	1
257:	2	4	2	3	4	1	0	2
265:	4	4	0	0	3	0	1	0
273:	3	2	4	5	3	2	5	3
281:	1	1	2	7	4	2	4	3
289:	5	4	4	2	4	3	2	3
297:	3	4	2	5	6	1	2	4
305:	6	2	3	1	1	2	3	1
313:	1	4	1	4	2	3	6	4
321:	1	3	4	1	2	6	5	4
329:	1	4	4	2	2	3	1	3
337:	5	2	4	3	4	4	5	5
345:	7	8	2	6	5	5	2	4
353:	4	9	10	7	6	6	11	14
361:	11	6	8	11	6	3	10	11

369:	12	13	11	15	14	12	16	10

Sample Title: 20

Channel								
377:	7	12	9	12	15	18	18	22
385:	16	24	17	13	16	26	21	23
393:	26	31	20	38	25	27	26	31
401:	21	43	37	31	35	53	41	37
409:	53	49	49	40	49	56	60	60
417:	42	49	48	46	46	53	54	46
425:	54	47	57	43	49	38	23	24
433:	23	12	11	5	5	1	1	0
441:	0	0	1	0	0	0	0	1
449:	0	0	0	0	0	0	0	0
457:	0	0	0	0	0	0	0	0
465:	0	1	0	0	0	0	0	0
473:	1	0	0	1	0	1	0	0
481:	1	0	0	0	0	0	0	0
489:	0	1	0	0	0	0	0	0
497:	0	1	0	0	0	0	0	1
505:	0	0	0	0	0	0	1	0
513:	0	0	1	1	0	0	0	0
521:	1	1	0	1	0	1	0	0
529:	0	3	0	1	1	0	5	0
537:	0	1	2	1	3	0	4	3
545:	2	0	1	1	0	3	0	4
553:	0	1	3	0	2	0	5	2
561:	2	0	3	0	1	2	3	3
569:	4	4	8	3	2	6	4	4
577:	5	3	4	8	9	6	7	4
585:	5	6	6	4	5	6	4	5
593:	10	17	8	4	9	8	7	4
601:	8	7	7	8	5	10	15	7
609:	6	12	5	4	5	2	1	2
617:	0	0	0	0	0	0	0	0
625:	0	0	0	0	0	0	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	1	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	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	1	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801:	0	0	0	0	0	0	0	0

Sample Title: 20

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

8/18/2017 5:22:23 AM

Apex-Alpha™

QA SUMMARY REPORT

Review Of QA Results - Pulser Check

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

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_001	21f	ALL	Not Done	
Alpha_002	21f	ALL	Not Done	
Alpha_003	21f	ALL	Passed	8/18/2017 4:58:18 AM
Alpha_004	21f	ALL	Passed	8/18/2017 4:58:18 AM
Alpha_005	21f	ALL	Not Done	
Alpha_006	21f	ALL	Not Done	
Alpha_007	21f	ALL	Not Done	
Alpha_008	21f	ALL	Not Done	
Alpha_009	21f	ALL	Not Done	
Alpha_010	21f	ALL	Passed	8/18/2017 4:58:19 AM
Alpha_011	21f	ALL	Passed	8/18/2017 4:58:20 AM
Alpha_012	21f	ALL	Passed	8/18/2017 4:58:21 AM
Alpha_013	21f	ALL	Not Done	
Alpha_014	21f	ALL	Passed	8/18/2017 4:58:22 AM
Alpha_015	21f	Peak FWHM	Action	8/18/2017 4:58:23 AM
Alpha_016	21f	ALL	Not Done	
Alpha_033	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:58:24 AM
Alpha_034	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:58:26 AM
Alpha_035	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:58:27 AM
Alpha_036	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:58:29 AM
Alpha_037	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:58:31 AM
Alpha_038	Alpha Analyst100DC	Peak Energy	Action	8/18/2017 4:58:33 AM
Alpha_039	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:58:35 AM
Alpha_040	Alpha Analyst100DC	Peak FWHM	Action	8/18/2017 4:58:38 AM
Alpha_041	Alpha Analyst100DC	ALL	Not Done	
Alpha_042	Alpha Analyst100DC	ALL	Not Done	
Alpha_043	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:58:40 AM
Alpha_044	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:58:43 AM
Alpha_045	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:58:45 AM
Alpha_046	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:58:48 AM
Alpha_047	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:58:50 AM
Alpha_048	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:58:53 AM
Alpha_049	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:58:55 AM
Alpha_050	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:58:58 AM
Alpha_051	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:59:01 AM
Alpha_052	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:59:04 AM
Alpha_053	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:59:06 AM
Alpha_054	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:59:09 AM
Alpha_055	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:59:12 AM
Alpha_056	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:59:14 AM
Alpha_057	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:59:17 AM
Alpha_058	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:59:20 AM

Review of QA Results - Pulser Check

8/18/2017 5:22:23 AM

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

APPROVED BY: _____

APPROVAL DATE: 8/18/17

8/19/2017 9:59:11 AM

Apex-Alpha™

QA SUMMARY REPORT

Review Of QA Results - Pulser Check

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

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_001	21f	ALL	Not Done	
Alpha_002	21f	ALL	Not Done	
Alpha_003	21f	ALL	Passed	8/19/2017 9:42:05 AM
Alpha_004	21f	ALL	Passed	8/19/2017 9:42:06 AM
Alpha_005	21f	ALL	Not Done	
Alpha_006	21f	ALL	Not Done	
Alpha_007	21f	ALL	Not Done	
Alpha_008	21f	ALL	Not Done	
Alpha_009	21f	ALL	Not Done	
Alpha_010	21f	ALL	Passed	8/19/2017 9:42:07 AM
Alpha_011	21f	ALL	Passed	8/19/2017 9:42:08 AM
Alpha_012	21f	ALL	Passed	8/19/2017 9:42:09 AM
Alpha_013	21f	ALL	Not Done	
Alpha_014	21f	ALL	Passed	8/19/2017 9:42:10 AM
Alpha_015	21f	Peak FWHM	Action	8/18/2017 4:58:23 AM
Alpha_016	21f	ALL	Not Done	
Alpha_033	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:11 AM
Alpha_034	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:13 AM
Alpha_035	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:14 AM
Alpha_036	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:16 AM
Alpha_037	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:18 AM
Alpha_038	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:19 AM
Alpha_039	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:20 AM
Alpha_040	Alpha Analyst100DC	Peak FWHM	Action	8/19/2017 9:42:22 AM
Alpha_041	Alpha Analyst100DC	ALL	Not Done	
Alpha_042	Alpha Analyst100DC	ALL	Not Done	
Alpha_043	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:24 AM
Alpha_044	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:26 AM
Alpha_045	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:27 AM
Alpha_046	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:29 AM
Alpha_047	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:30 AM
Alpha_048	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:32 AM
Alpha_049	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:34 AM
Alpha_050	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:36 AM
Alpha_051	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:59:01 AM
Alpha_052	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:38 AM
Alpha_053	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:39 AM
Alpha_054	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:41 AM
Alpha_055	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:59:12 AM
Alpha_056	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:43 AM
Alpha_057	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:45 AM
Alpha_058	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:47 AM

Review of QA Results - Pulser Check

8/19/2017 9:59:11 AM

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

APPROVED BY: KB

APPROVAL DATE: 8/19/17

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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)

17-07085
ThISO
Run 1

Work Order	17-07085
Analysis Code	ThISO
Run	1
Date Received	7/18/2017
Lab Deadline	8/10/2017
Client	Weston Solutions, Inc.
Project	94759
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	EPA 907.0 Modified
Instrument Type	Alpha Spectroscopy
Radiometric Tracer	Th-229
Radiometric Sol#	Th-18a
Tracer Act (dpm/g)	22.46
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		07/19/17 00:00	1.0000E+00
02	MBL	BLANK		07/19/17 00:00	1.0000E+00
03	DUP	HTC-A02-S002-2430-01	51	05/15/17 11:45	1.0042E+00
04	DO	HTC-A02-S002-2430-01	51	05/15/17 11:45	1.0048E+00
05	TRG	HTC-A02-S002-3036-01	49	05/15/17 11:42	1.0086E+00
06	TRG	HTC-A02-S002-3642-01	38	05/15/17 11:39	1.0450E+00
07	TRG	HTC-A02-S002-4248-01	38	05/15/17 11:36	1.0258E+00
08	MSO	HTC-A02-S003-0006-01	80	05/15/17 12:21	1.0214E+00
09	MS	HTC-A02-S003-0006-01	50	05/15/17 11:45	1.0219E+00
10	MSD	HTC-A02-S003-0006-01 MSD	50	05/15/17 12:21	1.0211E+00
11	TRG	HTC-A02-S003-0006-02	42	05/15/17 12:21	1.0261E+00
12	TRG	HTC-A02-S003-0612-01	44	05/15/17 12:18	1.0096E+00
13	TRG	HTC-A02-S003-1218-01	40	05/15/17 12:15	1.0692E+00
14	TRG	HTC-A02-S003-1824-01	39	05/15/17 12:12	1.0005E+00
15	TRG	HTC-A02-S003-2430-01	39	05/15/17 12:09	1.0198E+00
16	TRG	HTC-A02-S003-3036-01	45	05/15/17 12:06	1.0023E+00
17	TRG	HTC-A02-S003-3642-01	37	05/15/17 12:03	1.0716E+00
18	TRG	HTC-A02-S003-4248-01	48	05/15/17 12:00	1.0428E+00
19	TRG	HTC-A02-S004-0006-01	48	05/15/17 08:29	1.0388E+00
20	TRG	HTC-A02-S004-0612-01	138	05/15/17 08:27	2.8600E-01

* 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.

17-07085
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	0.4727	10.6		0.00								
02	MBL	0.2358	5.3		0.00								
03	DUP	0.2365	5.3		0.00								
04	DO	0.2365	5.3		0.00								
05	TRG	0.2357	5.3		0.00								
06	TRG	0.2369	5.3		0.00								
07	TRG	0.2354	5.3		0.00								
08	MSO	0.2357	5.3		0.00								
09	MS	0.2361	5.3		0.00								
10	MSD	0.2357	5.3		0.00								
11	TRG	0.2410	5.4		0.00								
12	TRG	0.2358	5.3		0.00								
13	TRG	0.2341	5.3		0.00								
14	TRG	0.2345	5.3		0.00								
15	TRG	0.2354	5.3		0.00								
16	TRG	0.2361	5.3		0.00								
17	TRG	0.2356	5.3		0.00								
18	TRG	0.2340	5.3		0.00								
19	TRG	0.2343	5.3		0.00								
20	TRG	0.2352	5.3		0.00								

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

17-07085
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			08/08/17 12:59	JHARVEY				
02	MBL			08/08/17 12:59	JHARVEY				
03	DUP			08/08/17 12:59	JHARVEY				
04	DO	07/31/17 07:32	KSALLINGS	08/08/17 12:59	JHARVEY				
05	TRG	07/31/17 07:32	KSALLINGS	08/08/17 12:59	JHARVEY				
06	TRG	07/31/17 07:32	KSALLINGS	08/08/17 12:59	JHARVEY				
07	TRG	07/31/17 07:32	KSALLINGS	08/08/17 12:59	JHARVEY				
08	MSO	07/31/17 07:32	KSALLINGS	08/08/17 12:59	JHARVEY				
09	MS	07/31/17 07:32	KSALLINGS	08/08/17 12:59	JHARVEY				
10	MSD	07/31/17 07:32	KSALLINGS	08/08/17 12:59	JHARVEY				
11	TRG	07/31/17 07:32	KSALLINGS	08/08/17 12:59	JHARVEY				
12	TRG	07/31/17 07:32	KSALLINGS	08/08/17 12:59	JHARVEY				
13	TRG	07/31/17 07:32	KSALLINGS	08/08/17 12:59	JHARVEY				
14	TRG	07/31/17 07:32	KSALLINGS	08/08/17 12:59	JHARVEY				
15	TRG	07/31/17 07:32	KSALLINGS	08/08/17 12:59	JHARVEY				
16	TRG	07/31/17 07:32	KSALLINGS	08/08/17 12:59	JHARVEY				
17	TRG	07/31/17 07:32	KSALLINGS	08/08/17 12:59	JHARVEY				
18	TRG	07/31/17 07:32	KSALLINGS	08/08/17 12:59	JHARVEY				
19	TRG	07/31/17 07:32	KSALLINGS	08/08/17 12:59	JHARVEY				
20	TRG	07/31/17 07:32	KSALLINGS	08/08/17 12:59	JHARVEY				

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

Preliminary Data Report & Analytical Calculations
Work Order: 17-07085-ThISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07085
Analysis Code: ThISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	TH-228	LCS	LCS	pCi/g	5.85E+00	9.53E-01	9.83E-02	4.87E+00	120.15	OK		OK	
02	TH-228	MBL	BLANK	pCi/g	2.01E-01	1.35E-01	9.93E-02					OK	OK
03	TH-228	DUP	HTC-A02-S002-2430-01	pCi/g	7.42E-01	2.88E-01	1.80E-01				OK	OK	
04	TH-228	DO	HTC-A02-S002-2430-01	pCi/g	8.91E-01	3.21E-01	1.55E-01					OK	
05	TH-228	TRG	HTC-A02-S002-3036-01	pCi/g	1.40E+00	4.18E-01	1.61E-01					OK	
06	TH-228	TRG	HTC-A02-S002-3642-01	pCi/g	9.96E-01	2.87E-01	6.13E-02					OK	
07	TH-228	TRG	HTC-A02-S002-4248-01	pCi/g	7.76E-01	2.90E-01	1.49E-01					OK	
08	TH-228	MSO	HTC-A02-S003-0006-01	pCi/g	2.49E-01	1.60E-01	1.34E-01					OK	
09	TH-228	MS	HTC-A02-S003-0006-01	pCi/g	9.00E+00	1.79E+00	1.17E-01					OK	
10	TH-228	MSD	HTC-A02-S003-0006-01 MSD	pCi/g	8.37E+00	1.67E+00	1.20E-01					OK	
11	TH-228	TRG	HTC-A02-S003-0006-02	pCi/g	3.04E-01	2.41E-01	2.69E-01					OK	
12	TH-228	TRG	HTC-A02-S003-0612-01	pCi/g	1.05E+00	2.99E-01	1.08E-01					OK	
13	TH-228	TRG	HTC-A02-S003-1218-01	pCi/g	1.07E+00	3.16E-01	1.69E-01					OK	
14	TH-228	TRG	HTC-A02-S003-1824-01	pCi/g	1.05E+00	2.94E-01	1.21E-01					OK	
15	TH-228	TRG	HTC-A02-S003-2430-01	pCi/g	1.55E+00	4.14E-01	1.53E-01					OK	
16	TH-228	TRG	HTC-A02-S003-3036-01	pCi/g	1.13E+00	3.37E-01	1.22E-01					OK	
17	TH-228	TRG	HTC-A02-S003-3642-01	pCi/g	1.41E+00	4.12E-01	1.13E-01					OK	
18	TH-228	TRG	HTC-A02-S003-4248-01	pCi/g	1.11E+00	3.74E-01	1.66E-01					OK	
19	TH-228	TRG	HTC-A02-S004-0006-01	pCi/g	2.50E+00	6.40E-01	1.26E-01					OK	
20	TH-228	TRG	HTC-A02-S004-0612-01	pCi/g	6.46E+01	1.07E+01	3.38E-01					OK	

0206

Preliminary Data Report & Analytical Calculations
Work Order: 17-07085-ThISO-1

Client	Eberline Analytical Work Order	Analysis Code	Run
Weston Solutions, Inc.	17-07085	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-228	LCS	07/19/17 00:00	1.00E+00	107.05	0.00	0.00			
02	TH-228	MBL	07/19/17 00:00	1.00E+00	82.75	0.00	0.00			
03	TH-228	DUP	05/15/17 11:45	1.00E+00	76.23	0.00	0.00			
04	TH-228	DO	05/15/17 11:45	1.00E+00	75.83	0.00	0.00			
05	TH-228	TRG	05/15/17 11:42	1.01E+00	78.55	0.00	0.00			
06	TH-228	TRG	05/15/17 11:39	1.05E+00	105.88	0.00	0.00			
07	TH-228	TRG	05/15/17 11:36	1.03E+00	82.95	0.00	0.00			
08	TH-228	MSO	05/15/17 12:21	1.02E+00	74.45	0.00	0.00			
09	TH-228	MS	05/15/17 11:45	1.02E+00	94.79	0.00	0.00			
10	TH-228	MSD	05/15/17 12:21	1.02E+00	95.47	0.00	0.00			
11	TH-228	TRG	05/15/17 12:21	1.03E+00	49.62	0.00	0.00			
12	TH-228	TRG	05/15/17 12:18	1.01E+00	104.08	0.00	0.00			
13	TH-228	TRG	05/15/17 12:15	1.07E+00	96.95	0.00	0.00			
14	TH-228	TRG	05/15/17 12:12	1.00E+00	103.55	0.00	0.00			
15	TH-228	TRG	05/15/17 12:09	1.02E+00	91.67	0.00	0.00			
16	TH-228	TRG	05/15/17 12:06	1.00E+00	91.47	0.00	0.00			
17	TH-228	TRG	05/15/17 12:03	1.07E+00	81.37	0.00	0.00			
18	TH-228	TRG	05/15/17 12:00	1.04E+00	88.67	0.00	0.00			
19	TH-228	TRG	05/15/17 08:29	1.04E+00	83.33	0.00	0.00			
20	TH-228	TRG	05/15/17 08:27	2.86E-01	119.52	0.00	0.00			

0207

Preliminary Data Report & Analytical Calculations
Work Order: 17-07085-ThISO-1

Run	Analysis Code	Eberline Analytical Work Order	Client
1	ThISO	17-07085	Weston Solutions, Inc.

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-228	LCS	08/17/17 09:32		A_Spec	Alpha_037	170	3.75 E+02	6.00 E-03	15.9
02	TH-228	MBL	08/17/17 09:32		A_Spec	Alpha_038	170	9.66 E+00	2.00 E-03	15.4
03	TH-228	DUP	08/17/17 09:32		A_Spec	Alpha_039	170	3.61 E+01	1.70 E-02	18.5
04	TH-228	DO	08/17/17 09:32		A_Spec	Alpha_040	170	4.23 E+01	1.00 E-02	18.1
05	TH-228	TRG	08/17/17 09:32		A_Spec	Alpha_043	170	7.16 E+01	1.40 E-02	18.7
06	TH-228	TRG	08/17/17 09:32		A_Spec	Alpha_044	170	6.78 E+01	1.00 E-03	17.9
07	TH-228	TRG	08/17/17 09:32		A_Spec	Alpha_045	170	3.83 E+01	1.00 E-02	16.9
08	TH-228	MSO	08/17/17 09:32		A_Spec	Alpha_046	170	1.11 E+01	5.00 E-03	17.1
09	TH-228	MS	08/17/17 09:32		A_Spec	Alpha_047	170	4.86 E+02	6.00 E-03	16.2
10	TH-228	MSD	08/17/17 09:33		A_Spec	Alpha_048	170	4.58 E+02	7.00 E-03	16.3
11	TH-228	TRG	08/17/17 11:17		A_Spec	Alpha_003	170	8.30 E+00	1.00 E-02	15.6
12	TH-228	TRG	08/17/17 11:17		A_Spec	Alpha_004	170.02	7.13 E+01	1.00 E-02	18.8
13	TH-228	TRG	08/17/17 11:17		A_Spec	Alpha_010	170.02	7.12 E+01	3.40 E-02	18.7
14	TH-228	TRG	08/17/17 11:17		A_Spec	Alpha_011	170.02	7.43 E+01	1.60 E-02	19.9
15	TH-228	TRG	08/17/17 11:17		A_Spec	Alpha_012	170.02	9.36 E+01	2.00 E-02	18.8
16	TH-228	TRG	08/17/17 11:17		A_Spec	Alpha_014	170.02	6.55 E+01	9.00 E-03	18.5
17	TH-228	TRG	08/17/17 11:21		A_Spec	Alpha_059	170	7.52 E+01	5.00 E-03	17.8
18	TH-228	TRG	08/17/17 11:21		A_Spec	Alpha_060	170	5.20 E+01	1.20 E-02	14.8
19	TH-228	TRG	08/17/17 12:36		A_Spec	Alpha_033	170	1.25 E+02	6.00 E-03	16.8
20	TH-228	TRG	08/17/17 12:36		A_Spec	Alpha_034	170	1.31 E+03	8.00 E-03	17.3

0208

Preliminary Data Report & Analytical Calculations
Work Order: 17-07085-ThISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07085
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	6.59E+00	1.05E+00	7.47E-02	5.39E+00	122.24	OK		OK	
02	TH-230	MBL	BLANK	pCi/g	4.67E-01	2.16E-01	1.09E-01					OK	OK
03	TH-230	DUP	HTC-A02-S002-2430-01	pCi/g	7.61E-01	2.77E-01	1.28E-01				INV	OK	
04	TH-230	DO	HTC-A02-S002-2430-01	pCi/g	1.14E+00	3.62E-01	1.01E-01					OK	
05	TH-230	TRG	HTC-A02-S002-3036-01	pCi/g	1.34E+00	3.91E-01	1.07E-01					OK	
06	TH-230	TRG	HTC-A02-S002-3642-01	pCi/g	9.23E-01	2.66E-01	8.43E-02					OK	
07	TH-230	TRG	HTC-A02-S002-4248-01	pCi/g	2.35E+00	5.98E-01	1.04E-01					OK	
08	TH-230	MSO	HTC-A02-S003-0006-01	pCi/g	1.00E+01	2.14E+00	1.22E-01					OK	
09	TH-230	MS	HTC-A02-S003-0006-01	pCi/g	1.50E+01	2.84E+00	8.86E-02					OK	
10	TH-230	MSD	HTC-A02-S003-0006-01 MSD	pCi/g	1.65E+01	3.10E+00	7.97E-02					OK	
11	TH-230	TRG	HTC-A02-S003-0006-02	pCi/g	1.30E+01	3.40E+00	2.80E-01					OK	
12	TH-230	TRG	HTC-A02-S003-0612-01	pCi/g	1.19E+01	2.06E+00	8.84E-02					OK	
13	TH-230	TRG	HTC-A02-S003-1218-01	pCi/g	1.64E+00	4.06E-01	1.04E-01					OK	
14	TH-230	TRG	HTC-A02-S003-1824-01	pCi/g	1.37E+00	3.41E-01	1.05E-01					OK	
15	TH-230	TRG	HTC-A02-S003-2430-01	pCi/g	1.32E+00	3.56E-01	9.04E-02					OK	
16	TH-230	TRG	HTC-A02-S003-3036-01	pCi/g	9.69E-01	2.95E-01	1.03E-01					OK	
17	TH-230	TRG	HTC-A02-S003-3642-01	pCi/g	2.31E+00	5.75E-01	7.15E-02					OK	
18	TH-230	TRG	HTC-A02-S003-4248-01	pCi/g	1.36E+00	4.17E-01	1.47E-01					OK	
19	TH-230	TRG	HTC-A02-S004-0006-01	pCi/g	1.80E+00	4.89E-01	7.61E-02					OK	
20	TH-230	TRG	HTC-A02-S004-0612-01	pCi/g	4.45E+01	7.49E+00	2.36E-01					OK	

0209

Preliminary Data Report & Analytical Calculations
Work Order: 17-07085-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07085
Client: Weston Solutions, Inc.

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	TH-230	LCS	07/19/17 00:00	1.00E+00	107.05	0.00	0.00			
02	TH-230	MBL	07/19/17 00:00	1.00E+00	82.75	0.00	0.00			
03	TH-230	DUP	05/15/17 11:45	1.00E+00	76.23	0.00	0.00			
04	TH-230	DO	05/15/17 11:45	1.00E+00	75.83	0.00	0.00			
05	TH-230	TRG	05/15/17 11:42	1.01E+00	78.55	0.00	0.00			
06	TH-230	TRG	05/15/17 11:39	1.05E+00	105.88	0.00	0.00			
07	TH-230	TRG	05/15/17 11:36	1.03E+00	82.95	0.00	0.00			
08	TH-230	MSO	05/15/17 12:21	1.02E+00	74.45	0.00	0.00			
09	TH-230	MS	05/15/17 11:45	1.02E+00	94.79	0.00	0.00			
10	TH-230	MSD	05/15/17 12:21	1.02E+00	95.47	0.00	0.00			
11	TH-230	TRG	05/15/17 12:21	1.03E+00	49.62	0.00	0.00			
12	TH-230	TRG	05/15/17 12:18	1.01E+00	104.08	0.00	0.00			
13	TH-230	TRG	05/15/17 12:15	1.07E+00	96.95	0.00	0.00			
14	TH-230	TRG	05/15/17 12:12	1.00E+00	103.55	0.00	0.00			
15	TH-230	TRG	05/15/17 12:09	1.02E+00	91.67	0.00	0.00			
16	TH-230	TRG	05/15/17 12:06	1.00E+00	91.47	0.00	0.00			
17	TH-230	TRG	05/15/17 12:03	1.07E+00	81.37	0.00	0.00			
18	TH-230	TRG	05/15/17 12:00	1.04E+00	88.67	0.00	0.00			
19	TH-230	TRG	05/15/17 08:29	1.04E+00	83.33	0.00	0.00			
20	TH-230	TRG	05/15/17 08:27	2.86E-01	119.52	0.00	0.00			

Preliminary Data Report & Analytical Calculations
Work Order: 17-07085-ThISO-1

Client	Eberline Analytical Work Order	Analysis Code	Run
Weston Solutions, Inc.	17-07085	ThISO	1

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-230	LCS	08/17/17 09:32		A_Spec	Alpha_037	170	4.22 E+02	2.00 E-03	15.9
02	TH-230	MBL	08/17/17 09:32		A_Spec	Alpha_038	170	2.25 E+01	3.00 E-03	15.4
03	TH-230	DUP	08/17/17 09:32		A_Spec	Alpha_039	170	4.06 E+01	8.00 E-03	18.5
04	TH-230	DO	08/17/17 09:32		A_Spec	Alpha_040	170	5.95 E+01	3.00 E-03	18.1
05	TH-230	TRG	08/17/17 09:32		A_Spec	Alpha_043	170	7.52 E+01	5.00 E-03	18.7
06	TH-230	TRG	08/17/17 09:32		A_Spec	Alpha_044	170	6.90 E+01	6.00 E-03	17.9
07	TH-230	TRG	08/17/17 09:32		A_Spec	Alpha_045	170	1.27 E+02	4.00 E-03	16.9
08	TH-230	MSO	08/17/17 09:32		A_Spec	Alpha_046	170	4.91 E+02	5.00 E-03	17.1
09	TH-230	MS	08/17/17 09:32		A_Spec	Alpha_047	170	8.89 E+02	3.00 E-03	16.2
10	TH-230	MSD	08/17/17 09:33		A_Spec	Alpha_048	170	9.93 E+02	2.00 E-03	16.3
11	TH-230	TRG	08/17/17 11:17		A_Spec	Alpha_003	170	3.90 E+02	1.50 E-02	15.6
12	TH-230	TRG	08/17/17 11:17		A_Spec	Alpha_004	170.02	8.88 E+02	7.00 E-03	18.8
13	TH-230	TRG	08/17/17 11:17		A_Spec	Alpha_010	170.02	1.20 E+02	1.10 E-02	18.7
14	TH-230	TRG	08/17/17 11:17		A_Spec	Alpha_011	170.02	1.07 E+02	1.40 E-02	19.9
15	TH-230	TRG	08/17/17 11:17		A_Spec	Alpha_012	170.02	8.71 E+01	5.00 E-03	18.8
16	TH-230	TRG	08/17/17 11:17		A_Spec	Alpha_014	170.02	6.18 E+01	7.00 E-03	18.5
17	TH-230	TRG	08/17/17 11:21		A_Spec	Alpha_059	170	1.35 E+02	1.00 E-03	17.8
18	TH-230	TRG	08/17/17 11:21		A_Spec	Alpha_060	170	7.01 E+01	1.10 E-02	14.8
19	TH-230	TRG	08/17/17 12:36		A_Spec	Alpha_033	170	9.88 E+01	1.00 E-03	16.8
20	TH-230	TRG	08/17/17 12:36		A_Spec	Alpha_034	170	9.90 E+02	3.00 E-03	17.3

Preliminary Data Report & Analytical Calculations
Work Order: 17-07085-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07085
Client: Weston Solutions, Inc.

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	TH-232	LCS	LCS	pCi/g	5.85E+00	9.52E-01	9.34E-02	4.87E+00	120.11	OK		OK	
02	TH-232	MBL	BLANK	pCi/g	8.26E-02	9.39E-02	1.31E-01					OK	OK
03	TH-232	DUP	HTC-A02-S002-2430-01	pCi/g	7.13E-01	2.65E-01	1.12E-01				OK	OK	
04	TH-232	DO	HTC-A02-S002-2430-01	pCi/g	7.80E-01	2.81E-01	9.17E-02					OK	
05	TH-232	TRG	HTC-A02-S002-3036-01	pCi/g	1.00E+00	3.21E-01	1.07E-01					OK	
06	TH-232	TRG	HTC-A02-S002-3642-01	pCi/g	7.41E-01	2.30E-01	7.01E-02					OK	
07	TH-232	TRG	HTC-A02-S002-4248-01	pCi/g	8.91E-01	3.07E-01	1.58E-01					OK	
08	TH-232	MSO	HTC-A02-S003-0006-01	pCi/g	2.74E-01	1.65E-01	1.45E-01					OK	
09	TH-232	MS	HTC-A02-S003-0006-01	pCi/g	7.29E+00	1.46E+00	9.51E-02					OK	
10	TH-232	MSD	HTC-A02-S003-0006-01 MSD	pCi/g	7.39E+00	1.48E+00	9.96E-02					OK	
11	TH-232	TRG	HTC-A02-S003-0006-02	pCi/g	4.38E-01	2.67E-01	1.99E-01					OK	
12	TH-232	TRG	HTC-A02-S003-0612-01	pCi/g	8.70E-01	2.55E-01	8.44E-02					OK	
13	TH-232	TRG	HTC-A02-S003-1218-01	pCi/g	1.34E+00	3.52E-01	1.17E-01					OK	
14	TH-232	TRG	HTC-A02-S003-1824-01	pCi/g	9.82E-01	2.70E-01	6.74E-02					OK	
15	TH-232	TRG	HTC-A02-S003-2430-01	pCi/g	1.08E+00	3.12E-01	1.03E-01					OK	
16	TH-232	TRG	HTC-A02-S003-3036-01	pCi/g	1.38E+00	3.73E-01	9.37E-02					OK	
17	TH-232	TRG	HTC-A02-S003-3642-01	pCi/g	1.25E+00	3.68E-01	1.03E-01					OK	
18	TH-232	TRG	HTC-A02-S003-4248-01	pCi/g	1.03E+00	3.43E-01	1.22E-01					OK	
19	TH-232	TRG	HTC-A02-S004-0006-01	pCi/g	3.13E+00	7.48E-01	1.09E-01					OK	
20	TH-232	TRG	HTC-A02-S004-0612-01	pCi/g	5.38E+01	8.94E+00	1.87E-01					OK	

Preliminary Data Report & Analytical Calculations
Work Order: 17-07085-ThISO-1

Run	Analysis Code	Eberline Analytical Work Order	Client
1	ThISO	17-07085	Weston Solutions, Inc.

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	TH-232	LCS	07/19/17 00:00	1.00E+00	107.05	0.00	0.00			
02	TH-232	MBL	07/19/17 00:00	1.00E+00	82.75	0.00	0.00			
03	TH-232	DUP	05/15/17 11:45	1.00E+00	76.23	0.00	0.00			
04	TH-232	DO	05/15/17 11:45	1.00E+00	75.83	0.00	0.00			
05	TH-232	TRG	05/15/17 11:42	1.01E+00	78.55	0.00	0.00			
06	TH-232	TRG	05/15/17 11:39	1.05E+00	105.88	0.00	0.00			
07	TH-232	TRG	05/15/17 11:36	1.03E+00	82.95	0.00	0.00			
08	TH-232	MSO	05/15/17 12:21	1.02E+00	74.45	0.00	0.00			
09	TH-232	MS	05/15/17 11:45	1.02E+00	94.79	0.00	0.00			
10	TH-232	MSD	05/15/17 12:21	1.02E+00	95.47	0.00	0.00			
11	TH-232	TRG	05/15/17 12:21	1.03E+00	49.62	0.00	0.00			
12	TH-232	TRG	05/15/17 12:18	1.01E+00	104.08	0.00	0.00			
13	TH-232	TRG	05/15/17 12:15	1.07E+00	96.95	0.00	0.00			
14	TH-232	TRG	05/15/17 12:12	1.00E+00	103.55	0.00	0.00			
15	TH-232	TRG	05/15/17 12:09	1.02E+00	91.67	0.00	0.00			
16	TH-232	TRG	05/15/17 12:06	1.00E+00	91.47	0.00	0.00			
17	TH-232	TRG	05/15/17 12:03	1.07E+00	81.37	0.00	0.00			
18	TH-232	TRG	05/15/17 12:00	1.04E+00	88.67	0.00	0.00			
19	TH-232	TRG	05/15/17 08:29	1.04E+00	83.33	0.00	0.00			
20	TH-232	TRG	05/15/17 08:27	2.86E-01	119.52	0.00	0.00			

Preliminary Data Report & Analytical Calculations
Work Order: 17-07085-ThISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07085
Analysis Code: ThISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-232	LCS	08/17/17 09:32		A_Spec	Alpha_037	170	3.75 E+02	5.00 E-03	15.9
02	TH-232	MBL	08/17/17 09:32		A_Spec	Alpha_038	170	3.98 E+00	6.00 E-03	15.4
03	TH-232	DUP	08/17/17 09:32		A_Spec	Alpha_039	170	3.82 E+01	5.00 E-03	18.5
04	TH-232	DO	08/17/17 09:32		A_Spec	Alpha_040	170	4.07 E+01	2.00 E-03	18.1
05	TH-232	TRG	08/17/17 09:32		A_Spec	Alpha_043	170	5.62 E+01	5.00 E-03	18.7
06	TH-232	TRG	08/17/17 09:32		A_Spec	Alpha_044	170	5.55 E+01	3.00 E-03	17.9
07	TH-232	TRG	08/17/17 09:32		A_Spec	Alpha_045	170	4.83 E+01	1.60 E-02	16.9
08	TH-232	MSO	08/17/17 09:32		A_Spec	Alpha_046	170	1.35 E+01	9.00 E-03	17.1
09	TH-232	MS	08/17/17 09:32		A_Spec	Alpha_047	170	4.32 E+02	4.00 E-03	16.2
10	TH-232	MSD	08/17/17 09:33		A_Spec	Alpha_048	170	4.44 E+02	5.00 E-03	16.3
11	TH-232	TRG	08/17/17 11:17		A_Spec	Alpha_003	170	1.32 E+01	5.00 E-03	15.6
12	TH-232	TRG	08/17/17 11:17		A_Spec	Alpha_004	170.02	6.50 E+01	6.00 E-03	18.8
13	TH-232	TRG	08/17/17 11:17		A_Spec	Alpha_010	170.02	9.83 E+01	1.60 E-02	18.7
14	TH-232	TRG	08/17/17 11:17		A_Spec	Alpha_011	170.02	7.65 E+01	3.00 E-03	19.9
15	TH-232	TRG	08/17/17 11:17		A_Spec	Alpha_012	170.02	7.16 E+01	8.00 E-03	18.8
16	TH-232	TRG	08/17/17 11:17		A_Spec	Alpha_014	170.02	8.81 E+01	5.00 E-03	18.5
17	TH-232	TRG	08/17/17 11:21		A_Spec	Alpha_059	170	7.30 E+01	0.00 E+00	17.8
18	TH-232	TRG	08/17/17 11:21		A_Spec	Alpha_060	170	5.30 E+01	6.00 E-03	14.8
19	TH-232	TRG	08/17/17 12:36		A_Spec	Alpha_033	170	1.72 E+02	0.00 E+00	16.8
20	TH-232	TRG	08/17/17 12:36		A_Spec	Alpha_034	170	1.20 E+03	1.00 E-03	17.3

Count Room Report
Client: Weston Solutions, Inc.

17-07085-ThISO-1 (pCi/g) in SO
Tracer ID: Th-18a

Internal Fraction	Sample Desc	Client ID	Sample Date	Sample Aliquot	Tracer Aliquot (g)	Tracer ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	SAF 1*	SAF 2*
01	LCS	LCS	07/19/17 00:00	1.0000	0.4727	10.6168		0.00		
02	MBL	BLANK	07/19/17 00:00	1.0000	0.2358	5.2961		0.00		
03	DUP	HTC-A02-S002-2430-01	05/15/17 11:45	1.0042	0.2365	5.3118		0.00		
04	DO	HTC-A02-S002-2430-01	05/15/17 11:45	1.0048	0.2365	5.3118		0.00		
05	TRG	HTC-A02-S002-3036-01	05/15/17 11:42	1.0086	0.2357	5.2938		0.00		
06	TRG	HTC-A02-S002-3642-01	05/15/17 11:39	1.0450	0.2369	5.3208		0.00		
07	TRG	HTC-A02-S002-4248-01	05/15/17 11:36	1.0258	0.2354	5.2871		0.00		
08	MSO	HTC-A02-S003-0006-01	05/15/17 12:21	1.0214	0.2357	5.2938		0.00		
09	MS	HTC-A02-S003-0006-01	05/15/17 11:45	1.0219	0.2361	5.3028		0.00		
10	MSD	HTC-A02-S003-0006-01 MSD	05/15/17 12:21	1.0211	0.2357	5.2938		0.00		
11	TRG	HTC-A02-S003-0006-02	05/15/17 12:21	1.0261	0.2410	5.4129		0.00		
12	TRG	HTC-A02-S003-0612-01	05/15/17 12:18	1.0096	0.2358	5.2961		0.00		
13	TRG	HTC-A02-S003-1218-01	05/15/17 12:15	1.0692	0.2341	5.2579		0.00		
14	TRG	HTC-A02-S003-1824-01	05/15/17 12:12	1.0005	0.2345	5.2669		0.00		
15	TRG	HTC-A02-S003-2430-01	05/15/17 12:09	1.0198	0.2354	5.2871		0.00		
16	TRG	HTC-A02-S003-3036-01	05/15/17 12:06	1.0023	0.2361	5.3028		0.00		
17	TRG	HTC-A02-S003-3642-01	05/15/17 12:03	1.0716	0.2356	5.2916		0.00		
18	TRG	HTC-A02-S003-4248-01	05/15/17 12:00	1.0428	0.2340	5.2556		0.00		
19	TRG	HTC-A02-S004-0006-01	05/15/17 08:29	1.0388	0.2343	5.2624		0.00		
20	TRG	HTC-A02-S004-0612-01	05/15/17 08:27	0.2860	0.2352	5.2826		0.00		

Eberline Analytical
Oak Ridge Laboratory

Spike and Tracer Worksheet

Printed: 8/8/2017 2:38 PM

Internal Work Order	Run	Analysis Code	Date	Technician	Technician Initials	Witness Initials
17-07085	1	ThISO	8/8/2017 14:35	MMCDOUGALL		

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	8/8/2017	0.100	0.1044	0.1544		0.1562	4.87	0.175	7.20	0.259	0.00	0.000	7.29	0.262
Th-230	Th-1b	23.520	8/8/2017	0.500	0.5086	0.5091		0.5095	5.39	0.145	5.39	0.146	0.00	0.000	5.40	0.146
Th-232	Th-8b	103.560	8/8/2017	0.100	0.1044	0.1544		0.1562	4.87	0.175	7.20	0.259	0.00	0.000	7.29	0.262

Tracers						
fraction	Isotope	Sol #	Activity dpm/g	Solution Date	Volume Used (g)	Approx Addition
01	Th-229	Th-18a	22.460	8/8/2017	0.4727	0.2200
02	Th-229	Th-18a	22.460	8/8/2017	0.2358	0.2200
03	Th-229	Th-18a	22.460	8/8/2017	0.2365	0.2200
04	Th-229	Th-18a	22.460	8/8/2017	0.2365	0.2200
05	Th-229	Th-18a	22.460	8/8/2017	0.2357	0.2200
06	Th-229	Th-18a	22.460	8/8/2017	0.2369	0.2200
07	Th-229	Th-18a	22.460	8/8/2017	0.2354	0.2200
08	Th-229	Th-18a	22.460	8/8/2017	0.2357	0.2200
09	Th-229	Th-18a	22.460	8/8/2017	0.2361	0.2200
10	Th-229	Th-18a	22.460	8/8/2017	0.2357	0.2200
11	Th-229	Th-18a	22.460	8/8/2017	0.2410	0.2200
12	Th-229	Th-18a	22.460	8/8/2017	0.2358	0.2200
13	Th-229	Th-18a	22.460	8/8/2017	0.2341	0.2200
14	Th-229	Th-18a	22.460	8/8/2017	0.2345	0.2200
15	Th-229	Th-18a	22.460	8/8/2017	0.2354	0.2200
16	Th-229	Th-18a	22.460	8/8/2017	0.2361	0.2200
17	Th-229	Th-18a	22.460	8/8/2017	0.2356	0.2200
18	Th-229	Th-18a	22.460	8/8/2017	0.2340	0.2200
19	Th-229	Th-18a	22.460	8/8/2017	0.2343	0.2200
20	Th-229	Th-18a	22.460	8/8/2017	0.2352	0.2200

Balance Printer Tapes	
Tracer	LCS
	Matrix Spike

0216

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
17-07085	1	ThISO	grams	8/10/2017	JHARVEY

Lab Fraction	Weston Solutions, Inc. Client ID	Sample Type	Muffle Data Ratio Post/Pre	Dilution Data No of Dils	Dil Factor	Ratio	Aliquot Data Aliquot	Net Equiv	MS Aliquot Data Aliquot	Net Equiv	H-3 Solids Only Water Added (ml)	H3 Dist Aliq
01	LCS	LCS				1.00E+00	1.0000E+00	1.0000E+00				
02	BLANK	MBL				1.00E+00	1.0000E+00	1.0000E+00				
03	HTC-A02-S002-2430-01	DUP				1.00E+00	1.0042E+00	1.0042E+00				
04	HTC-A02-S002-2430-01	DO				1.00E+00	1.0048E+00	1.0048E+00				
05	HTC-A02-S002-3036-01	TRG				1.00E+00	1.0086E+00	1.0086E+00				
06	HTC-A02-S002-3642-01	TRG				1.00E+00	1.0450E+00	1.0450E+00				
07	HTC-A02-S002-4248-01	TRG				1.00E+00	1.0258E+00	1.0258E+00				
08	HTC-A02-S003-0006-01	MSO				1.00E+00	1.0214E+00	1.0214E+00				
09	HTC-A02-S003-0006-01	MS				1.00E+00	1.0219E+00	1.0219E+00				
10	HTC-A02-S003-0006-01 MSD	MSD				1.00E+00	1.0211E+00	1.0211E+00				
11	HTC-A02-S003-0006-02	TRG				1.00E+00	1.0261E+00	1.0261E+00				
12	HTC-A02-S003-0612-01	TRG				1.00E+00	1.0096E+00	1.0096E+00				
13	HTC-A02-S003-1218-01	TRG				1.00E+00	1.0692E+00	1.0692E+00				
14	HTC-A02-S003-1824-01	TRG				1.00E+00	1.0005E+00	1.0005E+00				
15	HTC-A02-S003-2430-01	TRG				1.00E+00	1.0198E+00	1.0198E+00				
16	HTC-A02-S003-3036-01	TRG				1.00E+00	1.0023E+00	1.0023E+00				
17	HTC-A02-S003-3642-01	TRG				1.00E+00	1.0716E+00	1.0716E+00				
18	HTC-A02-S003-4248-01	TRG				1.00E+00	1.0428E+00	1.0428E+00				
19	HTC-A02-S004-0006-01	TRG				1.00E+00	1.0388E+00	1.0388E+00				
20	HTC-A02-S004-0612-01	TRG				1.00E+00	2.8600E-01	2.8600E-01				

Comments	

0217

Technician: JHarvey Date: 8/8/17

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
17-07085	8/10/2017	7/30/2017	7/31/2017	8/1/2017	KSALLINGS

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

Eberline Fraction	Weston Solutions, Inc. Client ID	Tare (g) Pan Wt	Gross (g) Wet Wt.	Gross (g) Dry Wt.	Net (g) Wet Wt.	Net (g) Dry Wt.	Percent Liquid	Percent Solid	Gamma Dry Wt.	Gamma LEPS Wt.	Special Info
04	HTC-A02-S002-2430-01	14.5800	950.0000	791.2200	935.4200	776.6400	16.97%	83.03%	0.0000	0.0000	
05	HTC-A02-S002-3036-01	14.6400	1084.7600	895.5000	1070.1200	880.8600	17.69%	82.31%	0.0000	0.0000	
06	HTC-A02-S002-3642-01	14.7500	1099.6400	940.2400	1084.8900	925.4900	14.69%	85.31%	0.0000	0.0000	
07	HTC-A02-S002-4248-01	14.7700	1008.6200	844.6600	993.8500	829.8900	16.50%	83.50%	0.0000	0.0000	
08	HTC-A02-S003-0006-01	14.5200	890.0800	841.1200	875.5600	826.6000	5.59%	94.41%	0.0000	0.0000	
09	HTC-A02-S003-0006-01 MS	14.7000	855.2800	798.0200	840.5800	783.3200	6.81%	93.19%	0.0000	0.0000	
10	HTC-A02-S003-0006-01 MSD	14.7000	855.2800	798.0200	840.5800	783.3200	6.81%	93.19%	0.0000	0.0000	
11	HTC-A02-S003-0006-02	14.6200	876.7800	823.3800	862.1600	808.7600	6.19%	93.81%	0.0000	0.0000	
12	HTC-A02-S003-0612-01	14.6000	866.2400	735.5100	851.6400	720.9100	15.35%	84.65%	0.0000	0.0000	
13	HTC-A02-S003-1218-01	14.6500	835.8800	699.4500	821.2300	684.8000	16.61%	83.39%	0.0000	0.0000	
14	HTC-A02-S003-1824-01	14.5800	719.4100	607.0900	704.8300	592.5100	15.94%	84.06%	0.0000	0.0000	
15	HTC-A02-S003-2430-01	14.6500	957.5800	795.4000	942.9300	780.7500	17.20%	82.80%	0.0000	0.0000	
16	HTC-A02-S003-3036-01	14.6400	831.2400	696.6200	816.6000	681.9800	16.49%	83.51%	0.0000	0.0000	
17	HTC-A02-S003-3642-01	14.6300	799.2600	656.0800	784.6300	641.4500	18.25%	81.75%	0.0000	0.0000	
18	HTC-A02-S003-4248-01	14.5900	749.6100	618.7200	735.0200	604.1300	17.81%	82.19%	0.0000	0.0000	
19	HTC-A02-S004-0006-01	14.5400	865.1000	569.0200	850.5600	554.4800	34.81%	65.19%	0.0000	0.0000	
20	HTC-A02-S004-0612-01	14.5300	1064.2200	983.1400	1049.6900	968.6100	7.72%	92.28%	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)

0218

Technician: Kerry Sai

Date: Analysis: Rough Prep Logbook

KD 9/17/17

Apex-Alpha™

Sample Description: SPIKE
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707085A-TH
Sample Identification: 01
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: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 8/17/2017 5:55:23 AM
Acquisition Date/Time: 8/17/2017 9:32:43 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.473 mL
Effective Efficiency: 0.1699 +/- 0.0110
Counting Efficiency: 0.1587 +/- 0.0027 on 11/18/2016 10:08:53 AM
Chem. Recovery Factor: 1.0705 +/- 0.0720

Control Certificate Name: NatTh_Th-8
Chem. Recov. of Control: TH-232 1.201147 +/- 0.106075
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		5.756	26.15	39.05	0.85	0.00E+000	9.0
TH-228		5.386	374.98	10.14	1.02	0.00E+000	12.3
TH-229	T	4.872	306.66	11.20	0.34	0.00E+000	8.2
TH-230		4.643	421.66	9.55	0.34	0.00E+000	17.1
TH-232		3.975	375.15	10.13	0.85	0.00E+000	13.5

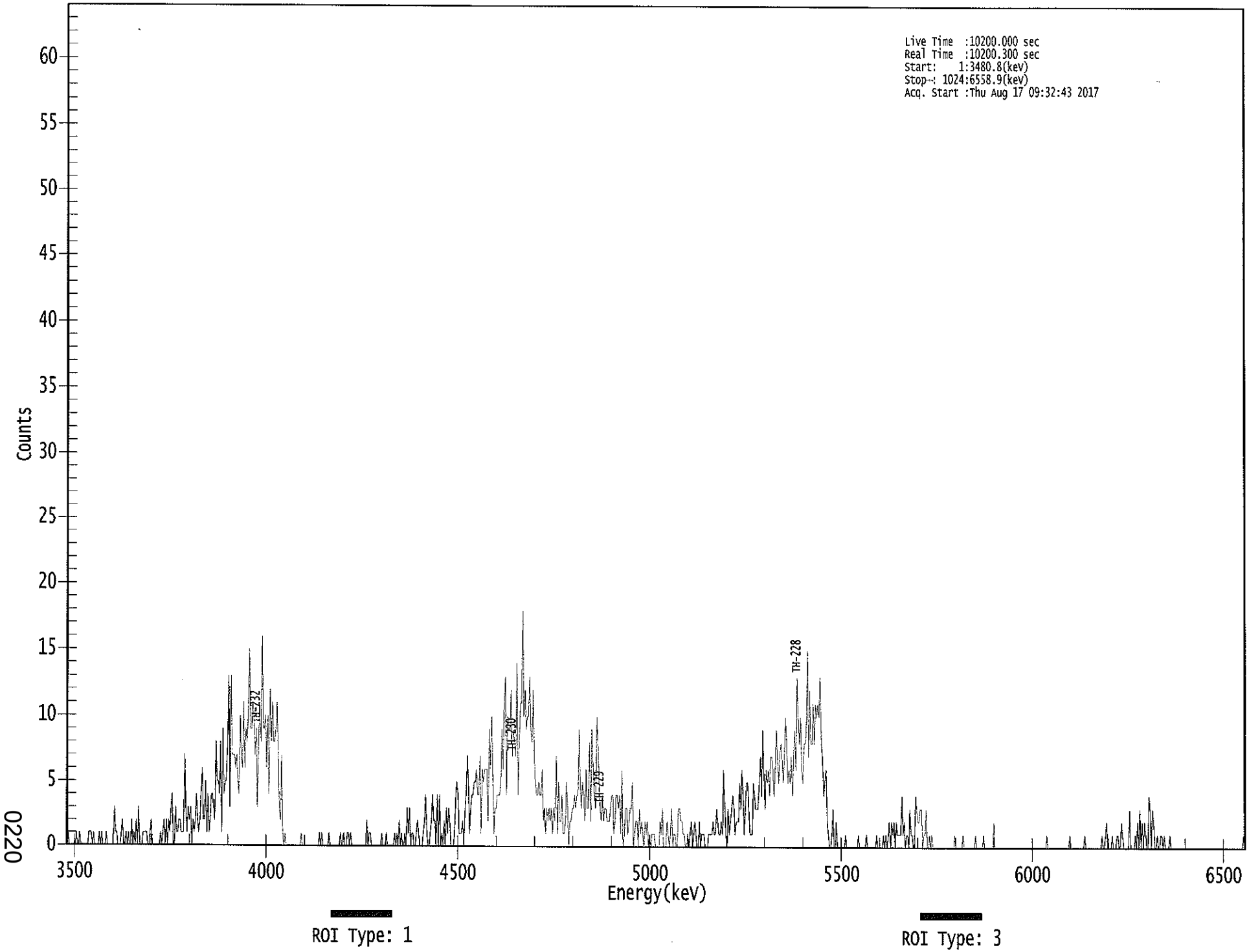
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.955	5850.00*	4.18E-001 +/- 1.72E-001	9.57E-002 +/- 1.22E-002
TH-228	0.999	5400.00*	5.85E+000 +/- 9.53E-001	9.83E-002 +/- 1.25E-002
TH-229	1.000	4872.00*	4.80E+000 +/- 6.12E-001	7.49E-002 +/- 9.54E-003
TH-230	0.996	4672.00*	6.59E+000 +/- 1.05E+000	7.47E-002 +/- 9.52E-003
TH-232	0.997	3997.00*	5.85E+000 +/- 9.52E-001	9.34E-002 +/- 1.19E-002

AG 8/18/17

0000191755.CNF



0220

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

Sample Title: 01

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	10	6	1	3	3	4	4	4

Sample Title: 01

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

801:	0	0	0	0	2	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	1	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	1	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	1	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	1	0	0	1	2	0
905:	0	0	0	1	0	0	0	1
913:	1	0	0	2	1	0	0	0
921:	0	0	3	0	0	0	0	1
929:	0	2	0	3	0	2	0	2
937:	1	0	0	4	3	0	3	2
945:	0	0	1	0	0	1	1	0
953:	1	0	0	0	0	1	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	1	0	0

Apex-Alpha™

KB 8/17/17

Sample Description: BLANK
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001916
Batch Identification: 1707085A-TH
Sample Identification: 02
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: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 8/17/2017 5:55:23 AM
Acquisition Date/Time: 8/17/2017 9:32:45 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.236 mL
Effective Efficiency: 0.1277 +/- 0.0126
Counting Efficiency: 0.1543 +/- 0.0027 on 11/18/2016 10:08:51 AM
Chem. Recovery Factor: 0.8275 +/- 0.0829

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		5.873	-0.34	592.90	0.34	0.00E+000	0.0
TH-228		5.305	9.66	64.35	0.34	0.00E+000	6.0
TH-229	T	4.837	114.98	18.37	1.02	0.00E+000	7.1
TH-230		4.637	22.49	41.87	0.51	0.00E+000	3.0
TH-232		3.985	3.98	112.01	1.02	0.00E+000	3.0

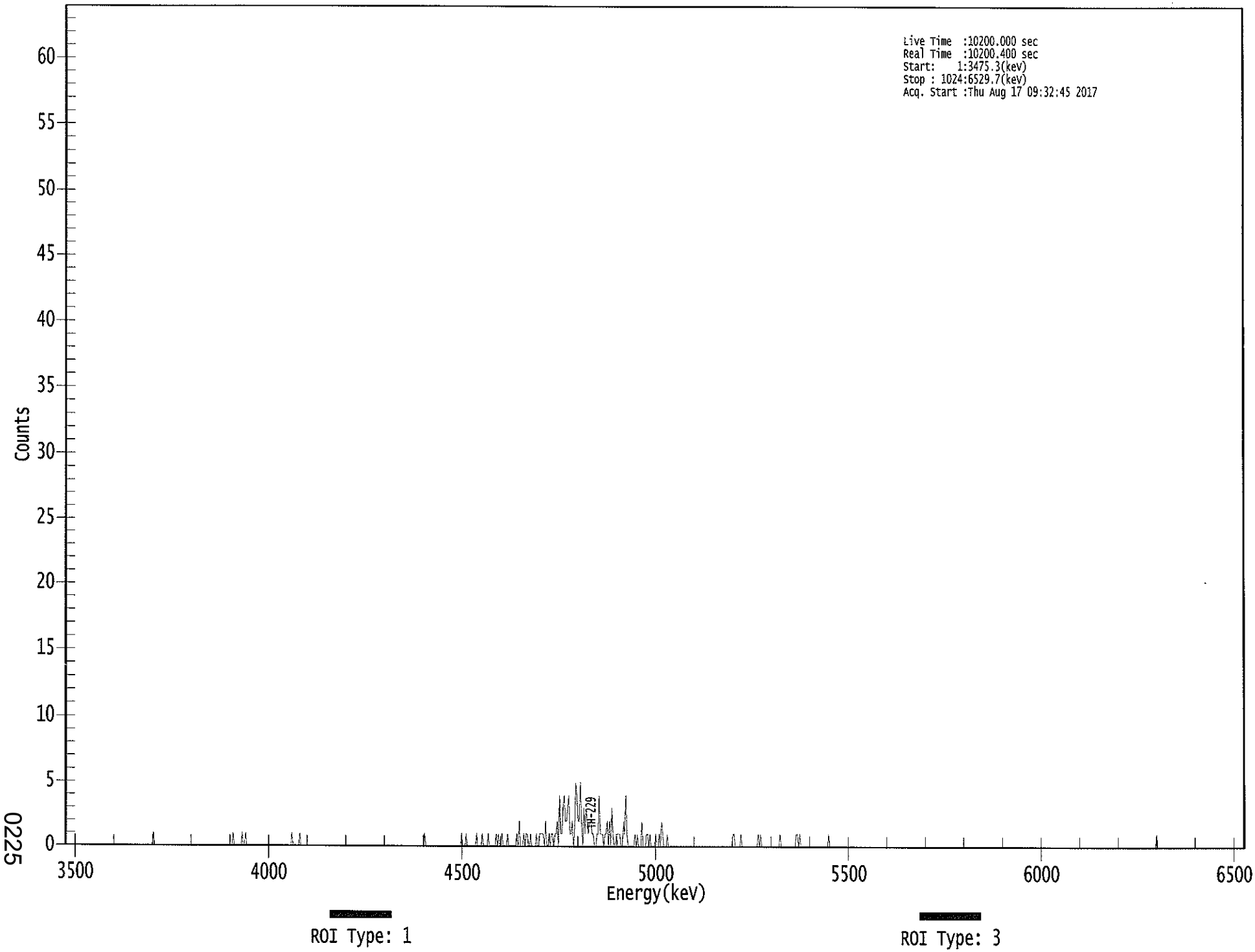
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.997	5850.00*	-7.23E-003 +/- 4.29E-002	1.02E-001 +/- 1.97E-002
TH-228	0.954	5400.00*	2.01E-001 +/- 1.35E-001	9.93E-002 +/- 1.92E-002
TH-229	0.994	4872.00*	2.40E+000 +/- 4.64E-001	1.31E-001 +/- 2.54E-002
TH-230	0.994	4672.00*	4.67E-001 +/- 2.16E-001	1.09E-001 +/- 2.11E-002
TH-232	0.999	3997.00*	8.26E-002 +/- 9.39E-002	1.31E-001 +/- 2.53E-002

NG 8/18/17

0000191693.CNF



0225

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

Sample Title: 02

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	0	0	0	0	1	0	1

Sample Title: 02

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

801:	0	0	0	0	0	0	0	0

Sample Title: 02

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

Apex-Alpha™

KB 8/17/17

Sample Description: HTC-A02-S002-2430-01-DUP
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001916
Batch Identification: 1707085A-TH
Sample Identification: 03
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: 1.004E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:55:23 AM
Acquisition Date/Time: 8/17/2017 9:32:47 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.236 mL
Effective Efficiency: 0.1412 +/- 0.0134
Counting Efficiency: 0.1852 +/- 0.0031 on 11/18/2016 10:08:50 AM
Chem. Recovery Factor: 0.7623 +/- 0.0734

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.803	4.49	98.45	0.51	0.00E+000	3.0
TH-228		5.330	36.11	34.11	2.89	0.00E+000	3.0
TH-229	T	4.849	127.45	17.56	2.55	0.00E+000	3.6
TH-230		4.621	40.64	31.34	1.36	0.00E+000	3.0
TH-232		3.930	38.15	32.14	0.85	0.00E+000	3.5

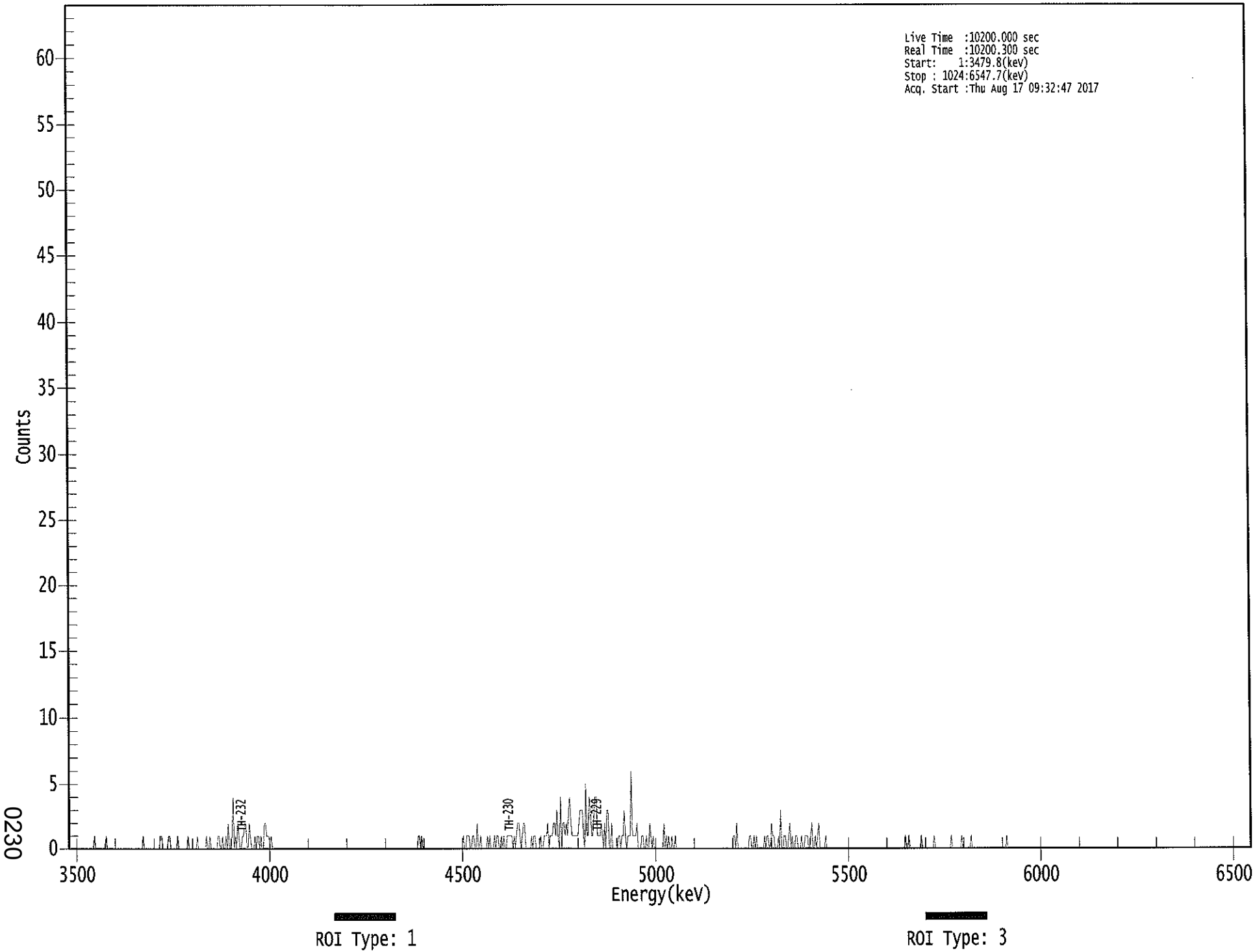
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.989	5850.00*	8.68E-002 +/- 8.70E-002	1.01E-001 +/- 1.89E-002
TH-228	0.975	5400.00*	7.42E-001 +/- 2.88E-001	1.80E-001 +/- 3.34E-002
TH-229	0.997	4872.00*	2.39E+000 +/- 4.45E-001	1.58E-001 +/- 2.93E-002
TH-230	0.987	4672.00*	7.61E-001 +/- 2.77E-001	1.28E-001 +/- 2.39E-002
TH-232	0.977	3997.00*	7.13E-001 +/- 2.65E-001	1.12E-001 +/- 2.08E-002

KG 8/18/17

0000191696.CNF



0230

****
***** 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	1	0
25:	0	0	0	0	0	0	0	0
33:	1	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	1	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	1
81:	1	0	0	0	0	0	1	1
89:	0	0	0	0	0	0	1	0
97:	0	0	0	0	0	0	0	1
105:	0	0	0	0	0	0	0	1
113:	0	0	0	0	0	0	0	1
121:	0	0	1	0	0	0	0	0
129:	0	1	1	0	0	1	0	0
137:	1	0	2	0	0	1	4	0
145:	1	0	2	1	0	0	1	1
153:	2	2	0	0	2	1	0	0
161:	0	1	0	1	1	0	1	0
169:	0	2	2	1	1	1	0	1
177:	0	0	0	0	0	0	0	0
185:	0	0	0	0	0	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	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	1	1
305:	0	1	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	1	0	0
345:	1	1	1	0	0	1	1	0
353:	0	2	0	0	1	0	0	0
361:	0	0	1	0	1	0	0	0

369:	1	0	1	1	0	0	1	0

Sample Title: 03

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

801:	0	0	0	0	0	0	0	0

Sample Title: 03

Channel								
809:	0	0	0	1	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	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

KP 8/17/17

Apex-Alpha™

Sample Description: HTC-A02-S002-2430-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001916
Batch Identification: 1707085A-TH
Sample Identification: 04
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: 1.005E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:55:23 AM
Acquisition Date/Time: 8/17/2017 9:32:49 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.236 mL
Effective Efficiency: 0.1375 +/- 0.0131
Counting Efficiency: 0.1813 +/- 0.0031 on 11/18/2016 10:08:48 AM
Chem. Recovery Factor: 0.7583 +/- 0.0734

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.863	4.98	97.79	1.02	0.00E+000	3.0
TH-228		5.351	42.30	30.84	1.70	0.00E+000	4.5
TH-229	T	4.865	124.15	17.66	0.85	0.00E+000	7.2
TH-230		4.612	59.49	25.54	0.51	0.00E+000	3.7
TH-232		3.935	40.66	30.89	0.34	0.00E+000	3.0

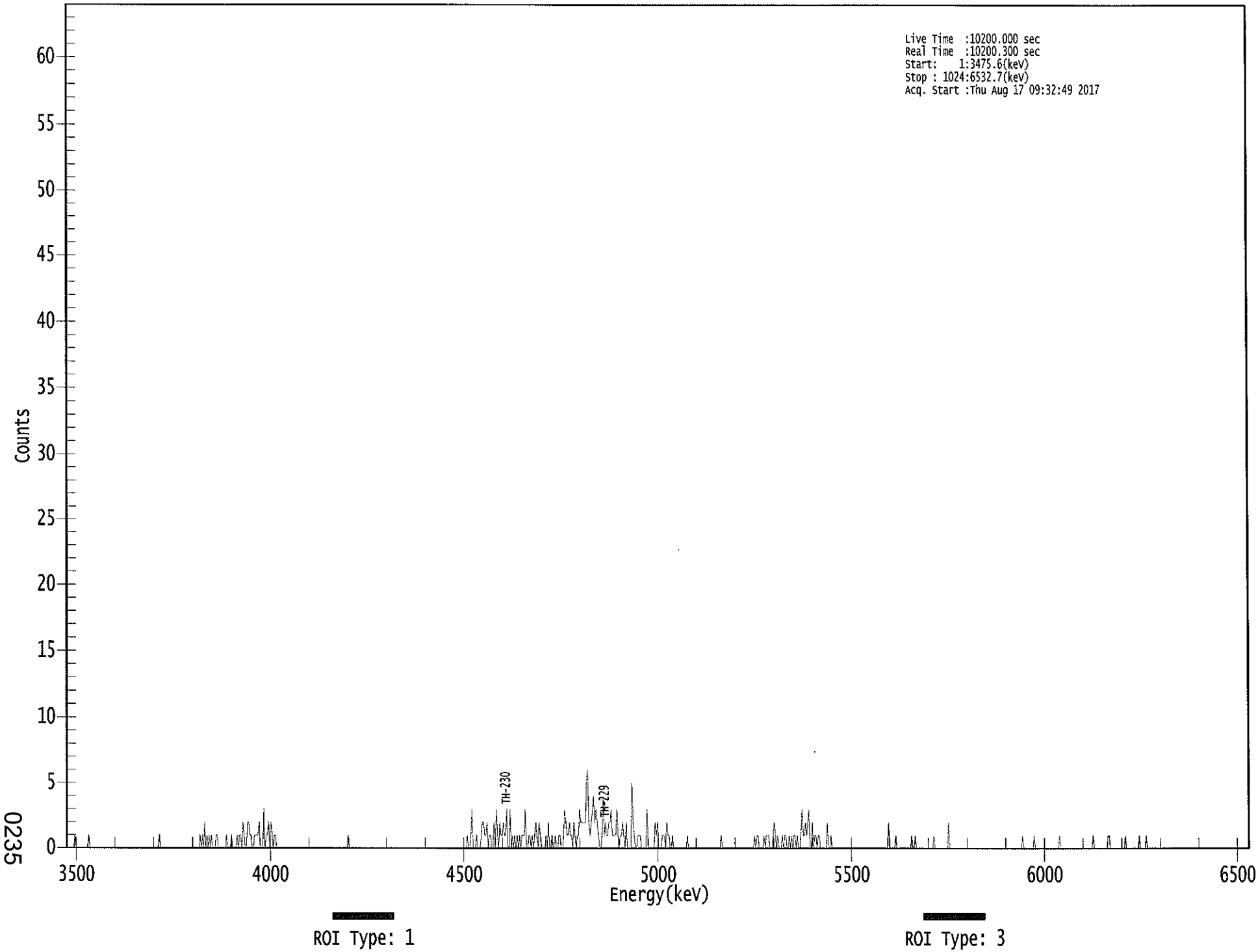
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.999	5850.00*	9.88E-002 +/- 9.83E-002	1.25E-001 +/- 2.33E-002
TH-228	0.987	5400.00*	8.91E-001 +/- 3.21E-001	1.55E-001 +/- 2.89E-002
TH-229	1.000	4872.00*	2.39E+000 +/- 4.47E-001	1.15E-001 +/- 2.15E-002
TH-230	0.981	4672.00*	1.14E+000 +/- 3.62E-001	1.01E-001 +/- 1.88E-002
TH-232	0.980	3997.00*	7.80E-001 +/- 2.81E-001	9.17E-002 +/- 1.71E-002

AG 8/18/17

0000191697.CNF



0235

****
***** 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	1
9:	0	0	0	0	0	0	0	0
17:	0	0	0	1	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	1	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	1	0	2
121:	0	1	0	1	0	1	0	0
129:	0	1	1	0	0	0	0	0
137:	0	0	1	0	0	0	1	0
145:	0	0	0	1	0	1	1	0
153:	2	1	0	0	2	2	1	1
161:	0	0	1	1	1	1	2	0
169:	0	0	3	0	1	1	2	0
177:	2	1	0	1	1	0	0	0
185:	0	0	0	0	0	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	0	1	0	0	0	0
249:	0	0	0	0	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	1	0	0	1	3	0
353:	0	0	1	0	0	0	1	2
361:	2	1	1	2	0	1	1	0

369:	0	2	0	3	1	0	2	1

Sample Title: 04

Channel								
377:	1	2	1	1	3	0	0	3
385:	0	1	0	1	0	1	0	1
393:	0	1	1	1	3	0	0	1
401:	1	0	1	0	1	2	1	0
409:	2	1	0	0	0	0	1	0
417:	2	0	0	1	0	0	1	0
425:	0	1	1	0	0	1	3	2
433:	1	1	2	1	1	0	2	1
441:	0	1	1	3	2	2	2	2
449:	2	5	6	2	1	2	3	4
457:	2	3	2	1	0	0	1	4
465:	1	2	1	1	2	2	3	1
473:	1	1	1	3	1	0	1	1
481:	2	1	0	2	0	0	0	0
489:	5	2	1	0	0	1	1	1
497:	0	0	0	0	0	3	0	0
505:	0	0	0	0	2	1	2	0
513:	0	0	1	1	1	0	2	1
521:	1	0	0	1	0	0	0	0
529:	0	0	0	0	0	0	0	0
537:	1	0	0	0	0	0	0	0
545:	0	0	0	0	0	0	0	0
553:	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	1	0	0
569:	0	0	0	0	0	0	0	0
577:	0	0	0	0	0	0	0	0
585:	0	0	0	0	0	0	0	0
593:	0	0	1	0	1	1	0	0
601:	0	0	1	0	1	1	1	0
609:	0	0	1	2	1	0	1	0
617:	0	0	1	0	1	1	0	0
625:	1	0	1	0	1	1	0	1
633:	0	0	1	3	1	1	2	1
641:	2	3	0	0	2	0	1	1
649:	0	1	1	0	0	0	0	0
657:	0	2	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	2	0
713:	0	0	0	0	1	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	1	0	0	1	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	1	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	2	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	1	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	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	1
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	1	1	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	1	0	0	0	0
921:	0	0	0	0	0	0	0	1
929:	0	0	0	0	0	1	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

ICB 8/18/17

Sample Description: HTC-A02-S002-3036-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001916
Batch Identification: 1707085A-TH
Sample Identification: 05
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: 1.009E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:55:23 AM
Acquisition Date/Time: 8/17/2017 9:32:50 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.236 mL
Effective Efficiency: 0.1472 +/- 0.0136
Counting Efficiency: 0.1874 +/- 0.0032 on 11/18/2016 10:08:43 AM
Chem. Recovery Factor: 0.7855 +/- 0.0738

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.859	7.98	74.39	1.02	0.00E+000	3.0
TH-228		5.334	71.62	23.61	2.38	0.00E+000	3.8
TH-229	T	4.863	132.49	17.07	0.51	0.00E+000	3.0
TH-230		4.616	75.15	22.76	0.85	0.00E+000	8.0
TH-232		3.929	56.15	26.39	0.85	0.00E+000	4.0

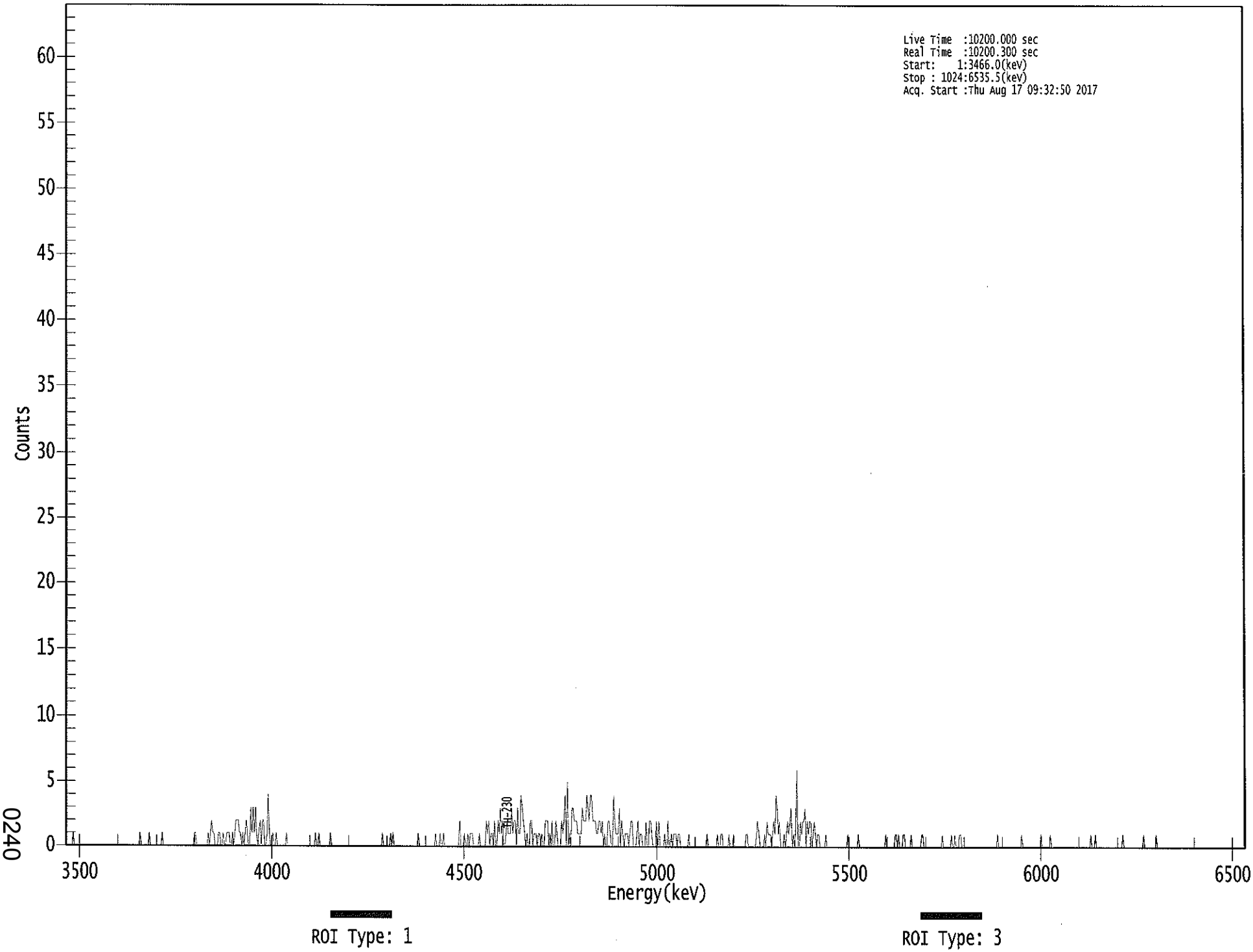
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	1.47E-001 +/- 1.13E-001	1.16E-001 +/- 2.11E-002
TH-228	0.978	5400.00*	1.40E+000 +/- 4.18E-001	1.61E-001 +/- 2.91E-002
TH-229	1.000	4872.00*	2.38E+000 +/- 4.30E-001	9.41E-002 +/- 1.70E-002
TH-230	0.984	4672.00*	1.34E+000 +/- 3.91E-001	1.07E-001 +/- 1.94E-002
TH-232	0.976	3997.00*	1.00E+000 +/- 3.21E-001	1.07E-001 +/- 1.94E-002

AG 8/18/17

0000191694.CNF



0240

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

Sample Title: 05

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	1	1	0	2	0	0	2	1

Sample Title: 05

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

801:	0	0	0	0	0	0	0	1

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

KG 8/18/17

Sample Description: HTC-A02-S002-3642-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001916
Batch Identification: 1707085A-TH
Sample Identification: 06
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: 1.045E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:55:23 AM
Acquisition Date/Time: 8/17/2017 9:32:52 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.237 mL
Effective Efficiency: 0.1898 +/- 0.0157
Counting Efficiency: 0.1793 +/- 0.0030 on 11/18/2016 10:08:42 AM
Chem. Recovery Factor: 1.0588 +/- 0.0891

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.863	6.00	86.43	0.00	0.00E+000	3.0
TH-228		5.358	67.83	23.83	0.17	0.00E+000	3.5
TH-229	T	4.856	171.66	14.98	0.34	0.00E+000	5.3
TH-230		4.608	68.98	23.80	1.02	0.00E+000	5.0
TH-232		3.941	55.49	26.45	0.51	0.00E+000	10.0

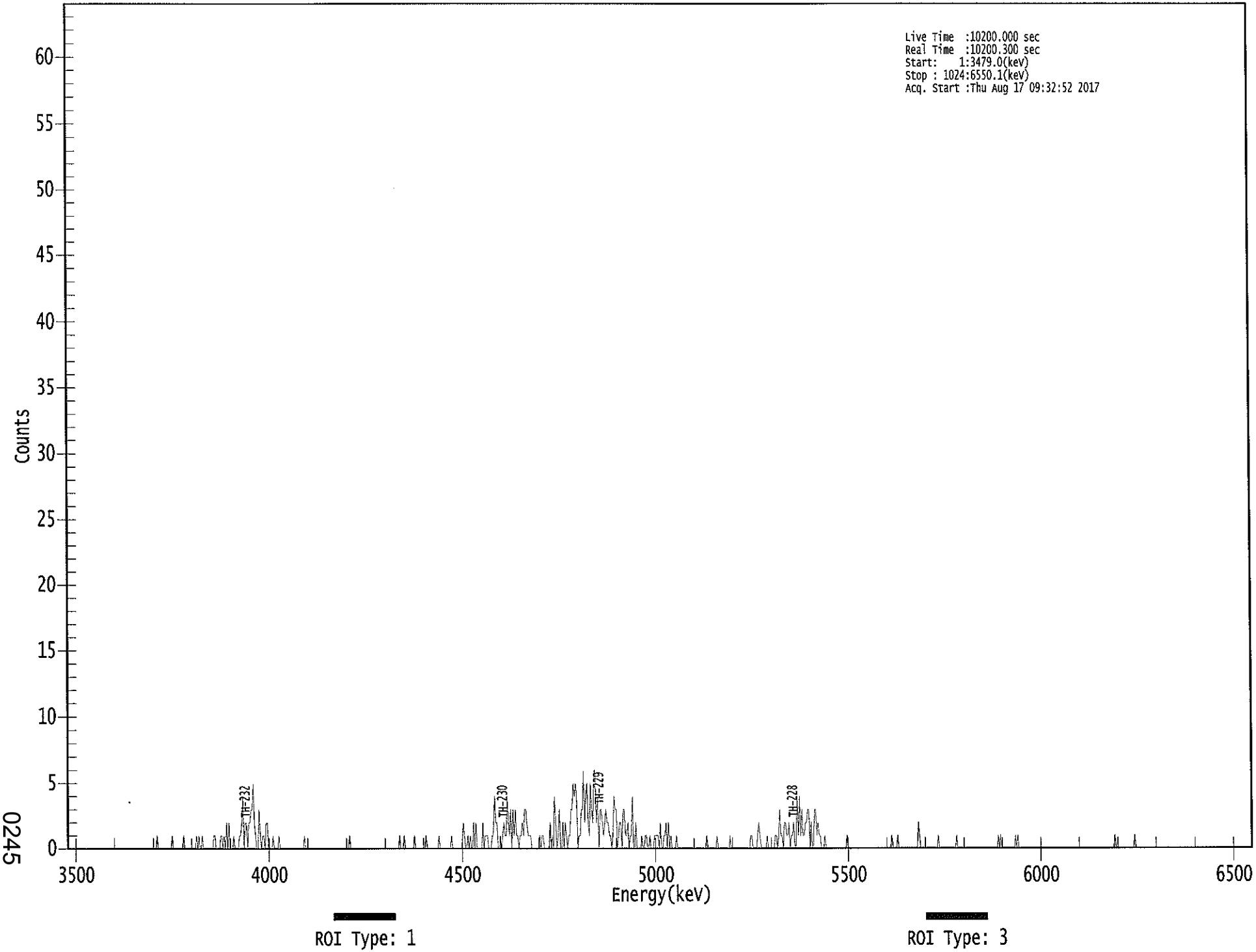
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.999	5850.00*	8.29E-002 +/- 7.29E-002	8.28E-002 +/- 1.34E-002
TH-228	0.991	5400.00*	9.96E-001 +/- 2.87E-001	6.13E-002 +/- 9.90E-003
TH-229	0.999	4872.00*	2.30E+000 +/- 3.72E-001	6.42E-002 +/- 1.04E-002
TH-230	0.979	4672.00*	9.23E-001 +/- 2.66E-001	8.43E-002 +/- 1.36E-002
TH-232	0.984	3997.00*	7.41E-001 +/- 2.30E-001	7.01E-002 +/- 1.13E-002

AG 8/18/17

0000191695.CNF



0245

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

Sample Title: 06

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	4	2	2	0	0	1	0	1

Sample Title: 06

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

801:	0	0	0	1	0	1	0	0

Sample Title: 06

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

KB 8/17/17

Apex-Alpha™

Sample Description: HTC-A02-S002-4248-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001916
Batch Identification: 1707085A-TH
Sample Identification: 07
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: 1.026E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:55:23 AM
Acquisition Date/Time: 8/17/2017 9:32:54 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.235 mL
Effective Efficiency: 0.1400 +/- 0.0132
Counting Efficiency: 0.1688 +/- 0.0029 on 11/18/2016 10:08:40 AM
Chem. Recovery Factor: 0.8295 +/- 0.0796

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		5.847	6.32	82.73	0.68	0.00E+000	3.0
TH-228		5.352	38.30	32.48	1.70	0.00E+000	3.5
TH-229	T	4.850	125.83	17.49	0.17	0.00E+000	6.8
TH-230		4.620	127.32	17.42	0.68	0.00E+000	7.8
TH-232		3.950	48.28	29.12	2.72	0.00E+000	5.0

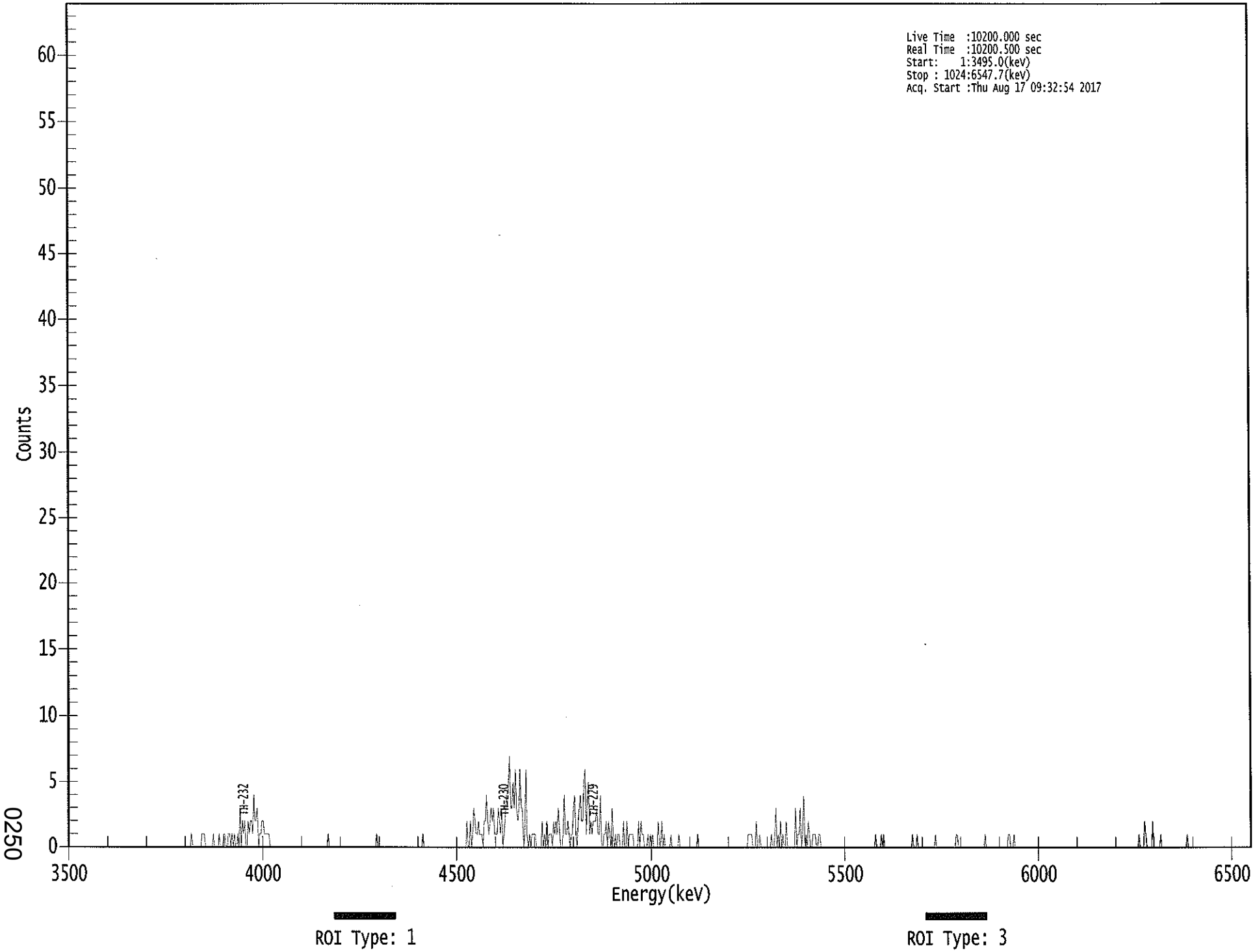
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	1.21E-001 +/- 1.02E-001	1.08E-001 +/- 1.99E-002
TH-228	0.988	5400.00*	7.76E-001 +/- 2.90E-001	1.49E-001 +/- 2.76E-002
TH-229	0.997	4872.00*	2.33E+000 +/- 4.32E-001	7.74E-002 +/- 1.43E-002
TH-230	0.986	4672.00*	2.35E+000 +/- 5.98E-001	1.04E-001 +/- 1.93E-002
TH-232	0.988	3997.00*	8.91E-001 +/- 3.07E-001	1.58E-001 +/- 2.93E-002

AG 8/18/17

0000191690.CNF



0250

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

Sample Title: 07

Elapsed Live time: 10200
Elapsed Real Time: 10201

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	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	1	0	0	0	0	0
113:	0	0	0	1	1	1	0	0
121:	0	0	0	0	0	1	0	0
129:	0	0	1	0	0	0	1	1
137:	0	0	1	1	0	1	0	1
145:	0	0	1	0	3	0	2	1
153:	2	0	0	2	1	2	2	1
161:	4	2	2	3	0	1	1	2
169:	2	1	1	1	1	1	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:	1	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	0	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	1	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:	2	0	0	2	0	1	3	2
353:	1	1	2	1	1	1	0	2
361:	2	4	2	1	2	3	2	3

369:	1	1	1	3	2	1	3	0

Sample Title: 07

Channel								
377:	1	2	4	3	5	7	3	3
385:	5	3	6	3	2	3	6	3
393:	3	0	1	6	1	0	1	0
401:	1	1	1	1	0	0	0	0
409:	0	2	0	1	0	2	0	1
417:	1	1	0	2	1	2	1	3
425:	1	0	0	1	4	1	1	2
433:	1	0	1	1	3	4	1	0
441:	2	3	4	2	2	5	6	1
449:	4	5	1	2	1	2	2	2
457:	3	1	1	4	0	0	1	1
465:	2	0	2	1	0	3	1	0
473:	1	0	1	1	0	0	0	2
481:	0	0	2	0	1	1	1	1
489:	0	0	0	0	2	0	2	1
497:	1	0	0	0	1	0	1	0
505:	1	0	0	0	0	2	0	0
513:	2	0	1	0	0	0	0	0
521:	1	0	0	0	0	0	0	1
529:	0	0	0	0	0	0	0	0
537:	0	0	0	0	0	0	0	1
545:	0	0	0	0	0	0	0	0
553:	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0
569:	0	0	0	0	0	0	0	0
577:	0	0	0	0	0	0	0	0
585:	0	0	0	1	1	1	1	0
593:	0	0	2	0	0	1	0	0
601:	0	0	0	0	0	0	0	1
609:	0	0	1	3	0	1	0	2
617:	0	1	0	0	2	0	0	0
625:	0	0	0	0	3	0	1	1
633:	3	0	1	4	0	1	0	2
641:	1	0	0	1	1	1	0	0
649:	1	1	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	1	0	0	0	0	1	0
705:	1	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	1	0	0	0	1	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	1	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	1
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:	1	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	1	1	0	0
817:	0	1	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	1	0	0
929:	0	0	2	1	0	0	0	0
937:	0	2	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	1
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

KB 8/17/17

Apex-Alpha™

Sample Description: HTC-A02-S003-0006-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001916
Batch Identification: 1707085A-TH
Sample Identification: 08
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: 1.021E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:55:23 AM
Acquisition Date/Time: 8/17/2017 9:32:56 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.236 mL
Effective Efficiency: 0.1276 +/- 0.0127
Counting Efficiency: 0.1713 +/- 0.0029 on 11/18/2016 10:08:38 AM
Chem. Recovery Factor: 0.7445 +/- 0.0750

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.900	30.49	35.84	0.51	0.00E+000	3.0
TH-228		5.363	11.15	61.26	0.85	0.00E+000	3.0
TH-229	T	4.847	114.79	18.50	2.21	0.00E+000	3.0
TH-230		4.620	491.15	8.85	0.85	0.00E+000	60.8
TH-232		3.956	13.47	56.84	1.53	0.00E+000	3.0

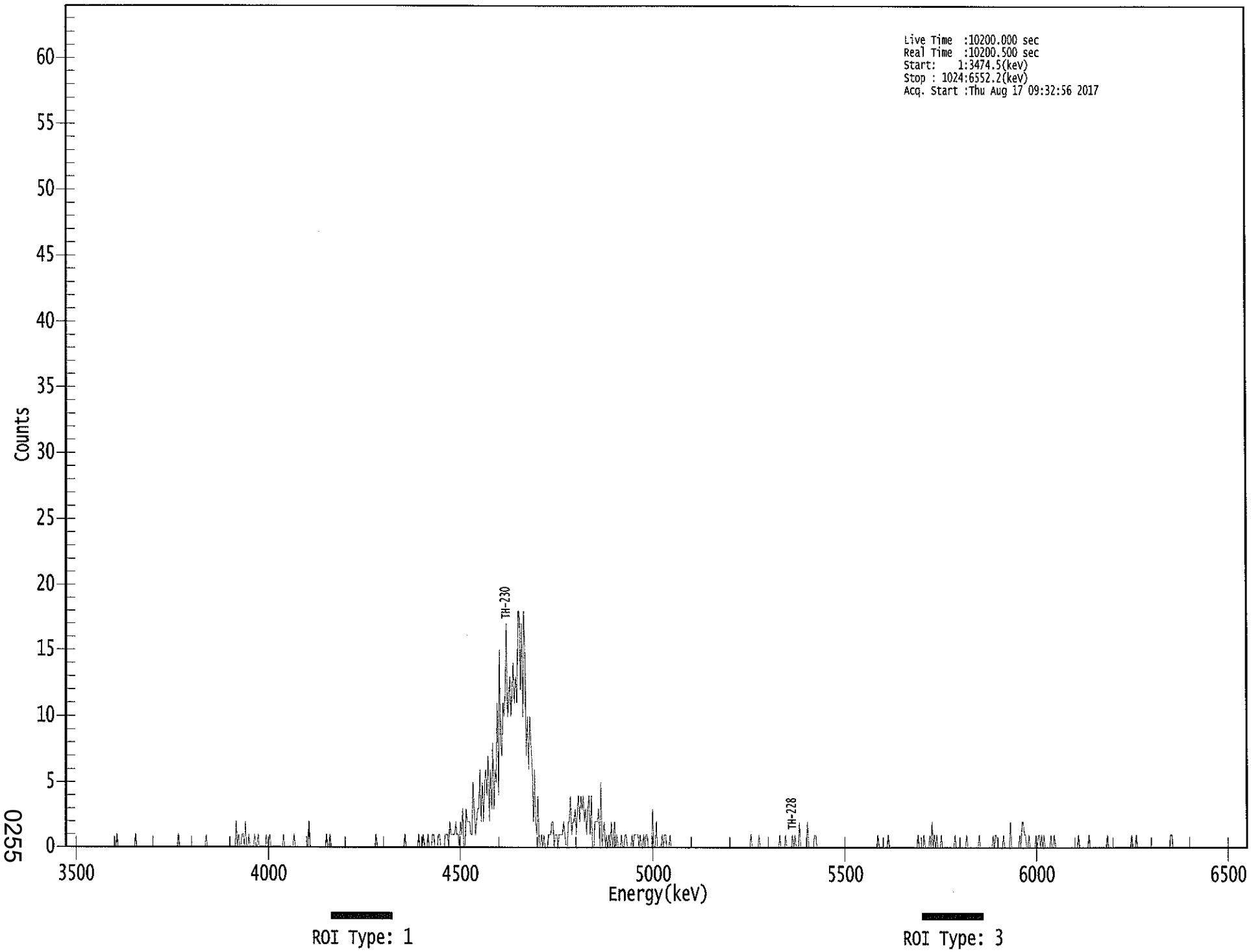
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.987	5850.00*	6.41E-001 +/- 2.62E-001	1.10E-001 +/- 2.15E-002
TH-228	0.993	5400.00*	2.49E-001 +/- 1.60E-001	1.34E-001 +/- 2.60E-002
TH-229	0.997	4872.00*	2.35E+000 +/- 4.57E-001	1.63E-001 +/- 3.18E-002
TH-230	0.986	4672.00*	1.00E+001 +/- 2.14E+000	1.22E-001 +/- 2.37E-002
TH-232	0.991	3997.00*	2.74E-001 +/- 1.65E-001	1.45E-001 +/- 2.81E-002

AG 8/18/17

0000191691.CNF



0255

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

Sample Title: 08

Elapsed Live time: 10200
Elapsed Real Time: 10201

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

369:	3	8	3	6	5	11	4	15

Sample Title: 08

Channel								
377:	8	7	11	10	12	17	10	11
385:	13	10	12	14	11	13	11	18
393:	18	12	17	10	18	14	7	10
401:	6	10	8	6	2	6	2	1
409:	4	0	0	1	0	1	0	0
417:	0	1	1	1	2	2	0	1
425:	1	0	1	1	1	1	2	1
433:	0	0	2	2	4	1	2	2
441:	3	1	3	4	2	4	3	4
449:	2	3	1	3	4	1	4	0
457:	0	2	2	2	3	0	5	0
465:	1	2	0	1	0	1	0	2
473:	0	1	2	0	1	0	0	0
481:	1	0	0	1	1	0	0	0
489:	0	1	0	1	1	1	1	0
497:	1	0	0	1	0	1	1	0
505:	0	0	0	3	0	0	2	0
513:	0	0	0	1	0	1	1	0
521:	0	0	1	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	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:	1	0	0	0	0	0	0	1
601:	0	0	0	0	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	0	1	0	1	0
633:	0	0	2	0	0	0	0	0
641:	0	2	0	0	0	0	0	1
649:	1	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	1	0
705:	0	0	0	0	0	0	0	1
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	1	0	0	0	0	1	0
745:	0	0	0	1	0	2	0	1
753:	0	1	0	0	0	1	0	0
761:	0	0	0	0	0	0	0	0
769:	0	1	0	0	0	0	0	0
777:	0	0	0	1	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	1	0	1	1	0	0

Sample Title: 08

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

Apex-Alpha™

KB 8/18/17

Sample Description: HTC-A02-S003-0006-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707085A-TH
Sample Identification: 09
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: 1.022E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:55:23 AM
Acquisition Date/Time: 8/17/2017 9:32:58 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.236 mL
Effective Efficiency: 0.1538 +/- 0.0139
Counting Efficiency: 0.1623 +/- 0.0028 on 11/18/2016 10:08:37 AM
Chem. Recovery Factor: 0.9479 +/- 0.0873

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.897	19.00	46.13	0.00	0.00E+000	3.0
TH-228		5.344	485.98	8.90	1.02	0.00E+000	13.1
TH-229	T	4.879	138.66	16.67	0.34	0.00E+000	8.9
TH-230		4.594	889.49	6.57	0.51	0.00E+000	27.3
TH-232		3.924	432.32	9.44	0.68	0.00E+000	9.1

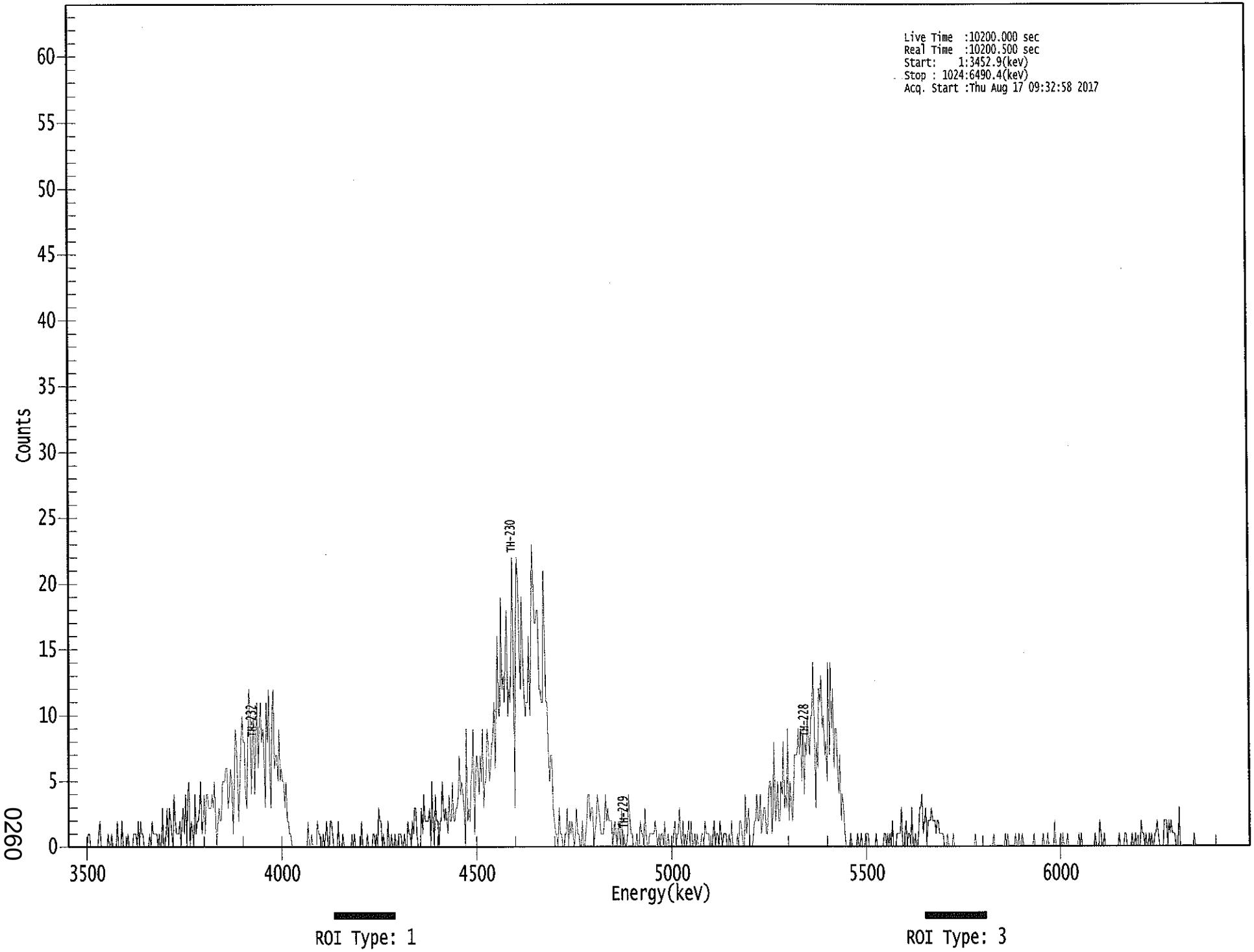
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.989	5850.00*	3.31E-001 +/- 1.64E-001	1.05E-001 +/- 1.85E-002
TH-228	0.984	5400.00*	9.00E+000 +/- 1.79E+000	1.17E-001 +/- 2.07E-002
TH-229	1.000	4872.00*	2.35E+000 +/- 4.17E-001	8.10E-002 +/- 1.44E-002
TH-230	0.968	4672.00*	1.50E+001 +/- 2.84E+000	8.86E-002 +/- 1.57E-002
TH-232	0.973	3997.00*	7.29E+000 +/- 1.46E+000	9.51E-002 +/- 1.69E-002

AG 8/18/17

0000191700.CNF



0260

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

Sample Title: 09

Elapsed Live time: 10200
Elapsed Real Time: 10201

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

369:	11	6	11	16	10	10	19	12

Sample Title: 09

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

801:	1	0	0	0	0	0	0	0

Sample Title: 09

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

KB 8/17/17

Apex-Alpha™

Sample Description: HTC-A02-S003-0006-01 MSD
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707085A-TH
Sample Identification: 10
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: 1.021E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:55:23 AM
Acquisition Date/Time: 8/17/2017 9:33:00 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.236 mL
Effective Efficiency: 0.1559 +/- 0.0141
Counting Efficiency: 0.1633 +/- 0.0028 on 11/18/2016 10:08:35 AM
Chem. Recovery Factor: 0.9547 +/- 0.0876

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		5.873	42.49	30.28	0.51	0.00E+000	3.0
TH-228		5.354	457.81	9.17	1.19	0.00E+000	6.8
TH-229	T	4.869	140.32	16.59	0.68	0.00E+000	10.7
TH-230		4.613	992.66	6.22	0.34	0.00E+000	15.2
TH-232		3.940	444.15	9.31	0.85	0.00E+000	11.4

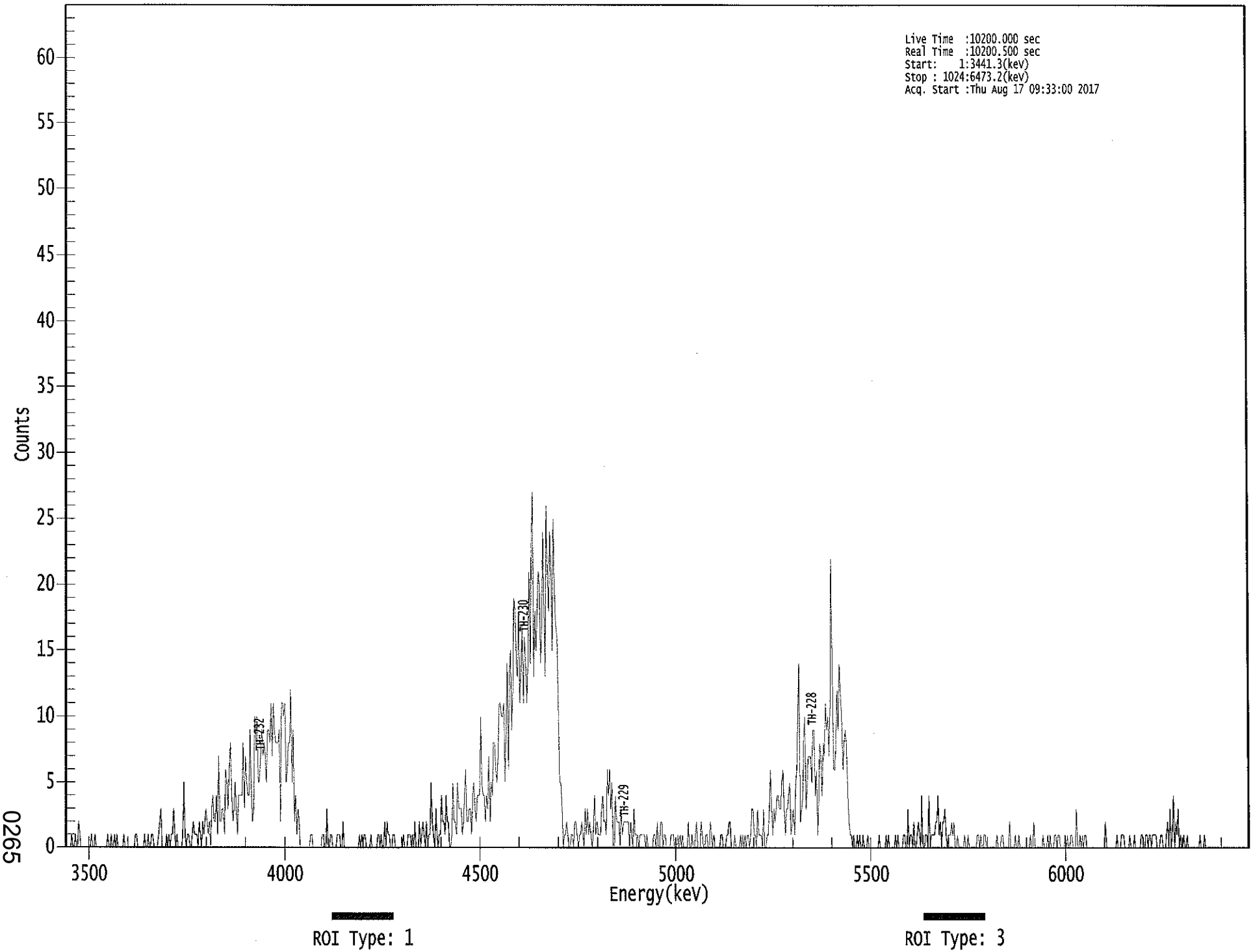
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.997	5850.00*	7.31E-001 +/- 2.56E-001	9.03E-002 +/- 1.60E-002
TH-228	0.989	5400.00*	8.37E+000 +/- 1.67E+000	1.20E-001 +/- 2.13E-002
TH-229	1.000	4872.00*	2.35E+000 +/- 4.15E-001	9.43E-002 +/- 1.67E-002
TH-230	0.982	4672.00*	1.65E+001 +/- 3.10E+000	7.97E-002 +/- 1.41E-002
TH-232	0.983	3997.00*	7.39E+000 +/- 1.48E+000	9.96E-002 +/- 1.76E-002

AG 8/18/17

0000191701.CNF



0265

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

Sample Title: 10

Elapsed Live time: 10200
Elapsed Real Time: 10201

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

369:	4	8	8	6	5	7	11	11

Sample Title: 10

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

801:	0	0	0	0	1	0	0	0

Sample Title: 10

Channel								
809:	1	1	0	0	0	0	0	2
817:	0	0	0	0	1	0	0	1
825:	0	0	0	0	0	0	0	0
833:	0	1	0	0	2	0	0	0
841:	0	0	0	0	1	0	0	0
849:	1	0	1	0	0	0	1	1
857:	0	1	1	0	0	0	0	1
865:	0	1	0	0	1	1	0	0
873:	0	3	0	0	1	0	1	0
881:	1	1	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	2	0	0	0	0	0
905:	0	0	0	0	1	0	0	0
913:	1	1	1	0	0	0	0	1
921:	0	0	0	1	0	0	0	0
929:	0	1	1	0	0	1	1	0
937:	1	1	0	1	1	1	1	0
945:	0	0	1	1	0	0	0	1
953:	2	0	3	0	1	4	0	2
961:	1	3	0	1	0	0	1	0
969:	0	1	0	0	0	0	0	0
977:	0	0	0	0	1	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 8/18/17

Sample Description: HTC-A02-S003-0006-02
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707085A-TH
Sample Identification: 11
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.026E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:55:23 AM
Acquisition Date/Time: 8/17/2017 11:17:01 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.241 mL
Effective Efficiency: 0.0775 +/- 0.0095
Counting Efficiency: 0.1562 +/- 0.0027 on 11/19/2016 1:08:16 PM
Chem. Recovery Factor: 0.4962 +/- 0.0617

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		5.920	19.81	45.56	1.19	0.00E+000	0.0
TH-228		5.390	8.30	75.75	1.70	0.00E+000	3.0
TH-229	T	4.880	71.32	23.34	0.68	0.00E+000	6.9
TH-230		4.643	390.45	9.96	2.55	0.00E+000	25.1
TH-232		3.934	13.15	56.06	0.85	0.00E+000	3.0

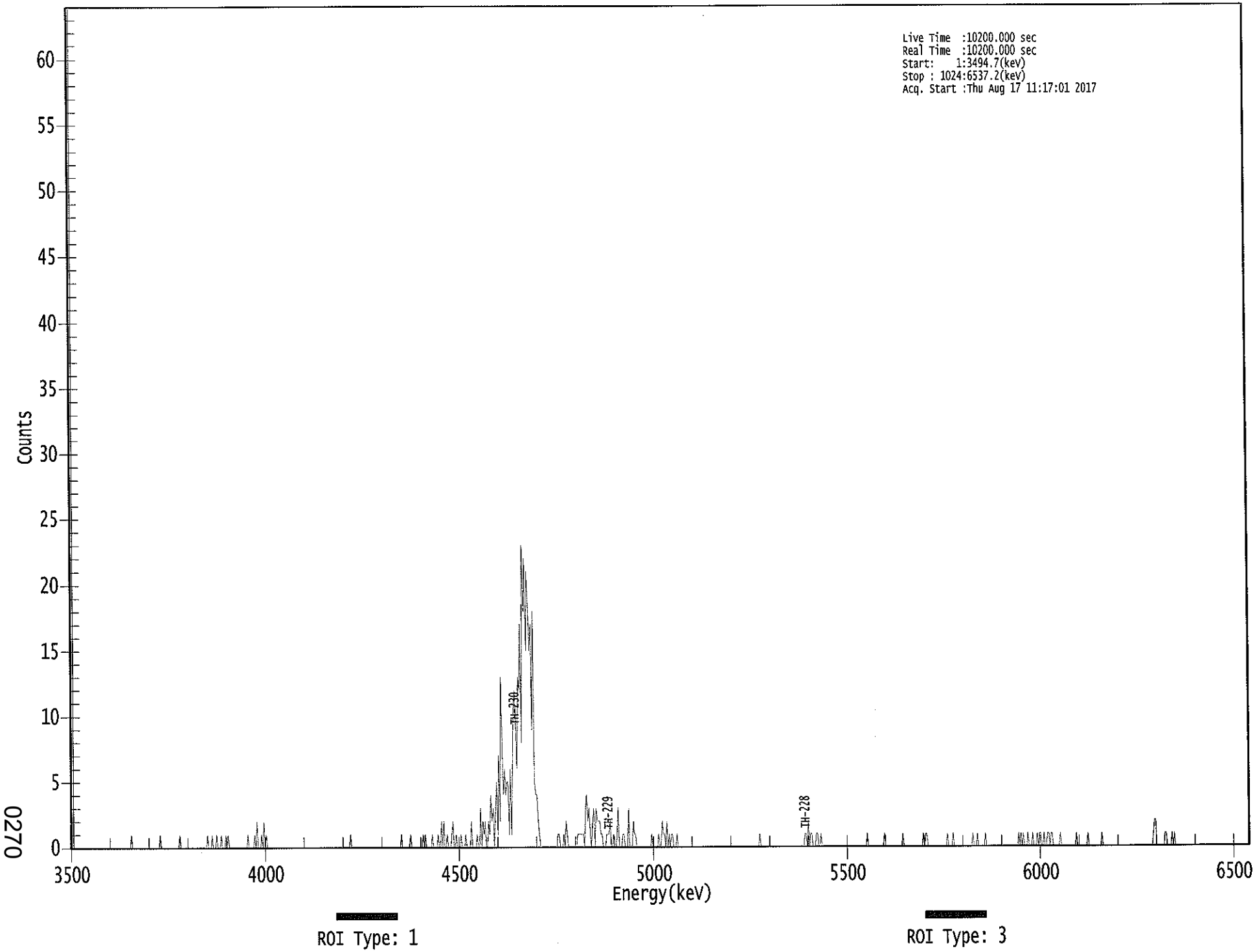
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.975	5850.00*	6.82E-001 +/- 3.52E-001	2.27E-001 +/- 5.47E-002
TH-228	0.999	5400.00*	3.04E-001 +/- 2.41E-001	2.69E-001 +/- 6.48E-002
TH-229	1.000	4872.00*	2.39E+000 +/- 5.76E-001	1.89E-001 +/- 4.55E-002
TH-230	0.996	4672.00*	1.30E+001 +/- 3.40E+000	2.80E-001 +/- 6.75E-002
TH-232	0.979	3997.00*	4.38E-001 +/- 2.67E-001	1.99E-001 +/- 4.81E-002

AG 8/18/17

0000191710.CNF



0270

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

369:	3	5	1	7	2	13	8	4

Sample Title: 11

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

801:	0	0	0	0	0	0	0	0

Sample Title: 11

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

Apex-Alpha™

KB 8/18/17

Sample Description: HTC-A02-S003-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707085A-TH
Sample Identification: 12
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.010E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:55:23 AM
Acquisition Date/Time: 8/17/2017 11:17:02 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.236 mL
Effective Efficiency: 0.1960 +/- 0.0160
Counting Efficiency: 0.1883 +/- 0.0032 on 11/19/2016 1:08:17 PM
Chem. Recovery Factor: 1.0408 +/- 0.0869

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.894	32.49	34.70	0.51	0.00E+000	4.4
TH-228		5.336	71.30	23.53	1.70	0.00E+000	3.9
TH-229	T	4.853	176.47	14.83	1.53	0.00E+000	4.9
TH-230		4.602	887.81	6.58	1.19	0.00E+000	20.7
TH-232		3.937	64.98	24.54	1.02	0.00E+000	7.8

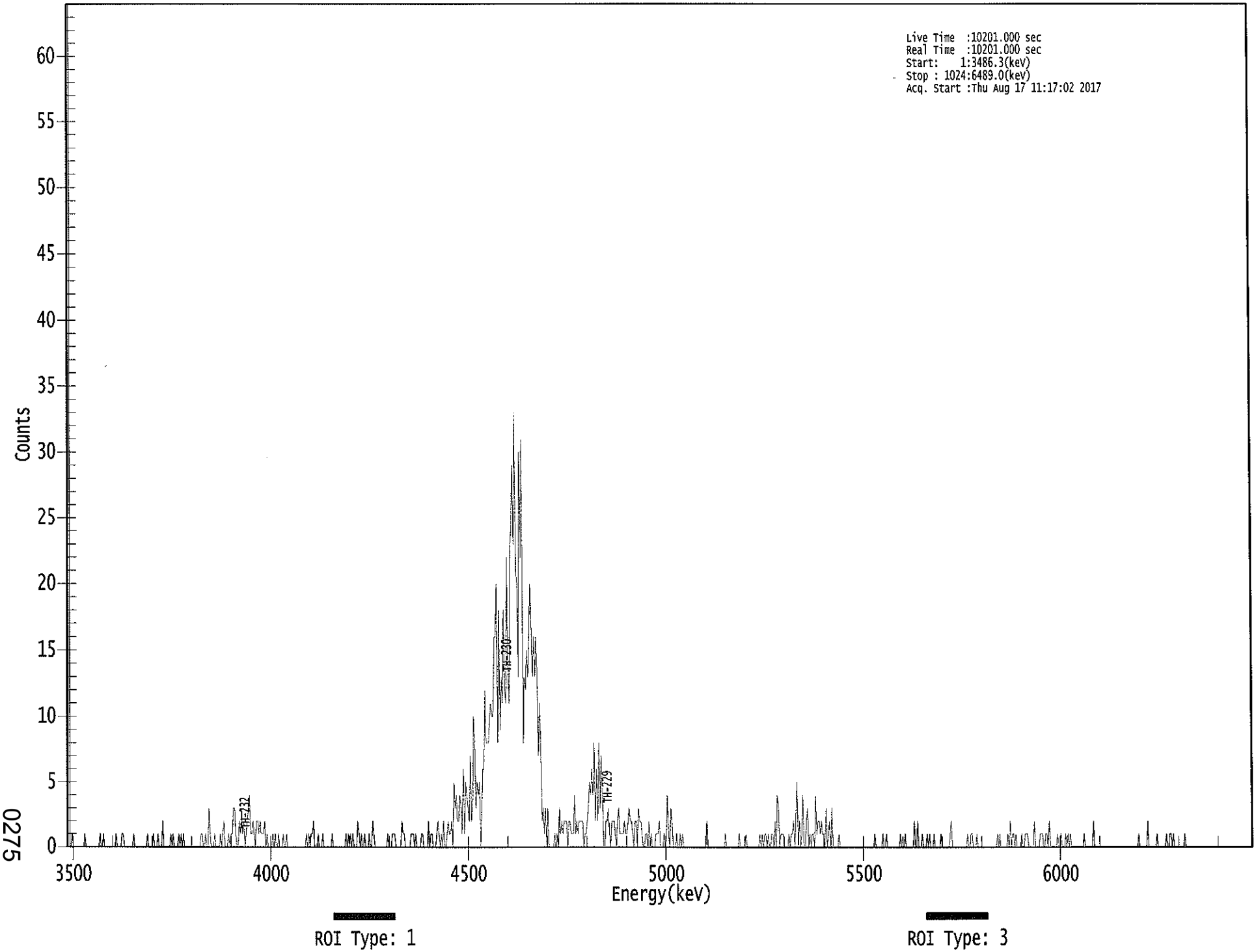
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.990	5850.00*	4.50E-001 +/- 1.72E-001	7.27E-002 +/- 1.16E-002
TH-228	0.979	5400.00*	1.05E+000 +/- 2.99E-001	1.08E-001 +/- 1.73E-002
TH-229	0.998	4872.00*	2.37E+000 +/- 3.80E-001	9.56E-002 +/- 1.53E-002
TH-230	0.974	4672.00*	1.19E+001 +/- 2.06E+000	8.84E-002 +/- 1.42E-002
TH-232	0.981	3997.00*	8.70E-001 +/- 2.55E-001	8.44E-002 +/- 1.35E-002

AG 8/18/17

0000191709.CNF



0275

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

Sample Title: 12

Elapsed Live time: 10201
Elapsed Real Time: 10201

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

369:	16	16	20	8	18	9	13	11

Sample Title: 12

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

Sample Title: 12

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

NLB 8/17/17

Apex-Alpha™

Sample Description: HTC-A02-S003-1218-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707085A-TH
Sample Identification: 13
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.069E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:55:23 AM
Acquisition Date/Time: 8/17/2017 11:17:03 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: 0.1815 +/- 0.0156
Counting Efficiency: 0.1872 +/- 0.0032 on 11/19/2016 1:08:16 PM
Chem. Recovery Factor: 0.9695 +/- 0.0849

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	8.62	76.79	2.38	0.00E+000	2.9
TH-228		5.343	71.22	24.30	5.78	0.00E+000	4.9
TH-229	T	4.847	162.22	15.71	5.78	0.00E+000	3.2
TH-230		4.600	120.13	18.04	1.87	0.00E+000	4.4
TH-232		3.925	98.28	20.09	2.72	0.00E+000	8.0

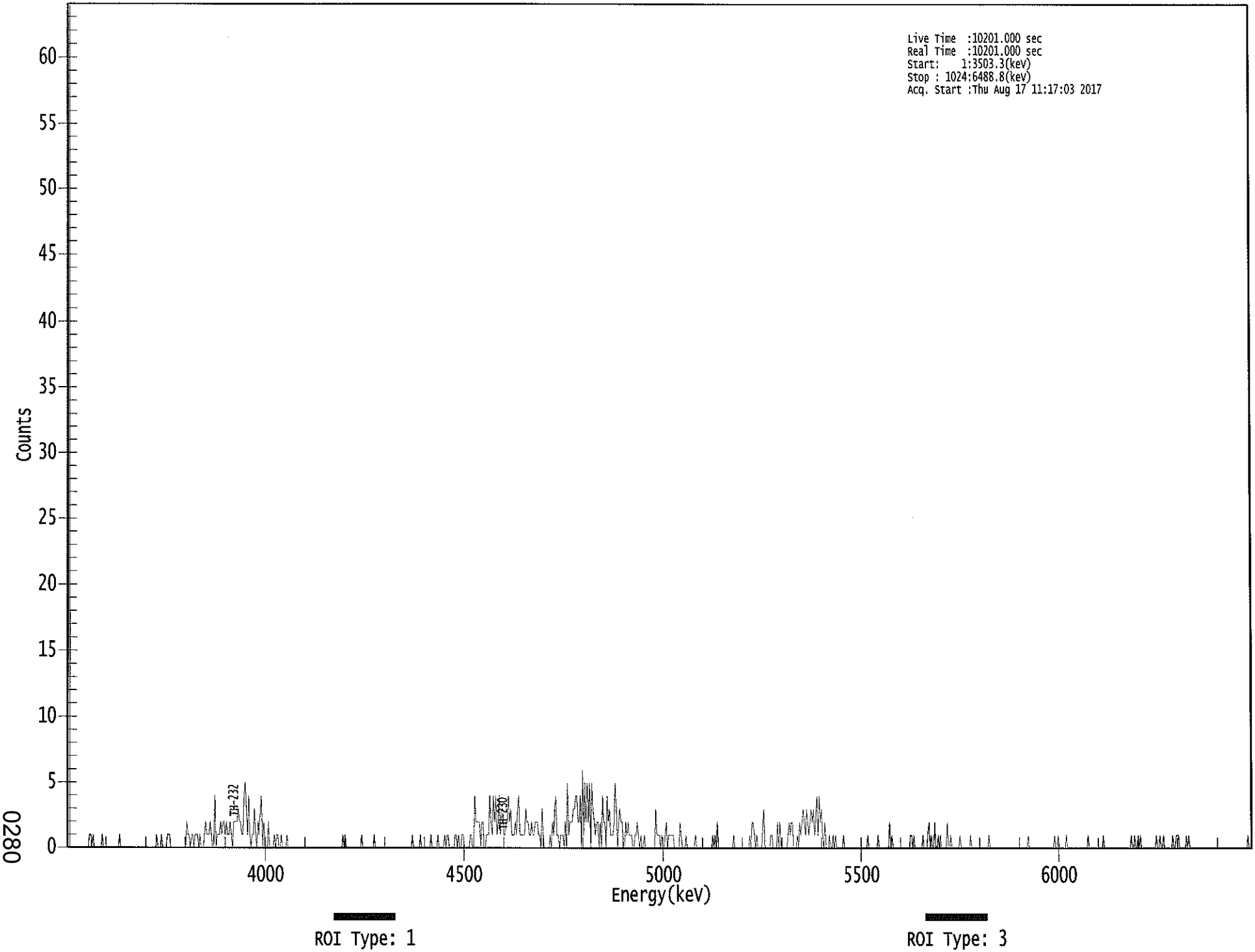
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.998	5850.00*	1.22E-001 +/- 9.57E-002	1.16E-001 +/- 1.95E-002
TH-228	0.983	5400.00*	1.07E+000 +/- 3.16E-001	1.69E-001 +/- 2.85E-002
TH-229	0.997	4872.00*	2.23E+000 +/- 3.75E-001	1.55E-001 +/- 2.60E-002
TH-230	0.974	4672.00*	1.64E+000 +/- 4.06E-001	1.04E-001 +/- 1.74E-002
TH-232	0.973	3997.00*	1.34E+000 +/- 3.52E-001	1.17E-001 +/- 1.97E-002

AG 8/18/17

0000191711.CNF



0280

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

Sample Title: 13

Elapsed Live time: 10201
Elapsed Real Time: 10201

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

369:	2	4	1	2	4	1	3	3

Sample Title: 13

Channel								
377:	1	1	2	2	4	2	3	1
385:	1	1	2	1	3	4	1	1
393:	1	1	1	3	2	2	1	1
401:	2	1	1	2	2	2	1	1
409:	0	3	1	0	0	0	0	0
417:	1	0	2	1	3	4	1	1
425:	0	1	1	1	0	2	0	5
433:	1	2	2	2	3	3	4	4
441:	2	2	4	0	6	1	5	2
449:	5	2	5	0	5	3	2	1
457:	2	2	0	2	0	4	2	2
465:	0	4	2	3	1	1	1	2
473:	5	3	0	2	3	2	2	0
481:	0	2	1	2	1	1	1	0
489:	0	1	1	2	1	0	1	0
497:	0	1	0	0	0	0	0	0
505:	0	0	0	3	1	1	1	0
513:	1	0	0	1	2	0	1	1
521:	1	1	1	0	0	0	0	0
529:	2	1	0	0	0	1	0	0
537:	0	0	0	0	0	1	0	0
545:	0	0	0	0	0	0	0	0
553:	0	0	0	0	1	0	1	0
561:	2	0	0	0	0	0	0	0
569:	0	0	0	0	0	0	1	0
577:	0	0	0	0	0	0	0	0
585:	0	0	0	0	1	0	2	2
593:	1	0	1	0	0	0	0	1
601:	3	0	0	0	0	0	1	1
609:	0	0	0	0	2	0	2	0
617:	0	0	0	0	0	1	2	1
625:	2	2	0	0	0	1	0	2
633:	1	2	3	2	1	3	2	1
641:	2	3	2	3	1	2	4	1
649:	4	2	3	1	0	2	0	0
657:	0	1	0	0	1	0	1	0
665:	0	0	0	0	0	1	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	1	0	0	0	0	0
697:	0	0	0	1	0	0	0	0
705:	0	0	0	0	0	2	0	1
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	1
729:	1	0	1	0	0	0	0	0
737:	0	0	1	0	0	0	1	2
745:	0	1	0	0	2	0	0	1
753:	0	1	0	0	0	0	0	2
761:	0	0	1	0	0	0	0	0
769:	0	0	1	0	0	0	0	0
777:	0	0	0	1	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: 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	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	0	1	0	0	1
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	1	0	0	0	0	0	0
889:	0	0	0	0	0	0	1	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	1	0
921:	0	1	0	0	1	0	1	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	1	0	0	1
945:	0	0	1	0	0	0	0	0
953:	0	0	1	0	0	1	1	1
961:	0	0	0	0	0	0	1	0
969:	1	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	1	0	0	0	1

KB 8/18/17

Apex-Alpha™

Sample Description: HTC-A02-S003-1824-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707085A-TH
Sample Identification: 14
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:55:23 AM
Acquisition Date/Time: 8/17/2017 11:17:04 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.235 mL
Effective Efficiency: 0.2062 +/- 0.0165
Counting Efficiency: 0.1991 +/- 0.0034 on 11/19/2016 1:08:17 PM
Chem. Recovery Factor: 1.0355 +/- 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		5.819	9.96	69.15	2.04	0.00E+000	2.6
TH-228		5.342	74.28	23.22	2.72	0.00E+000	5.2
TH-229	T	4.849	184.64	14.49	1.36	0.00E+000	3.7
TH-230		4.614	106.62	19.23	2.38	0.00E+000	2.6
TH-232		3.936	76.49	22.50	0.51	0.00E+000	4.3

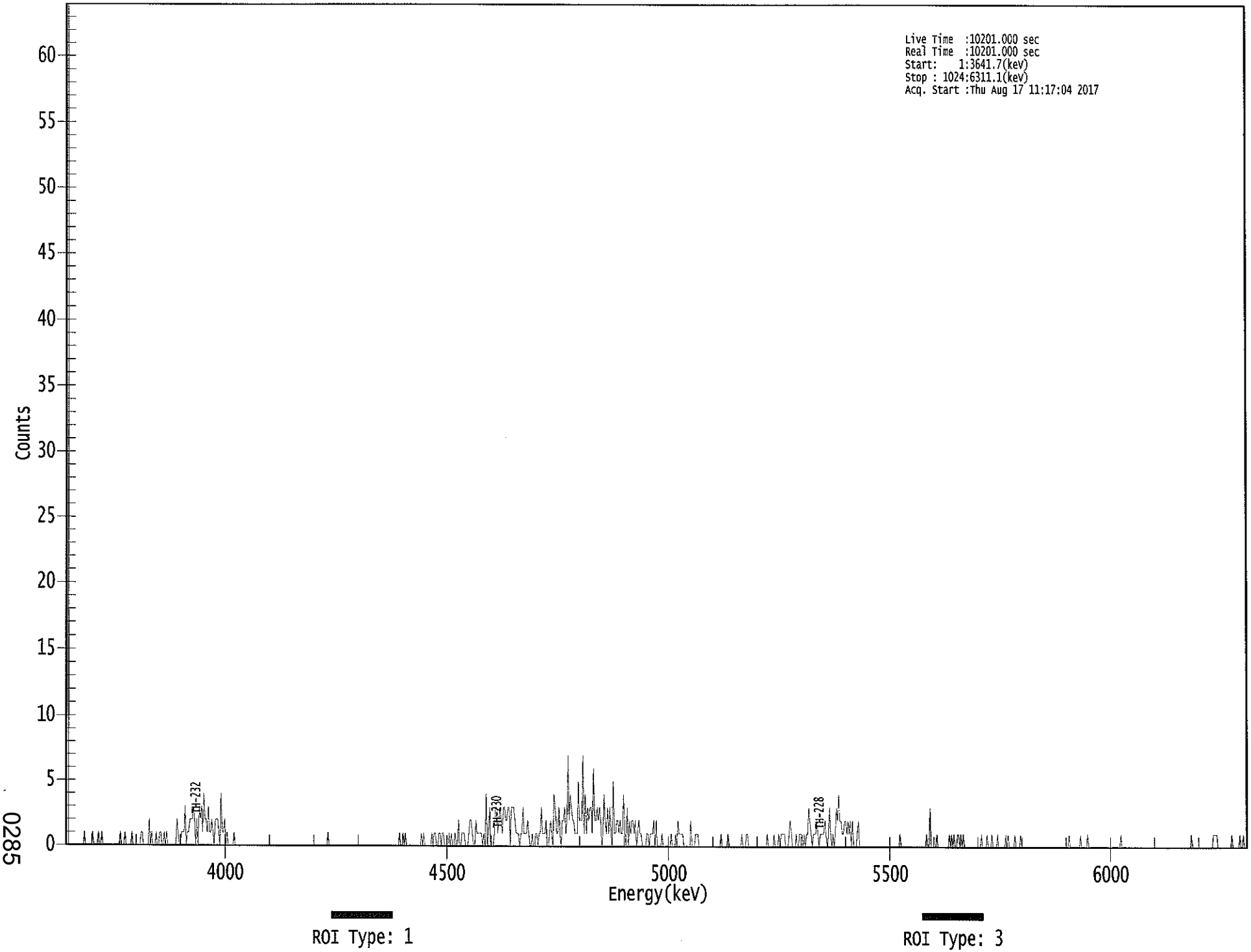
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.995	5850.00*	1.32E-001 +/- 9.38E-002	1.03E-001 +/- 1.62E-002
TH-228	0.983	5400.00*	1.05E+000 +/- 2.94E-001	1.21E-001 +/- 1.90E-002
TH-229	0.997	4872.00*	2.38E+000 +/- 3.74E-001	8.85E-002 +/- 1.39E-002
TH-230	0.983	4672.00*	1.37E+000 +/- 3.41E-001	1.05E-001 +/- 1.66E-002
TH-232	0.981	3997.00*	9.82E-001 +/- 2.70E-001	6.74E-002 +/- 1.06E-002

AG 8/18/17

0000191713.CNF



0285

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

Sample Title: 14

Elapsed Live time: 10201
Elapsed Real Time: 10201

Channel								
1:	10201	10201	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	1	0	0	0	0	0	0	1
25:	0	0	0	0	1	0	0	1
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	1
49:	0	0	0	1	0	0	0	0
57:	0	1	0	0	0	0	0	0
65:	0	1	1	0	0	0	0	0
73:	2	0	1	0	0	0	1	0
81:	0	1	1	0	0	1	0	1
89:	0	0	0	0	0	0	0	0
97:	2	1	0	0	1	1	1	3
105:	0	1	1	2	2	2	3	2
113:	0	2	0	3	2	3	1	4
121:	2	2	1	3	1	1	2	1
129:	0	2	2	2	1	0	4	1
137:	1	2	0	1	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	0	0	0	0
177:	0	0	0	0	0	0	0	0
185:	0	0	0	0	0	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	1	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	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:	1	0	0	1	0	1	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	1	0	1	0	0
313:	0	0	0	0	1	0	1	1
321:	0	0	1	1	0	1	1	0
329:	0	0	0	1	0	1	0	0
337:	1	0	0	2	0	0	1	1
345:	1	0	0	0	1	2	2	1
353:	0	0	2	1	1	1	1	1
361:	0	1	0	4	0	1	3	0

369:	0	0	1	3	3	1	2	3

Sample Title: 14

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

801:	0	1	0	0	0	0	1	0

Sample Title: 14

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

Apex-Alpha™

KB 9/18/17

Sample Description: HTC-A02-S003-2430-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707085A-TH
Sample Identification: 15
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.020E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:55:23 AM
Acquisition Date/Time: 8/17/2017 11:17:05 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.235 mL
Effective Efficiency: 0.1724 +/- 0.0149
Counting Efficiency: 0.1881 +/- 0.0032 on 11/19/2016 1:08:18 PM
Chem. Recovery Factor: 0.9167 +/- 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		5.781	9.98	65.65	1.02	0.00E+000	4.4
TH-228		5.345	93.60	20.69	3.40	0.00E+000	4.9
TH-229	T	4.845	154.98	15.80	1.02	0.00E+000	6.9
TH-230		4.605	87.15	21.11	0.85	0.00E+000	4.4
TH-232		3.936	71.64	23.41	1.36	0.00E+000	4.9

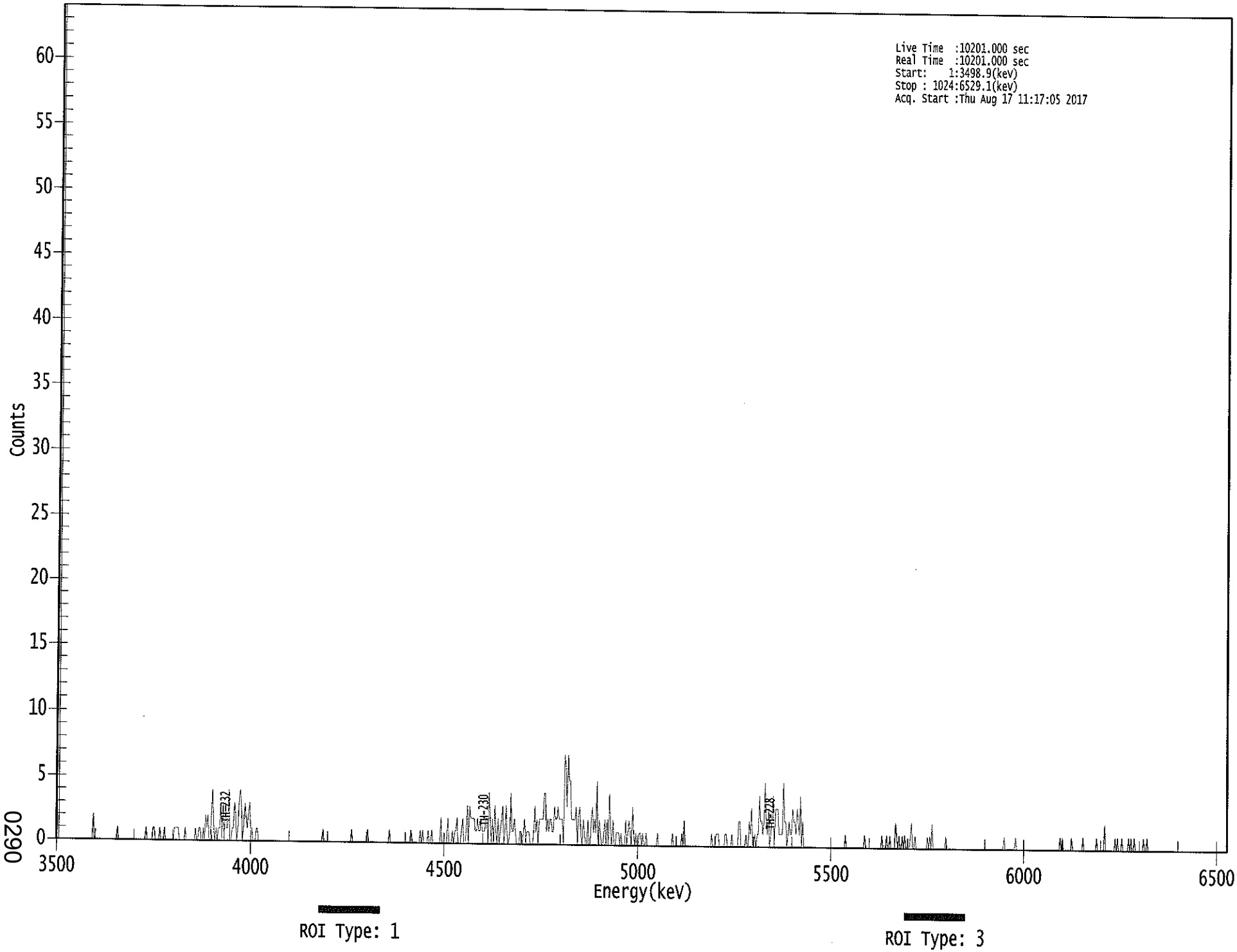
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.976	5850.00*	1.55E-001 +/- 1.05E-001	9.82E-002 +/- 1.66E-002
TH-228	0.984	5400.00*	1.55E+000 +/- 4.14E-001	1.53E-001 +/- 2.60E-002
TH-229	0.996	4872.00*	2.35E+000 +/- 3.97E-001	9.54E-002 +/- 1.62E-002
TH-230	0.977	4672.00*	1.32E+000 +/- 3.56E-001	9.04E-002 +/- 1.53E-002
TH-232	0.981	3997.00*	1.08E+000 +/- 3.12E-001	1.03E-001 +/- 1.75E-002

AG 8/18/17

0000191714.CNF



0290

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

Sample Title: 15

Elapsed Live time: 10201
Elapsed Real Time: 10201

Channel								
1:	10201	10201	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	2	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	1	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	1	0
81:	0	0	0	0	1	1	0	0
89:	0	0	1	0	0	0	1	0
97:	0	0	0	0	0	0	0	1
105:	1	1	1	0	0	0	0	0
113:	1	0	0	0	0	0	0	0
121:	0	1	0	0	1	1	0	0
129:	1	0	2	1	2	0	0	2
137:	4	1	0	1	0	1	1	3
145:	0	3	0	3	1	1	4	0
153:	0	1	1	3	2	0	1	3
161:	4	3	0	1	3	2	1	2
169:	3	1	1	0	0	0	1	1
177:	0	0	0	0	0	0	0	0
185:	0	0	0	0	0	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	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	1	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	1
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	1	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	1	0	0
313:	0	0	0	0	0	1	0	1
321:	0	0	0	0	1	0	0	1
329:	0	0	0	0	0	0	0	2
337:	0	0	0	0	0	2	0	0
345:	0	1	0	1	1	2	0	0
353:	0	1	2	0	0	1	3	0
361:	3	2	2	2	2	1	1	2

369:	1	1	2	1	1	1	2	2

Sample Title: 15

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

801:	0	0	0	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	1	0	0	0	0
833:	0	0	0	0	0	1	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	1	0	1	0
881:	0	0	0	0	0	0	1	0
889:	0	0	0	0	0	0	0	0
897:	1	0	0	0	0	0	0	0
905:	0	0	0	0	1	0	0	0
913:	0	0	0	2	0	0	0	0
921:	0	0	0	0	1	0	1	0
929:	0	0	1	0	0	0	0	0
937:	1	0	1	0	0	1	0	0
945:	0	0	0	0	0	1	0	0
953:	1	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	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

LB 8/17/17

Apex-Alpha™

Sample Description: HTC-A02-S003-3036-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707085A-TH
Sample Identification: 16
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.002E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:55:23 AM
Acquisition Date/Time: 8/17/2017 11:17:06 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.236 mL
Effective Efficiency: 0.1689 +/- 0.0147
Counting Efficiency: 0.1847 +/- 0.0032 on 11/19/2016 1:08:18 PM
Chem. Recovery Factor: 0.9147 +/- 0.0813

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.762	0.98	294.88	1.02	0.00E+000	2.9
TH-228		5.365	65.47	24.55	1.53	0.00E+000	3.7
TH-229	T	4.851	152.30	15.99	1.70	0.00E+000	3.7
TH-230		4.620	61.81	25.21	1.19	0.00E+000	3.7
TH-232		3.936	88.15	20.99	0.85	0.00E+000	3.3

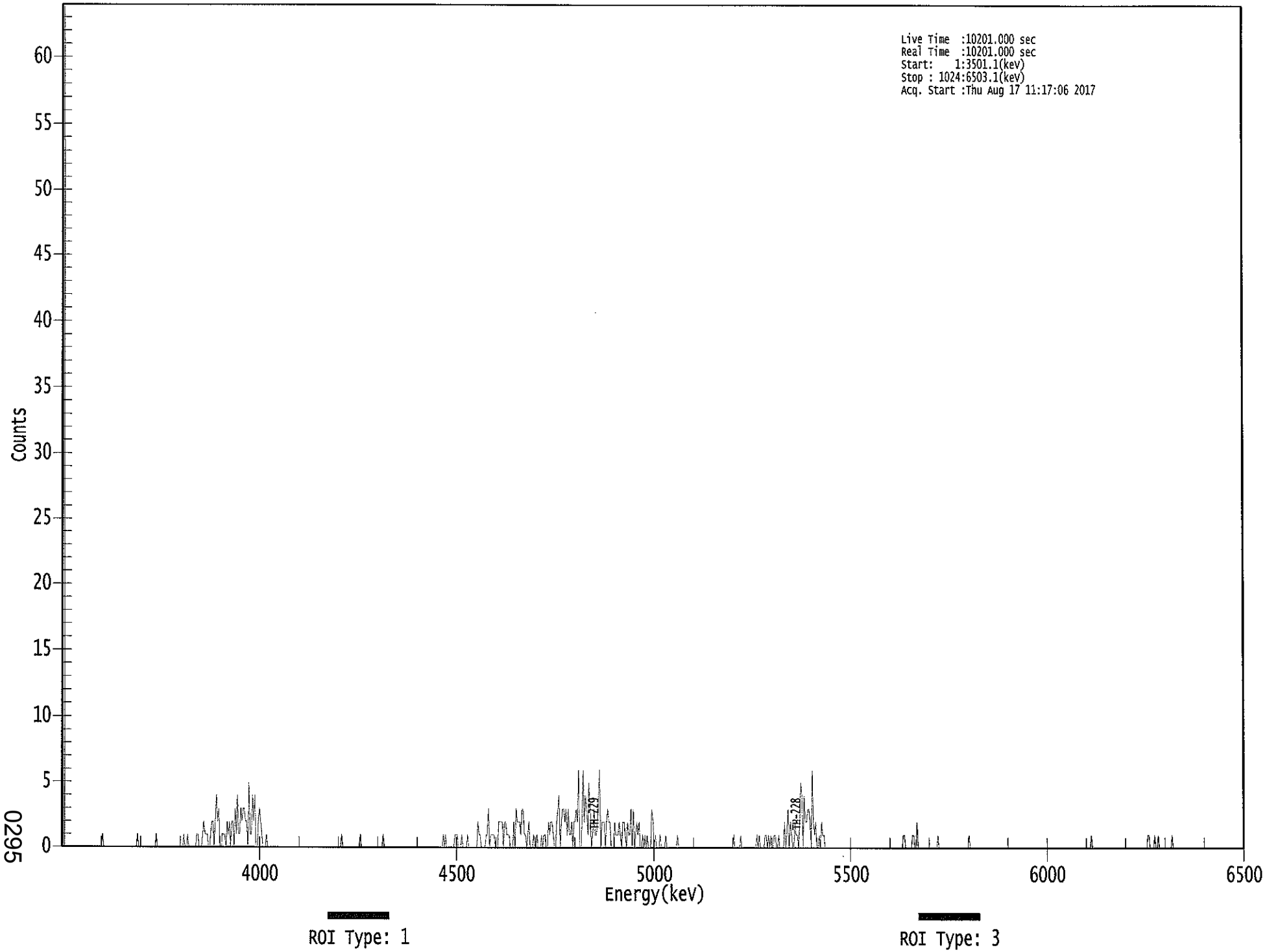
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.960	5850.00*	1.59E-002 +/- 4.68E-002	1.02E-001 +/- 1.74E-002
TH-228	0.994	5400.00*	1.13E+000 +/- 3.37E-001	1.22E-001 +/- 2.09E-002
TH-229	0.998	4872.00*	2.39E+000 +/- 4.09E-001	1.15E-001 +/- 1.98E-002
TH-230	0.986	4672.00*	9.69E-001 +/- 2.95E-001	1.03E-001 +/- 1.77E-002
TH-232	0.981	3997.00*	1.38E+000 +/- 3.73E-001	9.37E-002 +/- 1.60E-002

AG 8/18/17

0000191712.CNF



0295

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

Sample Title: 16

Elapsed Live time: 10201
Elapsed Real Time: 10201

Channel								
1:	10201	10201	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	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	1	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	1	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	1	0	0	1	0	0	0
113:	0	0	0	0	1	1	0	0
121:	0	1	2	1	1	1	0	0
129:	1	2	2	0	2	4	2	3
137:	0	0	1	1	1	0	2	1
145:	2	0	2	2	0	3	1	4
153:	1	1	3	2	3	3	2	2
161:	0	5	1	1	4	2	4	0
169:	0	2	3	2	1	0	0	0
177:	1	0	0	0	0	0	0	0
185:	0	0	0	0	0	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	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	1	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	1	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	1	0	1	0	0	0	0
337:	0	0	0	1	1	1	0	0
345:	0	1	0	0	0	0	1	0
353:	0	0	0	0	0	0	0	2
361:	1	1	0	0	0	0	1	1

369:	3	0	1	1	1	1	0	0

Sample Title: 16

Channel								
377:	0	2	2	2	2	0	2	2
385:	1	1	1	0	0	0	2	0
393:	3	2	2	2	1	3	3	1
401:	1	0	1	2	0	0	0	1
409:	0	0	1	0	0	0	1	0
417:	1	1	0	0	2	1	2	2
425:	1	0	0	2	3	4	0	2
433:	3	3	2	3	1	3	1	1
441:	2	0	2	2	3	2	6	0
449:	0	2	6	2	4	3	1	5
457:	3	0	1	3	1	1	2	4
465:	6	0	2	2	2	0	2	3
473:	2	2	0	0	0	2	1	1
481:	1	2	1	0	2	2	1	0
489:	2	1	1	3	0	3	0	1
497:	2	1	2	0	0	1	0	1
505:	0	1	0	0	0	3	2	0
513:	1	0	0	0	1	0	0	0
521:	0	1	0	0	0	0	0	0
529:	0	0	0	1	0	0	0	0
537:	0	0	0	0	0	0	0	0
545:	0	0	0	0	0	0	0	0
553:	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0
569:	0	0	0	0	0	0	0	0
577:	0	0	0	0	1	0	0	0
585:	0	0	1	0	0	0	0	0
593:	0	0	0	0	0	0	0	0
601:	1	0	1	0	0	0	0	1
609:	1	0	1	0	1	0	0	1
617:	1	0	0	1	0	0	0	0
625:	2	0	1	3	0	2	1	0
633:	0	2	1	1	0	2	5	4
641:	0	4	2	2	3	3	2	0
649:	6	2	1	2	0	0	1	0
657:	2	1	1	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	1
729:	1	0	0	0	0	0	0	1
737:	1	0	0	2	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	1	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	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	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	1	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	1	1	0	0	0
945:	0	1	0	0	1	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™

NB 8/18/17

Sample Description: HTC-A02-S003-3642-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707085A-TH
Sample Identification: 17
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.072E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:55:23 AM
Acquisition Date/Time: 8/17/2017 11:21:22 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.236 mL
Effective Efficiency: 0.1445 +/- 0.0135
Counting Efficiency: 0.1776 +/- 0.0030 on 11/18/2016 3:40:57 PM
Chem. Recovery Factor: 0.8137 +/- 0.0772

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.902	12.32	57.62	0.68	0.00E+000	3.0
TH-228		5.360	75.15	22.76	0.85	0.00E+000	7.4
TH-229	T	4.861	130.00	17.26	0.00	0.00E+000	8.1
TH-230		4.617	134.83	16.89	0.17	0.00E+000	18.2
TH-232		3.942	73.00	23.10	0.00	0.00E+000	3.9

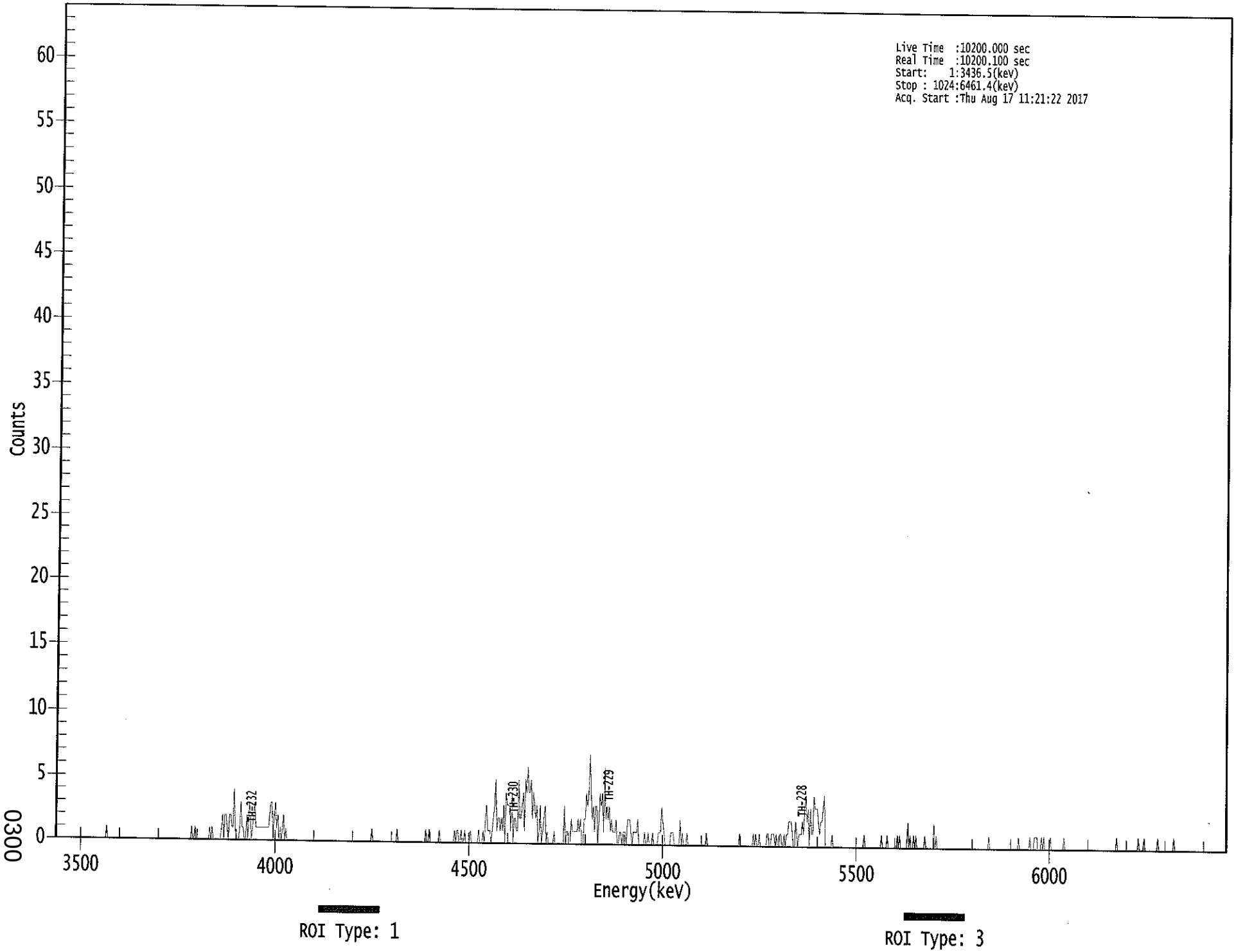
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.986	5850.00*	2.18E-001 +/- 1.32E-001	9.98E-002 +/- 1.83E-002
TH-228	0.992	5400.00*	1.41E+000 +/- 4.12E-001	1.13E-001 +/- 2.06E-002
TH-229	0.999	4872.00*	2.23E+000 +/- 4.09E-001	1.03E-001 +/- 1.89E-002
TH-230	0.984	4672.00*	2.31E+000 +/- 5.75E-001	7.15E-002 +/- 1.31E-002
TH-232	0.984	3997.00*	1.25E+000 +/- 3.68E-001	1.03E-001 +/- 1.88E-002

AG 8/18/17

0000191722.CNF



0300

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

369:	1	0	0	0	1	0	2	3

Sample Title: 17

Channel								
377:	1	1	1	0	1	2	3	5
385:	1	2	2	1	2	1	3	0
393:	4	3	3	3	1	4	0	2
401:	2	1	1	5	2	2	3	4
409:	1	5	4	6	4	4	5	2
417:	4	3	2	3	0	1	3	0
425:	1	2	3	0	1	0	0	0
433:	0	0	1	0	0	0	0	0
441:	0	0	0	3	0	1	1	0
449:	0	2	1	1	1	1	1	2
457:	1	2	0	0	2	2	4	3
465:	4	7	4	2	3	1	3	3
473:	0	2	4	3	4	1	6	2
481:	3	2	3	1	2	1	1	1
489:	2	0	0	1	1	0	1	1
497:	1	0	2	2	2	1	0	1
505:	1	1	1	2	0	0	0	0
513:	0	1	0	0	1	0	0	0
521:	1	0	0	0	0	1	1	1
529:	3	2	1	0	0	0	0	0
537:	1	1	1	0	0	0	0	0
545:	2	0	1	0	0	0	1	0
553:	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	1
569:	0	0	0	0	0	0	0	0
577:	0	0	0	0	0	0	0	0
585:	0	0	0	0	0	0	0	0
593:	0	0	0	0	1	0	0	0
601:	0	0	0	0	0	0	0	0
609:	1	0	1	0	0	1	0	0
617:	0	0	0	0	1	1	0	0
625:	1	1	1	0	1	0	0	1
633:	1	0	0	1	0	1	1	2
641:	2	2	1	0	0	2	1	0
649:	1	1	1	2	1	3	4	2
657:	3	0	3	1	1	4	3	3
665:	3	2	1	2	2	3	4	0
673:	0	0	0	0	0	1	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	1	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	1	0	0	0	0	1	0	0
729:	0	0	0	0	0	0	1	0
737:	1	0	0	0	0	0	0	2
745:	0	1	0	0	1	0	1	0
753:	0	0	0	0	0	0	1	0
761:	0	0	0	0	0	0	2	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	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:	1	0	0	0	0	0	0	0
849:	0	0	1	0	0	0	1	1
857:	1	0	0	0	1	0	1	0
865:	0	0	0	0	1	0	0	0
873:	0	0	0	0	0	0	0	0
881:	1	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	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	1	0	0	0	0	1	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:	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™

RD 8/17/17

Sample Description: HTC-A02-S003-4248-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707085A-TH
Sample Identification: 18
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.043E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:55:23 AM
Acquisition Date/Time: 8/17/2017 11:21:24 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: 0.1309 +/- 0.0128
Counting Efficiency: 0.1477 +/- 0.0026 on 11/18/2016 3:34:04 PM
Chem. Recovery Factor: 0.8867 +/- 0.0882

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.994	-0.21	1438.5	2.21	0.00E+000	3.0
TH-228		5.344	51.96	27.81	2.04	0.00E+000	5.6
TH-229	T	4.843	116.98	18.21	1.02	0.00E+000	4.4
TH-230		4.627	70.13	23.77	1.87	0.00E+000	4.9
TH-232		3.916	52.98	27.23	1.02	0.00E+000	3.7

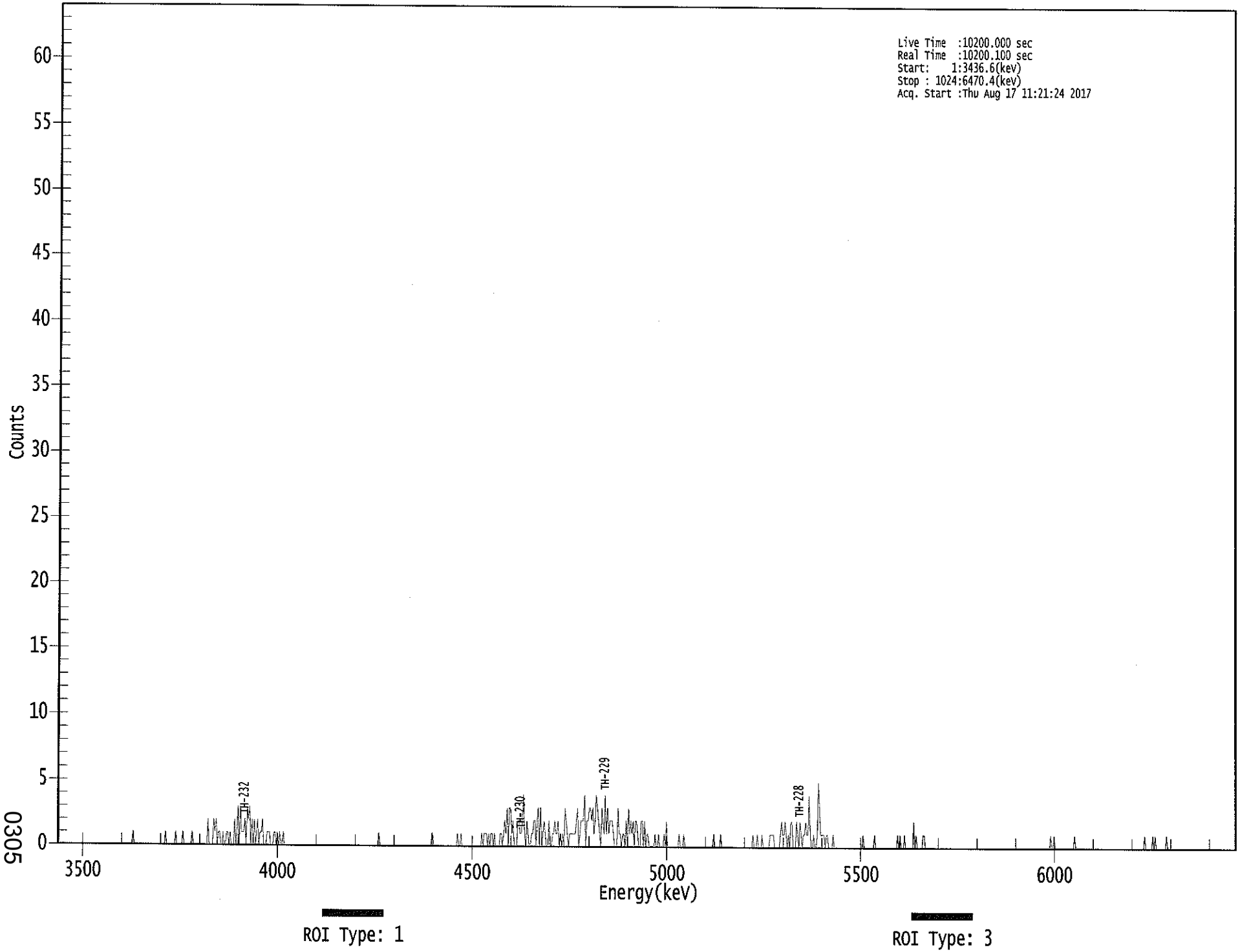
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.897	5850.00*	-4.21E-003 +/- 6.06E-002	1.60E-001 +/- 3.08E-002
TH-228	0.984	5400.00*	1.11E+000 +/- 3.74E-001	1.66E-001 +/- 3.19E-002
TH-229	0.996	4872.00*	2.28E+000 +/- 4.38E-001	1.23E-001 +/- 2.36E-002
TH-230	0.990	4672.00*	1.36E+000 +/- 4.17E-001	1.47E-001 +/- 2.83E-002
TH-232	0.966	3997.00*	1.03E+000 +/- 3.43E-001	1.22E-001 +/- 2.35E-002

AG 8/18/17

0000191723.CNF



0305

****
***** 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	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	1	0	0
97:	0	0	0	0	0	0	1	0
105:	0	0	0	0	1	0	0	0
113:	0	0	0	0	1	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	2	0	0	0	0	2
137:	1	2	0	1	1	0	0	1
145:	0	0	1	1	0	1	0	0
153:	0	2	0	1	3	0	3	1
161:	1	1	2	0	3	2	3	0
169:	2	0	2	0	1	2	0	1
177:	1	2	0	0	0	1	1	1
185:	0	0	0	1	1	0	1	0
193:	1	0	0	1	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	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	0
321:	0	0	0	0	1	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	1	0	0	1	0	0
353:	0	0	0	0	0	0	0	0
361:	0	0	0	0	0	0	0	1

369:	0	1	1	1	0	1	0	1

Sample Title: 18

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

801:	0	0	0	0	0	0	0	0

Sample Title: 18

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

KP 8/18/17

Apex-Alpha™

Sample Description: HTC-A02-S004-0006-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707085A-TH
Sample Identification: 19
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: 1.039E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:55:23 AM
Acquisition Date/Time: 8/17/2017 12:36:49 PM
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: 0.1401 +/- 0.0133
Counting Efficiency: 0.1681 +/- 0.0029 on 11/18/2016 10:08:33 AM
Chem. Recovery Factor: 0.8333 +/- 0.0803

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.849	5.83	82.55	0.17	0.00E+000	3.0
TH-228		5.344	124.98	17.62	1.02	0.00E+000	3.0
TH-229	T	4.856	125.32	17.56	0.68	0.00E+000	4.5
TH-230		4.617	98.83	19.74	0.17	0.00E+000	4.8
TH-232		3.940	172.00	14.99	0.00	0.00E+000	4.2

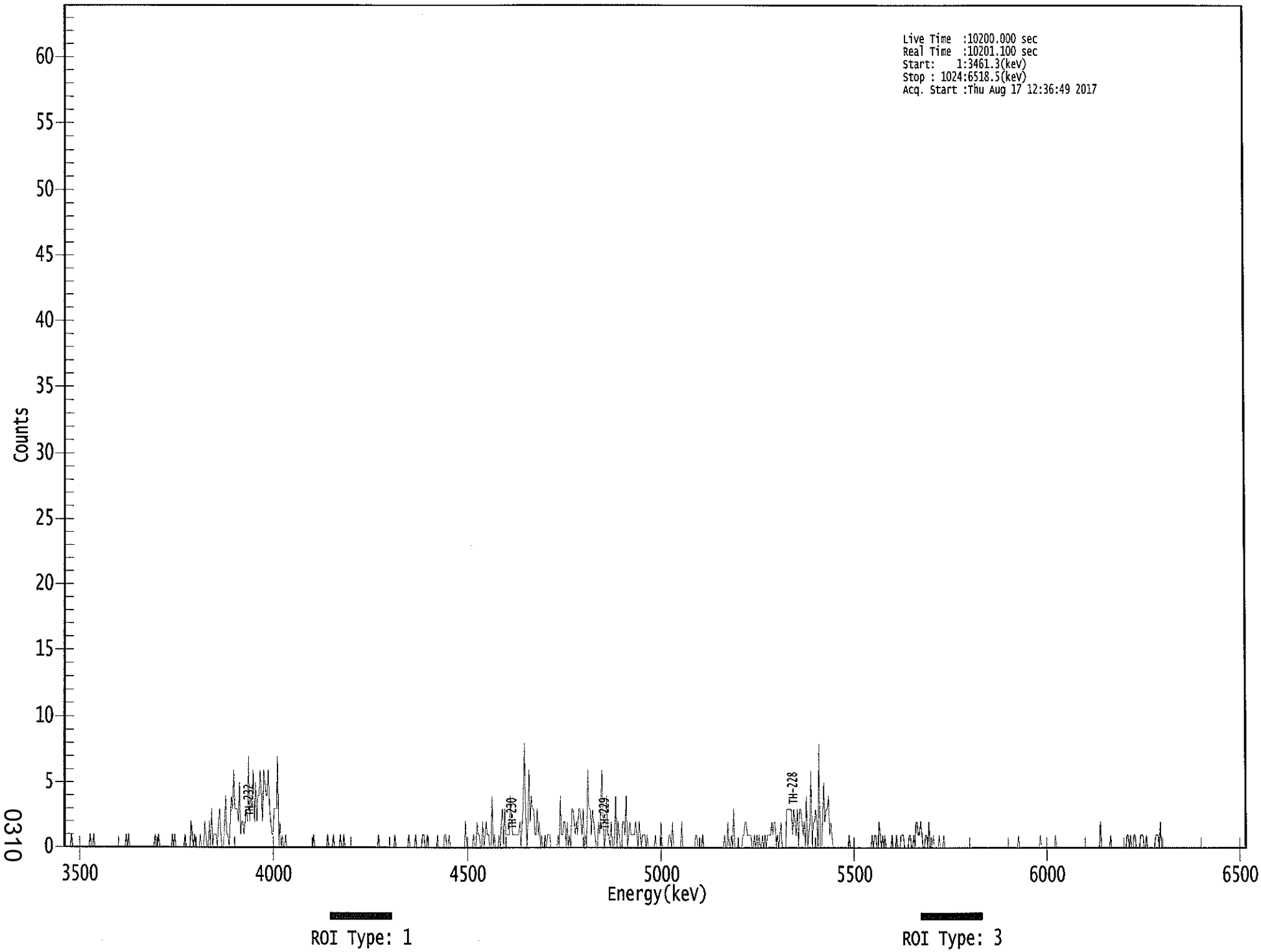
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	1.10E-001 +/- 9.29E-002	7.86E-002 +/- 1.46E-002
TH-228	0.984	5400.00*	2.50E+000 +/- 6.40E-001	1.26E-001 +/- 2.34E-002
TH-229	0.999	4872.00*	2.29E+000 +/- 4.26E-001	1.03E-001 +/- 1.92E-002
TH-230	0.984	4672.00*	1.80E+000 +/- 4.89E-001	7.61E-002 +/- 1.41E-002
TH-232	0.983	3997.00*	3.13E+000 +/- 7.48E-001	1.09E-001 +/- 2.03E-002

AG 8/18/17

0000191732.CNF



0310

****
***** 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: 10201

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

369:	0	4	0	1	0	0	0	1

Sample Title: 19

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

801:	0	0	0	0	0	0	0	0

Sample Title: 19

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	1	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	1	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	2	0	0	0	0	0	0	0
905:	0	1	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	1
921:	1	0	1	0	0	1	1	0
929:	0	0	0	1	1	1	0	0
937:	1	0	0	0	0	0	0	0
945:	1	1	1	0	2	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 8/18/17

Sample Description: HTC-A02-S004-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707085A-TH
Sample Identification: 20
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: 2.860E-001 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:55:23 AM
Acquisition Date/Time: 8/17/2017 12:36:51 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.235 mL
Effective Efficiency: 0.2066 +/- 0.0165
Counting Efficiency: 0.1728 +/- 0.0029 on 11/18/2016 10:08:58 AM
Chem. Recovery Factor: 1.1952 +/- 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		5.881	62.64	25.08	1.36	0.00E+000	6.0
TH-228		5.350	1310.64	5.42	1.36	0.00E+000	41.6
TH-229	T	4.881	185.49	14.41	0.51	0.00E+000	8.9
TH-230		4.618	990.49	6.23	0.51	0.00E+000	31.1
TH-232		3.951	1198.83	5.66	0.17	0.00E+000	23.6

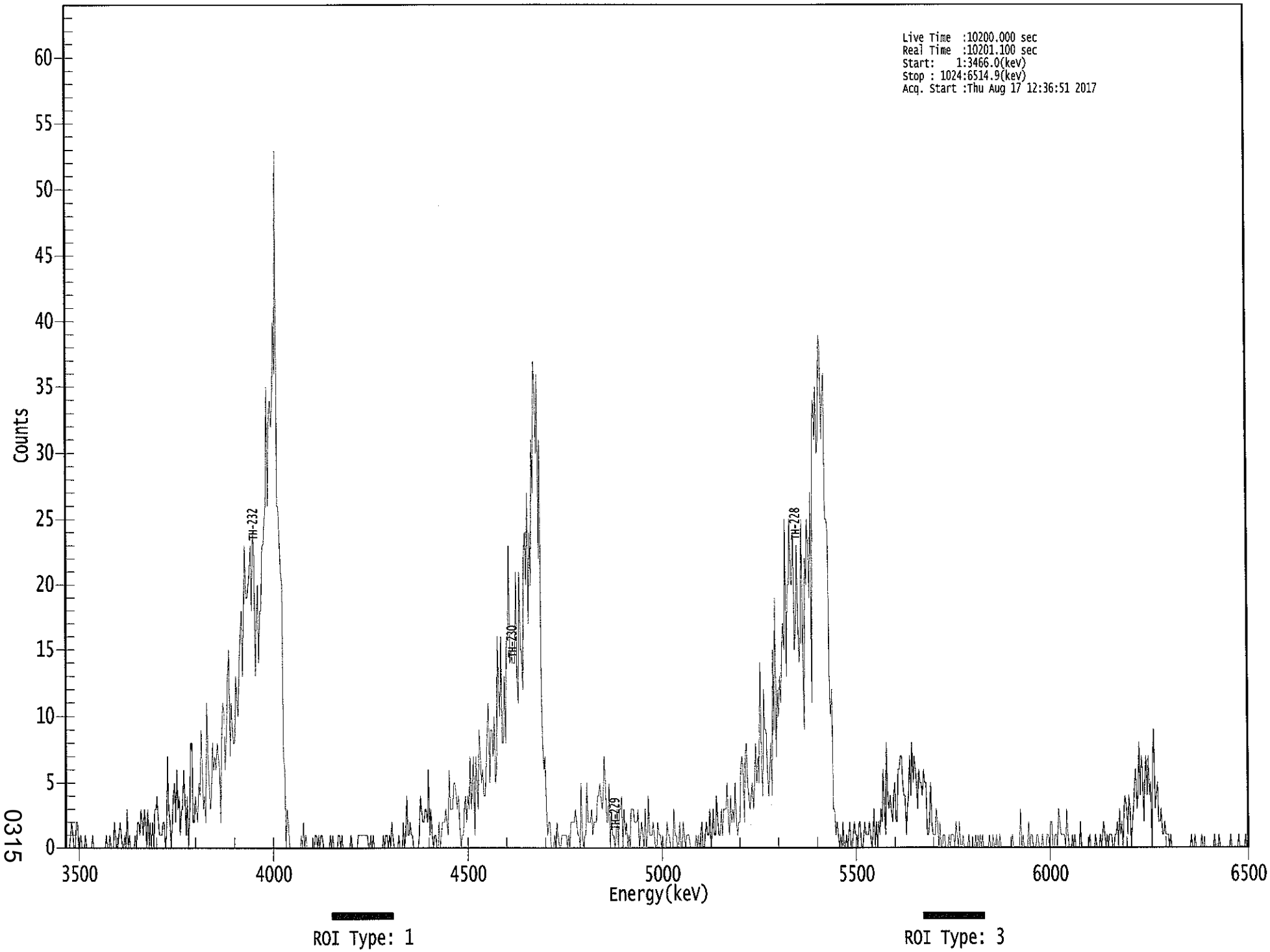
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.995	5850.00*	2.91E+000 +/- 8.59E-001	3.18E-001 +/- 4.97E-002
TH-228	0.987	5400.00*	6.46E+001 +/- 1.07E+001	3.38E-001 +/- 5.28E-002
TH-229	1.000	4872.00*	8.36E+000 +/- 1.31E+000	2.36E-001 +/- 3.70E-002
TH-230	0.985	4672.00*	4.45E+001 +/- 7.49E+000	2.36E-001 +/- 3.69E-002
TH-232	0.989	3997.00*	5.38E+001 +/- 8.94E+000	1.87E-001 +/- 2.93E-002

AG 8/18/17

0000191733.CNF



0315

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

Sample Title: 20

Elapsed Live time: 10200
Elapsed Real Time: 10201

Channel								
1:	0	0	0	0	1	2	1	0
9:	0	2	2	0	0	1	0	0
17:	0	1	0	0	0	0	0	1
25:	0	0	0	0	0	0	0	0
33:	0	0	0	1	0	0	1	0
41:	0	0	2	1	0	0	1	2
49:	1	0	0	1	0	3	0	1
57:	0	0	0	0	1	0	2	2
65:	1	3	2	1	3	2	0	3
73:	0	2	0	2	0	3	3	4
81:	2	1	1	1	2	2	0	1
89:	7	3	2	0	2	4	5	2
97:	6	3	4	1	3	3	6	4
105:	1	4	0	3	8	8	2	2
113:	4	3	2	5	4	9	6	3
121:	4	2	11	7	5	3	4	8
129:	6	7	6	8	7	6	2	9
137:	11	10	6	9	13	15	7	11
145:	9	8	8	13	11	10	14	16
153:	18	13	18	23	19	19	20	21
161:	23	18	24	23	13	17	20	14
169:	18	18	23	23	25	26	35	26
177:	33	34	32	34	40	36	53	26
185:	26	23	21	20	7	6	0	3
193:	2	0	0	0	0	0	0	0
201:	0	0	0	1	0	2	0	1
209:	0	0	0	0	0	0	0	1
217:	1	0	1	0	1	1	0	0
225:	0	0	0	0	1	0	1	0
233:	0	0	0	1	1	0	1	0
241:	0	0	0	0	0	0	1	0
249:	0	0	0	0	1	1	1	1
257:	1	1	1	1	1	0	0	1
265:	0	1	0	0	0	0	0	0
273:	0	0	1	0	1	1	0	1
281:	0	2	1	0	0	0	0	1
289:	0	0	0	2	0	1	4	1
297:	1	2	1	1	0	0	0	0
305:	0	1	4	3	2	2	3	3
313:	2	6	1	3	1	0	1	1
321:	0	0	2	0	1	2	2	2
329:	3	2	1	6	3	3	3	5
337:	5	4	3	4	2	0	1	1
345:	3	4	2	4	3	7	3	5
353:	7	1	7	5	3	9	7	5
361:	6	4	4	6	9	11	5	9

369:	9	7	10	5	6	16	12	10

Sample Title: 20

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

801:	0	1	0	0	1	0	0	1

Sample Title: 20

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

8/17/2017 6:50:22 AM

Apex-Alpha™

QA SUMMARY REPORT

Review Of QA Results - Pulser Check

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

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

Review of QA Results - Pulser Check

8/17/2017 6:50:22 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha 059	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:21:14 AM
Alpha 060	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:21:17 AM

APPROVED BY: C

APPROVAL DATE: 8/17

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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

17-07085
Gamma
Run 2

Work Order	17-07085
Analysis Code	Gamma
Run	2
Date Received	7/18/2017
Lab Deadline	8/10/2017
Client	Weston Solutions, Inc.
Project	94759
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	EPA 901.1 Modified
Instrument Type	Gamma Spectroscopy
Radiometric Tracer	
Radiometric Sol#	
Tracer Act (dpm/g)	
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		07/19/17 00:00	1.0000E+00
02	MBL	BLANK		07/19/17 00:00	1.0000E+00
03	DUP	HTC-A02-S002-2430-01	51	05/15/17 11:45	5.7039E+02
04	DO	HTC-A02-S002-2430-01	51	05/15/17 11:45	5.7039E+02
05	TRG	HTC-A02-S002-3036-01	49	05/15/17 11:42	6.1721E+02
06	TRG	HTC-A02-S002-3642-01	38	05/15/17 11:39	7.4228E+02
07	TRG	HTC-A02-S002-4248-01	38	05/15/17 11:36	6.2019E+02
08	TRG	HTC-A02-S003-0006-01	80	05/15/17 12:21	7.5102E+02
11	TRG	HTC-A02-S003-0006-02	42	05/15/17 12:21	7.2393E+02
12	TRG	HTC-A02-S003-0612-01	44	05/15/17 12:18	4.9666E+02
13	TRG	HTC-A02-S003-1218-01	40	05/15/17 12:15	4.9887E+02
14	TRG	HTC-A02-S003-1824-01	39	05/15/17 12:12	4.8473E+02
15	TRG	HTC-A02-S003-2430-01	39	05/15/17 12:09	4.5069E+02
16	TRG	HTC-A02-S003-3036-01	45	05/15/17 12:06	4.8133E+02
17	TRG	HTC-A02-S003-3642-01	37	05/15/17 12:03	4.4818E+02
18	TRG	HTC-A02-S003-4248-01	48	05/15/17 12:00	4.5972E+02
19	TRG	HTC-A02-S004-0006-01	48	05/15/17 08:29	4.3000E+02
20	TRG	HTC-A02-S004-0612-01	138	05/15/17 08:27	8.1672E+02

0323

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

Eberline Services
Oak Ridge Laboratory
Analysis Sheet

17-07085
Gamma
Run 2

Internal Fraction	Sample Desc	Tracer Aliquot (g)	Tracer Total ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	Grav Carrier Added (ml)	Grav Filter Tare (g)	Grav Filter Final (g)	Grav Filter Net (g)	Grav % Rec	Mean % Rec	SAF 1*	SAF 2*
01	LCS				0.00								
02	MBL				0.00								
03	DUP				0.00								
04	DO				0.00								
05	TRG				0.00								
06	TRG				0.00								
07	TRG				0.00								
08	TRG				0.00								
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								

0324

* 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.

17-07085
Gamma
Run 2

Internal Fraction	Sample Desc	Rough Prep Date	Rough Prep By	Prep Date	Prep By	Sep t0 Date/Time	Sep t0 By	Sep t1 Date/Time	Sep t1 By
01	LCS								
02	MBL								
03	DUP								
04	DO	07/31/17 07:32	KSALLINGS						
05	TRG	07/31/17 07:32	KSALLINGS						
06	TRG	07/31/17 07:32	KSALLINGS						
07	TRG	07/31/17 07:32	KSALLINGS						
08	TRG	07/31/17 07:32	KSALLINGS						
11	TRG	07/31/17 07:32	KSALLINGS						
12	TRG	07/31/17 07:32	KSALLINGS						
13	TRG	07/31/17 07:32	KSALLINGS						
14	TRG	07/31/17 07:32	KSALLINGS						
15	TRG	07/31/17 07:32	KSALLINGS						
16	TRG	07/31/17 07:32	KSALLINGS						
17	TRG	07/31/17 07:32	KSALLINGS						
18	TRG	07/31/17 07:32	KSALLINGS						
19	TRG	07/31/17 07:32	KSALLINGS						
20	TRG	07/31/17 07:32	KSALLINGS						

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

Preliminary Data Report & Analytical Calculations

Work Order: 17-07085-Gamma-2

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
01	CO-60	LCS	LCS	pCi/g	1.24E+02	7.50E+00	1.08E+00	1.35E+02	91.55	OK		07/19/17 00:00	1.00E+00	08/21/17 12:04	YES
01	CS-137	LCS	LCS	pCi/g	8.12E+01	9.92E+00	1.49E+00	8.44E+01	96.24	OK		07/19/17 00:00	1.00E+00	08/21/17 12:04	YES
02	AC-228	MBL	BLANK	pCi/g	-6.09E-02	1.29E-01	1.52E-01					07/19/17 00:00	1.00E+00	08/21/17 12:35	NO
02	BI-212	MBL	BLANK	pCi/g	-1.67E-01	3.11E-01	3.89E-01					07/19/17 00:00	1.00E+00	08/21/17 12:35	NO
02	RA-226	MBL	BLANK	pCi/g	1.96E-02	5.09E-02	9.02E-02					07/19/17 00:00	1.00E+00	08/21/17 12:35	NO
02	CS-137	MBL	BLANK	pCi/g	2.02E-02	3.85E-02	6.22E-02					07/19/17 00:00	1.00E+00	08/21/17 12:35	NO
02	K-40	MBL	BLANK	pCi/g	-3.45E-02	3.50E-01	5.98E-01					07/19/17 00:00	1.00E+00	08/21/17 12:35	NO
02	PA-234M	MBL	BLANK	pCi/g	8.11E-01	3.43E+00	5.68E+00					07/19/17 00:00	1.00E+00	08/21/17 12:35	NO
02	PB-212	MBL	BLANK	pCi/g	1.46E-02	3.65E-02	5.93E-02					07/19/17 00:00	1.00E+00	08/21/17 12:35	NO
02	RA-224	MBL	BLANK	pCi/g	3.55E-01	3.93E-01	6.76E-01					07/19/17 00:00	1.00E+00	08/21/17 12:35	NO
02	RA-228	MBL	BLANK	pCi/g	-6.09E-02	1.29E-01	1.52E-01					07/19/17 00:00	1.00E+00	08/21/17 12:35	NO
02	TH-234	MBL	BLANK	pCi/g	6.67E-01	3.88E-01	6.72E-01					07/19/17 00:00	1.00E+00	08/21/17 12:35	NO
02	TL-208	MBL	BLANK	pCi/g	-8.87E-03	9.67E-02	1.50E-01					07/19/17 00:00	1.00E+00	08/21/17 12:35	NO
03	AC-228	DUP	HTC-A02-S002-2430-01	pCi/g	1.52E+00	3.54E-01	7.12E-01				OK	05/15/17 11:45	5.70E+02	08/21/17 08:10	YES
03	BI-212	DUP	HTC-A02-S002-2430-01	pCi/g	7.71E-01	9.33E-01	1.56E+00					05/15/17 11:45	5.70E+02	08/21/17 08:10	YES
03	RA-226	DUP	HTC-A02-S002-2430-01	pCi/g	1.12E+00	2.29E-01	1.13E-01				OK	05/15/17 11:45	5.70E+02	08/21/17 08:10	YES
03	CS-137	DUP	HTC-A02-S002-2430-01	pCi/g	-4.21E-02	6.44E-02	1.38E-01					05/15/17 11:45	5.70E+02	08/21/17 08:10	NO
03	K-40	DUP	HTC-A02-S002-2430-01	pCi/g	2.19E+01	2.95E+00	1.48E+00				OK	05/15/17 11:45	5.70E+02	08/21/17 08:10	YES
03	PA-234M	DUP	HTC-A02-S002-2430-01	pCi/g	-4.38E+00	1.15E+01	1.52E+01					05/15/17 11:45	5.70E+02	08/21/17 08:10	NO
03	PB-212	DUP	HTC-A02-S002-2430-01	pCi/g	1.41E+00	1.90E-01	2.98E-01					05/15/17 11:45	5.70E+02	08/21/17 08:10	YES
03	RA-224	DUP	HTC-A02-S002-2430-01	pCi/g	2.85E+00	1.62E+00	3.38E+00					05/15/17 11:45	5.70E+02	08/21/17 08:10	YES
03	RA-228	DUP	HTC-A02-S002-2430-01	pCi/g	1.52E+00	3.54E-01	7.12E-01					05/15/17 11:45	5.70E+02	08/21/17 08:10	YES
03	TH-234	DUP	HTC-A02-S002-2430-01	pCi/g	1.29E+00	1.48E+00	2.21E+00					05/15/17 11:45	5.70E+02	08/21/17 08:10	NO
03	TL-208	DUP	HTC-A02-S002-2430-01	pCi/g	1.32E+00	3.13E-01	7.76E-02					05/15/17 11:45	5.70E+02	08/21/17 08:10	YES
04	AC-228	DO	HTC-A02-S002-2430-01	pCi/g	1.56E+00	3.08E-01	5.18E-01					05/15/17 11:45	5.70E+02	08/21/17 09:11	YES
04	BI-212	DO	HTC-A02-S002-2430-01	pCi/g	9.03E-01	8.02E-01	1.31E+00					05/15/17 11:45	5.70E+02	08/21/17 09:11	YES
04	RA-226	DO	HTC-A02-S002-2430-01	pCi/g	1.15E+00	2.33E-01	3.55E-01					05/15/17 11:45	5.70E+02	08/21/17 09:11	YES
04	CS-137	DO	HTC-A02-S002-2430-01	pCi/g	-3.96E-03	1.01E-01	1.39E-01					05/15/17 11:45	5.70E+02	08/21/17 09:11	NO
04	K-40	DO	HTC-A02-S002-2430-01	pCi/g	2.45E+01	3.18E+00	1.41E+00					05/15/17 11:45	5.70E+02	08/21/17 09:11	YES
04	PA-234M	DO	HTC-A02-S002-2430-01	pCi/g	8.99E+00	8.29E+00	3.47E+01					05/15/17 11:45	5.70E+02	08/21/17 09:11	YES
04	PB-212	DO	HTC-A02-S002-2430-01	pCi/g	1.37E+00	1.91E-01	3.28E-01					05/15/17 11:45	5.70E+02	08/21/17 09:11	YES
04	RA-224	DO	HTC-A02-S002-2430-01	pCi/g	3.61E+00	1.69E+00	3.67E+00					05/15/17 11:45	5.70E+02	08/21/17 09:11	YES
04	RA-228	DO	HTC-A02-S002-2430-01	pCi/g	1.56E+00	3.08E-01	5.18E-01					05/15/17 11:45	5.70E+02	08/21/17 09:11	YES
04	TH-234	DO	HTC-A02-S002-2430-01	pCi/g	1.49E+00	1.46E+00	2.19E+00					05/15/17 11:45	5.70E+02	08/21/17 09:11	NO
04	TL-208	DO	HTC-A02-S002-2430-01	pCi/g	1.31E+00	2.91E-01	7.76E-02					05/15/17 11:45	5.70E+02	08/21/17 09:11	YES
05	AC-228	TRG	HTC-A02-S002-3036-01	pCi/g	1.30E+00	1.82E-01	2.96E-01					05/15/17 11:42	6.17E+02	08/21/17 09:11	YES
05	BI-212	TRG	HTC-A02-S002-3036-01	pCi/g	3.41E-01	3.79E-01	6.23E-01					05/15/17 11:42	6.17E+02	08/21/17 09:11	NO
05	RA-226	TRG	HTC-A02-S002-3036-01	pCi/g	9.08E-01	1.73E-01	2.40E-01					05/15/17 11:42	6.17E+02	08/21/17 09:11	YES

0326

Work Order: 17-07085-Gamma-2

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
05	CS-137	TRG	HTC-A02-S002-3036-01	pCi/g	-3.74E-02	5.03E-02	6.96E-02					05/15/17 11:42	6.17E+02	08/21/17 09:11	NO
05	K-40	TRG	HTC-A02-S002-3036-01	pCi/g	2.14E+01	2.40E+00	1.30E+00					05/15/17 11:42	6.17E+02	08/21/17 09:11	YES
05	PA-234M	TRG	HTC-A02-S002-3036-01	pCi/g	2.33E+00	5.12E+00	8.28E+00					05/15/17 11:42	6.17E+02	08/21/17 09:11	NO
05	PB-212	TRG	HTC-A02-S002-3036-01	pCi/g	1.37E+00	1.50E-01	2.21E-01					05/15/17 11:42	6.17E+02	08/21/17 09:11	YES
05	RA-224	TRG	HTC-A02-S002-3036-01	pCi/g	4.40E+00	1.27E+00	2.49E+00					05/15/17 11:42	6.17E+02	08/21/17 09:11	YES
05	RA-228	TRG	HTC-A02-S002-3036-01	pCi/g	1.30E+00	1.82E-01	2.96E-01					05/15/17 11:42	6.17E+02	08/21/17 09:11	YES
05	TH-234	TRG	HTC-A02-S002-3036-01	pCi/g	1.16E+00	9.33E-01	1.85E+00					05/15/17 11:42	6.17E+02	08/21/17 09:11	YES
05	TL-208	TRG	HTC-A02-S002-3036-01	pCi/g	1.16E+00	2.25E-01	3.86E-01					05/15/17 11:42	6.17E+02	08/21/17 09:11	NO
06	AC-228	TRG	HTC-A02-S002-3642-01	pCi/g	8.60E-01	1.62E-01	4.78E-01					05/15/17 11:39	7.42E+02	08/21/17 09:10	YES
06	BI-212	TRG	HTC-A02-S002-3642-01	pCi/g	7.48E-01	4.02E-01	6.71E-01					05/15/17 11:39	7.42E+02	08/21/17 09:10	YES
06	RA-226	TRG	HTC-A02-S002-3642-01	pCi/g	8.05E-01	1.18E-01	1.55E-01					05/15/17 11:39	7.42E+02	08/21/17 09:10	YES
06	CS-137	TRG	HTC-A02-S002-3642-01	pCi/g	-1.55E-02	4.34E-02	5.97E-02					05/15/17 11:39	7.42E+02	08/21/17 09:10	NO
06	K-40	TRG	HTC-A02-S002-3642-01	pCi/g	1.55E+01	1.86E+00	6.10E-01					05/15/17 11:39	7.42E+02	08/21/17 09:10	YES
06	PA-234M	TRG	HTC-A02-S002-3642-01	pCi/g	2.23E+00	4.10E+00	6.81E+00					05/15/17 11:39	7.42E+02	08/21/17 09:10	NO
06	PB-212	TRG	HTC-A02-S002-3642-01	pCi/g	7.51E-01	9.73E-02	2.21E-01					05/15/17 11:39	7.42E+02	08/21/17 09:10	YES
06	RA-224	TRG	HTC-A02-S002-3642-01	pCi/g	5.08E+00	1.55E+00	1.98E+00					05/15/17 11:39	7.42E+02	08/21/17 09:10	NO
06	RA-228	TRG	HTC-A02-S002-3642-01	pCi/g	8.60E-01	1.62E-01	4.78E-01					05/15/17 11:39	7.42E+02	08/21/17 09:10	YES
06	TH-234	TRG	HTC-A02-S002-3642-01	pCi/g	6.07E-01	6.72E-01	1.04E+00					05/15/17 11:39	7.42E+02	08/21/17 09:10	NO
06	TL-208	TRG	HTC-A02-S002-3642-01	pCi/g	6.88E-01	1.18E-01	1.46E-01					05/15/17 11:39	7.42E+02	08/21/17 09:10	YES
07	AC-228	TRG	HTC-A02-S002-4248-01	pCi/g	7.50E-01	2.49E-01	5.42E-01					05/15/17 11:36	6.20E+02	08/21/17 09:11	YES
07	BI-212	TRG	HTC-A02-S002-4248-01	pCi/g	7.04E-01	5.39E-01	8.70E-01					05/15/17 11:36	6.20E+02	08/21/17 09:11	YES
07	RA-226	TRG	HTC-A02-S002-4248-01	pCi/g	1.65E+00	2.09E-01	2.58E-01					05/15/17 11:36	6.20E+02	08/21/17 09:11	YES
07	CS-137	TRG	HTC-A02-S002-4248-01	pCi/g	1.20E-02	6.13E-02	9.53E-02					05/15/17 11:36	6.20E+02	08/21/17 09:11	NO
07	K-40	TRG	HTC-A02-S002-4248-01	pCi/g	1.62E+01	2.11E+00	1.27E+00					05/15/17 11:36	6.20E+02	08/21/17 09:11	YES
07	PA-234M	TRG	HTC-A02-S002-4248-01	pCi/g	-1.99E+00	6.30E+00	9.22E+00					05/15/17 11:36	6.20E+02	08/21/17 09:11	NO
07	PB-212	TRG	HTC-A02-S002-4248-01	pCi/g	8.68E-01	1.35E-01	3.52E-01					05/15/17 11:36	6.20E+02	08/21/17 09:11	YES
07	RA-224	TRG	HTC-A02-S002-4248-01	pCi/g	1.37E+01	1.90E+00	2.94E+00					05/15/17 11:36	6.20E+02	08/21/17 09:11	NO
07	RA-228	TRG	HTC-A02-S002-4248-01	pCi/g	7.50E-01	2.49E-01	5.42E-01					05/15/17 11:36	6.20E+02	08/21/17 09:11	YES
07	TH-234	TRG	HTC-A02-S002-4248-01	pCi/g	3.33E+00	1.89E+00	3.10E+00					05/15/17 11:36	6.20E+02	08/21/17 09:11	YES
07	TL-208	TRG	HTC-A02-S002-4248-01	pCi/g	8.46E-01	1.69E-01	1.14E-01					05/15/17 11:36	6.20E+02	08/21/17 09:11	YES
08	AC-228	TRG	HTC-A02-S003-0006-01	pCi/g	-1.74E-03	4.54E-01	6.68E-01					05/15/17 12:21	7.51E+02	08/21/17 11:00	NO
08	BI-212	TRG	HTC-A02-S003-0006-01	pCi/g	5.96E-01	6.59E-01	1.10E+00					05/15/17 12:21	7.51E+02	08/21/17 11:00	YES
08	RA-226	TRG	HTC-A02-S003-0006-01	pCi/g	2.48E+01	1.35E+00	5.86E-01					05/15/17 12:21	7.51E+02	08/21/17 11:00	YES
08	CS-137	TRG	HTC-A02-S003-0006-01	pCi/g	-2.02E-01	1.46E-01	1.95E-01					05/15/17 12:21	7.51E+02	08/21/17 11:00	NO
08	K-40	TRG	HTC-A02-S003-0006-01	pCi/g	3.87E+00	1.49E+00	2.25E+00					05/15/17 12:21	7.51E+02	08/21/17 11:00	YES
08	PA-234M	TRG	HTC-A02-S003-0006-01	pCi/g	2.35E+01	1.63E+01	2.67E+01					05/15/17 12:21	7.51E+02	08/21/17 11:00	YES
08	PB-212	TRG	HTC-A02-S003-0006-01	pCi/g	1.45E-01	1.08E-01	4.39E-01					05/15/17 12:21	7.51E+02	08/21/17 11:00	NO
08	RA-224	TRG	HTC-A02-S003-0006-01	pCi/g	4.54E+01	4.96E+00	5.70E+00					05/15/17 12:21	7.51E+02	08/21/17 11:00	NO

Work Order: 17-07085-Gamma-2

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
08	RA-228	TRG	HTC-A02-S003-0006-01	pCi/g	-1.74E-03	4.54E-01	6.68E-01					05/15/17 12:21	7.51E+02	08/21/17 11:00	NO
08	TH-234	TRG	HTC-A02-S003-0006-01	pCi/g	1.82E+01	3.54E+00	5.36E+00					05/15/17 12:21	7.51E+02	08/21/17 11:00	YES
08	TL-208	TRG	HTC-A02-S003-0006-01	pCi/g	4.92E-01	3.56E-01	3.46E-01					05/15/17 12:21	7.51E+02	08/21/17 11:00	NO
11	AC-228	TRG	HTC-A02-S003-0006-02	pCi/g	2.17E-01	4.67E-01	6.66E-01					05/15/17 12:21	7.24E+02	08/21/17 11:01	NO
11	BI-212	TRG	HTC-A02-S003-0006-02	pCi/g	1.20E+00	1.29E+00	2.15E+00					05/15/17 12:21	7.24E+02	08/21/17 11:01	YES
11	RA-226	TRG	HTC-A02-S003-0006-02	pCi/g	1.19E+01	8.74E-01	4.96E-01					05/15/17 12:21	7.24E+02	08/21/17 11:01	YES
11	CS-137	TRG	HTC-A02-S003-0006-02	pCi/g	1.39E-01	1.31E-01	1.93E-01					05/15/17 12:21	7.24E+02	08/21/17 11:01	NO
11	K-40	TRG	HTC-A02-S003-0006-02	pCi/g	2.96E+00	1.78E+00	2.83E+00					05/15/17 12:21	7.24E+02	08/21/17 11:01	YES
11	PA-234M	TRG	HTC-A02-S003-0006-02	pCi/g	3.13E+01	1.45E+01	2.24E+01					05/15/17 12:21	7.24E+02	08/21/17 11:01	YES
11	PB-212	TRG	HTC-A02-S003-0006-02	pCi/g	4.75E-02	8.30E-02	3.55E-01					05/15/17 12:21	7.24E+02	08/21/17 11:01	NO
11	RA-224	TRG	HTC-A02-S003-0006-02	pCi/g	2.20E+01	3.08E+00	4.36E+00					05/15/17 12:21	7.24E+02	08/21/17 11:01	NO
11	RA-228	TRG	HTC-A02-S003-0006-02	pCi/g	2.17E-01	4.67E-01	6.66E-01					05/15/17 12:21	7.24E+02	08/21/17 11:01	NO
11	TH-234	TRG	HTC-A02-S003-0006-02	pCi/g	1.51E+01	4.08E+00	6.46E+00					05/15/17 12:21	7.24E+02	08/21/17 11:01	YES
11	TL-208	TRG	HTC-A02-S003-0006-02	pCi/g	5.26E-01	3.03E-01	3.77E-01					05/15/17 12:21	7.24E+02	08/21/17 11:01	NO
12	AC-228	TRG	HTC-A02-S003-0612-01	pCi/g	8.65E-01	3.87E-01	6.94E-01					05/15/17 12:18	4.97E+02	08/21/17 11:14	YES
12	BI-212	TRG	HTC-A02-S003-0612-01	pCi/g	6.64E-01	6.84E-01	1.14E+00					05/15/17 12:18	4.97E+02	08/21/17 11:14	YES
12	RA-226	TRG	HTC-A02-S003-0612-01	pCi/g	1.38E+01	8.62E-01	3.73E-01					05/15/17 12:18	4.97E+02	08/21/17 11:14	YES
12	CS-137	TRG	HTC-A02-S003-0612-01	pCi/g	1.77E-02	6.28E-02	1.46E-01					05/15/17 12:18	4.97E+02	08/21/17 11:14	NO
12	K-40	TRG	HTC-A02-S003-0612-01	pCi/g	1.60E+01	2.57E+00	2.70E+00					05/15/17 12:18	4.97E+02	08/21/17 11:14	YES
12	PA-234M	TRG	HTC-A02-S003-0612-01	pCi/g	6.77E+00	1.17E+01	1.83E+01					05/15/17 12:18	4.97E+02	08/21/17 11:14	NO
12	PB-212	TRG	HTC-A02-S003-0612-01	pCi/g	8.16E-01	1.75E-01	3.53E-01					05/15/17 12:18	4.97E+02	08/21/17 11:14	NO
12	RA-224	TRG	HTC-A02-S003-0612-01	pCi/g	3.46E+01	3.95E+00	5.22E+00					05/15/17 12:18	4.97E+02	08/21/17 11:14	NO
12	RA-228	TRG	HTC-A02-S003-0612-01	pCi/g	8.65E-01	3.87E-01	6.94E-01					05/15/17 12:18	4.97E+02	08/21/17 11:14	YES
12	TH-234	TRG	HTC-A02-S003-0612-01	pCi/g	1.27E+01	3.77E+00	6.00E+00					05/15/17 12:18	4.97E+02	08/21/17 11:14	YES
12	TL-208	TRG	HTC-A02-S003-0612-01	pCi/g	8.67E-01	1.73E-01	2.43E-01					05/15/17 12:18	4.97E+02	08/21/17 11:14	YES
13	AC-228	TRG	HTC-A02-S003-1218-01	pCi/g	1.33E+00	2.38E-01	4.73E-01					05/15/17 12:15	4.99E+02	08/21/17 11:15	YES
13	BI-212	TRG	HTC-A02-S003-1218-01	pCi/g	1.04E+00	4.24E-01	8.17E-01					05/15/17 12:15	4.99E+02	08/21/17 11:15	YES
13	RA-226	TRG	HTC-A02-S003-1218-01	pCi/g	1.33E+00	2.09E-01	2.84E-01					05/15/17 12:15	4.99E+02	08/21/17 11:15	YES
13	CS-137	TRG	HTC-A02-S003-1218-01	pCi/g	-8.39E-02	6.83E-02	8.77E-02					05/15/17 12:15	4.99E+02	08/21/17 11:15	NO
13	K-40	TRG	HTC-A02-S003-1218-01	pCi/g	2.84E+01	3.03E+00	1.34E+00					05/15/17 12:15	4.99E+02	08/21/17 11:15	YES
13	PA-234M	TRG	HTC-A02-S003-1218-01	pCi/g	-4.25E-01	6.17E+00	9.06E+00					05/15/17 12:15	4.99E+02	08/21/17 11:15	NO
13	PB-212	TRG	HTC-A02-S003-1218-01	pCi/g	1.66E+00	1.85E-01	2.87E-01					05/15/17 12:15	4.99E+02	08/21/17 11:15	YES
13	RA-224	TRG	HTC-A02-S003-1218-01	pCi/g	4.97E+00	1.74E+00	3.28E+00					05/15/17 12:15	4.99E+02	08/21/17 11:15	YES
13	RA-228	TRG	HTC-A02-S003-1218-01	pCi/g	1.33E+00	2.38E-01	4.73E-01					05/15/17 12:15	4.99E+02	08/21/17 11:15	YES
13	TH-234	TRG	HTC-A02-S003-1218-01	pCi/g	1.26E+00	1.35E+00	2.26E+00					05/15/17 12:15	4.99E+02	08/21/17 11:15	YES
13	TL-208	TRG	HTC-A02-S003-1218-01	pCi/g	1.38E+00	2.15E-01	1.78E-01					05/15/17 12:15	4.99E+02	08/21/17 11:15	YES
14	AC-228	TRG	HTC-A02-S003-1824-01	pCi/g	1.29E+00	2.95E-01	5.64E-01					05/15/17 12:12	4.85E+02	08/21/17 12:03	YES
14	BI-212	TRG	HTC-A02-S003-1824-01	pCi/g	1.10E+00	6.29E-01	9.68E-01					05/15/17 12:12	4.85E+02	08/21/17 12:03	YES

0328

Work Order: 17-07085-Gamma-2

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
14	RA-226	TRG	HTC-A02-S003-1824-01	pCi/g	1.28E+00	2.03E-01	2.12E-01					05/15/17 12:12	4.85E+02	08/21/17 12:03	YES
14	CS-137	TRG	HTC-A02-S003-1824-01	pCi/g	-7.52E-02	8.72E-02	1.13E-01					05/15/17 12:12	4.85E+02	08/21/17 12:03	NO
14	K-40	TRG	HTC-A02-S003-1824-01	pCi/g	2.59E+01	3.04E+00	1.10E+00					05/15/17 12:12	4.85E+02	08/21/17 12:03	YES
14	PA-234M	TRG	HTC-A02-S003-1824-01	pCi/g	8.14E+00	7.34E+00	1.32E+01					05/15/17 12:12	4.85E+02	08/21/17 12:03	NO
14	PB-212	TRG	HTC-A02-S003-1824-01	pCi/g	1.56E+00	2.06E-01	2.71E-01					05/15/17 12:12	4.85E+02	08/21/17 12:03	YES
14	RA-224	TRG	HTC-A02-S003-1824-01	pCi/g	2.19E+01	2.62E+00	3.90E+00					05/15/17 12:12	4.85E+02	08/21/17 12:03	NO
14	RA-228	TRG	HTC-A02-S003-1824-01	pCi/g	1.29E+00	2.95E-01	5.64E-01					05/15/17 12:12	4.85E+02	08/21/17 12:03	YES
14	TH-234	TRG	HTC-A02-S003-1824-01	pCi/g	2.10E+00	1.63E+00	2.70E+00					05/15/17 12:12	4.85E+02	08/21/17 12:03	YES
14	TL-208	TRG	HTC-A02-S003-1824-01	pCi/g	1.23E+00	2.58E-01	1.46E-01					05/15/17 12:12	4.85E+02	08/21/17 12:03	YES
15	AC-228	TRG	HTC-A02-S003-2430-01	pCi/g	1.56E+00	2.59E-01	4.05E-01					05/15/17 12:09	4.51E+02	08/21/17 12:16	YES
15	BI-212	TRG	HTC-A02-S003-2430-01	pCi/g	9.22E-01	6.60E-01	1.06E+00					05/15/17 12:09	4.51E+02	08/21/17 12:16	YES
15	RA-226	TRG	HTC-A02-S003-2430-01	pCi/g	1.27E+00	2.07E-01	3.31E-01					05/15/17 12:09	4.51E+02	08/21/17 12:16	YES
15	CS-137	TRG	HTC-A02-S003-2430-01	pCi/g	-3.70E-02	6.28E-02	8.88E-02					05/15/17 12:09	4.51E+02	08/21/17 12:16	NO
15	K-40	TRG	HTC-A02-S003-2430-01	pCi/g	3.43E+01	3.61E+00	1.28E+00					05/15/17 12:09	4.51E+02	08/21/17 12:16	YES
15	PA-234M	TRG	HTC-A02-S003-2430-01	pCi/g	9.36E-01	7.31E+00	1.09E+01					05/15/17 12:09	4.51E+02	08/21/17 12:16	NO
15	PB-212	TRG	HTC-A02-S003-2430-01	pCi/g	1.76E+00	1.98E-01	3.49E-01					05/15/17 12:09	4.51E+02	08/21/17 12:16	YES
15	RA-224	TRG	HTC-A02-S003-2430-01	pCi/g	4.83E+00	1.69E+00	3.94E+00					05/15/17 12:09	4.51E+02	08/21/17 12:16	YES
15	RA-228	TRG	HTC-A02-S003-2430-01	pCi/g	1.56E+00	2.59E-01	4.05E-01					05/15/17 12:09	4.51E+02	08/21/17 12:16	YES
15	TH-234	TRG	HTC-A02-S003-2430-01	pCi/g	1.85E+00	1.56E+00	2.58E+00					05/15/17 12:09	4.51E+02	08/21/17 12:16	YES
15	TL-208	TRG	HTC-A02-S003-2430-01	pCi/g	1.54E+00	2.09E-01	2.28E-01					05/15/17 12:09	4.51E+02	08/21/17 12:16	YES
16	AC-228	TRG	HTC-A02-S003-3036-01	pCi/g	1.39E+00	2.86E-01	5.02E-01					05/15/17 12:06	4.81E+02	08/21/17 12:17	YES
16	BI-212	TRG	HTC-A02-S003-3036-01	pCi/g	9.50E-01	7.42E-01	1.21E+00					05/15/17 12:06	4.81E+02	08/21/17 12:17	YES
16	RA-226	TRG	HTC-A02-S003-3036-01	pCi/g	1.03E+00	1.57E-01	3.27E-01					05/15/17 12:06	4.81E+02	08/21/17 12:17	YES
16	CS-137	TRG	HTC-A02-S003-3036-01	pCi/g	2.60E-02	6.91E-02	1.09E-01					05/15/17 12:06	4.81E+02	08/21/17 12:17	NO
16	K-40	TRG	HTC-A02-S003-3036-01	pCi/g	2.53E+01	3.09E+00	1.69E+00					05/15/17 12:06	4.81E+02	08/21/17 12:17	YES
16	PA-234M	TRG	HTC-A02-S003-3036-01	pCi/g	2.45E+00	6.56E+00	1.06E+01					05/15/17 12:06	4.81E+02	08/21/17 12:17	NO
16	PB-212	TRG	HTC-A02-S003-3036-01	pCi/g	1.26E+00	1.55E-01	2.90E-01					05/15/17 12:06	4.81E+02	08/21/17 12:17	YES
16	RA-224	TRG	HTC-A02-S003-3036-01	pCi/g	1.01E+01	2.27E+00	3.12E+00					05/15/17 12:06	4.81E+02	08/21/17 12:17	NO
16	RA-228	TRG	HTC-A02-S003-3036-01	pCi/g	1.39E+00	2.86E-01	5.02E-01					05/15/17 12:06	4.81E+02	08/21/17 12:17	YES
16	TH-234	TRG	HTC-A02-S003-3036-01	pCi/g	1.40E+00	1.01E+00	1.61E+00					05/15/17 12:06	4.81E+02	08/21/17 12:17	NO
16	TL-208	TRG	HTC-A02-S003-3036-01	pCi/g	1.18E+00	2.04E-01	2.89E-01					05/15/17 12:06	4.81E+02	08/21/17 12:17	YES
17	AC-228	TRG	HTC-A02-S003-3642-01	pCi/g	1.29E+00	2.87E-01	5.22E-01					05/15/17 12:03	4.48E+02	08/21/17 13:23	YES
17	BI-212	TRG	HTC-A02-S003-3642-01	pCi/g	1.60E+00	8.13E-01	1.27E+00					05/15/17 12:03	4.48E+02	08/21/17 13:23	YES
17	RA-226	TRG	HTC-A02-S003-3642-01	pCi/g	2.34E+00	2.63E-01	3.22E-01					05/15/17 12:03	4.48E+02	08/21/17 13:23	YES
17	CS-137	TRG	HTC-A02-S003-3642-01	pCi/g	-2.44E-02	6.75E-02	9.82E-02					05/15/17 12:03	4.48E+02	08/21/17 13:23	NO
17	K-40	TRG	HTC-A02-S003-3642-01	pCi/g	3.41E+01	3.63E+00	1.34E+00					05/15/17 12:03	4.48E+02	08/21/17 13:23	YES
17	PA-234M	TRG	HTC-A02-S003-3642-01	pCi/g	3.15E+00	6.83E+00	1.11E+01					05/15/17 12:03	4.48E+02	08/21/17 13:23	NO
17	PB-212	TRG	HTC-A02-S003-3642-01	pCi/g	1.77E+00	2.04E-01	3.50E-01					05/15/17 12:03	4.48E+02	08/21/17 13:23	YES

Work Order: 17-07085-Gamma-2

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
17	RA-224	TRG	HTC-A02-S003-3642-01	pCi/g	1.78E+01	2.32E+00	3.65E+00					05/15/17 12:03	4.48E+02	08/21/17 13:23	NO
17	RA-228	TRG	HTC-A02-S003-3642-01	pCi/g	1.29E+00	2.87E-01	5.22E-01					05/15/17 12:03	4.48E+02	08/21/17 13:23	YES
17	TH-234	TRG	HTC-A02-S003-3642-01	pCi/g	2.31E+00	1.90E+00	3.15E+00					05/15/17 12:03	4.48E+02	08/21/17 13:23	YES
17	TL-208	TRG	HTC-A02-S003-3642-01	pCi/g	1.46E+00	2.27E-01	2.20E-01					05/15/17 12:03	4.48E+02	08/21/17 13:23	YES
18	AC-228	TRG	HTC-A02-S003-4248-01	pCi/g	1.30E+00	2.66E-01	6.09E-01					05/15/17 12:00	4.60E+02	08/21/17 13:19	YES
18	BI-212	TRG	HTC-A02-S003-4248-01	pCi/g	8.98E-01	5.20E-01	9.64E-01					05/15/17 12:00	4.60E+02	08/21/17 13:19	YES
18	RA-226	TRG	HTC-A02-S003-4248-01	pCi/g	1.12E+00	1.65E-01	1.78E-01					05/15/17 12:00	4.60E+02	08/21/17 13:19	YES
18	CS-137	TRG	HTC-A02-S003-4248-01	pCi/g	-3.07E-02	6.42E-02	9.14E-02					05/15/17 12:00	4.60E+02	08/21/17 13:19	NO
18	K-40	TRG	HTC-A02-S003-4248-01	pCi/g	2.83E+01	3.33E+00	1.30E+00					05/15/17 12:00	4.60E+02	08/21/17 13:19	YES
18	PA-234M	TRG	HTC-A02-S003-4248-01	pCi/g	3.62E+00	6.56E+00	1.09E+01					05/15/17 12:00	4.60E+02	08/21/17 13:19	NO
18	PB-212	TRG	HTC-A02-S003-4248-01	pCi/g	1.41E+00	1.66E-01	3.50E-01					05/15/17 12:00	4.60E+02	08/21/17 13:19	YES
18	RA-224	TRG	HTC-A02-S003-4248-01	pCi/g	3.03E+00	1.01E+00	3.95E+00					05/15/17 12:00	4.60E+02	08/21/17 13:19	YES
18	RA-228	TRG	HTC-A02-S003-4248-01	pCi/g	1.30E+00	2.66E-01	6.09E-01					05/15/17 12:00	4.60E+02	08/21/17 13:19	YES
18	TH-234	TRG	HTC-A02-S003-4248-01	pCi/g	7.64E-01	1.03E+00	1.58E+00					05/15/17 12:00	4.60E+02	08/21/17 13:19	NO
18	TL-208	TRG	HTC-A02-S003-4248-01	pCi/g	1.10E+00	1.87E-01	2.14E-01					05/15/17 12:00	4.60E+02	08/21/17 13:19	YES
19	AC-228	TRG	HTC-A02-S004-0006-01	pCi/g	2.65E+00	4.63E-01	8.10E-01					05/15/17 08:29	4.30E+02	08/21/17 13:23	YES
19	BI-212	TRG	HTC-A02-S004-0006-01	pCi/g	2.12E+00	9.65E-01	1.65E+00					05/15/17 08:29	4.30E+02	08/21/17 13:23	YES
19	RA-226	TRG	HTC-A02-S004-0006-01	pCi/g	1.72E+00	2.80E-01	3.56E-01					05/15/17 08:29	4.30E+02	08/21/17 13:23	YES
19	CS-137	TRG	HTC-A02-S004-0006-01	pCi/g	2.16E-01	1.05E-01	2.49E-01					05/15/17 08:29	4.30E+02	08/21/17 13:23	YES
19	K-40	TRG	HTC-A02-S004-0006-01	pCi/g	2.10E+01	2.76E+00	1.37E+00					05/15/17 08:29	4.30E+02	08/21/17 13:23	YES
19	PA-234M	TRG	HTC-A02-S004-0006-01	pCi/g	7.19E-01	1.01E+01	1.56E+01					05/15/17 08:29	4.30E+02	08/21/17 13:23	NO
19	PB-212	TRG	HTC-A02-S004-0006-01	pCi/g	4.05E+00	4.23E-01	3.31E-01					05/15/17 08:29	4.30E+02	08/21/17 13:23	YES
19	RA-224	TRG	HTC-A02-S004-0006-01	pCi/g	4.65E+01	4.72E+00	5.84E+00					05/15/17 08:29	4.30E+02	08/21/17 13:23	NO
19	RA-228	TRG	HTC-A02-S004-0006-01	pCi/g	2.65E+00	4.63E-01	8.10E-01					05/15/17 08:29	4.30E+02	08/21/17 13:23	YES
19	TH-234	TRG	HTC-A02-S004-0006-01	pCi/g	2.95E+00	2.08E+00	2.81E+00					05/15/17 08:29	4.30E+02	08/21/17 13:23	NO
19	TL-208	TRG	HTC-A02-S004-0006-01	pCi/g	2.88E+00	3.74E-01	1.64E-01					05/15/17 08:29	4.30E+02	08/21/17 13:23	YES
20	AC-228	TRG	HTC-A02-S004-0612-01	pCi/g	7.26E+01	3.78E+00	3.54E+00					05/15/17 08:27	8.17E+02	08/21/17 13:46	YES
20	BI-212	TRG	HTC-A02-S004-0612-01	pCi/g	4.61E+01	5.94E+00	5.90E+00					05/15/17 08:27	8.17E+02	08/21/17 13:46	YES
20	RA-226	TRG	HTC-A02-S004-0612-01	pCi/g	5.32E+01	3.09E+00	1.69E+00					05/15/17 08:27	8.17E+02	08/21/17 13:46	YES
20	CS-137	TRG	HTC-A02-S004-0612-01	pCi/g	5.27E-02	1.92E-01	6.18E-01					05/15/17 08:27	8.17E+02	08/21/17 13:46	NO
20	K-40	TRG	HTC-A02-S004-0612-01	pCi/g	1.04E+01	3.11E+00	5.06E+00					05/15/17 08:27	8.17E+02	08/21/17 13:46	NO
20	PA-234M	TRG	HTC-A02-S004-0612-01	pCi/g	4.92E+01	3.56E+01	4.94E+01					05/15/17 08:27	8.17E+02	08/21/17 13:46	NO
20	PB-212	TRG	HTC-A02-S004-0612-01	pCi/g	7.26E+01	5.43E+00	1.61E+00					05/15/17 08:27	8.17E+02	08/21/17 13:46	YES
20	RA-224	TRG	HTC-A02-S004-0612-01	pCi/g	1.67E+02	1.71E+01	1.82E+01					05/15/17 08:27	8.17E+02	08/21/17 13:46	YES
20	RA-228	TRG	HTC-A02-S004-0612-01	pCi/g	7.26E+01	3.78E+00	3.54E+00					05/15/17 08:27	8.17E+02	08/21/17 13:46	YES
20	TH-234	TRG	HTC-A02-S004-0612-01	pCi/g	5.47E+01	9.19E+00	1.36E+01					05/15/17 08:27	8.17E+02	08/21/17 13:46	YES
20	TL-208	TRG	HTC-A02-S004-0612-01	pCi/g	7.42E+01	6.45E+00	2.38E+00					05/15/17 08:27	8.17E+02	08/21/17 13:46	YES

Count Room Report
Client: Weston Solutions, Inc.

17-07085-Gamma-2 (pCi/g) in SO
Tracer ID:

Internal Fraction	Sample Desc	Client ID	Sample Date	Sample Aliquot	Tracer Aliquot (g)	Tracer ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	SAF 1*	SAF 2*
01	LCS	LCS	07/19/17 00:00	1.0000				0.00		
02	MBL	BLANK	07/19/17 00:00	1.0000				0.00		
03	DUP	HTC-A02-S002-2430-01	05/15/17 11:45	570.3900				0.00		
04	DO	HTC-A02-S002-2430-01	05/15/17 11:45	570.3900				0.00		
05	TRG	HTC-A02-S002-3036-01	05/15/17 11:42	617.2100				0.00		
06	TRG	HTC-A02-S002-3642-01	05/15/17 11:39	742.2800				0.00		
07	TRG	HTC-A02-S002-4248-01	05/15/17 11:36	620.1900				0.00		
08	TRG	HTC-A02-S003-0006-01	05/15/17 12:21	751.0200				0.00		
11	TRG	HTC-A02-S003-0006-02	05/15/17 12:21	723.9300				0.00		
12	TRG	HTC-A02-S003-0612-01	05/15/17 12:18	496.6600				0.00		
13	TRG	HTC-A02-S003-1218-01	05/15/17 12:15	498.8700				0.00		
14	TRG	HTC-A02-S003-1824-01	05/15/17 12:12	484.7300				0.00		
15	TRG	HTC-A02-S003-2430-01	05/15/17 12:09	450.6900				0.00		
16	TRG	HTC-A02-S003-3036-01	05/15/17 12:06	481.3300				0.00		
17	TRG	HTC-A02-S003-3642-01	05/15/17 12:03	448.1800				0.00		
18	TRG	HTC-A02-S003-4248-01	05/15/17 12:00	459.7200				0.00		
19	TRG	HTC-A02-S004-0006-01	05/15/17 08:29	430.0000				0.00		
20	TRG	HTC-A02-S004-0612-01	05/15/17 08:27	816.7200				0.00		

Gem

0331

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
17-07085	2	Gamma	grams	8/10/2017	KSALLINGS

Lab Fraction	Weston Solutions, Inc. Client ID	Sample Type	Muffle Data Ratio Post/Pre	Dilution Data No of Dils	Dil Factor	Ratio	Aliquot Data Aliquot	Net Equiv	MS Aliquot Data Aliquot	Net Equiv	H-3 Solids Only Water Added (ml)	H3 Dist Aliq
01	LCS	LCS					1.0000E+00	1.0000E+00				
02	BLANK	MBL					1.0000E+00	1.0000E+00				
03	HTC-A02-S002-2430-01	DUP					5.7039E+02	5.7039E+02				
04	HTC-A02-S002-2430-01	DO					5.7039E+02	5.7039E+02				
05	HTC-A02-S002-3036-01	TRG					6.1721E+02	6.1721E+02				
06	HTC-A02-S002-3642-01	TRG					7.4228E+02	7.4228E+02				
07	HTC-A02-S002-4248-01	TRG					6.2019E+02	6.2019E+02				
08	HTC-A02-S003-0006-01	TRG					7.5102E+02	7.5102E+02				
11	HTC-A02-S003-0006-02	TRG					7.2393E+02	7.2393E+02				
12	HTC-A02-S003-0612-01	TRG					4.9666E+02	4.9666E+02				
13	HTC-A02-S003-1218-01	TRG					4.9887E+02	4.9887E+02				
14	HTC-A02-S003-1824-01	TRG					4.8473E+02	4.8473E+02				
15	HTC-A02-S003-2430-01	TRG					4.5069E+02	4.5069E+02				
16	HTC-A02-S003-3036-01	TRG					4.8133E+02	4.8133E+02				
17	HTC-A02-S003-3642-01	TRG					4.4818E+02	4.4818E+02				
18	HTC-A02-S003-4248-01	TRG					4.5972E+02	4.5972E+02				
19	HTC-A02-S004-0006-01	TRG					4.3000E+02	4.3000E+02				
20	HTC-A02-S004-0612-01	TRG					8.1672E+02	8.1672E+02				

Comments	

0332

Technician: Kerry Sallings Date: 7/31/17

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

Rough Sample Preparation Log Book

Work Order	Lab Deadline	Date Received in Prep	Date Sealed	Date Returned	Technician
17-07085	8/10/2017	7/30/2017	7/31/2017	8/1/2017	KSALLINGS

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

Eberline Fraction	Weston Solutions, Inc. Client ID	Tare (g) Pan Wt	Gross (g) Wet Wt.	Gross (g) Dry Wt.	Net (g) Wet Wt.	Net (g) Dry Wt.	Percent Liquid	Percent Solid	Gamma Dry Wt.	Gamma LEPS Wt.	Special Info
04	HTC-A02-S002-2430-01	14.5800	950.0000	791.2200	935.4200	776.6400	16.97%	83.03%	0.0000	0.0000	
05	HTC-A02-S002-3036-01	14.6400	1084.7600	895.5000	1070.1200	880.8600	17.69%	82.31%	0.0000	0.0000	
06	HTC-A02-S002-3642-01	14.7500	1099.6400	940.2400	1084.8900	925.4900	14.69%	85.31%	0.0000	0.0000	
07	HTC-A02-S002-4248-01	14.7700	1008.6200	844.6600	993.8500	829.8900	16.50%	83.50%	0.0000	0.0000	
08	HTC-A02-S003-0006-01	14.5200	890.0800	841.1200	875.5600	826.6000	5.59%	94.41%	0.0000	0.0000	
09	HTC-A02-S003-0006-01 MS	14.7000	855.2800	798.0200	840.5800	783.3200	6.81%	93.19%	0.0000	0.0000	
10	HTC-A02-S003-0006-01 MSD	14.7000	855.2800	798.0200	840.5800	783.3200	6.81%	93.19%	0.0000	0.0000	
11	HTC-A02-S003-0006-02	14.6200	876.7800	823.3800	862.1600	808.7600	6.19%	93.81%	0.0000	0.0000	
12	HTC-A02-S003-0612-01	14.6000	866.2400	735.5100	851.6400	720.9100	15.35%	84.65%	0.0000	0.0000	
13	HTC-A02-S003-1218-01	14.6500	835.8800	699.4500	821.2300	684.8000	16.61%	83.39%	0.0000	0.0000	
14	HTC-A02-S003-1824-01	14.5800	719.4100	607.0900	704.8300	592.5100	15.94%	84.06%	0.0000	0.0000	
15	HTC-A02-S003-2430-01	14.6500	957.5800	795.4000	942.9300	780.7500	17.20%	82.80%	0.0000	0.0000	
16	HTC-A02-S003-3036-01	14.6400	831.2400	696.6200	816.6000	681.9800	16.49%	83.51%	0.0000	0.0000	
17	HTC-A02-S003-3642-01	14.6300	799.2600	656.0800	784.6300	641.4500	18.25%	81.75%	0.0000	0.0000	
18	HTC-A02-S003-4248-01	14.5900	749.6100	618.7200	735.0200	604.1300	17.81%	82.19%	0.0000	0.0000	
19	HTC-A02-S004-0006-01	14.5400	865.1000	569.0200	850.5600	554.4800	34.81%	65.19%	0.0000	0.0000	
20	HTC-A02-S004-0612-01	14.5300	1064.2200	983.1400	1049.6900	968.6100	7.72%	92.28%	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)**

0333

Technician: Kerry Sallings Date: **Analysis: Rough Prep Logbook** **Analysis: Gamma Page No. 10168**

Eckert & Ziegler
Analytics

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

CERTIFICATE OF CALIBRATION

Standard Radionuclide Source

GAS-1402

98503

Sand in 16 Ounce PP Taral Jar Filled to Capacity

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

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

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

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

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

(Certificate continued on reverse side)

ANA Form005 Rev. —

Corporate Office
24937 Avenue Tibbitts Valencia, California 91355

Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia, 30318

8/21

Apex-Gamma

Analysis Report for 1707085-01
GAS-1402

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707085-01
Sample Description	: GAS-1402
Sample Type	: SOIL
Sample Size	: 7.360E+02 grams
Facility	: Countroom
Sample Taken On	: 10/1/2014 8:03:27AM
Acquisition Started	: 8/21/2017 12:04:00PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 1800.0 seconds
Real Time	: 1848.0 seconds
Dead Time	: 2.60 %
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	: 55635

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/22/17

Analysis Report for 1707085-01

GAS-1402

PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 12:34:52PM
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	22.48	21.52	0.0000	0.00
2	32.10	31.15	0.0000	0.00
3	53.04	52.09	0.0000	0.00
4	59.48	58.53	0.0000	0.00
5	81.94	81.00	0.0000	0.00
6	88.03	87.09	0.0000	0.00
7	122.06	121.13	0.0000	0.00
8	136.20	135.27	0.0000	0.00
9	165.98	165.06	0.0000	0.00
10	323.94	323.08	0.0000	0.00
11	661.51	660.77	0.0000	0.00
12	722.84	722.12	0.0000	0.00
13	779.18	778.49	0.0000	0.00
14	1172.88	1172.36	0.0000	0.00
15	1193.86	1193.35	0.0000	0.00
16	1286.87	1286.41	0.0000	0.00
17	1332.09	1331.64	0.0000	0.00
18	1796.20	1796.00	0.0000	0.00
19	1836.42	1836.24	0.0000	0.00
20	1862.18	1862.02	0.0000	0.00
21	1904.42	1904.28	0.0000	0.00
22	2024.51	2024.45	0.0000	0.00
23	2112.02	2112.01	0.0000	0.00
24	2244.84	2244.91	0.0000	0.00
25	2306.81	2306.92	0.0000	0.00
26	2504.83	2505.07	0.0000	0.00
27	2613.37	2613.69	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707085-01

GAS-1402

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 12:34:52PM

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	22.48	19 -	25	21.52	8.93E+04	826.45	6.07E+04	2.29
	2	32.10	29 -	34	31.15	1.43E+03	242.71	1.07E+04	2.03
M	3	53.04	43 -	62	52.09	1.51E+04	882.68	4.39E+04	5.02
m	4	59.48	43 -	62	58.53	8.05E+04	669.94	1.83E+04	2.24
M	5	81.94	80 -	94	81.00	4.01E+02	125.50	5.29E+03	1.98
m	6	88.03	80 -	94	87.09	2.64E+04	431.86	1.37E+04	2.18
	7	122.06	117 -	125	121.13	4.18E+03	317.90	1.29E+04	2.08
	8	136.20	132 -	138	135.27	4.81E+02	231.07	9.37E+03	2.44
	9	165.98	162 -	168	165.06	3.07E+02	217.50	8.38E+03	2.44
	10	323.94	321 -	326	323.08	1.41E+02	149.97	4.38E+03	1.40
	11	661.51	656 -	666	660.77	1.54E+04	301.65	3.86E+03	2.50
	12	722.84	720 -	725	722.12	8.15E+01	94.36	1.71E+03	2.69
	13	779.18	777 -	780	778.49	6.70E+01	71.61	1.22E+03	1.85
	14	1172.88	1166 -	1179	1172.36	1.21E+04	263.41	2.29E+03	2.65
	15	1193.86	1191 -	1197	1193.35	6.12E+01	65.15	7.26E+02	2.91
	16	1286.87	1284 -	1289	1286.41	3.17E+01	33.36	2.01E+02	3.08
	17	1332.09	1326 -	1337	1331.64	1.06E+04	213.60	3.77E+02	2.68
	18	1796.20	1789 -	1801	1796.00	2.16E+01	18.95	3.08E+01	7.74
	19	1836.42	1829 -	1842	1836.24	2.26E+01	25.63	6.27E+01	2.98
	20	1862.18	1859 -	1866	1862.02	1.04E+01	13.71	2.51E+01	1.35
	21	1904.42	1899 -	1910	1904.28	1.64E+01	17.44	2.92E+01	1.41
	22	2024.51	2021 -	2028	2024.45	1.18E+01	8.49	4.43E+00	1.07
	23	2112.02	2109 -	2114	2112.01	8.35E+00	11.05	1.73E+01	1.09
	24	2244.84	2241 -	2248	2244.91	9.06E+00	11.49	1.59E+01	4.27
	25	2306.81	2304 -	2309	2306.92	9.59E+00	7.28	2.82E+00	2.70
	26	2504.83	2500 -	2510	2505.07	7.00E+01	16.73	0.00E+00	3.85
	27	2613.37	2609 -	2618	2613.69	1.60E+01	8.00	0.00E+00	1.47

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 1707085-01

GAS-1402

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 12:34:52PM

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	22.48	19 -	25	8.93E+04	826.45	6.07E+04	4.69E+02
	2	32.10	29 -	34	1.43E+03	242.71	1.07E+04	1.90E+02
M	3	53.04	43 -	62	1.51E+04	882.68	4.39E+04	3.45E+02
m	4	59.48	43 -	62	8.05E+04	669.94	1.83E+04	2.22E+02
M	5	81.94	80 -	94	4.01E+02	125.50	5.29E+03	1.20E+02
m	6	88.03	80 -	94	2.64E+04	431.86	1.37E+04	1.92E+02
	7	122.06	117 -	125	4.18E+03	317.90	1.29E+04	2.39E+02
	8	136.20	132 -	138	4.81E+02	231.07	9.37E+03	1.86E+02
	9	165.98	162 -	168	3.07E+02	217.50	8.38E+03	1.76E+02
	10	323.94	321 -	326	1.41E+02	149.97	4.38E+03	1.22E+02
	11	661.51	656 -	666	1.54E+04	301.65	3.86E+03	1.41E+02
	12	722.84	720 -	725	8.15E+01	94.36	1.71E+03	7.61E+01
	13	779.18	777 -	780	6.70E+01	71.61	1.22E+03	5.73E+01
	14	1172.88	1166 -	1179	1.21E+04	263.41	2.29E+03	1.19E+02
	15	1193.86	1191 -	1197	6.12E+01	65.15	7.26E+02	5.20E+01
	16	1286.87	1284 -	1289	3.17E+01	33.36	2.01E+02	2.58E+01
	17	1332.09	1326 -	1337	1.06E+04	213.60	3.77E+02	4.54E+01
	18	1796.20	1789 -	1801	2.16E+01	18.95	3.08E+01	1.36E+01
	19	1836.42	1829 -	1842	2.26E+01	25.63	6.27E+01	1.96E+01
	20	1862.18	1859 -	1866	1.04E+01	13.71	2.51E+01	9.94E+00
	21	1904.42	1899 -	1910	1.64E+01	17.44	2.92E+01	1.27E+01
	22	2024.51	2021 -	2028	1.18E+01	8.49	4.43E+00	4.10E+00
	23	2112.02	2109 -	2114	8.35E+00	11.05	1.73E+01	7.74E+00
	24	2244.84	2241 -	2248	9.06E+00	11.49	1.59E+01	8.04E+00
	25	2306.81	2304 -	2309	9.59E+00	7.28	2.82E+00	3.14E+00
	26	2504.83	2500 -	2510	7.00E+01	16.73	0.00E+00	0.00E+00
	27	2613.37	2609 -	2618	1.60E+01	8.00	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 1707085-01

GAS-1402

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/21/2017 12:34:52PM

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	22.48	19 -	25	21.52	8.93E+04	826.45	6.07E+04	.....
	2	32.10	29 -	34	31.15	1.43E+03	242.71	1.07E+04	.....
M	3	53.04	43 -	62	52.09	1.51E+04	882.68	4.39E+04	.....
m	4	59.48	43 -	62	58.53	8.05E+04	669.94	1.83E+04	AM-241
M	5	81.94	80 -	94	81.00	4.01E+02	125.50	5.29E+03	XE-133
									BA-133
m	6	88.03	80 -	94	87.09	2.64E+04	431.86	1.37E+04	CD-109
									LU-176
									SN-126
	7	122.06	117 -	125	121.13	4.18E+03	317.90	1.29E+04	CO-57
									EU-152
									SE-75
	8	136.20	132 -	138	135.27	4.81E+02	231.07	9.37E+03	SE-75
									CO-57
	9	165.98	162 -	168	165.06	3.07E+02	217.50	8.38E+03	CE-139
	10	323.94	321 -	326	323.08	1.41E+02	149.97	4.38E+03	RA-223
	11	661.51	656 -	666	660.77	1.54E+04	301.65	3.86E+03	CS-137
	12	722.84	720 -	725	722.12	8.15E+01	94.36	1.71E+03	I-131
									SB-124
									AG-108M
									EU-154
	13	779.18	777 -	780	778.49	6.70E+01	71.61	1.22E+03	EU-152
	14	1172.88	1166 -	1179	1172.36	1.21E+04	263.41	2.29E+03	CO-60
	15	1193.86	1191 -	1197	1193.35	6.12E+01	65.15	7.26E+02	.....
	16	1286.87	1284 -	1289	1286.41	3.17E+01	33.36	2.01E+02	.....
	17	1332.09	1326 -	1337	1331.64	1.06E+04	213.60	3.77E+02	CO-60
	18	1796.20	1789 -	1801	1796.00	2.16E+01	18.95	3.08E+01	.....
	19	1836.42	1829 -	1842	1836.24	2.26E+01	25.63	6.27E+01	Y-88
	20	1862.18	1859 -	1866	1862.02	1.04E+01	13.71	2.51E+01	.....
	21	1904.42	1899 -	1910	1904.28	1.64E+01	17.44	2.92E+01	.....
	22	2024.51	2021 -	2028	2024.45	1.18E+01	8.49	4.43E+00	.....
	23	2112.02	2109 -	2114	2112.01	8.35E+00	11.05	1.73E+01	.....
	24	2244.84	2241 -	2248	2244.91	9.06E+00	11.49	1.59E+01	.....
	25	2306.81	2304 -	2309	2306.92	9.59E+00	7.28	2.82E+00	.....
	26	2504.83	2500 -	2510	2505.07	7.00E+01	16.73	0.00E+00	.....
	27	2613.37	2609 -	2618	2613.69	1.60E+01	8.00	0.00E+00	.....

Analysis Report for 1707085-01

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 EFFICIENCY REPORT

Peak Analysis Performed on : 8/21/2017 12:34:52PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	22.48	8.93E+04	826.45	3.89E-03	1.56E-03
	2	32.10	1.43E+03	242.71	9.14E-03	1.56E-03
M	3	53.04	1.51E+04	882.68	1.89E-02	1.56E-03
m	4	59.48	8.05E+04	669.94	2.07E-02	1.56E-03
M	5	81.94	4.01E+02	125.50	2.36E-02	2.04E-03
m	6	88.03	2.64E+04	431.86	2.37E-02	2.17E-03
	7	122.06	4.18E+03	317.90	2.21E-02	1.65E-03
	8	136.20	4.81E+02	231.07	2.10E-02	1.60E-03
	9	165.98	3.07E+02	217.50	1.85E-02	1.49E-03
	10	323.94	1.41E+02	149.97	1.00E-02	8.53E-04
	11	661.51	1.54E+04	301.65	4.87E-03	5.99E-04
	12	722.84	8.15E+01	94.36	4.48E-03	5.22E-04
	13	779.18	6.70E+01	71.61	4.17E-03	4.51E-04
	14	1172.88	1.21E+04	263.41	2.90E-03	2.38E-04
	15	1193.86	6.12E+01	65.15	2.85E-03	2.36E-04
	16	1286.87	3.17E+01	33.36	2.67E-03	2.30E-04
	17	1332.09	1.06E+04	213.60	2.59E-03	2.27E-04
	18	1796.20	2.16E+01	18.95	1.96E-03	1.57E-04
	19	1836.42	2.26E+01	25.63	1.92E-03	1.51E-04
	20	1862.18	1.04E+01	13.71	1.89E-03	1.51E-04
	21	1904.42	1.64E+01	17.44	1.85E-03	1.51E-04
	22	2024.51	1.18E+01	8.49	1.74E-03	1.51E-04
	23	2112.02	8.35E+00	11.05	1.66E-03	1.51E-04
	24	2244.84	9.06E+00	11.49	1.55E-03	1.51E-04
	25	2306.81	9.59E+00	7.28	1.50E-03	1.51E-04
	26	2504.83	7.00E+01	16.73	1.35E-03	1.51E-04
	27	2613.37	1.60E+01	8.00	1.28E-03	1.51E-04

Analysis Report for 1707085-01

GAS-1402

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/21/2017 12:34:52PM

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

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	22.48	8.93E+04	826.45	2.18E+01	1.83E+00	8.92E+04	8.26E+02
	2	32.10	1.43E+03	242.71			1.43E+03	2.43E+02
M	3	53.04	1.51E+04	882.68			1.51E+04	8.83E+02
m	4	59.48	8.05E+04	669.94			8.05E+04	6.70E+02
M	5	81.94	4.01E+02	125.50			4.01E+02	1.25E+02
m	6	88.03	2.64E+04	431.86			2.64E+04	4.32E+02
	7	122.06	4.18E+03	317.90			4.18E+03	3.18E+02
	8	136.20	4.81E+02	231.07			4.81E+02	2.31E+02
	9	165.98	3.07E+02	217.50			3.07E+02	2.18E+02
	10	323.94	1.41E+02	149.97			1.41E+02	1.50E+02
	11	661.51	1.54E+04	301.65			1.54E+04	3.02E+02
	12	722.84	8.15E+01	94.36			8.15E+01	9.44E+01
	13	779.18	6.70E+01	71.61			6.70E+01	7.16E+01
	14	1172.88	1.21E+04	263.41			1.21E+04	2.63E+02
	15	1193.86	6.12E+01	65.15			6.12E+01	6.51E+01
	16	1286.87	3.17E+01	33.36			3.17E+01	3.34E+01
	17	1332.09	1.06E+04	213.60			1.06E+04	2.14E+02
	18	1796.20	2.16E+01	18.95			2.16E+01	1.90E+01
	19	1836.42	2.26E+01	25.63			2.26E+01	2.56E+01
	20	1862.18	1.04E+01	13.71			1.04E+01	1.37E+01
	21	1904.42	1.64E+01	17.44			1.64E+01	1.74E+01
	22	2024.51	1.18E+01	8.49			1.18E+01	8.49E+00
	23	2112.02	8.35E+00	11.05			8.35E+00	1.10E+01
	24	2244.84	9.06E+00	11.49			9.06E+00	1.15E+01
	25	2306.81	9.59E+00	7.28			9.59E+00	7.28E+00
	26	2504.83	7.00E+01	16.73			7.00E+01	1.67E+01
	27	2613.37	1.60E+01	8.00			1.60E+01	8.00E+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 1707085-01

GAS-1402

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/21/2017 12:34:52PM

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

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	22.48	8.93E+04	826.45	2.18E+01	1.83E+00	8.92E+04	8.26E+02
	2	32.10	1.43E+03	242.71			1.43E+03	2.43E+02
M	3	53.04	1.51E+04	882.68			1.51E+04	8.83E+02
m	4	59.48	8.05E+04	669.94			8.05E+04	6.70E+02
M	5	81.94	4.01E+02	125.50			4.01E+02	1.25E+02
m	6	88.03	2.64E+04	431.86			2.64E+04	4.32E+02
	7	122.06	4.18E+03	317.90			4.18E+03	3.18E+02
	8	136.20	4.81E+02	231.07			4.81E+02	2.31E+02
	9	165.98	3.07E+02	217.50			3.07E+02	2.18E+02
	10	323.94	1.41E+02	149.97			1.41E+02	1.50E+02
	11	661.51	1.54E+04	301.65			1.54E+04	3.02E+02
	12	722.84	8.15E+01	94.36			8.15E+01	9.44E+01
	13	779.18	6.70E+01	71.61			6.70E+01	7.16E+01
	14	1172.88	1.21E+04	263.41			1.21E+04	2.63E+02
	15	1193.86	6.12E+01	65.15			6.12E+01	6.51E+01
	16	1286.87	3.17E+01	33.36			3.17E+01	3.34E+01
	17	1332.09	1.06E+04	213.60			1.06E+04	2.14E+02
	18	1796.20	2.16E+01	18.95			2.16E+01	1.90E+01
	19	1836.42	2.26E+01	25.63			2.26E+01	2.56E+01
	20	1862.18	1.04E+01	13.71			1.04E+01	1.37E+01
	21	1904.42	1.64E+01	17.44			1.64E+01	1.74E+01
	22	2024.51	1.18E+01	8.49			1.18E+01	8.49E+00
	23	2112.02	8.35E+00	11.05			8.35E+00	1.10E+01
	24	2244.84	9.06E+00	11.49			9.06E+00	1.15E+01
	25	2306.81	9.59E+00	7.28			9.59E+00	7.28E+00
	26	2504.83	7.00E+01	16.73			7.00E+01	1.67E+01
	27	2613.37	1.60E+01	8.00			1.60E+01	8.00E+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 1707085-01

GAS-1402

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CO-57	0.926	122.06	*	85.51	6.72E+01	7.21E+00
		136.48	*	10.60	6.57E+01	3.21E+01
CO-60	0.977	1173.22	*	100.00	1.25E+02	1.06E+01
		1332.49	*	100.00	1.23E+02	1.10E+01
CD-109	0.974	88.03	*	3.72	2.96E+03	3.27E+02
SN-126	0.966	87.57	*	37.00	6.15E+01	5.72E+00
CS-137	0.997	661.65	*	85.12	8.12E+01	1.01E+01
CE-139	0.744	165.85	*	80.35	8.58E+01	6.11E+01
RA-223	0.999	323.87	*	3.88	7.36E+00	7.88E+00
AM-241	0.999	59.54	*	35.90	2.22E+02	1.68E+01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 12:34:52PM
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	22.48	4.95731E+01	0.46		
	2	32.10	7.92103E-01	8.51		
M	3	53.04	8.41500E+00	2.91		
M	5	81.94	2.22985E-01	15.63	Tol.	BA-133 XE-133
	12	722.84	4.52970E-02	57.87	Tol.	AG-108M SB-124

Analysis Report for 1707085-01

GAS-1402

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
					I-131
					EU-154
13	779.18	3.72469E-02	53.40	Tol.	EU-152
15	1193.86	3.40252E-02	53.18		
16	1286.87	1.76073E-02	52.63		
18	1796.20	1.20120E-02	43.83		
19	1836.42	1.25720E-02	56.63	Tol.	Y-88
20	1862.18	5.79710E-03	65.70		
21	1904.42	9.10394E-03	53.20		
22	2024.51	6.54762E-03	36.00		
23	2112.02	4.64052E-03	66.12		
24	2244.84	5.03268E-03	63.41		
25	2306.81	5.32828E-03	37.95		
26	2504.83	3.88889E-02	11.95	Sum	
27	2613.37	8.88889E-03	25.00		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CO-57	0.92	122.06	*	85.51	6.72E+01	7.21E+00
		136.48	*	10.60	6.57E+01	3.21E+01
CO-60	0.97	1173.22	*	100.00	1.25E+02	1.06E+01
		1332.49	*	100.00	1.23E+02	1.10E+01
CD-109	0.97	88.03	*	3.72	2.96E+03	3.27E+02
SN-126	0.96	87.57	*	37.00	6.15E+01	5.72E+00
CS-137	0.99	661.65	*	85.12	8.12E+01	1.01E+01
CE-139	0.74	165.85	*	80.35	8.58E+01	6.11E+01
RA-223	0.99	323.87	*	3.88	7.36E+00	7.88E+00
AM-241	0.99	59.54	*	35.90	2.22E+02	1.68E+01

Analysis Report for 1707085-01

GAS-1402

* = 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	0.926	6.71E+01	7.04E+00	
	CO-60	0.977	1.24E+02	7.65E+00	
?	CD-109	0.974	2.96E+03	3.27E+02	
?	SN-126	0.966	6.15E+01	5.72E+00	
	CS-137	0.997	8.12E+01	1.01E+01	
	CE-139	0.744	8.58E+01	6.11E+01	
	RA-223	0.999	7.36E+00	7.88E+00	
	AM-241	0.999	2.22E+02	1.68E+01	

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

Errors quoted at 2.000sigma

Analysis Report for 1707085-01

GAS-1402

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 12:34:52PM
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	22.48	4.95731E+01	0.46		
	2	32.10	7.92103E-01	8.51		
M	3	53.04	8.41500E+00	2.91		
M	5	81.94	2.22985E-01	15.63	Tol.	BA-133
						XE-133
	12	722.84	4.52970E-02	57.87	Tol.	AG-108M
						SB-124
						I-131
						EU-154
	13	779.18	3.72469E-02	53.40	Tol.	EU-152
	15	1193.86	3.40252E-02	53.18		
	16	1286.87	1.76073E-02	52.63		
	18	1796.20	1.20120E-02	43.83		
	19	1836.42	1.25720E-02	56.63	Tol.	Y-88
	20	1862.18	5.79710E-03	65.70		
	21	1904.42	9.10394E-03	53.20		
	22	2024.51	6.54762E-03	36.00		
	23	2112.02	4.64052E-03	66.12		
	24	2244.84	5.03268E-03	63.41		
	25	2306.81	5.32828E-03	37.95		
	26	2504.83	3.88889E-02	11.95	Sum	
	27	2613.37	8.88889E-03	25.00		

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

Analysis Report for 1707085-01

GAS-1402

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	5.66E+06	5.96E+06	5.96E+06
+		NA-22	1274.54		99.94	-1.16E-01	1.08E+00	1.08E+00
+	@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@		2754.09		99.86	1.00E+26		1.00E+26
+		AL-26	1808.65		99.76	-4.12E-02	2.41E-01	2.41E-01
+		K-40	1460.81		10.67	6.04E-02	2.96E+00	2.96E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	8.73E-01	4.36E-01	4.68E-01
			78.34		96.00	-8.41E-02		4.36E-01
+		SC-46	889.25		99.98	2.51E+02	6.74E+03	6.89E+03
			1120.51		99.99	3.13E+03		6.74E+03
+	@	V-48	983.52		99.98	1.00E+26	1.00E+26	1.00E+26
	@		1312.10		97.50	1.00E+26		1.00E+26
+		CR-51	320.08		9.83	-7.93E+10	1.46E+12	1.46E+12
+		MN-54	834.83		99.97	3.19E+00	1.04E+01	1.04E+01
+		CO-56	846.75		99.96	1.33E+03	9.37E+03	1.10E+04
			1037.75		14.03	-1.53E+04		8.92E+04
			1238.25		67.00	5.78E+03		9.43E+03
			1771.40		15.51	-9.24E+03		2.01E+04
			2598.48		16.90	-1.68E+02		9.37E+03
+		CO-57	122.06	*	85.51	6.72E+01	7.72E+00	7.72E+00
			136.48	*	10.60	6.57E+01		5.14E+01
+		CO-58	810.76		99.40	1.58E+03	2.93E+04	2.93E+04
+		FE-59	1099.22		56.50	-3.00E+06	1.59E+07	2.82E+07
			1291.56		43.20	-1.67E+06		1.59E+07
+		CO-60	1173.22	*	100.00	1.25E+02	1.08E+00	2.47E+00
			1332.49	*	100.00	1.23E+02		1.08E+00
+		ZN-65	1115.52		50.75	-2.59E+01	4.40E+01	4.40E+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	1.05E+04	2.48E+02	1.12E+03
			136.00		59.20	3.97E+02		2.48E+02
			264.65		59.80	3.79E+01		3.35E+02
			279.53		25.20	1.67E+02		8.11E+02
			400.65		11.40	-2.14E+02		2.31E+03
+		RB-82	776.52		13.00	-1.11E+12	1.84E+13	1.84E+13
+		RB-83	520.41		46.00	-6.33E+02	6.76E+03	6.76E+03
			529.64		30.30	3.76E+03		1.02E+04
			552.65		16.40	-3.40E+03		1.85E+04
+		KR-85	513.99		0.43	-2.91E+01	1.80E+02	1.80E+02
+		SR-85	513.99		99.27	-8.35E+03	5.18E+04	5.18E+04
+		Y-88	898.02		93.40	1.59E+02	3.39E+02	1.17E+03
			1836.01		99.38	2.24E+02		3.39E+02
+		MO-93	263.06		56.72	-1.22E-01	3.51E-01	9.42E-01
			684.67		99.68	-3.08E-01		9.15E-01
			1477.11		99.08	-6.20E-02		3.51E-01

Analysis Report for 1707085-01

GAS-1402

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		NB-93M	16.57		9.43	-3.54E+03	8.28E+01	8.28E+01
+		NB-94	702.63		100.00	-8.81E-03	8.03E-01	8.03E-01
			871.10		100.00	-7.92E-02		1.07E+00
+		NB-95	765.79		99.81	1.60E+08	1.00E+09	1.00E+09
+	@	NB-95M	235.69		25.00	1.00E+26	1.00E+26	1.00E+26
+		ZR-95	724.18		43.70	-1.04E+05	1.44E+05	1.69E+05
			756.72		55.30	3.00E+04		1.44E+05
+	@	MO-99	181.06		6.20	1.00E+26	1.00E+26	1.00E+26
	@		739.58		12.80	1.00E+26		1.00E+26
	@		778.00		4.50	1.00E+26		1.00E+26
+		RU-103	497.08		89.00	2.41E+07	8.62E+07	8.62E+07
+		RU-106	621.84		9.80	1.14E+01	4.93E+01	4.93E+01
+		AG-108M	433.93		89.90	-4.64E-02	7.38E-01	7.38E-01
			614.37		90.40	3.08E-01		7.52E-01
			722.95		90.50	-1.96E-01		9.08E-01
+		CD-109	88.03	*	3.72	2.96E+03	9.43E+01	9.43E+01
+		AG-110M	657.75		93.14	2.25E+00	2.67E+01	4.56E+01
			677.61		10.53	-7.41E+01		1.36E+02
			706.67		16.46	2.58E+01		9.12E+01
			763.93		21.98	2.27E+01		7.42E+01
			884.67		71.63	1.66E+01		2.95E+01
			1384.27		23.94	-2.64E+00		2.67E+01
+		CD-113M	263.70		0.02	-6.79E+02	2.23E+03	2.23E+03
+		SN-113	255.12		1.93	-6.73E+03	5.16E+02	1.30E+04
			391.69		64.90	2.01E+02		5.16E+02
+		TE123M	159.00		84.10	7.53E+01	1.77E+02	1.77E+02
+		SB-124	602.71		97.87	5.84E+04	1.05E+05	1.27E+05
			645.85		7.26	-7.89E+05		1.81E+06
			722.78		11.10	-2.98E+05		1.38E+06
			1691.02		49.00	-2.80E+04		1.05E+05
+		I-125	35.49		6.49	-4.12E+05	2.18E+06	2.18E+06
+		SB-125	176.33		6.89	7.93E+00	4.47E+00	1.05E+01
			427.89		29.33	4.88E-02		4.47E+00
			463.38		10.35	-1.87E-01		1.43E+01
			600.56		17.80	-1.26E+00		7.52E+00
			635.90		11.32	-7.16E+00		1.22E+01
+	@	SB-126	414.70		83.30	1.00E+26	1.00E+26	1.00E+26
	@		666.33		99.60	1.00E+26		1.00E+26
	@		695.00		99.60	1.00E+26		1.00E+26
	@		720.50		53.80	1.00E+26		1.00E+26
+		SN-126	87.57	*	37.00	6.15E+01	1.96E+00	1.96E+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	-2.12E+01	2.02E+00	2.02E+00
			33.60		13.20	2.25E+00		6.51E+00
			39.58		7.52	-2.89E+01		8.67E+00
+	@	I-131	284.30		6.05	1.00E+26	1.00E+26	1.00E+26

Analysis Report for 1707085-01

GAS-1402

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	@	I-131	364.48		81.20	1.00E+26	1.00E+26	1.00E+26
	@		636.97		7.26	1.00E+26		1.00E+26
	@		722.89		1.80	1.00E+26		1.00E+26
+	@	TE-132	49.72		13.10	1.00E+26	1.00E+26	1.00E+26
	@		228.16		88.00	1.00E+26		1.00E+26
+		BA-133	81.00		33.00	-9.21E-01	1.07E+00	1.48E+00
			302.84		17.80	6.83E-01		3.23E+00
			356.01		60.00	-6.33E-01		1.07E+00
+	@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	@	XE-133	81.00		38.00	1.00E+26	1.00E+26	1.00E+26
+		CS-134	563.23		8.38	6.16E+00	1.75E+00	2.02E+01
			569.32		15.43	-2.68E+00		1.07E+01
			604.70		97.60	-1.25E+00		1.75E+00
			795.84		85.40	5.53E-01		2.93E+00
			801.93		8.73	-1.83E+01		2.78E+01
+		CS-135	268.24		16.00	4.08E-02	2.83E+00	2.83E+00
+	@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26
	@		1260.41		28.60	1.00E+26		1.00E+26
	@		1678.03		9.54	1.00E+26		1.00E+26
+	@	CS-136	153.22		7.46	1.00E+26	1.00E+26	1.00E+26
	@		163.89		4.61	1.00E+26		1.00E+26
	@		176.55		13.56	1.00E+26		1.00E+26
	@		273.65		12.66	1.00E+26		1.00E+26
	@		340.57		48.50	1.00E+26		1.00E+26
	@		818.50		99.70	1.00E+26		1.00E+26
	@		1048.07		79.60	1.00E+26		1.00E+26
	@		1235.34		19.70	1.00E+26		1.00E+26
+		CS-137	661.65	*	85.12	8.12E+01	1.49E+00	1.49E+00
+		LA-138	788.74		34.00	1.75E+00	4.46E-01	2.78E+00
			1435.80		66.00	-1.84E-01		4.46E-01
+		CE-139	165.85	*	80.35	8.58E+01	9.92E+01	9.92E+01
+	@	BA-140	162.64		6.70	1.00E+26	1.00E+26	1.00E+26
	@		304.84		4.50	1.00E+26		1.00E+26
	@		423.70		3.20	1.00E+26		1.00E+26
	@		437.55		2.00	1.00E+26		1.00E+26
	@		537.32		25.00	1.00E+26		1.00E+26
+	@	LA-140	328.77		20.50	1.00E+26	1.00E+26	1.00E+26
	@		487.03		45.50	1.00E+26		1.00E+26
	@		815.85		23.50	1.00E+26		1.00E+26
	@		1596.49		95.49	1.00E+26		1.00E+26
+		CE-141	145.44		48.40	6.83E+08	3.93E+09	3.93E+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	-4.82E-01	3.92E+01	3.92E+01
+		PM-144	476.78		42.00	4.78E+00	4.96E+00	1.26E+01
			618.01		98.60	-4.65E+00		4.96E+00
			696.49		99.49	-1.20E+00		6.00E+00

Analysis Report for 1707085-01

GAS-1402

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	PM-145	36.85	21.70	-2.88E+00	1.87E+00	3.51E+00
		37.36	39.70	-1.54E+00		1.87E+00
		42.30	15.10	-1.00E+01		4.75E+00
		72.40	2.31	-6.74E+00		2.03E+01
+	PM-146	453.90	39.94	3.45E-01	2.51E+00	2.51E+00
		735.90	14.01	-1.76E+00		8.57E+00
		747.13	13.10	-3.95E+00		9.32E+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	2.18E+01	2.34E+00	2.34E+00
		244.69	5.40	2.55E+00		9.53E+00
		344.27	19.13	-1.37E+00		3.12E+00
		778.89	9.20	9.97E-01		1.12E+01
		964.01	10.40	-5.20E-01		1.40E+01
		1085.78	7.22	-3.14E+00		1.93E+01
		1112.02	9.60	4.14E+00		1.43E+01
		1407.95	14.94	6.42E-01		2.39E+00
+	GD-153	97.43	31.30	5.66E+00	1.93E+01	1.93E+01
		103.18	22.20	-1.09E+01		2.70E+01
+	EU-154	123.07	40.50	1.19E+01	1.29E+00	1.29E+00
		723.30	19.70	-3.16E+00		5.13E+00
		873.19	11.50	-4.58E+00		1.17E+01
		996.32	10.30	-1.50E-01		1.41E+01
		1004.76	17.90	1.32E+00		8.23E+00
		1274.45	35.50	-1.89E-01		1.77E+00
+	EU-155	86.50	30.90	1.10E+02	2.11E+00	3.63E+00
		105.30	20.70	4.29E-01		2.11E+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	5.01E-01	5.21E-01	5.21E-01
		280.45	29.60	-2.40E-02		1.54E+00
		410.94	11.10	-9.15E-01		5.46E+00
		711.69	54.10	-5.83E-01		1.47E+00
+	TM-171	66.72	0.14	-1.94E+03	8.61E+02	8.61E+02
+	HF-172	67.35	5.31	-5.24E+01	8.95E+00	2.32E+01
		125.81	11.30	1.67E+00		8.95E+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	7.23E+00	9.28E+00	2.41E+01
		272.11	21.20	2.72E-01		9.28E+00
+	HF-175	343.40	84.00	-9.29E+03	2.11E+04	2.11E+04
+	LU-176	88.34	13.30	1.72E+02	4.63E-01	5.57E+00
		201.83	86.00	6.64E-02		4.63E-01
		306.78	94.00	-8.81E-02		5.11E-01
+	HF-181	133.02	41.70	-7.58E+05	2.38E+07	2.38E+07
		345.85	17.20	-3.93E+07		9.45E+07

Analysis Report for 1707085-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	HF-181	482.03		82.80	8.72E+06	2.38E+07	2.54E+07
+	TA-182	67.75		41.20	1.16E+03	6.21E+02	6.21E+02
		1121.30		34.90	7.93E+02		1.86E+03
		1189.05		16.23	-2.94E+02		2.99E+03
		1221.41		26.98	2.38E+02		1.47E+03
		1231.02		11.44	4.15E+02		3.20E+03
+	IR-192	308.46		29.68	7.32E+03	2.93E+04	3.18E+04
		468.07		48.10	-2.12E+03		2.93E+04
+	HG-203	279.19		77.30	-1.68E+06	3.86E+06	3.86E+06
+	TL-204	374.74		94.11	-2.25E-02	1.01E+00	1.01E+00
		899.15		99.16	7.90E-01		1.99E+00
		911.74		91.10	-8.72E-01		2.20E+00
+	BI-207	569.67		97.72	-1.70E-01	6.79E-01	6.79E-01
		1063.62		74.90	-1.76E-01		1.65E+00
+	TL-208	583.14		30.22	3.27E-01	9.22E-01	2.18E+00
		860.37		4.48	1.91E+00		2.39E+01
		2614.66		35.85	6.24E-01		9.22E-01
+	BI-210M	262.00		45.00	2.40E-01	9.93E-01	9.93E-01
		300.00		23.00	-1.15E+00		2.05E+00
+	PB-210	46.50		4.25	-5.05E+00	2.04E+01	2.04E+01
+	PB-211	404.84		2.90	2.85E+00	2.06E+01	2.06E+01
		831.96		2.90	-4.34E+00		3.43E+01
+	BI-212	727.17		11.80	1.04E+00	6.92E+00	6.92E+00
		1620.62		2.75	-3.84E+00		9.93E+00
+	PB-212	238.63		44.60	8.57E-01	1.01E+00	1.01E+00
		300.09		3.41	-7.79E+00		1.38E+01
+	BI-214	609.31		46.30	-1.79E-01	1.44E+00	1.44E+00
		1120.29		15.10	3.37E+00		7.27E+00
		1764.49		15.80	1.92E-01		2.01E+00
		2204.22		4.98	2.59E-01		5.53E+00
+	PB-214	295.21		19.19	5.57E-01	1.46E+00	2.46E+00
		351.92		37.19	7.49E-01		1.46E+00
+	RN-219	401.80		6.50	1.71E+00	9.12E+00	9.12E+00
+	RA-223	323.87	*	3.88	7.36E+00	1.29E+01	1.29E+01
+	RA-224	240.98		3.95	5.10E+00	1.14E+01	1.14E+01
+	@ RA-225	40.00		31.00	1.00E+26	1.00E+26	1.00E+26
+	RA-226	186.21		3.28	7.38E+00	1.17E+01	1.17E+01
+	TH-227	50.10		8.40	5.96E+01	3.88E+00	1.02E+01
		236.00		11.50	3.29E-01		3.88E+00
		256.20		6.30	3.69E+00		7.02E+00
+	AC-228	338.32		11.40	7.27E-01	4.26E+00	4.50E+00
		911.07		27.70	-1.44E+00		4.26E+00
		969.11		16.60	-1.43E+00		7.18E+00
+	TH-230	48.44		16.90	1.44E+01	4.77E+00	4.77E+00
		62.85		4.60	-1.49E+01		2.16E+01
		67.67		0.37	2.16E+02		1.16E+02
+	PA-231	283.67		1.60	5.59E+00	2.07E+01	2.86E+01
		302.67		2.30	4.37E+00		2.07E+01

Analysis Report for 1707085-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TH-231	25.64		14.70	-1.17E+02	8.10E+00	2.87E+01
		84.21		6.40	-2.50E+02		8.10E+00
+	PA-233	311.98		38.60	-9.78E+10	7.32E+11	7.32E+11
+	PA-234	131.20		20.40	4.92E-01	1.52E+00	1.52E+00
		733.99		8.80	-5.29E+00		9.36E+00
		946.00		12.00	-2.16E+00		1.08E+01
+	PA-234M	1001.03		0.92	7.77E+01	1.28E+02	1.28E+02
+	TH-234	63.29		3.80	-1.80E+01	2.60E+01	2.60E+01
+	U-235	143.76		10.50	-1.40E+00	3.02E+00	3.02E+00
		163.35		4.70	3.97E-01		7.24E+00
		205.31		4.70	-5.24E+00		8.52E+00
+	NP-237	86.50		12.60	1.81E+02	5.94E+00	5.94E+00
+	@ NP-239	106.10		22.70	1.00E+26	1.00E+26	1.00E+26
	@	228.18		10.70	1.00E+26		1.00E+26
	@	277.60		14.10	1.00E+26		1.00E+26
+	AM-241	59.54	*	35.90	2.22E+02	3.48E+00	3.48E+00
+	AM-243	74.67		66.00	2.36E-01	6.26E-01	6.26E-01
+	CM-243	209.75		3.29	-2.44E+00	3.48E+00	1.34E+01
		228.14		10.60	-1.58E+00		4.45E+00
		277.60		14.00	-5.17E-01		3.48E+00

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

NUCLIDE MDA REPORT

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

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	5.96E+06	5.96E+06	5.66E+06	2.94E+06

Analysis Report for 1707085-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	NA-22	1274.54		99.94	1.08E+00	1.08E+00	-1.16E-01	5.18E-01
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	2.41E-01	2.41E-01	-4.12E-02	1.06E-01
	K-40	1460.81		10.67	2.96E+00	2.96E+00	6.04E-02	1.37E+00
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	4.68E-01	4.36E-01	8.73E-01	2.33E-01
		78.34		96.00	4.36E-01		-8.41E-02	2.17E-01
	SC-46	889.25		99.98	6.89E+03	6.74E+03	2.51E+02	3.40E+03
		1120.51		99.99	6.74E+03		3.13E+03	3.32E+03
@	V-48	983.52		99.98	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1312.10		97.50	1.00E+26		1.00E+26	1.00E+20
	CR-51	320.08		9.83	1.46E+12	1.46E+12	-7.93E+10	7.24E+11
	MN-54	834.83		99.97	1.04E+01	1.04E+01	3.19E+00	5.12E+00
	CO-56	846.75		99.96	1.10E+04	9.37E+03	1.33E+03	5.44E+03
		1037.75		14.03	8.92E+04		-1.53E+04	4.40E+04
		1238.25		67.00	9.43E+03		5.78E+03	4.56E+03
		1771.40		15.51	2.01E+04		-9.24E+03	9.08E+03
		2598.48		16.90	9.37E+03		-1.68E+02	3.32E+03
+	CO-57	122.06	*	85.51	7.72E+00	7.72E+00	6.72E+01	3.84E+00
		136.48	*	10.60	5.14E+01		6.57E+01	2.55E+01
	CO-58	810.76		99.40	2.93E+04	2.93E+04	1.58E+03	1.44E+04
	FE-59	1099.22		56.50	2.82E+07	1.59E+07	-3.00E+06	1.39E+07
		1291.56		43.20	1.59E+07		-1.67E+06	7.63E+06
+	CO-60	1173.22	*	100.00	2.47E+00	1.08E+00	1.25E+02	1.22E+00
		1332.49	*	100.00	1.08E+00		1.23E+02	5.24E-01
	ZN-65	1115.52		50.75	4.40E+01	4.40E+01	-2.59E+01	2.17E+01
@	GA-67	93.31		35.70	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		208.95		2.24	1.00E+26		1.00E+26	1.00E+20
@		300.22		16.00	1.00E+26		1.00E+26	1.00E+20
	SE-75	121.11		16.70	1.12E+03	2.48E+02	1.05E+04	5.54E+02
		136.00		59.20	2.48E+02		3.97E+02	1.23E+02
		264.65		59.80	3.35E+02		3.79E+01	1.66E+02
		279.53		25.20	8.11E+02		1.67E+02	4.01E+02
		400.65		11.40	2.31E+03		-2.14E+02	1.14E+03
	RB-82	776.52		13.00	1.84E+13	1.84E+13	-1.11E+12	9.09E+12
	RB-83	520.41		46.00	6.76E+03	6.76E+03	-6.33E+02	3.33E+03
		529.64		30.30	1.02E+04		3.76E+03	5.02E+03
		552.65		16.40	1.85E+04		-3.40E+03	9.13E+03
	KR-85	513.99		0.43	1.80E+02	1.80E+02	-2.91E+01	8.90E+01
	SR-85	513.99		99.27	5.18E+04	5.18E+04	-8.35E+03	2.56E+04
	Y-88	898.02		93.40	1.17E+03	3.39E+02	1.59E+02	5.78E+02
		1836.01		99.38	3.39E+02		2.24E+02	1.56E+02
	MO-93	263.06		56.72	9.42E-01	3.51E-01	-1.22E-01	4.66E-01
		684.67		99.68	9.15E-01		-3.08E-01	4.51E-01
		1477.11		99.08	3.51E-01		-6.20E-02	1.62E-01
	NB-93M	16.57		9.43	8.28E+01	8.28E+01	-3.54E+03	4.12E+01
	NB-94	702.63		100.00	8.03E-01	8.03E-01	-8.81E-03	3.96E-01
		871.10		100.00	1.07E+00		-7.92E-02	5.26E-01
	NB-95	765.79		99.81	1.00E+09	1.00E+09	1.60E+08	4.95E+08
@	NB-95M	235.69		25.00	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	ZR-95	724.18		43.70	1.69E+05	1.44E+05	-1.04E+05	8.31E+04
		756.72		55.30	1.44E+05		3.00E+04	7.09E+04

Analysis Report for 1707085-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@	MO-99	181.06		6.20	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		739.58		12.80	1.00E+26		1.00E+26	1.00E+20
@		778.00		4.50	1.00E+26		1.00E+26	1.00E+20
	RU-103	497.08		89.00	8.62E+07	8.62E+07	2.41E+07	4.26E+07
	RU-106	621.84		9.80	4.93E+01	4.93E+01	1.14E+01	2.43E+01
	AG-108M	433.93		89.90	7.38E-01	7.38E-01	-4.64E-02	3.65E-01
		614.37		90.40	7.52E-01		3.08E-01	3.70E-01
		722.95		90.50	9.08E-01		-1.96E-01	4.47E-01
+	CD-109	88.03	*	3.72	9.43E+01	9.43E+01	2.96E+03	4.70E+01
	AG-110M	657.75		93.14	4.56E+01	2.67E+01	2.25E+00	2.27E+01
		677.61		10.53	1.36E+02		-7.41E+01	6.70E+01
		706.67		16.46	9.12E+01		2.58E+01	4.49E+01
		763.93		21.98	7.42E+01		2.27E+01	3.65E+01
		884.67		71.63	2.95E+01		1.66E+01	1.46E+01
		1384.27		23.94	2.67E+01		-2.64E+00	1.25E+01
	CD-113M	263.70		0.02	2.23E+03	2.23E+03	-6.79E+02	1.10E+03
	SN-113	255.12		1.93	1.30E+04	5.16E+02	-6.73E+03	6.44E+03
		391.69		64.90	5.16E+02		2.01E+02	2.55E+02
	TE123M	159.00		84.10	1.77E+02	1.77E+02	7.53E+01	8.75E+01
	SB-124	602.71		97.87	1.27E+05	1.05E+05	5.84E+04	6.23E+04
		645.85		7.26	1.81E+06		-7.89E+05	8.91E+05
		722.78		11.10	1.38E+06		-2.98E+05	6.78E+05
		1691.02		49.00	1.05E+05		-2.80E+04	4.73E+04
	I-125	35.49		6.49	2.18E+06	2.18E+06	-4.12E+05	1.08E+06
	SB-125	176.33		6.89	1.05E+01	4.47E+00	7.93E+00	5.19E+00
		427.89		29.33	4.47E+00		4.88E-02	2.21E+00
		463.38		10.35	1.43E+01		-1.87E-01	7.06E+00
		600.56		17.80	7.52E+00		-1.26E+00	3.70E+00
		635.90		11.32	1.22E+01		-7.16E+00	6.01E+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	1.96E+00	1.96E+00	6.15E+01	9.77E-01
@	SB-127	473.00		25.00	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		685.20		35.70	1.00E+26		1.00E+26	1.00E+20
@		783.80		14.70	1.00E+26		1.00E+26	1.00E+20
	I-129	29.78		57.00	2.02E+00	2.02E+00	-2.12E+01	1.00E+00
		33.60		13.20	6.51E+00		2.25E+00	3.23E+00
		39.58		7.52	8.67E+00		-2.89E+01	4.31E+00
@	I-131	284.30		6.05	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		364.48		81.20	1.00E+26		1.00E+26	1.00E+20
@		636.97		7.26	1.00E+26		1.00E+26	1.00E+20
@		722.89		1.80	1.00E+26		1.00E+26	1.00E+20
@	TE-132	49.72		13.10	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		228.16		88.00	1.00E+26		1.00E+26	1.00E+20
	BA-133	81.00		33.00	1.48E+00	1.07E+00	-9.21E-01	7.37E-01
		302.84		17.80	3.23E+00		6.83E-01	1.60E+00
		356.01		60.00	1.07E+00		-6.33E-01	5.30E-01
@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	XE-133	81.00		38.00	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	CS-134	563.23		8.38	2.02E+01	1.75E+00	6.16E+00	9.94E+00
		569.32		15.43	1.07E+01		-2.68E+00	5.26E+00

Analysis Report for 1707085-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CS-134	604.70		97.60	1.75E+00	1.75E+00	-1.25E+00	8.63E-01
		795.84		85.40	2.93E+00		5.53E-01	1.44E+00
		801.93		8.73	2.78E+01		-1.83E+01	1.37E+01
	CS-135	268.24		16.00	2.83E+00	2.83E+00	4.08E-02	1.40E+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	1.49E+00	1.49E+00	8.12E+01	7.40E-01
	LA-138	788.74		34.00	2.78E+00	4.46E-01	1.75E+00	1.37E+00
		1435.80		66.00	4.46E-01		-1.84E-01	2.06E-01
+	CE-139	165.85	*	80.35	9.92E+01	9.92E+01	8.58E+01	4.92E+01
@	BA-140	162.64		6.70	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		304.84		4.50	1.00E+26		1.00E+26	1.00E+20
@		423.70		3.20	1.00E+26		1.00E+26	1.00E+20
@		437.55		2.00	1.00E+26		1.00E+26	1.00E+20
@		537.32		25.00	1.00E+26		1.00E+26	1.00E+20
@	LA-140	328.77		20.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		487.03		45.50	1.00E+26		1.00E+26	1.00E+20
@		815.85		23.50	1.00E+26		1.00E+26	1.00E+20
@		1596.49		95.49	1.00E+26		1.00E+26	1.00E+20
	CE-141	145.44		48.40	3.93E+09	3.93E+09	6.83E+08	1.95E+09
@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		293.26		42.00	1.00E+26		1.00E+26	1.00E+20
@		664.55		5.20	1.00E+26		1.00E+26	1.00E+20
	CE-144	133.54		10.80	3.92E+01	3.92E+01	-4.82E-01	1.95E+01
	PM-144	476.78		42.00	1.26E+01	4.96E+00	4.78E+00	6.24E+00
		618.01		98.60	4.96E+00		-4.65E+00	2.44E+00
		696.49		99.49	6.00E+00		-1.20E+00	2.95E+00
	PM-145	36.85		21.70	3.51E+00	1.87E+00	-2.88E+00	1.74E+00
		37.36		39.70	1.87E+00		-1.54E+00	9.30E-01
		42.30		15.10	4.75E+00		-1.00E+01	2.36E+00
		72.40		2.31	2.03E+01		-6.74E+00	1.01E+01
	PM-146	453.90		39.94	2.51E+00	2.51E+00	3.45E-01	1.24E+00
		735.90		14.01	8.57E+00		-1.76E+00	4.22E+00
		747.13		13.10	9.32E+00		-3.95E+00	4.59E+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	2.34E+00	2.34E+00	2.18E+01	1.16E+00
		244.69		5.40	9.53E+00		2.55E+00	4.72E+00
		344.27		19.13	3.12E+00		-1.37E+00	1.54E+00
		778.89		9.20	1.12E+01		9.97E-01	5.51E+00
		964.01		10.40	1.40E+01		-5.20E-01	6.91E+00
		1085.78		7.22	1.93E+01		-3.14E+00	9.49E+00
		1112.02		9.60	1.43E+01		4.14E+00	7.03E+00

Analysis Report for 1707085-01

GAS-1402

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
EU-152	1407.95	14.94	2.39E+00	2.34E+00	6.42E-01	1.11E+00
GD-153	97.43	31.30	1.93E+01	1.93E+01	5.66E+00	9.55E+00
	103.18	22.20	2.70E+01		-1.09E+01	1.34E+01
EU-154	123.07	40.50	1.29E+00	1.29E+00	1.19E+01	6.40E-01
	723.30	19.70	5.13E+00		-3.16E+00	2.52E+00
	873.19	11.50	1.17E+01		-4.58E+00	5.76E+00
	996.32	10.30	1.41E+01		-1.50E-01	6.93E+00
	1004.76	17.90	8.23E+00		1.32E+00	4.06E+00
	1274.45	35.50	1.77E+00		-1.89E-01	8.48E-01
EU-155	86.50	30.90	3.63E+00	2.11E+00	1.10E+02	1.81E+00
	105.30	20.70	2.11E+00		4.29E-01	1.05E+00
@ EU-156	811.77	10.40	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1153.47	7.20	1.00E+26		1.00E+26	1.00E+20
@	1230.71	8.90	1.00E+26		1.00E+26	1.00E+20
HO-166M	184.41	72.60	5.21E-01	5.21E-01	5.01E-01	2.58E-01
	280.45	29.60	1.54E+00		-2.40E-02	7.63E-01
	410.94	11.10	5.46E+00		-9.15E-01	2.70E+00
	711.69	54.10	1.47E+00		-5.83E-01	7.22E-01
TM-171	66.72	0.14	8.61E+02	8.61E+02	-1.94E+03	4.28E+02
HF-172	67.35	5.31	2.32E+01	8.95E+00	-5.24E+01	1.15E+01
	125.81	11.30	8.95E+00		1.67E+00	4.44E+00
@ LU-172	181.53	20.60	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	900.72	29.81	1.00E+26		1.00E+26	1.00E+20
@	1093.66	62.50	1.00E+26		1.00E+26	1.00E+20
LU-173	100.72	5.24	2.41E+01	9.28E+00	7.23E+00	1.20E+01
	272.11	21.20	9.28E+00		2.72E-01	4.59E+00
HF-175	343.40	84.00	2.11E+04	2.11E+04	-9.29E+03	1.04E+04
LU-176	88.34	13.30	5.57E+00	4.63E-01	1.72E+02	2.78E+00
	201.83	86.00	4.63E-01		6.64E-02	2.29E-01
	306.78	94.00	5.11E-01		-8.81E-02	2.53E-01
HF-181	133.02	41.70	2.38E+07	2.38E+07	-7.58E+05	1.18E+07
	345.85	17.20	9.45E+07		-3.93E+07	4.67E+07
	482.03	82.80	2.54E+07		8.72E+06	1.25E+07
TA-182	67.75	41.20	6.21E+02	6.21E+02	1.16E+03	3.09E+02
	1121.30	34.90	1.86E+03		7.93E+02	9.16E+02
	1189.05	16.23	2.99E+03		-2.94E+02	1.46E+03
	1221.41	26.98	1.47E+03		2.38E+02	7.11E+02
	1231.02	11.44	3.20E+03		4.15E+02	1.55E+03
IR-192	308.46	29.68	3.18E+04	2.93E+04	7.32E+03	1.57E+04
	468.07	48.10	2.93E+04		-2.12E+03	1.45E+04
HG-203	279.19	77.30	3.86E+06	3.86E+06	-1.68E+06	1.91E+06
TL-204	374.74	94.11	1.01E+00	1.01E+00	-2.25E-02	4.99E-01
	899.15	99.16	1.99E+00		7.90E-01	9.83E-01
	911.74	91.10	2.20E+00		-8.72E-01	1.09E+00
BI-207	569.67	97.72	6.79E-01	6.79E-01	-1.70E-01	3.34E-01
	1063.62	74.90	1.65E+00		-1.76E-01	8.13E-01
TL-208	583.14	30.22	2.18E+00	9.22E-01	3.27E-01	1.07E+00
	860.37	4.48	2.39E+01		1.91E+00	1.18E+01
	2614.66	35.85	9.22E-01		6.24E-01	4.01E-01
BI-210M	262.00	45.00	9.93E-01	9.93E-01	2.40E-01	4.92E-01
	300.00	23.00	2.05E+00		-1.15E+00	1.01E+00
PB-210	46.50	4.25	2.04E+01	2.04E+01	-5.05E+00	1.02E+01
PB-211	404.84	2.90	2.06E+01	2.06E+01	2.85E+00	1.02E+01

Analysis Report for 1707085-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PB-211	831.96		2.90	3.43E+01	2.06E+01	-4.34E+00	1.69E+01
	BI-212	727.17		11.80	6.92E+00	6.92E+00	1.04E+00	3.41E+00
		1620.62		2.75	9.93E+00		-3.84E+00	4.50E+00
	PB-212	238.63		44.60	1.01E+00	1.01E+00	8.57E-01	5.00E-01
		300.09		3.41	1.38E+01		-7.79E+00	6.83E+00
	BI-214	609.31		46.30	1.44E+00	1.44E+00	-1.79E-01	7.07E-01
		1120.29		15.10	7.27E+00		3.37E+00	3.57E+00
		1764.49		15.80	2.01E+00		1.92E-01	9.15E-01
		2204.22		4.98	5.53E+00		2.59E-01	2.41E+00
	PB-214	295.21		19.19	2.46E+00	1.46E+00	5.57E-01	1.22E+00
		351.92		37.19	1.46E+00		7.49E-01	7.23E-01
	RN-219	401.80		6.50	9.12E+00	9.12E+00	1.71E+00	4.51E+00
+	RA-223	323.87	*	3.88	1.29E+01	1.29E+01	7.36E+00	6.38E+00
	RA-224	240.98		3.95	1.14E+01	1.14E+01	5.10E+00	5.64E+00
@	RA-225	40.00		31.00	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	RA-226	186.21		3.28	1.17E+01	1.17E+01	7.38E+00	5.78E+00
	TH-227	50.10		8.40	1.02E+01	3.88E+00	5.96E+01	5.06E+00
		236.00		11.50	3.88E+00		3.29E-01	1.92E+00
		256.20		6.30	7.02E+00		3.69E+00	3.48E+00
	AC-228	338.32		11.40	4.50E+00	4.26E+00	7.27E-01	2.22E+00
		911.07		27.70	4.26E+00		-1.44E+00	2.10E+00
		969.11		16.60	7.18E+00		-1.43E+00	3.54E+00
	TH-230	48.44		16.90	4.77E+00	4.77E+00	1.44E+01	2.38E+00
		62.85		4.60	2.16E+01		-1.49E+01	1.08E+01
		67.67		0.37	1.16E+02		2.16E+02	5.76E+01
	PA-231	283.67		1.60	2.86E+01	2.07E+01	5.59E+00	1.41E+01
		302.67		2.30	2.07E+01		4.37E+00	1.02E+01
	TH-231	25.64		14.70	2.87E+01	8.10E+00	-1.17E+02	1.43E+01
		84.21		6.40	8.10E+00		-2.50E+02	4.03E+00
	PA-233	311.98		38.60	7.32E+11	7.32E+11	-9.78E+10	3.62E+11
	PA-234	131.20		20.40	1.52E+00	1.52E+00	4.92E-01	7.55E-01
		733.99		8.80	9.36E+00		-5.29E+00	4.61E+00
		946.00		12.00	1.08E+01		-2.16E+00	5.33E+00
	PA-234M	1001.03		0.92	1.28E+02	1.28E+02	7.77E+01	6.31E+01
	TH-234	63.29		3.80	2.60E+01	2.60E+01	-1.80E+01	1.30E+01
	U-235	143.76		10.50	3.02E+00	3.02E+00	-1.40E+00	1.50E+00
		163.35		4.70	7.24E+00		3.97E-01	3.59E+00
		205.31		4.70	8.52E+00		-5.24E+00	4.22E+00
	NP-237	86.50		12.60	5.94E+00	5.94E+00	1.81E+02	2.96E+00
@	NP-239	106.10		22.70	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		228.18		10.70	1.00E+26		1.00E+26	1.00E+20
@		277.60		14.10	1.00E+26		1.00E+26	1.00E+20
+	AM-241	59.54	*	35.90	3.48E+00	3.48E+00	2.22E+02	1.74E+00
	AM-243	74.67		66.00	6.26E-01	6.26E-01	2.36E-01	3.11E-01
	CM-243	209.75		3.29	1.34E+01	3.48E+00	-2.44E+00	6.66E+00
		228.14		10.60	4.45E+00		-1.58E+00	2.21E+00
		277.60		14.00	3.48E+00		-5.17E-01	1.72E+00

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

Analysis Report for 1707085-01

GAS-1402

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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*****************************************************
*****   S P E C T R A L   D A T A   R E P O R T   *****
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Sample Title: GAS-1402

Elapsed Live time: 1800
Elapsed Real Time: 1848

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	1	341	1961
17:	2056	1930	5055	21059	37637	24708	11397	12233
25:	7502	2219	914	783	831	1119	1610	1397
33:	945	892	1020	1077	962	1029	1094	1133
41:	1316	1523	1642	1797	1861	2364	3013	3772
49:	4241	4212	4012	3974	4087	4092	4337	4966
57:	11119	29725	31732	11449	2048	1126	1204	1243
65:	1372	1447	1502	1453	1476	1539	1442	1404
73:	1359	1446	1456	1470	1425	1342	1308	1400
81:	1502	1466	1465	1585	2278	6813	12197	8152
89:	2092	823	780	740	734	701	733	723
97:	763	792	716	710	752	746	665	735
105:	695	699	712	695	704	771	788	772
113:	796	727	770	760	774	700	847	1541
121:	2647	1897	887	679	667	688	717	711
129:	692	682	671	647	695	740	851	835
137:	730	667	687	611	667	644	657	662
145:	637	645	660	659	667	629	653	604
153:	613	591	607	671	614	601	581	602
161:	623	578	603	685	738	689	600	602
169:	591	586	559	592	620	590	585	588
177:	590	608	546	567	612	611	619	689
185:	660	658	672	640	637	654	649	588
193:	617	623	591	627	580	615	631	637
201:	621	571	643	601	614	618	576	674
209:	591	628	633	616	645	640	643	633
217:	598	633	672	627	636	655	636	653
225:	622	622	551	608	599	582	624	582
233:	574	566	563	574	640	587	580	545
241:	587	561	495	540	540	531	528	499
249:	511	485	473	501	479	485	484	470
257:	481	532	478	447	451	485	477	482
265:	476	454	451	468	461	493	467	452
273:	466	435	458	480	453	406	427	426
281:	417	457	457	380	439	414	458	387
289:	409	457	386	432	425	437	444	421
297:	394	400	391	420	432	378	417	411
305:	391	389	409	385	420	409	416	390
313:	369	405	405	410	412	406	378	344
321:	395	375	429	390	367	375	349	374
329:	344	395	350	368	376	370	354	365
337:	433	376	374	355	378	358	377	372
345:	344	382	372	401	396	408	404	355
353:	391	365	342	390	348	354	375	359
361:	376	317	357	359	365	341	367	397

369:	382	372	361	363	362	342	388	333

Sample Title: GAS-1402

Channel								
377:	381	345	357	331	351	341	361	329
385:	345	368	339	379	363	365	380	321
393:	352	343	348	328	338	339	371	340
401:	326	364	356	366	355	355	349	343
409:	343	363	365	313	368	358	351	341
417:	351	383	368	325	339	370	348	340
425:	320	379	356	356	374	363	366	338
433:	375	351	376	377	374	359	372	353
441:	373	360	411	385	388	401	361	372
449:	346	393	369	381	376	383	389	356
457:	391	377	403	378	360	401	405	367
465:	395	385	389	373	405	353	385	353
473:	355	380	387	351	336	353	302	339
481:	298	288	295	311	263	280	268	296
489:	259	278	267	256	290	256	278	285
497:	255	249	293	275	257	256	274	227
505:	263	269	252	241	275	263	248	297
513:	244	240	238	246	270	247	231	220
521:	238	235	253	236	257	255	221	227
529:	229	211	215	248	202	197	218	229
537:	213	224	234	228	190	239	220	196
545:	238	211	213	207	209	215	239	198
553:	193	191	186	212	205	221	191	200
561:	210	231	200	204	198	168	202	199
569:	187	184	208	184	187	199	194	194
577:	210	197	189	202	216	212	217	204
585:	179	199	192	190	179	208	190	179
593:	161	193	200	193	176	178	202	190
601:	192	177	184	186	183	155	197	199
609:	204	178	175	213	208	187	172	173
617:	190	172	166	177	201	180	181	187
625:	180	160	184	186	186	186	193	172
633:	168	186	186	183	175	169	190	194
641:	194	209	175	163	181	197	174	193
649:	201	191	172	213	173	204	208	181
657:	184	348	1523	4785	6032	3135	624	212
665:	172	175	147	184	180	146	193	181
673:	164	160	143	164	179	147	157	156
681:	163	142	171	160	145	143	159	141
689:	161	171	174	156	177	160	147	169
697:	161	168	161	165	156	168	156	158
705:	182	154	168	156	179	134	149	156
713:	141	157	151	154	162	168	153	134
721:	170	177	177	145	136	149	153	173
729:	164	147	158	161	141	169	158	155
737:	168	175	173	168	182	150	149	177
745:	165	149	180	152	174	168	163	173
753:	183	175	154	173	180	130	174	155
761:	159	160	142	175	201	154	163	179
769:	144	167	149	171	162	159	170	146
777:	151	184	188	153	156	173	138	181
785:	187	182	161	209	189	177	164	190
793:	172	187	207	170	185	155	193	173

801:	169	163	152	156	158	182	167	162

Sample Title: GAS-1402

Channel								
809:	168	183	180	173	175	182	177	197
817:	162	170	187	206	190	194	173	172
825:	194	196	173	176	191	189	179	177
833:	173	178	216	169	189	191	172	175
841:	189	177	208	187	204	182	193	156
849:	190	187	194	179	205	213	197	175
857:	207	209	209	206	182	204	212	200
865:	187	200	197	190	192	193	201	202
873:	180	187	193	200	201	204	217	190
881:	217	195	221	210	205	237	205	230
889:	194	186	202	198	198	182	213	208
897:	198	219	242	229	219	203	230	227
905:	221	219	213	235	207	205	218	238
913:	222	213	216	242	226	222	243	237
921:	237	257	218	244	244	241	246	200
929:	232	233	220	252	223	226	209	248
937:	241	246	235	256	257	240	221	251
945:	236	261	250	257	249	258	256	225
953:	284	251	240	235	227	262	246	251
961:	267	234	229	216	199	183	199	214
969:	211	202	201	173	200	166	176	199
977:	167	184	185	179	193	173	184	184
985:	170	166	179	177	186	183	169	171
993:	198	171	159	186	198	163	176	180
1001:	176	184	190	203	176	176	168	181
1009:	190	180	176	175	176	195	178	179
1017:	168	166	181	153	152	185	190	175
1025:	162	183	156	172	191	193	169	172
1033:	161	169	169	175	167	165	176	159
1041:	167	180	163	160	184	163	167	185
1049:	165	173	147	151	153	154	167	145
1057:	152	151	162	178	155	162	162	156
1065:	164	165	149	170	176	182	158	147
1073:	149	147	159	153	159	158	183	166
1081:	174	180	177	168	149	138	176	157
1089:	171	167	162	160	175	157	147	163
1097:	176	173	183	167	169	164	155	179
1105:	162	165	175	163	168	172	138	154
1113:	131	141	145	137	142	122	126	148
1121:	140	112	126	118	123	104	99	114
1129:	94	104	109	96	83	102	81	96
1137:	106	93	106	107	87	104	91	100
1145:	95	93	107	83	91	84	96	85
1153:	77	93	83	99	72	92	91	88
1161:	65	86	82	85	100	85	94	99
1169:	145	521	2135	4233	3853	1520	301	92
1177:	73	74	66	80	60	72	67	59
1185:	69	57	70	67	66	51	55	73
1193:	66	70	49	57	54	48	54	57
1201:	58	52	49	22	52	43	55	37
1209:	36	35	41	46	45	40	35	40
1217:	37	51	42	42	45	30	35	41
1225:	35	39	39	36	40	41	32	27

1233:	24	30	32	33	25	26	26	41

Sample Title: GAS-1402

Channel								
1241:	29	29	25	24	18	28	26	17
1249:	26	27	26	21	36	12	22	19
1257:	13	26	25	17	12	18	29	19
1265:	26	24	14	28	17	15	23	21
1273:	24	28	18	13	25	18	24	20
1281:	24	19	12	14	25	21	32	24
1289:	16	23	23	27	18	17	19	25
1297:	17	22	18	23	23	18	21	21
1305:	21	14	16	15	19	20	15	18
1313:	28	13	20	18	22	19	23	23
1321:	32	22	25	26	26	16	30	54
1329:	261	1277	3185	3642	1874	433	37	13
1337:	8	14	11	7	10	19	13	7
1345:	6	9	9	9	7	13	8	4
1353:	10	5	8	8	6	9	3	11
1361:	6	8	8	7	10	3	6	10
1369:	8	8	6	8	14	2	10	3
1377:	4	10	8	6	7	5	5	9
1385:	9	15	9	6	12	8	8	6
1393:	6	9	8	4	7	3	4	6
1401:	5	2	8	6	2	5	7	9
1409:	9	3	8	6	5	6	4	7
1417:	6	5	2	1	2	4	7	5
1425:	8	6	7	11	5	7	5	2
1433:	7	10	2	5	7	6	4	5
1441:	10	4	4	6	7	5	6	3
1449:	9	9	7	5	7	8	8	9
1457:	7	6	11	6	4	7	3	1
1465:	2	7	6	10	4	8	8	7
1473:	9	4	3	3	3	4	12	4
1481:	2	3	8	1	9	8	2	8
1489:	3	3	6	5	5	7	8	5
1497:	6	5	7	8	4	8	10	4
1505:	3	10	5	3	7	4	6	3
1513:	7	3	5	7	8	7	6	1
1521:	6	8	7	5	6	8	4	3
1529:	2	6	5	4	3	4	5	3
1537:	3	4	3	4	3	5	7	3
1545:	7	3	7	5	2	8	3	5
1553:	5	4	4	3	4	4	9	6
1561:	4	1	5	6	4	0	3	3
1569:	6	6	6	3	7	8	6	9
1577:	4	5	7	2	5	3	6	7
1585:	7	4	2	8	7	8	6	5
1593:	5	7	2	4	7	4	2	6
1601:	7	2	6	5	8	2	4	5
1609:	5	6	1	5	3	6	7	2
1617:	3	1	6	3	8	5	2	2
1625:	2	7	4	1	1	4	5	1
1633:	4	3	4	3	5	3	3	4
1641:	5	0	3	2	2	8	2	3
1649:	1	3	5	3	6	5	8	5
1657:	2	3	4	4	3	1	6	5

1665:	6	8	3	3	4	3	4	6

Sample Title: GAS-1402

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

2097:	1	5	2	2	1	4	7	4

Sample Title: GAS-1402

Channel								
2105:	3	4	2	1	3	0	4	3
2113:	7	0	2	4	1	4	1	6
2121:	2	2	2	3	0	1	1	4
2129:	1	2	1	1	1	5	3	3
2137:	2	2	1	7	1	1	1	3
2145:	2	2	1	6	1	8	5	3
2153:	2	5	2	4	2	3	6	3
2161:	5	1	3	3	2	1	3	4
2169:	1	1	3	4	2	2	4	1
2177:	0	1	1	1	3	2	0	3
2185:	2	2	3	1	3	1	1	1
2193:	2	1	1	2	0	0	5	2
2201:	0	2	3	4	2	2	1	0
2209:	3	1	1	1	4	1	1	7
2217:	1	4	3	2	1	2	0	1
2225:	2	1	4	4	1	1	1	1
2233:	2	2	1	0	2	4	3	1
2241:	0	0	3	3	5	2	4	0
2249:	3	2	2	3	2	6	2	0
2257:	1	1	1	1	0	3	4	3
2265:	4	2	0	4	3	1	7	3
2273:	3	0	4	4	4	1	1	2
2281:	2	0	2	1	3	3	1	0
2289:	0	3	5	2	1	4	2	1
2297:	2	0	1	0	0	3	1	0
2305:	1	3	4	3	0	0	1	0
2313:	2	0	1	2	0	3	2	2
2321:	1	1	2	2	1	0	1	1
2329:	0	1	2	0	0	1	1	1
2337:	3	0	1	1	1	2	1	0
2345:	1	0	1	0	1	1	1	1
2353:	2	0	1	3	0	3	1	3
2361:	2	0	2	1	1	1	3	0
2369:	0	0	1	0	0	2	2	1
2377:	0	1	1	2	0	0	0	1
2385:	1	0	1	0	1	1	0	2
2393:	0	2	0	2	0	0	2	0
2401:	1	1	0	0	0	1	0	1
2409:	1	0	0	0	0	0	0	0
2417:	1	0	0	0	0	0	1	0
2425:	1	0	0	1	1	1	1	0
2433:	1	0	0	0	0	0	1	0
2441:	0	1	0	0	1	1	1	0
2449:	0	1	0	0	0	0	0	0
2457:	0	1	0	1	0	0	0	0
2465:	1	2	0	1	0	0	0	0
2473:	0	1	0	0	0	0	0	1
2481:	1	1	1	0	1	0	0	0
2489:	2	0	0	1	0	3	0	1
2497:	0	0	0	0	2	3	4	16
2505:	15	17	11	1	1	0	0	1
2513:	0	0	1	0	0	0	0	0
2521:	0	1	0	0	0	0	0	1

2529:	0	0	0	0	0	0	0	0

Sample Title: GAS-1402

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

2961:	0	0	0	0	0	0	0	0

Sample Title: GAS-1402

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

3393:	0	0	0	0	1	0	0	0

Sample Title: GAS-1402

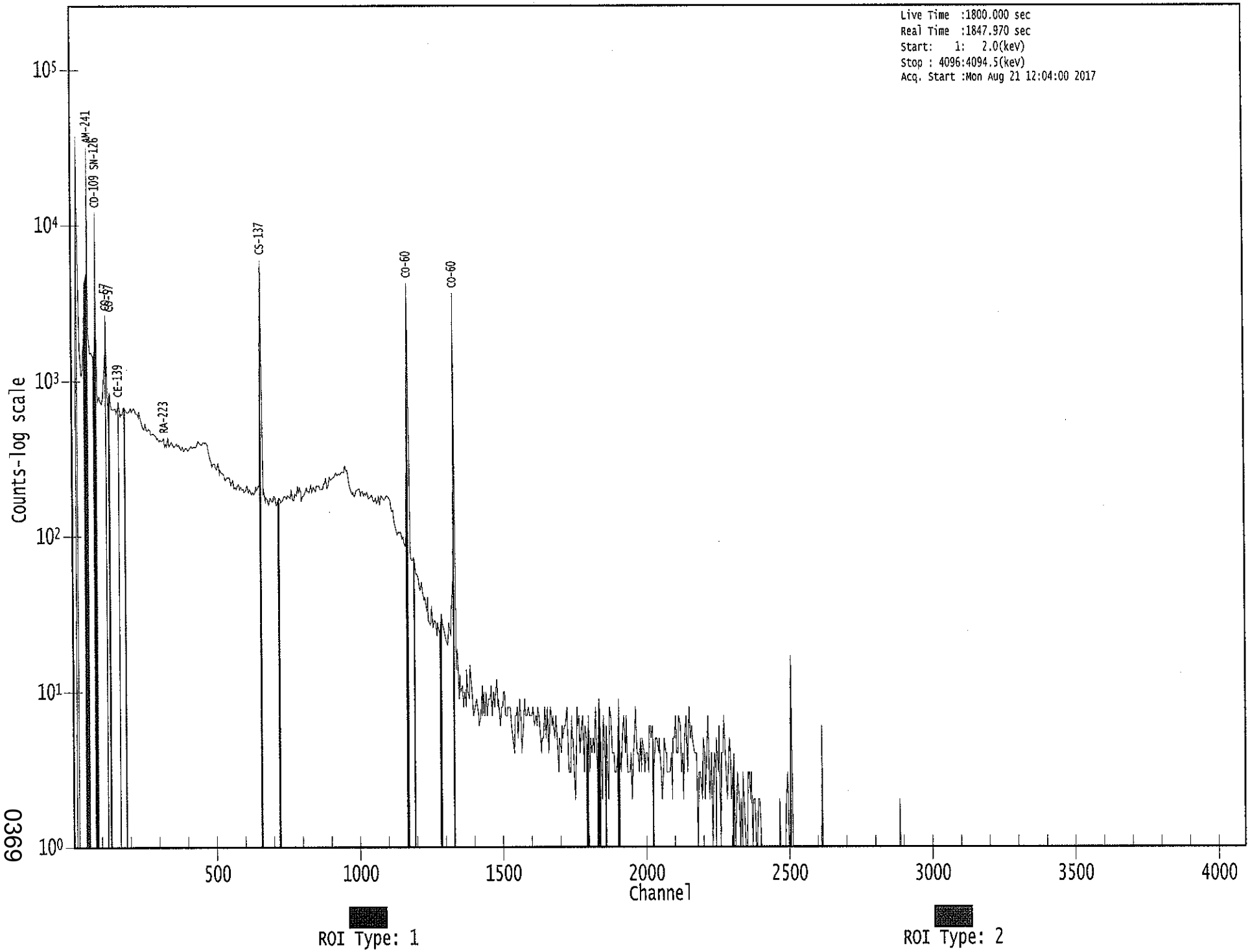
Channel								
3401:	0	1	1	0	0	0	1	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	1	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	1	0	0	0	0	1
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	0	1	0	0	0

Sample Title: GAS-1402

Channel								
3833:	0	0	0	0	0	0	0	0
3841:	0	0	0	0	0	0	0	0
3849:	0	0	0	0	0	0	0	0
3857:	0	0	1	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	0	0	0	0	0	0
3913:	0	0	0	0	0	0	0	0
3921:	0	0	0	0	0	0	0	0
3929:	0	0	0	0	0	0	0	0
3937:	0	0	0	0	0	0	0	1
3945:	0	0	0	0	0	0	0	0
3953:	0	0	0	0	0	0	0	0
3961:	0	0	0	0	0	0	0	0
3969:	0	0	0	0	0	0	0	0
3977:	0	0	0	0	0	0	0	0
3985:	0	0	0	0	0	0	0	0
3993:	0	0	0	0	0	0	0	0
4001:	0	1	0	0	1	0	0	1
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	1	0	0	0
4049:	0	0	0	0	0	0	0	0
4057:	0	0	0	0	0	0	0	0
4065:	0	0	0	0	0	0	0	0
4073:	0	0	0	0	0	0	0	0
4081:	0	0	0	0	0	0	0	0
4089:	0	0	0	0	0	0	0	0

0000055635.CNF



0369

LB 8/21/17

Apex-Gamma

Analysis Report for 1707085-02
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GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707085-02
Sample Description	: BLANK
Sample Type	: SOIL
Sample Size	: 7.834E+02 grams
Facility	: Countroom
Sample Taken On	: 8/21/2017 8:04:02AM
Acquisition Started	: 8/21/2017 12:35:16PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3618.2 seconds
Dead Time	: 0.50 %
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	: 55642

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/22/17

Analysis Report for 1707085-02

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PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 1:45:55PM
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	90.14	89.20	0.0000	0.00
2	112.21	111.28	0.0000	0.00
3	127.48	126.55	0.0000	0.00
4	239.81	238.92	0.0000	0.00
5	361.99	361.14	0.0000	0.00
6	621.28	620.53	0.0000	0.00
7	637.87	637.12	0.0000	0.00
8	822.73	822.05	0.0000	0.00
9	2594.86	2595.17	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707085-02

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PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 1:45:55PM

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	90.14	88 -	96	89.20	1.57E+01	15.88	6.25E+01	2.19
	2	112.21	108 -	114	111.28	2.19E+01	26.38	1.08E+02	1.80
	3	127.48	123 -	129	126.55	2.53E+01	25.28	9.74E+01	3.16
	4	239.81	235 -	243	238.92	3.30E+01	23.91	6.80E+01	4.96
	5	361.99	354 -	368	361.14	3.37E+01	26.50	5.87E+01	11.82
	6	621.28	615 -	627	620.53	1.42E+01	18.20	3.16E+01	1.14
	7	637.87	630 -	642	637.12	2.64E+01	14.71	1.33E+01	8.53
	8	822.73	820 -	824	822.05	6.00E+00	5.85	2.00E+00	2.38
	9	2594.86	2591 -	2598	2595.17	6.00E+00	4.90	0.00E+00	1.12

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 : 8/21/2017 1:45:55PM

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	90.14	88 -	96	1.57E+01	15.88	6.25E+01	1.30E+01
	2	112.21	108 -	114	2.19E+01	26.38	1.08E+02	2.03E+01
	3	127.48	123 -	129	2.53E+01	25.28	9.74E+01	1.91E+01
	4	239.81	235 -	243	3.30E+01	23.91	6.80E+01	1.72E+01
	5	361.99	354 -	368	3.37E+01	26.50	5.87E+01	1.96E+01
	6	621.28	615 -	627	1.42E+01	18.20	3.16E+01	1.36E+01

Analysis Report for 1707085-02

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Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
7	637.87	630 -	642	2.64E+01	14.71	1.33E+01	8.66E+00
8	822.73	820 -	824	6.00E+00	5.85	2.00E+00	2.63E+00
9	2594.86	2591 -	2598	6.00E+00	4.90	0.00E+00	0.00E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/21/2017 1:45:55PM

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	90.14	88 -	96	89.20	1.57E+01	15.88	6.25E+01	ND-147
	2	112.21	108 -	114	111.28	2.19E+01	26.38	1.08E+02	.....
	3	127.48	123 -	129	126.55	2.53E+01	25.28	9.74E+01	.....
	4	239.81	235 -	243	238.92	3.30E+01	23.91	6.80E+01	.....
	5	361.99	354 -	368	361.14	3.37E+01	26.50	5.87E+01	.....
	6	621.28	615 -	627	620.53	1.42E+01	18.20	3.16E+01	RU-106
	7	637.87	630 -	642	637.12	2.64E+01	14.71	1.33E+01	I-131
	8	822.73	820 -	824	822.05	6.00E+00	5.85	2.00E+00	.....
	9	2594.86	2591 -	2598	2595.17	6.00E+00	4.90	0.00E+00	.....

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

Analysis Report for 1707085-02

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PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/21/2017 1:45:55PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	1	90.14	1.57E+01	15.88	2.37E-02	2.13E-03
	2	112.21	2.19E+01	26.38	2.28E-02	1.80E-03
	3	127.48	2.53E+01	25.28	2.17E-02	1.63E-03
	4	239.81	3.30E+01	23.91	1.35E-02	1.14E-03
	5	361.99	3.37E+01	26.50	8.95E-03	7.73E-04
	6	621.28	1.42E+01	18.20	5.17E-03	6.15E-04
	7	637.87	2.64E+01	14.71	5.04E-03	6.09E-04
	8	822.73	6.00E+00	5.85	3.97E-03	3.96E-04
	9	2594.86	6.00E+00	4.90	1.29E-03	1.51E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/21/2017 1:45:55PM

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

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	1	90.14	1.57E+01	15.88			1.57E+01	1.59E+01
	2	112.21	2.19E+01	26.38			2.19E+01	2.64E+01
	3	127.48	2.53E+01	25.28			2.53E+01	2.53E+01
	4	239.81	3.30E+01	23.91			3.30E+01	2.39E+01
	5	361.99	3.37E+01	26.50			3.37E+01	2.65E+01
	6	621.28	1.42E+01	18.20			1.42E+01	1.82E+01
	7	637.87	2.64E+01	14.71			2.64E+01	1.47E+01
	8	822.73	6.00E+00	5.85			6.00E+00	5.85E+00
	9	2594.86	6.00E+00	4.90			6.00E+00	4.90E+00

Analysis Report for 1707085-02

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/21/2017 1:45:55PM

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

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	1	90.14	1.57E+01	15.88			1.57E+01	1.59E+01
	2	112.21	2.19E+01	26.38			2.19E+01	2.64E+01
	3	127.48	2.53E+01	25.28			2.53E+01	2.53E+01
	4	239.81	3.30E+01	23.91			3.30E+01	2.39E+01
	5	361.99	3.37E+01	26.50			3.37E+01	2.65E+01
	6	621.28	1.42E+01	18.20			1.42E+01	1.82E+01
	7	637.87	2.64E+01	14.71			2.64E+01	1.47E+01
	8	822.73	6.00E+00	5.85			6.00E+00	5.85E+00
	9	2594.86	6.00E+00	4.90			6.00E+00	4.90E+00

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

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

Analysis Report for 1707085-02

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Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
RU-106	0.951	621.84	*	9.80	2.68E-01	3.47E-01
ND-147	0.604	91.11	*	28.90	2.23E-02	2.26E-02
		531.02		13.10		

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 1:45:55PM
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	112.21	6.07091E-03	60.36		
3	127.48	7.03078E-03	49.94		
4	239.81	9.16045E-03	36.25		
5	361.99	9.35406E-03	39.34		
7	637.87	7.32323E-03	27.91	Tol.	I-131
8	822.73	1.66667E-03	48.77		
9	2594.86	1.66667E-03	40.82		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Analysis Report for 1707085-02

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Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
RU-106	0.95	621.84	*	9.80	2.68E-01	3.47E-01
ND-147	0.60	91.11	*	28.90	2.23E-02	2.26E-02
		531.02		13.10		

* = 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
RU-106	0.951	2.68E-01	3.47E-01	
ND-147	0.604	2.23E-02	2.26E-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 1707085-02

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UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 1:45:55PM
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	112.21	6.07091E-03	60.36		
3	127.48	7.03078E-03	49.94		
4	239.81	9.16045E-03	36.25		
5	361.99	9.35406E-03	39.34		
7	637.87	7.32323E-03	27.91	Tol.	I-131
8	822.73	1.66667E-03	48.77		
9	2594.86	1.66667E-03	40.82		

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59	10.42	-6.25E-02	3.62E-01	3.62E-01
+	NA-22	1274.54	99.94	-2.49E-02	3.31E-02	3.31E-02
+	NA-24	1368.53	99.99	1.27E-02	7.18E-02	7.18E-02
		2754.09	99.86	-1.02E-02		9.44E-02
+	AL-26	1808.65	99.76	-3.28E-03	4.57E-02	4.57E-02
+	K-40	1460.81	10.67	-3.45E-02	5.98E-01	5.98E-01
+	AR-41	1293.64	99.16	-6.68E-02	3.86E-01	3.86E-01
+	TI-44	67.88	94.40	-2.41E-02	2.05E-02	2.15E-02
		78.34	96.00	3.20E-03		2.05E-02
+	SC-46	889.25	99.98	3.26E-02	4.78E-02	5.38E-02
		1120.51	99.99	1.27E-02		4.78E-02

Analysis Report for 1707085-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	V-48	983.52	99.98	-1.11E-03	4.07E-02	6.42E-02
		1312.10	97.50	-4.41E-02		4.07E-02
+	CR-51	320.08	9.83	7.63E-02	3.27E-01	3.27E-01
+	MN-54	834.83	99.97	-1.21E-02	4.44E-02	4.44E-02
+	CO-56	846.75	99.96	-5.28E-03	4.68E-02	4.68E-02
		1037.75	14.03	8.59E-02		3.85E-01
		1238.25	67.00	3.68E-02		1.08E-01
		1771.40	15.51	1.35E-01		4.38E-01
		2598.48	16.90	-2.94E-02		6.61E-01
+	CO-57	122.06	85.51	3.54E-03	1.97E-02	1.97E-02
		136.48	10.60	1.01E-01		1.83E-01
+	CO-58	810.76	99.40	-1.13E-02	4.18E-02	4.18E-02
+	FE-59	1099.22	56.50	-3.89E-03	7.28E-02	7.28E-02
		1291.56	43.20	3.66E-02		1.39E-01
+	CO-60	1173.22	100.00	1.70E-04	5.56E-02	6.45E-02
		1332.49	100.00	8.29E-03		5.56E-02
+	ZN-65	1115.52	50.75	5.00E-02	1.13E-01	1.13E-01
+	GA-67	93.31	35.70	8.37E-02	6.90E-02	6.90E-02
		208.95	2.24	-1.92E-01		1.08E+00
		300.22	16.00	-4.11E-03		1.86E-01
+	SE-75	121.11	16.70	4.80E-02	3.09E-02	1.05E-01
		136.00	59.20	7.12E-04		3.09E-02
		264.65	59.80	1.79E-02		4.51E-02
		279.53	25.20	-6.57E-02		9.35E-02
		400.65	11.40	-1.44E-02		2.51E-01
+	RB-82	776.52	13.00	2.15E-02	3.56E-01	3.56E-01
+	RB-83	520.41	46.00	-5.58E-02	6.59E-02	6.59E-02
		529.64	30.30	-4.71E-02		1.20E-01
		552.65	16.40	-1.41E-02		2.32E-01
+	KR-85	513.99	0.43	1.05E+01	1.30E+01	1.30E+01
+	SR-85	513.99	99.27	4.61E-02	5.72E-02	5.72E-02
+	Y-88	898.02	93.40	2.41E-02	4.67E-02	5.81E-02
		1836.01	99.38	-2.60E-02		4.67E-02
+	MO-93	263.06	56.72	-3.41E-02	4.23E-02	4.29E-02
		684.67	99.68	1.73E-02		4.23E-02
		1477.11	99.08	1.37E-03		4.92E-02
+	NB-93M	16.57	9.43	4.07E+00	3.72E+00	3.72E+00
+	NB-94	702.63	100.00	-7.92E-03	5.12E-02	5.41E-02
		871.10	100.00	9.26E-03		5.12E-02
+	NB-95	765.79	99.81	1.40E-02	5.10E-02	5.10E-02
+	NB-95M	235.69	25.00	-9.93E-04	1.01E-01	1.01E-01
+	ZR-95	724.18	43.70	1.74E-03	7.89E-02	1.08E-01
		756.72	55.30	-3.43E-03		7.89E-02
+	MO-99	181.06	6.20	-5.49E-01	3.53E-01	3.53E-01
		739.58	12.80	1.60E-01		4.04E-01
		778.00	4.50	-4.72E-01		1.01E+00
+	RU-103	497.08	89.00	-1.10E-02	3.66E-02	3.66E-02

Analysis Report for 1707085-02

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RU-106	621.84	*	9.80	2.68E-01	5.66E-01	5.66E-01
+	AG-108M	433.93		89.90	1.27E-02	3.99E-02	3.99E-02
		614.37		90.40	9.12E-03		4.44E-02
		722.95		90.50	3.83E-03		5.18E-02
+	CD-109	88.03		3.72	-2.31E-01	4.96E-01	4.96E-01
+	AG-110M	657.75		93.14	0.00E+00	4.72E-02	4.72E-02
		677.61		10.53	3.31E-02		3.73E-01
		706.67		16.46	1.06E-01		3.13E-01
		763.93		21.98	-5.13E-03		2.13E-01
		884.67		71.63	-1.98E-02		6.53E-02
		1384.27		23.94	-3.73E-02		1.49E-01
+	CD-113M	263.70		0.02	-3.54E+01	1.08E+02	1.08E+02
+	SN-113	255.12		1.93	9.88E-01	5.20E-02	1.53E+00
		391.69		64.90	3.45E-02		5.20E-02
+	TE123M	159.00		84.10	1.69E-02	2.61E-02	2.61E-02
+	SB-124	602.71		97.87	-2.88E-03	2.55E-02	4.61E-02
		645.85		7.26	6.23E-02		5.17E-01
		722.78		11.10	3.13E-02		4.23E-01
		1691.02		49.00	0.00E+00		2.55E-02
+	I-125	35.49		6.49	1.40E-01	6.11E-01	6.11E-01
+	SB-125	176.33		6.89	3.14E-02	1.13E-01	3.12E-01
		427.89		29.33	-3.04E-02		1.13E-01
		463.38		10.35	1.73E-01		3.59E-01
		600.56		17.80	1.20E-01		2.79E-01
		635.90		11.32	-1.09E-01		3.76E-01
+	SB-126	414.70		83.30	-2.12E-02	3.36E-02	3.36E-02
		666.33		99.60	1.24E-02		5.13E-02
		695.00		99.60	-2.54E-03		5.04E-02
		720.50		53.80	1.34E-03		9.01E-02
+	SN-126	87.57		37.00	-2.32E-02	4.99E-02	4.99E-02
+	SB-127	473.00		25.00	-2.25E-03	1.23E-01	1.55E-01
		685.20		35.70	5.01E-02		1.23E-01
		783.80		14.70	8.52E-02		3.66E-01
+	I-129	29.78		57.00	-8.36E-02	9.81E-02	9.81E-02
		33.60		13.20	-1.10E-01		3.22E-01
		39.58		7.52	-7.71E-02		4.35E-01
+	I-131	284.30		6.05	-3.52E-02	3.75E-02	4.31E-01
		364.48		81.20	1.56E-02		3.75E-02
		636.97		7.26	-2.12E-01		6.12E-01
		722.89		1.80	1.96E-01		2.65E+00
+	TE-132	49.72		13.10	2.23E-02	2.78E-02	2.09E-01
		228.16		88.00	-3.25E-04		2.78E-02
+	BA-133	81.00		33.00	-5.86E-03	5.16E-02	5.72E-02
		302.84		17.80	-1.54E-02		1.47E-01
		356.01		60.00	3.29E-03		5.16E-02
+	I-133	529.87		86.30	-1.95E-02	4.98E-02	4.98E-02
+	XE-133	81.00		38.00	-5.24E-03	5.11E-02	5.11E-02
+	CS-134	563.23		8.38	9.43E-02	4.63E-02	4.16E-01

Analysis Report for 1707085-02

BLANK

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CS-134	569.32		15.43	-2.75E-02	4.63E-02	2.07E-01
		604.70		97.60	5.87E-03		4.63E-02
		795.84		85.40	-3.12E-02		6.00E-02
		801.93		8.73	0.00E+00		6.06E-01
+	CS-135	268.24		16.00	8.22E-04	1.67E-01	1.67E-01
+	I-135	1131.51		22.50	3.42E-02	2.94E-01	3.83E-01
		1260.41		28.60	3.01E-02		2.94E-01
		1678.03		9.54	-1.89E-01		9.74E-01
+	CS-136	153.22		7.46	2.37E-02	4.75E-02	2.73E-01
		163.89		4.61	-1.70E-01		4.57E-01
		176.55		13.56	1.16E-01		1.68E-01
		273.65		12.66	5.19E-02		2.18E-01
		340.57		48.50	1.66E-02		6.34E-02
		818.50		99.70	8.38E-03		4.75E-02
		1048.07		79.60	-1.26E-02		6.04E-02
		1235.34		19.70	1.78E-02		3.46E-01
+	CS-137	661.65		85.12	2.02E-02	6.22E-02	6.22E-02
+	LA-138	788.74		34.00	3.61E-02	5.57E-02	1.64E-01
		1435.80		66.00	4.00E-03		5.57E-02
+	CE-139	165.85		80.35	-5.50E-03	2.58E-02	2.58E-02
+	BA-140	162.64		6.70	-6.27E-03	1.53E-01	3.26E-01
		304.84		4.50	-3.83E-01		5.69E-01
		423.70		3.20	-3.98E-01		1.02E+00
		437.55		2.00	-3.23E-01		1.55E+00
		537.32		25.00	-1.10E-02		1.53E-01
+	LA-140	328.77		20.50	3.41E-02	6.05E-02	1.45E-01
		487.03		45.50	-1.94E-02		7.07E-02
		815.85		23.50	-2.81E-02		1.72E-01
		1596.49		95.49	2.31E-02		6.05E-02
+	CE-141	145.44		48.40	-7.28E-03	4.05E-02	4.05E-02
+	CE-143	57.36		11.80	-7.45E-02	7.58E-02	1.96E-01
		293.26		42.00	1.03E-02		7.58E-02
		664.55		5.20	3.04E-01		1.14E+00
+	CE-144	133.54		10.80	-6.80E-02	1.59E-01	1.59E-01
+	PM-144	476.78		42.00	-6.65E-04	4.20E-02	9.25E-02
		618.01		98.60	1.14E-03		4.20E-02
		696.49		99.49	3.95E-02		5.68E-02
+	PM-145	36.85		21.70	-6.08E-03	9.03E-02	1.69E-01
		37.36		39.70	-3.24E-03		9.03E-02
		42.30		15.10	-2.67E-01		1.97E-01
		72.40		2.31	2.95E-01		9.25E-01
+	PM-146	453.90		39.94	1.13E-02	8.95E-02	8.95E-02
		735.90		14.01	9.86E-02		3.31E-01
		747.13		13.10	3.84E-02		3.78E-01
+	ND-147	91.11	*	28.90	2.23E-02	7.60E-02	7.60E-02
		531.02		13.10	-7.59E-03		2.95E-01
+	PM-149	285.90		3.10	3.92E-01	9.31E-01	9.31E-01
+	EU-152	121.78		20.50	1.47E-02	8.19E-02	8.19E-02
		244.69		5.40	8.02E-02		4.72E-01

Analysis Report for 1707085-02

BLANK

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-152	344.27	19.13	1.61E-02	8.19E-02	1.59E-01
		778.89	9.20	-2.13E-01		4.70E-01
		964.01	10.40	-5.36E-02		4.46E-01
		1085.78	7.22	1.07E-01		6.43E-01
		1112.02	9.60	-1.32E-01		5.22E-01
		1407.95	14.94	2.03E-01		4.34E-01
+	GD-153	97.43	31.30	6.51E-03	6.31E-02	6.31E-02
		103.18	22.20	1.19E-02		8.11E-02
+	EU-154	123.07	40.50	9.31E-03	4.32E-02	4.32E-02
		723.30	19.70	3.84E-03		2.38E-01
		873.19	11.50	-6.28E-02		3.69E-01
		996.32	10.30	2.70E-01		6.09E-01
		1004.76	17.90	-1.02E-01		2.69E-01
		1274.45	35.50	-7.02E-02		9.31E-02
+	EU-155	86.50	30.90	7.32E-04	6.33E-02	6.33E-02
		105.30	20.70	-5.18E-03		8.47E-02
+	EU-156	811.77	10.40	-3.00E-01	3.67E-01	3.67E-01
		1153.47	7.20	4.57E-02		6.87E-01
		1230.71	8.90	7.05E-02		6.82E-01
+	HO-166M	184.41	72.60	2.15E-02	3.47E-02	3.47E-02
		280.45	29.60	-2.67E-02		8.21E-02
		410.94	11.10	-2.23E-01		2.34E-01
		711.69	54.10	-2.39E-02		8.31E-02
+	TM-171	66.72	0.14	-1.42E+01	1.52E+01	1.52E+01
+	HF-172	67.35	5.31	-3.73E-01	1.69E-01	4.00E-01
		125.81	11.30	6.16E-02		1.69E-01
+	LU-172	181.53	20.60	-5.01E-02	6.11E-02	1.12E-01
		900.72	29.81	9.95E-02		1.81E-01
		1093.66	62.50	5.09E-03		6.11E-02
+	LU-173	100.72	5.24	1.46E-02	1.27E-01	3.46E-01
		272.11	21.20	-2.55E-02		1.27E-01
+	HF-175	343.40	84.00	3.66E-03	3.61E-02	3.61E-02
+	LU-176	88.34	13.30	-6.47E-02	2.79E-02	1.39E-01
		201.83	86.00	-6.36E-03		2.79E-02
		306.78	94.00	-1.37E-05		2.90E-02
+	HF-181	133.02	41.70	-1.05E-02	4.01E-02	4.08E-02
		345.85	17.20	5.43E-03		1.78E-01
		482.03	82.80	-9.58E-03		4.01E-02
+	TA-182	67.75	41.20	-5.54E-02	4.94E-02	4.94E-02
		1121.30	34.90	2.22E-02		1.37E-01
		1189.05	16.23	-5.01E-02		3.75E-01
		1221.41	26.98	-1.27E-02		1.53E-01
		1231.02	11.44	4.49E-02		5.48E-01
+	IR-192	308.46	29.68	1.92E-02	6.83E-02	9.62E-02
		468.07	48.10	-3.36E-02		6.83E-02
+	HG-203	279.19	77.30	-9.53E-03	3.18E-02	3.18E-02
+	TL-204	374.74	94.11	4.94E-03	3.42E-02	3.42E-02
		899.15	99.16	3.52E-03		4.97E-02
		911.74	91.10	6.14E-03		4.85E-02

Analysis Report for 1707085-02

BLANK

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BI-207	569.67	97.72	-4.35E-03	3.28E-02	3.28E-02
		1063.62	74.90	3.65E-02		6.76E-02
+	TL-208	583.14	30.22	-8.87E-03	1.50E-01	1.50E-01
		860.37	4.48	-2.58E-01		1.20E+00
		2614.66	35.85	-4.18E-02		2.95E-01
+	BI-210M	262.00	45.00	-3.51E-02	5.45E-02	5.45E-02
		300.00	23.00	-2.74E-03		1.23E-01
+	PB-210	46.50	4.25	4.68E-01	7.24E-01	7.24E-01
+	PB-211	404.84	2.90	1.03E-01	1.08E+00	1.08E+00
		831.96	2.90	1.19E-01		1.53E+00
+	BI-212	727.17	11.80	-1.67E-01	3.89E-01	3.89E-01
		1620.62	2.75	3.48E-01		1.93E+00
+	PB-212	238.63	44.60	1.46E-02	5.93E-02	5.93E-02
		300.09	3.41	-1.85E-02		8.32E-01
+	BI-214	609.31	46.30	1.96E-02	9.02E-02	9.02E-02
		1120.29	15.10	8.42E-02		3.16E-01
		1764.49	15.80	1.18E-01		4.28E-01
		2204.22	4.98	1.22E-01		8.95E-01
+	PB-214	295.21	19.19	2.66E-02	8.23E-02	1.55E-01
		351.92	37.19	4.16E-02		8.23E-02
+	RN-219	401.80	6.50	-6.59E-02	4.50E-01	4.50E-01
+	RA-223	323.87	3.88	-3.08E-01	7.24E-01	7.24E-01
+	RA-224	240.98	3.95	3.55E-01	6.76E-01	6.76E-01
+	RA-225	40.00	31.00	-1.86E-02	1.05E-01	1.05E-01
+	RA-226	186.21	3.28	5.43E-01	7.79E-01	7.79E-01
+	TH-227	50.10	8.40	3.31E-02	2.12E-01	3.10E-01
		236.00	11.50	-2.08E-03		2.12E-01
		256.20	6.30	3.11E-01		4.71E-01
+	AC-228	338.32	11.40	2.57E-02	1.52E-01	2.51E-01
		911.07	27.70	-6.09E-02		1.52E-01
		969.11	16.60	1.02E-01		3.39E-01
+	TH-230	48.44	16.90	1.17E-01	1.74E-01	1.74E-01
		62.85	4.60	5.53E-01		5.57E-01
		67.67	0.37	-6.16E+00		5.50E+00
+	PA-231	283.67	1.60	-1.30E-01	1.14E+00	1.60E+00
		302.67	2.30	-1.19E-01		1.14E+00
+	TH-231	25.64	14.70	1.72E-01	3.00E-01	6.57E-01
		84.21	6.40	1.66E-01		3.00E-01
+	PA-233	311.98	38.60	-2.76E-02	7.51E-02	7.51E-02
+	PA-234	131.20	20.40	-4.01E-02	8.32E-02	8.32E-02
		733.99	8.80	1.73E-01		5.54E-01
		946.00	12.00	7.53E-02		3.97E-01
+	PA-234M	1001.03	0.92	8.11E-01	5.68E+00	5.68E+00
+	TH-234	63.29	3.80	6.67E-01	6.72E-01	6.72E-01
+	U-235	143.76	10.50	2.31E-02	1.87E-01	1.87E-01
		163.35	4.70	-8.86E-03		4.60E-01
		205.31	4.70	2.37E-01		5.19E-01

Analysis Report for 1707085-02

BLANK

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	NP-237	86.50	12.60	1.80E-03	1.55E-01	1.55E-01
+	NP-239	106.10	22.70	2.24E-03	8.39E-02	8.39E-02
		228.18	10.70	-2.72E-03		2.33E-01
		277.60	14.10	3.97E-02		2.00E-01
+	AM-241	59.54	35.90	2.41E-02	6.97E-02	6.97E-02
+	AM-243	74.67	66.00	1.68E-02	3.24E-02	3.24E-02
+	CM-243	209.75	3.29	-3.87E-01	1.90E-01	6.97E-01
		228.14	10.60	-2.58E-03		2.21E-01
		277.60	14.00	3.76E-02		1.90E-01

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

NUCLIDE MDA REPORT

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

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	3.62E-01	3.62E-01	-6.25E-02	1.63E-01
NA-22	1274.54	99.94	3.31E-02	3.31E-02	-2.49E-02	1.17E-02
NA-24	1368.53	99.99	7.18E-02	7.18E-02	1.27E-02	2.94E-02
	2754.09	99.86	9.44E-02		-1.02E-02	3.34E-02
AL-26	1808.65	99.76	4.57E-02	4.57E-02	-3.28E-03	1.62E-02
K-40	1460.81	10.67	5.98E-01	5.98E-01	-3.45E-02	2.48E-01
AR-41	1293.64	99.16	3.86E-01	3.86E-01	-6.68E-02	1.60E-01
TI-44	67.88	94.40	2.15E-02	2.05E-02	-2.41E-02	1.01E-02
	78.34	96.00	2.05E-02		3.20E-03	9.68E-03
SC-46	889.25	99.98	5.38E-02	4.78E-02	3.26E-02	2.34E-02
	1120.51	99.99	4.78E-02		1.27E-02	1.96E-02
V-48	983.52	99.98	6.42E-02	4.07E-02	-1.11E-03	2.82E-02
	1312.10	97.50	4.07E-02		-4.41E-02	1.52E-02
CR-51	320.08	9.83	3.27E-01	3.27E-01	7.63E-02	1.51E-01

Analysis Report for 1707085-02

BLANK

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	MN-54	834.83		99.97	4.44E-02	4.44E-02	-1.21E-02	1.89E-02
	CO-56	846.75		99.96	4.68E-02	4.68E-02	-5.28E-03	2.00E-02
		1037.75		14.03	3.85E-01		8.59E-02	1.64E-01
		1238.25		67.00	1.08E-01		3.68E-02	4.68E-02
		1771.40		15.51	4.38E-01		1.35E-01	1.77E-01
		2598.48		16.90	6.61E-01		-2.94E-02	2.71E-01
	CO-57	122.06		85.51	1.97E-02	1.97E-02	3.54E-03	9.14E-03
		136.48		10.60	1.83E-01		1.01E-01	8.59E-02
	CO-58	810.76		99.40	4.18E-02	4.18E-02	-1.13E-02	1.77E-02
	FE-59	1099.22		56.50	7.28E-02	7.28E-02	-3.89E-03	2.89E-02
		1291.56		43.20	1.39E-01		3.66E-02	5.84E-02
	CO-60	1173.22		100.00	6.45E-02	5.56E-02	1.70E-04	2.78E-02
		1332.49		100.00	5.56E-02		8.29E-03	2.28E-02
	ZN-65	1115.52		50.75	1.13E-01	1.13E-01	5.00E-02	4.82E-02
	GA-67	93.31		35.70	6.90E-02	6.90E-02	8.37E-02	3.29E-02
		208.95		2.24	1.08E+00		-1.92E-01	4.98E-01
		300.22		16.00	1.86E-01		-4.11E-03	8.50E-02
	SE-75	121.11		16.70	1.05E-01	3.09E-02	4.80E-02	4.90E-02
		136.00		59.20	3.09E-02		7.12E-04	1.44E-02
		264.65		59.80	4.51E-02		1.79E-02	2.08E-02
		279.53		25.20	9.35E-02		-6.57E-02	4.23E-02
		400.65		11.40	2.51E-01		-1.44E-02	1.11E-01
	RB-82	776.52		13.00	3.56E-01	3.56E-01	2.15E-02	1.54E-01
	RB-83	520.41		46.00	6.59E-02	6.59E-02	-5.58E-02	2.84E-02
		529.64		30.30	1.20E-01		-4.71E-02	5.30E-02
		552.65		16.40	2.32E-01		-1.41E-02	1.02E-01
	KR-85	513.99		0.43	1.30E+01	1.30E+01	1.05E+01	6.04E+00
	SR-85	513.99		99.27	5.72E-02	5.72E-02	4.61E-02	2.65E-02
	Y-88	898.02		93.40	5.81E-02	4.67E-02	2.41E-02	2.52E-02
		1836.01		99.38	4.67E-02		-2.60E-02	1.65E-02
	MO-93	263.06		56.72	4.29E-02	4.23E-02	-3.41E-02	1.96E-02
		684.67		99.68	4.23E-02		1.73E-02	1.84E-02
		1477.11		99.08	4.92E-02		1.37E-03	1.91E-02
	NB-93M	16.57		9.43	3.72E+00	3.72E+00	4.07E+00	1.77E+00
	NB-94	702.63		100.00	5.41E-02	5.12E-02	-7.92E-03	2.42E-02
		871.10		100.00	5.12E-02		9.26E-03	2.21E-02
	NB-95	765.79		99.81	5.10E-02	5.10E-02	1.40E-02	2.24E-02
	NB-95M	235.69		25.00	1.01E-01	1.01E-01	-9.93E-04	4.68E-02
	ZR-95	724.18		43.70	1.08E-01	7.89E-02	1.74E-03	4.72E-02
		756.72		55.30	7.89E-02		-3.43E-03	3.40E-02
	MO-99	181.06		6.20	3.53E-01	3.53E-01	-5.49E-01	1.64E-01
		739.58		12.80	4.04E-01		1.60E-01	1.78E-01
		778.00		4.50	1.01E+00		-4.72E-01	4.33E-01
	RU-103	497.08		89.00	3.66E-02	3.66E-02	-1.10E-02	1.60E-02
+	RU-106	621.84	*	9.80	5.66E-01	5.66E-01	2.68E-01	2.58E-01
	AG-108M	433.93		89.90	3.99E-02	3.99E-02	1.27E-02	1.80E-02
		614.37		90.40	4.44E-02		9.12E-03	1.94E-02
		722.95		90.50	5.18E-02		3.83E-03	2.27E-02
	CD-109	88.03		3.72	4.96E-01	4.96E-01	-2.31E-01	2.33E-01
	AG-110M	657.75		93.14	4.72E-02	4.72E-02	0.00E+00	2.08E-02
		677.61		10.53	3.73E-01		3.31E-02	1.61E-01
		706.67		16.46	3.13E-01		1.06E-01	1.39E-01
		763.93		21.98	2.13E-01		-5.13E-03	9.25E-02

Analysis Report for 1707085-02

BLANK

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
AG-110M	884.67	71.63	6.53E-02	4.72E-02	-1.98E-02	2.78E-02
	1384.27	23.94	1.49E-01		-3.73E-02	5.27E-02
CD-113M	263.70	0.02	1.08E+02	1.08E+02	-3.54E+01	4.97E+01
SN-113	255.12	1.93	1.53E+00	5.20E-02	9.88E-01	7.14E-01
	391.69	64.90	5.20E-02		3.45E-02	2.36E-02
TE123M	159.00	84.10	2.61E-02	2.61E-02	1.69E-02	1.22E-02
SB-124	602.71	97.87	4.61E-02	2.55E-02	-2.88E-03	2.05E-02
	645.85	7.26	5.17E-01		6.23E-02	2.23E-01
	722.78	11.10	4.23E-01		3.13E-02	1.85E-01
	1691.02	49.00	2.55E-02		0.00E+00	0.00E+00
I-125	35.49	6.49	6.11E-01	6.11E-01	1.40E-01	2.88E-01
SB-125	176.33	6.89	3.12E-01	1.13E-01	3.14E-02	1.45E-01
	427.89	29.33	1.13E-01		-3.04E-02	5.05E-02
	463.38	10.35	3.59E-01		1.73E-01	1.61E-01
	600.56	17.80	2.79E-01		1.20E-01	1.26E-01
	635.90	11.32	3.76E-01		-1.09E-01	1.65E-01
SB-126	414.70	83.30	3.36E-02	3.36E-02	-2.12E-02	1.48E-02
	666.33	99.60	5.13E-02		1.24E-02	2.29E-02
	695.00	99.60	5.04E-02		-2.54E-03	2.23E-02
	720.50	53.80	9.01E-02		1.34E-03	3.96E-02
SN-126	87.57	37.00	4.99E-02	4.99E-02	-2.32E-02	2.35E-02
SB-127	473.00	25.00	1.55E-01	1.23E-01	-2.25E-03	6.95E-02
	685.20	35.70	1.23E-01		5.01E-02	5.33E-02
	783.80	14.70	3.66E-01		8.52E-02	1.61E-01
I-129	29.78	57.00	9.81E-02	9.81E-02	-8.36E-02	4.61E-02
	33.60	13.20	3.22E-01		-1.10E-01	1.51E-01
	39.58	7.52	4.35E-01		-7.71E-02	2.04E-01
I-131	284.30	6.05	4.31E-01	3.75E-02	-3.52E-02	1.96E-01
	364.48	81.20	3.75E-02		1.56E-02	1.69E-02
	636.97	7.26	6.12E-01		-2.12E-01	2.70E-01
	722.89	1.80	2.65E+00		1.96E-01	1.16E+00
TE-132	49.72	13.10	2.09E-01	2.78E-02	2.23E-02	9.89E-02
	228.16	88.00	2.78E-02		-3.25E-04	1.28E-02
BA-133	81.00	33.00	5.72E-02	5.16E-02	-5.86E-03	2.69E-02
	302.84	17.80	1.47E-01		-1.54E-02	6.69E-02
	356.01	60.00	5.16E-02		3.29E-03	2.34E-02
I-133	529.87	86.30	4.98E-02	4.98E-02	-1.95E-02	2.20E-02
XE-133	81.00	38.00	5.11E-02	5.11E-02	-5.24E-03	2.41E-02
CS-134	563.23	8.38	4.16E-01	4.63E-02	9.43E-02	1.81E-01
	569.32	15.43	2.07E-01		-2.75E-02	8.88E-02
	604.70	97.60	4.63E-02		5.87E-03	2.06E-02
	795.84	85.40	6.00E-02		-3.12E-02	2.63E-02
	801.93	8.73	6.06E-01		0.00E+00	2.67E-01
CS-135	268.24	16.00	1.67E-01	1.67E-01	8.22E-04	7.70E-02
I-135	1131.51	22.50	3.83E-01	2.94E-01	3.42E-02	1.59E-01
	1260.41	28.60	2.94E-01		3.01E-02	1.19E-01
	1678.03	9.54	9.74E-01		-1.89E-01	3.77E-01
CS-136	153.22	7.46	2.73E-01	4.75E-02	2.37E-02	1.28E-01
	163.89	4.61	4.57E-01		-1.70E-01	2.13E-01
	176.55	13.56	1.68E-01		1.16E-01	7.83E-02
	273.65	12.66	2.18E-01		5.19E-02	1.00E-01
	340.57	48.50	6.34E-02		1.66E-02	2.88E-02
	818.50	99.70	4.75E-02		8.38E-03	2.04E-02

Analysis Report for 1707085-02

BLANK

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CS-136	1048.07		79.60	6.04E-02	4.75E-02	-1.26E-02	2.51E-02
		1235.34		19.70	3.46E-01		1.78E-02	1.49E-01
	CS-137	661.65		85.12	6.22E-02	6.22E-02	2.02E-02	2.80E-02
	LA-138	788.74		34.00	1.64E-01	5.57E-02	3.61E-02	7.28E-02
		1435.80		66.00	5.57E-02		4.00E-03	1.97E-02
	CE-139	165.85		80.35	2.58E-02	2.58E-02	-5.50E-03	1.20E-02
	BA-140	162.64		6.70	3.26E-01	1.53E-01	-6.27E-03	1.52E-01
		304.84		4.50	5.69E-01		-3.83E-01	2.57E-01
		423.70		3.20	1.02E+00		-3.98E-01	4.54E-01
		437.55		2.00	1.55E+00		-3.23E-01	6.85E-01
		537.32		25.00	1.53E-01		-1.10E-02	6.75E-02
	LA-140	328.77		20.50	1.45E-01	6.05E-02	3.41E-02	6.58E-02
		487.03		45.50	7.07E-02		-1.94E-02	3.10E-02
		815.85		23.50	1.72E-01		-2.81E-02	7.20E-02
		1596.49		95.49	6.05E-02		2.31E-02	2.40E-02
	CE-141	145.44		48.40	4.05E-02	4.05E-02	-7.28E-03	1.89E-02
	CE-143	57.36		11.80	1.96E-01	7.58E-02	-7.45E-02	9.20E-02
		293.26		42.00	7.58E-02		1.03E-02	3.48E-02
		664.55		5.20	1.14E+00		3.04E-01	5.11E-01
	CE-144	133.54		10.80	1.59E-01	1.59E-01	-6.80E-02	7.36E-02
	PM-144	476.78		42.00	9.25E-02	4.20E-02	-6.65E-04	4.17E-02
		618.01		98.60	4.20E-02		1.14E-03	1.85E-02
		696.49		99.49	5.68E-02		3.95E-02	2.56E-02
	PM-145	36.85		21.70	1.69E-01	9.03E-02	-6.08E-03	7.95E-02
		37.36		39.70	9.03E-02		-3.24E-03	4.24E-02
		42.30		15.10	1.97E-01		-2.67E-01	9.24E-02
		72.40		2.31	9.25E-01		2.95E-01	4.38E-01
	PM-146	453.90		39.94	8.95E-02	8.95E-02	1.13E-02	4.02E-02
		735.90		14.01	3.31E-01		9.86E-02	1.45E-01
		747.13		13.10	3.78E-01		3.84E-02	1.66E-01
+	ND-147	91.11	*	28.90	7.60E-02	7.60E-02	2.23E-02	3.61E-02
		531.02		13.10	2.95E-01		-7.59E-03	1.31E-01
	PM-149	285.90		3.10	9.31E-01	9.31E-01	3.92E-01	4.26E-01
	EU-152	121.78		20.50	8.19E-02	8.19E-02	1.47E-02	3.81E-02
		244.69		5.40	4.72E-01		8.02E-02	2.18E-01
		344.27		19.13	1.59E-01		1.61E-02	7.21E-02
		778.89		9.20	4.70E-01		-2.13E-01	2.01E-01
		964.01		10.40	4.46E-01		-5.36E-02	1.87E-01
		1085.78		7.22	6.43E-01		1.07E-01	2.64E-01
		1112.02		9.60	5.22E-01		-1.32E-01	2.16E-01
		1407.95		14.94	4.34E-01		2.03E-01	1.82E-01
	GD-153	97.43		31.30	6.31E-02	6.31E-02	6.51E-03	2.98E-02
		103.18		22.20	8.11E-02		1.19E-02	3.81E-02
	EU-154	123.07		40.50	4.32E-02	4.32E-02	9.31E-03	2.02E-02
		723.30		19.70	2.38E-01		3.84E-03	1.04E-01
		873.19		11.50	3.69E-01		-6.28E-02	1.55E-01
		996.32		10.30	6.09E-01		2.70E-01	2.67E-01
		1004.76		17.90	2.69E-01		-1.02E-01	1.13E-01
		1274.45		35.50	9.31E-02		-7.02E-02	3.30E-02
	EU-155	86.50		30.90	6.33E-02	6.33E-02	7.32E-04	2.99E-02
		105.30		20.70	8.47E-02		-5.18E-03	3.97E-02
	EU-156	811.77		10.40	3.67E-01	3.67E-01	-3.00E-01	1.52E-01
		1153.47		7.20	6.87E-01		4.57E-02	2.81E-01

Analysis Report for 1707085-02

BLANK

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
EU-156	1230.71	8.90	6.82E-01	3.67E-01	7.05E-02	2.88E-01
HO-166M	184.41	72.60	3.47E-02	3.47E-02	2.15E-02	1.63E-02
	280.45	29.60	8.21E-02		-2.67E-02	3.73E-02
	410.94	11.10	2.34E-01		-2.23E-01	1.02E-01
	711.69	54.10	8.31E-02		-2.39E-02	3.63E-02
TM-171	66.72	0.14	1.52E+01	1.52E+01	-1.42E+01	7.19E+00
HF-172	67.35	5.31	4.00E-01	1.69E-01	-3.73E-01	1.89E-01
	125.81	11.30	1.69E-01		6.16E-02	7.94E-02
LU-172	181.53	20.60	1.12E-01	6.11E-02	-5.01E-02	5.24E-02
	900.72	29.81	1.81E-01		9.95E-02	7.82E-02
	1093.66	62.50	6.11E-02		5.09E-03	2.37E-02
LU-173	100.72	5.24	3.46E-01	1.27E-01	1.46E-02	1.63E-01
	272.11	21.20	1.27E-01		-2.55E-02	5.83E-02
HF-175	343.40	84.00	3.61E-02	3.61E-02	3.66E-03	1.64E-02
LU-176	88.34	13.30	1.39E-01	2.79E-02	-6.47E-02	6.53E-02
	201.83	86.00	2.79E-02		-6.36E-03	1.30E-02
	306.78	94.00	2.90E-02		-1.37E-05	1.32E-02
HF-181	133.02	41.70	4.08E-02	4.01E-02	-1.05E-02	1.89E-02
	345.85	17.20	1.78E-01		5.43E-03	8.08E-02
	482.03	82.80	4.01E-02		-9.58E-03	1.77E-02
TA-182	67.75	41.20	4.94E-02	4.94E-02	-5.54E-02	2.33E-02
	1121.30	34.90	1.37E-01		2.22E-02	5.62E-02
	1189.05	16.23	3.75E-01		-5.01E-02	1.59E-01
	1221.41	26.98	1.53E-01		-1.27E-02	5.92E-02
	1231.02	11.44	5.48E-01		4.49E-02	2.33E-01
IR-192	308.46	29.68	9.62E-02	6.83E-02	1.92E-02	4.40E-02
	468.07	48.10	6.83E-02		-3.36E-02	3.02E-02
HG-203	279.19	77.30	3.18E-02	3.18E-02	-9.53E-03	1.45E-02
TL-204	374.74	94.11	3.42E-02	3.42E-02	4.94E-03	1.55E-02
	899.15	99.16	4.97E-02		3.52E-03	2.13E-02
	911.74	91.10	4.85E-02		6.14E-03	2.03E-02
BI-207	569.67	97.72	3.28E-02	3.28E-02	-4.35E-03	1.40E-02
	1063.62	74.90	6.76E-02		3.65E-02	2.83E-02
TL-208	583.14	30.22	1.50E-01	1.50E-01	-8.87E-03	6.70E-02
	860.37	4.48	1.20E+00		-2.58E-01	5.22E-01
	2614.66	35.85	2.95E-01		-4.18E-02	1.19E-01
BI-210M	262.00	45.00	5.45E-02	5.45E-02	-3.51E-02	2.49E-02
	300.00	23.00	1.23E-01		-2.74E-03	5.65E-02
PB-210	46.50	4.25	7.24E-01	7.24E-01	4.68E-01	3.44E-01
PB-211	404.84	2.90	1.08E+00	1.08E+00	1.03E-01	4.82E-01
	831.96	2.90	1.53E+00		1.19E-01	6.49E-01
BI-212	727.17	11.80	3.89E-01	3.89E-01	-1.67E-01	1.70E-01
	1620.62	2.75	1.93E+00		3.48E-01	7.48E-01
PB-212	238.63	44.60	5.93E-02	5.93E-02	1.46E-02	2.75E-02
	300.09	3.41	8.32E-01		-1.85E-02	3.81E-01
BI-214	609.31	46.30	9.02E-02	9.02E-02	1.96E-02	3.98E-02
	1120.29	15.10	3.16E-01		8.42E-02	1.30E-01
	1764.49	15.80	4.28E-01		1.18E-01	1.73E-01
	2204.22	4.98	8.95E-01		1.22E-01	2.83E-01
PB-214	295.21	19.19	1.55E-01	8.23E-02	2.66E-02	7.14E-02
	351.92	37.19	8.23E-02		4.16E-02	3.74E-02
RN-219	401.80	6.50	4.50E-01	4.50E-01	-6.59E-02	2.00E-01
RA-223	323.87	3.88	7.24E-01	7.24E-01	-3.08E-01	3.29E-01

Analysis Report for 1707085-02

BLANK

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
RA-224	240.98	3.95	6.76E-01	6.76E-01	3.55E-01	3.14E-01
RA-225	40.00	31.00	1.05E-01	1.05E-01	-1.86E-02	4.93E-02
RA-226	186.21	3.28	7.79E-01	7.79E-01	5.43E-01	3.66E-01
TH-227	50.10	8.40	3.10E-01	2.12E-01	3.31E-02	1.46E-01
	236.00	11.50	2.12E-01		-2.08E-03	9.78E-02
	256.20	6.30	4.71E-01		3.11E-01	2.19E-01
AC-228	338.32	11.40	2.51E-01	1.52E-01	2.57E-02	1.13E-01
	911.07	27.70	1.52E-01		-6.09E-02	6.29E-02
	969.11	16.60	3.39E-01		1.02E-01	1.47E-01
TH-230	48.44	16.90	1.74E-01	1.74E-01	1.17E-01	8.25E-02
	62.85	4.60	5.57E-01		5.53E-01	2.65E-01
	67.67	0.37	5.50E+00		-6.16E+00	2.59E+00
PA-231	283.67	1.60	1.60E+00	1.14E+00	-1.30E-01	7.28E-01
	302.67	2.30	1.14E+00		-1.19E-01	5.18E-01
TH-231	25.64	14.70	6.57E-01	3.00E-01	1.72E-01	3.12E-01
	84.21	6.40	3.00E-01		1.66E-01	1.41E-01
PA-233	311.98	38.60	7.51E-02	7.51E-02	-2.76E-02	3.43E-02
PA-234	131.20	20.40	8.32E-02	8.32E-02	-4.01E-02	3.86E-02
	733.99	8.80	5.54E-01		1.73E-01	2.44E-01
	946.00	12.00	3.97E-01		7.53E-02	1.68E-01
PA-234M	1001.03	0.92	5.68E+00	5.68E+00	8.11E-01	2.41E+00
TH-234	63.29	3.80	6.72E-01	6.72E-01	6.67E-01	3.20E-01
U-235	143.76	10.50	1.87E-01	1.87E-01	2.31E-02	8.74E-02
	163.35	4.70	4.60E-01		-8.86E-03	2.15E-01
	205.31	4.70	5.19E-01		2.37E-01	2.42E-01
NP-237	86.50	12.60	1.55E-01	1.55E-01	1.80E-03	7.32E-02
NP-239	106.10	22.70	8.39E-02	8.39E-02	2.24E-03	3.93E-02
	228.18	10.70	2.33E-01		-2.72E-03	1.07E-01
	277.60	14.10	2.00E-01		3.97E-02	9.18E-02
AM-241	59.54	35.90	6.97E-02	6.97E-02	2.41E-02	3.31E-02
AM-243	74.67	66.00	3.24E-02	3.24E-02	1.68E-02	1.53E-02
CM-243	209.75	3.29	6.97E-01	1.90E-01	-3.87E-01	3.23E-01
	228.14	10.60	2.21E-01		-2.58E-03	1.02E-01
	277.60	14.00	1.90E-01		3.76E-02	8.69E-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 1707085-02

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: 3618

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	2	26
17:	41	33	23	24	26	20	20	24
25:	25	15	8	17	14	8	11	12
33:	11	15	11	12	14	10	10	13
41:	12	12	11	15	27	27	17	11
49:	8	11	12	11	7	11	5	13
57:	16	10	16	13	18	36	27	17
65:	11	11	10	9	15	19	16	8
73:	17	24	19	12	14	10	6	10
81:	7	18	23	8	14	12	11	10
89:	18	12	22	36	21	21	12	8
97:	12	14	9	12	8	15	10	14
105:	10	8	8	11	11	7	14	18
113:	10	5	8	7	13	7	9	10
121:	12	9	6	7	12	19	8	16
129:	6	7	6	6	8	16	7	7
137:	11	9	15	7	9	9	11	15
145:	12	7	6	8	14	11	10	11
153:	5	10	7	9	12	16	9	11
161:	13	8	5	12	14	3	12	10
169:	5	13	6	5	13	7	8	8
177:	10	12	11	4	8	3	8	21
185:	21	9	12	9	7	10	13	11
193:	10	6	11	10	16	14	3	5
201:	9	9	12	11	7	9	6	9
209:	7	9	7	6	7	16	7	3
217:	10	7	4	11	8	9	4	2
225:	6	8	9	15	1	6	11	3
233:	14	2	5	6	7	11	10	10
241:	7	8	3	5	5	6	15	9
249:	5	6	6	6	11	13	2	12
257:	12	6	4	5	6	5	4	9
265:	5	6	12	6	4	3	6	9
273:	6	10	7	4	5	6	5	4
281:	3	4	6	7	6	6	6	5
289:	3	5	8	3	7	7	10	8
297:	3	6	8	6	4	5	1	7
305:	2	8	3	9	5	3	8	5
313:	5	3	7	9	6	5	8	4
321:	7	6	5	6	4	1	6	7
329:	5	5	7	2	3	8	2	3
337:	5	4	7	2	5	5	7	6
345:	4	5	1	6	6	5	6	5
353:	3	2	3	9	4	7	5	2
361:	2	2	5	6	5	3	6	2

369:	1	4	5	5	5	4	5	3

Sample Title: BLANK

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

801:	3	3	0	3	1	3	1	2

Sample Title: BLANK

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

1233:	1	3	2	2	2	2	0	1

Sample Title: BLANK

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

1665:	0	0	0	0	1	0	0	0

Sample Title: BLANK

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

2097:	1	2	1	0	0	1	0	1

Sample Title: BLANK

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

2529:	1	1	0	0	1	1	2	0

Sample Title: BLANK

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

2961:	0	0	0	0	0	0	0	0

Sample Title: BLANK

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

3393:	0	0	1	0	0	0	1	0

Sample Title: BLANK

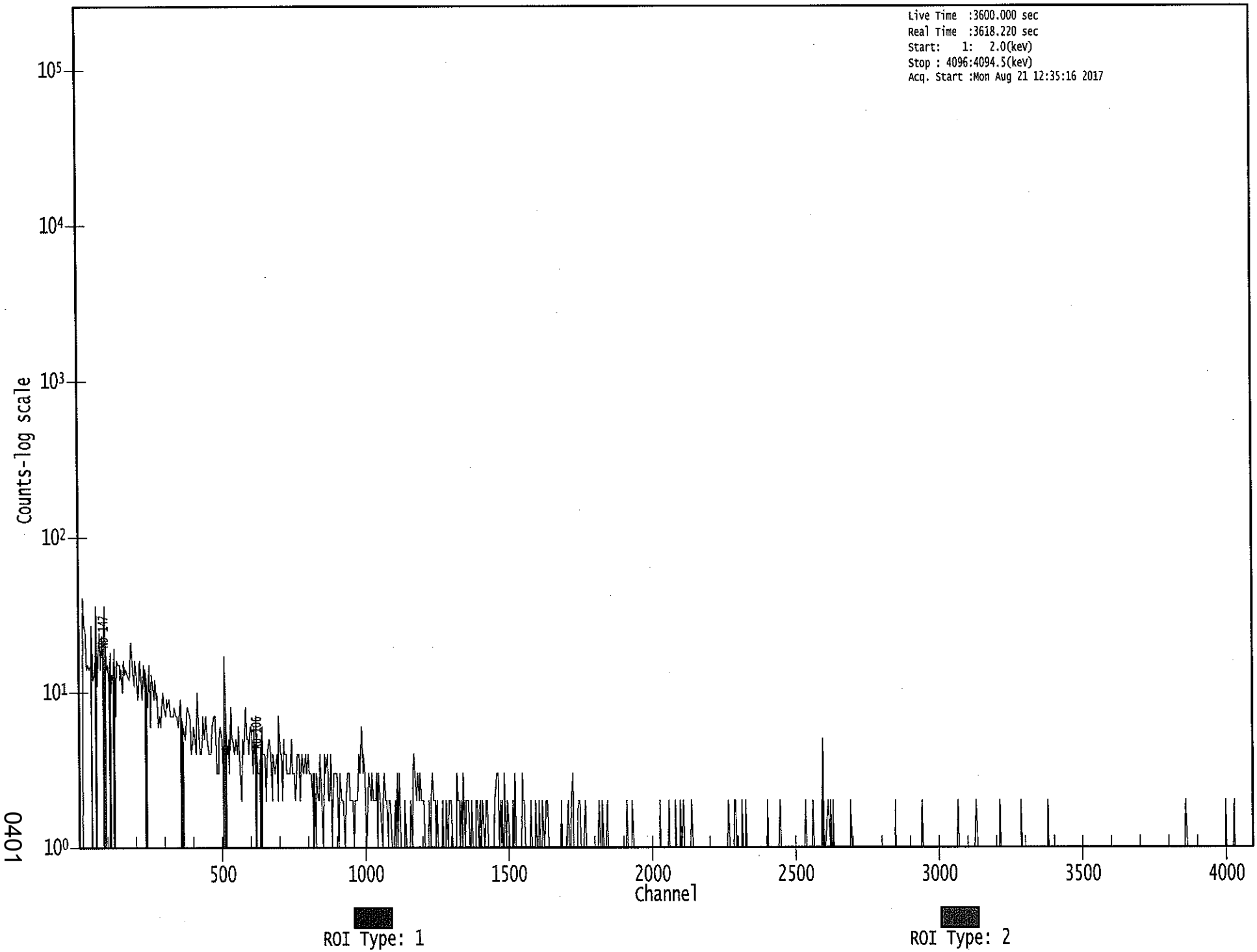
Channel								
3401:	0	0	0	0	0	0	1	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	1	1	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	1	0	0	0	0	0	0	0
3449:	0	0	1	0	0	0	0	1
3457:	0	0	0	1	0	0	0	0
3465:	0	0	1	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	1	0	0	0	1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

3825:	0	0	0	0	0	0	0	1

Sample Title: BLANK

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

0000055642.CNF



0401

Apex-Gamma

8/21

Analysis Report for 1707085-03

HTC-A02-S002-2430-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707085-03
Sample Description	: HTC-A02-S002-2430-01
Sample Type	: SOIL
Sample Size	: 5.704E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 8:04:33AM
Acquisition Started	: 8/21/2017 8:10:58AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3613.9 seconds
Dead Time	: 0.39 %
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	: 55604

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/22/17

Analysis Report for 1707085-03

HTC-A02-S002-2430-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 9:11:37AM
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	46.72	45.76	0.0000	0.00
2	76.23	75.29	0.0000	0.00
3	87.44	86.50	0.0000	0.00
4	92.54	91.60	0.0000	0.00
5	154.98	154.06	0.0000	0.00
6	186.30	185.39	0.0000	0.00
7	197.20	196.30	0.0000	0.00
8	209.07	208.17	0.0000	0.00
9	234.10	233.21	0.0000	0.00
10	238.68	237.79	0.0000	0.00
11	241.94	241.05	0.0000	0.00
12	262.61	261.72	0.0000	0.00
13	271.03	270.15	0.0000	0.00
14	295.08	294.21	0.0000	0.00
15	300.63	299.76	0.0000	0.00
16	338.96	338.10	0.0000	0.00
17	352.17	351.31	0.0000	0.00
18	511.01	510.21	0.0000	0.00
19	582.98	582.21	0.0000	0.00
20	609.21	608.45	0.0000	0.00
21	664.43	663.69	0.0000	0.00
22	670.54	669.81	0.0000	0.00
23	727.41	726.70	0.0000	0.00
24	799.38	798.70	0.0000	0.00
25	860.14	859.49	0.0000	0.00
26	890.79	890.14	0.0000	0.00
27	911.11	910.48	0.0000	0.00
28	919.12	918.49	0.0000	0.00
29	967.53	966.92	0.0000	0.00
30	988.57	987.97	0.0000	0.00
31	1015.88	1015.29	0.0000	0.00
32	1021.54	1020.95	0.0000	0.00
33	1102.49	1101.94	0.0000	0.00
34	1113.80	1113.25	0.0000	0.00
35	1120.47	1119.93	0.0000	0.00
36	1139.44	1138.90	0.0000	0.00
37	1172.14	1171.62	0.0000	0.00
38	1199.51	1199.00	0.0000	0.00
39	1349.69	1349.26	0.0000	0.00
40	1424.65	1424.25	0.0000	0.00
41	1460.68	1460.30	0.0000	0.00
42	1508.37	1508.01	0.0000	0.00

Analysis Report for 1707085-03

HTC-A02-S002-2430-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1591.68	1591.38	0.0000	0.00
44	1603.17	1602.87	0.0000	0.00
45	1622.29	1622.00	0.0000	0.00
46	1727.19	1726.96	0.0000	0.00
47	1764.49	1764.27	0.0000	0.00
48	2102.80	2102.79	0.0000	0.00
49	2268.43	2268.52	0.0000	0.00
50	2351.75	2351.89	0.0000	0.00
51	2614.16	2614.47	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707085-03

HTC-A02-S002-2430-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 9:11:37AM

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	46.72	42 -	49	45.76	1.08E+02	84.14	1.11E+03	1.68
	2	76.23	70 -	79	75.29	9.67E+02	140.86	2.27E+03	3.79
M	3	87.44	81 -	101	86.50	2.72E+02	126.23	2.02E+03	3.52
m	4	92.54	81 -	101	91.60	3.59E+02	126.03	1.72E+03	3.53
	5	154.98	151 -	157	154.06	7.33E+01	64.55	6.99E+02	3.61
	6	186.30	180 -	189	185.39	1.05E+02	86.64	1.01E+03	2.15
	7	197.20	193 -	200	196.30	7.22E+01	64.16	6.42E+02	3.63
	8	209.07	203 -	213	208.17	1.27E+02	81.48	8.12E+02	3.04
M	9	234.10	232 -	245	233.21	4.66E+01	26.64	1.85E+02	2.32
m	10	238.68	232 -	245	237.79	6.61E+02	71.23	4.16E+02	2.33
m	11	241.94	232 -	245	241.05	1.15E+02	66.01	3.98E+02	2.33
	12	262.61	257 -	266	261.72	5.08E+01	62.40	5.20E+02	7.39
	13	271.03	267 -	274	270.15	7.66E+01	51.38	3.91E+02	3.27
	14	295.08	290 -	297	294.21	1.88E+02	54.74	4.01E+02	2.10
	15	300.63	298 -	304	299.76	3.46E+01	43.30	3.17E+02	2.29
	16	338.96	332 -	344	338.10	1.61E+02	68.27	4.67E+02	2.56
	17	352.17	346 -	356	351.31	2.93E+02	65.60	4.16E+02	2.14
	18	511.01	506 -	514	510.21	1.16E+02	38.58	1.57E+02	3.73
	19	582.98	577 -	589	582.21	1.33E+02	55.00	2.97E+02	2.61
	20	609.21	604 -	614	608.45	2.06E+02	46.84	1.86E+02	2.54
M	21	664.43	662 -	675	663.69	1.41E+01	15.87	5.20E+01	2.64
m	22	670.54	662 -	675	669.81	2.22E+01	36.99	1.56E+02	4.15
	23	727.41	721 -	731	726.70	3.08E+01	37.79	1.68E+02	2.16
	24	799.38	791 -	807	798.70	5.60E+01	43.83	1.62E+02	12.53
	25	860.14	854 -	862	859.49	2.17E+01	26.48	9.45E+01	1.86
	26	890.79	888 -	892	890.14	1.60E+01	15.16	3.59E+01	1.17
M	27	911.11	906 -	922	910.48	1.08E+02	29.17	5.76E+01	2.94
m	28	919.12	906 -	922	918.49	2.50E+01	21.52	4.01E+01	2.95
	29	967.53	961 -	972	966.92	9.02E+01	32.86	8.97E+01	2.15
	30	988.57	985 -	991	987.97	1.81E+01	15.95	2.98E+01	3.71
	31	1015.88	1012 -	1018	1015.29	2.30E+01	15.68	2.80E+01	3.75
	32	1021.54	1019 -	1024	1020.95	1.29E+01	15.36	3.83E+01	2.73
	33	1102.49	1098 -	1105	1101.94	3.12E+01	19.70	4.37E+01	2.33
M	34	1113.80	1111 -	1130	1113.25	1.55E+01	15.10	5.84E+01	2.75
m	35	1120.47	1111 -	1130	1119.93	2.27E+01	25.30	8.48E+01	2.75
	36	1139.44	1137 -	1141	1138.90	1.56E+01	14.19	2.88E+01	2.00
	37	1172.14	1169 -	1175	1171.62	1.52E+01	17.76	4.76E+01	3.56
	38	1199.51	1197 -	1201	1199.00	1.75E+01	15.08	3.50E+01	1.74
	39	1349.69	1342 -	1355	1349.26	2.16E+01	25.55	6.29E+01	0.92
	40	1424.65	1421 -	1428	1424.25	1.10E+01	11.83	1.60E+01	2.73

Analysis Report for 1707085-03

HTC-A02-S002-2430-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1460.68	1455 -	1465	1460.30	4.24E+02	44.06	3.25E+01	2.59
42	1508.37	1505 -	1511	1508.01	8.56E+00	11.19	1.49E+01	2.73
43	1591.68	1585 -	1597	1591.38	1.95E+01	13.73	1.30E+01	6.48
44	1603.17	1598 -	1609	1602.87	1.00E+01	11.66	1.20E+01	6.58
45	1622.29	1619 -	1626	1622.00	9.36E+00	9.38	9.29E+00	3.35
46	1727.19	1719 -	1733	1726.96	1.72E+01	11.84	7.57E+00	1.15
47	1764.49	1759 -	1769	1764.27	3.30E+01	11.49	0.00E+00	2.10
48	2102.80	2098 -	2106	2102.79	1.40E+01	7.48	0.00E+00	4.30
49	2268.43	2265 -	2272	2268.52	6.31E+00	6.93	3.38E+00	1.42
50	2351.75	2347 -	2355	2351.89	9.00E+00	6.00	0.00E+00	3.22
51	2614.16	2610 -	2621	2614.47	5.50E+01	14.83	0.00E+00	3.16

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 : 8/21/2017 9:11:37AM

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	46.72	42 -	49	1.08E+02	84.14	1.11E+03	6.70E+01
	2	76.23	70 -	79	9.67E+02	140.86	2.27E+03	1.04E+02
M	3	87.44	81 -	101	2.72E+02	126.23	2.02E+03	7.39E+01
m	4	92.54	81 -	101	3.59E+02	126.03	1.72E+03	6.83E+01
	5	154.98	151 -	157	7.33E+01	64.55	6.99E+02	5.12E+01
	6	186.30	180 -	189	1.05E+02	86.64	1.01E+03	6.92E+01
	7	197.20	193 -	200	7.22E+01	64.16	6.42E+02	5.09E+01
	8	209.07	203 -	213	1.27E+02	81.48	8.12E+02	6.44E+01
M	9	234.10	232 -	245	4.66E+01	26.64	1.85E+02	2.24E+01
m	10	238.68	232 -	245	6.61E+02	71.23	4.16E+02	3.35E+01
m	11	241.94	232 -	245	1.15E+02	66.01	3.98E+02	3.28E+01
	12	262.61	257 -	266	5.08E+01	62.40	5.20E+02	4.99E+01
	13	271.03	267 -	274	7.66E+01	51.38	3.91E+02	3.97E+01
	14	295.08	290 -	297	1.88E+02	54.74	4.01E+02	5.22E+01
	15	300.63	298 -	304	3.46E+01	43.30	3.17E+02	3.43E+01
	16	338.96	332 -	344	1.61E+02	68.27	4.67E+02	5.21E+01
	17	352.17	346 -	356	2.93E+02	65.60	4.16E+02	4.60E+01

Analysis Report for 1707085-03

HTC-A02-S002-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	18	511.01	506 -	514	1.16E+02	38.58	1.57E+02	2.63E+01
	19	582.98	577 -	589	1.33E+02	55.00	2.97E+02	4.11E+01
	20	609.21	604 -	614	2.06E+02	46.84	1.86E+02	3.04E+01
M	21	664.43	662 -	675	1.41E+01	15.87	5.20E+01	1.19E+01
m	22	670.54	662 -	675	2.22E+01	36.99	1.56E+02	2.05E+01
	23	727.41	721 -	731	3.08E+01	37.79	1.68E+02	2.97E+01
	24	799.38	791 -	807	5.60E+01	43.83	1.62E+02	3.39E+01
	25	860.14	854 -	862	2.17E+01	26.48	9.45E+01	2.04E+01
	26	890.79	888 -	892	1.60E+01	15.16	3.59E+01	1.06E+01
M	27	911.11	906 -	922	1.08E+02	29.17	5.76E+01	1.25E+01
m	28	919.12	906 -	922	2.50E+01	21.52	4.01E+01	1.04E+01
	29	967.53	961 -	972	9.02E+01	32.86	8.97E+01	2.20E+01
	30	988.57	985 -	991	1.81E+01	15.95	2.98E+01	1.11E+01
	31	1015.88	1012 -	1018	2.30E+01	15.68	2.80E+01	1.02E+01
	32	1021.54	1019 -	1024	1.29E+01	15.36	3.83E+01	1.12E+01
	33	1102.49	1098 -	1105	3.12E+01	19.70	4.37E+01	1.33E+01
M	34	1113.80	1111 -	1130	1.55E+01	15.10	5.84E+01	1.26E+01
m	35	1120.47	1111 -	1130	2.27E+01	25.30	8.48E+01	1.51E+01
	36	1139.44	1137 -	1141	1.56E+01	14.19	2.88E+01	9.69E+00
	37	1172.14	1169 -	1175	1.52E+01	17.76	4.76E+01	1.31E+01
	38	1199.51	1197 -	1201	1.75E+01	15.08	3.50E+01	1.03E+01
	39	1349.69	1342 -	1355	2.16E+01	25.55	6.29E+01	1.96E+01
	40	1424.65	1421 -	1428	1.10E+01	11.83	1.60E+01	8.05E+00
	41	1460.68	1455 -	1465	4.24E+02	44.06	3.25E+01	1.29E+01
	42	1508.37	1505 -	1511	8.56E+00	11.19	1.49E+01	7.84E+00
	43	1591.68	1585 -	1597	1.95E+01	13.73	1.30E+01	8.64E+00
	44	1603.17	1598 -	1609	1.00E+01	11.66	1.20E+01	8.05E+00
	45	1622.29	1619 -	1626	9.36E+00	9.38	9.29E+00	5.85E+00
	46	1727.19	1719 -	1733	1.72E+01	11.84	7.57E+00	6.95E+00
	47	1764.49	1759 -	1769	3.30E+01	11.49	0.00E+00	0.00E+00
	48	2102.80	2098 -	2106	1.40E+01	7.48	0.00E+00	0.00E+00
	49	2268.43	2265 -	2272	6.31E+00	6.93	3.38E+00	3.92E+00
	50	2351.75	2347 -	2355	9.00E+00	6.00	0.00E+00	0.00E+00
	51	2614.16	2610 -	2621	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

Analysis Report for 1707085-03

HTC-A02-S002-2430-01

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/21/2017 9:11:37AM

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	46.72	42 -	49	45.76	1.08E+02	84.14	1.11E+03	PB-210
	2	76.23	70 -	79	75.29	9.67E+02	140.86	2.27E+03	.....
M	3	87.44	81 -	101	86.50	2.72E+02	126.23	2.02E+03	SN-126
									CD-109
									LU-176
									NP-237
									EU-155
m	4	92.54	81 -	101	91.60	3.59E+02	126.03	1.72E+03	GA-67
	5	154.98	151 -	157	154.06	7.33E+01	64.55	6.99E+02	.....
	6	186.30	180 -	189	185.39	1.05E+02	86.64	1.01E+03	RA-226
	7	197.20	193 -	200	196.30	7.22E+01	64.16	6.42E+02	.....
	8	209.07	203 -	213	208.17	1.27E+02	81.48	8.12E+02	GA-67
									CM-243
M	9	234.10	232 -	245	233.21	4.66E+01	26.64	1.85E+02	.....
m	10	238.68	232 -	245	237.79	6.61E+02	71.23	4.16E+02	PB-212
m	11	241.94	232 -	245	241.05	1.15E+02	66.01	3.98E+02	RA-224
	12	262.61	257 -	266	261.72	5.08E+01	62.40	5.20E+02	MO-93
									BI-210M
	13	271.03	267 -	274	270.15	7.66E+01	51.38	3.91E+02	.....
	14	295.08	290 -	297	294.21	1.88E+02	54.74	4.01E+02	PB-214
	15	300.63	298 -	304	299.76	3.46E+01	43.30	3.17E+02	GA-67
									PB-212
									BI-210M
	16	338.96	332 -	344	338.10	1.61E+02	68.27	4.67E+02	AC-228
	17	352.17	346 -	356	351.31	2.93E+02	65.60	4.16E+02	PB-214
	18	511.01	506 -	514	510.21	1.16E+02	38.58	1.57E+02	.....
	19	582.98	577 -	589	582.21	1.33E+02	55.00	2.97E+02	TL-208
	20	609.21	604 -	614	608.45	2.06E+02	46.84	1.86E+02	BI-214
M	21	664.43	662 -	675	663.69	1.41E+01	15.87	5.20E+01	CE-143
m	22	670.54	662 -	675	669.81	2.22E+01	36.99	1.56E+02	.....
	23	727.41	721 -	731	726.70	3.08E+01	37.79	1.68E+02	BI-212
	24	799.38	791 -	807	798.70	5.60E+01	43.83	1.62E+02	.....
	25	860.14	854 -	862	859.49	2.17E+01	26.48	9.45E+01	TL-208
	26	890.79	888 -	892	890.14	1.60E+01	15.16	3.59E+01	.....
M	27	911.11	906 -	922	910.48	1.08E+02	29.17	5.76E+01	AC-228
									TL-204
m	28	919.12	906 -	922	918.49	2.50E+01	21.52	4.01E+01	.....
	29	967.53	961 -	972	966.92	9.02E+01	32.86	8.97E+01	.....
	30	988.57	985 -	991	987.97	1.81E+01	15.95	2.98E+01	.....
	31	1015.88	1012 -	1018	1015.29	2.30E+01	15.68	2.80E+01	.....
	32	1021.54	1019 -	1024	1020.95	1.29E+01	15.36	3.83E+01	.....

Analysis Report for 1707085-03

HTC-A02-S002-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	33	1102.49	1098 -	1105	1101.94	3.12E+01	19.70	4.37E+01	.....
M	34	1113.80	1111 -	1130	1113.25	1.55E+01	15.10	5.84E+01	.....
m	35	1120.47	1111 -	1130	1119.93	2.27E+01	25.30	8.48E+01	SC-46 BI-214 TA-182
	36	1139.44	1137 -	1141	1138.90	1.56E+01	14.19	2.88E+01	.....
	37	1172.14	1169 -	1175	1171.62	1.52E+01	17.76	4.76E+01	.....
	38	1199.51	1197 -	1201	1199.00	1.75E+01	15.08	3.50E+01	.....
	39	1349.69	1342 -	1355	1349.26	2.16E+01	25.55	6.29E+01	.....
	40	1424.65	1421 -	1428	1424.25	1.10E+01	11.83	1.60E+01	.....
	41	1460.68	1455 -	1465	1460.30	4.24E+02	44.06	3.25E+01	K-40
	42	1508.37	1505 -	1511	1508.01	8.56E+00	11.19	1.49E+01	.....
	43	1591.68	1585 -	1597	1591.38	1.95E+01	13.73	1.30E+01	.....
	44	1603.17	1598 -	1609	1602.87	1.00E+01	11.66	1.20E+01	.....
	45	1622.29	1619 -	1626	1622.00	9.36E+00	9.38	9.29E+00	.....
	46	1727.19	1719 -	1733	1726.96	1.72E+01	11.84	7.57E+00	.....
	47	1764.49	1759 -	1769	1764.27	3.30E+01	11.49	0.00E+00	BI-214
	48	2102.80	2098 -	2106	2102.79	1.40E+01	7.48	0.00E+00	.....
	49	2268.43	2265 -	2272	2268.52	6.31E+00	6.93	3.38E+00	.....
	50	2351.75	2347 -	2355	2351.89	9.00E+00	6.00	0.00E+00	.....
	51	2614.16	2610 -	2621	2614.47	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 : 8/21/2017 9:11:37AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.72	1.08E+02	84.14	1.65E-02	1.56E-03
	2	76.23	9.67E+02	140.86	2.32E-02	1.91E-03
M	3	87.44	2.72E+02	126.23	2.37E-02	2.15E-03
m	4	92.54	3.59E+02	126.03	2.37E-02	2.10E-03
	5	154.98	7.33E+01	64.55	1.94E-02	1.53E-03
	6	186.30	1.05E+02	86.64	1.69E-02	1.40E-03
	7	197.20	7.22E+01	64.16	1.61E-02	1.34E-03
	8	209.07	1.27E+02	81.48	1.53E-02	1.29E-03
M	9	234.10	4.66E+01	26.64	1.38E-02	1.16E-03

Analysis Report for 1707085-03

HTC-A02-S002-2430-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	10	238.68	6.61E+02	71.23	1.36E-02	1.14E-03
m	11	241.94	1.15E+02	66.01	1.34E-02	1.13E-03
	12	262.61	5.08E+01	62.40	1.24E-02	1.03E-03
	13	271.03	7.66E+01	51.38	1.20E-02	9.86E-04
	14	295.08	1.88E+02	54.74	1.10E-02	9.13E-04
	15	300.63	3.46E+01	43.30	1.08E-02	9.02E-04
	16	338.96	1.61E+02	68.27	9.58E-03	8.21E-04
	17	352.17	2.93E+02	65.60	9.21E-03	7.94E-04
	18	511.01	1.16E+02	38.58	6.28E-03	6.61E-04
	19	582.98	1.33E+02	55.00	5.51E-03	6.31E-04
	20	609.21	2.06E+02	46.84	5.27E-03	6.20E-04
M	21	664.43	1.41E+01	15.87	4.85E-03	5.95E-04
m	22	670.54	2.22E+01	36.99	4.81E-03	5.88E-04
	23	727.41	3.08E+01	37.79	4.45E-03	5.16E-04
	24	799.38	5.60E+01	43.83	4.08E-03	4.26E-04
	25	860.14	2.17E+01	26.48	3.81E-03	3.49E-04
	26	890.79	1.60E+01	15.16	3.69E-03	3.11E-04
M	27	911.11	1.08E+02	29.17	3.62E-03	2.99E-04
m	28	919.12	2.50E+01	21.52	3.59E-03	2.97E-04
	29	967.53	9.02E+01	32.86	3.43E-03	2.86E-04
	30	988.57	1.81E+01	15.95	3.37E-03	2.81E-04
	31	1015.88	2.30E+01	15.68	3.29E-03	2.74E-04
	32	1021.54	1.29E+01	15.36	3.27E-03	2.73E-04
	33	1102.49	3.12E+01	19.70	3.06E-03	2.54E-04
M	34	1113.80	1.55E+01	15.10	3.03E-03	2.51E-04
m	35	1120.47	2.27E+01	25.30	3.01E-03	2.50E-04
	36	1139.44	1.56E+01	14.19	2.97E-03	2.45E-04
	37	1172.14	1.52E+01	17.76	2.90E-03	2.38E-04
	38	1199.51	1.75E+01	15.08	2.84E-03	2.36E-04
	39	1349.69	2.16E+01	25.55	2.56E-03	2.25E-04
	40	1424.65	1.10E+01	11.83	2.44E-03	2.13E-04
	41	1460.68	4.24E+02	44.06	2.38E-03	2.08E-04
	42	1508.37	8.56E+00	11.19	2.32E-03	2.01E-04
	43	1591.68	1.95E+01	13.73	2.20E-03	1.88E-04
	44	1603.17	1.00E+01	11.66	2.19E-03	1.86E-04
	45	1622.29	9.36E+00	9.38	2.17E-03	1.83E-04
	46	1727.19	1.72E+01	11.84	2.04E-03	1.68E-04
	47	1764.49	3.30E+01	11.49	2.00E-03	1.62E-04
	48	2102.80	1.40E+01	7.48	1.67E-03	1.51E-04
	49	2268.43	6.31E+00	6.93	1.53E-03	1.51E-04
	50	2351.75	9.00E+00	6.00	1.47E-03	1.51E-04
	51	2614.16	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

Analysis Report for 1707085-03

HTC-A02-S002-2430-01

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/21/2017 9:11:37AM

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

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.72	1.08E+02	84.14	2.81E+01	8.29E+00	7.97E+01	8.46E+01
	2	76.23	9.67E+02	140.86			9.67E+02	1.41E+02
M	3	87.44	2.72E+02	126.23			2.72E+02	1.26E+02
m	4	92.54	3.59E+02	126.03	5.99E+01	8.61E+00	2.99E+02	1.26E+02
	5	154.98	7.33E+01	64.55			7.33E+01	6.45E+01
	6	186.30	1.05E+02	86.64	2.43E+01	7.50E+00	8.09E+01	8.70E+01
	7	197.20	7.22E+01	64.16	1.62E+01	7.19E+00	5.60E+01	6.46E+01
	8	209.07	1.27E+02	81.48			1.27E+02	8.15E+01
M	9	234.10	4.66E+01	26.64			4.66E+01	2.66E+01
m	10	238.68	6.61E+02	71.23	1.06E+01	6.01E+00	6.51E+02	7.15E+01
m	11	241.94	1.15E+02	66.01			1.15E+02	6.60E+01
	12	262.61	5.08E+01	62.40			5.08E+01	6.24E+01
	13	271.03	7.66E+01	51.38			7.66E+01	5.14E+01
	14	295.08	1.88E+02	54.74			1.88E+02	5.47E+01
	15	300.63	3.46E+01	43.30			3.46E+01	4.33E+01
	16	338.96	1.61E+02	68.27			1.61E+02	6.83E+01
	17	352.17	2.93E+02	65.60			2.93E+02	6.56E+01
	18	511.01	1.16E+02	38.58	4.55E+01	4.99E+00	7.09E+01	3.89E+01
	19	582.98	1.33E+02	55.00			1.33E+02	5.50E+01
	20	609.21	2.06E+02	46.84			2.06E+02	4.68E+01
M	21	664.43	1.41E+01	15.87			1.41E+01	1.59E+01
m	22	670.54	2.22E+01	36.99			2.22E+01	3.70E+01
	23	727.41	3.08E+01	37.79			3.08E+01	3.78E+01
	24	799.38	5.60E+01	43.83			5.60E+01	4.38E+01
	25	860.14	2.17E+01	26.48			2.17E+01	2.65E+01
	26	890.79	1.60E+01	15.16			1.60E+01	1.52E+01
M	27	911.11	1.08E+02	29.17			1.08E+02	2.92E+01
m	28	919.12	2.50E+01	21.52			2.50E+01	2.15E+01
	29	967.53	9.02E+01	32.86			9.02E+01	3.29E+01
	30	988.57	1.81E+01	15.95			1.81E+01	1.60E+01
	31	1015.88	2.30E+01	15.68			2.30E+01	1.57E+01
	32	1021.54	1.29E+01	15.36			1.29E+01	1.54E+01
	33	1102.49	3.12E+01	19.70			3.12E+01	1.97E+01
M	34	1113.80	1.55E+01	15.10			1.55E+01	1.51E+01
m	35	1120.47	2.27E+01	25.30			2.27E+01	2.53E+01
	36	1139.44	1.56E+01	14.19			1.56E+01	1.42E+01
	37	1172.14	1.52E+01	17.76			1.52E+01	1.78E+01
	38	1199.51	1.75E+01	15.08			1.75E+01	1.51E+01
	39	1349.69	2.16E+01	25.55			2.16E+01	2.56E+01
	40	1424.65	1.10E+01	11.83			1.10E+01	1.18E+01
	41	1460.68	4.24E+02	44.06			4.24E+02	4.41E+01
	42	1508.37	8.56E+00	11.19			8.56E+00	1.12E+01
	43	1591.68	1.95E+01	13.73			1.95E+01	1.37E+01
	44	1603.17	1.00E+01	11.66			1.00E+01	1.17E+01

Analysis Report for 1707085-03

HTC-A02-S002-2430-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
45	1622.29	9.36E+00	9.38			9.36E+00	9.38E+00
46	1727.19	1.72E+01	11.84			1.72E+01	1.18E+01
47	1764.49	3.30E+01	11.49			3.30E+01	1.15E+01
48	2102.80	1.40E+01	7.48			1.40E+01	7.48E+00
49	2268.43	6.31E+00	6.93			6.31E+00	6.93E+00
50	2351.75	9.00E+00	6.00			9.00E+00	6.00E+00
51	2614.16	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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/21/2017 9:11:37AM

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

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	46.72	1.08E+02	84.14	2.81E+01	8.29E+00	7.97E+01	8.46E+01
	2	76.23	9.67E+02	140.86			9.67E+02	1.41E+02
M	3	87.44	2.72E+02	126.23			2.72E+02	1.26E+02
m	4	92.54	3.59E+02	126.03	5.99E+01	8.61E+00	2.99E+02	1.26E+02
	5	154.98	7.33E+01	64.55			7.33E+01	6.45E+01
	6	186.30	1.05E+02	86.64	2.43E+01	7.50E+00	8.09E+01	8.70E+01
	7	197.20	7.22E+01	64.16	1.62E+01	7.19E+00	5.60E+01	6.46E+01
	8	209.07	1.27E+02	81.48			1.27E+02	8.15E+01
M	9	234.10	4.66E+01	26.64			4.66E+01	2.66E+01
m	10	238.68	6.61E+02	71.23	1.06E+01	6.01E+00	6.51E+02	7.15E+01
m	11	241.94	1.15E+02	66.01			1.15E+02	6.60E+01
	12	262.61	5.08E+01	62.40			5.08E+01	6.24E+01
	13	271.03	7.66E+01	51.38			7.66E+01	5.14E+01
	14	295.08	1.88E+02	54.74			1.88E+02	5.47E+01
	15	300.63	3.46E+01	43.30			3.46E+01	4.33E+01
	16	338.96	1.61E+02	68.27			1.61E+02	6.83E+01
	17	352.17	2.93E+02	65.60			2.93E+02	6.56E+01
	18	511.01	1.16E+02	38.58	4.55E+01	4.99E+00	7.09E+01	3.89E+01
	19	582.98	1.33E+02	55.00			1.33E+02	5.50E+01
	20	609.21	2.06E+02	46.84			2.06E+02	4.68E+01
M	21	664.43	1.41E+01	15.87			1.41E+01	1.59E+01

Analysis Report for 1707085-03

HTC-A02-S002-2430-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
m	22	670.54	2.22E+01	36.99			2.22E+01	3.70E+01
	23	727.41	3.08E+01	37.79			3.08E+01	3.78E+01
	24	799.38	5.60E+01	43.83			5.60E+01	4.38E+01
	25	860.14	2.17E+01	26.48			2.17E+01	2.65E+01
	26	890.79	1.60E+01	15.16			1.60E+01	1.52E+01
M	27	911.11	1.08E+02	29.17			1.08E+02	2.92E+01
m	28	919.12	2.50E+01	21.52			2.50E+01	2.15E+01
	29	967.53	9.02E+01	32.86			9.02E+01	3.29E+01
	30	988.57	1.81E+01	15.95			1.81E+01	1.60E+01
	31	1015.88	2.30E+01	15.68			2.30E+01	1.57E+01
	32	1021.54	1.29E+01	15.36			1.29E+01	1.54E+01
	33	1102.49	3.12E+01	19.70			3.12E+01	1.97E+01
M	34	1113.80	1.55E+01	15.10			1.55E+01	1.51E+01
m	35	1120.47	2.27E+01	25.30			2.27E+01	2.53E+01
	36	1139.44	1.56E+01	14.19			1.56E+01	1.42E+01
	37	1172.14	1.52E+01	17.76			1.52E+01	1.78E+01
	38	1199.51	1.75E+01	15.08			1.75E+01	1.51E+01
	39	1349.69	2.16E+01	25.55			2.16E+01	2.56E+01
	40	1424.65	1.10E+01	11.83			1.10E+01	1.18E+01
	41	1460.68	4.24E+02	44.06			4.24E+02	4.41E+01
	42	1508.37	8.56E+00	11.19			8.56E+00	1.12E+01
	43	1591.68	1.95E+01	13.73			1.95E+01	1.37E+01
	44	1603.17	1.00E+01	11.66			1.00E+01	1.17E+01
	45	1622.29	9.36E+00	9.38			9.36E+00	9.38E+00
	46	1727.19	1.72E+01	11.84			1.72E+01	1.18E+01
	47	1764.49	3.30E+01	11.49			3.30E+01	1.15E+01
	48	2102.80	1.40E+01	7.48			1.40E+01	7.48E+00
	49	2268.43	6.31E+00	6.93			6.31E+00	6.93E+00
	50	2351.75	9.00E+00	6.00			9.00E+00	6.00E+00
	51	2614.16	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
K-40	0.997	1460.81	*	10.67	2.19E+01	3.01E+00

Analysis Report for 1707085-03

HTC-A02-S002-2430-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CD-109	0.945	88.03	*	3.72	4.71E+00	2.24E+00
SN-126	0.997	87.57	*	37.00	4.09E-01	1.93E-01
TL-208	0.977	583.14	*	30.22	1.05E+00	4.51E-01
		860.37	*	4.48	1.68E+00	2.05E+00
		2614.66	*	35.85	1.58E+00	4.65E-01
PB-210	0.993	46.50	*	4.25	1.50E+00	1.60E+00
BI-212	0.769	727.17	*	11.80	7.71E-01	9.52E-01
		1620.62		2.75		
PB-212	0.996	238.63	*	44.60	1.41E+00	1.96E-01
		300.09	*	3.41	1.23E+00	1.55E+00
BI-214	0.936	609.31	*	46.30	1.11E+00	2.84E-01
		1120.29	*	15.10	6.55E-01	7.34E-01
		1764.49	*	15.80	1.38E+00	4.92E-01
		2204.22		4.98		
PB-214	0.993	295.21	*	19.19	1.17E+00	3.54E-01
		351.92	*	37.19	1.13E+00	2.70E-01
RA-224	0.864	240.98	*	3.95	2.85E+00	1.66E+00
RA-226	0.999	186.21	*	3.28	1.92E+00	4.08E+00
AC-228	0.573	338.32	*	11.40	1.93E+00	8.39E-01
		911.07	*	27.70	1.42E+00	4.01E-01
		969.11		16.60		
NP-237	0.870	86.50	*	12.60	1.20E+00	5.68E-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 9:11:37AM
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	76.23	2.68728E-01	7.28		
m	4	92.54	8.30460E-02	21.13	Sum	
	5	154.98	2.03605E-02	44.03		
	7	197.20	1.55651E-02	57.61		
	8	209.07	3.52134E-02	32.14	Tol.	GA-67 CM-243
M	9	234.10	1.29379E-02	28.59		

Analysis Report for 1707085-03

HTC-A02-S002-2430-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	12	262.61	1.41033E-02	61.45	Tol.	BI-210M
	13	271.03	2.12863E-02	33.53		
	18	511.01	1.96986E-02	27.43		
M	21	664.43	3.92741E-03	56.14	Tol.	CE-143
m	22	670.54	6.16438E-03	83.33	Sum	
	24	799.38	1.55424E-02	39.16		
	26	890.79	4.45670E-03	47.24		
m	28	919.12	6.95405E-03	42.98		
	29	967.53	2.50442E-02	18.23		
	30	988.57	5.02525E-03	44.09		
	31	1015.88	6.38889E-03	34.10		
	32	1021.54	3.57639E-03	59.66	Sum	
	33	1102.49	8.65304E-03	31.62	Sum	
M	34	1113.80	4.30752E-03	48.69		
	36	1139.44	4.32870E-03	45.52		
	37	1172.14	4.22009E-03	58.44		
	38	1199.51	4.86111E-03	43.09	Sum	
	39	1349.69	5.99057E-03	59.25		
	40	1424.65	3.05556E-03	53.78		
	42	1508.37	2.37847E-03	65.35	Sum	
	43	1591.68	5.41667E-03	35.20	D-Esc	
	44	1603.17	2.77778E-03	58.31		
	45	1622.29	2.59921E-03	50.13		
	46	1727.19	4.78175E-03	34.40		
	48	2102.80	3.88889E-03	26.73	S-Esc	
	49	2268.43	1.75347E-03	54.88		
	50	2351.75	2.50000E-03	33.33		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

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

Analysis Report for 1707085-03

HTC-A02-S002-2430-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81	*	10.67	2.19E+01	3.01E+00
CD-109	0.94	88.03	*	3.72	4.71E+00	2.24E+00
SN-126	0.99	87.57	*	37.00	4.09E-01	1.93E-01
TL-208	0.97	583.14	*	30.22	1.05E+00	4.51E-01
		860.37	*	4.48	1.68E+00	2.05E+00
		2614.66	*	35.85	1.58E+00	4.65E-01
PB-210	0.99	46.50	*	4.25	1.50E+00	1.60E+00
BI-212	0.76	727.17	*	11.80	7.71E-01	9.52E-01
		1620.62		2.75		
PB-212	0.99	238.63	*	44.60	1.41E+00	1.96E-01
		300.09	*	3.41	1.23E+00	1.55E+00
BI-214	0.93	609.31	*	46.30	1.11E+00	2.84E-01
		1120.29	*	15.10	6.55E-01	7.34E-01
		1764.49	*	15.80	1.38E+00	4.92E-01
		2204.22		4.98		
PB-214	0.99	295.21	*	19.19	1.17E+00	3.54E-01
		351.92	*	37.19	1.13E+00	2.70E-01
RA-224	0.86	240.98	*	3.95	2.85E+00	1.66E+00
RA-226	0.99	186.21	*	3.28	1.92E+00	4.08E+00
AC-228	0.57	338.32	*	11.40	1.93E+00	8.39E-01
		911.07	*	27.70	1.42E+00	4.01E-01
		969.11		16.60		
NP-237	0.87	86.50	*	12.60	1.20E+00	5.68E-01

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.997	2.19E+01	3.01E+00	
?	CD-109	0.945	4.71E+00	2.24E+00	
?	SN-126	0.997	4.09E-01	1.93E-01	
	TL-208	0.977	1.32E+00	3.20E-01	

Analysis Report for 1707085-03

HTC-A02-S002-2430-01

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
X	BI-210M	0.941			
	PB-210	0.993	1.50E+00	1.60E+00	
	BI-212	0.769	7.71E-01	9.52E-01	
	PB-212	0.996	1.41E+00	1.94E-01	
	BI-214	0.936	1.12E+00	2.33E-01	
	PB-214	0.993	1.14E+00	2.15E-01	
	RA-224	0.864	2.85E+00	1.66E+00	
	RA-226	0.999	1.92E+00	4.08E+00	
	AC-228	0.573	1.52E+00	3.62E-01	
?	NP-237	0.870	1.20E+00	5.68E-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 1707085-03

HTC-A02-S002-2430-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 9:11:37AM
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	76.23	2.68728E-01	7.28		
m	4	92.54	8.30460E-02	21.13	Sum	
	5	154.98	2.03605E-02	44.03		
	7	197.20	1.55651E-02	57.61		
	8	209.07	3.52134E-02	32.14	Tol.	GA-67
						CM-243
M	9	234.10	1.29379E-02	28.59		
	12	262.61	1.41033E-02	61.45	Tol.	BI-210M
	13	271.03	2.12863E-02	33.53		
	18	511.01	1.96986E-02	27.43		
M	21	664.43	3.92741E-03	56.14	Tol.	CE-143
m	22	670.54	6.16438E-03	83.33	Sum	
	24	799.38	1.55424E-02	39.16		
	26	890.79	4.45670E-03	47.24		
m	28	919.12	6.95405E-03	42.98		
	29	967.53	2.50442E-02	18.23		
	30	988.57	5.02525E-03	44.09		
	31	1015.88	6.38889E-03	34.10		
	32	1021.54	3.57639E-03	59.66	Sum	
	33	1102.49	8.65304E-03	31.62	Sum	
M	34	1113.80	4.30752E-03	48.69		
	36	1139.44	4.32870E-03	45.52		
	37	1172.14	4.22009E-03	58.44		
	38	1199.51	4.86111E-03	43.09	Sum	
	39	1349.69	5.99057E-03	59.25		
	40	1424.65	3.05556E-03	53.78		
	42	1508.37	2.37847E-03	65.35	Sum	
	43	1591.68	5.41667E-03	35.20	D-Esc	
	44	1603.17	2.77778E-03	58.31		
	45	1622.29	2.59921E-03	50.13		
	46	1727.19	4.78175E-03	34.40		
	48	2102.80	3.88889E-03	26.73	S-Esc	
	49	2268.43	1.75347E-03	54.88		
	50	2351.75	2.50000E-03	33.33		

Analysis Report for 1707085-03

HTC-A02-S002-2430-01

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

NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	-1.06E+00	2.93E+00	2.93E+00
+		NA-22	1274.54		99.94	-2.48E-02	1.61E-01	1.61E-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	6.26E-02	1.36E-01	1.36E-01
+		K-40	1460.81	*	10.67	2.19E+01	1.48E+00	1.48E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	-1.12E-01	8.37E-02	8.37E-02
			78.34		96.00	3.89E-01		1.11E-01
+		SC-46	889.25		99.98	-7.94E-02	2.90E-01	2.90E-01
			1120.51		99.99	1.27E-01		4.28E-01
+		V-48	983.52		99.98	5.09E-01	9.85E+00	9.85E+00
			1312.10		97.50	7.99E+00		1.23E+01
+		CR-51	320.08		9.83	4.94E+00	9.34E+00	9.34E+00
+		MN-54	834.83		99.97	1.17E-02	1.72E-01	1.72E-01
+		CO-56	846.75		99.96	6.23E-02	3.10E-01	3.10E-01
			1037.75		14.03	-4.98E-02		2.34E+00
			1238.25		67.00	7.19E-01		7.69E-01
			1771.40		15.51	-1.12E-02		1.32E+00
			2598.48		16.90	4.29E-01		1.54E+00
+		CO-57	122.06		85.51	-5.20E-02	9.00E-02	9.00E-02
			136.48		10.60	-2.02E-01		7.45E-01
+		CO-58	810.76		99.40	-3.30E-04	3.53E-01	3.53E-01
+		FE-59	1099.22		56.50	-1.99E-02	1.33E+00	1.33E+00
			1291.56		43.20	-6.70E-01		1.69E+00
+		CO-60	1173.22		100.00	6.40E-03	1.34E-01	1.71E-01
			1332.49		100.00	4.21E-02		1.34E-01
+		ZN-65	1115.52		50.75	2.84E-02	4.99E-01	4.99E-01
+		GA-67	93.31		35.70	2.66E+08	2.51E+08	2.51E+08
			208.95		2.24	4.30E+09		3.98E+09
			300.22		16.00	-1.65E+09		5.80E+08
+		SE-75	121.11		16.70	-2.43E-01	1.84E-01	6.41E-01

Analysis Report for 1707085-03

HTC-A02-S002-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00		59.20	-8.83E-02	1.84E-01	1.84E-01
		264.65		59.80	-1.53E-01		2.18E-01
		279.53		25.20	2.43E-01		5.48E-01
		400.65		11.40	5.18E-01		1.40E+00
+	RB-82	776.52		13.00	-7.20E+00	1.38E+01	1.38E+01
+	RB-83	520.41		46.00	1.92E-02	4.50E-01	4.50E-01
		529.64		30.30	1.27E-01		6.99E-01
		552.65		16.40	-1.77E-01		1.29E+00
+	KR-85	513.99		0.43	1.23E+00	2.87E+01	2.87E+01
+	SR-85	513.99		99.27	1.50E-02	3.52E-01	3.52E-01
+	Y-88	898.02		93.40	-8.38E-03	1.40E-01	2.79E-01
		1836.01		99.38	-1.13E-01		1.40E-01
+	MO-93	263.06		56.72	4.23E-02	1.15E-01	1.37E-01
		684.67		99.68	7.62E-03		1.25E-01
		1477.11		99.08	-1.43E-02		1.15E-01
+	NB-93M	16.57		9.43	1.83E+01	8.92E+00	8.92E+00
+	NB-94	702.63		100.00	5.64E-02	1.29E-01	1.33E-01
		871.10		100.00	-1.16E-02		1.29E-01
+	NB-95	765.79		99.81	3.32E-01	9.63E-01	9.63E-01
+	NB-95M	235.69		25.00	1.61E+08	7.41E+07	7.41E+07
+	ZR-95	724.18		43.70	7.57E-02	6.98E-01	9.90E-01
		756.72		55.30	-1.36E-01		6.98E-01
+	MO-99	181.06		6.20	7.46E+09	4.66E+10	6.01E+10
		739.58		12.80	-4.96E+09		4.66E+10
		778.00		4.50	1.49E+10		1.56E+11
+	RU-103	497.08		89.00	-3.02E-01	5.57E-01	5.57E-01
+	RU-106	621.84		9.80	-1.28E-02	1.27E+00	1.27E+00
+	AG-108M	433.93		89.90	9.89E-03	1.03E-01	1.03E-01
		614.37		90.40	-1.45E-03		1.05E-01
		722.95		90.50	8.54E-03		1.55E-01
+	CD-109	88.03	*	3.72	4.71E+00	5.78E+00	5.78E+00
+	AG-110M	657.75		93.14	-4.55E-02	1.66E-01	1.66E-01
		677.61		10.53	3.35E-01		1.49E+00
		706.67		16.46	-7.49E-01		9.56E-01
		763.93		21.98	-2.95E-01		7.75E-01
		884.67		71.63	4.52E-02		2.55E-01
		1384.27		23.94	-2.92E-01		5.98E-01
+	CD-113M	263.70		0.02	-7.36E+01	3.28E+02	3.28E+02
+	SN-113	255.12		1.93	-1.05E+00	2.48E-01	6.69E+00
		391.69		64.90	2.10E-02		2.48E-01
+	TE123M	159.00		84.10	1.35E-02	1.39E-01	1.39E-01
+	SB-124	602.71		97.87	8.19E-02	3.05E-01	3.05E-01
		645.85		7.26	1.10E+00		4.43E+00
		722.78		11.10	2.15E-01		3.90E+00
		1691.02		49.00	-4.79E-01		4.79E-01
+	I-125	35.49		6.49	6.81E-02	5.80E+00	5.80E+00
+	SB-125	176.33		6.89	2.57E-01	3.09E-01	1.08E+00
		427.89		29.33	-5.45E-02		3.09E-01

Analysis Report for 1707085-03

HTC-A02-S002-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-125	463.38		10.35	8.58E-01	3.09E-01	1.04E+00
		600.56		17.80	-8.56E-02		5.36E-01
		635.90		11.32	1.09E-01		9.96E-01
+	SB-126	414.70		83.30	-9.06E-01	2.49E+01	2.49E+01
		666.33		99.60	5.32E+00		3.02E+01
		695.00		99.60	5.02E+00		2.95E+01
		720.50		53.80	-2.47E+00		5.89E+01
+	SN-126	87.57	*	37.00	4.09E-01	5.02E-01	5.02E-01
+	SB-127	473.00		25.00	-1.38E+06	1.58E+07	1.60E+07
		685.20		35.70	9.67E+05		1.58E+07
		783.80		14.70	2.64E+07		4.44E+07
+	I-129	29.78		57.00	-2.85E-01	2.92E-01	2.92E-01
		33.60		13.20	3.22E-01		1.02E+00
		39.58		7.52	-6.86E-01		1.34E+00
+	I-131	284.30		6.05	-1.41E+03	4.62E+02	5.66E+03
		364.48		81.20	1.81E+02		4.62E+02
		636.97		7.26	3.31E+01		6.80E+03
		722.89		1.80	2.01E+03		3.64E+04
+	TE-132	49.72		13.10	-1.11E+07	9.61E+07	7.52E+08
		228.16		88.00	3.54E+07		9.61E+07
+	BA-133	81.00		33.00	-7.24E-01	1.79E-01	2.55E-01
		302.84		17.80	3.56E-01		4.73E-01
		356.01		60.00	-8.34E-03		1.79E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-2.62E+05	9.24E+04	9.24E+04
+	CS-134	563.23		8.38	1.02E-02	1.31E-01	1.29E+00
		569.32		15.43	4.59E-02		7.03E-01
		604.70		97.60	-5.34E-05		1.31E-01
		795.84		85.40	7.30E-02		1.77E-01
		801.93		8.73	-8.70E-01		1.66E+00
+	CS-135	268.24		16.00	5.10E-02	4.98E-01	4.98E-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	2.33E+01	2.21E+01	1.58E+02
		163.89		4.61	3.81E+00		2.51E+02
		176.55		13.56	4.27E+01		9.01E+01
		273.65		12.66	-4.40E+01		1.09E+02
		340.57		48.50	6.68E+01		3.87E+01
		818.50		99.70	-1.02E+00		2.21E+01
		1048.07		79.60	-9.59E+00		3.03E+01
		1235.34		19.70	4.16E+01		1.82E+02
+	CS-137	661.65		85.12	-4.21E-02	1.38E-01	1.38E-01
+	LA-138	788.74		34.00	3.95E-02	2.10E-01	3.72E-01
		1435.80		66.00	2.56E-02		2.10E-01
+	CE-139	165.85		80.35	1.34E-02	1.35E-01	1.35E-01
+	BA-140	162.64		6.70	7.21E+01	7.35E+01	2.01E+02
		304.84		4.50	1.99E+00		3.37E+02
		423.70		3.20	1.38E+02		5.30E+02

Analysis Report for 1707085-03

HTC-A02-S002-2430-01

		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		BA-140	437.55	2.00	1.01E+01	7.35E+01	8.81E+02
			537.32	25.00	-4.86E+01		7.35E+01
+		LA-140	328.77	20.50	5.34E+01	2.92E+01	8.69E+01
			487.03	45.50	-5.93E+00		4.17E+01
			815.85	23.50	7.15E+00		1.11E+02
			1596.49	95.49	4.42E+00		2.92E+01
+		CE-141	145.44	48.40	-3.71E-02	1.06E+00	1.06E+00
+	@	CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26
	@		293.26	42.00	1.00E+26		1.00E+26
	@		664.55	5.20	1.00E+26		1.00E+26
+		CE-144	133.54	10.80	-2.77E-01	7.39E-01	7.39E-01
+		PM-144	476.78	42.00	4.39E-02	1.27E-01	2.50E-01
			618.01	98.60	3.01E-02		1.27E-01
			696.49	99.49	-3.64E-02		1.53E-01
+		PM-145	36.85	21.70	-1.31E-01	2.82E-01	5.27E-01
			37.36	39.70	-6.98E-02		2.82E-01
			42.30	15.10	-6.41E-02		6.21E-01
			72.40	2.31	-5.63E-01		4.01E+00
+		PM-146	453.90	39.94	-3.22E-02	2.18E-01	2.18E-01
			735.90	14.01	9.64E-02		8.21E-01
			747.13	13.10	-2.09E-01		9.49E-01
+		ND-147	91.11	28.90	2.40E+02	1.43E+02	1.43E+02
			531.02	13.10	-4.74E+01		3.55E+02
+		PM-149	285.90	3.10	5.76E+12	5.25E+13	5.25E+13
+		EU-152	121.78	20.50	-1.71E-01	2.96E-01	2.96E-01
			244.69	5.40	1.48E-01		1.52E+00
			344.27	19.13	-4.59E-01		4.44E-01
			778.89	9.20	-2.24E-02		1.44E+00
			964.01	10.40	7.46E-02		1.66E+00
			1085.78	7.22	-1.02E+00		2.14E+00
			1112.02	9.60	9.11E-02		1.89E+00
			1407.95	14.94	1.35E-01		9.07E-01
+		GD-153	97.43	31.30	-2.90E-01	2.85E-01	2.85E-01
			103.18	22.20	-8.55E-02		3.60E-01
+		EU-154	123.07	40.50	-3.87E-03	1.55E-01	1.55E-01
			723.30	19.70	5.93E-02		7.75E-01
			873.19	11.50	3.60E-01		1.20E+00
			996.32	10.30	4.91E-01		1.30E+00
			1004.76	17.90	-1.77E-01		8.28E-01
			1274.45	35.50	-6.63E-02		4.31E-01
+		EU-155	86.50	30.90	1.22E-01	2.75E-01	2.75E-01
			105.30	20.70	1.90E-02		3.01E-01
+		EU-156	811.77	10.40	2.57E+01	1.10E+02	1.10E+02
			1153.47	7.20	-9.42E+01		1.98E+02
			1230.71	8.90	-1.07E+02		1.78E+02
+		HO-166M	184.41	72.60	9.05E-02	1.08E-01	1.08E-01
			280.45	29.60	1.94E-01		2.67E-01
			410.94	11.10	-1.35E-01		8.20E-01
			711.69	54.10	3.73E-02		2.26E-01

Analysis Report for 1707085-03

HTC-A02-S002-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TM-171	66.72		0.14	-3.19E+01	6.43E+01	6.43E+01
+	HF-172	67.35		5.31	-8.40E-01	6.26E-01	1.69E+00
		125.81		11.30	1.39E-01		6.26E-01
+	LU-172	181.53		20.60	1.48E+03	6.40E+03	8.81E+03
		900.72		29.81	6.09E+03		1.21E+04
		1093.66		62.50	2.17E+03		6.40E+03
+	LU-173	100.72		5.24	-1.59E-01	4.51E-01	1.33E+00
		272.11		21.20	4.86E-01		4.51E-01
+	HF-175	343.40		84.00	-2.71E-01	2.63E-01	2.63E-01
+	LU-176	88.34		13.30	-1.81E-01	8.17E-02	6.20E-01
		201.83		86.00	1.55E-02		8.17E-02
		306.78		94.00	1.21E-02		8.17E-02
+	HF-181	133.02		41.70	-7.76E-02	5.55E-01	7.60E-01
		345.85		17.20	-5.74E+00		2.32E+00
		482.03		82.80	1.13E-01		5.55E-01
+	TA-182	67.75		41.20	-4.65E-01	3.47E-01	3.47E-01
		1121.30		34.90	5.26E-01		9.93E-01
		1189.05		16.23	1.07E-01		1.99E+00
		1221.41		26.98	-2.22E-01		1.31E+00
		1231.02		11.44	-1.12E+00		3.02E+00
+	IR-192	308.46		29.68	-5.92E-03	4.60E-01	6.46E-01
		468.07		48.10	-1.61E-01		4.60E-01
+	HG-203	279.19		77.30	-2.05E-02	4.30E-01	4.30E-01
+	TL-204	374.74		94.11	2.46E-02	9.52E-02	9.52E-02
		899.15		99.16	8.18E-02		1.52E-01
		911.74		91.10	4.52E-01		2.52E-01
+	BI-207	569.67		97.72	6.67E-03	1.02E-01	1.02E-01
		1063.62		74.90	6.81E-02		2.12E-01
+	TL-208	583.14	*	30.22	1.05E+00	7.76E-02	6.71E-01
		860.37	*	4.48	1.68E+00		3.35E+00
		2614.66	*	35.85	1.58E+00		7.76E-02
+	BI-210M	262.00	*	45.00	1.20E-01	2.42E-01	2.42E-01
		300.00	*	23.00	1.83E-01		3.76E-01
+	PB-210	46.50	*	4.25	1.50E+00	2.62E+00	2.62E+00
+	PB-211	404.84		2.90	-1.37E+00	3.11E+00	3.11E+00
		831.96		2.90	1.67E-01		4.65E+00
+	BI-212	727.17	*	11.80	7.71E-01	1.56E+00	1.56E+00
		1620.62		2.75	-1.66E-01		4.83E+00
+	PB-212	238.63	*	44.60	1.41E+00	2.98E-01	2.98E-01
		300.09	*	3.41	1.23E+00		2.54E+00
+	BI-214	609.31	*	46.30	1.11E+00	1.13E-01	3.43E-01
		1120.29	*	15.10	6.55E-01		2.39E+00
		1764.49	*	15.80	1.38E+00		1.13E-01
		2204.22		4.98	1.17E+00		3.26E+00
+	PB-214	295.21	*	19.19	1.17E+00	3.64E-01	6.67E-01
		351.92	*	37.19	1.13E+00		3.64E-01
+	RN-219	401.80		6.50	7.38E-02	1.38E+00	1.38E+00
+	RA-223	323.87		3.88	-1.27E-01	2.09E+00	2.09E+00

Analysis Report for 1707085-03

HTC-A02-S002-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98	*	3.95	2.85E+00	3.38E+00	3.38E+00
+	RA-225	40.00		31.00	-1.61E+01	3.15E+01	3.15E+01
+	RA-226	186.21	*	3.28	1.92E+00	3.39E+00	3.39E+00
+	TH-227	50.10		8.40	-1.50E-02	1.02E+00	1.02E+00
		236.00		11.50	2.34E+00		1.08E+00
		256.20		6.30	-1.10E-01		1.18E+00
+	AC-228	338.32	*	11.40	1.93E+00	7.12E-01	1.29E+00
		911.07	*	27.70	1.42E+00		7.12E-01
		969.11		16.60	1.11E+00		1.22E+00
+	TH-230	48.44		16.90	1.30E-01	5.25E-01	5.25E-01
		62.85		4.60	1.07E+00		1.83E+00
		67.67		0.37	-2.86E+01		2.13E+01
+	PA-231	283.67		1.60	-1.13E+00	3.59E+00	4.57E+00
		302.67		2.30	2.71E+00		3.59E+00
+	TH-231	25.64		14.70	-6.93E-02	1.21E+00	1.66E+00
		84.21		6.40	-9.48E-01		1.21E+00
+	PA-233	311.98		38.60	-1.67E-01	2.41E+00	2.41E+00
+	PA-234	131.20		20.40	2.55E-01	3.27E-01	3.27E-01
		733.99		8.80	-2.90E-01		1.25E+00
		946.00		12.00	2.06E-01		1.20E+00
+	PA-234M	1001.03		0.92	-4.38E+00	1.52E+01	1.52E+01
+	TH-234	63.29		3.80	1.29E+00	2.21E+00	2.21E+00
+	U-235	143.76		10.50	8.55E-02	6.04E-01	6.04E-01
		163.35		4.70	5.08E-01		1.42E+00
		205.31		4.70	2.89E-01		1.57E+00
+	NP-237	86.50	*	12.60	1.20E+00	1.47E+00	1.47E+00
+	NP-239	106.10		22.70	3.47E+11	9.11E+11	9.11E+11
		228.18		10.70	8.67E+11		2.35E+12
		277.60		14.10	1.88E+11		1.87E+12
+	AM-241	59.54		35.90	-1.12E-01	2.29E-01	2.29E-01
+	AM-243	74.67		66.00	7.38E-01	1.69E-01	1.69E-01
+	CM-243	209.75		3.29	2.31E+00	5.58E-01	2.41E+00
		228.14		10.60	2.60E-01		7.06E-01
		277.60		14.00	5.63E-02		5.58E-01

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

Analysis Report for 1707085-03

HTC-A02-S002-2430-01

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	2.93E+00	2.93E+00	-1.06E+00	1.38E+00
	NA-22	1274.54		99.94	1.61E-01	1.61E-01	-2.48E-02	7.33E-02
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	1.36E-01	1.36E-01	6.26E-02	5.89E-02
+	K-40	1460.81	*	10.67	1.48E+00	1.48E+00	2.19E+01	6.68E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	8.37E-02	8.37E-02	-1.12E-01	4.10E-02
		78.34		96.00	1.11E-01		3.89E-01	5.45E-02
	SC-46	889.25		99.98	2.90E-01	2.90E-01	-7.94E-02	1.34E-01
		1120.51		99.99	4.28E-01		1.27E-01	2.01E-01
	V-48	983.52		99.98	9.85E+00	9.85E+00	5.09E-01	4.56E+00
		1312.10		97.50	1.23E+01		7.99E+00	5.65E+00
	CR-51	320.08		9.83	9.34E+00	9.34E+00	4.94E+00	4.46E+00
	MN-54	834.83		99.97	1.72E-01	1.72E-01	1.17E-02	8.01E-02
	CO-56	846.75		99.96	3.10E-01	3.10E-01	6.23E-02	1.44E-01
		1037.75		14.03	2.34E+00		-4.98E-02	1.08E+00
		1238.25		67.00	7.69E-01		7.19E-01	3.62E-01
		1771.40		15.51	1.32E+00		-1.12E-02	5.25E-01
		2598.48		16.90	1.54E+00		4.29E-01	5.76E-01
	CO-57	122.06		85.51	9.00E-02	9.00E-02	-5.20E-02	4.38E-02
		136.48		10.60	7.45E-01		-2.02E-01	3.62E-01
	CO-58	810.76		99.40	3.53E-01	3.53E-01	-3.30E-04	1.65E-01
	FE-59	1099.22		56.50	1.33E+00	1.33E+00	-1.99E-02	6.17E-01
		1291.56		43.20	1.69E+00		-6.70E-01	7.72E-01
	CO-60	1173.22		100.00	1.71E-01	1.34E-01	6.40E-03	7.90E-02
		1332.49		100.00	1.34E-01		4.21E-02	6.00E-02
	ZN-65	1115.52		50.75	4.99E-01	4.99E-01	2.84E-02	2.34E-01
	GA-67	93.31		35.70	2.51E+08	2.51E+08	2.66E+08	1.23E+08
		208.95		2.24	3.98E+09		4.30E+09	1.93E+09
		300.22		16.00	5.80E+08		-1.65E+09	2.79E+08
	SE-75	121.11		16.70	6.41E-01	1.84E-01	-2.43E-01	3.12E-01
		136.00		59.20	1.84E-01		-8.83E-02	8.96E-02
		264.65		59.80	2.18E-01		-1.53E-01	1.05E-01
		279.53		25.20	5.48E-01		2.43E-01	2.63E-01
		400.65		11.40	1.40E+00		5.18E-01	6.67E-01
	RB-82	776.52		13.00	1.38E+01	1.38E+01	-7.20E+00	6.43E+00
	RB-83	520.41		46.00	4.50E-01	4.50E-01	1.92E-02	2.11E-01
		529.64		30.30	6.99E-01		1.27E-01	3.28E-01
		552.65		16.40	1.29E+00		-1.77E-01	6.04E-01
	KR-85	513.99		0.43	2.87E+01	2.87E+01	1.23E+00	1.37E+01
	SR-85	513.99		99.27	3.52E-01	3.52E-01	1.50E-02	1.68E-01

Analysis Report for 1707085-03

HTC-A02-S002-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	Y-88	898.02		93.40	2.79E-01	1.40E-01	-8.38E-03	1.30E-01
		1836.01		99.38	1.40E-01		-1.13E-01	5.25E-02
	MO-93	263.06		56.72	1.37E-01	1.15E-01	4.23E-02	6.58E-02
		684.67		99.68	1.25E-01		7.62E-03	5.86E-02
		1477.11		99.08	1.15E-01		-1.43E-02	4.98E-02
	NB-93M	16.57		9.43	8.92E+00	8.92E+00	1.83E+01	4.33E+00
	NB-94	702.63		100.00	1.33E-01	1.29E-01	5.64E-02	6.28E-02
		871.10		100.00	1.29E-01		-1.16E-02	5.97E-02
	NB-95	765.79		99.81	9.63E-01	9.63E-01	3.32E-01	4.52E-01
	NB-95M	235.69		25.00	7.41E+07	7.41E+07	1.61E+08	3.63E+07
	ZR-95	724.18		43.70	9.90E-01	6.98E-01	7.57E-02	4.69E-01
		756.72		55.30	6.98E-01		-1.36E-01	3.27E-01
	MO-99	181.06		6.20	6.01E+10	4.66E+10	7.46E+09	2.92E+10
		739.58		12.80	4.66E+10		-4.96E+09	2.16E+10
		778.00		4.50	1.56E+11		1.49E+10	7.32E+10
	RU-103	497.08		89.00	5.57E-01	5.57E-01	-3.02E-01	2.61E-01
	RU-106	621.84		9.80	1.27E+00	1.27E+00	-1.28E-02	5.95E-01
	AG-108M	433.93		89.90	1.03E-01	1.03E-01	9.89E-03	4.88E-02
		614.37		90.40	1.05E-01		-1.45E-03	4.90E-02
		722.95		90.50	1.55E-01		8.54E-03	7.30E-02
+	CD-109	88.03	*	3.72	5.78E+00	5.78E+00	4.71E+00	2.87E+00
	AG-110M	657.75		93.14	1.66E-01	1.66E-01	-4.55E-02	7.78E-02
		677.61		10.53	1.49E+00		3.35E-01	6.99E-01
		706.67		16.46	9.56E-01		-7.49E-01	4.47E-01
		763.93		21.98	7.75E-01		-2.95E-01	3.62E-01
		884.67		71.63	2.55E-01		4.52E-02	1.19E-01
		1384.27		23.94	5.98E-01		-2.92E-01	2.60E-01
	CD-113M	263.70		0.02	3.28E+02	3.28E+02	-7.36E+01	1.58E+02
	SN-113	255.12		1.93	6.69E+00	2.48E-01	-1.05E+00	3.22E+00
		391.69		64.90	2.48E-01		2.10E-02	1.18E-01
	TE123M	159.00		84.10	1.39E-01	1.39E-01	1.35E-02	6.74E-02
	SB-124	602.71		97.87	3.05E-01	3.05E-01	8.19E-02	1.42E-01
		645.85		7.26	4.43E+00		1.10E+00	2.06E+00
		722.78		11.10	3.90E+00		2.15E-01	1.84E+00
		1691.02		49.00	4.79E-01		-4.79E-01	1.86E-01
	I-125	35.49		6.49	5.80E+00	5.80E+00	6.81E-02	2.82E+00
	SB-125	176.33		6.89	1.08E+00	3.09E-01	2.57E-01	5.23E-01
		427.89		29.33	3.09E-01		-5.45E-02	1.46E-01
		463.38		10.35	1.04E+00		8.58E-01	4.95E-01
		600.56		17.80	5.36E-01		-8.56E-02	2.48E-01
		635.90		11.32	9.96E-01		1.09E-01	4.65E-01
	SB-126	414.70		83.30	2.49E+01	2.49E+01	-9.06E-01	1.18E+01
		666.33		99.60	3.02E+01		5.32E+00	1.42E+01
		695.00		99.60	2.95E+01		5.02E+00	1.38E+01
		720.50		53.80	5.89E+01		-2.47E+00	2.77E+01
+	SN-126	87.57	*	37.00	5.02E-01	5.02E-01	4.09E-01	2.49E-01
	SB-127	473.00		25.00	1.60E+07	1.58E+07	-1.38E+06	7.49E+06
		685.20		35.70	1.58E+07		9.67E+05	7.43E+06
		783.80		14.70	4.44E+07		2.64E+07	2.09E+07
	I-129	29.78		57.00	2.92E-01	2.92E-01	-2.85E-01	1.42E-01
		33.60		13.20	1.02E+00		3.22E-01	4.97E-01
		39.58		7.52	1.34E+00		-6.86E-01	6.51E-01
	I-131	284.30		6.05	5.66E+03	4.62E+02	-1.41E+03	2.71E+03

Analysis Report for 1707085-03

HTC-A02-S002-2430-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
I-131	364.48	81.20	4.62E+02	4.62E+02	1.81E+02	2.19E+02
	636.97	7.26	6.80E+03		3.31E+01	3.18E+03
	722.89	1.80	3.64E+04		2.01E+03	1.72E+04
TE-132	49.72	13.10	7.52E+08	9.61E+07	-1.11E+07	3.67E+08
	228.16	88.00	9.61E+07		3.54E+07	4.64E+07
BA-133	81.00	33.00	2.55E-01	1.79E-01	-7.24E-01	1.25E-01
	302.84	17.80	4.73E-01		3.56E-01	2.27E-01
	356.01	60.00	1.79E-01		-8.34E-03	8.61E-02
@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
XE-133	81.00	38.00	9.24E+04	9.24E+04	-2.62E+05	4.53E+04
CS-134	563.23	8.38	1.29E+00	1.31E-01	1.02E-02	6.04E-01
	569.32	15.43	7.03E-01		4.59E-02	3.29E-01
	604.70	97.60	1.31E-01		-5.34E-05	6.17E-02
	795.84	85.40	1.77E-01		7.30E-02	8.30E-02
	801.93	8.73	1.66E+00		-8.70E-01	7.73E-01
CS-135	268.24	16.00	4.98E-01	4.98E-01	5.10E-02	2.40E-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	1.58E+02	2.21E+01	2.33E+01	7.68E+01
	163.89	4.61	2.51E+02		3.81E+00	1.22E+02
	176.55	13.56	9.01E+01		4.27E+01	4.38E+01
	273.65	12.66	1.09E+02		-4.40E+01	5.23E+01
	340.57	48.50	3.87E+01		6.68E+01	1.87E+01
	818.50	99.70	2.21E+01		-1.02E+00	1.02E+01
	1048.07	79.60	3.03E+01		-9.59E+00	1.39E+01
	1235.34	19.70	1.82E+02		4.16E+01	8.55E+01
CS-137	661.65	85.12	1.38E-01	1.38E-01	-4.21E-02	6.48E-02
LA-138	788.74	34.00	3.72E-01	2.10E-01	3.95E-02	1.73E-01
	1435.80	66.00	2.10E-01		2.56E-02	9.38E-02
CE-139	165.85	80.35	1.35E-01	1.35E-01	1.34E-02	6.54E-02
BA-140	162.64	6.70	2.01E+02	7.35E+01	7.21E+01	9.77E+01
	304.84	4.50	3.37E+02		1.99E+00	1.61E+02
	423.70	3.20	5.30E+02		1.38E+02	2.50E+02
	437.55	2.00	8.81E+02		1.01E+01	4.16E+02
	537.32	25.00	7.35E+01		-4.86E+01	3.43E+01
LA-140	328.77	20.50	8.69E+01	2.92E+01	5.34E+01	4.17E+01
	487.03	45.50	4.17E+01		-5.93E+00	1.96E+01
	815.85	23.50	1.11E+02		7.15E+00	5.16E+01
	1596.49	95.49	2.92E+01		4.42E+00	1.29E+01
CE-141	145.44	48.40	1.06E+00	1.06E+00	-3.71E-02	5.17E-01
@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	293.26	42.00	1.00E+26		1.00E+26	1.00E+20
@	664.55	5.20	1.00E+26		1.00E+26	1.00E+20
CE-144	133.54	10.80	7.39E-01	7.39E-01	-2.77E-01	3.59E-01
PM-144	476.78	42.00	2.50E-01	1.27E-01	4.39E-02	1.17E-01
	618.01	98.60	1.27E-01		3.01E-02	5.94E-02
	696.49	99.49	1.53E-01		-3.64E-02	7.16E-02
PM-145	36.85	21.70	5.27E-01	2.82E-01	-1.31E-01	2.56E-01
	37.36	39.70	2.82E-01		-6.98E-02	1.37E-01
	42.30	15.10	6.21E-01		-6.41E-02	3.02E-01
	72.40	2.31	4.01E+00		-5.63E-01	1.97E+00
PM-146	453.90	39.94	2.18E-01	2.18E-01	-3.22E-02	1.03E-01

Analysis Report for 1707085-03

HTC-A02-S002-2430-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
PM-146	735.90	14.01	8.21E-01	2.18E-01	9.64E-02	3.81E-01
	747.13	13.10	9.49E-01		-2.09E-01	4.42E-01
ND-147	91.11	28.90	1.43E+02	1.43E+02	2.40E+02	7.03E+01
	531.02	13.10	3.55E+02		-4.74E+01	1.66E+02
PM-149	285.90	3.10	5.25E+13	5.25E+13	5.76E+12	2.51E+13
EU-152	121.78	20.50	2.96E-01	2.96E-01	-1.71E-01	1.44E-01
	244.69	5.40	1.52E+00		1.48E-01	7.35E-01
	344.27	19.13	4.44E-01		-4.59E-01	2.12E-01
	778.89	9.20	1.44E+00		-2.24E-02	6.72E-01
	964.01	10.40	1.66E+00		7.46E-02	7.81E-01
	1085.78	7.22	2.14E+00		-1.02E+00	9.91E-01
	1112.02	9.60	1.89E+00		9.11E-02	8.85E-01
	1407.95	14.94	9.07E-01		1.35E-01	4.04E-01
GD-153	97.43	31.30	2.85E-01	2.85E-01	-2.90E-01	1.39E-01
	103.18	22.20	3.60E-01		-8.55E-02	1.75E-01
EU-154	123.07	40.50	1.55E-01	1.55E-01	-3.87E-03	7.54E-02
	723.30	19.70	7.75E-01		5.93E-02	3.67E-01
	873.19	11.50	1.20E+00		3.60E-01	5.55E-01
	996.32	10.30	1.30E+00		4.91E-01	5.96E-01
	1004.76	17.90	8.28E-01		-1.77E-01	3.83E-01
	1274.45	35.50	4.31E-01		-6.63E-02	1.96E-01
EU-155	86.50	30.90	2.75E-01	2.75E-01	1.22E-01	1.35E-01
	105.30	20.70	3.01E-01		1.90E-02	1.46E-01
EU-156	811.77	10.40	1.10E+02	1.10E+02	2.57E+01	5.14E+01
	1153.47	7.20	1.98E+02		-9.42E+01	9.14E+01
	1230.71	8.90	1.78E+02		-1.07E+02	8.27E+01
HO-166M	184.41	72.60	1.08E-01	1.08E-01	9.05E-02	5.27E-02
	280.45	29.60	2.67E-01		1.94E-01	1.28E-01
	410.94	11.10	8.20E-01		-1.35E-01	3.90E-01
	711.69	54.10	2.26E-01		3.73E-02	1.06E-01
TM-171	66.72	0.14	6.43E+01	6.43E+01	-3.19E+01	3.15E+01
HF-172	67.35	5.31	1.69E+00	6.26E-01	-8.40E-01	8.29E-01
	125.81	11.30	6.26E-01		1.39E-01	3.05E-01
LU-172	181.53	20.60	8.81E+03	6.40E+03	1.48E+03	4.28E+03
	900.72	29.81	1.21E+04		6.09E+03	5.66E+03
	1093.66	62.50	6.40E+03		2.17E+03	2.97E+03
LU-173	100.72	5.24	1.33E+00	4.51E-01	-1.59E-01	6.50E-01
	272.11	21.20	4.51E-01		4.86E-01	2.17E-01
HF-175	343.40	84.00	2.63E-01	2.63E-01	-2.71E-01	1.25E-01
LU-176	88.34	13.30	6.20E-01	8.17E-02	-1.81E-01	3.04E-01
	201.83	86.00	8.17E-02		1.55E-02	3.95E-02
	306.78	94.00	8.17E-02		1.21E-02	3.91E-02
HF-181	133.02	41.70	7.60E-01	5.55E-01	-7.76E-02	3.70E-01
	345.85	17.20	2.32E+00		-5.74E+00	1.11E+00
	482.03	82.80	5.55E-01		1.13E-01	2.61E-01
TA-182	67.75	41.20	3.47E-01	3.47E-01	-4.65E-01	1.70E-01
	1121.30	34.90	9.93E-01		5.26E-01	4.66E-01
	1189.05	16.23	1.99E+00		1.07E-01	9.25E-01
	1221.41	26.98	1.31E+00		-2.22E-01	6.11E-01
	1231.02	11.44	3.02E+00		-1.12E+00	1.41E+00
IR-192	308.46	29.68	6.46E-01	4.60E-01	-5.92E-03	3.09E-01
	468.07	48.10	4.60E-01		-1.61E-01	2.17E-01
HG-203	279.19	77.30	4.30E-01	4.30E-01	-2.05E-02	2.06E-01

Analysis Report for 1707085-03

HTC-A02-S002-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TL-204	374.74		94.11	9.52E-02	9.52E-02	2.46E-02	4.53E-02
		899.15		99.16	1.52E-01		8.18E-02	7.09E-02
		911.74		91.10	2.52E-01		4.52E-01	1.20E-01
	BI-207	569.67		97.72	1.02E-01	1.02E-01	6.67E-03	4.78E-02
		1063.62		74.90	2.12E-01		6.81E-02	9.84E-02
+	TL-208	583.14	*	30.22	6.71E-01	7.76E-02	1.05E+00	3.25E-01
		860.37	*	4.48	3.35E+00		1.68E+00	1.57E+00
		2614.66	*	35.85	7.76E-02		1.58E+00	0.00E+00
	BI-210M	262.00	*	45.00	2.42E-01	2.42E-01	1.20E-01	1.18E-01
		300.00	*	23.00	3.76E-01		1.83E-01	1.81E-01
+	PB-210	46.50	*	4.25	2.62E+00	2.62E+00	1.50E+00	1.28E+00
	PB-211	404.84		2.90	3.11E+00	3.11E+00	-1.37E+00	1.48E+00
		831.96		2.90	4.65E+00		1.67E-01	2.17E+00
+	BI-212	727.17	*	11.80	1.56E+00	1.56E+00	7.71E-01	7.45E-01
		1620.62		2.75	4.83E+00		-1.66E-01	2.12E+00
+	PB-212	238.63	*	44.60	2.98E-01	2.98E-01	1.41E+00	1.46E-01
		300.09	*	3.41	2.54E+00		1.23E+00	1.22E+00
+	BI-214	609.31	*	46.30	3.43E-01	1.13E-01	1.11E+00	1.64E-01
		1120.29	*	15.10	2.39E+00		6.55E-01	1.16E+00
		1764.49	*	15.80	1.13E-01		1.38E+00	0.00E+00
		2204.22		4.98	3.26E+00		1.17E+00	1.40E+00
+	PB-214	295.21	*	19.19	6.67E-01	3.64E-01	1.17E+00	3.25E-01
		351.92	*	37.19	3.64E-01		1.13E+00	1.77E-01
	RN-219	401.80		6.50	1.38E+00	1.38E+00	7.38E-02	6.55E-01
	RA-223	323.87		3.88	2.09E+00	2.09E+00	-1.27E-01	9.97E-01
+	RA-224	240.98	*	3.95	3.38E+00	3.38E+00	2.85E+00	1.66E+00
	RA-225	40.00		31.00	3.15E+01	3.15E+01	-1.61E+01	1.53E+01
+	RA-226	186.21	*	3.28	3.39E+00	3.39E+00	1.92E+00	1.66E+00
	TH-227	50.10		8.40	1.02E+00	1.02E+00	-1.50E-02	4.99E-01
		236.00		11.50	1.08E+00		2.34E+00	5.29E-01
		256.20		6.30	1.18E+00		-1.10E-01	5.67E-01
+	AC-228	338.32	*	11.40	1.29E+00	7.12E-01	1.93E+00	6.28E-01
		911.07	*	27.70	7.12E-01		1.42E+00	3.38E-01
		969.11		16.60	1.22E+00		1.11E+00	5.77E-01
	TH-230	48.44		16.90	5.25E-01	5.25E-01	1.30E-01	2.56E-01
		62.85		4.60	1.83E+00		1.07E+00	8.97E-01
		67.67		0.37	2.13E+01		-2.86E+01	1.04E+01
	PA-231	283.67		1.60	4.57E+00	3.59E+00	-1.13E+00	2.19E+00
		302.67		2.30	3.59E+00		2.71E+00	1.72E+00
	TH-231	25.64		14.70	1.66E+00	1.21E+00	-6.93E-02	8.09E-01
		84.21		6.40	1.21E+00		-9.48E-01	5.93E-01
	PA-233	311.98		38.60	2.41E+00	2.41E+00	-1.67E-01	1.15E+00
	PA-234	131.20		20.40	3.27E-01	3.27E-01	2.55E-01	1.59E-01
		733.99		8.80	1.25E+00		-2.90E-01	5.80E-01
		946.00		12.00	1.20E+00		2.06E-01	5.60E-01
	PA-234M	1001.03		0.92	1.52E+01	1.52E+01	-4.38E+00	7.00E+00
	TH-234	63.29		3.80	2.21E+00	2.21E+00	1.29E+00	1.08E+00
	U-235	143.76		10.50	6.04E-01	6.04E-01	8.55E-02	2.94E-01
		163.35		4.70	1.42E+00		5.08E-01	6.88E-01
		205.31		4.70	1.57E+00		2.89E-01	7.58E-01
+	NP-237	86.50	*	12.60	1.47E+00	1.47E+00	1.20E+00	7.31E-01
	NP-239	106.10		22.70	9.11E+11	9.11E+11	3.47E+11	4.44E+11
		228.18		10.70	2.35E+12		8.67E+11	1.14E+12

Analysis Report for 1707085-03

HTC-A02-S002-2430-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
NP-239	277.60	14.10	1.87E+12	9.11E+11	1.88E+11	8.96E+11
AM-241	59.54	35.90	2.29E-01	2.29E-01	-1.12E-01	1.12E-01
AM-243	74.67	66.00	1.69E-01	1.69E-01	7.38E-01	8.35E-02
CM-243	209.75	3.29	2.41E+00	5.58E-01	2.31E+00	1.17E+00
	228.14	10.60	7.06E-01		2.60E-01	3.41E-01
	277.60	14.00	5.58E-01		5.63E-02	2.68E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A02-S002-2430-01

Elapsed Live time: 3600
Elapsed Real Time: 3614

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	12	104
17:	98	85	88	73	73	64	58	82
25:	74	59	60	61	54	68	59	67
33:	63	82	68	50	74	52	60	72
41:	70	68	70	69	104	132	80	70
49:	69	70	86	91	94	87	77	81
57:	101	94	113	96	113	140	169	117
65:	88	120	112	103	129	123	140	141
73:	220	280	289	379	283	153	96	109
81:	104	114	112	131	125	163	166	134
89:	135	127	162	180	138	97	79	79
97:	88	72	87	80	60	59	71	71
105:	73	67	89	76	66	61	65	55
113:	56	58	78	68	80	55	69	68
121:	58	65	63	64	75	64	67	95
129:	70	71	73	67	71	51	60	54
137:	63	58	60	68	49	54	53	70
145:	60	65	53	61	62	60	48	57
153:	82	66	62	64	44	50	59	66
161:	54	59	52	56	44	54	53	57
169:	48	45	41	50	63	47	59	48
177:	50	60	56	57	44	56	44	67
185:	98	95	49	46	52	38	50	38
193:	36	47	55	61	58	51	49	36
201:	49	46	35	42	54	47	56	70
209:	60	51	38	43	37	31	39	37
217:	33	46	43	27	30	47	35	47
225:	33	35	45	43	33	40	38	24
233:	48	39	44	64	233	291	158	78
241:	79	55	37	30	23	33	31	32
249:	25	25	25	34	28	30	28	29
257:	31	39	33	30	31	20	39	35
265:	32	21	25	33	45	40	40	28
273:	31	30	21	27	46	37	19	24
281:	26	26	30	19	24	23	25	27
289:	27	19	27	35	45	109	103	37
297:	14	30	40	38	23	17	30	15
305:	31	18	21	25	22	18	24	20
313:	26	14	25	22	28	15	21	18
321:	29	24	21	12	27	30	24	32
329:	28	20	24	18	29	29	20	26
337:	60	61	40	24	24	21	30	12
345:	19	22	19	15	23	78	146	95
353:	36	25	20	22	13	17	17	13
361:	22	18	18	13	18	19	14	12

369:	16	19	20	14	20	19	26	12

Sample Title: HTC-A02-S002-2430-01

Channel								
377:	20	19	13	22	16	9	13	27
385:	17	25	18	23	17	17	14	19
393:	27	14	17	14	22	18	13	19
401:	22	16	19	18	13	21	16	24
409:	26	17	11	15	14	21	19	12
417:	16	11	11	22	11	13	13	12
425:	11	14	12	13	11	24	16	18
433:	12	15	18	10	17	18	11	8
441:	9	17	11	11	16	18	10	14
449:	13	13	9	12	7	14	15	14
457:	12	13	7	17	22	18	17	18
465:	10	16	11	11	10	11	14	12
473:	10	10	14	13	13	9	12	7
481:	10	20	15	17	8	12	15	12
489:	11	9	17	20	15	12	10	10
497:	11	8	10	10	13	9	15	8
505:	11	7	12	20	39	35	34	24
513:	19	5	12	13	11	11	12	16
521:	11	10	8	9	11	10	12	13
529:	9	11	14	11	8	13	13	9
537:	11	6	8	8	16	16	15	10
545:	6	14	13	9	11	6	8	7
553:	15	14	12	11	12	12	12	10
561:	10	12	11	12	7	5	14	13
569:	7	6	14	14	13	8	8	13
577:	6	8	7	4	47	70	60	19
585:	15	11	9	12	13	13	13	8
593:	13	13	7	9	6	2	9	9
601:	8	9	9	5	12	18	30	76
609:	82	43	8	8	5	12	7	9
617:	8	10	6	16	7	7	9	12
625:	7	14	7	12	12	8	9	12
633:	7	8	11	13	8	7	12	6
641:	11	9	6	8	6	11	9	13
649:	4	9	4	16	10	7	8	14
657:	6	7	9	8	9	4	16	11
665:	6	6	7	16	9	12	10	8
673:	8	9	6	7	12	5	10	11
681:	8	9	5	11	10	13	6	5
689:	7	11	3	15	4	7	8	8
697:	8	12	11	7	17	8	13	6
705:	8	7	12	3	4	9	11	11
713:	6	8	8	4	10	6	9	13
721:	8	11	10	12	5	19	20	12
729:	5	10	3	8	6	6	4	7
737:	5	6	10	7	4	8	4	9
745:	5	11	3	9	6	8	11	9
753:	6	8	11	15	7	8	7	6
761:	10	9	6	7	8	10	8	13
769:	10	10	6	5	11	9	9	3
777:	6	5	9	7	12	9	9	6
785:	11	9	9	7	6	4	5	6
793:	5	14	16	8	8	8	5	7

801:	8	8	6	8	9	12	4	6

Sample Title: HTC-A02-S002-2430-01

Channel								
809:	8	9	6	9	6	8	8	6
817:	4	8	6	5	5	8	7	5
825:	4	5	9	11	4	6	7	3
833:	10	8	7	9	9	9	5	9
841:	4	4	7	6	6	8	9	6
849:	7	6	7	3	5	7	5	2
857:	5	9	11	17	10	3	6	7
865:	4	8	6	4	4	10	6	6
873:	8	2	5	9	9	8	3	10
881:	7	8	9	7	5	7	3	6
889:	7	6	12	3	3	4	8	10
897:	7	10	9	4	4	6	6	7
905:	4	4	7	8	20	46	36	18
913:	5	8	4	5	6	9	12	4
921:	6	1	3	6	4	4	5	5
929:	3	4	2	6	8	7	8	7
937:	7	5	6	4	9	7	5	7
945:	1	8	8	3	11	6	7	3
953:	5	6	6	6	5	6	7	6
961:	2	9	9	14	12	9	13	30
969:	22	9	6	0	7	6	5	3
977:	9	5	9	5	1	6	9	5
985:	3	6	7	6	7	3	1	1
993:	0	8	4	7	4	6	7	6
1001:	4	6	2	7	7	7	7	7
1009:	6	8	2	2	5	6	7	9
1017:	7	1	3	6	8	8	3	4
1025:	4	8	3	6	8	3	4	11
1033:	9	2	8	3	7	5	2	4
1041:	5	3	4	8	4	6	6	5
1049:	3	3	5	9	6	7	1	8
1057:	3	8	5	1	5	9	6	15
1065:	7	4	5	5	4	8	4	4
1073:	5	3	5	12	10	9	7	7
1081:	5	7	4	9	5	5	3	8
1089:	5	9	7	5	6	8	5	6
1097:	3	3	5	6	8	13	9	5
1105:	4	1	6	9	5	9	7	7
1113:	13	8	5	4	7	7	21	12
1121:	11	5	5	5	5	4	9	6
1129:	6	2	4	10	10	8	3	4
1137:	5	7	10	6	2	2	7	5
1145:	4	5	7	6	7	4	2	12
1153:	6	4	7	7	3	8	12	7
1161:	3	4	7	6	5	5	8	1
1169:	4	7	5	7	11	3	2	6
1177:	7	4	8	6	4	11	6	7
1185:	11	6	6	5	7	5	8	7
1193:	5	6	7	3	4	7	13	8
1201:	3	4	5	10	5	11	10	2
1209:	8	7	11	6	8	9	8	10
1217:	9	5	6	8	10	9	7	10
1225:	5	4	10	10	6	2	5	5

1233:	7	9	11	11	9	13	6	8

Sample Title: HTC-A02-S002-2430-01

Channel								
1241:	9	9	5	2	5	9	11	5
1249:	6	7	2	4	2	2	5	6
1257:	6	2	5	5	2	1	2	3
1265:	3	5	4	4	5	4	8	2
1273:	3	2	3	6	5	3	4	5
1281:	5	6	4	7	6	7	6	3
1289:	7	4	7	2	5	2	4	5
1297:	3	8	5	5	3	7	3	5
1305:	4	3	3	3	5	11	5	4
1313:	5	4	4	4	0	1	5	3
1321:	4	7	5	4	4	2	5	4
1329:	4	1	4	3	2	3	2	1
1337:	1	1	0	2	3	2	4	0
1345:	6	3	5	1	11	2	4	3
1353:	5	6	1	3	3	3	3	2
1361:	0	3	2	1	0	4	2	1
1369:	1	0	5	2	2	2	5	3
1377:	5	2	2	2	0	4	3	2
1385:	0	3	1	0	2	4	2	2
1393:	1	3	2	3	1	3	1	1
1401:	0	6	1	3	2	4	3	1
1409:	3	2	3	2	3	0	3	1
1417:	2	3	3	1	1	2	4	3
1425:	6	1	2	0	2	1	2	1
1433:	3	2	3	4	3	2	4	7
1441:	1	3	2	1	1	1	3	2
1449:	2	1	2	3	3	2	2	2
1457:	3	26	75	144	135	36	13	4
1465:	0	2	0	0	1	3	1	1
1473:	0	3	1	0	3	2	1	2
1481:	2	1	1	4	0	2	4	0
1489:	1	0	2	2	1	3	3	1
1497:	4	1	0	0	1	3	2	1
1505:	3	3	0	5	1	4	0	1
1513:	1	2	2	3	2	0	0	3
1521:	0	0	1	0	1	2	0	1
1529:	1	3	1	2	2	3	0	3
1537:	0	2	1	0	0	7	1	1
1545:	2	3	1	1	1	1	2	0
1553:	0	4	1	4	2	0	1	0
1561:	0	2	0	3	0	1	1	1
1569:	2	0	2	2	2	1	1	2
1577:	0	0	1	0	0	1	2	0
1585:	1	1	1	4	2	0	1	6
1593:	3	4	1	1	1	0	0	3
1601:	3	2	1	1	2	2	1	1
1609:	0	1	0	1	3	1	0	1
1617:	3	0	0	2	3	1	5	2
1625:	1	0	2	1	0	0	2	1
1633:	0	2	2	0	3	0	2	0
1641:	1	1	1	0	0	1	0	1
1649:	2	0	1	2	1	1	4	0
1657:	2	0	0	1	0	0	2	2

1665:	1	1	1	0	1	1	1	2

Sample Title: HTC-A02-S002-2430-01

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

2097:	0	0	0	0	3	4	2	3

Sample Title: HTC-A02-S002-2430-01

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

2529:	0	0	0	0	0	0	0	1

Sample Title: HTC-A02-S002-2430-01

Channel								
2537:	1	0	1	0	0	0	0	0
2545:	0	0	0	0	1	0	1	0
2553:	0	0	0	0	0	1	0	0
2561:	0	0	0	0	0	0	0	0
2569:	0	0	0	1	0	0	0	0
2577:	0	1	0	1	0	1	0	0
2585:	0	0	0	0	0	0	0	0
2593:	0	0	1	0	1	1	0	0
2601:	0	0	0	0	0	0	0	0
2609:	0	0	1	2	13	14	15	5
2617:	2	1	1	1	0	0	0	0
2625:	0	0	1	0	0	0	0	0
2633:	0	0	1	1	0	0	0	0
2641:	0	0	0	0	2	0	0	0
2649:	0	1	0	0	0	0	0	0
2657:	0	1	0	0	0	1	1	0
2665:	0	1	0	0	0	0	0	1
2673:	0	0	0	0	0	0	0	0
2681:	0	0	1	0	0	1	0	0
2689:	1	1	0	1	0	1	0	0
2697:	0	0	0	1	0	0	0	0
2705:	0	0	0	0	0	0	0	0
2713:	1	0	0	0	0	0	0	0
2721:	0	0	0	0	1	0	1	0
2729:	0	0	1	0	1	1	0	0
2737:	1	0	1	0	0	1	0	0
2745:	1	0	0	0	0	0	0	0
2753:	0	1	0	0	0	0	0	0
2761:	0	0	2	0	0	0	0	0
2769:	0	0	0	0	1	1	1	0
2777:	0	0	1	2	0	0	0	0
2785:	0	0	0	0	0	0	0	0
2793:	0	0	0	0	0	0	0	0
2801:	1	0	0	1	0	0	0	0
2809:	0	1	0	1	0	0	0	0
2817:	0	0	0	1	0	0	0	0
2825:	1	0	0	0	0	0	1	1
2833:	0	0	0	0	0	0	0	1
2841:	0	0	0	0	1	0	0	0
2849:	0	0	0	0	0	0	0	0
2857:	0	1	0	1	0	0	0	0
2865:	0	0	1	0	0	0	0	1
2873:	0	0	0	0	0	1	0	0
2881:	0	0	0	0	0	0	0	0
2889:	0	0	0	0	0	0	0	0
2897:	1	1	0	0	0	0	0	0
2905:	0	0	0	0	0	0	0	0
2913:	2	0	0	0	0	0	0	0
2921:	0	0	1	0	0	0	0	0
2929:	0	0	0	0	0	0	0	0
2937:	0	0	0	0	0	0	2	0
2945:	0	1	0	1	0	0	0	0
2953:	1	0	0	0	0	0	0	0

2961:	0	0	0	0	0	0	0	0

Sample Title: HTC-A02-S002-2430-01

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

3393:	0	1	0	0	0	0	0	0

Sample Title: HTC-A02-S002-2430-01

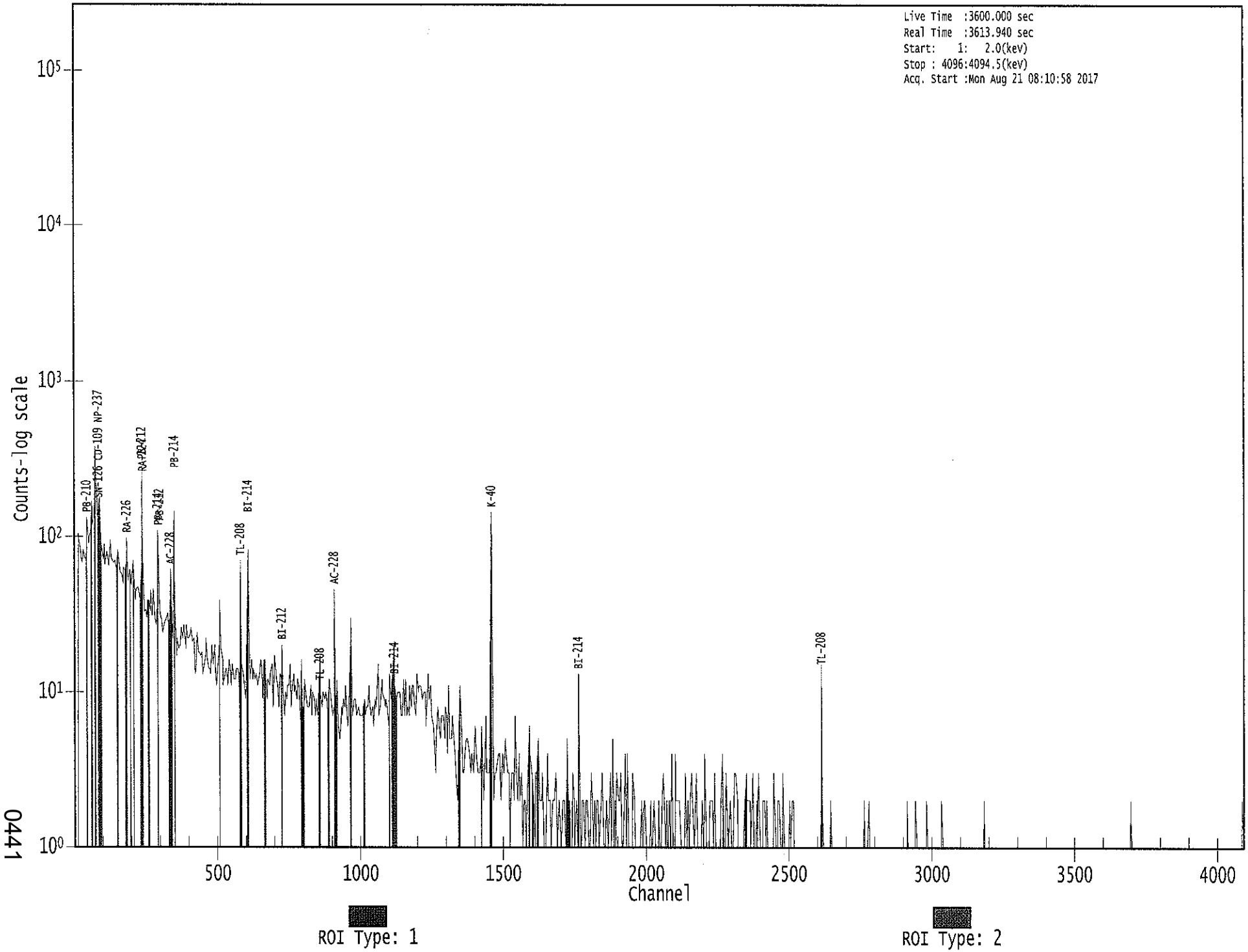
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	1	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	1	0	0	0	0	0
3433:	0	0	1	0	0	1	0	0
3441:	0	0	0	0	0	1	0	0
3449:	0	0	1	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	1	0	0	0	0	0	0	0
3481:	0	0	1	0	0	0	0	0
3489:	0	0	1	1	0	0	0	1
3497:	0	0	0	1	0	0	1	0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

3825:	0	1	0	0	0	0	0	0

Sample Title: HTC-A02-S002-2430-01

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

0000055604.CNF



0441

Apex-Gamma

8/21

Analysis Report for 1707085-04

HTC-A02-S002-2430-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707085-04
Sample Description	: HTC-A02-S002-2430-01
Sample Type	: SOIL
Sample Size	: 5.704E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 8:05:01AM
Acquisition Started	: 8/21/2017 9:11:55AM
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	: 55612

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/22/17

Analysis Report for 1707085-04

HTC-A02-S002-2430-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 10:12:28AM
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	76.12	75.18	0.0000	0.00
2	85.79	84.85	0.0000	0.00
3	129.23	128.30	0.0000	0.00
4	186.08	185.17	0.0000	0.00
5	209.56	208.65	0.0000	0.00
6	238.72	237.83	0.0000	0.00
7	241.90	241.01	0.0000	0.00
8	270.58	269.70	0.0000	0.00
9	296.45	295.58	0.0000	0.00
10	328.52	327.66	0.0000	0.00
11	338.47	337.61	0.0000	0.00
12	352.01	351.15	0.0000	0.00
13	409.91	409.08	0.0000	0.00
14	452.65	451.83	0.0000	0.00
15	462.73	461.92	0.0000	0.00
16	487.45	486.65	0.0000	0.00
17	511.86	511.07	0.0000	0.00
18	564.74	563.96	0.0000	0.00
19	571.72	570.95	0.0000	0.00
20	583.27	582.50	0.0000	0.00
21	599.77	599.00	0.0000	0.00
22	609.44	608.68	0.0000	0.00
23	726.31	725.60	0.0000	0.00
24	911.14	910.50	0.0000	0.00
25	968.18	967.57	0.0000	0.00
26	987.60	987.00	0.0000	0.00
27	994.60	994.00	0.0000	0.00
28	1001.35	1000.75	0.0000	0.00
29	1120.62	1120.08	0.0000	0.00
30	1190.61	1190.10	0.0000	0.00
31	1247.29	1246.81	0.0000	0.00
32	1270.91	1270.44	0.0000	0.00
33	1307.10	1306.64	0.0000	0.00
34	1319.80	1319.35	0.0000	0.00
35	1460.50	1460.12	0.0000	0.00
36	1547.29	1546.96	0.0000	0.00
37	1587.43	1587.12	0.0000	0.00
38	1654.85	1654.57	0.0000	0.00
39	1663.65	1663.38	0.0000	0.00
40	1673.32	1673.06	0.0000	0.00
41	1729.12	1728.89	0.0000	0.00
42	1764.06	1763.85	0.0000	0.00

Analysis Report for 1707085-04

HTC-A02-S002-2430-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1847.43	1847.26	0.0000	0.00
44	2203.56	2203.61	0.0000	0.00
45	2613.70	2614.02	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707085-04

HTC-A02-S002-2430-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 10:12:28AM

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)
	1	76.12	69 -	80	75.18	9.81E+02	154.03	2.47E+03	4.58
	2	85.79	81 -	88	84.85	1.84E+02	108.17	1.84E+03	4.59
	3	129.23	125 -	132	128.30	9.68E+01	78.89	9.74E+02	1.48
	4	186.08	180 -	188	185.17	1.32E+02	74.18	7.65E+02	2.45
	5	209.56	205 -	212	208.65	8.83E+01	62.19	5.81E+02	2.67
M	6	238.72	232 -	246	237.83	6.42E+02	71.94	4.70E+02	2.33
m	7	241.90	232 -	246	241.01	1.45E+02	68.47	3.53E+02	2.33
	8	270.58	267 -	273	269.70	3.86E+01	48.04	3.91E+02	1.90
	9	296.45	289 -	302	295.58	2.08E+02	82.87	6.66E+02	2.33
	10	328.52	323 -	332	327.66	7.35E+01	54.97	3.89E+02	3.61
	11	338.47	334 -	342	337.61	1.43E+02	51.79	3.25E+02	2.26
	12	352.01	346 -	356	351.15	2.52E+02	65.02	4.30E+02	2.05
	13	409.91	407 -	411	409.08	2.77E+01	26.29	1.25E+02	1.93
	14	452.65	448 -	456	451.83	4.40E+01	36.69	1.80E+02	5.35
	15	462.73	457 -	468	461.92	4.06E+01	46.17	2.47E+02	1.64
	16	487.45	483 -	492	486.65	3.59E+01	37.58	1.84E+02	2.14
	17	511.86	505 -	519	511.07	1.25E+02	58.88	3.02E+02	3.33
	18	564.74	561 -	567	563.96	2.97E+01	24.79	8.85E+01	4.18
	19	571.72	568 -	575	570.95	2.34E+01	26.91	1.07E+02	2.89
	20	583.27	577 -	588	582.50	1.48E+02	47.07	2.00E+02	2.29
	21	599.77	596 -	602	599.00	2.34E+01	23.62	8.53E+01	2.61
	22	609.44	604 -	614	608.68	1.91E+02	47.30	1.93E+02	2.39
	23	726.31	721 -	729	725.60	3.61E+01	32.43	1.40E+02	2.20
	24	911.14	907 -	915	910.50	1.05E+02	30.34	7.74E+01	2.52
	25	968.18	961 -	972	967.57	8.09E+01	30.79	7.81E+01	3.62
M	26	987.60	979 -	1006	987.00	1.40E+01	16.58	3.68E+01	2.46
m	27	994.60	979 -	1006	994.00	1.88E+01	17.63	3.86E+01	2.46
m	28	1001.35	979 -	1006	1000.75	2.09E+01	19.60	4.64E+01	2.71
	29	1120.62	1115 -	1126	1120.08	6.74E+01	32.92	1.01E+02	3.60
	30	1190.61	1185 -	1194	1190.10	2.47E+01	29.92	1.11E+02	7.43
	31	1247.29	1245 -	1250	1246.81	1.54E+01	16.16	4.13E+01	2.67
	32	1270.91	1268 -	1273	1270.44	1.28E+01	14.80	3.44E+01	1.17
	33	1307.10	1302 -	1312	1306.64	2.81E+01	20.83	3.97E+01	8.17
	34	1319.80	1313 -	1329	1319.35	2.94E+01	25.64	5.33E+01	8.87
	35	1460.50	1453 -	1465	1460.12	4.74E+02	46.05	2.71E+01	2.46
	36	1547.29	1542 -	1554	1546.96	1.38E+01	14.92	2.04E+01	1.25
	37	1587.43	1584 -	1590	1587.12	1.46E+01	10.81	1.09E+01	4.33
	38	1654.85	1649 -	1659	1654.57	1.40E+01	7.48	0.00E+00	7.00
	39	1663.65	1660 -	1666	1663.38	8.00E+00	5.66	0.00E+00	1.33
	40	1673.32	1668 -	1676	1673.06	6.61E+00	7.50	4.78E+00	3.40

Analysis Report for 1707085-04

HTC-A02-S002-2430-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1729.12	1726 -	1732	1728.89	7.61E+00	6.95	2.78E+00	2.24
42	1764.06	1759 -	1769	1763.85	3.40E+01	13.35	6.03E+00	2.63
43	1847.43	1844 -	1849	1847.26	5.64E+00	6.08	2.71E+00	1.41
44	2203.56	2201 -	2206	2203.61	5.79E+00	6.08	2.43E+00	1.87
45	2613.70	2608 -	2619	2614.02	5.20E+01	14.42	0.00E+00	3.88

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 10:12:28AM

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
	1	76.12	69 -	80	9.81E+02	154.03	2.47E+03	1.16E+02
	2	85.79	81 -	88	1.84E+02	108.17	1.84E+03	8.61E+01
	3	129.23	125 -	132	9.68E+01	78.89	9.74E+02	6.28E+01
	4	186.08	180 -	188	1.32E+02	74.18	7.65E+02	5.80E+01
	5	209.56	205 -	212	8.83E+01	62.19	5.81E+02	4.87E+01
M	6	238.72	232 -	246	6.42E+02	71.94	4.70E+02	3.56E+01
m	7	241.90	232 -	246	1.45E+02	68.47	3.53E+02	3.09E+01
	8	270.58	267 -	273	3.86E+01	48.04	3.91E+02	3.81E+01
	9	296.45	289 -	302	2.08E+02	82.87	6.66E+02	6.39E+01
	10	328.52	323 -	332	7.35E+01	54.97	3.89E+02	4.29E+01
	11	338.47	334 -	342	1.43E+02	51.79	3.25E+02	3.77E+01
	12	352.01	346 -	356	2.52E+02	65.02	4.30E+02	4.66E+01
	13	409.91	407 -	411	2.77E+01	26.29	1.25E+02	1.98E+01
	14	452.65	448 -	456	4.40E+01	36.69	1.80E+02	2.81E+01
	15	462.73	457 -	468	4.06E+01	46.17	2.47E+02	1.28E+01
	16	487.45	483 -	492	3.59E+01	37.58	1.84E+02	2.93E+01
	17	511.86	505 -	519	1.25E+02	58.88	3.02E+02	4.48E+01
	18	564.74	561 -	567	2.97E+01	24.79	8.85E+01	1.83E+01
	19	571.72	568 -	575	2.34E+01	26.91	1.07E+02	2.06E+01
	20	583.27	577 -	588	1.48E+02	47.07	2.00E+02	3.31E+01
	21	599.77	596 -	602	2.34E+01	23.62	8.53E+01	1.77E+01
	22	609.44	604 -	614	1.91E+02	47.30	1.93E+02	3.16E+01

Analysis Report for 1707085-04

HTC-A02-S002-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	23	726.31	721 -	729	3.61E+01	32.43	1.40E+02	2.48E+01
	24	911.14	907 -	915	1.05E+02	30.34	7.74E+01	1.84E+01
	25	968.18	961 -	972	8.09E+01	30.79	7.81E+01	2.05E+01
M	26	987.60	979 -	1006	1.40E+01	16.58	3.68E+01	9.97E+00
m	27	994.60	979 -	1006	1.88E+01	17.63	3.86E+01	1.02E+01
m	28	1001.35	979 -	1006	2.09E+01	19.60	4.64E+01	1.12E+01
	29	1120.62	1115 -	1126	6.74E+01	32.92	1.01E+02	2.35E+01
	30	1190.61	1185 -	1194	2.47E+01	29.92	1.11E+02	2.32E+01
	31	1247.29	1245 -	1250	1.54E+01	16.16	4.13E+01	1.16E+01
	32	1270.91	1268 -	1273	1.28E+01	14.80	3.44E+01	1.06E+01
	33	1307.10	1302 -	1312	2.81E+01	20.83	3.97E+01	1.47E+01
	34	1319.80	1313 -	1329	2.94E+01	25.64	5.33E+01	1.91E+01
	35	1460.50	1453 -	1465	4.74E+02	46.05	2.71E+01	1.23E+01
	36	1547.29	1542 -	1554	1.38E+01	14.92	2.04E+01	1.06E+01
	37	1587.43	1584 -	1590	1.46E+01	10.81	1.09E+01	6.28E+00
	38	1654.85	1649 -	1659	1.40E+01	7.48	0.00E+00	0.00E+00
	39	1663.65	1660 -	1666	8.00E+00	5.66	0.00E+00	0.00E+00
	40	1673.32	1668 -	1676	6.61E+00	7.50	4.78E+00	4.49E+00
	41	1729.12	1726 -	1732	7.61E+00	6.95	2.78E+00	3.47E+00
	42	1764.06	1759 -	1769	3.40E+01	13.35	6.03E+00	5.35E+00
	43	1847.43	1844 -	1849	5.64E+00	6.08	2.71E+00	3.12E+00
	44	2203.56	2201 -	2206	5.79E+00	6.08	2.43E+00	3.06E+00
	45	2613.70	2608 -	2619	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 : 8/21/2017 10:12:28AM

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
1	76.12	69 -	80	75.18	9.81E+02	154.03	2.47E+03	.....
2	85.79	81 -	88	84.85	1.84E+02	108.17	1.84E+03	EU-155

Analysis Report for 1707085-04

HTC-A02-S002-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									NP-237
	3	129.23	125 -	132	128.30	9.68E+01	78.89	9.74E+02	.....
	4	186.08	180 -	188	185.17	1.32E+02	74.18	7.65E+02	RA-226
	5	209.56	205 -	212	208.65	8.83E+01	62.19	5.81E+02	CM-243
									GA-67
M	6	238.72	232 -	246	237.83	6.42E+02	71.94	4.70E+02	PB-212
m	7	241.90	232 -	246	241.01	1.45E+02	68.47	3.53E+02	RA-224
	8	270.58	267 -	273	269.70	3.86E+01	48.04	3.91E+02	.....
	9	296.45	289 -	302	295.58	2.08E+02	82.87	6.66E+02	.....
	10	328.52	323 -	332	327.66	7.35E+01	54.97	3.89E+02	LA-140
	11	338.47	334 -	342	337.61	1.43E+02	51.79	3.25E+02	AC-228
	12	352.01	346 -	356	351.15	2.52E+02	65.02	4.30E+02	PB-214
	13	409.91	407 -	411	409.08	2.77E+01	26.29	1.25E+02	.....
	14	452.65	448 -	456	451.83	4.40E+01	36.69	1.80E+02	.....
	15	462.73	457 -	468	461.92	4.06E+01	46.17	2.47E+02	SB-125
	16	487.45	483 -	492	486.65	3.59E+01	37.58	1.84E+02	LA-140
	17	511.86	505 -	519	511.07	1.25E+02	58.88	3.02E+02	.....
	18	564.74	561 -	567	563.96	2.97E+01	24.79	8.85E+01	.....
	19	571.72	568 -	575	570.95	2.34E+01	26.91	1.07E+02	.....
	20	583.27	577 -	588	582.50	1.48E+02	47.07	2.00E+02	TL-208
	21	599.77	596 -	602	599.00	2.34E+01	23.62	8.53E+01	SB-125
	22	609.44	604 -	614	608.68	1.91E+02	47.30	1.93E+02	BI-214
	23	726.31	721 -	729	725.60	3.61E+01	32.43	1.40E+02	BI-212
	24	911.14	907 -	915	910.50	1.05E+02	30.34	7.74E+01	AC-228
									TL-204
	25	968.18	961 -	972	967.57	8.09E+01	30.79	7.81E+01	AC-228
M	26	987.60	979 -	1006	987.00	1.40E+01	16.58	3.68E+01	.....
m	27	994.60	979 -	1006	994.00	1.88E+01	17.63	3.86E+01	.....
m	28	1001.35	979 -	1006	1000.75	2.09E+01	19.60	4.64E+01	PA-234M
	29	1120.62	1115 -	1126	1120.08	6.74E+01	32.92	1.01E+02	SC-46
									BI-214
									TA-182
	30	1190.61	1185 -	1194	1190.10	2.47E+01	29.92	1.11E+02	.....
	31	1247.29	1245 -	1250	1246.81	1.54E+01	16.16	4.13E+01	.....
	32	1270.91	1268 -	1273	1270.44	1.28E+01	14.80	3.44E+01	.....
	33	1307.10	1302 -	1312	1306.64	2.81E+01	20.83	3.97E+01	.....
	34	1319.80	1313 -	1329	1319.35	2.94E+01	25.64	5.33E+01	.....
	35	1460.50	1453 -	1465	1460.12	4.74E+02	46.05	2.71E+01	K-40
	36	1547.29	1542 -	1554	1546.96	1.38E+01	14.92	2.04E+01	.....
	37	1587.43	1584 -	1590	1587.12	1.46E+01	10.81	1.09E+01	.....
	38	1654.85	1649 -	1659	1654.57	1.40E+01	7.48	0.00E+00	.....
	39	1663.65	1660 -	1666	1663.38	8.00E+00	5.66	0.00E+00	.....
	40	1673.32	1668 -	1676	1673.06	6.61E+00	7.50	4.78E+00	.....
	41	1729.12	1726 -	1732	1728.89	7.61E+00	6.95	2.78E+00	.....
	42	1764.06	1759 -	1769	1763.85	3.40E+01	13.35	6.03E+00	BI-214
	43	1847.43	1844 -	1849	1847.26	5.64E+00	6.08	2.71E+00	.....
	44	2203.56	2201 -	2206	2203.61	5.79E+00	6.08	2.43E+00	BI-214
	45	2613.70	2608 -	2619	2614.02	5.20E+01	14.42	0.00E+00	TL-208

Analysis Report for 1707085-04

HTC-A02-S002-2430-01

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 : 8/21/2017 10:12:28AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	76.12	9.81E+02	154.03	2.32E-02	1.91E-03
	2	85.79	1.84E+02	108.17	2.37E-02	2.12E-03
	3	129.23	9.68E+01	78.89	2.15E-02	1.63E-03
	4	186.08	1.32E+02	74.18	1.69E-02	1.40E-03
	5	209.56	8.83E+01	62.19	1.53E-02	1.28E-03
M	6	238.72	6.42E+02	71.94	1.36E-02	1.14E-03
m	7	241.90	1.45E+02	68.47	1.34E-02	1.13E-03
	8	270.58	3.86E+01	48.04	1.20E-02	9.88E-04
	9	296.45	2.08E+02	82.87	1.10E-02	9.11E-04
	10	328.52	7.35E+01	54.97	9.89E-03	8.43E-04
	11	338.47	1.43E+02	51.79	9.59E-03	8.22E-04
	12	352.01	2.52E+02	65.02	9.21E-03	7.94E-04
	13	409.91	2.77E+01	26.29	7.87E-03	7.03E-04
	14	452.65	4.40E+01	36.69	7.11E-03	6.85E-04
	15	462.73	4.06E+01	46.17	6.95E-03	6.81E-04
	16	487.45	3.59E+01	37.58	6.59E-03	6.71E-04
	17	511.86	1.25E+02	58.88	6.27E-03	6.61E-04
	18	564.74	2.97E+01	24.79	5.68E-03	6.39E-04
	19	571.72	2.34E+01	26.91	5.61E-03	6.36E-04
	20	583.27	1.48E+02	47.07	5.50E-03	6.31E-04
	21	599.77	2.34E+01	23.62	5.36E-03	6.24E-04
	22	609.44	1.91E+02	47.30	5.27E-03	6.20E-04
	23	726.31	3.61E+01	32.43	4.46E-03	5.18E-04
	24	911.14	1.05E+02	30.34	3.62E-03	2.99E-04
	25	968.18	8.09E+01	30.79	3.43E-03	2.86E-04
M	26	987.60	1.40E+01	16.58	3.37E-03	2.81E-04
m	27	994.60	1.88E+01	17.63	3.35E-03	2.79E-04
m	28	1001.35	2.09E+01	19.60	3.33E-03	2.78E-04
	29	1120.62	6.74E+01	32.92	3.01E-03	2.50E-04
	30	1190.61	2.47E+01	29.92	2.86E-03	2.36E-04
	31	1247.29	1.54E+01	16.16	2.74E-03	2.33E-04
	32	1270.91	1.28E+01	14.80	2.70E-03	2.31E-04
	33	1307.10	2.81E+01	20.83	2.63E-03	2.29E-04
	34	1319.80	2.94E+01	25.64	2.61E-03	2.28E-04

Analysis Report for 1707085-04

HTC-A02-S002-2430-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
35	1460.50	4.74E+02	46.05	2.39E-03	2.08E-04
36	1547.29	1.38E+01	14.92	2.26E-03	1.95E-04
37	1587.43	1.46E+01	10.81	2.21E-03	1.89E-04
38	1654.85	1.40E+01	7.48	2.13E-03	1.79E-04
39	1663.65	8.00E+00	5.66	2.12E-03	1.77E-04
40	1673.32	6.61E+00	7.50	2.10E-03	1.76E-04
41	1729.12	7.61E+00	6.95	2.04E-03	1.67E-04
42	1764.06	3.40E+01	13.35	2.00E-03	1.62E-04
43	1847.43	5.64E+00	6.08	1.91E-03	1.51E-04
44	2203.56	5.79E+00	6.08	1.58E-03	1.51E-04
45	2613.70	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 : 8/21/2017 10:12:28AM

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

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	76.12	9.81E+02	154.03			9.81E+02	1.54E+02
	2	85.79	1.84E+02	108.17			1.84E+02	1.08E+02
	3	129.23	9.68E+01	78.89			9.68E+01	7.89E+01
	4	186.08	1.32E+02	74.18	2.43E+01	7.50E+00	1.08E+02	7.46E+01
	5	209.56	8.83E+01	62.19			8.83E+01	6.22E+01
M	6	238.72	6.42E+02	71.94	1.06E+01	6.01E+00	6.31E+02	7.22E+01
m	7	241.90	1.45E+02	68.47			1.45E+02	6.85E+01
	8	270.58	3.86E+01	48.04			3.86E+01	4.80E+01
	9	296.45	2.08E+02	82.87			2.08E+02	8.29E+01
	10	328.52	7.35E+01	54.97			7.35E+01	5.50E+01
	11	338.47	1.43E+02	51.79			1.43E+02	5.18E+01
	12	352.01	2.52E+02	65.02			2.52E+02	6.50E+01
	13	409.91	2.77E+01	26.29			2.77E+01	2.63E+01
	14	452.65	4.40E+01	36.69			4.40E+01	3.67E+01
	15	462.73	4.06E+01	46.17			4.06E+01	4.62E+01
	16	487.45	3.59E+01	37.58			3.59E+01	3.76E+01
	17	511.86	1.25E+02	58.88	4.55E+01	4.99E+00	7.93E+01	5.91E+01
	18	564.74	2.97E+01	24.79			2.97E+01	2.48E+01
	19	571.72	2.34E+01	26.91			2.34E+01	2.69E+01

Analysis Report for 1707085-04

HTC-A02-S002-2430-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	20	583.27	1.48E+02	47.07			1.48E+02	4.71E+01
	21	599.77	2.34E+01	23.62			2.34E+01	2.36E+01
	22	609.44	1.91E+02	47.30			1.91E+02	4.73E+01
	23	726.31	3.61E+01	32.43			3.61E+01	3.24E+01
	24	911.14	1.05E+02	30.34			1.05E+02	3.03E+01
	25	968.18	8.09E+01	30.79			8.09E+01	3.08E+01
M	26	987.60	1.40E+01	16.58			1.40E+01	1.66E+01
m	27	994.60	1.88E+01	17.63			1.88E+01	1.76E+01
m	28	1001.35	2.09E+01	19.60			2.09E+01	1.96E+01
	29	1120.62	6.74E+01	32.92			6.74E+01	3.29E+01
	30	1190.61	2.47E+01	29.92			2.47E+01	2.99E+01
	31	1247.29	1.54E+01	16.16			1.54E+01	1.62E+01
	32	1270.91	1.28E+01	14.80			1.28E+01	1.48E+01
	33	1307.10	2.81E+01	20.83			2.81E+01	2.08E+01
	34	1319.80	2.94E+01	25.64			2.94E+01	2.56E+01
	35	1460.50	4.74E+02	46.05			4.74E+02	4.61E+01
	36	1547.29	1.38E+01	14.92			1.38E+01	1.49E+01
	37	1587.43	1.46E+01	10.81			1.46E+01	1.08E+01
	38	1654.85	1.40E+01	7.48			1.40E+01	7.48E+00
	39	1663.65	8.00E+00	5.66			8.00E+00	5.66E+00
	40	1673.32	6.61E+00	7.50			6.61E+00	7.50E+00
	41	1729.12	7.61E+00	6.95			7.61E+00	6.95E+00
	42	1764.06	3.40E+01	13.35			3.40E+01	1.34E+01
	43	1847.43	5.64E+00	6.08			5.64E+00	6.08E+00
	44	2203.56	5.79E+00	6.08			5.79E+00	6.08E+00
	45	2613.70	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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/21/2017 10:12:28AM

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

Corrected Area is: Original * Peak Ratio - Background

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
1	76.12	9.81E+02	154.03			9.81E+02	1.54E+02
2	85.79	1.84E+02	108.17			1.84E+02	1.08E+02

Analysis Report for 1707085-04

HTC-A02-S002-2430-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	3	129.23	9.68E+01	78.89			9.68E+01	7.89E+01
	4	186.08	1.32E+02	74.18	2.43E+01	7.50E+00	1.08E+02	7.46E+01
	5	209.56	8.83E+01	62.19			8.83E+01	6.22E+01
M	6	238.72	6.42E+02	71.94	1.06E+01	6.01E+00	6.31E+02	7.22E+01
m	7	241.90	1.45E+02	68.47			1.45E+02	6.85E+01
	8	270.58	3.86E+01	48.04			3.86E+01	4.80E+01
	9	296.45	2.08E+02	82.87			2.08E+02	8.29E+01
	10	328.52	7.35E+01	54.97			7.35E+01	5.50E+01
	11	338.47	1.43E+02	51.79			1.43E+02	5.18E+01
	12	352.01	2.52E+02	65.02			2.52E+02	6.50E+01
	13	409.91	2.77E+01	26.29			2.77E+01	2.63E+01
	14	452.65	4.40E+01	36.69			4.40E+01	3.67E+01
	15	462.73	4.06E+01	46.17			4.06E+01	4.62E+01
	16	487.45	3.59E+01	37.58			3.59E+01	3.76E+01
	17	511.86	1.25E+02	58.88	4.55E+01	4.99E+00	7.93E+01	5.91E+01
	18	564.74	2.97E+01	24.79			2.97E+01	2.48E+01
	19	571.72	2.34E+01	26.91			2.34E+01	2.69E+01
	20	583.27	1.48E+02	47.07			1.48E+02	4.71E+01
	21	599.77	2.34E+01	23.62			2.34E+01	2.36E+01
	22	609.44	1.91E+02	47.30			1.91E+02	4.73E+01
	23	726.31	3.61E+01	32.43			3.61E+01	3.24E+01
	24	911.14	1.05E+02	30.34			1.05E+02	3.03E+01
	25	968.18	8.09E+01	30.79			8.09E+01	3.08E+01
M	26	987.60	1.40E+01	16.58			1.40E+01	1.66E+01
m	27	994.60	1.88E+01	17.63			1.88E+01	1.76E+01
m	28	1001.35	2.09E+01	19.60			2.09E+01	1.96E+01
	29	1120.62	6.74E+01	32.92			6.74E+01	3.29E+01
	30	1190.61	2.47E+01	29.92			2.47E+01	2.99E+01
	31	1247.29	1.54E+01	16.16			1.54E+01	1.62E+01
	32	1270.91	1.28E+01	14.80			1.28E+01	1.48E+01
	33	1307.10	2.81E+01	20.83			2.81E+01	2.08E+01
	34	1319.80	2.94E+01	25.64			2.94E+01	2.56E+01
	35	1460.50	4.74E+02	46.05			4.74E+02	4.61E+01
	36	1547.29	1.38E+01	14.92			1.38E+01	1.49E+01
	37	1587.43	1.46E+01	10.81			1.46E+01	1.08E+01
	38	1654.85	1.40E+01	7.48			1.40E+01	7.48E+00
	39	1663.65	8.00E+00	5.66			8.00E+00	5.66E+00
	40	1673.32	6.61E+00	7.50			6.61E+00	7.50E+00
	41	1729.12	7.61E+00	6.95			7.61E+00	6.95E+00
	42	1764.06	3.40E+01	13.35			3.40E+01	1.34E+01
	43	1847.43	5.64E+00	6.08			5.64E+00	6.08E+00
	44	2203.56	5.79E+00	6.08			5.79E+00	6.08E+00
	45	2613.70	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 1707085-04

HTC-A02-S002-2430-01

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	0.985	1460.81	*	10.67	2.45E+01	3.24E+00
EU-155	0.315	86.50	*	30.90	3.43E-01	2.04E-01
		105.30		20.70		
TL-208	0.811	583.14	*	30.22	1.17E+00	3.96E-01
		860.37		4.48		
		2614.66	*	35.85	1.49E+00	4.50E-01
BI-212	0.685	727.17	*	11.80	9.03E-01	8.19E-01
		1620.62		2.75		
PB-212	0.897	238.63	*	44.60	1.37E+00	1.95E-01
		300.09		3.41		
BI-214	0.985	609.31	*	46.30	1.03E+00	2.82E-01
		1120.29	*	15.10	1.95E+00	9.66E-01
		1764.49	*	15.80	1.42E+00	5.68E-01
		2204.22	*	4.98	9.67E-01	1.02E+00
PB-214	0.422	295.21		19.19		
		351.92	*	37.19	9.67E-01	2.63E-01
RA-224	0.874	240.98	*	3.95	3.61E+00	1.73E+00
RA-226	0.997	186.21	*	3.28	2.56E+00	5.02E+00
AC-228	0.959	338.32	*	11.40	1.73E+00	6.40E-01
		911.07	*	27.70	1.38E+00	4.14E-01
		969.11	*	16.60	1.87E+00	7.29E-01
PA-234M	0.984	1001.03	*	0.92	8.99E+00	8.46E+00
NP-237	0.922	86.50	*	12.60	8.10E-01	4.83E-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 10:12:28AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Analysis Report for 1707085-04

HTC-A02-S002-2430-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	76.12	2.72392E-01	7.85		
	3	129.23	2.68988E-02	40.74		
	5	209.56	2.45306E-02	35.21	Tol.	GA-67 CM-243
	8	270.58	1.07206E-02	62.24		
	9	296.45	5.77916E-02	19.92		
	10	328.52	2.04136E-02	37.40	Sum	
	13	409.91	7.68056E-03	47.54		
	14	452.65	1.22222E-02	41.69		
	15	462.73	1.12881E-02	56.81		
	16	487.45	9.98264E-03	52.28	Tol.	LA-140
	17	511.86	2.20268E-02	37.26		
	18	564.74	8.26201E-03	41.67		
	19	571.72	6.51154E-03	57.39		
	21	599.77	6.48990E-03	50.55		
M	26	987.60	3.88306E-03	59.29		
m	27	994.60	5.22897E-03	46.82		
	30	1190.61	6.86979E-03	60.48		
	31	1247.29	4.27083E-03	52.54		
	32	1270.91	3.55556E-03	57.81		
	33	1307.10	7.81250E-03	37.04	Sum	
	34	1319.80	8.15476E-03	43.67	Sum	
	36	1547.29	3.83681E-03	54.03		
	37	1587.43	4.04861E-03	37.07		
	38	1654.85	3.88889E-03	26.73		
	39	1663.65	2.22222E-03	35.36		
	40	1673.32	1.83642E-03	56.72		
	41	1729.12	2.11420E-03	45.63	Sum	
	43	1847.43	1.56746E-03	53.90	Sum	

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Analysis Report for 1707085-04

HTC-A02-S002-2430-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.98	1460.81	*	10.67	2.45E+01	3.24E+00
EU-155	0.31	86.50	*	30.90	3.43E-01	2.04E-01
		105.30		20.70		
TL-208	0.81	583.14	*	30.22	1.17E+00	3.96E-01
		860.37		4.48		
		2614.66	*	35.85	1.49E+00	4.50E-01
BI-212	0.68	727.17	*	11.80	9.03E-01	8.19E-01
		1620.62		2.75		
PB-212	0.89	238.63	*	44.60	1.37E+00	1.95E-01
		300.09		3.41		
BI-214	0.98	609.31	*	46.30	1.03E+00	2.82E-01
		1120.29	*	15.10	1.95E+00	9.66E-01
		1764.49	*	15.80	1.42E+00	5.68E-01
		2204.22	*	4.98	9.67E-01	1.02E+00
PB-214	0.42	295.21		19.19		
		351.92	*	37.19	9.67E-01	2.63E-01
RA-224	0.87	240.98	*	3.95	3.61E+00	1.73E+00
RA-226	0.99	186.21	*	3.28	2.56E+00	5.02E+00
AC-228	0.95	338.32	*	11.40	1.73E+00	6.40E-01
		911.07	*	27.70	1.38E+00	4.14E-01
		969.11	*	16.60	1.87E+00	7.29E-01
PA-234M	0.98	1001.03	*	0.92	8.99E+00	8.46E+00
NP-237	0.92	86.50	*	12.60	8.10E-01	4.83E-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	0.985	2.45E+01	3.24E+00	
?	EU-155	0.315	3.43E-01	2.04E-01	
	TL-208	0.811	1.31E+00	2.97E-01	
	BI-212	0.685	9.03E-01	8.19E-01	

Analysis Report for 1707085-04

HTC-A02-S002-2430-01

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	PB-212	0.897	1.37E+00	1.95E-01	
	BI-214	0.985	1.15E+00	2.38E-01	
	PB-214	0.422	9.67E-01	2.63E-01	
	RA-224	0.874	3.61E+00	1.73E+00	
	RA-226	0.997	2.56E+00	5.02E+00	
	AC-228	0.959	1.56E+00	3.14E-01	
	PA-234M	0.984	8.99E+00	8.46E+00	
?	NP-237	0.922	8.10E-01	4.83E-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 1707085-04

HTC-A02-S002-2430-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 10:12:28AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	76.12	2.72392E-01	7.85		
	3	129.23	2.68988E-02	40.74		
	5	209.56	2.45306E-02	35.21	Tol.	GA-67 CM-243
	8	270.58	1.07206E-02	62.24		
	9	296.45	5.77916E-02	19.92		
	10	328.52	2.04136E-02	37.40	Sum	
	13	409.91	7.68056E-03	47.54		
	14	452.65	1.22222E-02	41.69		
	15	462.73	1.12881E-02	56.81		
	16	487.45	9.98264E-03	52.28	Tol.	LA-140
	17	511.86	2.20268E-02	37.26		
	18	564.74	8.26201E-03	41.67		
	19	571.72	6.51154E-03	57.39		
	21	599.77	6.48990E-03	50.55		
M	26	987.60	3.88306E-03	59.29		
m	27	994.60	5.22897E-03	46.82		
	30	1190.61	6.86979E-03	60.48		
	31	1247.29	4.27083E-03	52.54		
	32	1270.91	3.55556E-03	57.81		
	33	1307.10	7.81250E-03	37.04	Sum	
	34	1319.80	8.15476E-03	43.67	Sum	
	36	1547.29	3.83681E-03	54.03		
	37	1587.43	4.04861E-03	37.07		
	38	1654.85	3.88889E-03	26.73		
	39	1663.65	2.22222E-03	35.36		
	40	1673.32	1.83642E-03	56.72		
	41	1729.12	2.11420E-03	45.63	Sum	
	43	1847.43	1.56746E-03	53.90	Sum	

Analysis Report for 1707085-04

HTC-A02-S002-2430-01

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

NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	1.46E+00	3.20E+00	3.20E+00
+		NA-22	1274.54		99.94	1.87E-02	1.99E-01	1.99E-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	-5.64E-02	8.87E-02	8.87E-02
+		K-40	1460.81	*	10.67	2.45E+01	1.41E+00	1.41E+00
+	@	AR-41	1293.64		99.16	0.00E+00	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	-1.67E-02	8.45E-02	8.45E-02
			78.34		96.00	3.33E-01		1.08E-01
+		SC-46	889.25		99.98	3.44E-01	3.40E-01	3.40E-01
			1120.51		99.99	6.15E-01		4.95E-01
+		V-48	983.52		99.98	3.51E-01	9.32E+00	9.32E+00
			1312.10		97.50	-6.90E+00		1.01E+01
+		CR-51	320.08		9.83	-4.44E-02	9.00E+00	9.00E+00
+		MN-54	834.83		99.97	7.10E-03	1.88E-01	1.88E-01
+		CO-56	846.75		99.96	-1.45E-01	2.79E-01	2.79E-01
			1037.75		14.03	-6.21E-01		2.34E+00
			1238.25		67.00	2.13E-01		6.93E-01
			1771.40		15.51	3.03E-01		1.68E+00
			2598.48		16.90	5.63E-01		1.88E+00
+		CO-57	122.06		85.51	4.25E-02	9.22E-02	9.22E-02
			136.48		10.60	-5.67E-01		7.27E-01
+		CO-58	810.76		99.40	2.46E-02	2.97E-01	2.97E-01
+		FE-59	1099.22		56.50	-1.28E-02	1.27E+00	1.27E+00
			1291.56		43.20	-6.30E-02		1.78E+00
+		CO-60	1173.22		100.00	-2.45E-02	1.34E-01	1.71E-01
			1332.49		100.00	3.81E-02		1.34E-01
+		ZN-65	1115.52		50.75	7.02E-02	4.93E-01	4.93E-01
+		GA-67	93.31		35.70	3.51E+08	2.48E+08	2.48E+08
			208.95		2.24	3.27E+09		3.83E+09
			300.22		16.00	-7.04E+08		6.37E+08
+		SE-75	121.11		16.70	2.68E-01	1.80E-01	6.40E-01

Analysis Report for 1707085-04

HTC-A02-S002-2430-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00	59.20	-1.01E-01	1.80E-01	1.80E-01
		264.65	59.80	-1.08E-02		2.12E-01
		279.53	25.20	-1.22E-04		5.34E-01
		400.65	11.40	1.55E-01		1.42E+00
+	RB-82	776.52	13.00	-1.01E+01	1.30E+01	1.30E+01
+	RB-83	520.41	46.00	-3.06E-02	4.39E-01	4.39E-01
		529.64	30.30	-3.65E-01		6.11E-01
		552.65	16.40	5.21E-01		1.38E+00
+	KR-85	513.99	0.43	1.34E+01	2.91E+01	2.91E+01
+	SR-85	513.99	99.27	1.64E-01	3.57E-01	3.57E-01
+	Y-88	898.02	93.40	-9.48E-02	1.57E-01	2.84E-01
		1836.01	99.38	3.26E-02		1.57E-01
+	MO-93	263.06	56.72	3.53E-04	9.08E-02	1.27E-01
		684.67	99.68	6.19E-02		1.23E-01
		1477.11	99.08	-4.94E-02		9.08E-02
+	NB-93M	16.57	9.43	1.69E+01	8.52E+00	8.52E+00
+	NB-94	702.63	100.00	1.05E-02	1.23E-01	1.35E-01
		871.10	100.00	-6.28E-02		1.23E-01
+	NB-95	765.79	99.81	-2.74E-01	9.80E-01	9.80E-01
+	NB-95M	235.69	25.00	1.46E+08	7.44E+07	7.44E+07
+	ZR-95	724.18	43.70	-5.50E-02	6.86E-01	9.86E-01
		756.72	55.30	-1.43E-01		6.86E-01
+	MO-99	181.06	6.20	1.60E+10	5.56E+10	5.56E+10
		739.58	12.80	2.26E+10		5.74E+10
		778.00	4.50	-4.13E+10		1.46E+11
+	RU-103	497.08	89.00	6.34E-02	5.74E-01	5.74E-01
+	RU-106	621.84	9.80	2.85E-01	1.33E+00	1.33E+00
+	AG-108M	433.93	89.90	-1.48E-02	8.91E-02	8.91E-02
		614.37	90.40	2.84E-03		1.07E-01
		722.95	90.50	-8.70E-03		1.59E-01
+	CD-109	88.03	3.72	-2.26E-01	2.64E+00	2.64E+00
+	AG-110M	657.75	93.14	7.16E-02	1.77E-01	1.77E-01
		677.61	10.53	-4.81E-01		1.38E+00
		706.67	16.46	6.88E-01		1.08E+00
		763.93	21.98	-6.39E-01		8.00E-01
		884.67	71.63	-9.53E-03		2.55E-01
		1384.27	23.94	-6.68E-02		6.63E-01
+	CD-113M	263.70	0.02	1.90E+01	3.18E+02	3.18E+02
+	SN-113	255.12	1.93	1.21E+00	2.41E-01	6.55E+00
		391.69	64.90	2.34E-03		2.41E-01
+	TE123M	159.00	84.10	-1.51E-02	1.33E-01	1.33E-01
+	SB-124	602.71	97.87	-2.47E-01	3.25E-01	3.25E-01
		645.85	7.26	-5.63E-01		4.29E+00
		722.78	11.10	-2.19E-01		4.00E+00
		1691.02	49.00	-1.77E-02		5.63E-01
+	I-125	35.49	6.49	-3.18E-01	5.68E+00	5.68E+00
+	SB-125	176.33	6.89	4.22E-01	3.17E-01	1.04E+00
		427.89	29.33	-1.11E-01		3.17E-01

Analysis Report for 1707085-04

HTC-A02-S002-2430-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-125	463.38	10.35	7.43E-01	3.17E-01	1.01E+00
		600.56	17.80	2.55E-01		6.07E-01
		635.90	11.32	4.00E-01		1.05E+00
+	SB-126	414.70	83.30	3.17E+00	2.51E+01	2.51E+01
		666.33	99.60	-2.89E+01		2.66E+01
		695.00	99.60	-1.81E+01		2.87E+01
		720.50	53.80	-1.40E+00		5.87E+01
+	SN-126	87.57	37.00	-1.97E-02	2.29E-01	2.29E-01
+	SB-127	473.00	25.00	7.47E+06	1.58E+07	1.73E+07
		685.20	35.70	7.91E+06		1.58E+07
		783.80	14.70	1.39E+07		4.42E+07
+	I-129	29.78	57.00	-4.40E-02	2.96E-01	2.96E-01
		33.60	13.20	-4.44E-01		9.76E-01
		39.58	7.52	3.81E-01		1.36E+00
+	I-131	284.30	6.05	-1.73E+03	4.60E+02	5.64E+03
		364.48	81.20	-4.37E+01		4.60E+02
		636.97	7.26	5.30E+02		7.02E+03
		722.89	1.80	-2.05E+03		3.74E+04
+	TE-132	49.72	13.10	-1.40E+08	9.09E+07	7.21E+08
		228.16	88.00	-4.74E+07		9.09E+07
+	BA-133	81.00	33.00	-7.43E-01	1.80E-01	2.55E-01
		302.84	17.80	-1.07E-01		4.58E-01
		356.01	60.00	3.07E-02		1.80E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-2.71E+05	9.29E+04	9.29E+04
+	CS-134	563.23	8.38	-2.09E-01	1.23E-01	1.28E+00
		569.32	15.43	6.27E-02		7.08E-01
		604.70	97.60	-6.64E-01		1.23E-01
		795.84	85.40	6.14E-02		1.78E-01
		801.93	8.73	-2.06E-01		1.61E+00
+	CS-135	268.24	16.00	6.75E-02	5.09E-01	5.09E-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	6.58E+01	1.99E+01	1.59E+02
		163.89	4.61	4.85E+01		2.51E+02
		176.55	13.56	7.21E+01		8.66E+01
		273.65	12.66	4.71E+00		1.11E+02
		340.57	48.50	4.67E+01		3.85E+01
		818.50	99.70	-6.00E+00		1.99E+01
		1048.07	79.60	2.48E+00		3.25E+01
		1235.34	19.70	1.63E+01		1.77E+02
+	CS-137	661.65	85.12	-3.96E-03	1.39E-01	1.39E-01
+	LA-138	788.74	34.00	1.77E-01	2.10E-01	4.33E-01
		1435.80	66.00	1.35E-01		2.10E-01
+	CE-139	165.85	80.35	2.87E-02	1.37E-01	1.37E-01
+	BA-140	162.64	6.70	-6.48E+01	7.81E+01	1.95E+02
		304.84	4.50	-2.53E+01		3.45E+02
		423.70	3.20	1.70E+01		5.74E+02

Analysis Report for 1707085-04

HTC-A02-S002-2430-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		BA-140	437.55		2.00	-3.19E+02	7.81E+01	8.15E+02
			537.32		25.00	2.03E+00		7.81E+01
+		LA-140	328.77		20.50	8.72E+01	2.86E+01	9.22E+01
			487.03		45.50	2.34E+01		4.29E+01
			815.85		23.50	-5.23E+01		9.25E+01
			1596.49		95.49	4.72E+00		2.86E+01
+		CE-141	145.44		48.40	-1.91E-01	1.10E+00	1.10E+00
+	@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26
	@		293.26		42.00	1.00E+26		1.00E+26
	@		664.55		5.20	1.00E+26		1.00E+26
+		CE-144	133.54		10.80	5.68E-02	7.35E-01	7.35E-01
+		PM-144	476.78		42.00	1.17E-01	1.25E-01	2.76E-01
			618.01		98.60	7.65E-02		1.25E-01
			696.49		99.49	1.64E-02		1.52E-01
+		PM-145	36.85		21.70	4.98E-02	2.80E-01	5.25E-01
			37.36		39.70	2.66E-02		2.80E-01
			42.30		15.10	-5.46E-01		6.25E-01
			72.40		2.31	-8.17E+00		3.96E+00
+		PM-146	453.90		39.94	1.56E-01	2.47E-01	2.47E-01
			735.90		14.01	-5.83E-01		9.13E-01
			747.13		13.10	-3.77E-01		1.06E+00
+		ND-147	91.11		28.90	2.19E+02	1.42E+02	1.42E+02
			531.02		13.10	-1.49E+02		3.15E+02
+		PM-149	285.90		3.10	-4.53E+12	5.26E+13	5.26E+13
+		EU-152	121.78		20.50	1.40E-01	3.03E-01	3.03E-01
			244.69		5.40	-1.81E+00		1.56E+00
			344.27		19.13	8.92E-02		4.27E-01
			778.89		9.20	-4.14E-01		1.34E+00
			964.01		10.40	-7.46E-03		1.53E+00
			1085.78		7.22	5.40E-02		1.85E+00
			1112.02		9.60	-2.58E-01		1.70E+00
			1407.95		14.94	-2.03E-02		8.89E-01
+		GD-153	97.43		31.30	-4.18E-01	2.70E-01	2.70E-01
			103.18		22.20	-1.50E-01		3.60E-01
+		EU-154	123.07		40.50	7.09E-02	1.54E-01	1.54E-01
			723.30		19.70	-4.31E-02		7.72E-01
			873.19		11.50	-1.97E-01		1.09E+00
			996.32		10.30	-5.71E-01		1.40E+00
			1004.76		17.90	-1.66E-01		8.21E-01
			1274.45		35.50	5.00E-02		5.32E-01
+		EU-155	86.50	*	30.90	3.43E-01	3.06E-01	3.27E-01
			105.30		20.70	8.45E-02		3.06E-01
+		EU-156	811.77		10.40	-3.17E+01	9.18E+01	9.18E+01
			1153.47		7.20	1.47E+00		2.30E+02
			1230.71		8.90	1.40E+01		1.97E+02
+		HO-166M	184.41		72.60	1.56E-01	1.07E-01	1.07E-01
			280.45		29.60	-4.35E-03		2.54E-01
			410.94		11.10	5.03E-03		8.11E-01
			711.69		54.10	-7.74E-02		2.19E-01

Analysis Report for 1707085-04

HTC-A02-S002-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TM-171	66.72		0.14	2.74E+00	6.35E+01	6.35E+01
+	HF-172	67.35		5.31	7.21E-02	6.42E-01	1.67E+00
		125.81		11.30	1.10E-01		6.42E-01
+	LU-172	181.53		20.60	1.86E+03	5.97E+03	8.25E+03
		900.72		29.81	-4.18E+02		1.26E+04
		1093.66		62.50	-1.42E+03		5.97E+03
+	LU-173	100.72		5.24	1.56E-01	4.44E-01	1.33E+00
		272.11		21.20	1.52E-01		4.44E-01
+	HF-175	343.40		84.00	5.28E-02	2.53E-01	2.53E-01
+	LU-176	88.34		13.30	-5.47E-02	7.85E-02	6.38E-01
		201.83		86.00	4.22E-02		8.29E-02
		306.78		94.00	-2.44E-02		7.85E-02
+	HF-181	133.02		41.70	-1.73E-01	5.07E-01	7.42E-01
		345.85		17.20	4.89E-01		2.23E+00
		482.03		82.80	-5.82E-03		5.07E-01
+	TA-182	67.75		41.20	-6.90E-02	3.50E-01	3.50E-01
		1121.30		34.90	1.52E+00		1.15E+00
		1189.05		16.23	1.10E+00		2.25E+00
		1221.41		26.98	-5.06E-01		1.30E+00
		1231.02		11.44	-2.20E-01		3.15E+00
+	IR-192	308.46		29.68	1.25E-01	4.29E-01	6.24E-01
		468.07		48.10	2.19E-02		4.29E-01
+	HG-203	279.19		77.30	1.59E-01	4.33E-01	4.33E-01
+	TL-204	374.74		94.11	2.27E-03	9.31E-02	9.31E-02
		899.15		99.16	-5.10E-02		1.53E-01
		911.74		91.10	2.87E-01		2.46E-01
+	BI-207	569.67		97.72	9.10E-03	1.03E-01	1.03E-01
		1063.62		74.90	-8.13E-02		1.96E-01
+	TL-208	583.14	*	30.22	1.17E+00	7.76E-02	5.46E-01
		860.37		4.48	7.50E-01		3.50E+00
		2614.66	*	35.85	1.49E+00		7.76E-02
+	BI-210M	262.00		45.00	-8.25E-02	1.53E-01	1.53E-01
		300.00		23.00	-4.33E-01		3.92E-01
+	PB-210	46.50		4.25	1.02E+00	2.12E+00	2.12E+00
+	PB-211	404.84		2.90	8.59E-01	3.13E+00	3.13E+00
		831.96		2.90	5.69E-03		4.84E+00
+	BI-212	727.17	*	11.80	9.03E-01	1.31E+00	1.31E+00
		1620.62		2.75	4.56E-01		4.58E+00
+	PB-212	238.63	*	44.60	1.37E+00	3.28E-01	3.28E-01
		300.09		3.41	-2.92E+00		2.64E+00
+	BI-214	609.31	*	46.30	1.03E+00	3.55E-01	3.55E-01
		1120.29	*	15.10	1.95E+00		1.44E+00
		1764.49	*	15.80	1.42E+00		5.59E-01
		2204.22	*	4.98	9.67E-01		1.48E+00
+	PB-214	295.21		19.19	6.89E-01	3.69E-01	5.43E-01
		351.92	*	37.19	9.67E-01		3.69E-01
+	RN-219	401.80		6.50	-2.00E-01	1.39E+00	1.39E+00
+	RA-223	323.87		3.88	-1.62E-01	2.02E+00	2.02E+00

Analysis Report for 1707085-04

HTC-A02-S002-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98	*	3.95	3.61E+00	3.67E+00	3.67E+00
+	RA-225	40.00		31.00	8.99E+00	3.21E+01	3.21E+01
+	RA-226	186.21	*	3.28	2.56E+00	2.86E+00	2.86E+00
+	TH-227	50.10		8.40	-1.89E-01	9.71E-01	9.71E-01
		236.00		11.50	2.10E+00		1.08E+00
		256.20		6.30	-6.55E-02		1.09E+00
+	AC-228	338.32	*	11.40	1.73E+00	5.18E-01	9.42E-01
		911.07	*	27.70	1.38E+00		5.18E-01
		969.11	*	16.60	1.87E+00		1.01E+00
+	TH-230	48.44		16.90	2.69E-01	5.08E-01	5.08E-01
		62.85		4.60	1.24E+00		1.82E+00
		67.67		0.37	-4.25E+00		2.15E+01
+	PA-231	283.67		1.60	-1.39E+00	3.48E+00	4.53E+00
		302.67		2.30	-8.12E-01		3.48E+00
+	TH-231	25.64		14.70	-1.68E-01	1.24E+00	1.64E+00
		84.21		6.40	-1.41E-01		1.24E+00
+	PA-233	311.98		38.60	-4.39E-02	2.38E+00	2.38E+00
+	PA-234	131.20		20.40	3.45E-01	3.29E-01	3.29E-01
		733.99		8.80	-6.07E-02		1.40E+00
		946.00		12.00	-2.05E-01		1.20E+00
+	PA-234M	1001.03	*	0.92	8.99E+00	3.47E+01	3.47E+01
+	TH-234	63.29		3.80	1.49E+00	2.19E+00	2.19E+00
+	U-235	143.76		10.50	1.83E-01	6.22E-01	6.22E-01
		163.35		4.70	-4.56E-01		1.37E+00
		205.31		4.70	1.92E-01		1.52E+00
+	NP-237	86.50	*	12.60	8.10E-01	7.72E-01	7.72E-01
+	NP-239	106.10		22.70	-9.02E+10	9.12E+11	9.12E+11
		228.18		10.70	-1.16E+12		2.23E+12
		277.60		14.10	1.24E+12		1.93E+12
+	AM-241	59.54		35.90	-3.68E-03	2.28E-01	2.28E-01
+	AM-243	74.67		66.00	7.30E-01	1.66E-01	1.66E-01
+	CM-243	209.75		3.29	2.42E+00	5.71E-01	2.35E+00
		228.14		10.60	-3.45E-01		6.61E-01
		277.60		14.00	3.67E-01		5.71E-01

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

Analysis Report for 1707085-04

HTC-A02-S002-2430-01

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	3.20E+00	3.20E+00	1.46E+00	1.51E+00
	NA-22	1274.54		99.94	1.99E-01	1.99E-01	1.87E-02	9.23E-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	8.87E-02	8.87E-02	-5.64E-02	3.52E-02
+	K-40	1460.81	*	10.67	1.41E+00	1.41E+00	2.45E+01	6.35E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	0.00E+00	1.00E+20
	TI-44	67.88		94.40	8.45E-02	8.45E-02	-1.67E-02	4.14E-02
		78.34		96.00	1.08E-01		3.33E-01	5.31E-02
	SC-46	889.25		99.98	3.40E-01	3.40E-01	3.44E-01	1.59E-01
		1120.51		99.99	4.95E-01		6.15E-01	2.34E-01
	V-48	983.52		99.98	9.32E+00	9.32E+00	3.51E-01	4.29E+00
		1312.10		97.50	1.01E+01		-6.90E+00	4.55E+00
	CR-51	320.08		9.83	9.00E+00	9.00E+00	-4.44E-02	4.29E+00
	MN-54	834.83		99.97	1.88E-01	1.88E-01	7.10E-03	8.85E-02
	CO-56	846.75		99.96	2.79E-01	2.79E-01	-1.45E-01	1.29E-01
		1037.75		14.03	2.34E+00		-6.21E-01	1.08E+00
		1238.25		67.00	6.93E-01		2.13E-01	3.23E-01
		1771.40		15.51	1.68E+00		3.03E-01	7.05E-01
		2598.48		16.90	1.88E+00		5.63E-01	7.44E-01
	CO-57	122.06		85.51	9.22E-02	9.22E-02	4.25E-02	4.49E-02
		136.48		10.60	7.27E-01		-5.67E-01	3.53E-01
	CO-58	810.76		99.40	2.97E-01	2.97E-01	2.46E-02	1.37E-01
	FE-59	1099.22		56.50	1.27E+00	1.27E+00	-1.28E-02	5.90E-01
		1291.56		43.20	1.78E+00		-6.30E-02	8.19E-01
	CO-60	1173.22		100.00	1.71E-01	1.34E-01	-2.45E-02	7.90E-02
		1332.49		100.00	1.34E-01		3.81E-02	6.00E-02
	ZN-65	1115.52		50.75	4.93E-01	4.93E-01	7.02E-02	2.31E-01
	GA-67	93.31		35.70	2.48E+08	2.48E+08	3.51E+08	1.22E+08
		208.95		2.24	3.83E+09		3.27E+09	1.86E+09
		300.22		16.00	6.37E+08		-7.04E+08	3.07E+08
	SE-75	121.11		16.70	6.40E-01	1.80E-01	2.68E-01	3.12E-01
		136.00		59.20	1.80E-01		-1.01E-01	8.75E-02
		264.65		59.80	2.12E-01		-1.08E-02	1.02E-01
		279.53		25.20	5.34E-01		-1.22E-04	2.56E-01
		400.65		11.40	1.42E+00		1.55E-01	6.75E-01
	RB-82	776.52		13.00	1.30E+01	1.30E+01	-1.01E+01	6.02E+00
	RB-83	520.41		46.00	4.39E-01	4.39E-01	-3.06E-02	2.06E-01
		529.64		30.30	6.11E-01		-3.65E-01	2.84E-01
		552.65		16.40	1.38E+00		5.21E-01	6.48E-01
	KR-85	513.99		0.43	2.91E+01	2.91E+01	1.34E+01	1.39E+01
	SR-85	513.99		99.27	3.57E-01	3.57E-01	1.64E-01	1.70E-01

Analysis Report for 1707085-04

HTC-A02-S002-2430-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
Y-88	898.02	93.40	2.84E-01	1.57E-01	-9.48E-02	1.32E-01
	1836.01	99.38	1.57E-01		3.26E-02	6.07E-02
MO-93	263.06	56.72	1.27E-01	9.08E-02	3.53E-04	6.10E-02
	684.67	99.68	1.23E-01		6.19E-02	5.78E-02
	1477.11	99.08	9.08E-02		-4.94E-02	3.77E-02
NB-93M	16.57	9.43	8.52E+00	8.52E+00	1.69E+01	4.13E+00
NB-94	702.63	100.00	1.35E-01	1.23E-01	1.05E-02	6.35E-02
	871.10	100.00	1.23E-01		-6.28E-02	5.69E-02
NB-95	765.79	99.81	9.80E-01	9.80E-01	-2.74E-01	4.61E-01
NB-95M	235.69	25.00	7.44E+07	7.44E+07	1.46E+08	3.64E+07
ZR-95	724.18	43.70	9.86E-01	6.86E-01	-5.50E-02	4.67E-01
	756.72	55.30	6.86E-01		-1.43E-01	3.21E-01
MO-99	181.06	6.20	5.56E+10	5.56E+10	1.60E+10	2.69E+10
	739.58	12.80	5.74E+10		2.26E+10	2.70E+10
	778.00	4.50	1.46E+11		-4.13E+10	6.80E+10
RU-103	497.08	89.00	5.74E-01	5.74E-01	6.34E-02	2.70E-01
RU-106	621.84	9.80	1.33E+00	1.33E+00	2.85E-01	6.21E-01
AG-108M	433.93	89.90	8.91E-02	8.91E-02	-1.48E-02	4.19E-02
	614.37	90.40	1.07E-01		2.84E-03	4.98E-02
	722.95	90.50	1.59E-01		-8.70E-03	7.50E-02
CD-109	88.03	3.72	2.64E+00	2.64E+00	-2.26E-01	1.30E+00
AG-110M	657.75	93.14	1.77E-01	1.77E-01	7.16E-02	8.36E-02
	677.61	10.53	1.38E+00		-4.81E-01	6.42E-01
	706.67	16.46	1.08E+00		6.88E-01	5.07E-01
	763.93	21.98	8.00E-01		-6.39E-01	3.75E-01
	884.67	71.63	2.55E-01		-9.53E-03	1.19E-01
	1384.27	23.94	6.63E-01		-6.68E-02	2.92E-01
CD-113M	263.70	0.02	3.18E+02	3.18E+02	1.90E+01	1.53E+02
SN-113	255.12	1.93	6.55E+00	2.41E-01	1.21E+00	3.14E+00
	391.69	64.90	2.41E-01		2.34E-03	1.14E-01
TE123M	159.00	84.10	1.33E-01	1.33E-01	-1.51E-02	6.47E-02
SB-124	602.71	97.87	3.25E-01	3.25E-01	-2.47E-01	1.52E-01
	645.85	7.26	4.29E+00		-5.63E-01	1.99E+00
	722.78	11.10	4.00E+00		-2.19E-01	1.89E+00
	1691.02	49.00	5.63E-01		-1.77E-02	2.27E-01
I-125	35.49	6.49	5.68E+00	5.68E+00	-3.18E-01	2.76E+00
SB-125	176.33	6.89	1.04E+00	3.17E-01	4.22E-01	5.02E-01
	427.89	29.33	3.17E-01		-1.11E-01	1.50E-01
	463.38	10.35	1.01E+00		7.43E-01	4.76E-01
	600.56	17.80	6.07E-01		2.55E-01	2.84E-01
	635.90	11.32	1.05E+00		4.00E-01	4.92E-01
SB-126	414.70	83.30	2.51E+01	2.51E+01	3.17E+00	1.19E+01
	666.33	99.60	2.66E+01		-2.89E+01	1.24E+01
	695.00	99.60	2.87E+01		-1.81E+01	1.34E+01
	720.50	53.80	5.87E+01		-1.40E+00	2.76E+01
SN-126	87.57	37.00	2.29E-01	2.29E-01	-1.97E-02	1.13E-01
SB-127	473.00	25.00	1.73E+07	1.58E+07	7.47E+06	8.18E+06
	685.20	35.70	1.58E+07		7.91E+06	7.39E+06
	783.80	14.70	4.42E+07		1.39E+07	2.08E+07
I-129	29.78	57.00	2.96E-01	2.96E-01	-4.40E-02	1.44E-01
	33.60	13.20	9.76E-01		-4.44E-01	4.74E-01
	39.58	7.52	1.36E+00		3.81E-01	6.63E-01
I-131	284.30	6.05	5.64E+03	4.60E+02	-1.73E+03	2.70E+03

Analysis Report for 1707085-04

HTC-A02-S002-2430-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
I-131	364.48	81.20	4.60E+02	4.60E+02	-4.37E+01	2.18E+02
	636.97	7.26	7.02E+03		5.30E+02	3.28E+03
	722.89	1.80	3.74E+04		-2.05E+03	1.77E+04
TE-132	49.72	13.10	7.21E+08	9.09E+07	-1.40E+08	3.52E+08
	228.16	88.00	9.09E+07		-4.74E+07	4.38E+07
BA-133	81.00	33.00	2.55E-01	1.80E-01	-7.43E-01	1.25E-01
	302.84	17.80	4.58E-01		-1.07E-01	2.20E-01
	356.01	60.00	1.80E-01		3.07E-02	8.65E-02
@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
XE-133	81.00	38.00	9.29E+04	9.29E+04	-2.71E+05	4.56E+04
CS-134	563.23	8.38	1.28E+00	1.23E-01	-2.09E-01	6.00E-01
	569.32	15.43	7.08E-01		6.27E-02	3.31E-01
	604.70	97.60	1.23E-01		-6.64E-01	5.78E-02
	795.84	85.40	1.78E-01		6.14E-02	8.36E-02
	801.93	8.73	1.61E+00		-2.06E-01	7.50E-01
CS-135	268.24	16.00	5.09E-01	5.09E-01	6.75E-02	2.45E-01
@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41	28.60	1.00E+26		1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		1.00E+26	1.00E+20
CS-136	153.22	7.46	1.59E+02	1.99E+01	6.58E+01	7.76E+01
	163.89	4.61	2.51E+02		4.85E+01	1.22E+02
	176.55	13.56	8.66E+01		7.21E+01	4.20E+01
	273.65	12.66	1.11E+02		4.71E+00	5.35E+01
	340.57	48.50	3.85E+01		4.67E+01	1.86E+01
	818.50	99.70	1.99E+01		-6.00E+00	9.14E+00
	1048.07	79.60	3.25E+01		2.48E+00	1.50E+01
	1235.34	19.70	1.77E+02		1.63E+01	8.29E+01
CS-137	661.65	85.12	1.39E-01	1.39E-01	-3.96E-03	6.52E-02
LA-138	788.74	34.00	4.33E-01	2.10E-01	1.77E-01	2.04E-01
	1435.80	66.00	2.10E-01		1.35E-01	9.38E-02
CE-139	165.85	80.35	1.37E-01	1.37E-01	2.87E-02	6.66E-02
BA-140	162.64	6.70	1.95E+02	7.81E+01	-6.48E+01	9.49E+01
	304.84	4.50	3.45E+02		-2.53E+01	1.65E+02
	423.70	3.20	5.74E+02		1.70E+01	2.72E+02
	437.55	2.00	8.15E+02		-3.19E+02	3.83E+02
	537.32	25.00	7.81E+01		2.03E+00	3.66E+01
LA-140	328.77	20.50	9.22E+01	2.86E+01	8.72E+01	4.43E+01
	487.03	45.50	4.29E+01		2.34E+01	2.02E+01
	815.85	23.50	9.25E+01		-5.23E+01	4.24E+01
	1596.49	95.49	2.86E+01		4.72E+00	1.26E+01
CE-141	145.44	48.40	1.10E+00	1.10E+00	-1.91E-01	5.34E-01
@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	293.26	42.00	1.00E+26		1.00E+26	1.00E+20
@	664.55	5.20	1.00E+26		1.00E+26	1.00E+20
CE-144	133.54	10.80	7.35E-01	7.35E-01	5.68E-02	3.58E-01
PM-144	476.78	42.00	2.76E-01	1.25E-01	1.17E-01	1.30E-01
	618.01	98.60	1.25E-01		7.65E-02	5.85E-02
	696.49	99.49	1.52E-01		1.64E-02	7.12E-02
PM-145	36.85	21.70	5.25E-01	2.80E-01	4.98E-02	2.55E-01
	37.36	39.70	2.80E-01		2.66E-02	1.36E-01
	42.30	15.10	6.25E-01		-5.46E-01	3.04E-01
	72.40	2.31	3.96E+00		-8.17E+00	1.95E+00
PM-146	453.90	39.94	2.47E-01	2.47E-01	1.56E-01	1.17E-01

Analysis Report for 1707085-04

HTC-A02-S002-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PM-146	735.90		14.01	9.13E-01	2.47E-01	-5.83E-01	4.27E-01
		747.13		13.10	1.06E+00		-3.77E-01	4.98E-01
	ND-147	91.11		28.90	1.42E+02	1.42E+02	2.19E+02	6.98E+01
		531.02		13.10	3.15E+02		-1.49E+02	1.46E+02
	PM-149	285.90		3.10	5.26E+13	5.26E+13	-4.53E+12	2.52E+13
	EU-152	121.78		20.50	3.03E-01	3.03E-01	1.40E-01	1.47E-01
		244.69		5.40	1.56E+00		-1.81E+00	7.55E-01
		344.27		19.13	4.27E-01		8.92E-02	2.04E-01
		778.89		9.20	1.34E+00		-4.14E-01	6.21E-01
		964.01		10.40	1.53E+00		-7.46E-03	7.15E-01
		1085.78		7.22	1.85E+00		5.40E-02	8.44E-01
		1112.02		9.60	1.70E+00		-2.58E-01	7.90E-01
		1407.95		14.94	8.89E-01		-2.03E-02	3.95E-01
	GD-153	97.43		31.30	2.70E-01	2.70E-01	-4.18E-01	1.32E-01
		103.18		22.20	3.60E-01		-1.50E-01	1.76E-01
	EU-154	123.07		40.50	1.54E-01	1.54E-01	7.09E-02	7.49E-02
		723.30		19.70	7.72E-01		-4.31E-02	3.65E-01
		873.19		11.50	1.09E+00		-1.97E-01	5.01E-01
		996.32		10.30	1.40E+00		-5.71E-01	6.49E-01
		1004.76		17.90	8.21E-01		-1.66E-01	3.80E-01
		1274.45		35.50	5.32E-01		5.00E-02	2.47E-01
+	EU-155	86.50	*	30.90	3.27E-01	3.06E-01	3.43E-01	1.61E-01
		105.30		20.70	3.06E-01		8.45E-02	1.49E-01
	EU-156	811.77		10.40	9.18E+01	9.18E+01	-3.17E+01	4.22E+01
		1153.47		7.20	2.30E+02		1.47E+00	1.08E+02
		1230.71		8.90	1.97E+02		1.40E+01	9.23E+01
	HO-166M	184.41		72.60	1.07E-01	1.07E-01	1.56E-01	5.21E-02
		280.45		29.60	2.54E-01		-4.35E-03	1.22E-01
		410.94		11.10	8.11E-01		5.03E-03	3.85E-01
		711.69		54.10	2.19E-01		-7.74E-02	1.02E-01
	TM-171	66.72		0.14	6.35E+01	6.35E+01	2.74E+00	3.11E+01
	HF-172	67.35		5.31	1.67E+00	6.42E-01	7.21E-02	8.20E-01
		125.81		11.30	6.42E-01		1.10E-01	3.13E-01
	LU-172	181.53		20.60	8.25E+03	5.97E+03	1.86E+03	4.00E+03
		900.72		29.81	1.26E+04		-4.18E+02	5.90E+03
		1093.66		62.50	5.97E+03		-1.42E+03	2.75E+03
	LU-173	100.72		5.24	1.33E+00	4.44E-01	1.56E-01	6.49E-01
		272.11		21.20	4.44E-01		1.52E-01	2.14E-01
	HF-175	343.40		84.00	2.53E-01	2.53E-01	5.28E-02	1.20E-01
	LU-176	88.34		13.30	6.38E-01	7.85E-02	-5.47E-02	3.13E-01
		201.83		86.00	8.29E-02		4.22E-02	4.02E-02
		306.78		94.00	7.85E-02		-2.44E-02	3.75E-02
	HF-181	133.02		41.70	7.42E-01	5.07E-01	-1.73E-01	3.61E-01
		345.85		17.20	2.23E+00		4.89E-01	1.06E+00
		482.03		82.80	5.07E-01		-5.82E-03	2.37E-01
	TA-182	67.75		41.20	3.50E-01	3.50E-01	-6.90E-02	1.72E-01
		1121.30		34.90	1.15E+00		1.52E+00	5.46E-01
		1189.05		16.23	2.25E+00		1.10E+00	1.05E+00
		1221.41		26.98	1.30E+00		-5.06E-01	6.06E-01
		1231.02		11.44	3.15E+00		-2.20E-01	1.47E+00
	IR-192	308.46		29.68	6.24E-01	4.29E-01	1.25E-01	2.98E-01
		468.07		48.10	4.29E-01		2.19E-02	2.01E-01
	HG-203	279.19		77.30	4.33E-01	4.33E-01	1.59E-01	2.08E-01

Analysis Report for 1707085-04

HTC-A02-S002-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TL-204	374.74		94.11	9.31E-02	9.31E-02	2.27E-03	4.42E-02
		899.15		99.16	1.53E-01		-5.10E-02	7.14E-02
		911.74		91.10	2.46E-01		2.87E-01	1.17E-01
	BI-207	569.67		97.72	1.03E-01	1.03E-01	9.10E-03	4.81E-02
		1063.62		74.90	1.96E-01		-8.13E-02	9.03E-02
+	TL-208	583.14	*	30.22	5.46E-01	7.76E-02	1.17E+00	2.62E-01
		860.37		4.48	3.50E+00		7.50E-01	1.64E+00
		2614.66	*	35.85	7.76E-02		1.49E+00	0.00E+00
	BI-210M	262.00		45.00	1.53E-01	1.53E-01	-8.25E-02	7.33E-02
		300.00		23.00	3.92E-01		-4.33E-01	1.89E-01
	PB-210	46.50		4.25	2.12E+00	2.12E+00	1.02E+00	1.04E+00
	PB-211	404.84		2.90	3.13E+00	3.13E+00	8.59E-01	1.49E+00
		831.96		2.90	4.84E+00		5.69E-03	2.26E+00
+	BI-212	727.17	*	11.80	1.31E+00	1.31E+00	9.03E-01	6.20E-01
		1620.62		2.75	4.58E+00		4.56E-01	1.99E+00
+	PB-212	238.63	*	44.60	3.28E-01	3.28E-01	1.37E+00	1.61E-01
		300.09		3.41	2.64E+00		-2.92E+00	1.27E+00
+	BI-214	609.31	*	46.30	3.55E-01	3.55E-01	1.03E+00	1.70E-01
		1120.29	*	15.10	1.44E+00		1.95E+00	6.79E-01
		1764.49	*	15.80	5.59E-01		1.42E+00	2.23E-01
		2204.22	*	4.98	1.48E+00		9.67E-01	5.12E-01
+	PB-214	295.21		19.19	5.43E-01	3.69E-01	6.89E-01	2.63E-01
		351.92	*	37.19	3.69E-01		9.67E-01	1.79E-01
	RN-219	401.80		6.50	1.39E+00	1.39E+00	-2.00E-01	6.61E-01
	RA-223	323.87		3.88	2.02E+00	2.02E+00	-1.62E-01	9.63E-01
+	RA-224	240.98	*	3.95	3.67E+00	3.67E+00	3.61E+00	1.80E+00
	RA-225	40.00		31.00	3.21E+01	3.21E+01	8.99E+00	1.56E+01
+	RA-226	186.21	*	3.28	2.86E+00	2.86E+00	2.56E+00	1.40E+00
	TH-227	50.10		8.40	9.71E-01	9.71E-01	-1.89E-01	4.74E-01
		236.00		11.50	1.08E+00		2.10E+00	5.26E-01
		256.20		6.30	1.09E+00		-6.55E-02	5.25E-01
+	AC-228	338.32	*	11.40	9.42E-01	5.18E-01	1.73E+00	4.54E-01
		911.07	*	27.70	5.18E-01		1.38E+00	2.41E-01
		969.11	*	16.60	1.01E+00		1.87E+00	4.75E-01
	TH-230	48.44		16.90	5.08E-01	5.08E-01	2.69E-01	2.48E-01
		62.85		4.60	1.82E+00		1.24E+00	8.90E-01
		67.67		0.37	2.15E+01		-4.25E+00	1.06E+01
	PA-231	283.67		1.60	4.53E+00	3.48E+00	-1.39E+00	2.17E+00
		302.67		2.30	3.48E+00		-8.12E-01	1.67E+00
	TH-231	25.64		14.70	1.64E+00	1.24E+00	-1.68E-01	7.99E-01
		84.21		6.40	1.24E+00		-1.41E-01	6.08E-01
	PA-233	311.98		38.60	2.38E+00	2.38E+00	-4.39E-02	1.14E+00
	PA-234	131.20		20.40	3.29E-01	3.29E-01	3.45E-01	1.60E-01
		733.99		8.80	1.40E+00		-6.07E-02	6.55E-01
		946.00		12.00	1.20E+00		-2.05E-01	5.55E-01
+	PA-234M	1001.03	*	0.92	3.47E+01	3.47E+01	8.99E+00	1.68E+01
	TH-234	63.29		3.80	2.19E+00	2.19E+00	1.49E+00	1.07E+00
	U-235	143.76		10.50	6.22E-01	6.22E-01	1.83E-01	3.03E-01
		163.35		4.70	1.37E+00		-4.56E-01	6.67E-01
		205.31		4.70	1.52E+00		1.92E-01	7.35E-01
+	NP-237	86.50	*	12.60	7.72E-01	7.72E-01	8.10E-01	3.80E-01
	NP-239	106.10		22.70	9.12E+11	9.12E+11	-9.02E+10	4.44E+11
		228.18		10.70	2.23E+12		-1.16E+12	1.08E+12

Analysis Report for 1707085-04

HTC-A02-S002-2430-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
NP-239	277.60	14.10	1.93E+12	9.12E+11	1.24E+12	9.29E+11
AM-241	59.54	35.90	2.28E-01	2.28E-01	-3.68E-03	1.12E-01
AM-243	74.67	66.00	1.66E-01	1.66E-01	7.30E-01	8.19E-02
CM-243	209.75	3.29	2.35E+00	5.71E-01	2.42E+00	1.14E+00
	228.14	10.60	6.61E-01		-3.45E-01	3.18E-01
	277.60	14.00	5.71E-01		3.67E-01	2.74E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A02-S002-2430-01

Elapsed Live time: 3600
Elapsed Real Time: 3602

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	17	93
17:	82	84	76	74	55	53	63	65
25:	65	71	70	60	69	63	52	53
33:	70	59	60	60	64	70	62	73
41:	66	68	64	64	102	83	83	77
49:	77	70	78	71	80	76	91	96
57:	101	86	94	119	110	130	130	118
65:	122	107	119	112	111	119	122	124
73:	233	286	278	336	286	145	93	81
81:	109	118	138	130	151	174	171	114
89:	151	148	136	185	117	82	66	74
97:	71	88	77	70	73	60	76	71
105:	75	77	77	58	71	74	67	67
113:	69	71	57	60	59	60	55	71
121:	70	70	71	67	52	67	83	110
129:	67	66	70	69	55	62	52	68
137:	55	44	60	64	67	58	77	70
145:	63	46	66	63	73	59	58	72
153:	70	51	61	53	52	53	48	46
161:	55	47	52	62	56	65	55	52
169:	55	54	42	48	55	55	49	48
177:	47	46	51	33	38	44	46	74
185:	102	81	59	38	48	38	55	57
193:	50	45	41	43	40	39	55	45
201:	50	42	41	46	34	41	55	64
209:	64	40	43	38	29	38	42	37
217:	48	34	33	38	31	40	36	28
225:	46	37	29	33	29	39	48	35
233:	33	47	44	55	204	319	153	86
241:	91	69	32	36	33	24	19	33
249:	32	25	31	22	33	24	30	29
257:	27	23	26	28	31	21	24	26
265:	33	32	25	34	44	48	25	34
273:	24	31	30	34	31	32	27	29
281:	20	21	27	25	22	25	25	25
289:	29	22	13	23	50	94	73	48
297:	30	37	37	32	33	20	22	23
305:	15	22	27	20	20	18	26	18
313:	16	27	11	25	21	21	19	17
321:	19	23	17	27	24	23	46	32
329:	27	33	23	16	22	13	22	34
337:	71	71	31	21	26	17	20	19
345:	24	13	16	17	30	65	139	94
353:	38	19	20	16	25	18	9	20
361:	19	19	15	27	14	17	9	16

369:	24	19	17	21	21	21	11	15

Sample Title: HTC-A02-S002-2430-01

Channel								
377:	19	10	20	23	19	11	13	19
385:	13	19	19	27	13	14	20	16
393:	20	13	19	14	21	26	13	17
401:	18	20	17	16	22	19	14	20
409:	27	19	10	10	20	15	15	20
417:	20	18	15	17	11	23	19	13
425:	12	18	18	13	11	17	14	14
433:	6	10	11	11	13	14	15	8
441:	19	16	7	12	13	20	11	9
449:	16	18	16	18	18	22	10	7
457:	13	7	18	11	14	29	20	9
465:	8	18	8	9	12	11	14	8
473:	18	13	19	17	8	9	16	12
481:	11	6	8	12	11	20	16	14
489:	14	13	9	11	11	8	15	17
497:	10	10	10	11	12	10	13	15
505:	11	16	16	21	30	37	36	20
513:	20	12	13	8	15	12	9	7
521:	11	9	12	12	9	14	9	12
529:	11	7	5	2	14	11	11	10
537:	12	12	8	13	15	11	20	7
545:	8	14	14	13	14	16	12	7
553:	12	16	7	5	9	21	7	8
561:	7	12	15	11	13	10	6	5
569:	7	20	10	16	10	6	3	12
577:	8	12	10	12	30	64	56	19
585:	8	13	10	6	8	7	7	12
593:	11	10	2	9	8	7	18	9
601:	13	2	11	10	7	12	25	83
609:	78	41	14	7	7	3	12	9
617:	7	8	13	14	6	9	10	13
625:	10	10	13	12	6	12	10	11
633:	12	12	14	9	9	7	7	6
641:	12	6	9	10	10	7	11	5
649:	6	12	13	8	10	8	8	10
657:	9	9	9	16	11	5	6	8
665:	4	9	8	11	4	11	10	12
673:	8	9	11	6	6	2	4	12
681:	6	7	7	9	9	6	11	9
689:	10	7	9	6	6	5	14	8
697:	7	9	12	12	6	11	8	13
705:	8	12	17	6	9	6	7	3
713:	5	6	8	7	10	9	11	6
721:	9	11	8	11	12	21	17	12
729:	5	11	8	6	5	7	7	9
737:	11	6	10	12	14	5	10	9
745:	8	10	11	7	7	13	8	9
753:	8	2	11	4	6	14	12	8
761:	7	9	8	7	8	6	11	16
769:	12	8	15	8	5	7	6	7
777:	6	6	6	5	12	4	5	13
785:	16	9	9	10	7	6	5	12
793:	7	12	14	6	5	10	5	5

801:	9	8	6	7	8	7	4	6

Sample Title: HTC-A02-S002-2430-01

Channel								
809:	7	2	5	6	7	3	3	3
817:	7	6	1	10	6	7	6	6
825:	6	4	5	7	9	9	8	10
833:	3	8	12	11	10	12	12	8
841:	7	4	6	7	3	5	6	5
849:	7	4	5	9	5	5	11	5
857:	5	12	10	15	7	5	10	15
865:	9	8	5	6	6	4	7	6
873:	5	2	1	8	9	6	7	10
881:	10	4	1	4	7	10	10	6
889:	7	8	11	6	8	4	4	7
897:	9	7	12	7	3	7	9	7
905:	15	6	2	10	21	42	29	20
913:	14	4	2	7	7	4	8	3
921:	3	8	7	5	4	4	8	7
929:	5	5	11	5	7	8	4	7
937:	5	6	4	6	5	2	7	6
945:	6	7	8	7	10	10	9	7
953:	5	4	9	6	6	9	6	4
961:	4	5	8	8	6	13	14	23
969:	17	13	6	3	2	9	7	6
977:	5	2	3	3	7	9	4	7
985:	2	2	8	5	7	5	9	5
993:	7	10	4	4	7	4	3	7
1001:	11	4	10	6	4	4	2	4
1009:	8	8	3	4	4	3	6	12
1017:	5	3	3	7	5	3	6	5
1025:	11	9	3	10	6	11	4	8
1033:	8	4	7	3	9	5	3	3
1041:	3	6	6	4	8	7	6	7
1049:	3	3	7	5	7	5	5	7
1057:	1	10	2	6	11	7	4	5
1065:	5	2	6	5	11	5	7	5
1073:	5	4	6	1	8	3	3	4
1081:	6	2	3	1	5	4	5	6
1089:	5	7	2	5	3	5	5	6
1097:	8	2	11	3	6	5	7	12
1105:	3	11	1	8	6	6	10	11
1113:	4	5	4	5	8	15	15	24
1121:	16	12	4	6	7	2	6	5
1129:	12	5	9	5	6	10	3	3
1137:	3	2	7	4	6	6	6	3
1145:	4	5	10	3	6	14	6	12
1153:	9	3	9	6	7	9	8	11
1161:	4	8	4	9	5	7	6	5
1169:	3	6	8	6	4	6	7	5
1177:	7	12	4	4	9	5	7	10
1185:	5	13	7	12	6	4	5	14
1193:	12	2	6	8	6	7	10	3
1201:	3	11	8	5	5	12	6	6
1209:	4	7	5	12	6	6	12	10
1217:	5	4	12	6	5	8	15	8
1225:	5	5	11	12	6	6	9	3

1233:	12	8	4	8	7	14	6	9

Sample Title: HTC-A02-S002-2430-01

Channel								
1241:	4	8	9	2	3	10	8	8
1249:	4	3	5	8	2	4	4	2
1257:	9	7	3	3	5	6	7	2
1265:	6	3	2	2	3	12	5	6
1273:	2	5	7	5	10	5	5	6
1281:	9	5	3	7	6	7	3	5
1289:	4	5	5	4	7	8	4	5
1297:	3	3	7	5	4	2	7	6
1305:	7	4	5	2	5	6	3	1
1313:	1	2	6	3	7	6	3	1
1321:	2	5	7	1	3	2	4	2
1329:	1	3	4	0	4	4	2	4
1337:	0	2	3	3	4	3	2	4
1345:	4	4	2	2	8	2	2	2
1353:	4	2	6	0	3	3	2	2
1361:	1	5	5	3	1	2	1	1
1369:	3	5	1	1	3	3	2	6
1377:	6	3	1	2	3	3	0	2
1385:	3	3	2	1	2	2	1	3
1393:	1	1	2	2	5	3	2	4
1401:	3	3	2	0	2	3	3	2
1409:	2	4	4	2	1	3	3	2
1417:	5	1	3	3	2	1	2	1
1425:	4	1	6	1	1	1	2	1
1433:	0	2	6	2	3	5	3	1
1441:	0	1	3	2	0	2	1	5
1449:	1	3	1	1	2	3	2	1
1457:	9	31	89	174	119	48	7	3
1465:	0	1	2	0	0	3	2	0
1473:	0	1	1	1	2	1	0	2
1481:	0	2	2	2	3	1	4	0
1489:	4	2	3	3	3	0	1	3
1497:	3	1	0	1	2	1	1	1
1505:	0	3	2	3	0	1	2	2
1513:	1	2	2	3	0	0	0	0
1521:	2	1	1	1	3	1	1	3
1529:	1	1	2	1	0	1	0	1
1537:	1	1	1	0	0	0	1	1
1545:	1	6	2	3	2	2	2	2
1553:	1	1	2	1	1	2	0	0
1561:	1	0	1	1	1	4	2	1
1569:	2	0	1	2	3	0	1	3
1577:	0	0	3	0	1	0	1	0
1585:	4	3	3	6	4	0	2	6
1593:	2	1	0	0	3	1	3	2
1601:	1	1	2	0	3	1	1	0
1609:	0	0	1	1	0	2	0	0
1617:	2	4	2	1	2	2	1	1
1625:	1	2	3	4	1	1	3	0
1633:	2	1	1	1	1	2	2	0
1641:	2	1	2	0	1	2	0	0
1649:	0	1	1	3	1	0	1	2
1657:	3	2	0	0	1	1	1	4

1665:	1	0	0	1	0	0	0	2

Sample Title: HTC-A02-S002-2430-01

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

2097:	2	0	4	2	1	3	1	0

Sample Title: HTC-A02-S002-2430-01

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

2529:	1	0	0	0	1	3	1	0

Sample Title: HTC-A02-S002-2430-01

Channel								
2537:	0	0	2	0	0	0	0	1
2545:	0	0	0	1	1	1	0	0
2553:	0	1	1	0	0	0	1	2
2561:	0	1	2	0	0	0	0	0
2569:	1	1	1	0	0	1	0	0
2577:	0	0	0	0	0	0	0	1
2585:	0	0	0	0	1	1	0	0
2593:	0	0	0	1	0	0	1	0
2601:	0	0	3	1	0	0	0	0
2609:	1	0	3	3	15	9	9	10
2617:	1	1	0	0	1	0	1	1
2625:	0	0	0	0	0	0	0	0
2633:	0	0	0	0	0	0	0	0
2641:	0	0	1	2	0	0	0	1
2649:	0	1	0	0	0	0	0	1
2657:	0	0	0	0	0	0	0	0
2665:	1	0	0	0	1	1	0	1
2673:	0	0	0	0	0	0	0	0
2681:	1	0	0	0	0	1	0	0
2689:	0	0	0	0	1	0	0	0
2697:	0	0	2	0	0	0	0	0
2705:	0	0	0	0	0	0	0	0
2713:	0	0	0	0	0	0	0	0
2721:	0	0	1	1	0	1	0	1
2729:	0	1	0	0	0	0	0	0
2737:	0	1	0	0	0	0	0	0
2745:	0	0	0	0	0	0	0	0
2753:	0	1	0	1	0	0	0	0
2761:	0	1	1	0	1	0	0	1
2769:	0	0	0	0	0	0	0	1
2777:	0	1	0	0	0	0	1	0
2785:	0	1	0	0	0	0	0	0
2793:	0	0	1	0	0	0	0	0
2801:	1	0	0	0	0	0	0	0
2809:	0	0	1	1	0	0	0	0
2817:	0	0	0	0	0	0	0	0
2825:	0	0	0	0	0	0	0	0
2833:	0	0	2	0	0	0	0	0
2841:	0	0	0	0	0	0	0	0
2849:	1	0	0	0	0	1	0	0
2857:	0	0	1	0	0	1	0	0
2865:	0	0	0	0	0	0	0	0
2873:	1	0	0	0	0	0	0	0
2881:	0	0	0	1	0	0	0	1
2889:	0	0	0	0	0	0	0	0
2897:	0	0	1	0	1	0	0	0
2905:	0	0	0	0	0	0	1	0
2913:	0	0	0	0	0	0	0	0
2921:	0	1	0	0	0	0	1	1
2929:	0	0	0	0	0	1	0	0
2937:	0	0	0	0	0	0	0	0
2945:	0	0	0	0	0	0	1	0
2953:	0	0	0	0	1	0	0	0

2961:	0	0	0	0	1	0	0	0

Sample Title: HTC-A02-S002-2430-01

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

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A02-S002-2430-01

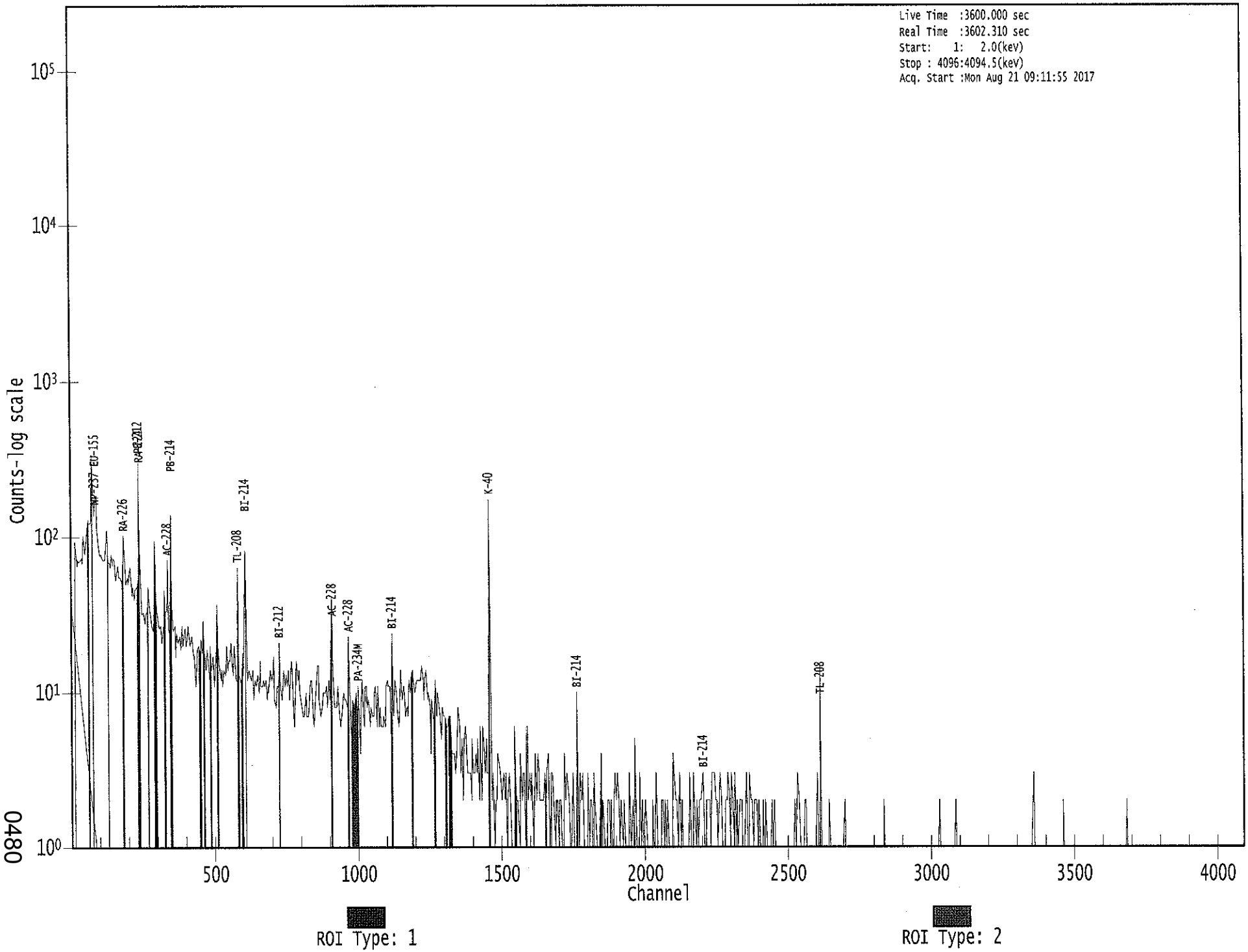
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	1	0	0	0
3417:	0	0	0	1	0	0	0	1
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	1	0	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	2	0	0	0
3465:	0	0	0	0	0	1	0	0
3473:	0	1	0	1	1	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	1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

3825:	0	0	0	0	1	0	0	0

Sample Title: HTC-A02-S002-2430-01

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

0000055612.CNF



0480

Apex-Gamma

C 8/21

Analysis Report for 1707085-05

HTC-A02-S002-3036-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707085-05
Sample Description	: HTC-A02-S002-3036-01
Sample Type	: SOIL
Sample Size	: 6.172E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 8:05:31AM
Acquisition Started	: 8/21/2017 9:11:33AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3601.3 seconds
Dead Time	: 0.04 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 17 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55610

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/22/17

Analysis Report for 1707085-05

HTC-A02-S002-3036-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 10:11:37AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	46.52	47.14	0.0000	0.00
2	60.70	61.31	0.0000	0.00
3	63.38	63.98	0.0000	0.00
4	76.03	76.62	0.0000	0.00
5	83.33	83.91	0.0000	0.00
6	87.54	88.12	0.0000	0.00
7	92.73	93.31	0.0000	0.00
8	129.18	129.72	0.0000	0.00
9	185.66	186.14	0.0000	0.00
10	188.36	188.84	0.0000	0.00
11	209.17	209.62	0.0000	0.00
12	238.48	238.91	0.0000	0.00
13	241.74	242.17	0.0000	0.00
14	269.83	270.22	0.0000	0.00
15	277.13	277.52	0.0000	0.00
16	295.24	295.61	0.0000	0.00
17	300.31	300.67	0.0000	0.00
18	338.47	338.79	0.0000	0.00
19	351.85	352.16	0.0000	0.00
20	462.32	462.52	0.0000	0.00
21	510.87	511.02	0.0000	0.00
22	583.42	583.49	0.0000	0.00
23	609.51	609.56	0.0000	0.00
24	720.11	720.05	0.0000	0.00
25	728.18	728.11	0.0000	0.00
26	770.22	770.11	0.0000	0.00
27	785.93	785.81	0.0000	0.00
28	798.26	798.12	0.0000	0.00
29	911.78	911.52	0.0000	0.00
30	964.54	964.23	0.0000	0.00
31	969.43	969.12	0.0000	0.00
32	1050.03	1049.64	0.0000	0.00
33	1120.74	1120.28	0.0000	0.00
34	1182.84	1182.32	0.0000	0.00
35	1378.46	1377.74	0.0000	0.00
36	1387.49	1386.77	0.0000	0.00
37	1402.42	1401.68	0.0000	0.00
38	1409.71	1408.97	0.0000	0.00
39	1461.52	1460.72	0.0000	0.00
40	1497.90	1497.07	0.0000	0.00
41	1509.41	1508.57	0.0000	0.00
42	1622.79	1621.84	0.0000	0.00

Analysis Report for 1707085-05

HTC-A02-S002-3036-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1631.75	1630.79	0.0000	0.00
44	1662.31	1661.32	0.0000	0.00
45	1730.61	1729.55	0.0000	0.00
46	1755.96	1754.88	0.0000	0.00
47	1765.68	1764.59	0.0000	0.00
48	1773.41	1772.31	0.0000	0.00
49	2104.44	2103.02	0.0000	0.00
50	2140.37	2138.91	0.0000	0.00
51	2204.81	2203.30	0.0000	0.00
52	2218.46	2216.93	0.0000	0.00
53	2390.88	2389.18	0.0000	0.00
54	2606.12	2604.22	0.0000	0.00
55	2615.89	2613.98	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707085-05

HTC-A02-S002-3036-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 10:11:37AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	46.52	45 -	49	47.14	9.50E+01	60.87	7.44E+02	1.77
M	2	60.70	60 -	66	61.31	7.89E+01	51.31	6.80E+02	1.52
m	3	63.38	60 -	66	63.98	1.87E+02	78.57	1.20E+03	1.63
	4	76.03	71 -	81	76.62	1.14E+03	157.34	2.69E+03	3.85
M	5	83.33	82 -	97	83.91	1.22E+02	61.90	9.02E+02	2.06
m	6	87.54	82 -	97	88.12	2.64E+02	97.17	1.49E+03	2.44
m	7	92.73	82 -	97	93.31	4.01E+02	98.44	1.33E+03	2.45
	8	129.18	127 -	132	129.72	6.49E+01	69.81	9.16E+02	2.06
M	9	185.66	182 -	195	186.14	2.20E+02	59.55	5.69E+02	1.77
m	10	188.36	182 -	195	188.84	4.55E+01	58.06	5.31E+02	1.78
	11	209.17	206 -	213	209.62	6.63E+01	74.81	8.73E+02	2.08
M	12	238.48	234 -	247	238.91	9.65E+02	74.12	3.97E+02	1.82
m	13	241.74	234 -	247	242.17	2.67E+02	75.88	3.52E+02	1.82
M	14	269.83	264 -	281	270.22	1.23E+02	51.85	3.89E+02	2.46
m	15	277.13	264 -	281	277.52	7.07E+01	50.56	4.23E+02	2.46
M	16	295.24	292 -	307	295.61	2.65E+02	51.55	3.22E+02	1.96
m	17	300.31	292 -	307	300.67	6.98E+01	55.93	4.44E+02	2.74
	18	338.47	336 -	342	338.79	2.16E+02	48.91	2.79E+02	1.90
	19	351.85	348 -	356	352.16	4.80E+02	69.69	4.55E+02	1.52
	20	462.32	458 -	469	462.52	8.68E+01	59.40	4.02E+02	2.32
	21	510.87	506 -	517	511.02	1.68E+02	64.31	4.36E+02	1.74
	22	583.42	580 -	586	583.49	3.01E+02	47.73	1.94E+02	1.99
	23	609.51	605 -	615	609.56	3.21E+02	62.64	3.52E+02	2.04
	24	720.11	717 -	723	720.05	2.43E+01	26.76	1.13E+02	4.03
	25	728.18	724 -	732	728.11	6.00E+01	34.23	1.42E+02	2.07
	26	770.22	766 -	775	770.11	4.03E+01	37.47	1.71E+02	1.05
M	27	785.93	781 -	801	785.81	4.75E+01	21.93	5.48E+01	2.14
m	28	798.26	781 -	801	798.12	2.21E+01	22.38	7.35E+01	2.15
	29	911.78	908 -	915	911.52	1.87E+02	38.26	1.19E+02	1.93
M	30	964.54	962 -	976	964.23	4.27E+01	17.78	5.78E+01	3.25
m	31	969.43	962 -	976	969.12	1.33E+02	34.70	9.74E+01	2.54
	32	1050.03	1047 -	1052	1049.64	1.32E+01	17.58	5.16E+01	2.62
	33	1120.74	1115 -	1124	1120.28	7.90E+01	36.00	1.40E+02	2.11
	34	1182.84	1179 -	1186	1182.32	2.73E+01	28.64	1.15E+02	3.81
	35	1378.46	1372 -	1383	1377.74	3.97E+01	21.17	3.65E+01	6.02
	36	1387.49	1384 -	1391	1386.77	1.23E+01	13.71	2.15E+01	3.25
	37	1402.42	1399 -	1404	1401.68	1.24E+01	13.78	2.52E+01	2.08
	38	1409.71	1405 -	1413	1408.97	3.21E+01	12.50	3.85E+00	6.15
	39	1461.52	1456 -	1464	1460.72	9.46E+02	69.55	1.61E+02	2.20
	40	1497.90	1491 -	1502	1497.07	2.24E+01	13.56	1.11E+01	6.86

Analysis Report for 1707085-05

HTC-A02-S002-3036-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1509.41	1504 -	1513	1508.57	1.91E+01	15.91	2.58E+01	3.67
42	1622.79	1618 -	1626	1621.84	9.80E+00	10.99	1.04E+01	4.45
43	1631.75	1627 -	1636	1630.79	1.92E+01	12.25	1.17E+01	4.47
44	1662.31	1658 -	1664	1661.32	1.05E+01	8.97	7.00E+00	1.24
45	1730.61	1726 -	1733	1729.55	1.34E+01	11.14	1.13E+01	1.99
46	1755.96	1752 -	1758	1754.88	7.50E+00	9.42	1.10E+01	2.81
47	1765.68	1760 -	1768	1764.59	5.81E+01	18.68	1.78E+01	2.47
48	1773.41	1770 -	1775	1772.31	6.88E+00	6.40	2.25E+00	2.67
49	2104.44	2099 -	2107	2103.02	1.53E+01	10.98	9.50E+00	3.14
50	2140.37	2137 -	2141	2138.91	6.55E+00	7.66	6.90E+00	2.60
51	2204.81	2198 -	2207	2203.30	2.36E+01	14.11	1.47E+01	2.88
52	2218.46	2214 -	2219	2216.93	6.00E+00	7.35	6.00E+00	1.62
53	2390.88	2385 -	2391	2389.18	5.00E+00	6.34	4.00E+00	0.97
54	2606.12	2600 -	2607	2604.22	9.00E+00	6.00	0.00E+00	2.99
55	2615.89	2609 -	2620	2613.98	1.14E+02	22.36	4.94E+00	2.48

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 10:11:37AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	46.52	45 -	49	9.50E+01	60.87	7.44E+02	4.74E+01
M	2	60.70	60 -	66	7.89E+01	51.31	6.80E+02	4.29E+01
m	3	63.38	60 -	66	1.87E+02	78.57	1.20E+03	5.69E+01
	4	76.03	71 -	81	1.14E+03	157.34	2.69E+03	1.17E+02
M	5	83.33	82 -	97	1.22E+02	61.90	9.02E+02	4.94E+01
m	6	87.54	82 -	97	2.64E+02	97.17	1.49E+03	6.35E+01
m	7	92.73	82 -	97	4.01E+02	98.44	1.33E+03	6.00E+01
	8	129.18	127 -	132	6.49E+01	69.81	9.16E+02	5.58E+01
M	9	185.66	182 -	195	2.20E+02	59.55	5.69E+02	3.92E+01
m	10	188.36	182 -	195	4.55E+01	58.06	5.31E+02	3.79E+01
	11	209.17	206 -	213	6.63E+01	74.81	8.73E+02	6.00E+01
M	12	238.48	234 -	247	9.65E+02	74.12	3.97E+02	3.28E+01
m	13	241.74	234 -	247	2.67E+02	75.88	3.52E+02	3.08E+01

Analysis Report for 1707085-05

HTC-A02-S002-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	14	269.83	264 -	281	1.23E+02	51.85	3.89E+02	3.24E+01
m	15	277.13	264 -	281	7.07E+01	50.56	4.23E+02	3.38E+01
M	16	295.24	292 -	307	2.65E+02	51.55	3.22E+02	2.95E+01
m	17	300.31	292 -	307	6.98E+01	55.93	4.44E+02	3.46E+01
	18	338.47	336 -	342	2.16E+02	48.91	2.79E+02	3.21E+01
	19	351.85	348 -	356	4.80E+02	69.69	4.55E+02	4.45E+01
	20	462.32	458 -	469	8.68E+01	59.40	4.02E+02	4.64E+01
	21	510.87	506 -	517	1.68E+02	64.31	4.36E+02	2.41E+01
	22	583.42	580 -	586	3.01E+02	47.73	1.94E+02	2.69E+01
	23	609.51	605 -	615	3.21E+02	62.64	3.52E+02	4.22E+01
	24	720.11	717 -	723	2.43E+01	26.76	1.13E+02	2.04E+01
	25	728.18	724 -	732	6.00E+01	34.23	1.42E+02	2.51E+01
	26	770.22	766 -	775	4.03E+01	37.47	1.71E+02	2.90E+01
M	27	785.93	781 -	801	4.75E+01	21.93	5.48E+01	1.22E+01
m	28	798.26	781 -	801	2.21E+01	22.38	7.35E+01	1.41E+01
	29	911.78	908 -	915	1.87E+02	38.26	1.19E+02	2.20E+01
M	30	964.54	962 -	976	4.27E+01	17.78	5.78E+01	1.25E+01
m	31	969.43	962 -	976	1.33E+02	34.70	9.74E+01	1.62E+01
	32	1050.03	1047 -	1052	1.32E+01	17.58	5.16E+01	1.32E+01
	33	1120.74	1115 -	1124	7.90E+01	36.00	1.40E+02	2.57E+01
	34	1182.84	1179 -	1186	2.73E+01	28.64	1.15E+02	2.19E+01
	35	1378.46	1372 -	1383	3.97E+01	21.17	3.65E+01	1.40E+01
	36	1387.49	1384 -	1391	1.23E+01	13.71	2.15E+01	9.69E+00
	37	1402.42	1399 -	1404	1.24E+01	13.78	2.52E+01	9.74E+00
	38	1409.71	1405 -	1413	3.21E+01	12.50	3.85E+00	4.35E+00
	39	1461.52	1456 -	1464	9.46E+02	69.55	1.61E+02	2.67E+01
	40	1497.90	1491 -	1502	2.24E+01	13.56	1.11E+01	7.98E+00
	41	1509.41	1504 -	1513	1.91E+01	15.91	2.58E+01	1.09E+01
	42	1622.79	1618 -	1626	9.80E+00	10.99	1.04E+01	7.42E+00
	43	1631.75	1627 -	1636	1.92E+01	12.25	1.17E+01	7.04E+00
	44	1662.31	1658 -	1664	1.05E+01	8.97	7.00E+00	5.10E+00
	45	1730.61	1726 -	1733	1.34E+01	11.14	1.13E+01	6.90E+00
	46	1755.96	1752 -	1758	7.50E+00	9.42	1.10E+01	6.30E+00
	47	1765.68	1760 -	1768	5.81E+01	18.68	1.78E+01	8.88E+00
	48	1773.41	1770 -	1775	6.88E+00	6.40	2.25E+00	3.02E+00
	49	2104.44	2099 -	2107	1.53E+01	10.98	9.50E+00	6.34E+00
	50	2140.37	2137 -	2141	6.55E+00	7.66	6.90E+00	4.69E+00
	51	2204.81	2198 -	2207	2.36E+01	14.11	1.47E+01	8.40E+00
	52	2218.46	2214 -	2219	6.00E+00	7.35	6.00E+00	4.50E+00
	53	2390.88	2385 -	2391	5.00E+00	6.34	4.00E+00	3.70E+00
	54	2606.12	2600 -	2607	9.00E+00	6.00	0.00E+00	0.00E+00
	55	2615.89	2609 -	2620	1.14E+02	22.36	4.94E+00	5.57E+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 1707085-05

HTC-A02-S002-3036-01

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/21/2017 10:11:37AM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	46.52	45 -	49	47.14	9.50E+01	60.87	7.44E+02	PB-210
M	2	60.70	60 -	66	61.31	7.89E+01	51.31	6.80E+02	.....
m	3	63.38	60 -	66	63.98	1.87E+02	78.57	1.20E+03	TH-234
									TH-230
	4	76.03	71 -	81	76.62	1.14E+03	157.34	2.69E+03	.....
M	5	83.33	82 -	97	83.91	1.22E+02	61.90	9.02E+02	TH-231
m	6	87.54	82 -	97	88.12	2.64E+02	97.17	1.49E+03	SN-126
									CD-109
									LU-176
m	7	92.73	82 -	97	93.31	4.01E+02	98.44	1.33E+03	GA-67
	8	129.18	127 -	132	129.72	6.49E+01	69.81	9.16E+02	.....
M	9	185.66	182 -	195	186.14	2.20E+02	59.55	5.69E+02	RA-226
m	10	188.36	182 -	195	188.84	4.55E+01	58.06	5.31E+02	.....
	11	209.17	206 -	213	209.62	6.63E+01	74.81	8.73E+02	GA-67
									CM-243
M	12	238.48	234 -	247	238.91	9.65E+02	74.12	3.97E+02	PB-212
m	13	241.74	234 -	247	242.17	2.67E+02	75.88	3.52E+02	RA-224
M	14	269.83	264 -	281	270.22	1.23E+02	51.85	3.89E+02	.....
m	15	277.13	264 -	281	277.52	7.07E+01	50.56	4.23E+02	CM-243
									NP-239
M	16	295.24	292 -	307	295.61	2.65E+02	51.55	3.22E+02	PB-214
m	17	300.31	292 -	307	300.67	6.98E+01	55.93	4.44E+02	GA-67
									PB-212
									BI-210M
	18	338.47	336 -	342	338.79	2.16E+02	48.91	2.79E+02	AC-228
	19	351.85	348 -	356	352.16	4.80E+02	69.69	4.55E+02	PB-214
	20	462.32	458 -	469	462.52	8.68E+01	59.40	4.02E+02	.....
	21	510.87	506 -	517	511.02	1.68E+02	64.31	4.36E+02	.....
	22	583.42	580 -	586	583.49	3.01E+02	47.73	1.94E+02	TL-208
	23	609.51	605 -	615	609.56	3.21E+02	62.64	3.52E+02	BI-214
	24	720.11	717 -	723	720.05	2.43E+01	26.76	1.13E+02	SB-126
	25	728.18	724 -	732	728.11	6.00E+01	34.23	1.42E+02	.....
	26	770.22	766 -	775	770.11	4.03E+01	37.47	1.71E+02	.....
M	27	785.93	781 -	801	785.81	4.75E+01	21.93	5.48E+01	.....
m	28	798.26	781 -	801	798.12	2.21E+01	22.38	7.35E+01	.....
	29	911.78	908 -	915	911.52	1.87E+02	38.26	1.19E+02	TL-204
									AC-228
M	30	964.54	962 -	976	964.23	4.27E+01	17.78	5.78E+01	EU-152

Analysis Report for 1707085-05

HTC-A02-S002-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
m	31	969.43	962 -	976	969.12	1.33E+02	34.70	9.74E+01	AC-228
	32	1050.03	1047 -	1052	1049.64	1.32E+01	17.58	5.16E+01	.....
	33	1120.74	1115 -	1124	1120.28	7.90E+01	36.00	1.40E+02	SC-46 BI-214 TA-182
	34	1182.84	1179 -	1186	1182.32	2.73E+01	28.64	1.15E+02	.....
	35	1378.46	1372 -	1383	1377.74	3.97E+01	21.17	3.65E+01	.....
	36	1387.49	1384 -	1391	1386.77	1.23E+01	13.71	2.15E+01	.....
	37	1402.42	1399 -	1404	1401.68	1.24E+01	13.78	2.52E+01	.....
	38	1409.71	1405 -	1413	1408.97	3.21E+01	12.50	3.85E+00	.....
	39	1461.52	1456 -	1464	1460.72	9.46E+02	69.55	1.61E+02	K-40
	40	1497.90	1491 -	1502	1497.07	2.24E+01	13.56	1.11E+01	.....
	41	1509.41	1504 -	1513	1508.57	1.91E+01	15.91	2.58E+01	.....
	42	1622.79	1618 -	1626	1621.84	9.80E+00	10.99	1.04E+01	.....
	43	1631.75	1627 -	1636	1630.79	1.92E+01	12.25	1.17E+01	.....
	44	1662.31	1658 -	1664	1661.32	1.05E+01	8.97	7.00E+00	.....
	45	1730.61	1726 -	1733	1729.55	1.34E+01	11.14	1.13E+01	.....
	46	1755.96	1752 -	1758	1754.88	7.50E+00	9.42	1.10E+01	.....
	47	1765.68	1760 -	1768	1764.59	5.81E+01	18.68	1.78E+01	.....
	48	1773.41	1770 -	1775	1772.31	6.88E+00	6.40	2.25E+00	.....
	49	2104.44	2099 -	2107	2103.02	1.53E+01	10.98	9.50E+00	.....
	50	2140.37	2137 -	2141	2138.91	6.55E+00	7.66	6.90E+00	.....
	51	2204.81	2198 -	2207	2203.30	2.36E+01	14.11	1.47E+01	BI-214
	52	2218.46	2214 -	2219	2216.93	6.00E+00	7.35	6.00E+00	.....
	53	2390.88	2385 -	2391	2389.18	5.00E+00	6.34	4.00E+00	.....
	54	2606.12	2600 -	2607	2604.22	9.00E+00	6.00	0.00E+00	.....
	55	2615.89	2609 -	2620	2613.98	1.14E+02	22.36	4.94E+00	.....

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/21/2017 10:11:37AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.52	9.50E+01	60.87	2.47E-02	2.22E-03
M	2	60.70	7.89E+01	51.31	2.68E-02	2.23E-03
m	3	63.38	1.87E+02	78.57	2.70E-02	2.26E-03

Analysis Report for 1707085-05

HTC-A02-S002-3036-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	4	76.03	1.14E+03	157.34	2.75E-02	2.39E-03
M	5	83.33	1.22E+02	61.90	2.75E-02	2.47E-03
m	6	87.54	2.64E+02	97.17	2.74E-02	2.52E-03
m	7	92.73	4.01E+02	98.44	2.73E-02	2.44E-03
	8	129.18	6.49E+01	69.81	2.53E-02	1.94E-03
M	9	185.66	2.20E+02	59.55	2.17E-02	1.68E-03
m	10	188.36	4.55E+01	58.06	2.16E-02	1.67E-03
	11	209.17	6.63E+01	74.81	2.04E-02	1.61E-03
M	12	238.48	9.65E+02	74.12	1.89E-02	1.53E-03
m	13	241.74	2.67E+02	75.88	1.87E-02	1.52E-03
M	14	269.83	1.23E+02	51.85	1.74E-02	1.44E-03
m	15	277.13	7.07E+01	50.56	1.71E-02	1.41E-03
M	16	295.24	2.65E+02	51.55	1.64E-02	1.37E-03
m	17	300.31	6.98E+01	55.93	1.62E-02	1.36E-03
	18	338.47	2.16E+02	48.91	1.50E-02	1.27E-03
	19	351.85	4.80E+02	69.69	1.45E-02	1.24E-03
	20	462.32	8.68E+01	59.40	1.19E-02	1.10E-03
	21	510.87	1.68E+02	64.31	1.10E-02	1.07E-03
	22	583.42	3.01E+02	47.73	9.96E-03	1.02E-03
	23	609.51	3.21E+02	62.64	9.63E-03	1.01E-03
	24	720.11	2.43E+01	26.76	8.47E-03	8.79E-04
	25	728.18	6.00E+01	34.23	8.40E-03	8.66E-04
	26	770.22	4.03E+01	37.47	8.05E-03	7.99E-04
M	27	785.93	4.75E+01	21.93	7.93E-03	7.75E-04
m	28	798.26	2.21E+01	22.38	7.83E-03	7.55E-04
	29	911.78	1.87E+02	38.26	7.08E-03	5.91E-04
M	30	964.54	4.27E+01	17.78	6.79E-03	5.71E-04
m	31	969.43	1.33E+02	34.70	6.76E-03	5.69E-04
	32	1050.03	1.32E+01	17.58	6.37E-03	5.38E-04
	33	1120.74	7.90E+01	36.00	6.07E-03	5.11E-04
	34	1182.84	2.73E+01	28.64	5.84E-03	4.89E-04
	35	1378.46	3.97E+01	21.17	5.22E-03	4.44E-04
	36	1387.49	1.23E+01	13.71	5.20E-03	4.42E-04
	37	1402.42	1.24E+01	13.78	5.16E-03	4.38E-04
	38	1409.71	3.21E+01	12.50	5.14E-03	4.37E-04
	39	1461.52	9.46E+02	69.55	5.00E-03	4.25E-04
	40	1497.90	2.24E+01	13.56	4.92E-03	4.16E-04
	41	1509.41	1.91E+01	15.91	4.89E-03	4.13E-04
	42	1622.79	9.80E+00	10.99	4.64E-03	3.87E-04
	43	1631.75	1.92E+01	12.25	4.63E-03	3.85E-04
	44	1662.31	1.05E+01	8.97	4.56E-03	3.78E-04
	45	1730.61	1.34E+01	11.14	4.44E-03	3.62E-04
	46	1755.96	7.50E+00	9.42	4.39E-03	3.56E-04
	47	1765.68	5.81E+01	18.68	4.37E-03	3.54E-04
	48	1773.41	6.88E+00	6.40	4.36E-03	3.52E-04
	49	2104.44	1.53E+01	10.98	3.86E-03	3.38E-04
	50	2140.37	6.55E+00	7.66	3.82E-03	3.38E-04
	51	2204.81	2.36E+01	14.11	3.74E-03	3.38E-04
	52	2218.46	6.00E+00	7.35	3.72E-03	3.38E-04
	53	2390.88	5.00E+00	6.34	3.53E-03	3.38E-04
	54	2606.12	9.00E+00	6.00	3.31E-03	3.38E-04
	55	2615.89	1.14E+02	22.36	3.30E-03	3.38E-04

Analysis Report for 1707085-05

HTC-A02-S002-3036-01

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/21/2017 10:11:37AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055573.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.52	9.50E+01	60.87	3.67E+01	8.40E+00	5.83E+01	6.14E+01
M	2	60.70	7.89E+01	51.31			7.89E+01	5.13E+01
m	3	63.38	1.87E+02	78.57	8.94E+01	1.41E+01	9.79E+01	7.98E+01
	4	76.03	1.14E+03	157.34			1.14E+03	1.57E+02
M	5	83.33	1.22E+02	61.90			1.22E+02	6.19E+01
m	6	87.54	2.64E+02	97.17			2.64E+02	9.72E+01
m	7	92.73	4.01E+02	98.44	1.38E+02	1.72E+01	2.63E+02	9.99E+01
	8	129.18	6.49E+01	69.81			6.49E+01	6.98E+01
M	9	185.66	2.20E+02	59.55	5.22E+01	7.59E+00	1.68E+02	6.00E+01
m	10	188.36	4.55E+01	58.06			4.55E+01	5.81E+01
	11	209.17	6.63E+01	74.81			6.63E+01	7.48E+01
M	12	238.48	9.65E+02	74.12	2.13E+01	6.33E+00	9.43E+02	7.44E+01
m	13	241.74	2.67E+02	75.88			2.67E+02	7.59E+01
M	14	269.83	1.23E+02	51.85	1.23E+00	4.98E+00	1.22E+02	5.21E+01
m	15	277.13	7.07E+01	50.56			7.07E+01	5.06E+01
M	16	295.24	2.65E+02	51.55			2.65E+02	5.15E+01
m	17	300.31	6.98E+01	55.93			6.98E+01	5.59E+01
	18	338.47	2.16E+02	48.91			2.16E+02	4.89E+01
	19	351.85	4.80E+02	69.69	5.79E+00	4.49E+00	4.75E+02	6.98E+01
	20	462.32	8.68E+01	59.40			8.68E+01	5.94E+01
	21	510.87	1.68E+02	64.31	7.28E+01	5.30E+00	9.50E+01	6.45E+01
	22	583.42	3.01E+02	47.73	2.72E+00	3.05E+00	2.98E+02	4.78E+01
	23	609.51	3.21E+02	62.64	6.35E+00	4.02E+00	3.15E+02	6.28E+01
	24	720.11	2.43E+01	26.76			2.43E+01	2.68E+01
	25	728.18	6.00E+01	34.23			6.00E+01	3.42E+01
	26	770.22	4.03E+01	37.47			4.03E+01	3.75E+01
M	27	785.93	4.75E+01	21.93			4.75E+01	2.19E+01
m	28	798.26	2.21E+01	22.38			2.21E+01	2.24E+01
	29	911.78	1.87E+02	38.26	5.31E+00	3.00E+00	1.81E+02	3.84E+01
M	30	964.54	4.27E+01	17.78			4.27E+01	1.78E+01
m	31	969.43	1.33E+02	34.70			1.33E+02	3.47E+01
	32	1050.03	1.32E+01	17.58			1.32E+01	1.76E+01
	33	1120.74	7.90E+01	36.00			7.90E+01	3.60E+01
	34	1182.84	2.73E+01	28.64			2.73E+01	2.86E+01
	35	1378.46	3.97E+01	21.17			3.97E+01	2.12E+01

Analysis Report for 1707085-05

HTC-A02-S002-3036-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
36	1387.49	1.23E+01	13.71			1.23E+01	1.37E+01
37	1402.42	1.24E+01	13.78			1.24E+01	1.38E+01
38	1409.71	3.21E+01	12.50			3.21E+01	1.25E+01
39	1461.52	9.46E+02	69.55	8.09E+00	2.23E+00	9.38E+02	6.96E+01
40	1497.90	2.24E+01	13.56			2.24E+01	1.36E+01
41	1509.41	1.91E+01	15.91			1.91E+01	1.59E+01
42	1622.79	9.80E+00	10.99			9.80E+00	1.10E+01
43	1631.75	1.92E+01	12.25			1.92E+01	1.22E+01
44	1662.31	1.05E+01	8.97			1.05E+01	8.97E+00
45	1730.61	1.34E+01	11.14			1.34E+01	1.11E+01
46	1755.96	7.50E+00	9.42			7.50E+00	9.42E+00
47	1765.68	5.81E+01	18.68			5.81E+01	1.87E+01
48	1773.41	6.88E+00	6.40			6.88E+00	6.40E+00
49	2104.44	1.53E+01	10.98			1.53E+01	1.10E+01
50	2140.37	6.55E+00	7.66			6.55E+00	7.66E+00
51	2204.81	2.36E+01	14.11			2.36E+01	1.41E+01
52	2218.46	6.00E+00	7.35			6.00E+00	7.35E+00
53	2390.88	5.00E+00	6.34			5.00E+00	6.34E+00
54	2606.12	9.00E+00	6.00			9.00E+00	6.00E+00
55	2615.89	1.14E+02	22.36	5.63E+00	1.38E+00	1.08E+02	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 : 8/21/2017 10:11:37AM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055573.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	46.52	9.50E+01	60.87	3.67E+01	8.40E+00	5.83E+01	6.14E+01
M	2	60.70	7.89E+01	51.31			7.89E+01	5.13E+01
m	3	63.38	1.87E+02	78.57	8.94E+01	1.41E+01	9.79E+01	7.98E+01
	4	76.03	1.14E+03	157.34			1.14E+03	1.57E+02
M	5	83.33	1.22E+02	61.90			1.22E+02	6.19E+01
m	6	87.54	2.64E+02	97.17			2.64E+02	9.72E+01
m	7	92.73	4.01E+02	98.44	1.38E+02	1.72E+01	2.63E+02	9.99E+01
	8	129.18	6.49E+01	69.81			6.49E+01	6.98E+01

Analysis Report for 1707085-05

HTC-A02-S002-3036-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	9	185.66	2.20E+02	59.55	5.22E+01	7.59E+00	1.68E+02	6.00E+01
m	10	188.36	4.55E+01	58.06			4.55E+01	5.81E+01
	11	209.17	6.63E+01	74.81			6.63E+01	7.48E+01
M	12	238.48	9.65E+02	74.12	2.13E+01	6.33E+00	9.43E+02	7.44E+01
m	13	241.74	2.67E+02	75.88			2.67E+02	7.59E+01
M	14	269.83	1.23E+02	51.85	1.23E+00	4.98E+00	1.22E+02	5.21E+01
m	15	277.13	7.07E+01	50.56			7.07E+01	5.06E+01
M	16	295.24	2.65E+02	51.55			2.65E+02	5.15E+01
m	17	300.31	6.98E+01	55.93			6.98E+01	5.59E+01
	18	338.47	2.16E+02	48.91			2.16E+02	4.89E+01
	19	351.85	4.80E+02	69.69	5.79E+00	4.49E+00	4.75E+02	6.98E+01
	20	462.32	8.68E+01	59.40			8.68E+01	5.94E+01
	21	510.87	1.68E+02	64.31	7.28E+01	5.30E+00	9.50E+01	6.45E+01
	22	583.42	3.01E+02	47.73	2.72E+00	3.05E+00	2.98E+02	4.78E+01
	23	609.51	3.21E+02	62.64	6.35E+00	4.02E+00	3.15E+02	6.28E+01
	24	720.11	2.43E+01	26.76			2.43E+01	2.68E+01
	25	728.18	6.00E+01	34.23			6.00E+01	3.42E+01
	26	770.22	4.03E+01	37.47			4.03E+01	3.75E+01
M	27	785.93	4.75E+01	21.93			4.75E+01	2.19E+01
m	28	798.26	2.21E+01	22.38			2.21E+01	2.24E+01
	29	911.78	1.87E+02	38.26	5.31E+00	3.00E+00	1.81E+02	3.84E+01
M	30	964.54	4.27E+01	17.78			4.27E+01	1.78E+01
m	31	969.43	1.33E+02	34.70			1.33E+02	3.47E+01
	32	1050.03	1.32E+01	17.58			1.32E+01	1.76E+01
	33	1120.74	7.90E+01	36.00			7.90E+01	3.60E+01
	34	1182.84	2.73E+01	28.64			2.73E+01	2.86E+01
	35	1378.46	3.97E+01	21.17			3.97E+01	2.12E+01
	36	1387.49	1.23E+01	13.71			1.23E+01	1.37E+01
	37	1402.42	1.24E+01	13.78			1.24E+01	1.38E+01
	38	1409.71	3.21E+01	12.50			3.21E+01	1.25E+01
	39	1461.52	9.46E+02	69.55	8.09E+00	2.23E+00	9.38E+02	6.96E+01
	40	1497.90	2.24E+01	13.56			2.24E+01	1.36E+01
	41	1509.41	1.91E+01	15.91			1.91E+01	1.59E+01
	42	1622.79	9.80E+00	10.99			9.80E+00	1.10E+01
	43	1631.75	1.92E+01	12.25			1.92E+01	1.22E+01
	44	1662.31	1.05E+01	8.97			1.05E+01	8.97E+00
	45	1730.61	1.34E+01	11.14			1.34E+01	1.11E+01
	46	1755.96	7.50E+00	9.42			7.50E+00	9.42E+00
	47	1765.68	5.81E+01	18.68			5.81E+01	1.87E+01
	48	1773.41	6.88E+00	6.40			6.88E+00	6.40E+00
	49	2104.44	1.53E+01	10.98			1.53E+01	1.10E+01
	50	2140.37	6.55E+00	7.66			6.55E+00	7.66E+00
	51	2204.81	2.36E+01	14.11			2.36E+01	1.41E+01
	52	2218.46	6.00E+00	7.35			6.00E+00	7.35E+00
	53	2390.88	5.00E+00	6.34			5.00E+00	6.34E+00
	54	2606.12	9.00E+00	6.00			9.00E+00	6.00E+00
	55	2615.89	1.14E+02	22.36	5.63E+00	1.38E+00	1.08E+02	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

Analysis Report for 1707085-05

HTC-A02-S002-3036-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.923	1460.81	*	10.67	2.14E+01	2.45E+00
CD-109	0.962	88.03	*	3.72	3.64E+00	1.40E+00
SN-126	1.000	87.57	*	37.00	3.16E-01	1.20E-01
PB-210	1.000	46.50	*	4.25	6.82E-01	7.22E-01
PB-212	0.996	238.63	*	44.60	1.36E+00	1.54E-01
		300.09	*	3.41	1.53E+00	1.23E+00
BI-214	0.751	609.31	*	46.30	8.58E-01	1.93E-01
		1120.29	*	15.10	1.05E+00	4.86E-01
		1764.49		15.80		
		2204.22	*	4.98	1.55E+00	9.33E-01
PB-214	0.999	295.21	*	19.19	1.02E+00	2.16E-01
		351.92	*	37.19	1.07E+00	1.81E-01
RA-224	0.911	240.98	*	3.95	4.40E+00	1.30E+00
RA-226	0.953	186.21	*	3.28	2.87E+00	5.36E+00
AC-228	0.956	338.32	*	11.40	1.54E+00	3.73E-01
		911.07	*	27.70	1.12E+00	2.56E-01
		969.11	*	16.60	1.44E+00	3.95E-01
TH-234	0.999	63.29	*	3.80	1.16E+00	9.52E-01
CM-243	0.351	209.75	*	3.29	1.21E+00	1.37E+00
		228.14		10.60		
		277.60	*	14.00	3.61E-01	2.60E-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 10:11:37AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Analysis Report for 1707085-05

HTC-A02-S002-3036-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	2	60.70	2.19136E-02	32.52		
	4	76.03	3.16275E-01	6.91		
M	5	83.33	3.39247E-02	25.34	Tol.	TH-231
m	7	92.73	7.30319E-02	19.00	Sum	
	8	129.18	1.80335E-02	53.76		
m	10	188.36	1.26343E-02	63.82		
M	14	269.83	3.38409E-02	21.38		
	20	462.32	2.41088E-02	34.22	Sum	
	21	510.87	2.63965E-02	33.95		
	22	583.42	8.29137E-02	8.01	Tol.	TL-208
	24	720.11	6.76269E-03	54.95	Tol.	SB-126
	25	728.18	1.66794E-02	28.51		
	26	770.22	1.12015E-02	46.46		
M	27	785.93	1.32027E-02	23.07		
m	28	798.26	6.14390E-03	50.60		
M	30	964.54	1.18604E-02	20.82	Tol.	EU-152
	32	1050.03	3.66453E-03	66.62		
	34	1182.84	7.57190E-03	52.53	D-Esc	
	35	1378.46	1.10393E-02	26.63		
	36	1387.49	3.40580E-03	55.91		
	37	1402.42	3.44444E-03	55.58		
	38	1409.71	8.90931E-03	19.49		
	40	1497.90	6.23016E-03	30.24		
	41	1509.41	5.31250E-03	41.58		
	42	1622.79	2.72222E-03	56.06		
	43	1631.75	5.32222E-03	31.96		
	44	1662.31	2.91667E-03	42.72		
	45	1730.61	3.71345E-03	41.65	Sum	
	46	1755.96	2.08333E-03	62.80	Sum	
	47	1765.68	1.61381E-02	16.08		
	48	1773.41	1.90972E-03	46.57		
	49	2104.44	4.23611E-03	35.99		
	50	2140.37	1.81944E-03	58.51		
	52	2218.46	1.66667E-03	61.24		
	53	2390.88	1.38889E-03	63.44	Sum	
	54	2606.12	2.50000E-03	33.33		
	55	2615.89	2.99737E-02	10.38		

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 1707085-05

HTC-A02-S002-3036-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.92	1460.81	*	10.67	2.14E+01	2.45E+00
CD-109	0.96	88.03	*	3.72	3.64E+00	1.40E+00
SN-126	1.00	87.57	*	37.00	3.16E-01	1.20E-01
PB-210	1.00	46.50	*	4.25	6.82E-01	7.22E-01
PB-212	0.99	238.63	*	44.60	1.36E+00	1.54E-01
		300.09	*	3.41	1.53E+00	1.23E+00
BI-214	0.75	609.31	*	46.30	8.58E-01	1.93E-01
		1120.29	*	15.10	1.05E+00	4.86E-01
		1764.49		15.80		
		2204.22	*	4.98	1.55E+00	9.33E-01
PB-214	0.99	295.21	*	19.19	1.02E+00	2.16E-01
		351.92	*	37.19	1.07E+00	1.81E-01
RA-224	0.91	240.98	*	3.95	4.40E+00	1.30E+00
RA-226	0.95	186.21	*	3.28	2.87E+00	5.36E+00
AC-228	0.95	338.32	*	11.40	1.54E+00	3.73E-01
		911.07	*	27.70	1.12E+00	2.56E-01
		969.11	*	16.60	1.44E+00	3.95E-01
TH-234	0.99	63.29	*	3.80	1.16E+00	9.52E-01
CM-243	0.35	209.75	*	3.29	1.21E+00	1.37E+00
		228.14		10.60		
		277.60	*	14.00	3.61E-01	2.60E-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 1707085-05

HTC-A02-S002-3036-01

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.923	2.14E+01	2.45E+00	
?	CD-109	0.962	3.64E+00	1.40E+00	
?	SN-126	1.000	3.16E-01	1.20E-01	
	PB-210	1.000	6.82E-01	7.22E-01	
	PB-212	0.996	1.37E+00	1.53E-01	
	BI-214	0.751	9.08E-01	1.76E-01	
	PB-214	0.999	1.05E+00	1.39E-01	
	RA-224	0.911	4.40E+00	1.30E+00	
	RA-226	0.953	2.87E+00	5.36E+00	
	AC-228	0.956	1.30E+00	1.86E-01	
	TH-234	0.999	1.16E+00	9.52E-01	
	CM-243	0.351	3.90E-01	2.55E-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 1707085-05

HTC-A02-S002-3036-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 10:11:37AM
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	60.70	2.19136E-02	32.52		
	4	76.03	3.16275E-01	6.91		
M	5	83.33	3.39247E-02	25.34	Tol.	TH-231
m	7	92.73	7.30319E-02	19.00	Sum	
	8	129.18	1.80335E-02	53.76		
m	10	188.36	1.26343E-02	63.82		
M	14	269.83	3.38409E-02	21.38		
	20	462.32	2.41088E-02	34.22	Sum	
	21	510.87	2.63965E-02	33.95		
	22	583.42	8.29137E-02	8.01	Tol.	TL-208
	24	720.11	6.76269E-03	54.95	Tol.	SB-126
	25	728.18	1.66794E-02	28.51		
	26	770.22	1.12015E-02	46.46		
M	27	785.93	1.32027E-02	23.07		
m	28	798.26	6.14390E-03	50.60		
M	30	964.54	1.18604E-02	20.82	Tol.	EU-152
	32	1050.03	3.66453E-03	66.62		
	34	1182.84	7.57190E-03	52.53	D-Esc	
	35	1378.46	1.10393E-02	26.63		
	36	1387.49	3.40580E-03	55.91		
	37	1402.42	3.44444E-03	55.58		
	38	1409.71	8.90931E-03	19.49		
	40	1497.90	6.23016E-03	30.24		
	41	1509.41	5.31250E-03	41.58		
	42	1622.79	2.72222E-03	56.06		
	43	1631.75	5.32222E-03	31.96		
	44	1662.31	2.91667E-03	42.72		
	45	1730.61	3.71345E-03	41.65	Sum	
	46	1755.96	2.08333E-03	62.80	Sum	
	47	1765.68	1.61381E-02	16.08		
	48	1773.41	1.90972E-03	46.57		
	49	2104.44	4.23611E-03	35.99		
	50	2140.37	1.81944E-03	58.51		
	52	2218.46	1.66667E-03	61.24		
	53	2390.88	1.38889E-03	63.44	Sum	

Analysis Report for 1707085-05

HTC-A02-S002-3036-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
54	2606.12	2.50000E-03	33.33		
55	2615.89	2.99737E-02	10.38		

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

NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	3.06E-02	1.84E+00	1.84E+00
+		NA-22	1274.54		99.94	-5.07E-02	7.43E-02	7.43E-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	1.30E-02	4.00E-02	4.00E-02
+		K-40	1460.81	*	10.67	2.14E+01	1.30E+00	1.30E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	3.30E-02	5.87E-02	5.87E-02
			78.34		96.00	1.71E-01		7.79E-02
+		SC-46	889.25		99.98	2.75E-02	1.49E-01	1.49E-01
			1120.51		99.99	3.70E-01		2.52E-01
+		V-48	983.52		99.98	-1.03E+00	4.53E+00	4.53E+00
			1312.10		97.50	2.18E-01		5.11E+00
+		CR-51	320.08		9.83	-1.69E+00	6.19E+00	6.19E+00
+		MN-54	834.83		99.97	2.96E-02	8.75E-02	8.75E-02
+		CO-56	846.75		99.96	-8.92E-03	1.46E-01	1.46E-01
			1037.75		14.03	-2.93E-01		1.07E+00
			1238.25		67.00	9.19E-02		3.50E-01
			1771.40		15.51	-2.01E+00		7.42E-01
			2598.48		16.90	0.00E+00		3.78E-01
+		CO-57	122.06		85.51	-2.62E-03	6.61E-02	6.61E-02
			136.48		10.60	1.08E-01		5.62E-01
+		CO-58	810.76		99.40	2.88E-02	1.64E-01	1.64E-01
+		FE-59	1099.22		56.50	-6.41E-02	5.81E-01	5.81E-01
			1291.56		43.20	-3.80E-01		7.50E-01
+		CO-60	1173.22		100.00	8.19E-03	5.89E-02	8.76E-02
			1332.49		100.00	-3.98E-02		5.89E-02

Analysis Report for 1707085-05

HTC-A02-S002-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	ZN-65	1115.52		50.75	3.31E-03	1.93E-01	1.93E-01
+	GA-67	93.31		35.70	4.11E+08	1.95E+08	1.95E+08
		208.95		2.24	2.53E+09		2.69E+09
		300.22		16.00	-6.23E+08		4.36E+08
+	SE-75	121.11		16.70	-1.10E-02	1.38E-01	4.62E-01
		136.00		59.20	2.64E-02		1.38E-01
		264.65		59.80	-1.58E-02		1.47E-01
		279.53		25.20	-7.40E-02		4.00E-01
		400.65		11.40	-2.88E-01		8.10E-01
+	RB-82	776.52		13.00	2.55E-02	5.85E+00	5.85E+00
+	RB-83	520.41		46.00	4.41E-02	2.70E-01	2.70E-01
		529.64		30.30	-9.12E-02		3.88E-01
		552.65		16.40	3.60E-02		7.59E-01
+	KR-85	513.99		0.43	2.96E+01	2.02E+01	2.02E+01
+	SR-85	513.99		99.27	3.63E-01	2.47E-01	2.47E-01
+	Y-88	898.02		93.40	-1.30E-02	9.88E-02	1.17E-01
		1836.01		99.38	2.72E-02		9.88E-02
+	MO-93	263.06		56.72	2.20E-03	4.56E-02	9.10E-02
		684.67		99.68	-1.55E-02		6.06E-02
		1477.11		99.08	1.01E-02		4.56E-02
+	NB-93M	16.57		9.43	-1.65E-01	5.06E-01	5.06E-01
+	NB-94	702.63		100.00	-1.06E-02	6.38E-02	6.56E-02
		871.10		100.00	1.33E-02		6.38E-02
+	NB-95	765.79		99.81	2.63E-02	5.06E-01	5.06E-01
+	NB-95M	235.69		25.00	-2.34E+08	3.77E+07	3.77E+07
+	ZR-95	724.18		43.70	-3.48E-01	3.50E-01	4.49E-01
		756.72		55.30	7.88E-02		3.50E-01
+	MO-99	181.06		6.20	-3.18E+09	2.48E+10	4.01E+10
		739.58		12.80	-5.80E+09		2.48E+10
		778.00		4.50	-6.93E+09		5.86E+10
+	RU-103	497.08		89.00	2.55E-01	3.41E-01	3.41E-01
+	RU-106	621.84		9.80	2.44E-01	7.26E-01	7.26E-01
+	AG-108M	433.93		89.90	-9.80E-03	6.15E-02	6.15E-02
		614.37		90.40	3.47E-03		7.85E-02
		722.95		90.50	-9.85E-02		7.18E-02
+	CD-109	88.03	*	3.72	3.64E+00	3.93E+00	3.93E+00
+	AG-110M	657.75		93.14	1.03E-02	8.84E-02	8.84E-02
		677.61		10.53	2.75E-01		7.96E-01
		706.67		16.46	1.77E-01		5.34E-01
		763.93		21.98	-8.27E-02		3.88E-01
		884.67		71.63	-5.74E-02		1.04E-01
		1384.27		23.94	-7.48E-02		3.33E-01
+	CD-113M	263.70		0.02	-1.85E+01	2.18E+02	2.18E+02
+	SN-113	255.12		1.93	-1.45E-02	1.48E-01	4.39E+00
		391.69		64.90	-3.91E-02		1.48E-01
+	TE123M	159.00		84.10	-2.15E-02	9.62E-02	9.62E-02
+	SB-124	602.71		97.87	-2.25E-02	1.85E-01	1.85E-01
		645.85		7.26	1.05E-01		2.61E+00

Analysis Report for 1707085-05

HTC-A02-S002-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-124	722.78		11.10	-2.48E+00	1.85E-01	1.81E+00
		1691.02		49.00	-9.65E-03		3.53E-01
+	I-125	35.49		6.49	6.99E-01	2.41E+00	2.41E+00
+	SB-125	176.33		6.89	1.24E-01	1.96E-01	6.97E-01
		427.89		29.33	-9.70E-03		1.96E-01
		463.38		10.35	7.34E-01		7.27E-01
		600.56		17.80	-7.47E-02		3.53E-01
		635.90		11.32	-1.54E-01		5.23E-01
+	SB-126	414.70		83.30	1.08E+00	1.39E+01	1.60E+01
		666.33		99.60	-5.24E+00		1.39E+01
		695.00		99.60	-7.36E+00		1.41E+01
		720.50		53.80	6.46E+00		2.86E+01
+	SN-126	87.57	*	37.00	3.16E-01	3.41E-01	3.41E-01
+	SB-127	473.00		25.00	-7.98E+05	7.74E+06	1.02E+07
		685.20		35.70	-1.98E+06		7.74E+06
		783.80		14.70	1.49E+07		2.14E+07
+	I-129	29.78		57.00	1.02E-02	9.54E-02	9.54E-02
		33.60		13.20	4.86E-02		3.83E-01
		39.58		7.52	-1.61E-01		6.56E-01
+	I-131	284.30		6.05	1.44E+03	3.05E+02	4.03E+03
		364.48		81.20	1.16E+02		3.05E+02
		636.97		7.26	-1.86E+03		3.52E+03
		722.89		1.80	-2.32E+04		1.69E+04
+	TE-132	49.72		13.10	-1.32E+08	6.48E+07	4.16E+08
		228.16		88.00	2.48E+07		6.48E+07
+	BA-133	81.00		33.00	-5.25E-01	1.24E-01	1.66E-01
		302.84		17.80	2.25E-01		3.44E-01
		356.01		60.00	2.88E-02		1.24E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-1.91E+05	6.06E+04	6.06E+04
+	CS-134	563.23		8.38	5.79E-02	7.31E-02	7.79E-01
		569.32		15.43	1.84E-01		4.40E-01
		604.70		97.60	1.12E-02		7.31E-02
		795.84		85.40	6.99E-02		9.73E-02
		801.93		8.73	-5.00E-02		7.74E-01
+	CS-135	268.24		16.00	5.50E-01	3.81E-01	3.81E-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	4.57E+01	1.08E+01	1.13E+02
		163.89		4.61	-5.94E+01		1.71E+02
		176.55		13.56	1.03E+01		5.80E+01
		273.65		12.66	-8.89E+01		8.01E+01
		340.57		48.50	-1.29E+00		2.68E+01
		818.50		99.70	2.19E+00		1.08E+01
		1048.07		79.60	6.10E-01		1.48E+01
		1235.34		19.70	-1.09E+01		8.58E+01
+	CS-137	661.65		85.12	-3.74E-02	6.96E-02	6.96E-02
+	LA-138	788.74		34.00	-5.42E-02	9.27E-02	2.04E-01

Analysis Report for 1707085-05

HTC-A02-S002-3036-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LA-138	1435.80	66.00	4.20E-02	9.27E-02	9.27E-02
+	CE-139	165.85	80.35	1.53E-02	9.21E-02	9.21E-02
+	BA-140	162.64	6.70	3.07E+01	4.64E+01	1.40E+02
		304.84	4.50	-1.56E+02		2.48E+02
		423.70	3.20	6.51E+01		3.46E+02
		437.55	2.00	2.15E+01		5.80E+02
		537.32	25.00	1.60E+01		4.64E+01
+	LA-140	328.77	20.50	1.45E+01	1.07E+01	5.72E+01
		487.03	45.50	6.61E+00		2.40E+01
		815.85	23.50	1.39E+01		5.33E+01
		1596.49	95.49	-1.87E+00		1.07E+01
+	CE-141	145.44	48.40	1.07E-01	8.01E-01	8.01E-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	2.42E-01	5.52E-01	5.52E-01
+	PM-144	476.78	42.00	-5.85E-02	7.20E-02	1.51E-01
		618.01	98.60	-2.82E-02		7.20E-02
		696.49	99.49	-7.68E-03		7.34E-02
+	PM-145	36.85	21.70	5.42E-02	1.28E-01	2.33E-01
		37.36	39.70	7.28E-02		1.28E-01
		42.30	15.10	2.07E-02		3.19E-01
		72.40	2.31	-6.98E-01		2.84E+00
+	PM-146	453.90	39.94	3.01E-02	1.44E-01	1.44E-01
		735.90	14.01	-1.19E-01		4.45E-01
		747.13	13.10	-7.58E-02		4.85E-01
+	ND-147	91.11	28.90	2.04E+02	1.10E+02	1.10E+02
		531.02	13.10	-1.06E+01		2.00E+02
+	PM-149	285.90	3.10	9.59E+12	3.72E+13	3.72E+13
+	EU-152	121.78	20.50	-5.17E-03	2.17E-01	2.17E-01
		244.69	5.40	-7.72E-01		9.63E-01
		344.27	19.13	-5.86E-02		2.77E-01
		778.89	9.20	-6.38E-02		5.46E-01
		964.01	10.40	-1.72E+00		8.26E-01
		1085.78	7.22	-1.00E-01		9.51E-01
		1112.02	9.60	8.81E-02		7.69E-01
		1407.95	14.94	-1.67E-01		4.17E-01
+	GD-153	97.43	31.30	1.37E-01	2.01E-01	2.01E-01
		103.18	22.20	-1.12E-01		2.67E-01
+	EU-154	123.07	40.50	4.09E-03	1.13E-01	1.13E-01
		723.30	19.70	-4.62E-01		3.37E-01
		873.19	11.50	3.83E-01		5.72E-01
		996.32	10.30	-4.15E-01		6.42E-01
		1004.76	17.90	-1.75E-01		4.18E-01
		1274.45	35.50	-1.36E-01		1.99E-01
+	EU-155	86.50	30.90	7.54E-02	2.01E-01	2.01E-01
		105.30	20.70	6.80E-02		2.31E-01
+	EU-156	811.77	10.40	1.43E+01	5.26E+01	5.26E+01
		1153.47	7.20	4.10E+01		1.14E+02

Analysis Report for 1707085-05

HTC-A02-S002-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-156	1230.71		8.90	-8.70E+01	5.26E+01	7.88E+01
+	HO-166M	184.41		72.60	1.77E-01	8.56E-02	8.56E-02
		280.45		29.60	1.47E-02		1.88E-01
		410.94		11.10	8.17E-02		5.16E-01
		711.69		54.10	1.99E-02		1.19E-01
+	TM-171	66.72		0.14	1.08E+01	4.46E+01	4.46E+01
+	HF-172	67.35		5.31	6.46E-01	4.49E-01	1.15E+00
		125.81		11.30	9.48E-02		4.49E-01
+	LU-172	181.53		20.60	-4.54E+02	3.08E+03	5.71E+03
		900.72		29.81	-3.35E+03		4.73E+03
		1093.66		62.50	1.16E+03		3.08E+03
+	LU-173	100.72		5.24	1.59E-01	3.17E-01	1.01E+00
		272.11		21.20	-2.29E-01		3.17E-01
+	HF-175	343.40		84.00	-3.47E-02	1.66E-01	1.66E-01
+	LU-176	88.34		13.30	-1.75E-01	5.55E-02	4.62E-01
		201.83		86.00	-1.17E-02		5.55E-02
		306.78		94.00	1.21E-03		5.72E-02
+	HF-181	133.02		41.70	2.45E-01	3.22E-01	5.59E-01
		345.85		17.20	-3.21E-01		1.51E+00
		482.03		82.80	-4.48E-02		3.22E-01
+	TA-182	67.75		41.20	1.36E-01	2.43E-01	2.43E-01
		1121.30		34.90	6.49E-01		5.74E-01
		1189.05		16.23	4.14E-01		9.19E-01
		1221.41		26.98	-4.51E-02		6.35E-01
		1231.02		11.44	-1.40E+00		1.26E+00
+	IR-192	308.46		29.68	1.16E-04	3.07E-01	4.34E-01
		468.07		48.10	1.78E-02		3.07E-01
+	HG-203	279.19		77.30	-5.88E-02	3.18E-01	3.18E-01
+	TL-204	374.74		94.11	3.33E-02	5.94E-02	5.94E-02
		899.15		99.16	-1.43E-02		5.98E-02
		911.74		91.10	3.86E-01		1.49E-01
+	BI-207	569.67		97.72	1.55E-02	6.38E-02	6.38E-02
		1063.62		74.90	8.40E-03		8.95E-02
+	TL-208	583.14		30.22	1.16E+00	3.86E-01	3.86E-01
		860.37		4.48	1.43E+00		1.74E+00
		2614.66		35.85	1.03E+00		5.31E-01
+	BI-210M	262.00		45.00	2.16E-02	1.15E-01	1.15E-01
		300.00		23.00	-7.67E-01		2.73E-01
+	PB-210	46.50	*	4.25	6.82E-01	1.18E+00	1.18E+00
+	PB-211	404.84		2.90	-2.75E-01	1.84E+00	1.84E+00
		831.96		2.90	-1.11E+00		2.29E+00
+	BI-212	727.17		11.80	3.41E-01	6.23E-01	6.23E-01
		1620.62		2.75	3.33E-01		1.91E+00
+	PB-212	238.63	*	44.60	1.36E+00	2.21E-01	2.21E-01
		300.09	*	3.41	1.53E+00		3.26E+00
+	BI-214	609.31	*	46.30	8.58E-01	2.40E-01	2.40E-01
		1120.29	*	15.10	1.05E+00		7.19E-01
		1764.49		15.80	1.02E+00		7.08E-01

Analysis Report for 1707085-05

HTC-A02-S002-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	BI-214	2204.22	*	4.98	1.55E+00	2.40E-01	1.28E+00
+	PB-214	295.21	*	19.19	1.02E+00	2.08E-01	5.64E-01
		351.92	*	37.19	1.07E+00		2.08E-01
+	RN-219	401.80		6.50	-3.42E-01	8.10E-01	8.10E-01
+	RA-223	323.87		3.88	-1.46E+00	1.39E+00	1.39E+00
+	RA-224	240.98	*	3.95	4.40E+00	2.49E+00	2.49E+00
+	RA-225	40.00		31.00	3.07E+00	1.57E+01	1.57E+01
+	RA-226	186.21	*	3.28	2.87E+00	3.13E+00	3.13E+00
+	TH-227	50.10		8.40	-4.01E-01	5.46E-01	5.58E-01
		236.00		11.50	-3.38E+00		5.46E-01
		256.20		6.30	4.49E-01		8.86E-01
+	AC-228	338.32	*	11.40	1.54E+00	2.96E-01	4.78E-01
		911.07	*	27.70	1.12E+00		2.96E-01
		969.11	*	16.60	1.44E+00		7.42E-01
+	TH-230	48.44		16.90	6.60E-02	3.00E-01	3.00E-01
		62.85		4.60	2.67E+00		1.35E+00
		67.67		0.37	8.39E+00		1.49E+01
+	PA-231	283.67		1.60	1.29E+00	2.62E+00	3.27E+00
		302.67		2.30	1.71E+00		2.62E+00
+	TH-231	25.64		14.70	-3.36E+00	4.60E-01	4.60E-01
		84.21		6.40	-1.26E-01		8.94E-01
+	PA-233	311.98		38.60	9.07E-02	1.65E+00	1.65E+00
+	PA-234	131.20		20.40	-2.66E-02	2.32E-01	2.32E-01
		733.99		8.80	-8.61E-02		7.03E-01
		946.00		12.00	-8.83E-02		5.57E-01
+	PA-234M	1001.03		0.92	2.33E+00	8.28E+00	8.28E+00
+	TH-234	63.29	*	3.80	1.16E+00	1.85E+00	1.85E+00
+	U-235	143.76		10.50	2.54E-01	4.61E-01	4.61E-01
		163.35		4.70	-3.32E-01		9.56E-01
		205.31		4.70	8.48E-02		1.04E+00
+	NP-237	86.50		12.60	1.78E-01	4.74E-01	4.74E-01
+	NP-239	106.10		22.70	2.51E+11	7.09E+11	7.09E+11
		228.18		10.70	6.09E+11		1.59E+12
		277.60		14.10	1.34E+12		1.41E+12
+	AM-241	59.54		35.90	3.87E-02	1.51E-01	1.51E-01
+	AM-243	74.67		66.00	-1.11E-01	1.17E-01	1.17E-01
+	CM-243	209.75	*	3.29	1.21E+00	4.72E-01	2.24E+00
		228.14		10.60	1.80E-01		4.72E-01
		277.60	*	14.00	3.61E-01		8.56E-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 1707085-05

HTC-A02-S002-3036-01

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	1.84E+00	1.84E+00	3.06E-02	8.72E-01
	NA-22	1274.54		99.94	7.43E-02	7.43E-02	-5.07E-02	3.39E-02
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	4.00E-02	4.00E-02	1.30E-02	1.62E-02
+	K-40	1460.81	*	10.67	1.30E+00	1.30E+00	2.14E+01	6.18E-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	5.87E-02	5.87E-02	3.30E-02	2.87E-02
		78.34		96.00	7.79E-02		1.71E-01	3.83E-02
	SC-46	889.25		99.98	1.49E-01	1.49E-01	2.75E-02	6.95E-02
		1120.51		99.99	2.52E-01		3.70E-01	1.20E-01
	V-48	983.52		99.98	4.53E+00	4.53E+00	-1.03E+00	2.09E+00
		1312.10		97.50	5.11E+00		2.18E-01	2.33E+00
	CR-51	320.08		9.83	6.19E+00	6.19E+00	-1.69E+00	2.97E+00
	MN-54	834.83		99.97	8.75E-02	8.75E-02	2.96E-02	4.10E-02
	CO-56	846.75		99.96	1.46E-01	1.46E-01	-8.92E-03	6.76E-02
		1037.75		14.03	1.07E+00		-2.93E-01	4.93E-01
		1238.25		67.00	3.50E-01		9.19E-02	1.65E-01
		1771.40		15.51	7.42E-01		-2.01E+00	3.13E-01
		2598.48		16.90	3.78E-01		0.00E+00	1.20E-01
	CO-57	122.06		85.51	6.61E-02	6.61E-02	-2.62E-03	3.21E-02
		136.48		10.60	5.62E-01		1.08E-01	2.73E-01
	CO-58	810.76		99.40	1.64E-01	1.64E-01	2.88E-02	7.62E-02
	FE-59	1099.22		56.50	5.81E-01	5.81E-01	-6.41E-02	2.69E-01
		1291.56		43.20	7.50E-01		-3.80E-01	3.43E-01
	CO-60	1173.22		100.00	8.76E-02	5.89E-02	8.19E-03	4.09E-02
		1332.49		100.00	5.89E-02		-3.98E-02	2.63E-02
	ZN-65	1115.52		50.75	1.93E-01	1.93E-01	3.31E-03	8.96E-02
	GA-67	93.31		35.70	1.95E+08	1.95E+08	4.11E+08	9.58E+07
		208.95		2.24	2.69E+09		2.53E+09	1.30E+09
		300.22		16.00	4.36E+08		-6.23E+08	2.11E+08
	SE-75	121.11		16.70	4.62E-01	1.38E-01	-1.10E-02	2.24E-01
		136.00		59.20	1.38E-01		2.64E-02	6.70E-02
		264.65		59.80	1.47E-01		-1.58E-02	7.07E-02
		279.53		25.20	4.00E-01		-7.40E-02	1.93E-01
		400.65		11.40	8.10E-01		-2.88E-01	3.86E-01
	RB-82	776.52		13.00	5.85E+00	5.85E+00	2.55E-02	2.70E+00

Analysis Report for 1707085-05

HTC-A02-S002-3036-01

	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	2.70E-01	2.70E-01	4.41E-02	1.28E-01
		529.64		30.30	3.88E-01		-9.12E-02	1.83E-01
		552.65		16.40	7.59E-01		3.60E-02	3.58E-01
	KR-85	513.99		0.43	2.02E+01	2.02E+01	2.96E+01	9.73E+00
	SR-85	513.99		99.27	2.47E-01	2.47E-01	3.63E-01	1.19E-01
	Y-88	898.02		93.40	1.17E-01	9.88E-02	-1.30E-02	5.37E-02
		1836.01		99.38	9.88E-02		2.72E-02	4.20E-02
	MO-93	263.06		56.72	9.10E-02	4.56E-02	2.20E-03	4.39E-02
		684.67		99.68	6.06E-02		-1.55E-02	2.84E-02
		1477.11		99.08	4.56E-02		1.01E-02	1.94E-02
	NB-93M	16.57		9.43	5.06E-01	5.06E-01	-1.65E-01	2.36E-01
	NB-94	702.63		100.00	6.56E-02	6.38E-02	-1.06E-02	3.09E-02
		871.10		100.00	6.38E-02		1.33E-02	2.96E-02
	NB-95	765.79		99.81	5.06E-01	5.06E-01	2.63E-02	2.39E-01
	NB-95M	235.69		25.00	3.77E+07	3.77E+07	-2.34E+08	1.84E+07
	ZR-95	724.18		43.70	4.49E-01	3.50E-01	-3.48E-01	2.12E-01
		756.72		55.30	3.50E-01		7.88E-02	1.64E-01
	MO-99	181.06		6.20	4.01E+10	2.48E+10	-3.18E+09	1.94E+10
		739.58		12.80	2.48E+10		-5.80E+09	1.16E+10
		778.00		4.50	5.86E+10		-6.93E+09	2.68E+10
	RU-103	497.08		89.00	3.41E-01	3.41E-01	2.55E-01	1.61E-01
	RU-106	621.84		9.80	7.26E-01	7.26E-01	2.44E-01	3.42E-01
	AG-108M	433.93		89.90	6.15E-02	6.15E-02	-9.80E-03	2.93E-02
		614.37		90.40	7.85E-02		3.47E-03	3.73E-02
		722.95		90.50	7.18E-02		-9.85E-02	3.38E-02
+	CD-109	88.03	*	3.72	3.93E+00	3.93E+00	3.64E+00	1.94E+00
	AG-110M	657.75		93.14	8.84E-02	8.84E-02	1.03E-02	4.16E-02
		677.61		10.53	7.96E-01		2.75E-01	3.75E-01
		706.67		16.46	5.34E-01		1.77E-01	2.52E-01
		763.93		21.98	3.88E-01		-8.27E-02	1.82E-01
		884.67		71.63	1.04E-01		-5.74E-02	4.80E-02
		1384.27		23.94	3.33E-01		-7.48E-02	1.49E-01
	CD-113M	263.70		0.02	2.18E+02	2.18E+02	-1.85E+01	1.05E+02
	SN-113	255.12		1.93	4.39E+00	1.48E-01	-1.45E-02	2.11E+00
		391.69		64.90	1.48E-01		-3.91E-02	7.07E-02
	TE123M	159.00		84.10	9.62E-02	9.62E-02	-2.15E-02	4.66E-02
	SB-124	602.71		97.87	1.85E-01	1.85E-01	-2.25E-02	8.73E-02
		645.85		7.26	2.61E+00		1.05E-01	1.23E+00
		722.78		11.10	1.81E+00		-2.48E+00	8.50E-01
		1691.02		49.00	3.53E-01		-9.65E-03	1.53E-01
	I-125	35.49		6.49	2.41E+00	2.41E+00	6.99E-01	1.17E+00
	SB-125	176.33		6.89	6.97E-01	1.96E-01	1.24E-01	3.37E-01
		427.89		29.33	1.96E-01		-9.70E-03	9.30E-02
		463.38		10.35	7.27E-01		7.34E-01	3.49E-01
		600.56		17.80	3.53E-01		-7.47E-02	1.66E-01
		635.90		11.32	5.23E-01		-1.54E-01	2.45E-01
	SB-126	414.70		83.30	1.60E+01	1.39E+01	1.08E+00	7.62E+00
		666.33		99.60	1.39E+01		-5.24E+00	6.48E+00
		695.00		99.60	1.41E+01		-7.36E+00	6.61E+00
		720.50		53.80	2.86E+01		6.46E+00	1.34E+01
+	SN-126	87.57	*	37.00	3.41E-01	3.41E-01	3.16E-01	1.69E-01
	SB-127	473.00		25.00	1.02E+07	7.74E+06	-7.98E+05	4.85E+06
		685.20		35.70	7.74E+06		-1.98E+06	3.63E+06

Analysis Report for 1707085-05

HTC-A02-S002-3036-01

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	2.14E+07	7.74E+06	1.49E+07	1.00E+07
I-129	29.78	57.00	9.54E-02	9.54E-02	1.02E-02	4.62E-02
	33.60	13.20	3.83E-01		4.86E-02	1.86E-01
	39.58	7.52	6.56E-01		-1.61E-01	3.18E-01
I-131	284.30	6.05	4.03E+03	3.05E+02	1.44E+03	1.94E+03
	364.48	81.20	3.05E+02		1.16E+02	1.46E+02
	636.97	7.26	3.52E+03		-1.86E+03	1.64E+03
	722.89	1.80	1.69E+04		-2.32E+04	7.96E+03
TE-132	49.72	13.10	4.16E+08	6.48E+07	-1.32E+08	2.02E+08
	228.16	88.00	6.48E+07		2.48E+07	3.13E+07
BA-133	81.00	33.00	1.66E-01	1.24E-01	-5.25E-01	8.13E-02
	302.84	17.80	3.44E-01		2.25E-01	1.66E-01
	356.01	60.00	1.24E-01		2.88E-02	6.00E-02
@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
XE-133	81.00	38.00	6.06E+04	6.06E+04	-1.91E+05	2.96E+04
CS-134	563.23	8.38	7.79E-01	7.31E-02	5.79E-02	3.68E-01
	569.32	15.43	4.40E-01		1.84E-01	2.08E-01
	604.70	97.60	7.31E-02		1.12E-02	3.47E-02
	795.84	85.40	9.73E-02		6.99E-02	4.60E-02
	801.93	8.73	7.74E-01		-5.00E-02	3.61E-01
CS-135	268.24	16.00	3.81E-01	3.81E-01	5.50E-01	1.85E-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	1.13E+02	1.08E+01	4.57E+01	5.48E+01
	163.89	4.61	1.71E+02		-5.94E+01	8.27E+01
	176.55	13.56	5.80E+01		1.03E+01	2.81E+01
	273.65	12.66	8.01E+01		-8.89E+01	3.87E+01
	340.57	48.50	2.68E+01		-1.29E+00	1.30E+01
	818.50	99.70	1.08E+01		2.19E+00	5.01E+00
	1048.07	79.60	1.48E+01		6.10E-01	6.83E+00
	1235.34	19.70	8.58E+01		-1.09E+01	4.03E+01
CS-137	661.65	85.12	6.96E-02	6.96E-02	-3.74E-02	3.27E-02
LA-138	788.74	34.00	2.04E-01	9.27E-02	-5.42E-02	9.59E-02
	1435.80	66.00	9.27E-02		4.20E-02	4.14E-02
CE-139	165.85	80.35	9.21E-02	9.21E-02	1.53E-02	4.46E-02
BA-140	162.64	6.70	1.40E+02	4.64E+01	3.07E+01	6.78E+01
	304.84	4.50	2.48E+02		-1.56E+02	1.19E+02
	423.70	3.20	3.46E+02		6.51E+01	1.65E+02
	437.55	2.00	5.80E+02		2.15E+01	2.77E+02
	537.32	25.00	4.64E+01		1.60E+01	2.19E+01
LA-140	328.77	20.50	5.72E+01	1.07E+01	1.45E+01	2.75E+01
	487.03	45.50	2.40E+01		6.61E+00	1.13E+01
	815.85	23.50	5.33E+01		1.39E+01	2.48E+01
	1596.49	95.49	1.07E+01		-1.87E+00	4.62E+00
CE-141	145.44	48.40	8.01E-01	8.01E-01	1.07E-01	3.89E-01
@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	293.26	42.00	1.00E+26		1.00E+26	1.00E+20
@	664.55	5.20	1.00E+26		1.00E+26	1.00E+20
CE-144	133.54	10.80	5.52E-01	5.52E-01	2.42E-01	2.68E-01
PM-144	476.78	42.00	1.51E-01	7.20E-02	-5.85E-02	7.17E-02
	618.01	98.60	7.20E-02		-2.82E-02	3.39E-02
	696.49	99.49	7.34E-02		-7.68E-03	3.44E-02

Analysis Report for 1707085-05

HTC-A02-S002-3036-01

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	2.33E-01	1.28E-01	5.42E-02	1.13E-01
	37.36	39.70	1.28E-01		7.28E-02	6.20E-02
	42.30	15.10	3.19E-01		2.07E-02	1.55E-01
	72.40	2.31	2.84E+00		-6.98E-01	1.39E+00
PM-146	453.90	39.94	1.44E-01	1.44E-01	3.01E-02	6.82E-02
	735.90	14.01	4.45E-01		-1.19E-01	2.08E-01
	747.13	13.10	4.85E-01		-7.58E-02	2.27E-01
ND-147	91.11	28.90	1.10E+02	1.10E+02	2.04E+02	5.41E+01
	531.02	13.10	2.00E+02		-1.06E+01	9.45E+01
PM-149	285.90	3.10	3.72E+13	3.72E+13	9.59E+12	1.79E+13
EU-152	121.78	20.50	2.17E-01	2.17E-01	-5.17E-03	1.05E-01
	244.69	5.40	9.63E-01		-7.72E-01	4.65E-01
	344.27	19.13	2.77E-01		-5.86E-02	1.32E-01
	778.89	9.20	5.46E-01		-6.38E-02	2.50E-01
	964.01	10.40	8.26E-01		-1.72E+00	3.90E-01
	1085.78	7.22	9.51E-01		-1.00E-01	4.38E-01
	1112.02	9.60	7.69E-01		8.81E-02	3.56E-01
	1407.95	14.94	4.17E-01		-1.67E-01	1.87E-01
GD-153	97.43	31.30	2.01E-01	2.01E-01	1.37E-01	9.82E-02
	103.18	22.20	2.67E-01		-1.12E-01	1.30E-01
EU-154	123.07	40.50	1.13E-01	1.13E-01	4.09E-03	5.48E-02
	723.30	19.70	3.37E-01		-4.62E-01	1.58E-01
	873.19	11.50	5.72E-01		3.83E-01	2.66E-01
	996.32	10.30	6.42E-01		-4.15E-01	2.96E-01
	1004.76	17.90	4.18E-01		-1.75E-01	1.95E-01
	1274.45	35.50	1.99E-01		-1.36E-01	9.08E-02
EU-155	86.50	30.90	2.01E-01	2.01E-01	7.54E-02	9.84E-02
	105.30	20.70	2.31E-01		6.80E-02	1.12E-01
EU-156	811.77	10.40	5.26E+01	5.26E+01	1.43E+01	2.45E+01
	1153.47	7.20	1.14E+02		4.10E+01	5.35E+01
	1230.71	8.90	7.88E+01		-8.70E+01	3.65E+01
HO-166M	184.41	72.60	8.56E-02	8.56E-02	1.77E-01	4.18E-02
	280.45	29.60	1.88E-01		1.47E-02	9.10E-02
	410.94	11.10	5.16E-01		8.17E-02	2.47E-01
	711.69	54.10	1.19E-01		1.99E-02	5.57E-02
TM-171	66.72	0.14	4.46E+01	4.46E+01	1.08E+01	2.18E+01
HF-172	67.35	5.31	1.15E+00	4.49E-01	6.46E-01	5.62E-01
	125.81	11.30	4.49E-01		9.48E-02	2.18E-01
LU-172	181.53	20.60	5.71E+03	3.08E+03	-4.54E+02	2.76E+03
	900.72	29.81	4.73E+03		-3.35E+03	2.17E+03
	1093.66	62.50	3.08E+03		1.16E+03	1.43E+03
LU-173	100.72	5.24	1.01E+00	3.17E-01	1.59E-01	4.91E-01
	272.11	21.20	3.17E-01		-2.29E-01	1.53E-01
HF-175	343.40	84.00	1.66E-01	1.66E-01	-3.47E-02	7.95E-02
LU-176	88.34	13.30	4.62E-01	5.55E-02	-1.75E-01	2.26E-01
	201.83	86.00	5.55E-02		-1.17E-02	2.68E-02
	306.78	94.00	5.72E-02		1.21E-03	2.75E-02
HF-181	133.02	41.70	5.59E-01	3.22E-01	2.45E-01	2.72E-01
	345.85	17.20	1.51E+00		-3.21E-01	7.24E-01
	482.03	82.80	3.22E-01		-4.48E-02	1.53E-01
TA-182	67.75	41.20	2.43E-01	2.43E-01	1.36E-01	1.19E-01
	1121.30	34.90	5.74E-01		6.49E-01	2.73E-01
	1189.05	16.23	9.19E-01		4.14E-01	4.28E-01

Analysis Report for 1707085-05

HTC-A02-S002-3036-01

	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	6.35E-01	2.43E-01	-4.51E-02	2.98E-01
		1231.02		11.44	1.26E+00		-1.40E+00	5.86E-01
	IR-192	308.46		29.68	4.34E-01	3.07E-01	1.16E-04	2.09E-01
		468.07		48.10	3.07E-01		1.78E-02	1.46E-01
	HG-203	279.19		77.30	3.18E-01	3.18E-01	-5.88E-02	1.54E-01
	TL-204	374.74		94.11	5.94E-02	5.94E-02	3.33E-02	2.84E-02
		899.15		99.16	5.98E-02		-1.43E-02	2.75E-02
		911.74		91.10	1.49E-01		3.86E-01	7.17E-02
	BI-207	569.67		97.72	6.38E-02	6.38E-02	1.55E-02	3.02E-02
		1063.62		74.90	8.95E-02		8.40E-03	4.13E-02
	TL-208	583.14		30.22	3.86E-01	3.86E-01	1.16E+00	1.87E-01
		860.37		4.48	1.74E+00		1.43E+00	8.19E-01
		2614.66		35.85	5.31E-01		1.03E+00	2.52E-01
	BI-210M	262.00		45.00	1.15E-01	1.15E-01	2.16E-02	5.52E-02
		300.00		23.00	2.73E-01		-7.67E-01	1.32E-01
+	PB-210	46.50	*	4.25	1.18E+00	1.18E+00	6.82E-01	5.73E-01
	PB-211	404.84		2.90	1.84E+00	1.84E+00	-2.75E-01	8.79E-01
		831.96		2.90	2.29E+00		-1.11E+00	1.07E+00
	BI-212	727.17		11.80	6.23E-01	6.23E-01	3.41E-01	2.95E-01
		1620.62		2.75	1.91E+00		3.33E-01	8.28E-01
+	PB-212	238.63	*	44.60	2.21E-01	2.21E-01	1.36E+00	1.09E-01
		300.09	*	3.41	3.26E+00		1.53E+00	1.60E+00
+	BI-214	609.31	*	46.30	2.40E-01	2.40E-01	8.58E-01	1.16E-01
		1120.29	*	15.10	7.19E-01		1.05E+00	3.42E-01
		1764.49		15.80	7.08E-01		1.02E+00	3.30E-01
		2204.22	*	4.98	1.28E+00		1.55E+00	5.50E-01
+	PB-214	295.21	*	19.19	5.64E-01	2.08E-01	1.02E+00	2.77E-01
		351.92	*	37.19	2.08E-01		1.07E+00	1.01E-01
	RN-219	401.80		6.50	8.10E-01	8.10E-01	-3.42E-01	3.86E-01
	RA-223	323.87		3.88	1.39E+00	1.39E+00	-1.46E+00	6.67E-01
+	RA-224	240.98	*	3.95	2.49E+00	2.49E+00	4.40E+00	1.22E+00
	RA-225	40.00		31.00	1.57E+01	1.57E+01	3.07E+00	7.62E+00
+	RA-226	186.21	*	3.28	3.13E+00	3.13E+00	2.87E+00	1.54E+00
	TH-227	50.10		8.40	5.58E-01	5.46E-01	-4.01E-01	2.71E-01
		236.00		11.50	5.46E-01		-3.38E+00	2.65E-01
		256.20		6.30	8.86E-01		4.49E-01	4.28E-01
+	AC-228	338.32	*	11.40	4.78E-01	2.96E-01	1.54E+00	2.29E-01
		911.07	*	27.70	2.96E-01		1.12E+00	1.39E-01
		969.11	*	16.60	7.42E-01		1.44E+00	3.57E-01
	TH-230	48.44		16.90	3.00E-01	3.00E-01	6.60E-02	1.46E-01
		62.85		4.60	1.35E+00		2.67E+00	6.63E-01
		67.67		0.37	1.49E+01		8.39E+00	7.30E+00
	PA-231	283.67		1.60	3.27E+00	2.62E+00	1.29E+00	1.57E+00
		302.67		2.30	2.62E+00		1.71E+00	1.26E+00
	TH-231	25.64		14.70	4.60E-01	4.60E-01	-3.36E+00	2.23E-01
		84.21		6.40	8.94E-01		-1.26E-01	4.38E-01
	PA-233	311.98		38.60	1.65E+00	1.65E+00	9.07E-02	7.94E-01
	PA-234	131.20		20.40	2.32E-01	2.32E-01	-2.66E-02	1.13E-01
		733.99		8.80	7.03E-01		-8.61E-02	3.29E-01
		946.00		12.00	5.57E-01		-8.83E-02	2.58E-01
	PA-234M	1001.03		0.92	8.28E+00	8.28E+00	2.33E+00	3.87E+00
+	TH-234	63.29	*	3.80	1.85E+00	1.85E+00	1.16E+00	9.09E-01
	U-235	143.76		10.50	4.61E-01	4.61E-01	2.54E-01	2.24E-01

Analysis Report for 1707085-05

HTC-A02-S002-3036-01

	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	9.56E-01	4.61E-01	-3.32E-01	4.63E-01
		205.31		4.70	1.04E+00		8.48E-02	5.02E-01
	NP-237	86.50		12.60	4.74E-01	4.74E-01	1.78E-01	2.32E-01
	NP-239	106.10		22.70	7.09E+11	7.09E+11	2.51E+11	3.45E+11
		228.18		10.70	1.59E+12		6.09E+11	7.69E+11
		277.60		14.10	1.41E+12		1.34E+12	6.80E+11
	AM-241	59.54		35.90	1.51E-01	1.51E-01	3.87E-02	7.39E-02
	AM-243	74.67		66.00	1.17E-01	1.17E-01	-1.11E-01	5.73E-02
+	CM-243	209.75	*	3.29	2.24E+00	4.72E-01	1.21E+00	1.10E+00
		228.14		10.60	4.72E-01		1.80E-01	2.28E-01
		277.60	*	14.00	8.56E-01		3.61E-01	4.21E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A02-S002-3036-01

Elapsed Live time: 3600
Elapsed Real Time: 3601

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	2	1	67	78	60	144	489	113
25:	67	64	65	69	61	56	51	73
33:	57	58	63	69	69	83	68	72
41:	61	89	86	63	74	83	128	110
49:	72	85	85	74	101	124	101	88
57:	79	115	114	106	154	135	169	218
65:	169	121	127	150	144	135	122	131
73:	162	180	356	262	390	462	165	136
81:	117	116	152	135	144	126	183	222
89:	131	161	152	144	270	229	112	96
97:	85	93	104	115	80	68	91	77
105:	99	91	91	90	93	80	93	83
113:	78	87	85	96	73	76	57	80
121:	70	62	79	85	83	81	84	74
129:	102	105	84	74	70	89	92	83
137:	59	79	78	63	80	80	76	108
145:	66	81	78	65	75	78	59	65
153:	72	100	79	69	68	72	64	71
161:	66	65	75	72	56	48	72	67
169:	44	63	62	56	53	56	54	60
177:	53	68	58	47	66	56	61	71
185:	99	171	144	56	74	57	53	50
193:	63	57	48	48	69	51	60	62
201:	51	50	63	61	61	68	48	57
209:	83	93	67	48	39	56	61	66
217:	47	48	51	36	52	53	49	47
225:	42	49	51	61	62	47	49	48
233:	51	36	57	63	57	206	593	217
241:	89	183	120	47	46	31	20	45
249:	42	33	38	39	37	47	36	42
257:	44	39	46	42	39	31	26	25
265:	35	37	29	41	53	68	71	36
273:	25	34	38	31	58	51	51	27
281:	30	33	27	43	37	32	24	25
289:	30	25	28	24	30	28	122	148
297:	52	39	37	53	55	35	33	42
305:	33	25	30	27	23	34	28	27
313:	27	29	23	24	27	27	27	20
321:	40	21	28	30	39	23	18	56
329:	41	32	28	26	23	28	19	18
337:	29	94	123	36	29	27	15	34
345:	27	25	18	24	27	27	71	309
353:	158	42	19	31	27	22	26	10
361:	20	22	25	23	24	25	18	22

369:	24	21	17	19	17	22	21	22

Sample Title: HTC-A02-S002-3036-01

Channel								
377:	25	30	16	16	21	19	21	17
385:	23	31	25	28	21	17	28	15
393:	25	19	21	17	24	19	26	26
401:	12	19	21	13	20	27	21	19
409:	20	26	26	22	24	21	17	21
417:	20	20	14	18	24	16	22	19
425:	16	18	20	15	23	19	18	14
433:	21	24	20	25	12	19	21	23
441:	22	18	18	22	17	15	14	16
449:	16	15	16	12	24	24	16	19
457:	15	12	22	15	21	44	47	29
465:	22	20	18	20	18	21	18	17
473:	18	14	16	12	13	19	15	16
481:	18	18	12	17	11	13	20	15
489:	13	16	14	9	14	13	11	13
497:	15	16	16	19	10	5	16	13
505:	14	19	20	19	23	46	102	60
513:	21	29	15	16	16	23	10	17
521:	17	17	11	10	15	10	17	17
529:	9	7	15	14	12	18	14	13
537:	15	14	10	18	11	12	21	8
545:	16	17	17	7	14	12	19	15
553:	9	13	12	16	19	12	12	16
561:	9	21	19	12	13	14	12	20
569:	15	12	17	21	14	12	17	18
577:	15	11	21	14	12	32	156	149
585:	26	9	12	20	17	17	16	15
593:	17	9	13	18	13	10	18	6
601:	13	13	13	18	14	13	7	34
609:	161	164	39	18	14	16	17	15
617:	11	10	11	14	9	19	8	15
625:	11	10	10	8	12	14	13	12
633:	12	11	8	9	13	10	10	9
641:	15	13	12	16	10	12	12	8
649:	18	9	13	11	17	10	8	16
657:	14	19	10	8	15	16	6	13
665:	10	9	17	9	9	10	11	14
673:	10	12	10	15	19	13	8	9
681:	15	10	10	11	12	12	9	11
689:	11	14	12	6	10	11	9	11
697:	12	12	11	16	11	13	14	6
705:	10	19	11	20	7	19	9	8
713:	16	11	13	10	4	11	16	14
721:	15	14	7	11	7	15	22	29
729:	13	10	15	9	5	14	8	15
737:	7	10	10	13	9	10	6	8
745:	12	14	7	13	6	10	12	14
753:	13	12	13	14	10	10	12	11
761:	9	7	10	11	14	9	16	8
769:	28	12	12	16	8	8	9	4
777:	7	8	4	7	1	10	12	7
785:	13	28	8	5	12	10	10	10
793:	12	19	20	10	9	17	12	10

801:	7	6	13	9	6	9	10	8

Sample Title: HTC-A02-S002-3036-01

Channel								
809:	8	17	8	6	9	7	8	6
817:	7	9	15	9	6	6	8	5
825:	10	8	13	11	5	9	6	17
833:	5	5	22	15	12	2	9	11
841:	12	10	11	7	7	12	8	11
849:	3	9	10	4	6	5	7	7
857:	11	10	13	26	12	14	6	9
865:	7	7	7	5	9	12	9	7
873:	10	7	7	8	4	3	6	8
881:	4	6	6	7	7	7	8	6
889:	16	5	12	8	8	9	9	7
897:	7	5	6	4	7	7	5	7
905:	13	3	10	6	8	19	100	75
913:	23	11	4	10	13	8	6	6
921:	7	5	11	10	5	12	2	9
929:	7	7	9	10	18	18	15	5
937:	5	2	11	6	9	9	8	9
945:	1	7	10	9	13	12	6	9
953:	4	6	6	6	7	9	7	6
961:	9	6	15	13	20	19	10	32
969:	61	36	14	9	8	6	6	5
977:	5	8	10	4	9	7	10	5
985:	9	5	6	9	6	4	6	7
993:	6	5	6	11	7	3	11	13
1001:	14	7	9	12	6	9	6	11
1009:	11	6	1	8	5	6	5	7
1017:	12	7	11	8	8	6	8	4
1025:	5	7	7	6	11	5	10	12
1033:	9	7	8	7	1	9	4	8
1041:	3	8	8	5	8	3	5	4
1049:	13	6	10	1	8	9	7	7
1057:	5	10	3	3	6	5	7	10
1065:	8	8	8	4	4	11	8	9
1073:	7	8	11	8	6	7	5	4
1081:	8	9	10	3	5	9	7	4
1089:	7	9	9	9	6	9	7	10
1097:	5	9	10	5	7	6	8	8
1105:	7	14	5	8	8	5	10	12
1113:	4	6	8	6	8	11	17	40
1121:	29	16	10	4	10	11	7	4
1129:	7	5	12	8	3	10	10	6
1137:	8	10	12	6	5	11	9	4
1145:	10	9	6	12	5	11	10	10
1153:	8	15	13	18	9	13	9	9
1161:	7	13	6	8	10	4	9	9
1169:	8	9	11	6	8	7	9	17
1177:	11	8	10	9	16	12	12	12
1185:	7	7	5	8	12	8	9	13
1193:	3	8	10	8	4	10	12	9
1201:	10	6	11	13	10	12	12	10
1209:	16	5	10	6	9	10	11	8
1217:	11	10	10	10	10	11	14	15
1225:	17	11	7	7	4	11	8	11

1233:	7	18	9	10	14	13	18	12

Sample Title: HTC-A02-S002-3036-01

Channel								
1241:	10	8	10	8	11	12	8	4
1249:	5	9	15	11	6	9	8	6
1257:	13	5	7	8	6	7	9	6
1265:	7	3	7	9	6	5	7	5
1273:	6	5	6	3	6	7	14	6
1281:	15	6	7	4	13	4	7	4
1289:	3	6	8	7	4	7	9	11
1297:	2	10	7	4	9	3	4	5
1305:	4	2	5	7	6	2	5	8
1313:	5	5	7	6	2	4	9	7
1321:	7	1	4	8	1	7	7	5
1329:	5	4	4	0	2	3	5	5
1337:	6	7	3	5	4	6	3	6
1345:	1	2	6	1	2	4	2	6
1353:	2	1	2	4	3	5	4	5
1361:	6	4	2	3	3	2	3	0
1369:	3	3	1	1	1	5	5	6
1377:	11	8	6	4	4	7	0	4
1385:	1	6	3	5	3	1	0	2
1393:	4	5	0	3	4	9	0	4
1401:	10	8	3	0	1	4	4	6
1409:	7	3	5	4	0	0	2	4
1417:	2	2	3	1	1	0	8	5
1425:	3	2	3	1	2	0	2	3
1433:	3	2	4	3	4	5	3	2
1441:	2	1	2	4	3	2	0	0
1449:	1	2	0	2	3	4	7	9
1457:	6	8	84	310	411	157	33	9
1465:	11	13	10	3	1	2	0	2
1473:	0	2	1	3	0	3	2	1
1481:	1	2	2	3	5	2	5	6
1489:	0	1	1	3	2	0	5	4
1497:	3	1	2	2	5	0	0	1
1505:	2	1	4	6	6	6	2	4
1513:	0	4	1	0	3	1	2	2
1521:	2	1	2	2	0	1	1	1
1529:	0	3	1	1	2	0	2	2
1537:	2	0	1	1	2	2	2	1
1545:	5	1	3	0	3	2	0	1
1553:	5	0	1	2	4	5	3	1
1561:	1	2	2	2	0	2	1	2
1569:	2	2	2	1	3	4	2	3
1577:	1	4	2	3	1	2	5	1
1585:	1	3	3	6	5	3	3	1
1593:	5	3	0	0	1	2	2	3
1601:	2	1	2	0	2	2	0	1
1609:	2	1	1	0	0	2	2	1
1617:	2	1	0	4	4	2	1	2
1625:	1	0	0	1	4	6	5	2
1633:	4	1	2	0	2	1	3	1
1641:	2	1	1	0	0	4	0	1
1649:	0	3	0	1	1	2	1	1
1657:	0	1	1	1	6	2	3	0

1665:	1	3	3	1	0	1	0	1

Sample Title: HTC-A02-S002-3036-01

Channel								
1673:	1	0	1	1	2	1	0	1
1681:	1	2	2	0	4	0	0	1
1689:	0	5	5	2	2	2	3	1
1697:	1	3	1	0	1	1	2	3
1705:	2	0	0	2	2	0	0	2
1713:	2	2	2	0	1	1	1	0
1721:	0	2	2	2	1	1	1	2
1729:	7	5	2	1	0	1	0	1
1737:	1	1	0	3	1	0	0	2
1745:	1	0	5	2	1	2	1	0
1753:	2	3	2	5	1	0	2	1
1761:	1	2	8	23	20	10	2	0
1769:	1	0	2	3	2	1	0	0
1777:	1	3	1	1	1	2	0	1
1785:	2	1	1	2	3	0	1	0
1793:	2	2	0	2	0	1	0	1
1801:	2	0	0	0	0	1	1	0
1809:	1	0	3	1	0	0	0	2
1817:	2	0	0	1	0	1	1	0
1825:	3	0	0	0	1	1	0	5
1833:	1	1	1	0	2	1	1	1
1841:	1	0	2	2	1	2	5	2
1849:	2	1	3	0	2	1	1	0
1857:	1	0	1	2	0	2	2	1
1865:	0	2	0	1	0	0	3	3
1873:	1	3	0	2	2	0	0	0
1881:	2	1	0	1	0	0	1	2
1889:	1	1	2	1	0	2	0	1
1897:	0	1	1	1	0	1	3	3
1905:	1	0	4	0	0	2	1	0
1913:	1	4	0	0	0	1	1	2
1921:	1	2	1	3	3	2	0	2
1929:	1	4	2	1	0	0	3	0
1937:	0	1	2	1	2	1	1	4
1945:	1	2	1	0	0	1	1	0
1953:	0	2	2	2	1	0	1	0
1961:	0	0	1	1	1	2	0	0
1969:	1	1	0	1	2	2	2	2
1977:	0	0	2	1	1	1	1	0
1985:	0	0	1	0	1	0	2	2
1993:	2	0	1	1	0	0	1	2
2001:	1	2	1	1	0	2	0	0
2009:	1	1	1	0	2	0	2	3
2017:	3	2	1	1	1	0	1	2
2025:	1	0	0	0	2	1	1	1
2033:	1	1	0	0	1	0	2	1
2041:	1	1	0	0	1	1	0	1
2049:	0	0	0	1	2	0	0	0
2057:	1	1	0	1	0	3	1	2
2065:	2	0	1	2	1	0	0	0
2073:	2	0	0	0	0	1	0	0
2081:	0	1	0	3	0	4	0	3
2089:	1	0	1	1	4	1	0	1

2097:	2	0	0	0	3	5	4	3

Sample Title: HTC-A02-S002-3036-01

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

2529:	0	0	0	1	0	1	1	0

Sample Title: HTC-A02-S002-3036-01

Channel								
2537:	0	0	1	0	0	0	0	0
2545:	1	0	0	0	1	0	1	1
2553:	2	0	0	1	1	1	0	0
2561:	0	1	0	0	0	1	1	1
2569:	0	0	1	0	0	0	1	2
2577:	0	0	0	0	0	1	1	0
2585:	0	0	0	0	0	0	0	0
2593:	0	0	0	0	0	0	0	0
2601:	1	1	0	3	1	3	0	0
2609:	1	0	4	14	27	37	16	9
2617:	3	3	2	0	0	0	0	1
2625:	0	0	0	0	0	0	0	1
2633:	1	0	0	0	0	0	0	1
2641:	1	2	0	0	0	0	0	0
2649:	0	0	0	0	0	1	0	0
2657:	0	0	0	0	0	0	1	1
2665:	0	0	1	0	0	1	0	1
2673:	0	0	0	0	0	0	0	0
2681:	0	1	0	1	0	0	1	0
2689:	0	0	0	0	0	0	1	0
2697:	0	0	0	0	1	0	0	0
2705:	1	0	0	0	0	0	0	0
2713:	2	0	0	0	0	0	0	1
2721:	0	0	1	0	0	1	0	1
2729:	0	0	1	2	0	1	0	2
2737:	0	1	0	0	0	0	0	0
2745:	1	0	0	0	1	0	0	0
2753:	0	0	0	0	0	0	0	0
2761:	0	0	0	0	0	0	0	0
2769:	0	0	1	0	0	0	0	0
2777:	0	0	0	0	1	0	0	0
2785:	0	1	1	0	0	1	1	0
2793:	0	0	0	0	1	2	0	0
2801:	1	1	0	0	0	0	1	1
2809:	0	0	0	1	0	0	1	0
2817:	0	0	0	0	0	0	0	0
2825:	0	0	1	0	0	0	0	0
2833:	0	0	0	3	0	0	0	0
2841:	0	0	0	0	0	0	0	0
2849:	0	0	0	0	0	0	0	2
2857:	0	2	0	0	0	0	0	0
2865:	0	1	0	0	0	1	0	1
2873:	0	0	0	0	1	0	0	0
2881:	0	0	1	2	0	0	1	1
2889:	0	0	1	0	0	0	0	0
2897:	0	0	0	0	0	1	0	1
2905:	0	0	0	0	0	1	1	0
2913:	0	1	0	0	0	0	0	0
2921:	0	0	1	0	1	0	0	1
2929:	0	0	0	0	0	0	1	1
2937:	1	0	0	1	0	0	1	0
2945:	0	0	0	1	0	0	2	0
2953:	0	0	1	0	1	0	1	0

2961:	0	1	0	2	0	0	0	0

Sample Title: HTC-A02-S002-3036-01

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

Sample Title: HTC-A02-S002-3036-01

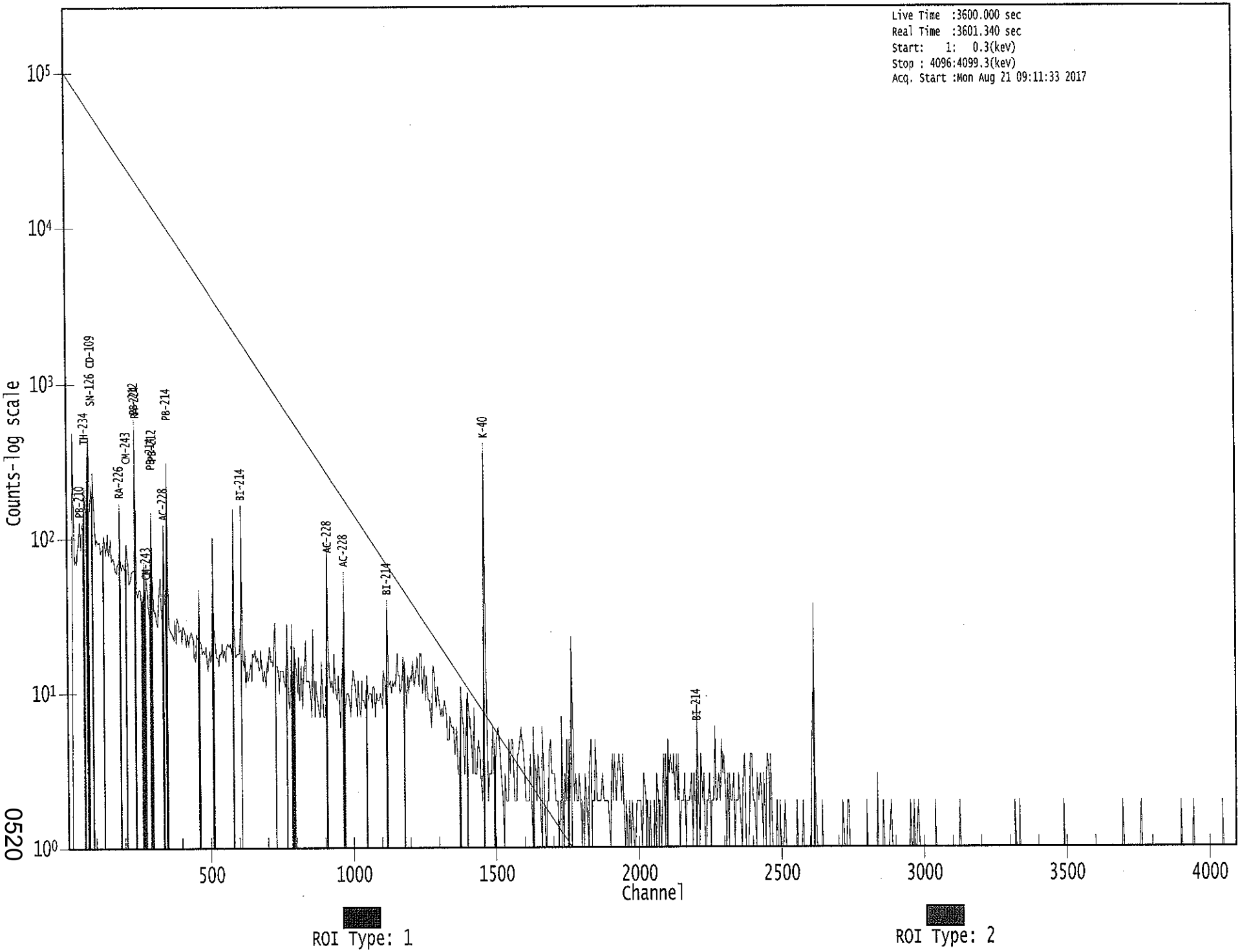
Channel								
3401:	0	0	0	0	0	0	1	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	1	0	0	0	0	0
3425:	0	0	0	0	1	0	0	0
3433:	0	0	0	0	0	0	0	1
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	1	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	1	1	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	2	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A02-S002-3036-01

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

0000055610.CNF



0520

8/21

Apex-Gamma

Analysis Report for 1707085-06

HTC-A02-S002-3642-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707085-06
Sample Description	: HTC-A02-S002-3642-01
Sample Type	: SOIL
Sample Size	: 7.423E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 8:06:00AM
Acquisition Started	: 8/21/2017 9:10:03AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE2
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3601.1 seconds
Dead Time	: 0.03 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 28 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 8/19/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55609

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/22/17

Analysis Report for 1707085-06

HTC-A02-S002-3642-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 10:10:06AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	46.38	46.73	0.0000	0.00
2	76.12	76.43	0.0000	0.00
3	87.05	87.35	0.0000	0.00
4	89.65	89.95	0.0000	0.00
5	93.06	93.36	0.0000	0.00
6	154.21	154.43	0.0000	0.00
7	164.52	164.74	0.0000	0.00
8	185.79	185.99	0.0000	0.00
9	209.47	209.64	0.0000	0.00
10	238.73	238.87	0.0000	0.00
11	242.12	242.25	0.0000	0.00
12	277.75	277.84	0.0000	0.00
13	295.00	295.07	0.0000	0.00
14	338.13	338.16	0.0000	0.00
15	351.77	351.79	0.0000	0.00
16	408.99	408.95	0.0000	0.00
17	434.58	434.51	0.0000	0.00
18	463.19	463.10	0.0000	0.00
19	511.01	510.86	0.0000	0.00
20	583.20	582.98	0.0000	0.00
21	609.30	609.06	0.0000	0.00
22	727.56	727.20	0.0000	0.00
23	755.02	754.63	0.0000	0.00
24	794.97	794.54	0.0000	0.00
25	803.05	802.62	0.0000	0.00
26	806.62	806.19	0.0000	0.00
27	837.81	837.35	0.0000	0.00
28	860.72	860.23	0.0000	0.00
29	903.96	903.43	0.0000	0.00
30	911.16	910.63	0.0000	0.00
31	934.63	934.07	0.0000	0.00
32	968.22	967.63	0.0000	0.00
33	1083.65	1082.95	0.0000	0.00
34	1113.31	1112.59	0.0000	0.00
35	1120.55	1119.82	0.0000	0.00
36	1180.41	1179.63	0.0000	0.00
37	1238.75	1237.92	0.0000	0.00
38	1353.50	1352.57	0.0000	0.00
39	1377.41	1376.46	0.0000	0.00
40	1386.18	1385.22	0.0000	0.00
41	1460.86	1459.84	0.0000	0.00
42	1502.79	1501.73	0.0000	0.00

Analysis Report for 1707085-06

HTC-A02-S002-3642-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1588.73	1587.60	0.0000	0.00
44	1596.77	1595.63	0.0000	0.00
45	1620.44	1619.29	0.0000	0.00
46	1660.73	1659.55	0.0000	0.00
47	1683.33	1682.13	0.0000	0.00
48	1728.45	1727.21	0.0000	0.00
49	1764.94	1763.67	0.0000	0.00
50	1845.73	1844.40	0.0000	0.00
51	1968.79	1967.36	0.0000	0.00
52	2029.05	2027.58	0.0000	0.00
53	2103.95	2102.42	0.0000	0.00
54	2204.90	2203.30	0.0000	0.00
55	2214.23	2212.63	0.0000	0.00
56	2448.74	2446.98	0.0000	0.00
57	2614.60	2612.74	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707085-06

HTC-A02-S002-3642-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 10:10:06AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	46.38	44 -	49	46.73	1.07E+02	64.77	7.54E+02	1.08
	2	76.12	72 -	83	76.43	7.98E+02	154.31	2.53E+03	3.52
M	3	87.05	83 -	98	87.35	1.35E+02	67.70	8.77E+02	1.61
m	4	89.65	83 -	98	89.95	1.34E+02	67.38	8.29E+02	1.61
m	5	93.06	83 -	98	93.36	2.00E+02	67.49	7.82E+02	1.61
	6	154.21	152 -	157	154.43	5.91E+01	58.22	6.36E+02	1.21
	7	164.52	162 -	167	164.74	5.29E+01	57.69	6.22E+02	3.54
	8	185.79	182 -	188	185.99	1.81E+02	66.85	6.77E+02	1.44
	9	209.47	207 -	213	209.64	6.28E+01	59.93	6.10E+02	1.59
M	10	238.73	230 -	246	238.87	5.78E+02	61.58	2.62E+02	1.45
m	11	242.12	230 -	246	242.25	1.26E+02	43.45	2.53E+02	1.46
	12	277.75	276 -	280	277.84	3.27E+01	37.40	2.75E+02	2.83
	13	295.00	290 -	299	295.07	2.30E+02	72.07	6.13E+02	1.53
	14	338.13	335 -	342	338.16	1.24E+02	48.99	3.20E+02	1.94
	15	351.77	348 -	355	351.79	3.72E+02	60.00	3.53E+02	1.34
	16	408.99	404 -	413	408.95	4.40E+01	48.99	3.12E+02	1.51
	17	434.58	431 -	436	434.51	2.70E+01	31.62	1.76E+02	1.10
	18	463.19	460 -	466	463.10	3.80E+01	36.15	2.10E+02	1.33
	19	511.01	505 -	516	510.86	1.67E+02	54.95	2.93E+02	2.01
	20	583.20	579 -	587	582.98	2.26E+02	43.92	1.58E+02	1.47
	21	609.30	605 -	613	609.06	2.92E+02	48.60	1.82E+02	1.58
	22	727.56	723 -	732	727.20	5.67E+01	37.05	1.61E+02	1.99
	23	755.02	752 -	758	754.63	2.23E+01	23.19	8.35E+01	1.17
	24	794.97	792 -	798	794.54	2.48E+01	25.84	1.00E+02	2.24
M	25	803.05	801 -	812	802.62	1.52E+01	12.23	3.73E+01	2.49
m	26	806.62	801 -	812	806.19	1.89E+01	21.21	6.61E+01	2.06
	27	837.81	832 -	842	837.35	5.14E+01	33.88	1.23E+02	6.76
	28	860.72	857 -	863	860.23	4.46E+01	22.37	5.67E+01	2.12
M	29	903.96	900 -	920	903.43	3.02E+01	22.38	5.31E+01	2.87
m	30	911.16	900 -	920	910.63	1.38E+02	34.54	8.68E+01	2.88
	31	934.63	931 -	937	934.07	1.83E+01	20.31	5.94E+01	1.76
	32	968.22	962 -	973	967.63	1.17E+02	40.79	1.48E+02	2.21
	33	1083.65	1079 -	1086	1082.95	1.82E+01	22.98	7.57E+01	1.82
	34	1113.31	1109 -	1115	1112.59	2.31E+01	20.70	5.78E+01	2.71
	35	1120.55	1116 -	1123	1119.82	7.65E+01	28.00	7.91E+01	1.92
	36	1180.41	1177 -	1183	1179.63	2.15E+01	20.80	6.30E+01	3.88
	37	1238.75	1233 -	1242	1237.92	3.50E+01	33.35	1.36E+02	2.58
	38	1353.50	1347 -	1357	1352.57	3.00E+01	16.88	2.20E+01	5.00
	39	1377.41	1372 -	1381	1376.46	3.12E+01	17.35	2.56E+01	2.58
	40	1386.18	1382 -	1390	1385.22	2.14E+01	15.14	2.12E+01	2.12

Analysis Report for 1707085-06

HTC-A02-S002-3642-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1460.86	1453 -	1464	1459.84	7.05E+02	54.92	2.56E+01	2.31
42	1502.79	1500 -	1505	1501.73	1.00E+01	8.37	6.00E+00	1.26
43	1588.73	1581 -	1592	1587.60	1.99E+01	14.97	1.83E+01	4.03
44	1596.77	1594 -	1598	1595.63	7.19E+00	6.18	1.63E+00	1.06
45	1620.44	1614 -	1625	1619.29	1.89E+01	14.83	1.83E+01	4.13
46	1660.73	1656 -	1663	1659.55	1.10E+01	6.63	0.00E+00	1.45
47	1683.33	1679 -	1684	1682.13	8.00E+00	5.66	0.00E+00	1.47
48	1728.45	1723 -	1731	1727.21	1.05E+01	10.02	9.00E+00	5.13
49	1764.94	1758 -	1771	1763.67	7.15E+01	20.15	1.09E+01	2.91
50	1845.73	1839 -	1849	1844.40	1.19E+01	13.07	1.62E+01	5.93
51	1968.79	1964 -	1970	1967.36	6.38E+00	6.65	3.25E+00	4.70
52	2029.05	2022 -	2032	2027.58	9.42E+00	8.85	5.17E+00	3.75
53	2103.95	2096 -	2109	2102.42	2.60E+01	10.20	0.00E+00	2.67
54	2204.90	2198 -	2209	2203.30	1.94E+01	11.14	5.18E+00	3.11
55	2214.23	2210 -	2215	2212.63	8.00E+00	5.66	0.00E+00	3.48
56	2448.74	2442 -	2450	2446.98	1.06E+01	8.50	4.77E+00	4.84
57	2614.60	2606 -	2617	2612.74	6.57E+01	17.66	6.61E+00	2.77

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 10:10:06AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	46.38	44 -	49	1.07E+02	64.77	7.54E+02	5.05E+01
	2	76.12	72 -	83	7.98E+02	154.31	2.53E+03	1.18E+02
M	3	87.05	83 -	98	1.35E+02	67.70	8.77E+02	4.87E+01
m	4	89.65	83 -	98	1.34E+02	67.38	8.29E+02	4.73E+01
m	5	93.06	83 -	98	2.00E+02	67.49	7.82E+02	4.60E+01
	6	154.21	152 -	157	5.91E+01	58.22	6.36E+02	4.62E+01
	7	164.52	162 -	167	5.29E+01	57.69	6.22E+02	4.59E+01
	8	185.79	182 -	188	1.81E+02	66.85	6.77E+02	5.03E+01
	9	209.47	207 -	213	6.28E+01	59.93	6.10E+02	4.75E+01
M	10	238.73	230 -	246	5.78E+02	61.58	2.62E+02	2.66E+01
m	11	242.12	230 -	246	1.26E+02	43.45	2.53E+02	2.61E+01

Analysis Report for 1707085-06

HTC-A02-S002-3642-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	12	277.75	276 -	280	3.27E+01	37.40	2.75E+02	2.93E+01
	13	295.00	290 -	299	2.30E+02	72.07	6.13E+02	5.38E+01
	14	338.13	335 -	342	1.24E+02	48.99	3.20E+02	3.59E+01
	15	351.77	348 -	355	3.72E+02	60.00	3.53E+02	3.78E+01
	16	408.99	404 -	413	4.40E+01	48.99	3.12E+02	2.07E+01
	17	434.58	431 -	436	2.70E+01	31.62	1.76E+02	2.46E+01
	18	463.19	460 -	466	3.80E+01	36.15	2.10E+02	2.79E+01
	19	511.01	505 -	516	1.67E+02	54.95	2.93E+02	3.98E+01
	20	583.20	579 -	587	2.26E+02	43.92	1.58E+02	2.63E+01
	21	609.30	605 -	613	2.92E+02	48.60	1.82E+02	2.84E+01
	22	727.56	723 -	732	5.67E+01	37.05	1.61E+02	2.78E+01
	23	755.02	752 -	758	2.23E+01	23.19	8.35E+01	1.74E+01
	24	794.97	792 -	798	2.48E+01	25.84	1.00E+02	1.96E+01
M	25	803.05	801 -	812	1.52E+01	12.23	3.73E+01	1.00E+01
m	26	806.62	801 -	812	1.89E+01	21.21	6.61E+01	1.34E+01
	27	837.81	832 -	842	5.14E+01	33.88	1.23E+02	2.52E+01
	28	860.72	857 -	863	4.46E+01	22.37	5.67E+01	1.47E+01
M	29	903.96	900 -	920	3.02E+01	22.38	5.31E+01	1.20E+01
m	30	911.16	900 -	920	1.38E+02	34.54	8.68E+01	1.53E+01
	31	934.63	931 -	937	1.83E+01	20.31	5.94E+01	1.51E+01
	32	968.22	962 -	973	1.17E+02	40.79	1.48E+02	2.84E+01
	33	1083.65	1079 -	1086	1.82E+01	22.98	7.57E+01	1.75E+01
	34	1113.31	1109 -	1115	2.31E+01	20.70	5.78E+01	1.51E+01
	35	1120.55	1116 -	1123	7.65E+01	28.00	7.91E+01	1.80E+01
	36	1180.41	1177 -	1183	2.15E+01	20.80	6.30E+01	1.53E+01
	37	1238.75	1233 -	1242	3.50E+01	33.35	1.36E+02	2.56E+01
	38	1353.50	1347 -	1357	3.00E+01	16.88	2.20E+01	1.06E+01
	39	1377.41	1372 -	1381	3.12E+01	17.35	2.56E+01	1.09E+01
	40	1386.18	1382 -	1390	2.14E+01	15.14	2.12E+01	9.85E+00
	41	1460.86	1453 -	1464	7.05E+02	54.92	2.56E+01	1.15E+01
	42	1502.79	1500 -	1505	1.00E+01	8.37	6.00E+00	4.50E+00
	43	1588.73	1581 -	1592	1.99E+01	14.97	1.83E+01	9.88E+00
	44	1596.77	1594 -	1598	7.19E+00	6.18	1.63E+00	2.53E+00
	45	1620.44	1614 -	1625	1.89E+01	14.83	1.83E+01	9.88E+00
	46	1660.73	1656 -	1663	1.10E+01	6.63	0.00E+00	0.00E+00
	47	1683.33	1679 -	1684	8.00E+00	5.66	0.00E+00	0.00E+00
	48	1728.45	1723 -	1731	1.05E+01	10.02	9.00E+00	6.29E+00
	49	1764.94	1758 -	1771	7.15E+01	20.15	1.09E+01	9.00E+00
	50	1845.73	1839 -	1849	1.19E+01	13.07	1.62E+01	9.12E+00
	51	1968.79	1964 -	1970	6.38E+00	6.65	3.25E+00	3.56E+00
	52	2029.05	2022 -	2032	9.42E+00	8.85	5.17E+00	5.24E+00
	53	2103.95	2096 -	2109	2.60E+01	10.20	0.00E+00	0.00E+00
	54	2204.90	2198 -	2209	1.94E+01	11.14	5.18E+00	5.60E+00
	55	2214.23	2210 -	2215	8.00E+00	5.66	0.00E+00	0.00E+00
	56	2448.74	2442 -	2450	1.06E+01	8.50	4.77E+00	4.49E+00
	57	2614.60	2606 -	2617	6.57E+01	17.66	6.61E+00	5.77E+00

Analysis Report for 1707085-06

HTC-A02-S002-3642-01

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/21/2017 10:10:06AM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	46.38	44 -	49	46.73	1.07E+02	64.77	7.54E+02	PB-210
	2	76.12	72 -	83	76.43	7.98E+02	154.31	2.53E+03	.....
M	3	87.05	83 -	98	87.35	1.35E+02	67.70	8.77E+02	SN-126
									NP-237
									EU-155
									CD-109
m	4	89.65	83 -	98	89.95	1.34E+02	67.38	8.29E+02	.....
m	5	93.06	83 -	98	93.36	2.00E+02	67.49	7.82E+02	GA-67
	6	154.21	152 -	157	154.43	5.91E+01	58.22	6.36E+02	CS-136
	7	164.52	162 -	167	164.74	5.29E+01	57.69	6.22E+02	CS-136
	8	185.79	182 -	188	185.99	1.81E+02	66.85	6.77E+02	RA-226
	9	209.47	207 -	213	209.64	6.28E+01	59.93	6.10E+02	CM-243
									GA-67
M	10	238.73	230 -	246	238.87	5.78E+02	61.58	2.62E+02	PB-212
m	11	242.12	230 -	246	242.25	1.26E+02	43.45	2.53E+02	.....
	12	277.75	276 -	280	277.84	3.27E+01	37.40	2.75E+02	CM-243
									NP-239
	13	295.00	290 -	299	295.07	2.30E+02	72.07	6.13E+02	PB-214
	14	338.13	335 -	342	338.16	1.24E+02	48.99	3.20E+02	AC-228
	15	351.77	348 -	355	351.79	3.72E+02	60.00	3.53E+02	PB-214
	16	408.99	404 -	413	408.95	4.40E+01	48.99	3.12E+02	.....
	17	434.58	431 -	436	434.51	2.70E+01	31.62	1.76E+02	AG-108M
	18	463.19	460 -	466	463.10	3.80E+01	36.15	2.10E+02	SB-125
	19	511.01	505 -	516	510.86	1.67E+02	54.95	2.93E+02	.....
	20	583.20	579 -	587	582.98	2.26E+02	43.92	1.58E+02	TL-208
	21	609.30	605 -	613	609.06	2.92E+02	48.60	1.82E+02	BI-214
	22	727.56	723 -	732	727.20	5.67E+01	37.05	1.61E+02	BI-212
	23	755.02	752 -	758	754.63	2.23E+01	23.19	8.35E+01	.....
	24	794.97	792 -	798	794.54	2.48E+01	25.84	1.00E+02	CS-134
M	25	803.05	801 -	812	802.62	1.52E+01	12.23	3.73E+01	.....

Analysis Report for 1707085-06

HTC-A02-S002-3642-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
m	26	806.62	801 -	812	806.19	1.89E+01	21.21	6.61E+01	.....
	27	837.81	832 -	842	837.35	5.14E+01	33.88	1.23E+02	.....
	28	860.72	857 -	863	860.23	4.46E+01	22.37	5.67E+01	TL-208
M	29	903.96	900 -	920	903.43	3.02E+01	22.38	5.31E+01	.....
m	30	911.16	900 -	920	910.63	1.38E+02	34.54	8.68E+01	AC-228 TL-204
	31	934.63	931 -	937	934.07	1.83E+01	20.31	5.94E+01	.....
	32	968.22	962 -	973	967.63	1.17E+02	40.79	1.48E+02	AC-228
	33	1083.65	1079 -	1086	1082.95	1.82E+01	22.98	7.57E+01	.....
	34	1113.31	1109 -	1115	1112.59	2.31E+01	20.70	5.78E+01	.....
	35	1120.55	1116 -	1123	1119.82	7.65E+01	28.00	7.91E+01	SC-46 BI-214 TA-182
	36	1180.41	1177 -	1183	1179.63	2.15E+01	20.80	6.30E+01	.....
	37	1238.75	1233 -	1242	1237.92	3.50E+01	33.35	1.36E+02	CO-56
	38	1353.50	1347 -	1357	1352.57	3.00E+01	16.88	2.20E+01	.....
	39	1377.41	1372 -	1381	1376.46	3.12E+01	17.35	2.56E+01	.....
	40	1386.18	1382 -	1390	1385.22	2.14E+01	15.14	2.12E+01	.....
	41	1460.86	1453 -	1464	1459.84	7.05E+02	54.92	2.56E+01	K-40
	42	1502.79	1500 -	1505	1501.73	1.00E+01	8.37	6.00E+00	.....
	43	1588.73	1581 -	1592	1587.60	1.99E+01	14.97	1.83E+01	.....
	44	1596.77	1594 -	1598	1595.63	7.19E+00	6.18	1.63E+00	LA-140
	45	1620.44	1614 -	1625	1619.29	1.89E+01	14.83	1.83E+01	BI-212
	46	1660.73	1656 -	1663	1659.55	1.10E+01	6.63	0.00E+00	.....
	47	1683.33	1679 -	1684	1682.13	8.00E+00	5.66	0.00E+00	.....
	48	1728.45	1723 -	1731	1727.21	1.05E+01	10.02	9.00E+00	.....
	49	1764.94	1758 -	1771	1763.67	7.15E+01	20.15	1.09E+01	BI-214
	50	1845.73	1839 -	1849	1844.40	1.19E+01	13.07	1.62E+01	.....
	51	1968.79	1964 -	1970	1967.36	6.38E+00	6.65	3.25E+00	.....
	52	2029.05	2022 -	2032	2027.58	9.42E+00	8.85	5.17E+00	.....
	53	2103.95	2096 -	2109	2102.42	2.60E+01	10.20	0.00E+00	.....
	54	2204.90	2198 -	2209	2203.30	1.94E+01	11.14	5.18E+00	BI-214
	55	2214.23	2210 -	2215	2212.63	8.00E+00	5.66	0.00E+00	.....
	56	2448.74	2442 -	2450	2446.98	1.06E+01	8.50	4.77E+00	.....
	57	2614.60	2606 -	2617	2612.74	6.57E+01	17.66	6.61E+00	TL-208

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/21/2017 10:10:06AM

Analysis Report for 1707085-06

HTC-A02-S002-3642-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.38	1.07E+02	64.77	1.58E-02	1.67E-03
	2	76.12	7.98E+02	154.31	2.63E-02	2.11E-03
M	3	87.05	1.35E+02	67.70	2.70E-02	2.40E-03
m	4	89.65	1.34E+02	67.38	2.70E-02	2.39E-03
m	5	93.06	2.00E+02	67.49	2.70E-02	2.33E-03
	6	154.21	5.91E+01	58.22	2.27E-02	1.66E-03
	7	164.52	5.29E+01	57.69	2.19E-02	1.63E-03
	8	185.79	1.81E+02	66.85	2.03E-02	1.53E-03
	9	209.47	6.28E+01	59.93	1.88E-02	1.43E-03
M	10	238.73	5.78E+02	61.58	1.72E-02	1.30E-03
m	11	242.12	1.26E+02	43.45	1.71E-02	1.28E-03
	12	277.75	3.27E+01	37.40	1.55E-02	1.12E-03
	13	295.00	2.30E+02	72.07	1.49E-02	1.10E-03
	14	338.13	1.24E+02	48.99	1.35E-02	1.04E-03
	15	351.77	3.72E+02	60.00	1.31E-02	1.02E-03
	16	408.99	4.40E+01	48.99	1.17E-02	9.54E-04
	17	434.58	2.70E+01	31.62	1.12E-02	9.31E-04
	18	463.19	3.80E+01	36.15	1.06E-02	9.07E-04
	19	511.01	1.67E+02	54.95	9.87E-03	8.65E-04
	20	583.20	2.26E+02	43.92	8.90E-03	8.02E-04
	21	609.30	2.92E+02	48.60	8.60E-03	7.80E-04
	22	727.56	5.67E+01	37.05	7.46E-03	6.71E-04
	23	755.02	2.23E+01	23.19	7.24E-03	6.44E-04
	24	794.97	2.48E+01	25.84	6.94E-03	6.06E-04
M	25	803.05	1.52E+01	12.23	6.89E-03	5.98E-04
m	26	806.62	1.89E+01	21.21	6.86E-03	5.94E-04
	27	837.81	5.14E+01	33.88	6.65E-03	5.64E-04
	28	860.72	4.46E+01	22.37	6.51E-03	5.42E-04
M	29	903.96	3.02E+01	22.38	6.25E-03	5.04E-04
m	30	911.16	1.38E+02	34.54	6.21E-03	5.02E-04
	31	934.63	1.83E+01	20.31	6.08E-03	4.93E-04
	32	968.22	1.17E+02	40.79	5.91E-03	4.82E-04
	33	1083.65	1.82E+01	22.98	5.39E-03	4.41E-04
	34	1113.31	2.31E+01	20.70	5.27E-03	4.31E-04
	35	1120.55	7.65E+01	28.00	5.24E-03	4.29E-04
	36	1180.41	2.15E+01	20.80	5.03E-03	4.11E-04
	37	1238.75	3.50E+01	33.35	4.84E-03	4.16E-04
	38	1353.50	3.00E+01	16.88	4.51E-03	4.19E-04
	39	1377.41	3.12E+01	17.35	4.45E-03	4.12E-04
	40	1386.18	2.14E+01	15.14	4.43E-03	4.09E-04
	41	1460.86	7.05E+02	54.92	4.26E-03	3.88E-04
	42	1502.79	1.00E+01	8.37	4.18E-03	3.75E-04
	43	1588.73	1.99E+01	14.97	4.01E-03	3.51E-04
	44	1596.77	7.19E+00	6.18	4.00E-03	3.48E-04
	45	1620.44	1.89E+01	14.83	3.96E-03	3.41E-04
	46	1660.73	1.10E+01	6.63	3.90E-03	3.30E-04
	47	1683.33	8.00E+00	5.66	3.86E-03	3.23E-04
	48	1728.45	1.05E+01	10.02	3.80E-03	3.10E-04
	49	1764.94	7.15E+01	20.15	3.75E-03	3.00E-04
	50	1845.73	1.19E+01	13.07	3.65E-03	2.79E-04
	51	1968.79	6.38E+00	6.65	3.52E-03	2.79E-04
	52	2029.05	9.42E+00	8.85	3.46E-03	2.79E-04
	53	2103.95	2.60E+01	10.20	3.41E-03	2.79E-04

Analysis Report for 1707085-06

HTC-A02-S002-3642-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
54	2204.90	1.94E+01	11.14	3.34E-03	2.79E-04
55	2214.23	8.00E+00	5.66	3.33E-03	2.79E-04
56	2448.74	1.06E+01	8.50	3.23E-03	2.79E-04
57	2614.60	6.57E+01	17.66	3.20E-03	2.79E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/21/2017 10:10:06AM

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

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.38	1.07E+02	64.77	3.74E+01	5.77E+00	6.94E+01	6.50E+01
	2	76.12	7.98E+02	154.31			7.98E+02	1.54E+02
M	3	87.05	1.35E+02	67.70			1.35E+02	6.77E+01
m	4	89.65	1.34E+02	67.38	3.40E-01	2.99E-01	1.33E+02	6.74E+01
m	5	93.06	2.00E+02	67.49	4.88E+01	1.30E+00	1.51E+02	6.75E+01
	6	154.21	5.91E+01	58.22			5.91E+01	5.82E+01
	7	164.52	5.29E+01	57.69			5.29E+01	5.77E+01
	8	185.79	1.81E+02	66.85	3.48E+01	7.32E+00	1.47E+02	6.72E+01
	9	209.47	6.28E+01	59.93			6.28E+01	5.99E+01
M	10	238.73	5.78E+02	61.58	7.09E+00	6.85E+00	5.71E+02	6.20E+01
m	11	242.12	1.26E+02	43.45			1.26E+02	4.35E+01
	12	277.75	3.27E+01	37.40			3.27E+01	3.74E+01
	13	295.00	2.30E+02	72.07			2.30E+02	7.21E+01
	14	338.13	1.24E+02	48.99			1.24E+02	4.90E+01
	15	351.77	3.72E+02	60.00	1.04E+01	5.08E+00	3.61E+02	6.02E+01
	16	408.99	4.40E+01	48.99			4.40E+01	4.90E+01
	17	434.58	2.70E+01	31.62			2.70E+01	3.16E+01
	18	463.19	3.80E+01	36.15			3.80E+01	3.62E+01
	19	511.01	1.67E+02	54.95	7.08E+01	4.94E+00	9.67E+01	5.52E+01
	20	583.20	2.26E+02	43.92	5.65E+00	3.57E+00	2.20E+02	4.41E+01
	21	609.30	2.92E+02	48.60	1.07E+01	3.96E+00	2.81E+02	4.88E+01
	22	727.56	5.67E+01	37.05			5.67E+01	3.71E+01
	23	755.02	2.23E+01	23.19			2.23E+01	2.32E+01
	24	794.97	2.48E+01	25.84			2.48E+01	2.58E+01
M	25	803.05	1.52E+01	12.23			1.52E+01	1.22E+01
m	26	806.62	1.89E+01	21.21			1.89E+01	2.12E+01

Analysis Report for 1707085-06

HTC-A02-S002-3642-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	27	837.81	5.14E+01	33.88			5.14E+01	3.39E+01
	28	860.72	4.46E+01	22.37			4.46E+01	2.24E+01
M	29	903.96	3.02E+01	22.38			3.02E+01	2.24E+01
m	30	911.16	1.38E+02	34.54	2.63E+00	2.49E+00	1.35E+02	3.46E+01
	31	934.63	1.83E+01	20.31			1.83E+01	2.03E+01
	32	968.22	1.17E+02	40.79			1.17E+02	4.08E+01
	33	1083.65	1.82E+01	22.98			1.82E+01	2.30E+01
	34	1113.31	2.31E+01	20.70			2.31E+01	2.07E+01
	35	1120.55	7.65E+01	28.00	2.45E+00	2.38E+00	7.40E+01	2.81E+01
	36	1180.41	2.15E+01	20.80			2.15E+01	2.08E+01
	37	1238.75	3.50E+01	33.35			3.50E+01	3.33E+01
	38	1353.50	3.00E+01	16.88			3.00E+01	1.69E+01
	39	1377.41	3.12E+01	17.35			3.12E+01	1.73E+01
	40	1386.18	2.14E+01	15.14			2.14E+01	1.51E+01
	41	1460.86	7.05E+02	54.92	5.90E+00	2.63E+00	6.99E+02	5.50E+01
	42	1502.79	1.00E+01	8.37			1.00E+01	8.37E+00
	43	1588.73	1.99E+01	14.97			1.99E+01	1.50E+01
	44	1596.77	7.19E+00	6.18			7.19E+00	6.18E+00
	45	1620.44	1.89E+01	14.83			1.89E+01	1.48E+01
	46	1660.73	1.10E+01	6.63			1.10E+01	6.63E+00
	47	1683.33	8.00E+00	5.66			8.00E+00	5.66E+00
	48	1728.45	1.05E+01	10.02			1.05E+01	1.00E+01
	49	1764.94	7.15E+01	20.15	3.33E+00	1.73E+00	6.82E+01	2.02E+01
	50	1845.73	1.19E+01	13.07			1.19E+01	1.31E+01
	51	1968.79	6.38E+00	6.65			6.38E+00	6.65E+00
	52	2029.05	9.42E+00	8.85			9.42E+00	8.85E+00
	53	2103.95	2.60E+01	10.20			2.60E+01	1.02E+01
	54	2204.90	1.94E+01	11.14			1.94E+01	1.11E+01
	55	2214.23	8.00E+00	5.66			8.00E+00	5.66E+00
	56	2448.74	1.06E+01	8.50			1.06E+01	8.50E+00
	57	2614.60	6.57E+01	17.66	4.77E+00	1.52E+00	6.09E+01	1.77E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/21/2017 10:10:06AM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055574.CNF

Corrected Area is: Original * Peak Ratio - Background

Analysis Report for 1707085-06

HTC-A02-S002-3642-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	46.38	1.07E+02	64.77	3.74E+01	5.77E+00	6.94E+01	6.50E+01
	2	76.12	7.98E+02	154.31			7.98E+02	1.54E+02
M	3	87.05	1.35E+02	67.70			1.35E+02	6.77E+01
m	4	89.65	1.34E+02	67.38	3.40E-01	2.99E-01	1.33E+02	6.74E+01
m	5	93.06	2.00E+02	67.49	4.88E+01	1.30E+00	1.51E+02	6.75E+01
	6	154.21	5.91E+01	58.22			5.91E+01	5.82E+01
	7	164.52	5.29E+01	57.69			5.29E+01	5.77E+01
	8	185.79	1.81E+02	66.85	3.48E+01	7.32E+00	1.47E+02	6.72E+01
	9	209.47	6.28E+01	59.93			6.28E+01	5.99E+01
M	10	238.73	5.78E+02	61.58	7.09E+00	6.85E+00	5.71E+02	6.20E+01
m	11	242.12	1.26E+02	43.45			1.26E+02	4.35E+01
	12	277.75	3.27E+01	37.40			3.27E+01	3.74E+01
	13	295.00	2.30E+02	72.07			2.30E+02	7.21E+01
	14	338.13	1.24E+02	48.99			1.24E+02	4.90E+01
	15	351.77	3.72E+02	60.00	1.04E+01	5.08E+00	3.61E+02	6.02E+01
	16	408.99	4.40E+01	48.99			4.40E+01	4.90E+01
	17	434.58	2.70E+01	31.62			2.70E+01	3.16E+01
	18	463.19	3.80E+01	36.15			3.80E+01	3.62E+01
	19	511.01	1.67E+02	54.95	7.08E+01	4.94E+00	9.67E+01	5.52E+01
	20	583.20	2.26E+02	43.92	5.65E+00	3.57E+00	2.20E+02	4.41E+01
	21	609.30	2.92E+02	48.60	1.07E+01	3.96E+00	2.81E+02	4.88E+01
	22	727.56	5.67E+01	37.05			5.67E+01	3.71E+01
	23	755.02	2.23E+01	23.19			2.23E+01	2.32E+01
	24	794.97	2.48E+01	25.84			2.48E+01	2.58E+01
M	25	803.05	1.52E+01	12.23			1.52E+01	1.22E+01
m	26	806.62	1.89E+01	21.21			1.89E+01	2.12E+01
	27	837.81	5.14E+01	33.88			5.14E+01	3.39E+01
	28	860.72	4.46E+01	22.37			4.46E+01	2.24E+01
M	29	903.96	3.02E+01	22.38			3.02E+01	2.24E+01
m	30	911.16	1.38E+02	34.54	2.63E+00	2.49E+00	1.35E+02	3.46E+01
	31	934.63	1.83E+01	20.31			1.83E+01	2.03E+01
	32	968.22	1.17E+02	40.79			1.17E+02	4.08E+01
	33	1083.65	1.82E+01	22.98			1.82E+01	2.30E+01
	34	1113.31	2.31E+01	20.70			2.31E+01	2.07E+01
	35	1120.55	7.65E+01	28.00	2.45E+00	2.38E+00	7.40E+01	2.81E+01
	36	1180.41	2.15E+01	20.80			2.15E+01	2.08E+01
	37	1238.75	3.50E+01	33.35			3.50E+01	3.33E+01
	38	1353.50	3.00E+01	16.88			3.00E+01	1.69E+01
	39	1377.41	3.12E+01	17.35			3.12E+01	1.73E+01
	40	1386.18	2.14E+01	15.14			2.14E+01	1.51E+01
	41	1460.86	7.05E+02	54.92	5.90E+00	2.63E+00	6.99E+02	5.50E+01
	42	1502.79	1.00E+01	8.37			1.00E+01	8.37E+00
	43	1588.73	1.99E+01	14.97			1.99E+01	1.50E+01
	44	1596.77	7.19E+00	6.18			7.19E+00	6.18E+00
	45	1620.44	1.89E+01	14.83			1.89E+01	1.48E+01
	46	1660.73	1.10E+01	6.63			1.10E+01	6.63E+00
	47	1683.33	8.00E+00	5.66			8.00E+00	5.66E+00
	48	1728.45	1.05E+01	10.02			1.05E+01	1.00E+01
	49	1764.94	7.15E+01	20.15	3.33E+00	1.73E+00	6.82E+01	2.02E+01
	50	1845.73	1.19E+01	13.07			1.19E+01	1.31E+01
	51	1968.79	6.38E+00	6.65			6.38E+00	6.65E+00
	52	2029.05	9.42E+00	8.85			9.42E+00	8.85E+00
	53	2103.95	2.60E+01	10.20			2.60E+01	1.02E+01
	54	2204.90	1.94E+01	11.14			1.94E+01	1.11E+01

Analysis Report for 1707085-06

HTC-A02-S002-3642-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
55	2214.23	8.00E+00	5.66			8.00E+00	5.66E+00
56	2448.74	1.06E+01	8.50			1.06E+01	8.50E+00
57	2614.60	6.57E+01	17.66	4.77E+00	1.52E+00	6.09E+01	1.77E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	1.000	1460.81	*	10.67	1.55E+01	1.90E+00
CD-109	0.857	88.03	*	3.72	1.58E+00	8.08E-01
SN-126	0.958	87.57	*	37.00	1.37E-01	6.97E-02
EU-155	0.333	86.50	*	30.90	1.70E-01	8.66E-02
		105.30		20.70		
TL-208	0.998	583.14	*	30.22	8.28E-01	1.82E-01
		860.37	*	4.48	1.55E+00	7.87E-01
		2614.66	*	35.85	5.38E-01	1.63E-01
PB-210	0.998	46.50	*	4.25	1.06E+00	9.97E-01
BI-212	0.979	727.17	*	11.80	6.51E-01	4.30E-01
		1620.62	*	2.75	1.75E+00	1.39E+00
PB-212	0.893	238.63	*	44.60	7.51E-01	9.93E-02
		300.09		3.41		
BI-214	0.988	609.31	*	46.30	7.14E-01	1.40E-01
		1120.29	*	15.10	9.46E-01	3.67E-01
		1764.49	*	15.80	1.17E+00	3.58E-01
		2204.22	*	4.98	1.18E+00	6.84E-01
PB-214	0.995	295.21	*	19.19	8.15E-01	2.63E-01
		351.92	*	37.19	7.52E-01	1.38E-01
RA-226	0.973	186.21	*	3.28	2.22E+00	4.20E+00
AC-228	0.961	338.32	*	11.40	8.17E-01	3.29E-01
		911.07	*	27.70	7.93E-01	2.13E-01
		969.11	*	16.60	1.21E+00	4.32E-01
NP-237	0.953	86.50	*	12.60	4.03E-01	2.05E-01
CM-243	0.370	209.75	*	3.29	1.03E+00	9.89E-01
		228.14		10.60		
		277.60	*	14.00	1.54E-01	1.76E-01

Analysis Report for 1707085-06

HTC-A02-S002-3642-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 10:10:06AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	76.12	2.21697E-01	9.67		
m	4	89.65	3.69951E-02	25.29		
m	5	93.06	4.19049E-02	22.37	Sum	
	6	154.21	1.64187E-02	49.25	Tol.	CS-136
	7	164.52	1.47009E-02	54.50	Tol.	CS-136
m	11	242.12	3.50556E-02	17.22		
	16	408.99	1.22111E-02	55.72		
	17	434.58	7.49517E-03	58.60	Tol.	AG-108M
	18	463.19	1.05556E-02	47.57	Sum	
	19	511.01	2.68613E-02	28.53		
	23	755.02	6.18707E-03	52.06		
	24	794.97	6.90000E-03	52.00	Sum	
M	25	803.05	4.23491E-03	40.10		
m	26	806.62	5.26230E-03	55.99		
	27	837.81	1.42650E-02	32.99		
M	29	903.96	8.39999E-03	37.00	Sum	
	31	934.63	5.08681E-03	55.45	Sum	
	33	1083.65	5.04712E-03	63.23		
	34	1113.31	6.41560E-03	44.81		
	36	1180.41	5.97222E-03	48.36		
	37	1238.75	9.71683E-03	47.66		
	38	1353.50	8.33333E-03	28.14		
	39	1377.41	8.67108E-03	27.79		
	40	1386.18	5.94184E-03	35.39		
	42	1502.79	2.77778E-03	41.83		
	43	1588.73	5.51724E-03	37.68	Sum	
	44	1596.77	1.99653E-03	43.02	Tol.	LA-140
	46	1660.73	3.05556E-03	30.15		
	47	1683.33	2.22222E-03	35.36		
	48	1728.45	2.91667E-03	47.74		
	50	1845.73	3.31250E-03	54.79		
	51	1968.79	1.77083E-03	52.17		
	52	2029.05	2.61574E-03	46.97		
	53	2103.95	7.22222E-03	19.61	S-Esc	

Analysis Report for 1707085-06

HTC-A02-S002-3642-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
55	2214.23	2.22222E-03	35.36		
56	2448.74	2.94872E-03	40.04		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	1.00	1460.81	*	10.67	1.55E+01	1.90E+00
CD-109	0.85	88.03	*	3.72	1.58E+00	8.08E-01
SN-126	0.95	87.57	*	37.00	1.37E-01	6.97E-02
EU-155	0.33	86.50	*	30.90	1.70E-01	8.66E-02
		105.30		20.70		
TL-208	0.99	583.14	*	30.22	8.28E-01	1.82E-01
		860.37	*	4.48	1.55E+00	7.87E-01
		2614.66	*	35.85	5.38E-01	1.63E-01
PB-210	0.99	46.50	*	4.25	1.06E+00	9.97E-01
BI-212	0.97	727.17	*	11.80	6.51E-01	4.30E-01
		1620.62	*	2.75	1.75E+00	1.39E+00
PB-212	0.89	238.63	*	44.60	7.51E-01	9.93E-02
		300.09		3.41		
BI-214	0.98	609.31	*	46.30	7.14E-01	1.40E-01
		1120.29	*	15.10	9.46E-01	3.67E-01
		1764.49	*	15.80	1.17E+00	3.58E-01
		2204.22	*	4.98	1.18E+00	6.84E-01
PB-214	0.99	295.21	*	19.19	8.15E-01	2.63E-01
		351.92	*	37.19	7.52E-01	1.38E-01
RA-226	0.97	186.21	*	3.28	2.22E+00	4.20E+00
AC-228	0.96	338.32	*	11.40	8.17E-01	3.29E-01
		911.07	*	27.70	7.93E-01	2.13E-01
		969.11	*	16.60	1.21E+00	4.32E-01
NP-237	0.95	86.50	*	12.60	4.03E-01	2.05E-01
CM-243	0.37	209.75	*	3.29	1.03E+00	9.89E-01
		228.14		10.60		

Analysis Report for 1707085-06

HTC-A02-S002-3642-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CM-243	0.37	277.60	*	14.00	1.54E-01	1.76E-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	1.000	1.55E+01	1.90E+00	
?	CD-109	0.857	1.58E+00	8.08E-01	
?	SN-126	0.958	1.37E-01	6.97E-02	
?	EU-155	0.333	1.70E-01	8.66E-02	
	TL-208	0.998	6.88E-01	1.20E-01	
	PB-210	0.998	1.06E+00	9.97E-01	
	BI-212	0.979	7.48E-01	4.10E-01	
	PB-212	0.893	7.51E-01	9.93E-02	
	BI-214	0.988	8.05E-01	1.21E-01	
	PB-214	0.995	7.65E-01	1.22E-01	
	RA-226	0.973	2.22E+00	4.20E+00	
	AC-228	0.961	8.60E-01	1.65E-01	
?	NP-237	0.953	4.03E-01	2.05E-01	
	CM-243	0.370	1.80E-01	1.73E-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 1707085-06

HTC-A02-S002-3642-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 10:10:06AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	76.12	2.21697E-01	9.67		
m	4	89.65	3.69951E-02	25.29		
m	5	93.06	4.19049E-02	22.37	Sum	
	6	154.21	1.64187E-02	49.25	Tol.	CS-136
	7	164.52	1.47009E-02	54.50	Tol.	CS-136
m	11	242.12	3.50556E-02	17.22		
	16	408.99	1.22111E-02	55.72		
	17	434.58	7.49517E-03	58.60	Tol.	AG-108M
	18	463.19	1.05556E-02	47.57	Sum	
	19	511.01	2.68613E-02	28.53		
	23	755.02	6.18707E-03	52.06		
	24	794.97	6.90000E-03	52.00	Sum	
M	25	803.05	4.23491E-03	40.10		
m	26	806.62	5.26230E-03	55.99		
	27	837.81	1.42650E-02	32.99		
M	29	903.96	8.39999E-03	37.00	Sum	
	31	934.63	5.08681E-03	55.45	Sum	
	33	1083.65	5.04712E-03	63.23		
	34	1113.31	6.41560E-03	44.81		
	36	1180.41	5.97222E-03	48.36		
	37	1238.75	9.71683E-03	47.66		
	38	1353.50	8.33333E-03	28.14		
	39	1377.41	8.67108E-03	27.79		
	40	1386.18	5.94184E-03	35.39		
	42	1502.79	2.77778E-03	41.83		
	43	1588.73	5.51724E-03	37.68	Sum	
	44	1596.77	1.99653E-03	43.02	Tol.	LA-140
	46	1660.73	3.05556E-03	30.15		
	47	1683.33	2.22222E-03	35.36		
	48	1728.45	2.91667E-03	47.74		
	50	1845.73	3.31250E-03	54.79		
	51	1968.79	1.77083E-03	52.17		
	52	2029.05	2.61574E-03	46.97		
	53	2103.95	7.22222E-03	19.61	S-Esc	
	55	2214.23	2.22222E-03	35.36		

Analysis Report for 1707085-06

HTC-A02-S002-3642-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
56	2448.74	2.94872E-03	40.04		

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	1.86E-01	1.45E+00	1.45E+00
+	NA-22	1274.54		99.94	-8.27E-02	5.40E-02	5.40E-02
+	@ NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@	2754.09		99.86	1.00E+26		1.00E+26
+	AL-26	1808.65		99.76	6.59E-03	4.79E-02	4.79E-02
+	K-40	1460.81	*	10.67	1.55E+01	6.10E-01	6.10E-01
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-9.35E-03	3.83E-02	3.83E-02
		78.34		96.00	-1.29E-02		4.08E-02
+	SC-46	889.25		99.98	6.11E-03	1.22E-01	1.22E-01
		1120.51		99.99	3.42E-01		2.27E-01
+	V-48	983.52		99.98	6.95E-01	4.23E+00	4.23E+00
		1312.10		97.50	1.35E+00		4.66E+00
+	CR-51	320.08		9.83	3.30E+00	4.69E+00	4.69E+00
+	MN-54	834.83		99.97	5.10E-03	7.90E-02	7.90E-02
+	CO-56	846.75		99.96	2.95E-02	1.36E-01	1.36E-01
		1037.75		14.03	6.26E-02		1.14E+00
		1238.25		67.00	2.76E-01		3.35E-01
		1771.40		15.51	-9.65E-02		7.20E-01
		2598.48		16.90	-1.48E-01		4.78E-01
+	CO-57	122.06		85.51	-2.28E-02	4.02E-02	4.02E-02
		136.48		10.60	9.14E-02		4.40E-01
+	CO-58	810.76		99.40	-1.75E-02	1.41E-01	1.41E-01
+	FE-59	1099.22		56.50	2.96E-01	5.78E-01	5.78E-01
		1291.56		43.20	1.80E-01		7.28E-01
+	CO-60	1173.22		100.00	4.81E-02	5.85E-02	8.40E-02
		1332.49		100.00	1.72E-03		5.85E-02
+	ZN-65	1115.52		50.75	-7.13E-01	1.66E-01	1.66E-01

Analysis Report for 1707085-06

HTC-A02-S002-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	GA-67	93.31		35.70	2.30E+08	1.17E+08	1.17E+08
		208.95		2.24	2.00E+09		2.19E+09
		300.22		16.00	5.62E+07		2.92E+08
+	SE-75	121.11		16.70	2.35E-03	1.07E-01	2.91E-01
		136.00		59.20	-5.59E-02		1.07E-01
		264.65		59.80	-2.96E-02		1.12E-01
		279.53		25.20	-2.06E-02		2.71E-01
		400.65		11.40	8.03E-02		6.08E-01
+	RB-82	776.52		13.00	1.10E+00	5.90E+00	5.90E+00
+	RB-83	520.41		46.00	6.41E-03	1.96E-01	1.96E-01
		529.64		30.30	-4.59E-02		2.80E-01
		552.65		16.40	-2.17E-01		4.85E-01
+	KR-85	513.99		0.43	-1.16E+01	1.17E+01	1.17E+01
+	SR-85	513.99		99.27	-1.42E-01	1.43E-01	1.43E-01
+	Y-88	898.02		93.40	1.10E-02	7.91E-02	1.04E-01
		1836.01		99.38	-7.77E-03		7.91E-02
+	MO-93	263.06		56.72	1.48E-02	5.26E-02	7.03E-02
		684.67		99.68	1.27E-02		5.26E-02
		1477.11		99.08	2.31E-02		5.64E-02
+	NB-93M	16.57		9.43	0.00E+00	5.91E+00	5.91E+00
+	NB-94	702.63		100.00	-5.79E-04	5.43E-02	5.63E-02
		871.10		100.00	9.72E-03		5.43E-02
+	NB-95	765.79		99.81	1.32E-03	4.12E-01	4.12E-01
+	NB-95M	235.69		25.00	-2.13E+08	3.56E+07	3.56E+07
+	ZR-95	724.18		43.70	-2.08E-02	2.92E-01	4.46E-01
		756.72		55.30	1.27E-01		2.92E-01
+	MO-99	181.06		6.20	1.45E+10	2.44E+10	3.33E+10
		739.58		12.80	-8.95E+08		2.44E+10
		778.00		4.50	-2.57E+10		6.16E+10
+	RU-103	497.08		89.00	1.12E-02	2.55E-01	2.55E-01
+	RU-106	621.84		9.80	-8.80E-02	6.31E-01	6.31E-01
+	AG-108M	433.93		89.90	3.72E-02	4.98E-02	4.98E-02
		614.37		90.40	1.12E-02		5.81E-02
		722.95		90.50	-6.71E-03		6.49E-02
+	CD-109	88.03	*	3.72	1.58E+00	2.95E+00	2.95E+00
+	AG-110M	657.75		93.14	-4.27E-02	6.98E-02	6.98E-02
		677.61		10.53	-1.12E-02		6.04E-01
		706.67		16.46	1.12E-02		4.37E-01
		763.93		21.98	-6.70E-02		3.43E-01
		884.67		71.63	-1.30E-02		9.14E-02
		1384.27		23.94	3.17E-02		3.36E-01
+	CD-113M	263.70		0.02	-3.33E+01	1.67E+02	1.67E+02
+	SN-113	255.12		1.93	1.92E+00	1.03E-01	3.60E+00
		391.69		64.90	-2.82E-02		1.03E-01
+	TE123M	159.00		84.10	1.92E-02	7.80E-02	7.80E-02
+	SB-124	602.71		97.87	1.09E-01	1.69E-01	1.69E-01
		645.85		7.26	-1.21E-02		2.24E+00
		722.78		11.10	1.99E-01		1.54E+00

Analysis Report for 1707085-06

HTC-A02-S002-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-124	1691.02		49.00	-4.98E-02	1.69E-01	2.76E-01
+	I-125	35.49		6.49	-1.23E+01	4.80E+00	4.80E+00
+	SB-125	176.33		6.89	2.06E-02	1.44E-01	5.85E-01
		427.89		29.33	1.57E-02		1.44E-01
		463.38		10.35	3.73E-01		5.12E-01
		600.56		17.80	1.02E-01		3.11E-01
		635.90		11.32	-3.31E-02		4.62E-01
+	SB-126	414.70		83.30	8.14E-01	1.05E+01	1.05E+01
		666.33		99.60	4.01E+00		1.34E+01
		695.00		99.60	3.10E+00		1.35E+01
		720.50		53.80	1.20E+00		2.43E+01
+	SN-126	87.57	*	37.00	1.37E-01	2.56E-01	2.56E-01
+	SB-127	473.00		25.00	2.70E+05	6.47E+06	7.12E+06
		685.20		35.70	6.52E+05		6.47E+06
		783.80		14.70	6.60E+06		1.86E+07
+	I-129	29.78		57.00	2.74E-02	3.70E-01	3.70E-01
		33.60		13.20	7.94E+00		1.74E+00
		39.58		7.52	5.01E-01		9.95E-01
+	I-131	284.30		6.05	3.10E+02	2.26E+02	3.01E+03
		364.48		81.20	1.19E+02		2.26E+02
		636.97		7.26	-4.16E+02		3.15E+03
		722.89		1.80	-1.58E+03		1.53E+04
+	TE-132	49.72		13.10	-3.04E+07	4.93E+07	3.45E+08
		228.16		88.00	1.25E+07		4.93E+07
+	BA-133	81.00		33.00	3.37E-02	6.52E-02	9.69E-02
		302.84		17.80	-1.07E-01		2.28E-01
		356.01		60.00	7.06E-03		6.52E-02
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	1.23E+04	3.53E+04	3.53E+04
+	CS-134	563.23		8.38	1.60E-01	6.14E-02	5.64E-01
		569.32		15.43	8.70E-02		3.09E-01
		604.70		97.60	2.18E-02		6.14E-02
		795.84		85.40	7.17E-03		8.03E-02
		801.93		8.73	5.06E-02		7.18E-01
+	CS-135	268.24		16.00	1.06E-01	2.67E-01	2.67E-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	-4.62E+01	9.06E+00	8.71E+01
		163.89		4.61	7.62E+01		1.49E+02
		176.55		13.56	1.72E+00		4.87E+01
		273.65		12.66	8.97E+00		5.78E+01
		340.57		48.50	-6.55E+00		1.62E+01
		818.50		99.70	-3.45E+00		9.06E+00
		1048.07		79.60	-2.35E+00		1.29E+01
		1235.34		19.70	1.76E+01		8.17E+01
+	CS-137	661.65		85.12	-1.55E-02	5.97E-02	5.97E-02
+	LA-138	788.74		34.00	5.10E-02	9.05E-02	1.81E-01
		1435.80		66.00	-6.36E-03		9.05E-02

Analysis Report for 1707085-06

HTC-A02-S002-3642-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		CE-139	165.85		80.35	1.03E-02	7.92E-02	7.92E-02
+		BA-140	162.64		6.70	-2.88E+01	3.58E+01	1.16E+02
			304.84		4.50	-6.30E+00		1.77E+02
			423.70		3.20	-9.34E+01		2.50E+02
			437.55		2.00	1.72E+01		4.45E+02
			537.32		25.00	5.10E+00		3.58E+01
+		LA-140	328.77		20.50	-4.20E+00	1.08E+01	4.22E+01
			487.03		45.50	4.23E+00		1.87E+01
			815.85		23.50	-4.17E+00		4.41E+01
			1596.49		95.49	1.70E+00		1.08E+01
+		CE-141	145.44		48.40	4.69E-01	6.65E-01	6.65E-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	1.10E-01	3.41E-01	3.41E-01
+		PM-144	476.78		42.00	1.56E-02	6.48E-02	1.21E-01
			618.01		98.60	1.45E-02		6.48E-02
			696.49		99.49	-1.66E-02		6.69E-02
+		PM-145	36.85		21.70	1.02E-01	2.25E-01	4.29E-01
			37.36		39.70	1.38E-02		2.25E-01
			42.30		15.10	-1.27E-01		3.51E-01
			72.40		2.31	-7.34E+00		1.62E+00
+		PM-146	453.90		39.94	-2.61E-02	1.05E-01	1.05E-01
			735.90		14.01	6.76E-02		4.34E-01
			747.13		13.10	2.15E-01		4.30E-01
+		ND-147	91.11		28.90	-8.72E+01	5.77E+01	5.77E+01
			531.02		13.10	-2.30E+01		1.46E+02
+		PM-149	285.90		3.10	7.97E+11	2.80E+13	2.80E+13
+		EU-152	121.78		20.50	-7.50E-02	1.32E-01	1.32E-01
			244.69		5.40	-1.52E+00		8.00E-01
			344.27		19.13	-5.25E-02		1.91E-01
			778.89		9.20	-2.36E-01		5.67E-01
			964.01		10.40	-4.16E-03		7.15E-01
			1085.78		7.22	3.25E-02		9.74E-01
			1112.02		9.60	3.76E-01		7.47E-01
			1407.95		14.94	3.24E-03		4.35E-01
+		GD-153	97.43		31.30	-5.42E-02	1.13E-01	1.13E-01
			103.18		22.20	7.51E-02		1.73E-01
+		EU-154	123.07		40.50	-1.72E-03	6.94E-02	6.94E-02
			723.30		19.70	-3.15E-02		3.04E-01
			873.19		11.50	-2.56E-02		4.74E-01
			996.32		10.30	-2.75E-02		5.83E-01
			1004.76		17.90	-9.57E-02		3.34E-01
			1274.45		35.50	-2.21E-01		1.45E-01
+		EU-155	86.50	*	30.90	1.70E-01	1.40E-01	3.19E-01
			105.30		20.70	3.83E-03		1.40E-01
+		EU-156	811.77		10.40	4.81E-01	4.49E+01	4.49E+01
			1153.47		7.20	1.44E+01		9.96E+01
			1230.71		8.90	9.63E+00		8.01E+01

Analysis Report for 1707085-06

HTC-A02-S002-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	HO-166M	184.41		72.60	1.73E-01	6.87E-02	6.87E-02
		280.45		29.60	2.95E-02		1.30E-01
		410.94		11.10	-2.29E-01		3.68E-01
		711.69		54.10	-7.83E-04		9.97E-02
+	TM-171	66.72		0.14	-9.90E+00	2.79E+01	2.79E+01
+	HF-172	67.35		5.31	-1.84E-01	2.93E-01	7.53E-01
		125.81		11.30	5.13E-02		2.93E-01
+	LU-172	181.53		20.60	1.95E+03	2.48E+03	4.80E+03
		900.72		29.81	8.86E+02		5.38E+03
		1093.66		62.50	-8.55E+02		2.48E+03
+	LU-173	100.72		5.24	-1.48E-02	2.44E-01	6.15E-01
		272.11		21.20	1.39E-01		2.44E-01
+	HF-175	343.40		84.00	-2.35E-02	1.13E-01	1.13E-01
+	LU-176	88.34		13.30	2.29E-01	4.25E-02	2.78E-01
		201.83		86.00	-2.57E-02		4.59E-02
		306.78		94.00	1.97E-02		4.25E-02
+	HF-181	133.02		41.70	-2.00E-02	2.59E-01	3.38E-01
		345.85		17.20	-3.98E-01		1.05E+00
		482.03		82.80	6.22E-03		2.59E-01
+	TA-182	67.75		41.20	-3.87E-02	1.59E-01	1.59E-01
		1121.30		34.90	7.37E-01		5.29E-01
		1189.05		16.23	8.56E-02		7.34E-01
		1221.41		26.98	-3.56E-02		5.46E-01
		1231.02		11.44	1.55E-01		1.29E+00
+	IR-192	308.46		29.68	-7.64E-02	2.15E-01	3.24E-01
		468.07		48.10	3.60E-02		2.15E-01
+	HG-203	279.19		77.30	6.83E-02	2.27E-01	2.27E-01
+	TL-204	374.74		94.11	9.83E-03	4.30E-02	4.30E-02
		899.15		99.16	7.20E-03		5.85E-02
		911.74		91.10	2.58E-01		1.25E-01
+	BI-207	569.67		97.72	1.26E-02	4.48E-02	4.48E-02
		1063.62		74.90	3.25E-02		9.24E-02
+	TL-208	583.14	*	30.22	8.28E-01	1.46E-01	2.11E-01
		860.37	*	4.48	1.55E+00		1.12E+00
		2614.66	*	35.85	5.38E-01		1.46E-01
+	BI-210M	262.00		45.00	5.84E-03	8.69E-02	8.69E-02
		300.00		23.00	3.46E-02		1.80E-01
+	PB-210	46.50	*	4.25	1.06E+00	1.62E+00	1.62E+00
+	PB-211	404.84		2.90	-1.55E+00	1.39E+00	1.39E+00
		831.96		2.90	-2.61E-01		1.91E+00
+	BI-212	727.17	*	11.80	6.51E-01	6.71E-01	6.71E-01
		1620.62	*	2.75	1.75E+00		2.09E+00
+	PB-212	238.63	*	44.60	7.51E-01	2.21E-01	2.21E-01
		300.09		3.41	2.34E-01		1.21E+00
+	BI-214	609.31	*	46.30	7.14E-01	1.55E-01	1.55E-01
		1120.29	*	15.10	9.46E-01		5.02E-01
		1764.49	*	15.80	1.17E+00		3.74E-01
		2204.22	*	4.98	1.18E+00		8.46E-01

Analysis Report for 1707085-06

HTC-A02-S002-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	PB-214	295.21	*	19.19	8.15E-01	1.65E-01	3.91E-01
		351.92	*	37.19	7.52E-01		1.65E-01
+	RN-219	401.80		6.50	1.22E-01	6.15E-01	6.15E-01
+	RA-223	323.87		3.88	-2.44E-01	9.67E-01	9.67E-01
+	RA-224	240.98		3.95	5.08E+00	1.98E+00	1.98E+00
+	RA-225	40.00		31.00	1.17E+01	2.32E+01	2.32E+01
+	RA-226	186.21	*	3.28	2.22E+00	1.61E+00	1.61E+00
+	TH-227	50.10		8.40	-4.08E-02	4.63E-01	4.63E-01
		236.00		11.50	-3.08E+00		5.15E-01
		256.20		6.30	-4.31E-01		5.75E-01
+	AC-228	338.32	*	11.40	8.17E-01	4.78E-01	4.91E-01
		911.07	*	27.70	7.93E-01		4.78E-01
		969.11	*	16.60	1.21E+00		6.15E-01
+	TH-230	48.44		16.90	-4.19E-01	2.35E-01	2.35E-01
		62.85		4.60	8.39E-01		8.75E-01
		67.67		0.37	-2.38E+00		9.76E+00
+	PA-231	283.67		1.60	2.49E-01	1.73E+00	2.42E+00
		302.67		2.30	-8.12E-01		1.73E+00
+	TH-231	25.64		14.70	0.00E+00	1.05E-01	1.05E-01
		84.21		6.40	-7.63E-01		4.93E-01
+	PA-233	311.98		38.60	-5.90E-01	1.21E+00	1.21E+00
+	PA-234	131.20		20.40	-1.18E-01	1.40E-01	1.40E-01
		733.99		8.80	2.22E-01		6.41E-01
		946.00		12.00	1.85E-02		5.21E-01
+	PA-234M	1001.03		0.92	2.23E+00	6.81E+00	6.81E+00
+	TH-234	63.29		3.80	6.07E-01	1.04E+00	1.04E+00
+	U-235	143.76		10.50	2.33E-04	3.68E-01	3.68E-01
		163.35		4.70	4.26E-01		8.32E-01
		205.31		4.70	2.17E-01		8.39E-01
+	NP-237	86.50	*	12.60	4.03E-01	7.53E-01	7.53E-01
+	NP-239	106.10		22.70	1.16E+10	4.21E+11	4.21E+11
		228.18		10.70	3.08E+11		1.21E+12
		277.60		14.10	3.53E+11		1.01E+12
+	AM-241	59.54		35.90	-6.09E-02	9.79E-02	9.79E-02
+	AM-243	74.67		66.00	-1.57E-01	7.11E-02	7.11E-02
+	CM-243	209.75	*	3.29	1.03E+00	2.87E-01	1.61E+00
		228.14		10.60	9.13E-02		3.58E-01
		277.60	*	14.00	1.54E-01		2.87E-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 1707085-06

HTC-A02-S002-3642-01

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	1.45E+00	1.45E+00	1.86E-01	6.80E-01
	NA-22	1274.54		99.94	5.40E-02	5.40E-02	-8.27E-02	2.39E-02
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	4.79E-02	4.79E-02	6.59E-03	2.02E-02
+	K-40	1460.81	*	10.67	6.10E-01	6.10E-01	1.55E+01	2.75E-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	3.83E-02	3.83E-02	-9.35E-03	1.86E-02
		78.34		96.00	4.08E-02		-1.29E-02	1.98E-02
	SC-46	889.25		99.98	1.22E-01	1.22E-01	6.11E-03	5.61E-02
		1120.51		99.99	2.27E-01		3.42E-01	1.08E-01
	V-48	983.52		99.98	4.23E+00	4.23E+00	6.95E-01	1.95E+00
		1312.10		97.50	4.66E+00		1.35E+00	2.11E+00
	CR-51	320.08		9.83	4.69E+00	4.69E+00	3.30E+00	2.23E+00
	MN-54	834.83		99.97	7.90E-02	7.90E-02	5.10E-03	3.69E-02
	CO-56	846.75		99.96	1.36E-01	1.36E-01	2.95E-02	6.33E-02
		1037.75		14.03	1.14E+00		6.26E-02	5.28E-01
		1238.25		67.00	3.35E-01		2.76E-01	1.58E-01
		1771.40		15.51	7.20E-01		-9.65E-02	3.04E-01
		2598.48		16.90	4.78E-01		-1.48E-01	1.79E-01
	CO-57	122.06		85.51	4.02E-02	4.02E-02	-2.28E-02	1.93E-02
		136.48		10.60	4.40E-01		9.14E-02	2.13E-01
	CO-58	810.76		99.40	1.41E-01	1.41E-01	-1.75E-02	6.52E-02
	FE-59	1099.22		56.50	5.78E-01	5.78E-01	2.96E-01	2.68E-01
		1291.56		43.20	7.28E-01		1.80E-01	3.33E-01
	CO-60	1173.22		100.00	8.40E-02	5.85E-02	4.81E-02	3.92E-02
		1332.49		100.00	5.85E-02		1.72E-03	2.61E-02
	ZN-65	1115.52		50.75	1.66E-01	1.66E-01	-7.13E-01	7.63E-02
	GA-67	93.31		35.70	1.17E+08	1.17E+08	2.30E+08	5.71E+07
		208.95		2.24	2.19E+09		2.00E+09	1.06E+09
		300.22		16.00	2.92E+08		5.62E+07	1.40E+08
	SE-75	121.11		16.70	2.91E-01	1.07E-01	2.35E-03	1.40E-01
		136.00		59.20	1.07E-01		-5.59E-02	5.18E-02
		264.65		59.80	1.12E-01		-2.96E-02	5.33E-02
		279.53		25.20	2.71E-01		-2.06E-02	1.29E-01
		400.65		11.40	6.08E-01		8.03E-02	2.86E-01
	RB-82	776.52		13.00	5.90E+00	5.90E+00	1.10E+00	2.74E+00

Analysis Report for 1707085-06

HTC-A02-S002-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	RB-83	520.41		46.00	1.96E-01	1.96E-01	6.41E-03	9.11E-02
		529.64		30.30	2.80E-01		-4.59E-02	1.30E-01
		552.65		16.40	4.85E-01		-2.17E-01	2.23E-01
	KR-85	513.99		0.43	1.17E+01	1.17E+01	-1.16E+01	5.50E+00
	SR-85	513.99		99.27	1.43E-01	1.43E-01	-1.42E-01	6.74E-02
	Y-88	898.02		93.40	1.04E-01	7.91E-02	1.10E-02	4.74E-02
		1836.01		99.38	7.91E-02		-7.77E-03	3.24E-02
	MO-93	263.06		56.72	7.03E-02	5.26E-02	1.48E-02	3.36E-02
		684.67		99.68	5.26E-02		1.27E-02	2.45E-02
		1477.11		99.08	5.64E-02		2.31E-02	2.49E-02
	NB-93M	16.57		9.43	5.91E+00	5.91E+00	0.00E+00	0.00E+00
	NB-94	702.63		100.00	5.63E-02	5.43E-02	-5.79E-04	2.64E-02
		871.10		100.00	5.43E-02		9.72E-03	2.50E-02
	NB-95	765.79		99.81	4.12E-01	4.12E-01	1.32E-03	1.93E-01
	NB-95M	235.69		25.00	3.56E+07	3.56E+07	-2.13E+08	1.73E+07
	ZR-95	724.18		43.70	4.46E-01	2.92E-01	-2.08E-02	2.11E-01
		756.72		55.30	2.92E-01		1.27E-01	1.36E-01
	MO-99	181.06		6.20	3.33E+10	2.44E+10	1.45E+10	1.61E+10
		739.58		12.80	2.44E+10		-8.95E+08	1.14E+10
		778.00		4.50	6.16E+10		-2.57E+10	2.85E+10
	RU-103	497.08		89.00	2.55E-01	2.55E-01	1.12E-02	1.19E-01
	RU-106	621.84		9.80	6.31E-01	6.31E-01	-8.80E-02	2.95E-01
	AG-108M	433.93		89.90	4.98E-02	4.98E-02	3.72E-02	2.36E-02
		614.37		90.40	5.81E-02		1.12E-02	2.73E-02
		722.95		90.50	6.49E-02		-6.71E-03	3.05E-02
+	CD-109	88.03	*	3.72	2.95E+00	2.95E+00	1.58E+00	1.46E+00
	AG-110M	657.75		93.14	6.98E-02	6.98E-02	-4.27E-02	3.25E-02
		677.61		10.53	6.04E-01		-1.12E-02	2.80E-01
		706.67		16.46	4.37E-01		1.12E-02	2.04E-01
		763.93		21.98	3.43E-01		-6.70E-02	1.60E-01
		884.67		71.63	9.14E-02		-1.30E-02	4.18E-02
		1384.27		23.94	3.36E-01		3.17E-02	1.51E-01
	CD-113M	263.70		0.02	1.67E+02	1.67E+02	-3.33E+01	7.97E+01
	SN-113	255.12		1.93	3.60E+00	1.03E-01	1.92E+00	1.72E+00
		391.69		64.90	1.03E-01		-2.82E-02	4.82E-02
	TE123M	159.00		84.10	7.80E-02	7.80E-02	1.92E-02	3.77E-02
	SB-124	602.71		97.87	1.69E-01	1.69E-01	1.09E-01	7.95E-02
		645.85		7.26	2.24E+00		-1.21E-02	1.05E+00
		722.78		11.10	1.54E+00		1.99E-01	7.21E-01
		1691.02		49.00	2.76E-01		-4.98E-02	1.16E-01
	I-125	35.49		6.49	4.80E+00	4.80E+00	-1.23E+01	2.32E+00
	SB-125	176.33		6.89	5.85E-01	1.44E-01	2.06E-02	2.82E-01
		427.89		29.33	1.44E-01		1.57E-02	6.75E-02
		463.38		10.35	5.12E-01		3.73E-01	2.43E-01
		600.56		17.80	3.11E-01		1.02E-01	1.46E-01
		635.90		11.32	4.62E-01		-3.31E-02	2.16E-01
	SB-126	414.70		83.30	1.05E+01	1.05E+01	8.14E-01	4.91E+00
		666.33		99.60	1.34E+01		4.01E+00	6.30E+00
		695.00		99.60	1.35E+01		3.10E+00	6.35E+00
		720.50		53.80	2.43E+01		1.20E+00	1.13E+01
+	SN-126	87.57	*	37.00	2.56E-01	2.56E-01	1.37E-01	1.27E-01
	SB-127	473.00		25.00	7.12E+06	6.47E+06	2.70E+05	3.32E+06
		685.20		35.70	6.47E+06		6.52E+05	3.01E+06

Analysis Report for 1707085-06

HTC-A02-S002-3642-01

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	1.86E+07	6.47E+06	6.60E+06	8.68E+06
I-129	29.78	57.00	3.70E-01	3.70E-01	2.74E-02	1.79E-01
	33.60	13.20	1.74E+00		7.94E+00	8.56E-01
	39.58	7.52	9.95E-01		5.01E-01	4.81E-01
I-131	284.30	6.05	3.01E+03	2.26E+02	3.10E+02	1.44E+03
	364.48	81.20	2.26E+02		1.19E+02	1.07E+02
	636.97	7.26	3.15E+03		-4.16E+02	1.47E+03
	722.89	1.80	1.53E+04		-1.58E+03	7.18E+03
TE-132	49.72	13.10	3.45E+08	4.93E+07	-3.04E+07	1.66E+08
	228.16	88.00	4.93E+07		1.25E+07	2.36E+07
BA-133	81.00	33.00	9.69E-02	6.52E-02	3.37E-02	4.69E-02
	302.84	17.80	2.28E-01		-1.07E-01	1.08E-01
	356.01	60.00	6.52E-02		7.06E-03	3.08E-02
@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
XE-133	81.00	38.00	3.53E+04	3.53E+04	1.23E+04	1.71E+04
CS-134	563.23	8.38	5.64E-01	6.14E-02	1.60E-01	2.62E-01
	569.32	15.43	3.09E-01		8.70E-02	1.44E-01
	604.70	97.60	6.14E-02		2.18E-02	2.89E-02
	795.84	85.40	8.03E-02		7.17E-03	3.76E-02
	801.93	8.73	7.18E-01		5.06E-02	3.34E-01
CS-135	268.24	16.00	2.67E-01	2.67E-01	1.06E-01	1.28E-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	8.71E+01	9.06E+00	-4.62E+01	4.22E+01
	163.89	4.61	1.49E+02		7.62E+01	7.20E+01
	176.55	13.56	4.87E+01		1.72E+00	2.35E+01
	273.65	12.66	5.78E+01		8.97E+00	2.77E+01
	340.57	48.50	1.62E+01		-6.55E+00	7.75E+00
	818.50	99.70	9.06E+00		-3.45E+00	4.18E+00
	1048.07	79.60	1.29E+01		-2.35E+00	5.91E+00
	1235.34	19.70	8.17E+01		1.76E+01	3.83E+01
CS-137	661.65	85.12	5.97E-02	5.97E-02	-1.55E-02	2.78E-02
LA-138	788.74	34.00	1.81E-01	9.05E-02	5.10E-02	8.46E-02
	1435.80	66.00	9.05E-02		-6.36E-03	4.04E-02
CE-139	165.85	80.35	7.92E-02	7.92E-02	1.03E-02	3.83E-02
BA-140	162.64	6.70	1.16E+02	3.58E+01	-2.88E+01	5.61E+01
	304.84	4.50	1.77E+02		-6.30E+00	8.42E+01
	423.70	3.20	2.50E+02		-9.34E+01	1.17E+02
	437.55	2.00	4.45E+02		1.72E+01	2.10E+02
	537.32	25.00	3.58E+01		5.10E+00	1.67E+01
LA-140	328.77	20.50	4.22E+01	1.08E+01	-4.20E+00	2.01E+01
	487.03	45.50	1.87E+01		4.23E+00	8.77E+00
	815.85	23.50	4.41E+01		-4.17E+00	2.03E+01
	1596.49	95.49	1.08E+01		1.70E+00	4.68E+00
CE-141	145.44	48.40	6.65E-01	6.65E-01	4.69E-01	3.23E-01
@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	293.26	42.00	1.00E+26		1.00E+26	1.00E+20
@	664.55	5.20	1.00E+26		1.00E+26	1.00E+20
CE-144	133.54	10.80	3.41E-01	3.41E-01	1.10E-01	1.64E-01
PM-144	476.78	42.00	1.21E-01	6.48E-02	1.56E-02	5.69E-02
	618.01	98.60	6.48E-02		1.45E-02	3.04E-02
	696.49	99.49	6.69E-02		-1.66E-02	3.13E-02

Analysis Report for 1707085-06

HTC-A02-S002-3642-01

	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	4.29E-01	2.25E-01	1.02E-01	2.07E-01
		37.36		39.70	2.25E-01		1.38E-02	1.09E-01
		42.30		15.10	3.51E-01		-1.27E-01	1.69E-01
		72.40		2.31	1.62E+00		-7.34E+00	7.87E-01
	PM-146	453.90		39.94	1.05E-01	1.05E-01	-2.61E-02	4.91E-02
		735.90		14.01	4.34E-01		6.76E-02	2.03E-01
		747.13		13.10	4.30E-01		2.15E-01	2.00E-01
	ND-147	91.11		28.90	5.77E+01	5.77E+01	-8.72E+01	2.80E+01
		531.02		13.10	1.46E+02		-2.30E+01	6.79E+01
	PM-149	285.90		3.10	2.80E+13	2.80E+13	7.97E+11	1.34E+13
	EU-152	121.78		20.50	1.32E-01	1.32E-01	-7.50E-02	6.34E-02
		244.69		5.40	8.00E-01		-1.52E+00	3.85E-01
		344.27		19.13	1.91E-01		-5.25E-02	9.01E-02
		778.89		9.20	5.67E-01		-2.36E-01	2.62E-01
		964.01		10.40	7.15E-01		-4.16E-03	3.35E-01
		1085.78		7.22	9.74E-01		3.25E-02	4.51E-01
		1112.02		9.60	7.47E-01		3.76E-01	3.46E-01
		1407.95		14.94	4.35E-01		3.24E-03	1.96E-01
	GD-153	97.43		31.30	1.13E-01	1.13E-01	-5.42E-02	5.41E-02
		103.18		22.20	1.73E-01		7.51E-02	8.33E-02
	EU-154	123.07		40.50	6.94E-02	6.94E-02	-1.72E-03	3.33E-02
		723.30		19.70	3.04E-01		-3.15E-02	1.43E-01
		873.19		11.50	4.74E-01		-2.56E-02	2.18E-01
		996.32		10.30	5.83E-01		-2.75E-02	2.68E-01
		1004.76		17.90	3.34E-01		-9.57E-02	1.54E-01
		1274.45		35.50	1.45E-01		-2.21E-01	6.40E-02
+	EU-155	86.50	*	30.90	3.19E-01	1.40E-01	1.70E-01	1.58E-01
		105.30		20.70	1.40E-01		3.83E-03	6.72E-02
	EU-156	811.77		10.40	4.49E+01	4.49E+01	4.81E-01	2.08E+01
		1153.47		7.20	9.96E+01		1.44E+01	4.65E+01
		1230.71		8.90	8.01E+01		9.63E+00	3.73E+01
	HO-166M	184.41		72.60	6.87E-02	6.87E-02	1.73E-01	3.34E-02
		280.45		29.60	1.30E-01		2.95E-02	6.20E-02
		410.94		11.10	3.68E-01		-2.29E-01	1.74E-01
		711.69		54.10	9.97E-02		-7.83E-04	4.65E-02
	TM-171	66.72		0.14	2.79E+01	2.79E+01	-9.90E+00	1.35E+01
	HF-172	67.35		5.31	7.53E-01	2.93E-01	-1.84E-01	3.65E-01
		125.81		11.30	2.93E-01		5.13E-02	1.41E-01
	LU-172	181.53		20.60	4.80E+03	2.48E+03	1.95E+03	2.32E+03
		900.72		29.81	5.38E+03		8.86E+02	2.50E+03
		1093.66		62.50	2.48E+03		-8.55E+02	1.13E+03
	LU-173	100.72		5.24	6.15E-01	2.44E-01	-1.48E-02	2.96E-01
		272.11		21.20	2.44E-01		1.39E-01	1.17E-01
	HF-175	343.40		84.00	1.13E-01	1.13E-01	-2.35E-02	5.30E-02
	LU-176	88.34		13.30	2.78E-01	4.25E-02	2.29E-01	1.35E-01
		201.83		86.00	4.59E-02		-2.57E-02	2.21E-02
		306.78		94.00	4.25E-02		1.97E-02	2.02E-02
	HF-181	133.02		41.70	3.38E-01	2.59E-01	-2.00E-02	1.62E-01
		345.85		17.20	1.05E+00		-3.98E-01	4.93E-01
		482.03		82.80	2.59E-01		6.22E-03	1.22E-01
	TA-182	67.75		41.20	1.59E-01	1.59E-01	-3.87E-02	7.69E-02
		1121.30		34.90	5.29E-01		7.37E-01	2.51E-01
		1189.05		16.23	7.34E-01		8.56E-02	3.36E-01

Analysis Report for 1707085-06

HTC-A02-S002-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TA-182	1221.41		26.98	5.46E-01	1.59E-01	-3.56E-02	2.54E-01
		1231.02		11.44	1.29E+00		1.55E-01	5.98E-01
	IR-192	308.46		29.68	3.24E-01	2.15E-01	-7.64E-02	1.54E-01
		468.07		48.10	2.15E-01		3.60E-02	1.01E-01
	HG-203	279.19		77.30	2.27E-01	2.27E-01	6.83E-02	1.09E-01
	TL-204	374.74		94.11	4.30E-02	4.30E-02	9.83E-03	2.03E-02
		899.15		99.16	5.85E-02		7.20E-03	2.69E-02
		911.74		91.10	1.25E-01		2.58E-01	6.01E-02
	BI-207	569.67		97.72	4.48E-02	4.48E-02	1.26E-02	2.08E-02
		1063.62		74.90	9.24E-02		3.25E-02	4.28E-02
+	TL-208	583.14	*	30.22	2.11E-01	1.46E-01	8.28E-01	1.01E-01
		860.37	*	4.48	1.12E+00		1.55E+00	5.12E-01
		2614.66	*	35.85	1.46E-01		5.38E-01	6.10E-02
	BI-210M	262.00		45.00	8.69E-02	8.69E-02	5.84E-03	4.16E-02
		300.00		23.00	1.80E-01		3.46E-02	8.60E-02
+	PB-210	46.50	*	4.25	1.62E+00	1.62E+00	1.06E+00	7.87E-01
	PB-211	404.84		2.90	1.39E+00	1.39E+00	-1.55E+00	6.57E-01
		831.96		2.90	1.91E+00		-2.61E-01	8.83E-01
+	BI-212	727.17	*	11.80	6.71E-01	6.71E-01	6.51E-01	3.20E-01
		1620.62	*	2.75	2.09E+00		1.75E+00	9.18E-01
+	PB-212	238.63	*	44.60	2.21E-01	2.21E-01	7.51E-01	1.09E-01
		300.09		3.41	1.21E+00		2.34E-01	5.80E-01
+	BI-214	609.31	*	46.30	1.55E-01	1.55E-01	7.14E-01	7.39E-02
		1120.29	*	15.10	5.02E-01		9.46E-01	2.33E-01
		1764.49	*	15.80	3.74E-01		1.17E+00	1.64E-01
		2204.22	*	4.98	8.46E-01		1.18E+00	3.41E-01
+	PB-214	295.21	*	19.19	3.91E-01	1.65E-01	8.15E-01	1.91E-01
		351.92	*	37.19	1.65E-01		7.52E-01	7.99E-02
	RN-219	401.80		6.50	6.15E-01	6.15E-01	1.22E-01	2.90E-01
	RA-223	323.87		3.88	9.67E-01	9.67E-01	-2.44E-01	4.58E-01
	RA-224	240.98		3.95	1.98E+00	1.98E+00	5.08E+00	9.72E-01
	RA-225	40.00		31.00	2.32E+01	2.32E+01	1.17E+01	1.12E+01
+	RA-226	186.21	*	3.28	1.61E+00	1.61E+00	2.22E+00	7.83E-01
	TH-227	50.10		8.40	4.63E-01	4.63E-01	-4.08E-02	2.23E-01
		236.00		11.50	5.15E-01		-3.08E+00	2.51E-01
		256.20		6.30	5.75E-01		-4.31E-01	2.74E-01
+	AC-228	338.32	*	11.40	4.91E-01	4.78E-01	8.17E-01	2.37E-01
		911.07	*	27.70	4.78E-01		7.93E-01	2.31E-01
		969.11	*	16.60	6.15E-01		1.21E+00	2.93E-01
	TH-230	48.44		16.90	2.35E-01	2.35E-01	-4.19E-01	1.13E-01
		62.85		4.60	8.75E-01		8.39E-01	4.25E-01
		67.67		0.37	9.76E+00		-2.38E+00	4.73E+00
	PA-231	283.67		1.60	2.42E+00	1.73E+00	2.49E-01	1.16E+00
		302.67		2.30	1.73E+00		-8.12E-01	8.24E-01
	TH-231	25.64		14.70	1.05E-01	1.05E-01	0.00E+00	0.00E+00
		84.21		6.40	4.93E-01		-7.63E-01	2.38E-01
	PA-233	311.98		38.60	1.21E+00	1.21E+00	-5.90E-01	5.73E-01
	PA-234	131.20		20.40	1.40E-01	1.40E-01	-1.18E-01	6.72E-02
		733.99		8.80	6.41E-01		2.22E-01	3.00E-01
		946.00		12.00	5.21E-01		1.85E-02	2.41E-01
	PA-234M	1001.03		0.92	6.81E+00	6.81E+00	2.23E+00	3.15E+00
	TH-234	63.29		3.80	1.04E+00	1.04E+00	6.07E-01	5.07E-01
	U-235	143.76		10.50	3.68E-01	3.68E-01	2.33E-04	1.78E-01

Analysis Report for 1707085-06

HTC-A02-S002-3642-01

	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	8.32E-01	3.68E-01	4.26E-01	4.03E-01
		205.31		4.70	8.39E-01		2.17E-01	4.04E-01
+	NP-237	86.50	*	12.60	7.53E-01	7.53E-01	4.03E-01	3.72E-01
	NP-239	106.10		22.70	4.21E+11	4.21E+11	1.16E+10	2.03E+11
		228.18		10.70	1.21E+12		3.08E+11	5.80E+11
		277.60		14.10	1.01E+12		3.53E+11	4.81E+11
	AM-241	59.54		35.90	9.79E-02	9.79E-02	-6.09E-02	4.73E-02
	AM-243	74.67		66.00	7.11E-02	7.11E-02	-1.57E-01	3.48E-02
+	CM-243	209.75	*	3.29	1.61E+00	2.87E-01	1.03E+00	7.82E-01
		228.14		10.60	3.58E-01		9.13E-02	1.72E-01
		277.60	*	14.00	2.87E-01		1.54E-01	1.37E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A02-S002-3642-01

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	0	0	0	0	0	0
25:	0	0	0	14	58	88	135	149
33:	615	248	85	85	89	104	87	95
41:	98	67	57	67	64	75	152	64
49:	62	65	79	80	85	87	71	80
57:	88	91	85	90	89	111	132	143
65:	104	107	107	111	126	130	117	125
73:	139	126	351	173	399	273	93	93
81:	104	101	88	102	114	88	171	164
89:	87	173	85	104	196	130	102	69
97:	68	77	68	89	70	78	85	86
105:	73	82	73	70	74	92	65	65
113:	74	65	67	80	89	69	72	79
121:	65	60	66	75	69	93	74	74
129:	106	77	70	58	80	62	67	64
137:	65	61	68	61	69	72	63	71
145:	73	72	71	81	59	72	50	43
153:	53	92	64	67	58	58	61	57
161:	56	50	62	67	64	69	52	50
169:	56	51	55	54	55	65	62	51
177:	47	53	50	44	73	39	57	57
185:	76	166	88	37	46	44	57	51
193:	53	55	43	48	51	56	54	54
201:	41	52	48	48	59	42	40	42
209:	81	64	57	42	42	49	44	51
217:	40	54	55	36	44	38	52	41
225:	45	35	38	45	40	29	33	50
233:	54	50	43	49	51	260	439	67
241:	86	124	64	39	53	39	23	45
249:	49	29	31	33	43	21	25	37
257:	40	22	34	31	42	28	35	29
265:	31	30	27	37	34	64	35	36
273:	38	37	34	33	44	35	37	21
281:	27	27	32	26	30	29	28	31
289:	26	26	34	28	37	40	172	104
297:	37	32	26	44	27	23	28	29
305:	31	25	19	29	32	17	27	29
313:	9	35	26	21	21	26	25	18
321:	30	27	15	24	19	25	21	33
329:	36	20	30	32	25	16	20	21
337:	34	82	66	21	19	21	22	16
345:	13	20	21	22	25	29	107	266
353:	53	24	22	23	17	14	14	18
361:	13	17	22	29	12	20	16	22

369:	16	19	18	17	17	11	25	22

Sample Title: HTC-A02-S002-3642-01

Channel								
377:	18	16	24	11	16	20	23	25
385:	20	21	21	18	26	19	17	18
393:	14	11	14	16	17	15	14	23
401:	16	13	21	17	15	18	20	39
409:	26	17	24	15	9	17	19	16
417:	9	17	22	16	23	19	16	13
425:	16	16	17	12	12	22	14	17
433:	20	18	34	12	12	18	19	18
441:	14	13	21	9	12	15	15	13
449:	10	16	15	19	15	9	20	13
457:	12	25	15	15	12	23	40	19
465:	19	15	15	24	13	8	13	10
473:	16	12	12	18	9	21	17	20
481:	9	21	17	12	17	10	17	16
489:	13	12	11	7	10	10	9	8
497:	13	21	14	16	14	10	14	17
505:	9	16	14	13	30	54	82	35
513:	17	15	19	10	13	11	16	17
521:	11	7	16	9	13	10	9	13
529:	11	9	11	13	11	18	8	12
537:	16	16	17	11	11	20	11	13
545:	12	11	15	10	9	7	9	10
553:	9	8	14	12	9	11	10	8
561:	15	16	11	10	9	11	10	11
569:	11	13	16	11	9	12	13	14
577:	10	8	9	8	17	48	141	54
585:	13	6	9	9	8	10	12	12
593:	9	10	8	6	6	12	13	12
601:	17	15	6	17	6	10	19	63
609:	175	77	12	13	8	10	13	9
617:	15	11	7	14	12	10	12	11
625:	9	15	6	7	12	8	9	11
633:	10	11	9	10	8	14	3	9
641:	10	9	9	10	12	10	10	10
649:	13	11	12	17	14	9	16	5
657:	7	12	6	8	7	14	8	10
665:	12	17	7	13	12	11	6	4
673:	10	11	7	10	13	1	9	6
681:	8	10	5	9	10	9	13	3
689:	13	4	10	13	13	6	8	12
697:	13	10	10	12	12	8	12	9
705:	11	8	12	7	10	5	14	6
713:	11	13	12	6	5	11	14	9
721:	8	9	10	8	10	23	35	20
729:	7	11	9	4	10	16	9	10
737:	11	8	11	11	13	8	10	8
745:	15	6	8	9	5	11	1	7
753:	6	7	21	9	6	8	7	9
761:	8	13	7	9	4	11	15	12
769:	14	9	7	10	9	8	10	8
777:	8	5	8	6	6	12	8	10
785:	10	15	6	11	7	9	15	3
793:	14	17	21	10	7	3	9	9

801:	4	13	8	15	8	15	9	8

Sample Title: HTC-A02-S002-3642-01

Channel								
809:	9	7	10	4	5	8	4	8
817:	9	8	10	6	2	9	11	5
825:	8	4	13	5	8	12	4	10
833:	7	7	18	12	13	7	12	11
841:	13	3	6	8	12	8	8	7
849:	7	9	3	9	5	6	12	6
857:	5	8	10	23	19	6	2	4
865:	7	4	6	6	9	5	4	8
873:	6	9	7	6	7	5	8	2
881:	2	6	5	10	4	4	7	6
889:	8	6	7	7	5	6	5	4
897:	7	10	4	3	7	11	19	10
905:	8	9	4	11	22	47	62	27
913:	9	11	8	8	6	5	10	5
921:	7	7	7	6	8	11	9	11
929:	5	6	6	2	11	14	6	5
937:	4	2	7	5	8	9	6	11
945:	3	11	11	4	10	7	5	6
953:	5	6	2	3	4	9	4	10
961:	6	8	9	14	16	12	22	46
969:	33	15	3	8	5	6	7	4
977:	4	4	6	9	7	7	7	3
985:	7	7	6	7	7	8	4	5
993:	6	4	7	8	10	5	4	11
1001:	5	8	7	4	4	9	6	10
1009:	5	4	9	5	10	7	5	7
1017:	9	4	8	6	6	9	9	12
1025:	5	4	7	9	13	3	4	10
1033:	8	8	8	8	10	5	6	10
1041:	6	7	4	4	4	7	7	5
1049:	4	9	7	8	11	7	6	3
1057:	6	2	7	7	7	13	7	10
1065:	4	7	6	8	7	3	4	7
1073:	3	6	3	9	6	3	7	5
1081:	3	9	12	7	7	6	3	10
1089:	4	7	5	7	7	1	9	4
1097:	11	4	8	7	11	11	6	5
1105:	3	7	9	4	10	4	4	13
1113:	3	16	2	2	5	2	29	42
1121:	16	11	9	7	8	7	5	5
1129:	5	9	8	5	3	9	9	8
1137:	4	6	7	6	7	6	8	4
1145:	3	8	9	12	6	8	12	5
1153:	11	11	11	11	11	7	8	7
1161:	6	4	5	7	6	7	7	9
1169:	4	10	11	10	12	11	8	3
1177:	6	8	10	10	10	6	3	6
1185:	4	4	9	4	7	9	4	6
1193:	6	7	9	6	5	10	7	6
1201:	4	5	9	3	8	6	9	12
1209:	8	8	6	6	12	5	9	8
1217:	16	8	10	7	9	8	10	10
1225:	5	9	8	12	6	8	10	8

1233:	9	8	7	7	19	21	15	7

Sample Title: HTC-A02-S002-3642-01

Channel								
1241:	6	4	7	8	8	6	4	6
1249:	4	8	7	9	6	9	6	3
1257:	8	3	5	6	7	9	3	4
1265:	4	4	2	4	7	9	2	1
1273:	5	3	4	2	3	8	8	8
1281:	7	4	4	6	5	4	6	3
1289:	7	6	4	9	4	6	1	7
1297:	6	5	1	3	6	4	3	5
1305:	5	5	2	3	10	5	5	4
1313:	3	3	4	3	7	2	6	0
1321:	3	2	3	4	5	3	6	0
1329:	3	5	5	5	2	2	2	3
1337:	4	2	7	1	5	5	2	5
1345:	3	0	2	4	3	1	3	8
1353:	2	7	4	6	1	1	5	1
1361:	3	6	4	1	2	2	5	5
1369:	0	5	1	1	4	4	5	7
1377:	10	5	4	4	0	3	4	6
1385:	8	2	3	2	4	0	2	4
1393:	1	4	2	1	1	6	3	3
1401:	5	2	3	4	3	5	6	1
1409:	2	2	3	3	3	0	3	1
1417:	4	0	4	2	4	1	2	3
1425:	4	3	4	4	2	1	1	4
1433:	1	4	4	2	3	4	1	4
1441:	4	2	4	5	1	1	3	2
1449:	2	2	2	2	1	2	4	7
1457:	17	52	158	282	162	31	2	0
1465:	1	0	2	2	3	1	0	2
1473:	3	1	1	2	5	3	1	1
1481:	0	3	2	1	1	1	2	3
1489:	1	1	2	1	2	4	7	3
1497:	1	1	1	0	7	3	1	2
1505:	0	1	5	2	4	3	2	1
1513:	3	1	3	1	2	0	3	3
1521:	1	2	3	2	2	1	1	1
1529:	1	3	3	2	3	1	3	1
1537:	2	3	1	1	0	1	2	2
1545:	0	0	4	3	1	1	1	4
1553:	1	1	2	4	3	1	1	0
1561:	1	0	3	0	2	0	2	2
1569:	1	1	2	1	0	1	1	0
1577:	2	1	1	2	0	3	2	0
1585:	2	3	3	7	1	3	5	0
1593:	1	0	5	1	2	0	0	0
1601:	0	1	0	0	4	1	0	0
1609:	0	0	0	2	1	0	1	2
1617:	2	6	3	3	4	3	1	2
1625:	1	1	1	2	1	1	1	0
1633:	0	2	2	2	3	0	1	1
1641:	1	0	1	1	2	0	1	1
1649:	1	2	1	0	1	1	0	0
1657:	2	0	2	5	1	1	0	0

1665:	0	1	2	0	0	0	0	2

Sample Title: HTC-A02-S002-3642-01

Channel								
1673:	2	1	1	0	1	0	0	1
1681:	1	2	4	0	0	1	1	1
1689:	1	1	1	1	1	1	1	2
1697:	1	0	1	0	0	4	0	0
1705:	1	1	1	1	0	3	0	0
1713:	3	0	1	0	1	3	0	2
1721:	0	1	0	1	4	0	2	3
1729:	4	1	0	1	1	0	3	0
1737:	4	1	1	1	1	2	2	2
1745:	1	1	1	2	0	1	0	1
1753:	0	0	0	1	1	1	3	1
1761:	7	13	12	23	8	3	1	2
1769:	1	2	0	0	0	1	3	1
1777:	0	1	2	2	0	1	0	0
1785:	0	1	2	2	0	1	2	2
1793:	2	2	0	1	0	0	0	0
1801:	2	2	3	0	1	4	1	0
1809:	1	0	0	1	1	0	0	2
1817:	0	1	1	1	2	1	0	1
1825:	0	0	0	0	0	2	1	0
1833:	0	0	1	2	1	2	0	1
1841:	4	2	0	2	4	4	1	2
1849:	0	1	1	0	3	0	1	0
1857:	1	1	0	2	1	0	0	0
1865:	0	0	2	1	3	1	2	3
1873:	3	0	2	1	0	1	0	0
1881:	2	3	1	0	1	0	1	3
1889:	1	2	2	0	1	1	1	1
1897:	0	0	1	1	0	1	1	2
1905:	1	2	0	2	3	1	2	0
1913:	1	2	1	0	0	2	0	0
1921:	1	1	2	0	1	0	1	0
1929:	1	1	0	2	2	1	1	0
1937:	2	1	1	0	1	1	2	1
1945:	3	0	0	1	0	0	1	4
1953:	0	0	0	0	0	0	2	0
1961:	0	0	1	0	2	0	2	2
1969:	2	0	0	0	1	1	3	1
1977:	2	2	0	0	0	2	1	2
1985:	0	1	1	0	1	0	0	3
1993:	1	0	0	0	0	0	1	0
2001:	0	0	0	1	2	1	2	0
2009:	1	0	0	0	0	0	1	0
2017:	0	0	0	0	0	0	1	0
2025:	0	1	3	3	1	2	1	0
2033:	1	1	0	0	0	0	2	0
2041:	1	2	1	0	1	2	1	0
2049:	3	1	0	1	0	2	1	2
2057:	0	0	2	2	1	1	1	1
2065:	0	0	1	0	0	0	0	2
2073:	1	2	2	1	1	0	0	0
2081:	1	1	0	0	1	2	0	0
2089:	2	0	1	0	0	1	0	0

2097:	0	1	2	2	6	5	3	1

Sample Title: HTC-A02-S002-3642-01

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

2529:	1	1	0	1	0	0	0	0

Sample Title: HTC-A02-S002-3642-01

Channel								
2537:	0	0	2	0	0	0	1	0
2545:	0	0	0	0	0	0	0	0
2553:	0	0	1	0	0	0	1	1
2561:	0	0	0	1	0	2	0	0
2569:	1	0	0	0	0	0	1	0
2577:	0	0	0	0	0	0	0	1
2585:	1	0	0	0	0	0	2	0
2593:	0	0	0	0	0	0	0	3
2601:	0	0	0	0	1	0	2	1
2609:	1	2	8	12	21	17	4	1
2617:	0	0	0	0	0	0	0	0
2625:	0	1	1	0	0	0	0	0
2633:	0	0	0	0	0	1	0	0
2641:	0	0	1	0	0	0	0	0
2649:	0	0	1	0	0	0	0	1
2657:	0	0	0	0	0	0	0	0
2665:	0	1	0	0	0	1	0	1
2673:	0	0	1	0	0	0	0	0
2681:	0	0	0	0	2	0	0	0
2689:	0	0	0	0	1	0	0	0
2697:	0	0	0	0	0	0	0	0
2705:	0	0	0	1	0	0	0	0
2713:	0	0	0	0	0	0	0	0
2721:	1	0	2	0	0	0	1	0
2729:	0	0	1	0	0	0	0	0
2737:	0	0	0	1	1	1	0	0
2745:	0	0	1	1	0	0	0	2
2753:	0	0	0	0	0	0	0	0
2761:	0	0	1	0	0	0	0	0
2769:	0	0	0	0	0	1	0	0
2777:	1	0	1	0	0	0	1	0
2785:	2	0	0	0	0	1	0	0
2793:	0	0	0	0	0	0	1	0
2801:	0	0	0	0	0	0	2	0
2809:	1	0	0	0	1	0	0	0
2817:	0	0	1	0	0	0	0	0
2825:	0	0	0	0	0	2	1	0
2833:	1	0	0	0	0	0	1	0
2841:	0	1	0	0	0	0	0	0
2849:	0	0	0	0	0	1	0	0
2857:	0	0	0	1	0	0	0	0
2865:	0	0	0	0	0	0	0	0
2873:	0	0	0	0	0	0	1	0
2881:	0	0	0	0	1	0	0	0
2889:	0	0	1	0	0	0	0	0
2897:	0	0	1	0	0	0	0	0
2905:	0	0	1	0	0	0	0	0
2913:	1	1	1	0	0	0	0	0
2921:	0	0	1	0	0	0	0	0
2929:	0	0	0	0	0	0	0	1
2937:	0	0	0	0	0	0	0	0
2945:	0	0	0	0	0	0	0	0
2953:	0	0	1	1	1	0	0	0

2961:	1	1	1	0	0	0	0	0

Sample Title: HTC-A02-S002-3642-01

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

3393:	0	0	0	1	0	0	0	0

Sample Title: HTC-A02-S002-3642-01

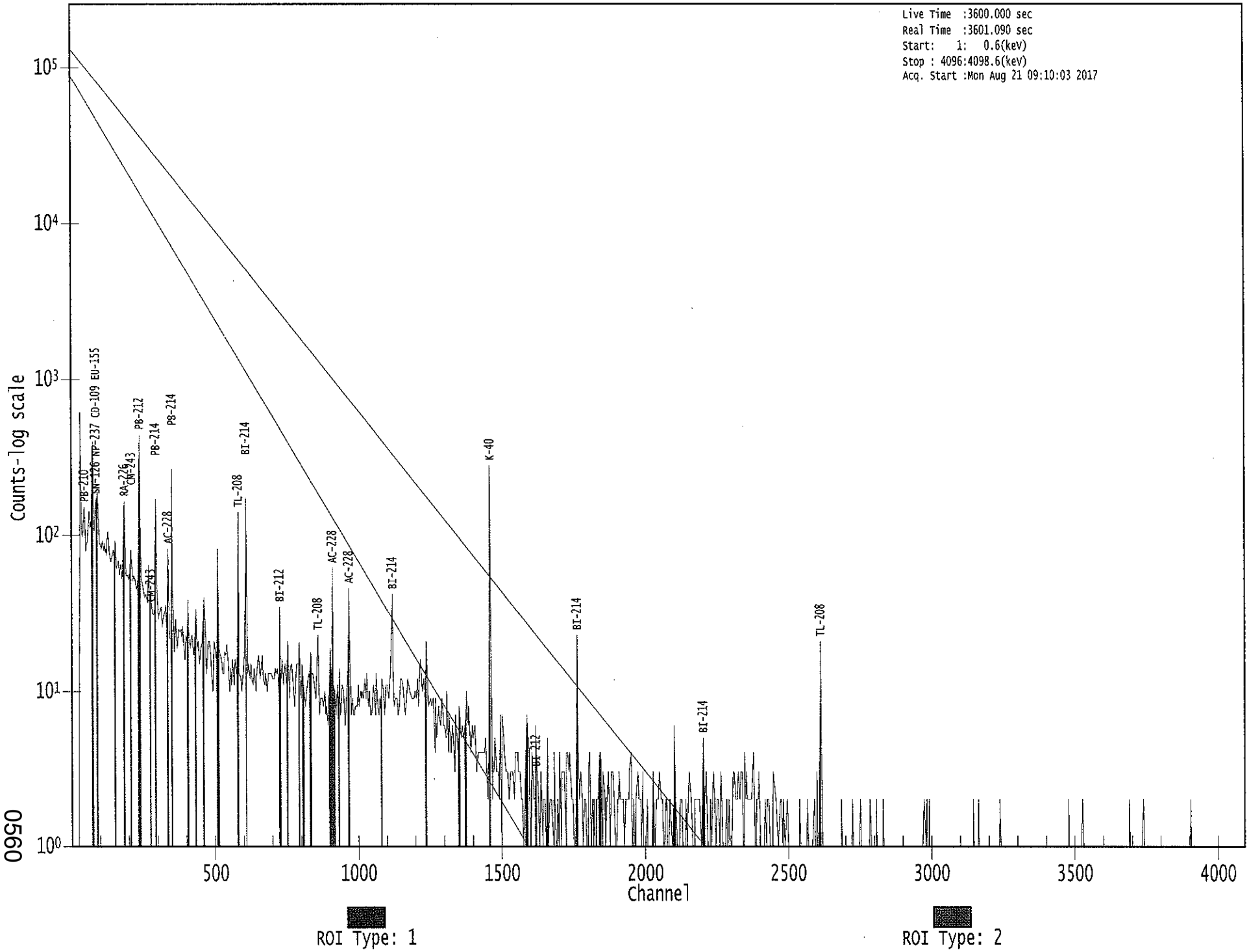
Channel								
3401:	0	0	1	1	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	1	0	0	0	1
3441:	0	0	0	1	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	0	0	2	1	0	1
3481:	0	0	0	0	0	0	1	0
3489:	0	0	0	0	1	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	0	1	0	0	0

Sample Title: HTC-A02-S002-3642-01

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

0000055609.CNF



0660

Apex-Gamma

8/21

Analysis Report for 1707085-07

HTC-A02-S002-4248-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707085-07
Sample Description	: HTC-A02-S002-4248-01
Sample Type	: SOIL
Sample Size	: 6.202E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 8:06:33AM
Acquisition Started	: 8/21/2017 9:11:48AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3607.9 seconds
Dead Time	: 0.22 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 9 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55611

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/22/17

Analysis Report for 1707085-07

HTC-A02-S002-4248-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 10:12:04AM
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	46.16	46.48	0.0000	0.00
2	53.70	54.01	0.0000	0.00
3	62.78	63.08	0.0000	0.00
4	76.39	76.70	0.0000	0.00
5	87.30	87.59	0.0000	0.00
6	185.93	186.20	0.0000	0.00
7	209.52	209.78	0.0000	0.00
8	239.03	239.27	0.0000	0.00
9	242.42	242.67	0.0000	0.00
10	258.59	258.83	0.0000	0.00
11	270.19	270.43	0.0000	0.00
12	278.01	278.24	0.0000	0.00
13	295.44	295.66	0.0000	0.00
14	338.81	339.02	0.0000	0.00
15	352.43	352.64	0.0000	0.00
16	380.61	380.81	0.0000	0.00
17	511.30	511.45	0.0000	0.00
18	532.66	532.81	0.0000	0.00
19	583.68	583.81	0.0000	0.00
20	609.80	609.92	0.0000	0.00
21	727.34	727.42	0.0000	0.00
22	768.62	768.69	0.0000	0.00
23	786.59	786.65	0.0000	0.00
24	808.24	808.29	0.0000	0.00
25	911.75	911.77	0.0000	0.00
26	969.33	969.33	0.0000	0.00
27	976.22	976.21	0.0000	0.00
28	981.81	981.81	0.0000	0.00
29	991.79	991.78	0.0000	0.00
30	1120.97	1120.92	0.0000	0.00
31	1225.51	1225.42	0.0000	0.00
32	1239.63	1239.54	0.0000	0.00
33	1306.06	1305.94	0.0000	0.00
34	1378.25	1378.11	0.0000	0.00
35	1405.48	1405.33	0.0000	0.00
36	1409.64	1409.49	0.0000	0.00
37	1461.48	1461.31	0.0000	0.00
38	1516.86	1516.67	0.0000	0.00
39	1524.05	1523.86	0.0000	0.00
40	1582.41	1582.21	0.0000	0.00
41	1588.84	1588.63	0.0000	0.00
42	1594.22	1594.01	0.0000	0.00

Analysis Report for 1707085-07

HTC-A02-S002-4248-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1765.28	1765.01	0.0000	0.00
44	1849.00	1848.71	0.0000	0.00
45	1899.40	1899.08	0.0000	0.00
46	1939.42	1939.09	0.0000	0.00
47	1977.07	1976.73	0.0000	0.00
48	2019.10	2018.75	0.0000	0.00
49	2118.89	2118.50	0.0000	0.00
50	2165.33	2164.93	0.0000	0.00
51	2190.90	2190.49	0.0000	0.00
52	2205.61	2205.20	0.0000	0.00
53	2337.30	2336.84	0.0000	0.00
54	2615.64	2615.09	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707085-07

HTC-A02-S002-4248-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 10:12:04AM

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	46.16	43 -	50	46.48	2.19E+02	96.62	1.41E+03	1.68
	2	53.70	51 -	57	54.01	1.31E+02	90.42	1.40E+03	2.87
	3	62.78	58 -	68	63.08	2.95E+02	145.39	2.67E+03	2.63
	4	76.39	71 -	81	76.70	1.21E+03	162.10	2.84E+03	3.92
	5	87.30	84 -	91	87.59	1.15E+02	118.20	2.27E+03	2.11
	6	185.93	182 -	190	186.20	2.72E+02	88.98	1.06E+03	2.44
	7	209.52	206 -	213	209.78	6.42E+01	70.91	7.86E+02	1.95
M	8	239.03	235 -	253	239.27	5.29E+02	69.67	5.26E+02	2.06
m	9	242.42	235 -	253	242.67	1.94E+02	64.64	4.49E+02	2.06
	10	258.59	253 -	265	258.83	1.46E+02	81.17	7.00E+02	3.10
M	11	270.19	266 -	282	270.43	8.79E+01	51.03	3.66E+02	2.30
m	12	278.01	266 -	282	278.24	4.85E+01	49.96	4.18E+02	2.31
	13	295.44	291 -	298	295.66	3.54E+02	64.56	4.56E+02	2.02
	14	338.81	335 -	343	339.02	1.04E+02	57.77	4.49E+02	1.80
	15	352.43	348 -	357	352.64	6.63E+02	76.47	4.49E+02	2.30
	16	380.61	377 -	384	380.81	4.18E+01	41.52	2.58E+02	3.14
	17	511.30	505 -	516	511.45	1.44E+02	48.46	2.20E+02	2.30
	18	532.66	530 -	536	532.81	2.51E+01	27.21	1.18E+02	2.21
	19	583.68	580 -	588	583.81	1.60E+02	42.50	1.77E+02	2.38
	20	609.80	606 -	615	609.92	4.06E+02	57.05	2.28E+02	2.27
	21	727.34	724 -	731	727.42	4.12E+01	32.00	1.42E+02	1.89
	22	768.62	764 -	772	768.69	4.22E+01	33.17	1.42E+02	2.99
	23	786.59	781 -	792	786.65	3.81E+01	36.82	1.52E+02	2.74
	24	808.24	805 -	812	808.29	2.23E+01	25.30	9.14E+01	3.15
	25	911.75	906 -	916	911.77	7.58E+01	39.24	1.64E+02	2.04
	26	969.33	965 -	973	969.33	5.11E+01	32.61	1.26E+02	2.59
M	27	976.22	974 -	994	976.21	1.77E+01	15.60	4.16E+01	2.36
m	28	981.81	974 -	994	981.81	1.69E+01	18.21	5.11E+01	2.36
m	29	991.79	974 -	994	991.78	1.44E+01	17.99	3.81E+01	2.37
	30	1120.97	1117 -	1125	1120.92	9.72E+01	28.70	6.57E+01	2.09
	31	1225.51	1220 -	1229	1225.42	2.70E+01	26.48	8.40E+01	2.71
	32	1239.63	1235 -	1246	1239.54	7.45E+01	31.94	9.10E+01	2.71
	33	1306.06	1303 -	1309	1305.94	1.32E+01	16.94	4.37E+01	2.68
	34	1378.25	1373 -	1382	1378.11	2.50E+01	19.49	4.00E+01	2.00
M	35	1405.48	1404 -	1413	1405.33	6.75E+00	6.78	1.29E+01	2.73
m	36	1409.64	1404 -	1413	1409.49	1.63E+01	17.55	3.81E+01	2.81
	37	1461.48	1454 -	1468	1461.31	4.72E+02	48.14	4.53E+01	2.79
	38	1516.86	1514 -	1519	1516.67	1.36E+01	9.06	4.88E+00	1.94
	39	1524.05	1521 -	1527	1523.86	8.00E+00	7.23	4.00E+00	3.31
	40	1582.41	1577 -	1586	1582.21	1.66E+01	13.08	1.48E+01	3.13

Analysis Report for 1707085-07

HTC-A02-S002-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	41	1588.84	1586 -	1597	1588.63	1.55E+01	11.18	1.37E+01	3.18
m	42	1594.22	1586 -	1597	1594.01	1.13E+01	11.54	1.97E+01	2.89
	43	1765.28	1760 -	1768	1765.01	7.95E+01	18.66	4.95E+00	1.93
	44	1849.00	1845 -	1853	1848.71	9.59E+00	11.17	1.28E+01	2.60
	45	1899.40	1896 -	1901	1899.08	5.00E+00	7.07	6.00E+00	1.02
	46	1939.42	1935 -	1943	1939.09	1.10E+01	6.63	0.00E+00	1.45
	47	1977.07	1974 -	1979	1976.73	7.39E+00	6.71	3.22E+00	3.12
	48	2019.10	2016 -	2021	2018.75	4.42E+00	5.74	3.17E+00	2.56
	49	2118.89	2115 -	2121	2118.50	7.50E+00	8.28	7.00E+00	1.82
	50	2165.33	2162 -	2167	2164.93	5.64E+00	6.08	2.71E+00	2.59
	51	2190.90	2185 -	2195	2190.49	1.04E+01	9.07	5.15E+00	6.86
	52	2205.61	2201 -	2210	2205.20	2.12E+01	15.91	2.16E+01	2.83
	53	2337.30	2333 -	2340	2336.84	8.32E+00	10.20	1.14E+01	1.60
	54	2615.64	2610 -	2619	2615.09	5.60E+01	14.97	0.00E+00	3.73

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 : 8/21/2017 10:12:04AM

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	46.16	43 -	50	2.19E+02	96.62	1.41E+03	7.56E+01
	2	53.70	51 -	57	1.31E+02	90.42	1.40E+03	7.19E+01
	3	62.78	58 -	68	2.95E+02	145.39	2.67E+03	1.16E+02
	4	76.39	71 -	81	1.21E+03	162.10	2.84E+03	1.20E+02
	5	87.30	84 -	91	1.15E+02	118.20	2.27E+03	9.55E+01
	6	185.93	182 -	190	2.72E+02	88.98	1.06E+03	6.79E+01
	7	209.52	206 -	213	6.42E+01	70.91	7.86E+02	5.68E+01
M	8	239.03	235 -	253	5.29E+02	69.67	5.26E+02	3.77E+01
m	9	242.42	235 -	253	1.94E+02	64.64	4.49E+02	3.48E+01
	10	258.59	253 -	265	1.46E+02	81.17	7.00E+02	6.37E+01
M	11	270.19	266 -	282	8.79E+01	51.03	3.66E+02	3.15E+01
m	12	278.01	266 -	282	4.85E+01	49.96	4.18E+02	3.36E+01
	13	295.44	291 -	298	3.54E+02	64.56	4.56E+02	4.31E+01
	14	338.81	335 -	343	1.04E+02	57.77	4.49E+02	4.44E+01

Analysis Report for 1707085-07

HTC-A02-S002-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	15	352.43	348 -	357	6.63E+02	76.47	4.49E+02	4.65E+01
	16	380.61	377 -	384	4.18E+01	41.52	2.58E+02	3.24E+01
	17	511.30	505 -	516	1.44E+02	48.46	2.20E+02	3.46E+01
	18	532.66	530 -	536	2.51E+01	27.21	1.18E+02	2.08E+01
	19	583.68	580 -	588	1.60E+02	42.50	1.77E+02	2.80E+01
	20	609.80	606 -	615	4.06E+02	57.05	2.28E+02	3.32E+01
	21	727.34	724 -	731	4.12E+01	32.00	1.42E+02	2.41E+01
	22	768.62	764 -	772	4.22E+01	33.17	1.42E+02	2.51E+01
	23	786.59	781 -	792	3.81E+01	36.82	1.52E+02	2.85E+01
	24	808.24	805 -	812	2.23E+01	25.30	9.14E+01	1.93E+01
	25	911.75	906 -	916	7.58E+01	39.24	1.64E+02	2.89E+01
	26	969.33	965 -	973	5.11E+01	32.61	1.26E+02	2.41E+01
M	27	976.22	974 -	994	1.77E+01	15.60	4.16E+01	1.06E+01
m	28	981.81	974 -	994	1.69E+01	18.21	5.11E+01	1.18E+01
m	29	991.79	974 -	994	1.44E+01	17.99	3.81E+01	1.01E+01
	30	1120.97	1117 -	1125	9.72E+01	28.70	6.57E+01	1.71E+01
	31	1225.51	1220 -	1229	2.70E+01	26.48	8.40E+01	2.00E+01
	32	1239.63	1235 -	1246	7.45E+01	31.94	9.10E+01	2.21E+01
	33	1306.06	1303 -	1309	1.32E+01	16.94	4.37E+01	1.26E+01
	34	1378.25	1373 -	1382	2.50E+01	19.49	4.00E+01	1.38E+01
M	35	1405.48	1404 -	1413	6.75E+00	6.78	1.29E+01	5.91E+00
m	36	1409.64	1404 -	1413	1.63E+01	17.55	3.81E+01	1.02E+01
	37	1461.48	1454 -	1468	4.72E+02	48.14	4.53E+01	1.70E+01
	38	1516.86	1514 -	1519	1.36E+01	9.06	4.88E+00	4.33E+00
	39	1524.05	1521 -	1527	8.00E+00	7.23	4.00E+00	3.70E+00
	40	1582.41	1577 -	1586	1.66E+01	13.08	1.48E+01	8.40E+00
M	41	1588.84	1586 -	1597	1.55E+01	11.18	1.37E+01	6.09E+00
m	42	1594.22	1586 -	1597	1.13E+01	11.54	1.97E+01	7.30E+00
	43	1765.28	1760 -	1768	7.95E+01	18.66	4.95E+00	4.51E+00
	44	1849.00	1845 -	1853	9.59E+00	11.17	1.28E+01	7.64E+00
	45	1899.40	1896 -	1901	5.00E+00	7.07	6.00E+00	4.50E+00
	46	1939.42	1935 -	1943	1.10E+01	6.63	0.00E+00	0.00E+00
	47	1977.07	1974 -	1979	7.39E+00	6.71	3.22E+00	3.23E+00
	48	2019.10	2016 -	2021	4.42E+00	5.74	3.17E+00	3.22E+00
	49	2118.89	2115 -	2121	7.50E+00	8.28	7.00E+00	5.10E+00
	50	2165.33	2162 -	2167	5.64E+00	6.08	2.71E+00	3.12E+00
	51	2190.90	2185 -	2195	1.04E+01	9.07	5.15E+00	5.23E+00
	52	2205.61	2201 -	2210	2.12E+01	15.91	2.16E+01	1.07E+01
	53	2337.30	2333 -	2340	8.32E+00	10.20	1.14E+01	6.91E+00
	54	2615.64	2610 -	2619	5.60E+01	14.97	0.00E+00	0.00E+00

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

Analysis Report for 1707085-07

HTC-A02-S002-4248-01

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/21/2017 10:12:04AM

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	46.16	43 -	50	46.48	2.19E+02	96.62	1.41E+03	PB-210
	2	53.70	51 -	57	54.01	1.31E+02	90.42	1.40E+03	.....
	3	62.78	58 -	68	63.08	2.95E+02	145.39	2.67E+03	TH-230
									TH-234
	4	76.39	71 -	81	76.70	1.21E+03	162.10	2.84E+03	.....
	5	87.30	84 -	91	87.59	1.15E+02	118.20	2.27E+03	SN-126
									CD-109
									NP-237
									EU-155
	6	185.93	182 -	190	186.20	2.72E+02	88.98	1.06E+03	RA-226
	7	209.52	206 -	213	209.78	6.42E+01	70.91	7.86E+02	CM-243
									GA-67
M	8	239.03	235 -	253	239.27	5.29E+02	69.67	5.26E+02	PB-212
m	9	242.42	235 -	253	242.67	1.94E+02	64.64	4.49E+02	.....
	10	258.59	253 -	265	258.83	1.46E+02	81.17	7.00E+02	.....
M	11	270.19	266 -	282	270.43	8.79E+01	51.03	3.66E+02	.....
m	12	278.01	266 -	282	278.24	4.85E+01	49.96	4.18E+02	CM-243
									NP-239
	13	295.44	291 -	298	295.66	3.54E+02	64.56	4.56E+02	PB-214
	14	338.81	335 -	343	339.02	1.04E+02	57.77	4.49E+02	AC-228
	15	352.43	348 -	357	352.64	6.63E+02	76.47	4.49E+02	PB-214
	16	380.61	377 -	384	380.81	4.18E+01	41.52	2.58E+02	.....
	17	511.30	505 -	516	511.45	1.44E+02	48.46	2.20E+02	.....
	18	532.66	530 -	536	532.81	2.51E+01	27.21	1.18E+02	.....
	19	583.68	580 -	588	583.81	1.60E+02	42.50	1.77E+02	TL-208
	20	609.80	606 -	615	609.92	4.06E+02	57.05	2.28E+02	BI-214
	21	727.34	724 -	731	727.42	4.12E+01	32.00	1.42E+02	BI-212
	22	768.62	764 -	772	768.69	4.22E+01	33.17	1.42E+02	.....
	23	786.59	781 -	792	786.65	3.81E+01	36.82	1.52E+02	.....
	24	808.24	805 -	812	808.29	2.23E+01	25.30	9.14E+01	.....
	25	911.75	906 -	916	911.77	7.58E+01	39.24	1.64E+02	TL-204
									AC-228
	26	969.33	965 -	973	969.33	5.11E+01	32.61	1.26E+02	AC-228
M	27	976.22	974 -	994	976.21	1.77E+01	15.60	4.16E+01	.....
m	28	981.81	974 -	994	981.81	1.69E+01	18.21	5.11E+01	.....
m	29	991.79	974 -	994	991.78	1.44E+01	17.99	3.81E+01	.....
	30	1120.97	1117 -	1125	1120.92	9.72E+01	28.70	6.57E+01	TA-182
									SC-46
									BI-214
	31	1225.51	1220 -	1229	1225.42	2.70E+01	26.48	8.40E+01	.....
	32	1239.63	1235 -	1246	1239.54	7.45E+01	31.94	9.10E+01	.....

Analysis Report for 1707085-07

HTC-A02-S002-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	33	1306.06	1303 -	1309	1305.94	1.32E+01	16.94	4.37E+01	.....
	34	1378.25	1373 -	1382	1378.11	2.50E+01	19.49	4.00E+01	.....
M	35	1405.48	1404 -	1413	1405.33	6.75E+00	6.78	1.29E+01	.....
m	36	1409.64	1404 -	1413	1409.49	1.63E+01	17.55	3.81E+01	.....
	37	1461.48	1454 -	1468	1461.31	4.72E+02	48.14	4.53E+01	K-40
	38	1516.86	1514 -	1519	1516.67	1.36E+01	9.06	4.88E+00	.....
	39	1524.05	1521 -	1527	1523.86	8.00E+00	7.23	4.00E+00	.....
	40	1582.41	1577 -	1586	1582.21	1.66E+01	13.08	1.48E+01	.....
M	41	1588.84	1586 -	1597	1588.63	1.55E+01	11.18	1.37E+01	.....
m	42	1594.22	1586 -	1597	1594.01	1.13E+01	11.54	1.97E+01	.....
	43	1765.28	1760 -	1768	1765.01	7.95E+01	18.66	4.95E+00	BI-214
	44	1849.00	1845 -	1853	1848.71	9.59E+00	11.17	1.28E+01	.....
	45	1899.40	1896 -	1901	1899.08	5.00E+00	7.07	6.00E+00	.....
	46	1939.42	1935 -	1943	1939.09	1.10E+01	6.63	0.00E+00	.....
	47	1977.07	1974 -	1979	1976.73	7.39E+00	6.71	3.22E+00	.....
	48	2019.10	2016 -	2021	2018.75	4.42E+00	5.74	3.17E+00	.....
	49	2118.89	2115 -	2121	2118.50	7.50E+00	8.28	7.00E+00	.....
	50	2165.33	2162 -	2167	2164.93	5.64E+00	6.08	2.71E+00	.....
	51	2190.90	2185 -	2195	2190.49	1.04E+01	9.07	5.15E+00	.....
	52	2205.61	2201 -	2210	2205.20	2.12E+01	15.91	2.16E+01	.....
	53	2337.30	2333 -	2340	2336.84	8.32E+00	10.20	1.14E+01	.....
	54	2615.64	2610 -	2619	2615.09	5.60E+01	14.97	0.00E+00	TL-208

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/21/2017 10:12:04AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.16	2.19E+02	96.62	1.70E-02	1.73E-03
	2	53.70	1.31E+02	90.42	2.10E-02	1.73E-03
	3	62.78	2.95E+02	145.39	2.43E-02	1.79E-03
	4	76.39	1.21E+03	162.10	2.67E-02	2.04E-03
	5	87.30	1.15E+02	118.20	2.72E-02	2.25E-03
	6	185.93	2.72E+02	88.98	1.96E-02	1.55E-03
	7	209.52	6.42E+01	70.91	1.79E-02	1.46E-03
M	8	239.03	5.29E+02	69.67	1.61E-02	1.34E-03

Analysis Report for 1707085-07

HTC-A02-S002-4248-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	9	242.42	1.94E+02	64.64	1.59E-02	1.32E-03
	10	258.59	1.46E+02	81.17	1.51E-02	1.26E-03
M	11	270.19	8.79E+01	51.03	1.45E-02	1.21E-03
m	12	278.01	4.85E+01	49.96	1.42E-02	1.18E-03
	13	295.44	3.54E+02	64.56	1.35E-02	1.15E-03
	14	338.81	1.04E+02	57.77	1.19E-02	1.06E-03
	15	352.43	6.63E+02	76.47	1.15E-02	1.03E-03
	16	380.61	4.18E+01	41.52	1.08E-02	9.75E-04
	17	511.30	1.44E+02	48.46	8.25E-03	7.94E-04
	18	532.66	2.51E+01	27.21	7.95E-03	7.66E-04
	19	583.68	1.60E+02	42.50	7.32E-03	6.98E-04
	20	609.80	4.06E+02	57.05	7.04E-03	6.63E-04
	21	727.34	4.12E+01	32.00	6.01E-03	5.37E-04
	22	768.62	4.22E+01	33.17	5.72E-03	5.00E-04
	23	786.59	3.81E+01	36.82	5.60E-03	4.84E-04
	24	808.24	2.23E+01	25.30	5.47E-03	4.65E-04
	25	911.75	7.58E+01	39.24	4.92E-03	3.84E-04
	26	969.33	5.11E+01	32.61	4.66E-03	3.74E-04
M	27	976.22	1.77E+01	15.60	4.63E-03	3.73E-04
m	28	981.81	1.69E+01	18.21	4.61E-03	3.72E-04
m	29	991.79	1.44E+01	17.99	4.57E-03	3.71E-04
	30	1120.97	9.72E+01	28.70	4.12E-03	3.49E-04
	31	1225.51	2.70E+01	26.48	3.82E-03	3.26E-04
	32	1239.63	7.45E+01	31.94	3.78E-03	3.22E-04
	33	1306.06	1.32E+01	16.94	3.62E-03	3.03E-04
	34	1378.25	2.50E+01	19.49	3.47E-03	2.88E-04
M	35	1405.48	6.75E+00	6.78	3.41E-03	2.84E-04
m	36	1409.64	1.63E+01	17.55	3.40E-03	2.83E-04
	37	1461.48	4.72E+02	48.14	3.31E-03	2.75E-04
	38	1516.86	1.36E+01	9.06	3.21E-03	2.66E-04
	39	1524.05	8.00E+00	7.23	3.20E-03	2.65E-04
	40	1582.41	1.66E+01	13.08	3.11E-03	2.56E-04
M	41	1588.84	1.55E+01	11.18	3.10E-03	2.55E-04
m	42	1594.22	1.13E+01	11.54	3.09E-03	2.54E-04
	43	1765.28	7.95E+01	18.66	2.86E-03	2.26E-04
	44	1849.00	9.59E+00	11.17	2.77E-03	2.15E-04
	45	1899.40	5.00E+00	7.07	2.72E-03	2.15E-04
	46	1939.42	1.10E+01	6.63	2.68E-03	2.15E-04
	47	1977.07	7.39E+00	6.71	2.64E-03	2.15E-04
	48	2019.10	4.42E+00	5.74	2.61E-03	2.15E-04
	49	2118.89	7.50E+00	8.28	2.53E-03	2.15E-04
	50	2165.33	5.64E+00	6.08	2.49E-03	2.15E-04
	51	2190.90	1.04E+01	9.07	2.47E-03	2.15E-04
	52	2205.61	2.12E+01	15.91	2.46E-03	2.15E-04
	53	2337.30	8.32E+00	10.20	2.38E-03	2.15E-04
	54	2615.64	5.60E+01	14.97	2.24E-03	2.15E-04

Analysis Report for 1707085-07

HTC-A02-S002-4248-01

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/21/2017 10:12:04AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055575.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.16	2.19E+02	96.62	4.47E+01	1.09E+01	1.74E+02	9.72E+01
	2	53.70	1.31E+02	90.42			1.31E+02	9.04E+01
	3	62.78	2.95E+02	145.39	4.12E+01	5.67E+00	2.54E+02	1.46E+02
	4	76.39	1.21E+03	162.10			1.21E+03	1.62E+02
	5	87.30	1.15E+02	118.20			1.15E+02	1.18E+02
	6	185.93	2.72E+02	88.98	3.06E+01	5.82E+00	2.42E+02	8.92E+01
	7	209.52	6.42E+01	70.91			6.42E+01	7.09E+01
M	8	239.03	5.29E+02	69.67	1.40E+01	2.71E+00	5.15E+02	6.97E+01
m	9	242.42	1.94E+02	64.64			1.94E+02	6.46E+01
	10	258.59	1.46E+02	81.17			1.46E+02	8.12E+01
M	11	270.19	8.79E+01	51.03			8.79E+01	5.10E+01
m	12	278.01	4.85E+01	49.96			4.85E+01	5.00E+01
	13	295.44	3.54E+02	64.56			3.54E+02	6.46E+01
	14	338.81	1.04E+02	57.77			1.04E+02	5.78E+01
	15	352.43	6.63E+02	76.47	6.53E+00	4.43E+00	6.56E+02	7.66E+01
	16	380.61	4.18E+01	41.52			4.18E+01	4.15E+01
	17	511.30	1.44E+02	48.46	5.21E+01	4.74E+00	9.19E+01	4.87E+01
	18	532.66	2.51E+01	27.21			2.51E+01	2.72E+01
	19	583.68	1.60E+02	42.50			1.60E+02	4.25E+01
	20	609.80	4.06E+02	57.05	3.25E+00	2.97E+00	4.03E+02	5.71E+01
	21	727.34	4.12E+01	32.00			4.12E+01	3.20E+01
	22	768.62	4.22E+01	33.17			4.22E+01	3.32E+01
	23	786.59	3.81E+01	36.82			3.81E+01	3.68E+01
	24	808.24	2.23E+01	25.30			2.23E+01	2.53E+01
	25	911.75	7.58E+01	39.24	2.85E+00	2.76E+00	7.30E+01	3.93E+01
	26	969.33	5.11E+01	32.61			5.11E+01	3.26E+01
M	27	976.22	1.77E+01	15.60			1.77E+01	1.56E+01
m	28	981.81	1.69E+01	18.21			1.69E+01	1.82E+01
m	29	991.79	1.44E+01	17.99			1.44E+01	1.80E+01
	30	1120.97	9.72E+01	28.70			9.72E+01	2.87E+01
	31	1225.51	2.70E+01	26.48			2.70E+01	2.65E+01
	32	1239.63	7.45E+01	31.94			7.45E+01	3.19E+01
	33	1306.06	1.32E+01	16.94			1.32E+01	1.69E+01
	34	1378.25	2.50E+01	19.49			2.50E+01	1.95E+01
M	35	1405.48	6.75E+00	6.78			6.75E+00	6.78E+00

Analysis Report for 1707085-07

HTC-A02-S002-4248-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	36	1409.64	1.63E+01	17.55			1.63E+01	1.75E+01
	37	1461.48	4.72E+02	48.14	1.00E+00	1.77E+00	4.71E+02	4.82E+01
	38	1516.86	1.36E+01	9.06			1.36E+01	9.06E+00
	39	1524.05	8.00E+00	7.23			8.00E+00	7.23E+00
	40	1582.41	1.66E+01	13.08			1.66E+01	1.31E+01
M	41	1588.84	1.55E+01	11.18			1.55E+01	1.12E+01
m	42	1594.22	1.13E+01	11.54			1.13E+01	1.15E+01
	43	1765.28	7.95E+01	18.66			7.95E+01	1.87E+01
	44	1849.00	9.59E+00	11.17			9.59E+00	1.12E+01
	45	1899.40	5.00E+00	7.07			5.00E+00	7.07E+00
	46	1939.42	1.10E+01	6.63			1.10E+01	6.63E+00
	47	1977.07	7.39E+00	6.71			7.39E+00	6.71E+00
	48	2019.10	4.42E+00	5.74			4.42E+00	5.74E+00
	49	2118.89	7.50E+00	8.28			7.50E+00	8.28E+00
	50	2165.33	5.64E+00	6.08			5.64E+00	6.08E+00
	51	2190.90	1.04E+01	9.07			1.04E+01	9.07E+00
	52	2205.61	2.12E+01	15.91			2.12E+01	1.59E+01
	53	2337.30	8.32E+00	10.20			8.32E+00	1.02E+01
	54	2615.64	5.60E+01	14.97	1.86E+00	1.12E+00	5.41E+01	1.50E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/21/2017 10:12:04AM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055575.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	46.16	2.19E+02	96.62	4.47E+01	1.09E+01	1.74E+02	9.72E+01
	2	53.70	1.31E+02	90.42			1.31E+02	9.04E+01
	3	62.78	2.95E+02	145.39	4.12E+01	5.67E+00	2.54E+02	1.46E+02
	4	76.39	1.21E+03	162.10			1.21E+03	1.62E+02
	5	87.30	1.15E+02	118.20			1.15E+02	1.18E+02
	6	185.93	2.72E+02	88.98	3.06E+01	5.82E+00	2.42E+02	8.92E+01
	7	209.52	6.42E+01	70.91			6.42E+01	7.09E+01
M	8	239.03	5.29E+02	69.67	1.40E+01	2.71E+00	5.15E+02	6.97E+01
m	9	242.42	1.94E+02	64.64			1.94E+02	6.46E+01

Analysis Report for 1707085-07

HTC-A02-S002-4248-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	10	258.59	1.46E+02	81.17			1.46E+02	8.12E+01
M	11	270.19	8.79E+01	51.03			8.79E+01	5.10E+01
m	12	278.01	4.85E+01	49.96			4.85E+01	5.00E+01
	13	295.44	3.54E+02	64.56			3.54E+02	6.46E+01
	14	338.81	1.04E+02	57.77			1.04E+02	5.78E+01
	15	352.43	6.63E+02	76.47	6.53E+00	4.43E+00	6.56E+02	7.66E+01
	16	380.61	4.18E+01	41.52			4.18E+01	4.15E+01
	17	511.30	1.44E+02	48.46	5.21E+01	4.74E+00	9.19E+01	4.87E+01
	18	532.66	2.51E+01	27.21			2.51E+01	2.72E+01
	19	583.68	1.60E+02	42.50			1.60E+02	4.25E+01
	20	609.80	4.06E+02	57.05	3.25E+00	2.97E+00	4.03E+02	5.71E+01
	21	727.34	4.12E+01	32.00			4.12E+01	3.20E+01
	22	768.62	4.22E+01	33.17			4.22E+01	3.32E+01
	23	786.59	3.81E+01	36.82			3.81E+01	3.68E+01
	24	808.24	2.23E+01	25.30			2.23E+01	2.53E+01
	25	911.75	7.58E+01	39.24	2.85E+00	2.76E+00	7.30E+01	3.93E+01
	26	969.33	5.11E+01	32.61			5.11E+01	3.26E+01
M	27	976.22	1.77E+01	15.60			1.77E+01	1.56E+01
m	28	981.81	1.69E+01	18.21			1.69E+01	1.82E+01
m	29	991.79	1.44E+01	17.99			1.44E+01	1.80E+01
	30	1120.97	9.72E+01	28.70			9.72E+01	2.87E+01
	31	1225.51	2.70E+01	26.48			2.70E+01	2.65E+01
	32	1239.63	7.45E+01	31.94			7.45E+01	3.19E+01
	33	1306.06	1.32E+01	16.94			1.32E+01	1.69E+01
	34	1378.25	2.50E+01	19.49			2.50E+01	1.95E+01
M	35	1405.48	6.75E+00	6.78			6.75E+00	6.78E+00
m	36	1409.64	1.63E+01	17.55			1.63E+01	1.75E+01
	37	1461.48	4.72E+02	48.14	1.00E+00	1.77E+00	4.71E+02	4.82E+01
	38	1516.86	1.36E+01	9.06			1.36E+01	9.06E+00
	39	1524.05	8.00E+00	7.23			8.00E+00	7.23E+00
	40	1582.41	1.66E+01	13.08			1.66E+01	1.31E+01
M	41	1588.84	1.55E+01	11.18			1.55E+01	1.12E+01
m	42	1594.22	1.13E+01	11.54			1.13E+01	1.15E+01
	43	1765.28	7.95E+01	18.66			7.95E+01	1.87E+01
	44	1849.00	9.59E+00	11.17			9.59E+00	1.12E+01
	45	1899.40	5.00E+00	7.07			5.00E+00	7.07E+00
	46	1939.42	1.10E+01	6.63			1.10E+01	6.63E+00
	47	1977.07	7.39E+00	6.71			7.39E+00	6.71E+00
	48	2019.10	4.42E+00	5.74			4.42E+00	5.74E+00
	49	2118.89	7.50E+00	8.28			7.50E+00	8.28E+00
	50	2165.33	5.64E+00	6.08			5.64E+00	6.08E+00
	51	2190.90	1.04E+01	9.07			1.04E+01	9.07E+00
	52	2205.61	2.12E+01	15.91			2.12E+01	1.59E+01
	53	2337.30	8.32E+00	10.20			8.32E+00	1.02E+01
	54	2615.64	5.60E+01	14.97	1.86E+00	1.12E+00	5.41E+01	1.50E+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 1707085-07

HTC-A02-S002-4248-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.931	1460.81	*	10.67	1.62E+01	2.16E+00
CD-109	0.917	88.03	*	3.72	1.60E+00	1.65E+00
SN-126	0.988	87.57	*	37.00	1.39E-01	1.43E-01
EU-155	0.304	86.50	*	30.90	1.73E-01	1.78E-01
		105.30		20.70		
TL-208	0.794	583.14	*	30.22	8.78E-01	2.47E-01
		860.37		4.48		
		2614.66	*	35.85	8.17E-01	2.40E-01
PB-210	0.982	46.50	*	4.25	2.94E+00	1.67E+00
BI-212	0.768	727.17	*	11.80	7.04E-01	5.50E-01
		1620.62		2.75		
PB-212	0.873	238.63	*	44.60	8.68E-01	1.38E-01
		300.09		3.41		
BI-214	0.881	609.31	*	46.30	1.50E+00	2.55E-01
		1120.29	*	15.10	1.89E+00	5.82E-01
		1764.49	*	15.80	2.13E+00	5.27E-01
		2204.22		4.98		
PB-214	0.970	295.21	*	19.19	1.66E+00	3.34E-01
		351.92	*	37.19	1.85E+00	2.73E-01
RA-226	0.988	186.21	*	3.28	4.55E+00	8.50E+00
AC-228	0.954	338.32	*	11.40	9.21E-01	5.20E-01
		911.07	*	27.70	6.49E-01	3.53E-01
		969.11	*	16.60	7.99E-01	5.14E-01
TH-234	0.959	63.29	*	3.80	3.33E+00	1.92E+00
NP-237	0.904	86.50	*	12.60	4.08E-01	4.20E-01
CM-243	0.355	209.75	*	3.29	1.33E+00	1.47E+00
		228.14		10.60		
		277.60	*	14.00	2.98E-01	3.07E-01

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

Analysis Report for 1707085-07

HTC-A02-S002-4248-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 10:12:04AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	53.70	3.63999E-02	34.50		
	4	76.39	3.35744E-01	6.71		
m	9	242.42	5.39917E-02	16.63		
	10	258.59	4.06090E-02	27.76		
M	11	270.19	2.44225E-02	29.02		
	16	380.61	1.16009E-02	49.71		
	17	511.30	2.55146E-02	26.50		
	18	532.66	6.98578E-03	54.09		
	22	768.62	1.17318E-02	39.26	Sum	
	23	786.59	1.05836E-02	48.32		
	24	808.24	6.19485E-03	56.72		
M	27	976.22	4.90819E-03	44.16		
m	28	981.81	4.68646E-03	53.96		
m	29	991.79	4.00624E-03	62.35		
	31	1225.51	7.50000E-03	49.03		
	32	1239.63	2.06887E-02	21.44		
	33	1306.06	3.65873E-03	64.31	Sum	
	34	1378.25	6.94444E-03	38.99		
M	35	1405.48	1.87541E-03	50.23		
m	36	1409.64	4.53056E-03	53.80		
	38	1516.86	3.76736E-03	33.38		
	39	1524.05	2.22222E-03	45.18	Sum	
	40	1582.41	4.61806E-03	39.33		
M	41	1588.84	4.30653E-03	36.06		
m	42	1594.22	3.13801E-03	51.09	D-Esc	
	44	1849.00	2.66493E-03	58.21	Sum	
	45	1899.40	1.38889E-03	70.71		
	46	1939.42	3.05556E-03	30.15	Sum	
	47	1977.07	2.05247E-03	45.39		
	48	2019.10	1.22685E-03	65.03		
	49	2118.89	2.08333E-03	55.18		
	50	2165.33	1.56746E-03	53.90		
	51	2190.90	2.89530E-03	43.51		
	52	2205.61	5.88542E-03	37.54		
	53	2337.30	2.31151E-03	61.28		

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 1707085-07

HTC-A02-S002-4248-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.93	1460.81	*	10.67	1.62E+01	2.16E+00
CD-109	0.91	88.03	*	3.72	1.60E+00	1.65E+00
SN-126	0.98	87.57	*	37.00	1.39E-01	1.43E-01
EU-155	0.30	86.50	*	30.90	1.73E-01	1.78E-01
		105.30		20.70		
TL-208	0.79	583.14	*	30.22	8.78E-01	2.47E-01
		860.37		4.48		
		2614.66	*	35.85	8.17E-01	2.40E-01
PB-210	0.98	46.50	*	4.25	2.94E+00	1.67E+00
BI-212	0.76	727.17	*	11.80	7.04E-01	5.50E-01
		1620.62		2.75		
PB-212	0.87	238.63	*	44.60	8.68E-01	1.38E-01
		300.09		3.41		
BI-214	0.88	609.31	*	46.30	1.50E+00	2.55E-01
		1120.29	*	15.10	1.89E+00	5.82E-01
		1764.49	*	15.80	2.13E+00	5.27E-01
		2204.22		4.98		
PB-214	0.97	295.21	*	19.19	1.66E+00	3.34E-01
		351.92	*	37.19	1.85E+00	2.73E-01
RA-226	0.98	186.21	*	3.28	4.55E+00	8.50E+00
AC-228	0.95	338.32	*	11.40	9.21E-01	5.20E-01
		911.07	*	27.70	6.49E-01	3.53E-01
		969.11	*	16.60	7.99E-01	5.14E-01
TH-234	0.95	63.29	*	3.80	3.33E+00	1.92E+00
NP-237	0.90	86.50	*	12.60	4.08E-01	4.20E-01
CM-243	0.35	209.75	*	3.29	1.33E+00	1.47E+00
		228.14		10.60		
		277.60	*	14.00	2.98E-01	3.07E-01

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

Analysis Report for 1707085-07

HTC-A02-S002-4248-01

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.931	1.62E+01	2.16E+00	
?	CD-109	0.917	1.60E+00	1.65E+00	
?	SN-126	0.988	1.39E-01	1.43E-01	
?	EU-155	0.304	1.73E-01	1.78E-01	
	TL-208	0.794	8.46E-01	1.72E-01	
	PB-210	0.982	2.94E+00	1.67E+00	
	BI-212	0.768	7.04E-01	5.50E-01	
	PB-212	0.873	8.68E-01	1.38E-01	
	BI-214	0.881	1.65E+00	2.13E-01	
	PB-214	0.970	1.77E+00	2.11E-01	
	RA-226	0.988	4.55E+00	8.50E+00	
	AC-228	0.954	7.50E-01	2.54E-01	
	TH-234	0.959	3.33E+00	1.92E+00	
?	NP-237	0.904	4.08E-01	4.20E-01	
	CM-243	0.355	3.41E-01	3.01E-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 1707085-07

HTC-A02-S002-4248-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 10:12:04AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	53.70	3.63999E-02	34.50		
	4	76.39	3.35744E-01	6.71		
m	9	242.42	5.39917E-02	16.63		
	10	258.59	4.06090E-02	27.76		
M	11	270.19	2.44225E-02	29.02		
	16	380.61	1.16009E-02	49.71		
	17	511.30	2.55146E-02	26.50		
	18	532.66	6.98578E-03	54.09		
	22	768.62	1.17318E-02	39.26	Sum	
	23	786.59	1.05836E-02	48.32		
	24	808.24	6.19485E-03	56.72		
M	27	976.22	4.90819E-03	44.16		
m	28	981.81	4.68646E-03	53.96		
m	29	991.79	4.00624E-03	62.35		
	31	1225.51	7.50000E-03	49.03		
	32	1239.63	2.06887E-02	21.44		
	33	1306.06	3.65873E-03	64.31	Sum	
	34	1378.25	6.94444E-03	38.99		
M	35	1405.48	1.87541E-03	50.23		
m	36	1409.64	4.53056E-03	53.80		
	38	1516.86	3.76736E-03	33.38		
	39	1524.05	2.22222E-03	45.18	Sum	
	40	1582.41	4.61806E-03	39.33		
M	41	1588.84	4.30653E-03	36.06		
m	42	1594.22	3.13801E-03	51.09	D-Esc	
	44	1849.00	2.66493E-03	58.21	Sum	
	45	1899.40	1.38889E-03	70.71		
	46	1939.42	3.05556E-03	30.15	Sum	
	47	1977.07	2.05247E-03	45.39		
	48	2019.10	1.22685E-03	65.03		
	49	2118.89	2.08333E-03	55.18		
	50	2165.33	1.56746E-03	53.90		
	51	2190.90	2.89530E-03	43.51		
	52	2205.61	5.88542E-03	37.54		
	53	2337.30	2.31151E-03	61.28		

Analysis Report for 1707085-07

HTC-A02-S002-4248-01

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

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	1.15E+00	2.50E+00	2.50E+00
+		NA-22	1274.54		99.94	-4.71E-02	1.02E-01	1.02E-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	4.31E-02	7.51E-02	7.51E-02
+		K-40	1460.81	*	10.67	1.62E+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	-3.90E-03	6.33E-02	6.33E-02
			78.34		96.00	2.00E-01		8.05E-02
+		SC-46	889.25		99.98	1.37E-02	1.84E-01	1.84E-01
			1120.51		99.99	5.50E-01		3.55E-01
+		V-48	983.52		99.98	1.54E+00	6.29E+00	6.29E+00
			1312.10		97.50	1.70E+00		7.15E+00
+		CR-51	320.08		9.83	-2.80E+00	7.39E+00	7.39E+00
+		MN-54	834.83		99.97	2.83E-03	1.13E-01	1.13E-01
+		CO-56	846.75		99.96	4.61E-02	2.05E-01	2.05E-01
			1037.75		14.03	1.68E-01		1.51E+00
			1238.25		67.00	6.18E-01		5.24E-01
			1771.40		15.51	-4.42E-01		1.26E+00
			2598.48		16.90	-2.02E-01		7.02E-01
+		CO-57	122.06		85.51	-2.43E-02	6.72E-02	6.72E-02
			136.48		10.60	-1.49E-01		5.52E-01
+		CO-58	810.76		99.40	-3.79E-02	2.11E-01	2.11E-01
+		FE-59	1099.22		56.50	1.68E-02	7.10E-01	7.10E-01
			1291.56		43.20	-1.03E-02		1.05E+00
+		CO-60	1173.22		100.00	1.03E-02	9.77E-02	1.04E-01
			1332.49		100.00	-8.62E-03		9.77E-02
+		ZN-65	1115.52		50.75	5.88E-02	2.42E-01	2.42E-01
+		GA-67	93.31		35.70	3.35E+08	1.87E+08	1.87E+08
			208.95		2.24	1.84E+09		3.33E+09
			300.22		16.00	-2.03E+08		5.52E+08
+		SE-75	121.11		16.70	1.09E-01	1.33E-01	4.79E-01

Analysis Report for 1707085-07

HTC-A02-S002-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00		59.20	-1.04E-01	1.33E-01	1.33E-01
		264.65		59.80	-2.14E-01		1.75E-01
		279.53		25.20	2.21E-01		4.83E-01
		400.65		11.40	3.42E-01		1.09E+00
+	RB-82	776.52		13.00	2.47E+00	8.82E+00	8.82E+00
+	RB-83	520.41		46.00	2.42E-01	3.54E-01	3.54E-01
		529.64		30.30	5.33E-02		5.02E-01
		552.65		16.40	-1.37E-01		9.79E-01
+	KR-85	513.99		0.43	1.94E+01	2.15E+01	2.15E+01
+	SR-85	513.99		99.27	2.38E-01	2.64E-01	2.64E-01
+	Y-88	898.02		93.40	4.29E-02	1.17E-01	1.69E-01
		1836.01		99.38	-2.35E-02		1.17E-01
+	MO-93	263.06		56.72	-8.24E-02	8.27E-02	1.07E-01
		684.67		99.68	2.97E-02		8.27E-02
		1477.11		99.08	3.71E-02		8.29E-02
+	NB-93M	16.57		9.43	-3.24E+00	6.76E+01	6.76E+01
+	NB-94	702.63		100.00	-5.40E-03	7.51E-02	7.51E-02
		871.10		100.00	-3.94E-02		7.51E-02
+	NB-95	765.79		99.81	2.89E-01	7.02E-01	7.02E-01
+	NB-95M	235.69		25.00	-1.34E+06	5.53E+07	5.53E+07
+	ZR-95	724.18		43.70	9.94E-02	4.60E-01	6.32E-01
		756.72		55.30	1.27E-01		4.60E-01
+	MO-99	181.06		6.20	-8.64E+08	3.34E+10	4.35E+10
		739.58		12.80	6.46E+09		3.34E+10
		778.00		4.50	-3.76E+09		9.29E+10
+	RU-103	497.08		89.00	1.32E-01	4.51E-01	4.51E-01
+	RU-106	621.84		9.80	9.14E-02	9.69E-01	9.69E-01
+	AG-108M	433.93		89.90	2.59E-02	7.48E-02	7.48E-02
		614.37		90.40	3.20E-04		1.22E-01
		722.95		90.50	2.86E-02		9.42E-02
+	CD-109	88.03	*	3.72	1.60E+00	2.69E+00	2.69E+00
+	AG-110M	657.75		93.14	-5.88E-03	1.07E-01	1.07E-01
		677.61		10.53	-3.54E-02		9.48E-01
		706.67		16.46	-2.69E-01		5.78E-01
		763.93		21.98	4.27E-02		5.16E-01
		884.67		71.63	2.21E-02		1.58E-01
		1384.27		23.94	3.68E-02		4.99E-01
+	CD-113M	263.70		0.02	-2.83E+02	2.55E+02	2.55E+02
+	SN-113	255.12		1.93	1.98E+00	1.77E-01	6.04E+00
		391.69		64.90	-3.55E-02		1.77E-01
+	TE123M	159.00		84.10	-2.21E-02	1.04E-01	1.04E-01
+	SB-124	602.71		97.87	-1.46E-02	2.51E-01	2.51E-01
		645.85		7.26	7.29E-01		3.08E+00
		722.78		11.10	7.21E-01		2.37E+00
		1691.02		49.00	2.46E-01		5.20E-01
+	I-125	35.49		6.49	-1.88E+00	5.98E+00	5.98E+00
+	SB-125	176.33		6.89	-5.05E-02	2.40E-01	7.59E-01
		427.89		29.33	-1.33E-01		2.40E-01

Analysis Report for 1707085-07

HTC-A02-S002-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-125	463.38		10.35	5.49E-01	2.40E-01	7.39E-01
		600.56		17.80	1.64E-01		4.85E-01
		635.90		11.32	2.45E-01		7.07E-01
+	SB-126	414.70		83.30	2.33E+00	1.90E+01	2.03E+01
		666.33		99.60	-3.82E+00		1.90E+01
		695.00		99.60	5.42E+00		1.94E+01
		720.50		53.80	1.40E+01		3.56E+01
+	SN-126	87.57	*	37.00	1.39E-01	2.34E-01	2.34E-01
+	SB-127	473.00		25.00	-8.69E+05	1.06E+07	1.27E+07
		685.20		35.70	3.80E+06		1.06E+07
		783.80		14.70	1.38E+07		2.84E+07
+	I-129	29.78		57.00	-5.04E-02	3.82E-01	3.82E-01
		33.60		13.20	8.40E-02		1.14E+00
		39.58		7.52	-1.52E-01		1.28E+00
+	I-131	284.30		6.05	2.23E+03	3.41E+02	4.86E+03
		364.48		81.20	8.97E+01		3.41E+02
		636.97		7.26	-3.33E+02		4.62E+03
		722.89		1.80	6.75E+03		2.22E+04
+	TE-132	49.72		13.10	-1.39E+09	8.26E+07	5.99E+08
		228.16		88.00	3.25E+07		8.26E+07
+	BA-133	81.00		33.00	-1.53E-02	1.75E-01	1.75E-01
		302.84		17.80	2.05E-01		3.89E-01
		356.01		60.00	-4.31E-03		1.90E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-5.57E+03	6.39E+04	6.39E+04
+	CS-134	563.23		8.38	-4.12E-01	9.43E-02	9.05E-01
		569.32		15.43	-3.61E-02		5.14E-01
		604.70		97.60	-1.37E-02		9.43E-02
		795.84		85.40	-1.54E-02		1.06E-01
		801.93		8.73	3.73E-01		1.05E+00
+	CS-135	268.24		16.00	1.73E-01	4.20E-01	4.20E-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	3.66E+00	1.37E+01	1.17E+02
		163.89		4.61	-1.83E+01		1.88E+02
		176.55		13.56	-4.21E+00		6.32E+01
		273.65		12.66	-5.17E+01		9.49E+01
		340.57		48.50	3.38E+01		2.94E+01
		818.50		99.70	-5.39E+00		1.37E+01
		1048.07		79.60	3.27E+00		1.96E+01
		1235.34		19.70	1.02E+01		1.08E+02
+	CS-137	661.65		85.12	1.20E-02	9.53E-02	9.53E-02
+	LA-138	788.74		34.00	4.43E-02	1.23E-01	2.77E-01
		1435.80		66.00	1.46E-02		1.23E-01
+	CE-139	165.85		80.35	1.28E-02	1.02E-01	1.02E-01
+	BA-140	162.64		6.70	-3.51E+01	5.60E+01	1.49E+02
		304.84		4.50	-1.60E+02		2.89E+02
		423.70		3.20	1.06E+01		4.44E+02

Analysis Report for 1707085-07

HTC-A02-S002-4248-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		BA-140	437.55		2.00	-1.82E+02	5.60E+01	6.71E+02
			537.32		25.00	1.50E+01		5.60E+01
+		LA-140	328.77		20.50	1.00E+00	1.92E+01	6.71E+01
			487.03		45.50	1.11E+01		3.29E+01
			815.85		23.50	6.11E+00		6.75E+01
			1596.49		95.49	1.11E+00		1.92E+01
+		CE-141	145.44		48.40	4.34E-01	8.31E-01	8.31E-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	8.14E-02	5.53E-01	5.53E-01
+		PM-144	476.78		42.00	4.82E-02	9.24E-02	2.07E-01
			618.01		98.60	6.13E-02		9.76E-02
			696.49		99.49	-1.98E-02		9.24E-02
+		PM-145	36.85		21.70	-3.11E-02	2.84E-01	5.36E-01
			37.36		39.70	1.63E-02		2.84E-01
			42.30		15.10	-6.92E-02		5.75E-01
			72.40		2.31	-5.57E+00		3.04E+00
+		PM-146	453.90		39.94	1.12E-01	1.84E-01	1.84E-01
			735.90		14.01	8.86E-02		5.82E-01
			747.13		13.10	2.16E-01		6.83E-01
+		ND-147	91.11		28.90	6.57E+01	1.04E+02	1.04E+02
			531.02		13.10	-1.60E+01		2.49E+02
+		PM-149	285.90		3.10	1.83E+13	4.54E+13	4.54E+13
+		EU-152	121.78		20.50	-7.98E-02	2.21E-01	2.21E-01
			244.69		5.40	-4.05E-01		1.51E+00
			344.27		19.13	9.00E-02		3.68E-01
			778.89		9.20	-1.06E-01		8.25E-01
			964.01		10.40	2.44E-02		1.03E+00
			1085.78		7.22	9.46E-03		1.44E+00
			1112.02		9.60	2.90E-01		1.04E+00
			1407.95		14.94	2.52E-01		7.09E-01
+		GD-153	97.43		31.30	-2.57E-01	1.92E-01	1.92E-01
			103.18		22.20	-4.30E-02		2.68E-01
+		EU-154	123.07		40.50	-1.22E-02	1.15E-01	1.15E-01
			723.30		19.70	1.34E-01		4.41E-01
			873.19		11.50	2.12E-01		7.21E-01
			996.32		10.30	2.26E-01		8.37E-01
			1004.76		17.90	8.02E-02		4.91E-01
			1274.45		35.50	-1.26E-01		2.74E-01
+		EU-155	86.50	*	30.90	1.73E-01	2.23E-01	2.90E-01
			105.30		20.70	-2.41E-02		2.23E-01
+		EU-156	811.77		10.40	3.62E+00	6.86E+01	6.86E+01
			1153.47		7.20	6.30E+01		1.36E+02
			1230.71		8.90	6.28E+00		9.49E+01
+		HO-166M	184.41		72.60	1.72E-01	9.31E-02	9.31E-02
			280.45		29.60	5.31E-02		2.31E-01
			410.94		11.10	-1.06E-02		6.03E-01
			711.69		54.10	7.09E-02		1.43E-01

Analysis Report for 1707085-07

HTC-A02-S002-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TM-171	66.72		0.14	-5.21E+01	4.80E+01	4.80E+01
+	HF-172	67.35		5.31	-7.66E-02	4.61E-01	1.24E+00
		125.81		11.30	1.52E-01		4.61E-01
+	LU-172	181.53		20.60	-4.16E+02	3.94E+03	6.27E+03
		900.72		29.81	-2.70E+03		7.06E+03
		1093.66		62.50	-8.83E+02		3.94E+03
+	LU-173	100.72		5.24	2.61E-01	3.82E-01	1.00E+00
		272.11		21.20	2.03E-01		3.82E-01
+	HF-175	343.40		84.00	5.33E-02	2.18E-01	2.18E-01
+	LU-176	88.34		13.30	-6.89E-02	6.01E-02	4.64E-01
		201.83		86.00	-7.67E-03		6.01E-02
		306.78		94.00	-1.19E-02		6.69E-02
+	HF-181	133.02		41.70	4.34E-01	4.26E-01	5.83E-01
		345.85		17.20	4.93E-01		1.93E+00
		482.03		82.80	-4.54E-02		4.26E-01
+	TA-182	67.75		41.20	-1.61E-02	2.62E-01	2.62E-01
		1121.30		34.90	1.51E+00		8.32E-01
		1189.05		16.23	-1.06E-01		1.21E+00
		1221.41		26.98	-2.21E-02		6.90E-01
		1231.02		11.44	1.01E-01		1.52E+00
+	IR-192	308.46		29.68	-4.35E-02	3.62E-01	5.23E-01
		468.07		48.10	-4.40E-02		3.62E-01
+	HG-203	279.19		77.30	7.41E-02	3.80E-01	3.80E-01
+	TL-204	374.74		94.11	2.01E-02	6.67E-02	6.67E-02
		899.15		99.16	-2.73E-02		8.65E-02
		911.74		91.10	2.58E-01		1.60E-01
+	BI-207	569.67		97.72	6.64E-02	8.00E-02	8.00E-02
		1063.62		74.90	3.41E-02		1.31E-01
+	TL-208	583.14	*	30.22	8.78E-01	1.14E-01	3.22E-01
		860.37		4.48	3.83E-01		2.17E+00
		2614.66	*	35.85	8.17E-01		1.14E-01
+	BI-210M	262.00		45.00	4.69E-04	1.36E-01	1.36E-01
		300.00		23.00	-1.25E-01		3.40E-01
+	PB-210	46.50	*	4.25	2.94E+00	2.64E+00	2.64E+00
+	PB-211	404.84		2.90	-7.04E-01	2.34E+00	2.34E+00
		831.96		2.90	-5.97E-01		2.96E+00
+	BI-212	727.17	*	11.80	7.04E-01	8.70E-01	8.70E-01
		1620.62		2.75	1.71E+00		3.61E+00
+	PB-212	238.63	*	44.60	8.68E-01	3.52E-01	3.52E-01
		300.09		3.41	-8.42E-01		2.29E+00
+	BI-214	609.31	*	46.30	1.50E+00	2.58E-01	2.58E-01
		1120.29	*	15.10	1.89E+00		7.21E-01
		1764.49	*	15.80	2.13E+00		3.14E-01
		2204.22		4.98	2.66E+00		2.90E+00
+	PB-214	295.21	*	19.19	1.66E+00	2.72E-01	4.17E-01
		351.92	*	37.19	1.85E+00		2.72E-01
+	RN-219	401.80		6.50	7.06E-01	1.10E+00	1.10E+00
+	RA-223	323.87		3.88	-2.75E-01	1.66E+00	1.66E+00

Analysis Report for 1707085-07

HTC-A02-S002-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98		3.95	1.37E+01	2.94E+00	2.94E+00
+	RA-225	40.00		31.00	-3.57E+00	2.99E+01	2.99E+01
+	RA-226	186.21	*	3.28	4.55E+00	2.64E+00	2.64E+00
+	TH-227	50.10		8.40	-1.87E+00	8.00E-01	8.04E-01
		236.00		11.50	-1.94E-02		8.00E-01
		256.20		6.30	5.69E-01		1.04E+00
+	AC-228	338.32	*	11.40	9.21E-01	5.42E-01	8.15E-01
		911.07	*	27.70	6.49E-01		5.42E-01
		969.11	*	16.60	7.99E-01		7.96E-01
+	TH-230	48.44		16.90	-1.96E-02	4.50E-01	4.50E-01
		62.85		4.60	1.83E+00		1.50E+00
		67.67		0.37	-9.92E-01		1.61E+01
+	PA-231	283.67		1.60	7.59E-01	2.96E+00	3.96E+00
		302.67		2.30	1.56E+00		2.96E+00
+	TH-231	25.64		14.70	1.64E+00	8.87E-01	2.84E+00
		84.21		6.40	-3.80E-01		8.87E-01
+	PA-233	311.98		38.60	5.67E-01	2.03E+00	2.03E+00
+	PA-234	131.20		20.40	8.66E-02	2.40E-01	2.40E-01
		733.99		8.80	-8.57E-02		8.66E-01
		946.00		12.00	-5.21E-01		5.97E-01
+	PA-234M	1001.03		0.92	-1.99E+00	9.22E+00	9.22E+00
+	TH-234	63.29	*	3.80	3.33E+00	3.10E+00	3.10E+00
+	U-235	143.76		10.50	1.35E-01	4.68E-01	4.68E-01
		163.35		4.70	-1.02E-01		1.05E+00
		205.31		4.70	2.02E-01		1.36E+00
+	NP-237	86.50	*	12.60	4.08E-01	6.86E-01	6.86E-01
+	NP-239	106.10		22.70	-7.28E+10	6.75E+11	6.75E+11
		228.18		10.70	7.99E+11		2.03E+12
		277.60		14.10	1.09E+12		1.68E+12
+	AM-241	59.54		35.90	-1.31E-01	1.77E-01	1.77E-01
+	AM-243	74.67		66.00	1.42E-01	1.23E-01	1.23E-01
+	CM-243	209.75	*	3.29	1.33E+00	6.01E-01	2.41E+00
		228.14		10.60	2.37E-01		6.01E-01
		277.60	*	14.00	2.98E-01		9.66E-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 1707085-07

HTC-A02-S002-4248-01

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	2.50E+00	2.50E+00	1.15E+00	1.18E+00
	NA-22	1274.54		99.94	1.02E-01	1.02E-01	-4.71E-02	4.63E-02
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		0.00E+00	1.00E+20
	AL-26	1808.65		99.76	7.51E-02	7.51E-02	4.31E-02	3.17E-02
+	K-40	1460.81	*	10.67	1.27E+00	1.27E+00	1.62E+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	6.33E-02	6.33E-02	-3.90E-03	3.09E-02
		78.34		96.00	8.05E-02		2.00E-01	3.96E-02
	SC-46	889.25		99.98	1.84E-01	1.84E-01	1.37E-02	8.46E-02
		1120.51		99.99	3.55E-01		5.50E-01	1.69E-01
	V-48	983.52		99.98	6.29E+00	6.29E+00	1.54E+00	2.90E+00
		1312.10		97.50	7.15E+00		1.70E+00	3.24E+00
	CR-51	320.08		9.83	7.39E+00	7.39E+00	-2.80E+00	3.54E+00
	MN-54	834.83		99.97	1.13E-01	1.13E-01	2.83E-03	5.27E-02
	CO-56	846.75		99.96	2.05E-01	2.05E-01	4.61E-02	9.52E-02
		1037.75		14.03	1.51E+00		1.68E-01	6.93E-01
		1238.25		67.00	5.24E-01		6.18E-01	2.47E-01
		1771.40		15.51	1.26E+00		-4.42E-01	5.43E-01
		2598.48		16.90	7.02E-01		-2.02E-01	2.49E-01
	CO-57	122.06		85.51	6.72E-02	6.72E-02	-2.43E-02	3.26E-02
		136.48		10.60	5.52E-01		-1.49E-01	2.68E-01
	CO-58	810.76		99.40	2.11E-01	2.11E-01	-3.79E-02	9.78E-02
	FE-59	1099.22		56.50	7.10E-01	7.10E-01	1.68E-02	3.23E-01
		1291.56		43.20	1.05E+00		-1.03E-02	4.77E-01
	CO-60	1173.22		100.00	1.04E-01	9.77E-02	1.03E-02	4.77E-02
		1332.49		100.00	9.77E-02		-8.62E-03	4.41E-02
	ZN-65	1115.52		50.75	2.42E-01	2.42E-01	5.88E-02	1.11E-01
	GA-67	93.31		35.70	1.87E+08	1.87E+08	3.35E+08	9.18E+07
		208.95		2.24	3.33E+09		1.84E+09	1.62E+09
		300.22		16.00	5.52E+08		-2.03E+08	2.67E+08
	SE-75	121.11		16.70	4.79E-01	1.33E-01	1.09E-01	2.33E-01
		136.00		59.20	1.33E-01		-1.04E-01	6.46E-02
		264.65		59.80	1.75E-01		-2.14E-01	8.40E-02
		279.53		25.20	4.83E-01		2.21E-01	2.33E-01
		400.65		11.40	1.09E+00		3.42E-01	5.21E-01
	RB-82	776.52		13.00	8.82E+00	8.82E+00	2.47E+00	4.09E+00
	RB-83	520.41		46.00	3.54E-01	3.54E-01	2.42E-01	1.68E-01
		529.64		30.30	5.02E-01		5.33E-02	2.36E-01
		552.65		16.40	9.79E-01		-1.37E-01	4.61E-01
	KR-85	513.99		0.43	2.15E+01	2.15E+01	1.94E+01	1.03E+01
	SR-85	513.99		99.27	2.64E-01	2.64E-01	2.38E-01	1.26E-01

Analysis Report for 1707085-07

HTC-A02-S002-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	Y-88	898.02		93.40	1.69E-01	1.17E-01	4.29E-02	7.76E-02
		1836.01		99.38	1.17E-01		-2.35E-02	4.72E-02
	MO-93	263.06		56.72	1.07E-01	8.27E-02	-8.24E-02	5.13E-02
		684.67		99.68	8.27E-02		2.97E-02	3.87E-02
		1477.11		99.08	8.29E-02		3.71E-02	3.63E-02
	NB-93M	16.57		9.43	6.76E+01	6.76E+01	-3.24E+00	3.29E+01
	NB-94	702.63		100.00	7.51E-02	7.51E-02	-5.40E-03	3.49E-02
		871.10		100.00	7.51E-02		-3.94E-02	3.44E-02
	NB-95	765.79		99.81	7.02E-01	7.02E-01	2.89E-01	3.31E-01
	NB-95M	235.69		25.00	5.53E+07	5.53E+07	-1.34E+06	2.71E+07
	ZR-95	724.18		43.70	6.32E-01	4.60E-01	9.94E-02	2.98E-01
		756.72		55.30	4.60E-01		1.27E-01	2.15E-01
	MO-99	181.06		6.20	4.35E+10	3.34E+10	-8.64E+08	2.10E+10
		739.58		12.80	3.34E+10		6.46E+09	1.55E+10
		778.00		4.50	9.29E+10		-3.76E+09	4.30E+10
	RU-103	497.08		89.00	4.51E-01	4.51E-01	1.32E-01	2.14E-01
	RU-106	621.84		9.80	9.69E-01	9.69E-01	9.14E-02	4.55E-01
	AG-108M	433.93		89.90	7.48E-02	7.48E-02	2.59E-02	3.55E-02
		614.37		90.40	1.22E-01		3.20E-04	5.82E-02
		722.95		90.50	9.42E-02		2.86E-02	4.41E-02
+	CD-109	88.03	*	3.72	2.69E+00	2.69E+00	1.60E+00	1.33E+00
	AG-110M	657.75		93.14	1.07E-01	1.07E-01	-5.88E-03	4.98E-02
		677.61		10.53	9.48E-01		-3.54E-02	4.42E-01
		706.67		16.46	5.78E-01		-2.69E-01	2.68E-01
		763.93		21.98	5.16E-01		4.27E-02	2.41E-01
		884.67		71.63	1.58E-01		2.21E-02	7.30E-02
		1384.27		23.94	4.99E-01		3.68E-02	2.23E-01
	CD-113M	263.70		0.02	2.55E+02	2.55E+02	-2.83E+02	1.23E+02
	SN-113	255.12		1.93	6.04E+00	1.77E-01	1.98E+00	2.92E+00
		391.69		64.90	1.77E-01		-3.55E-02	8.42E-02
	TE123M	159.00		84.10	1.04E-01	1.04E-01	-2.21E-02	5.03E-02
	SB-124	602.71		97.87	2.51E-01	2.51E-01	-1.46E-02	1.18E-01
		645.85		7.26	3.08E+00		7.29E-01	1.44E+00
		722.78		11.10	2.37E+00		7.21E-01	1.11E+00
		1691.02		49.00	5.20E-01		2.46E-01	2.25E-01
	I-125	35.49		6.49	5.98E+00	5.98E+00	-1.88E+00	2.91E+00
	SB-125	176.33		6.89	7.59E-01	2.40E-01	-5.05E-02	3.67E-01
		427.89		29.33	2.40E-01		-1.33E-01	1.14E-01
		463.38		10.35	7.39E-01		5.49E-01	3.51E-01
		600.56		17.80	4.85E-01		1.64E-01	2.29E-01
		635.90		11.32	7.07E-01		2.45E-01	3.31E-01
	SB-126	414.70		83.30	2.03E+01	1.90E+01	2.33E+00	9.68E+00
		666.33		99.60	1.90E+01		-3.82E+00	8.87E+00
		695.00		99.60	1.94E+01		5.42E+00	9.08E+00
		720.50		53.80	3.56E+01		1.40E+01	1.66E+01
+	SN-126	87.57	*	37.00	2.34E-01	2.34E-01	1.39E-01	1.15E-01
	SB-127	473.00		25.00	1.27E+07	1.06E+07	-8.69E+05	6.01E+06
		685.20		35.70	1.06E+07		3.80E+06	4.95E+06
		783.80		14.70	2.84E+07		1.38E+07	1.33E+07
	I-129	29.78		57.00	3.82E-01	3.82E-01	-5.04E-02	1.86E-01
		33.60		13.20	1.14E+00		8.40E-02	5.56E-01
		39.58		7.52	1.28E+00		-1.52E-01	6.21E-01
	I-131	284.30		6.05	4.86E+03	3.41E+02	2.23E+03	2.34E+03

Analysis Report for 1707085-07

HTC-A02-S002-4248-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
I-131	364.48	81.20	3.41E+02	3.41E+02	8.97E+01	1.62E+02
	636.97	7.26	4.62E+03		-3.33E+02	2.15E+03
	722.89	1.80	2.22E+04		6.75E+03	1.04E+04
TE-132	49.72	13.10	5.99E+08	8.26E+07	-1.39E+09	2.92E+08
	228.16	88.00	8.26E+07		3.25E+07	4.00E+07
BA-133	81.00	33.00	1.75E-01	1.75E-01	-1.53E-02	8.58E-02
	302.84	17.80	3.89E-01		2.05E-01	1.87E-01
	356.01	60.00	1.90E-01		-4.31E-03	9.26E-02
@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
XE-133	81.00	38.00	6.39E+04	6.39E+04	-5.57E+03	3.13E+04
CS-134	563.23	8.38	9.05E-01	9.43E-02	-4.12E-01	4.24E-01
	569.32	15.43	5.14E-01		-3.61E-02	2.42E-01
	604.70	97.60	9.43E-02		-1.37E-02	4.45E-02
	795.84	85.40	1.06E-01		-1.54E-02	4.91E-02
	801.93	8.73	1.05E+00		3.73E-01	4.88E-01
CS-135	268.24	16.00	4.20E-01	4.20E-01	1.73E-01	2.03E-01
@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41	28.60	1.00E+26		1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		1.00E+26	1.00E+20
CS-136	153.22	7.46	1.17E+02	1.37E+01	3.66E+00	5.66E+01
	163.89	4.61	1.88E+02		-1.83E+01	9.13E+01
	176.55	13.56	6.32E+01		-4.21E+00	3.05E+01
	273.65	12.66	9.49E+01		-5.17E+01	4.59E+01
	340.57	48.50	2.94E+01		3.38E+01	1.42E+01
	818.50	99.70	1.37E+01		-5.39E+00	6.33E+00
	1048.07	79.60	1.96E+01		3.27E+00	8.99E+00
	1235.34	19.70	1.08E+02		1.02E+01	5.03E+01
CS-137	661.65	85.12	9.53E-02	9.53E-02	1.20E-02	4.47E-02
LA-138	788.74	34.00	2.77E-01	1.23E-01	4.43E-02	1.30E-01
	1435.80	66.00	1.23E-01		1.46E-02	5.40E-02
CE-139	165.85	80.35	1.02E-01	1.02E-01	1.28E-02	4.96E-02
BA-140	162.64	6.70	1.49E+02	5.60E+01	-3.51E+01	7.21E+01
	304.84	4.50	2.89E+02		-1.60E+02	1.39E+02
	423.70	3.20	4.44E+02		1.06E+01	2.11E+02
	437.55	2.00	6.71E+02		-1.82E+02	3.18E+02
	537.32	25.00	5.60E+01		1.50E+01	2.63E+01
LA-140	328.77	20.50	6.71E+01	1.92E+01	1.00E+00	3.22E+01
	487.03	45.50	3.29E+01		1.11E+01	1.56E+01
	815.85	23.50	6.75E+01		6.11E+00	3.11E+01
	1596.49	95.49	1.92E+01		1.11E+00	8.46E+00
CE-141	145.44	48.40	8.31E-01	8.31E-01	4.34E-01	4.04E-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	5.53E-01	5.53E-01	8.14E-02	2.68E-01
PM-144	476.78	42.00	2.07E-01	9.24E-02	4.82E-02	9.83E-02
	618.01	98.60	9.76E-02		6.13E-02	4.59E-02
	696.49	99.49	9.24E-02		-1.98E-02	4.30E-02
PM-145	36.85	21.70	5.36E-01	2.84E-01	-3.11E-02	2.61E-01
	37.36	39.70	2.84E-01		1.63E-02	1.38E-01
	42.30	15.10	5.75E-01		-6.92E-02	2.80E-01
	72.40	2.31	3.04E+00		-5.57E+00	1.49E+00
PM-146	453.90	39.94	1.84E-01	1.84E-01	1.12E-01	8.73E-02

Analysis Report for 1707085-07

HTC-A02-S002-4248-01

	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	5.82E-01	1.84E-01	8.86E-02	2.71E-01
		747.13		13.10	6.83E-01		2.16E-01	3.19E-01
	ND-147	91.11		28.90	1.04E+02	1.04E+02	6.57E+01	5.12E+01
		531.02		13.10	2.49E+02		-1.60E+01	1.17E+02
	PM-149	285.90		3.10	4.54E+13	4.54E+13	1.83E+13	2.19E+13
	EU-152	121.78		20.50	2.21E-01	2.21E-01	-7.98E-02	1.07E-01
		244.69		5.40	1.51E+00		-4.05E-01	7.34E-01
		344.27		19.13	3.68E-01		9.00E-02	1.77E-01
		778.89		9.20	8.25E-01		-1.06E-01	3.80E-01
		964.01		10.40	1.03E+00		2.44E-02	4.83E-01
		1085.78		7.22	1.44E+00		9.46E-03	6.68E-01
		1112.02		9.60	1.04E+00		2.90E-01	4.76E-01
		1407.95		14.94	7.09E-01		2.52E-01	3.22E-01
	GD-153	97.43		31.30	1.92E-01	1.92E-01	-2.57E-01	9.36E-02
		103.18		22.20	2.68E-01		-4.30E-02	1.30E-01
	EU-154	123.07		40.50	1.15E-01	1.15E-01	-1.22E-02	5.57E-02
		723.30		19.70	4.41E-01		1.34E-01	2.07E-01
		873.19		11.50	7.21E-01		2.12E-01	3.32E-01
		996.32		10.30	8.37E-01		2.26E-01	3.83E-01
		1004.76		17.90	4.91E-01		8.02E-02	2.25E-01
		1274.45		35.50	2.74E-01		-1.26E-01	1.24E-01
+	EU-155	86.50	*	30.90	2.90E-01	2.23E-01	1.73E-01	1.43E-01
		105.30		20.70	2.23E-01		-2.41E-02	1.09E-01
	EU-156	811.77		10.40	6.86E+01	6.86E+01	3.62E+00	3.18E+01
		1153.47		7.20	1.36E+02		6.30E+01	6.28E+01
		1230.71		8.90	9.49E+01		6.28E+00	4.32E+01
	HO-166M	184.41		72.60	9.31E-02	9.31E-02	1.72E-01	4.54E-02
		280.45		29.60	2.31E-01		5.31E-02	1.12E-01
		410.94		11.10	6.03E-01		-1.06E-02	2.87E-01
		711.69		54.10	1.43E-01		7.09E-02	6.64E-02
	TM-171	66.72		0.14	4.80E+01	4.80E+01	-5.21E+01	2.35E+01
	HF-172	67.35		5.31	1.24E+00	4.61E-01	-7.66E-02	6.08E-01
		125.81		11.30	4.61E-01		1.52E-01	2.24E-01
	LU-172	181.53		20.60	6.27E+03	3.94E+03	-4.16E+02	3.03E+03
		900.72		29.81	7.06E+03		-2.70E+03	3.25E+03
		1093.66		62.50	3.94E+03		-8.83E+02	1.81E+03
	LU-173	100.72		5.24	1.00E+00	3.82E-01	2.61E-01	4.89E-01
		272.11		21.20	3.82E-01		2.03E-01	1.85E-01
	HF-175	343.40		84.00	2.18E-01	2.18E-01	5.33E-02	1.05E-01
	LU-176	88.34		13.30	4.64E-01	6.01E-02	-6.89E-02	2.28E-01
		201.83		86.00	6.01E-02		-7.67E-03	2.90E-02
		306.78		94.00	6.69E-02		-1.19E-02	3.21E-02
	HF-181	133.02		41.70	5.83E-01	4.26E-01	4.34E-01	2.84E-01
		345.85		17.20	1.93E+00		4.93E-01	9.26E-01
		482.03		82.80	4.26E-01		-4.54E-02	2.02E-01
	TA-182	67.75		41.20	2.62E-01	2.62E-01	-1.61E-02	1.28E-01
		1121.30		34.90	8.32E-01		1.51E+00	3.96E-01
		1189.05		16.23	1.21E+00		-1.06E-01	5.56E-01
		1221.41		26.98	6.90E-01		-2.21E-02	3.16E-01
		1231.02		11.44	1.52E+00		1.01E-01	6.93E-01
	IR-192	308.46		29.68	5.23E-01	3.62E-01	-4.35E-02	2.51E-01
		468.07		48.10	3.62E-01		-4.40E-02	1.71E-01
	HG-203	279.19		77.30	3.80E-01	3.80E-01	7.41E-02	1.83E-01

Analysis Report for 1707085-07

HTC-A02-S002-4248-01

	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	6.67E-02	6.67E-02	2.01E-02	3.17E-02
		899.15		99.16	8.65E-02		-2.73E-02	3.97E-02
		911.74		91.10	1.60E-01		2.58E-01	7.61E-02
	BI-207	569.67		97.72	8.00E-02	8.00E-02	6.64E-02	3.78E-02
		1063.62		74.90	1.31E-01		3.41E-02	6.02E-02
+	TL-208	583.14	*	30.22	3.22E-01	1.14E-01	8.78E-01	1.54E-01
		860.37		4.48	2.17E+00		3.83E-01	1.02E+00
		2614.66	*	35.85	1.14E-01		8.17E-01	3.66E-02
	BI-210M	262.00		45.00	1.36E-01	1.36E-01	4.69E-04	6.58E-02
		300.00		23.00	3.40E-01		-1.25E-01	1.65E-01
+	PB-210	46.50	*	4.25	2.64E+00	2.64E+00	2.94E+00	1.30E+00
	PB-211	404.84		2.90	2.34E+00	2.34E+00	-7.04E-01	1.12E+00
		831.96		2.90	2.96E+00		-5.97E-01	1.38E+00
+	BI-212	727.17	*	11.80	8.70E-01	8.70E-01	7.04E-01	4.12E-01
		1620.62		2.75	3.61E+00		1.71E+00	1.61E+00
+	PB-212	238.63	*	44.60	3.52E-01	3.52E-01	8.68E-01	1.74E-01
		300.09		3.41	2.29E+00		-8.42E-01	1.11E+00
+	BI-214	609.31	*	46.30	2.58E-01	2.58E-01	1.50E+00	1.24E-01
		1120.29	*	15.10	7.21E-01		1.89E+00	3.34E-01
		1764.49	*	15.80	3.14E-01		2.13E+00	1.21E-01
		2204.22		4.98	2.90E+00		2.66E+00	1.32E+00
+	PB-214	295.21	*	19.19	4.17E-01	2.72E-01	1.66E+00	2.02E-01
		351.92	*	37.19	2.72E-01		1.85E+00	1.32E-01
	RN-219	401.80		6.50	1.10E+00	1.10E+00	7.06E-01	5.28E-01
	RA-223	323.87		3.88	1.66E+00	1.66E+00	-2.75E-01	7.95E-01
	RA-224	240.98		3.95	2.94E+00	2.94E+00	1.37E+01	1.44E+00
	RA-225	40.00		31.00	2.99E+01	2.99E+01	-3.57E+00	1.45E+01
+	RA-226	186.21	*	3.28	2.64E+00	2.64E+00	4.55E+00	1.29E+00
	TH-227	50.10		8.40	8.04E-01	8.00E-01	-1.87E+00	3.92E-01
		236.00		11.50	8.00E-01		-1.94E-02	3.91E-01
		256.20		6.30	1.04E+00		5.69E-01	5.02E-01
+	AC-228	338.32	*	11.40	8.15E-01	5.42E-01	9.21E-01	3.96E-01
		911.07	*	27.70	5.42E-01		6.49E-01	2.59E-01
		969.11	*	16.60	7.96E-01		7.99E-01	3.77E-01
	TH-230	48.44		16.90	4.50E-01	4.50E-01	-1.96E-02	2.20E-01
		62.85		4.60	1.50E+00		1.83E+00	7.34E-01
		67.67		0.37	1.61E+01		-9.92E-01	7.89E+00
	PA-231	283.67		1.60	3.96E+00	2.96E+00	7.59E-01	1.91E+00
		302.67		2.30	2.96E+00		1.56E+00	1.42E+00
	TH-231	25.64		14.70	2.84E+00	8.87E-01	1.64E+00	1.38E+00
		84.21		6.40	8.87E-01		-3.80E-01	4.34E-01
	PA-233	311.98		38.60	2.03E+00	2.03E+00	5.67E-01	9.74E-01
	PA-234	131.20		20.40	2.40E-01	2.40E-01	8.66E-02	1.17E-01
		733.99		8.80	8.66E-01		-8.57E-02	4.02E-01
		946.00		12.00	5.97E-01		-5.21E-01	2.70E-01
	PA-234M	1001.03		0.92	9.22E+00	9.22E+00	-1.99E+00	4.22E+00
+	TH-234	63.29	*	3.80	3.10E+00	3.10E+00	3.33E+00	1.53E+00
	U-235	143.76		10.50	4.68E-01	4.68E-01	1.35E-01	2.27E-01
		163.35		4.70	1.05E+00		-1.02E-01	5.10E-01
		205.31		4.70	1.36E+00		2.02E-01	6.63E-01
+	NP-237	86.50	*	12.60	6.86E-01	6.86E-01	4.08E-01	3.38E-01
	NP-239	106.10		22.70	6.75E+11	6.75E+11	-7.28E+10	3.28E+11
		228.18		10.70	2.03E+12		7.99E+11	9.83E+11

Analysis Report for 1707085-07

HTC-A02-S002-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	NP-239	277.60		14.10	1.68E+12	6.75E+11	1.09E+12	8.13E+11
	AM-241	59.54		35.90	1.77E-01	1.77E-01	-1.31E-01	8.63E-02
	AM-243	74.67		66.00	1.23E-01	1.23E-01	1.42E-01	6.07E-02
+	CM-243	209.75	*	3.29	2.41E+00	6.01E-01	1.33E+00	1.17E+00
		228.14		10.60	6.01E-01		2.37E-01	2.91E-01
		277.60	*	14.00	9.66E-01		2.98E-01	4.75E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A02-S002-4248-01

Elapsed Live time: 3600
Elapsed Real Time: 3608

Channel								
1:	0	0	0	0	0	0	0	0
9:	3	155	184	157	121	115	90	114
17:	89	81	99	83	86	84	82	95
25:	90	105	91	79	79	69	87	111
33:	85	85	91	86	92	79	98	94
41:	87	81	89	106	103	134	190	124
49:	91	89	93	111	127	146	128	124
57:	102	112	124	137	131	153	185	211
65:	168	135	144	132	137	146	150	161
73:	159	208	329	317	409	435	218	138
81:	105	120	129	121	145	131	188	202
89:	169	157	136	175	216	195	113	80
97:	83	97	87	101	97	82	85	84
105:	80	89	82	81	77	96	82	86
113:	88	78	77	98	64	72	88	70
121:	87	81	65	74	81	86	74	95
129:	75	80	95	86	90	73	74	60
137:	68	64	85	70	71	70	73	83
145:	79	82	78	68	64	68	69	65
153:	70	77	85	80	75	70	64	77
161:	60	76	58	67	68	65	74	63
169:	64	64	59	64	72	56	60	57
177:	61	52	62	58	55	51	69	69
185:	99	138	158	89	68	59	68	66
193:	74	55	41	67	57	58	51	64
201:	50	45	46	62	63	49	61	54
209:	70	75	52	58	38	50	54	39
217:	48	45	41	45	58	38	39	41
225:	47	46	43	42	54	46	54	46
233:	43	54	44	56	62	118	300	212
241:	101	118	118	84	47	36	42	36
249:	38	37	33	36	25	39	35	47
257:	44	60	42	36	36	38	33	37
265:	24	24	24	44	44	58	67	38
273:	36	34	32	36	44	54	36	41
281:	41	22	41	38	32	28	26	35
289:	24	27	24	36	35	46	118	192
297:	103	28	36	39	43	29	41	33
305:	26	24	27	24	32	29	31	20
313:	29	23	27	22	26	31	22	24
321:	32	23	20	36	28	25	21	29
329:	34	32	33	26	25	26	25	31
337:	22	49	73	43	37	24	24	25
345:	19	33	32	25	20	36	96	255
353:	272	99	49	21	14	21	14	20
361:	18	20	21	19	19	11	22	12

369:	15	12	13	12	21	23	15	18

Sample Title: HTC-A02-S002-4248-01

Channel								
377:	16	16	30	18	34	23	22	12
385:	19	28	31	14	14	14	24	21
393:	17	20	17	21	14	16	24	25
401:	22	18	19	27	21	19	17	16
409:	24	18	12	18	24	17	18	20
417:	21	23	22	23	18	20	28	19
425:	23	17	8	17	16	14	20	20
433:	17	16	16	14	14	11	16	24
441:	16	20	18	21	22	12	14	10
449:	15	8	14	17	17	22	13	18
457:	20	18	9	8	10	16	18	22
465:	13	24	15	12	15	17	13	12
473:	16	13	17	15	15	18	18	18
481:	15	15	9	18	15	18	14	21
489:	13	15	18	12	9	24	11	15
497:	10	15	16	12	13	15	17	12
505:	11	11	16	15	22	23	43	51
513:	22	20	14	6	8	14	12	15
521:	13	16	11	21	11	13	16	9
529:	8	6	11	17	18	10	14	8
537:	11	14	9	16	8	9	12	8
545:	29	14	10	10	14	15	14	8
553:	21	10	6	14	16	13	10	10
561:	15	14	9	14	8	6	16	14
569:	13	15	11	7	19	7	10	11
577:	16	17	8	14	13	17	59	72
585:	40	16	11	7	11	12	14	9
593:	9	8	13	6	8	18	13	14
601:	17	12	3	16	16	11	13	29
609:	138	186	92	23	8	14	6	14
617:	13	13	16	8	16	8	7	18
625:	10	10	10	14	4	11	10	13
633:	12	7	10	12	10	10	10	5
641:	6	9	6	15	9	11	5	9
649:	9	5	11	9	11	12	5	6
657:	10	11	11	9	16	7	10	13
665:	11	8	12	9	9	12	11	6
673:	12	7	7	5	12	12	9	7
681:	13	9	10	18	8	9	7	12
689:	4	10	9	13	10	12	5	5
697:	13	12	8	7	9	9	13	7
705:	8	6	9	7	8	9	11	8
713:	11	7	7	7	2	8	4	11
721:	11	10	10	10	6	15	31	21
729:	15	7	7	9	10	7	5	10
737:	8	6	14	9	6	12	5	7
745:	8	9	6	15	10	16	8	8
753:	8	13	8	15	10	11	10	5
761:	13	5	10	9	8	6	17	22
769:	22	14	11	4	9	11	10	7
777:	8	10	7	3	7	6	6	9
785:	9	19	14	14	5	9	12	4
793:	11	10	4	13	7	5	7	8

801:	11	11	9	7	5	9	12	10

Sample Title: HTC-A02-S002-4248-01

Channel								
809:	13	4	9	6	5	5	11	6
817:	5	9	7	6	5	10	12	7
825:	8	3	7	6	5	9	9	10
833:	7	6	11	13	10	7	13	5
841:	3	10	9	17	8	8	7	5
849:	4	7	7	4	8	8	10	9
857:	10	4	12	12	14	7	11	8
865:	9	9	8	4	4	8	4	10
873:	3	6	7	8	6	6	5	6
881:	9	10	11	3	8	8	4	7
889:	6	6	8	6	5	8	7	7
897:	8	4	8	6	6	5	4	12
905:	12	6	6	6	7	18	29	45
913:	22	7	5	7	5	5	8	8
921:	2	10	5	6	1	8	7	7
929:	7	3	4	6	7	9	12	12
937:	6	8	8	8	10	8	1	4
945:	4	5	4	6	6	7	6	13
953:	6	3	6	8	7	2	6	5
961:	5	9	8	12	9	12	13	13
969:	22	22	13	7	3	6	5	12
977:	9	7	2	5	7	11	4	4
985:	3	7	9	6	7	7	2	9
993:	6	1	4	7	10	6	5	4
1001:	7	5	5	7	3	7	4	9
1009:	6	3	5	7	4	6	8	8
1017:	5	9	5	5	5	4	4	3
1025:	4	6	5	9	6	7	10	6
1033:	3	4	6	3	4	6	9	7
1041:	6	8	6	5	6	5	5	5
1049:	5	8	6	5	4	4	11	2
1057:	5	4	5	4	14	2	6	5
1065:	7	9	4	5	7	7	4	9
1073:	5	7	3	7	6	9	9	5
1081:	9	5	5	5	7	7	9	7
1089:	11	5	10	6	8	4	8	3
1097:	5	6	8	3	3	7	4	4
1105:	7	6	7	4	4	7	7	6
1113:	7	8	5	6	3	4	13	29
1121:	45	20	6	7	3	3	7	6
1129:	5	5	5	6	9	5	4	3
1137:	6	7	8	7	13	9	4	6
1145:	5	8	5	3	7	9	6	6
1153:	5	7	9	12	0	11	9	12
1161:	7	3	6	5	6	7	9	8
1169:	6	7	8	3	5	9	3	7
1177:	2	7	3	8	11	4	2	8
1185:	11	6	6	3	9	14	4	6
1193:	8	3	4	9	6	7	11	13
1201:	2	7	10	6	10	9	9	11
1209:	4	7	4	6	6	5	6	9
1217:	8	7	5	5	7	6	6	5
1225:	9	10	12	5	4	3	5	10

1233:	5	3	4	6	12	18	26	17

Sample Title: HTC-A02-S002-4248-01

Channel								
1241:	5	6	5	6	9	6	2	10
1249:	6	8	6	6	8	9	1	5
1257:	4	4	5	9	3	1	5	3
1265:	5	5	4	5	13	4	4	3
1273:	6	7	5	3	4	4	6	2
1281:	8	10	3	7	8	10	1	4
1289:	6	6	5	7	2	4	2	7
1297:	3	1	8	2	5	2	2	4
1305:	7	8	6	6	2	6	6	4
1313:	7	2	6	2	6	6	6	7
1321:	4	4	4	4	6	5	4	6
1329:	3	2	7	3	1	7	6	6
1337:	2	3	6	2	2	7	3	1
1345:	2	3	6	3	2	2	2	2
1353:	2	3	2	2	5	4	5	1
1361:	3	4	3	1	3	2	2	3
1369:	1	4	1	4	0	3	2	6
1377:	6	10	6	5	5	2	2	2
1385:	6	7	1	4	2	2	4	0
1393:	0	1	0	3	2	3	0	2
1401:	1	4	5	2	7	1	3	4
1409:	9	8	1	4	2	1	3	4
1417:	1	1	1	0	1	2	2	1
1425:	6	2	4	3	3	2	5	0
1433:	1	7	2	1	4	0	3	1
1441:	3	2	1	2	4	2	3	0
1449:	4	4	3	2	0	2	2	1
1457:	2	4	21	86	154	146	54	15
1465:	3	1	1	3	1	2	0	1
1473:	3	0	4	1	2	3	1	3
1481:	0	0	2	2	2	1	1	1
1489:	4	5	1	1	1	3	2	2
1497:	2	2	3	3	1	5	2	1
1505:	1	2	1	2	4	4	3	3
1513:	0	2	3	2	4	5	0	0
1521:	0	1	3	2	3	1	0	1
1529:	1	1	1	1	2	1	0	3
1537:	1	2	4	2	1	1	2	2
1545:	3	1	0	4	2	1	0	0
1553:	4	2	1	1	4	1	1	1
1561:	2	2	1	0	1	1	0	1
1569:	0	1	1	1	1	1	2	1
1577:	1	3	1	3	0	5	4	5
1585:	2	0	1	8	5	4	2	2
1593:	4	6	2	1	1	2	1	0
1601:	0	1	2	1	1	1	2	1
1609:	0	1	0	1	1	1	2	3
1617:	2	1	1	2	7	1	4	2
1625:	0	2	1	1	2	1	2	1
1633:	0	0	1	2	0	2	1	0
1641:	1	3	0	1	2	2	1	1
1649:	1	1	0	1	2	1	2	2
1657:	2	2	3	2	3	3	3	2

1665:	0	0	2	1	0	2	0	0

Sample Title: HTC-A02-S002-4248-01

Channel								
1673:	2	0	0	1	0	0	3	2
1681:	3	1	0	2	0	1	1	2
1689:	1	1	1	3	2	1	2	1
1697:	0	1	0	0	0	0	0	2
1705:	1	2	2	1	0	0	0	0
1713:	1	1	1	2	1	0	1	1
1721:	1	0	0	1	0	2	2	3
1729:	3	2	5	1	1	2	2	0
1737:	3	2	0	1	1	2	1	1
1745:	0	1	2	1	0	1	1	0
1753:	0	0	1	0	3	1	1	0
1761:	1	1	6	16	34	17	7	0
1769:	0	2	0	0	2	0	2	0
1777:	0	0	2	0	0	1	2	2
1785:	0	2	0	3	1	0	1	1
1793:	3	0	1	1	0	0	0	3
1801:	0	0	0	3	0	1	0	0
1809:	1	2	2	1	0	0	0	0
1817:	0	2	0	1	0	0	2	1
1825:	0	0	0	0	1	1	2	0
1833:	1	1	0	2	0	0	1	1
1841:	1	0	0	2	0	0	3	4
1849:	5	2	1	1	0	1	1	1
1857:	1	0	1	0	4	2	1	1
1865:	0	2	1	1	0	1	0	0
1873:	0	2	1	0	1	1	1	4
1881:	1	1	1	2	0	1	1	0
1889:	1	0	0	1	1	3	0	1
1897:	0	2	1	4	0	1	0	0
1905:	1	1	0	0	1	0	0	1
1913:	1	1	1	1	1	2	1	1
1921:	1	1	1	1	3	1	2	1
1929:	1	1	0	1	1	0	0	1
1937:	0	2	5	1	1	1	0	0
1945:	0	2	0	2	0	1	2	0
1953:	1	0	0	2	0	0	1	1
1961:	1	1	0	2	1	1	1	0
1969:	1	1	3	1	0	0	1	3
1977:	2	3	0	1	2	0	0	1
1985:	0	0	2	0	1	0	1	1
1993:	0	0	2	1	2	1	0	0
2001:	1	0	0	1	2	0	1	2
2009:	1	2	1	0	2	1	0	0
2017:	0	3	1	2	0	1	0	0
2025:	0	0	0	0	2	0	0	1
2033:	0	0	3	0	0	1	2	3
2041:	0	1	1	0	0	2	0	1
2049:	1	2	1	2	2	0	0	0
2057:	0	0	1	2	0	0	1	1
2065:	1	1	2	0	0	0	0	0
2073:	2	0	0	0	1	0	0	0
2081:	1	0	2	2	0	1	0	0
2089:	0	1	0	1	0	1	2	0

2097:	0	1	3	1	2	1	2	2

Sample Title: HTC-A02-S002-4248-01

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

2529:	0	0	0	0	0	1	0	1

Sample Title: HTC-A02-S002-4248-01

Channel								
2537:	0	0	1	0	1	0	0	0
2545:	0	0	0	0	0	0	0	1
2553:	0	0	0	0	0	0	0	0
2561:	0	0	1	2	0	0	1	0
2569:	2	1	0	0	0	0	0	0
2577:	0	0	0	0	0	0	1	0
2585:	0	1	1	1	0	0	0	0
2593:	0	1	0	0	0	1	0	0
2601:	0	0	1	0	1	0	1	0
2609:	0	0	1	0	8	10	15	13
2617:	5	4	0	0	0	0	0	0
2625:	0	0	0	0	0	0	1	1
2633:	0	0	0	0	0	0	0	0
2641:	1	0	0	0	0	0	0	1
2649:	1	0	1	0	0	1	1	0
2657:	0	1	0	1	0	1	1	0
2665:	1	0	0	0	0	1	1	0
2673:	1	1	0	0	0	0	0	0
2681:	1	0	0	0	0	0	0	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	2	0	0	0	0	0
2721:	0	0	0	0	0	1	0	0
2729:	0	0	0	0	0	0	0	0
2737:	0	0	1	0	0	0	1	0
2745:	0	0	0	0	0	0	0	0
2753:	0	0	0	0	0	0	0	1
2761:	0	0	0	0	0	0	0	0
2769:	0	0	0	0	0	0	0	0
2777:	0	0	0	1	0	0	0	0
2785:	0	0	0	0	0	0	0	0
2793:	0	1	0	0	0	0	0	0
2801:	0	0	0	0	0	0	0	0
2809:	0	0	0	0	0	0	0	0
2817:	0	0	0	0	1	0	0	0
2825:	0	0	1	0	1	0	0	0
2833:	0	0	1	0	0	1	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	0	0	0
2889:	1	0	0	0	0	0	0	0
2897:	0	0	0	0	1	0	0	0
2905:	0	0	0	0	0	0	0	0
2913:	1	0	1	0	0	0	0	0
2921:	0	0	0	1	0	0	1	0
2929:	1	0	0	0	0	0	0	0
2937:	0	2	0	0	0	0	0	0
2945:	1	1	0	0	1	0	0	0
2953:	0	0	0	0	0	0	0	0

2961:	0	1	0	0	0	0	0	0

Sample Title: HTC-A02-S002-4248-01

Channel								
2969:	0	0	0	1	0	0	0	0
2977:	0	0	0	0	1	1	0	0
2985:	0	0	1	0	0	1	0	0
2993:	0	0	0	0	1	0	0	0
3001:	1	1	0	1	0	2	0	0
3009:	0	0	1	0	0	0	0	0
3017:	0	1	0	0	0	0	0	0
3025:	0	0	0	0	0	0	0	0
3033:	0	0	0	1	1	0	1	0
3041:	0	0	0	0	0	0	0	0
3049:	0	0	0	1	0	0	0	0
3057:	0	0	0	0	0	0	0	0
3065:	0	0	0	0	0	0	0	0
3073:	0	0	0	0	0	0	0	1
3081:	0	0	0	0	0	0	0	0
3089:	0	0	0	0	0	0	0	0
3097:	0	0	0	0	1	1	0	0
3105:	0	1	0	1	0	0	0	0
3113:	0	0	0	0	0	0	0	0
3121:	0	0	0	0	0	0	0	0
3129:	1	0	0	1	0	0	1	0
3137:	0	0	0	0	0	0	0	0
3145:	0	0	0	0	0	0	0	0
3153:	1	0	0	0	0	0	0	1
3161:	0	0	0	0	0	0	0	0
3169:	0	0	0	0	0	0	0	0
3177:	0	0	1	0	0	1	0	0
3185:	1	0	0	1	0	1	0	1
3193:	0	0	0	1	0	0	0	1
3201:	0	0	0	0	0	0	0	1
3209:	0	0	0	0	0	0	0	0
3217:	0	0	0	3	0	0	0	1
3225:	0	0	0	0	0	0	0	0
3233:	0	0	0	0	0	0	0	0
3241:	0	0	0	1	0	0	0	0
3249:	0	1	0	0	0	0	0	0
3257:	0	1	1	0	0	0	0	0
3265:	0	0	0	0	0	0	0	0
3273:	0	0	1	0	0	1	1	0
3281:	0	0	0	1	0	0	0	0
3289:	0	0	1	0	0	1	0	1
3297:	0	0	2	1	0	0	0	0
3305:	0	0	0	0	0	0	0	1
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:	0	0	0	0	1	0	0	0
3345:	1	0	0	0	0	0	0	0
3353:	0	0	0	0	1	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	1	0	0	1
3385:	1	0	0	0	0	0	0	0

3393:	0	0	0	0	1	0	0	0

Sample Title: HTC-A02-S002-4248-01

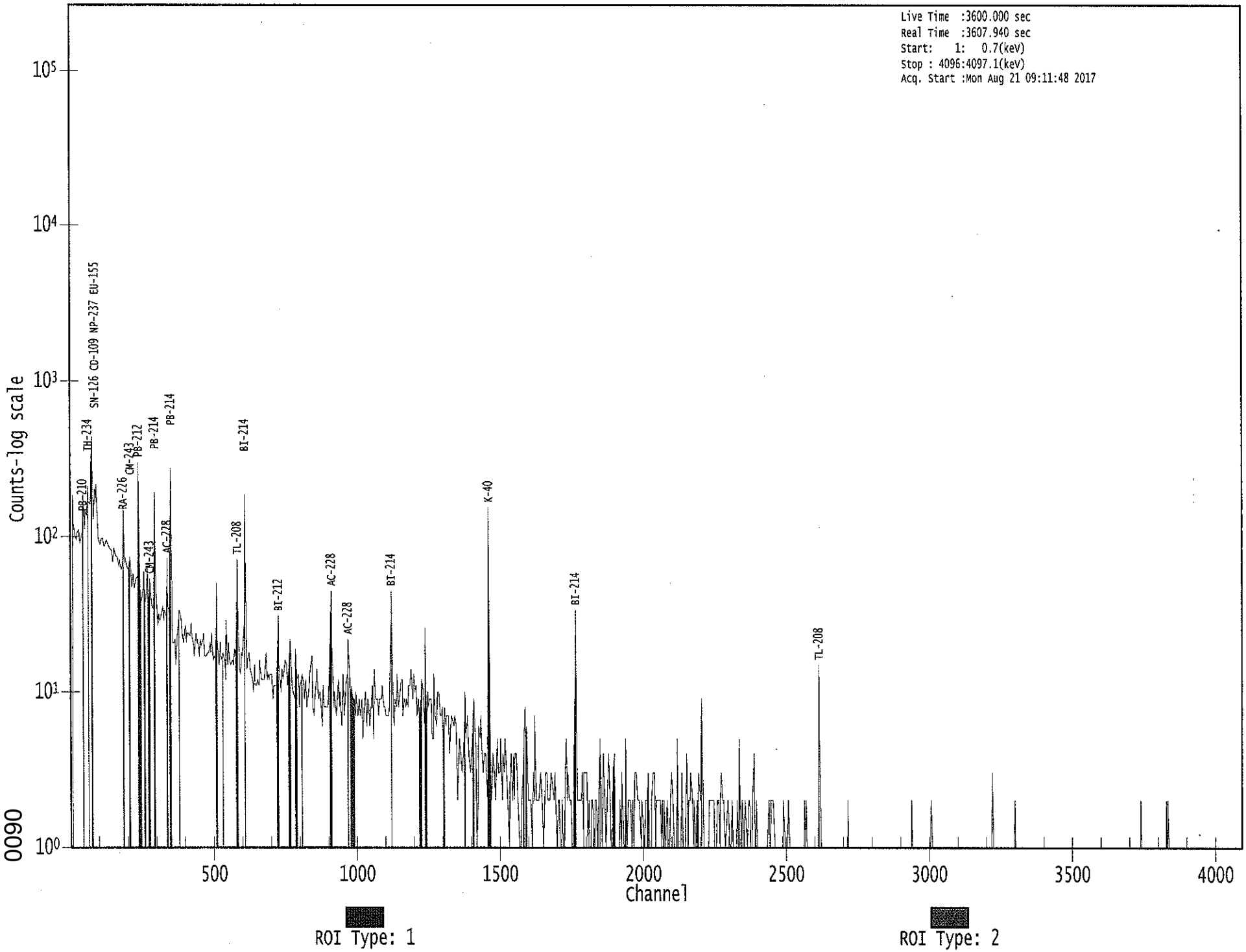
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	1	0	0	0	0
3417:	0	0	1	0	0	0	1	0
3425:	1	0	0	0	0	0	0	0
3433:	0	0	0	1	0	0	0	1
3441:	1	0	0	0	0	0	0	1
3449:	0	0	0	0	0	0	0	1
3457:	1	0	1	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	1	0	0	0
3497:	0	0	0	1	0	1	1	0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

3825:	0	0	0	2	0	0	0	0

Sample Title: HTC-A02-S002-4248-01

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

0000055611.CNF



0090

VB 8/21/17

Apex-Gamma

Analysis Report for 1707085-08

HTC-A02-S003-0006-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707085-08
Sample Description	: HTC-A02-S003-0006-01
Sample Type	: SOIL
Sample Size	: 7.510E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 8:07:05AM
Acquisition Started	: 8/21/2017 11:00:59AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3619.8 seconds
Dead Time	: 0.55 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 8 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55640

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/22/17

Analysis Report for 1707085-08

HTC-A02-S003-0006-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 12:21:41PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	46.62	46.94	0.0000	0.00
2	52.93	53.24	0.0000	0.00
3	63.53	63.84	0.0000	0.00
4	75.11	75.41	0.0000	0.00
5	77.44	77.74	0.0000	0.00
6	84.28	84.58	0.0000	0.00
7	87.86	88.16	0.0000	0.00
8	93.03	93.33	0.0000	0.00
9	113.66	113.95	0.0000	0.00
10	144.08	144.36	0.0000	0.00
11	154.08	154.35	0.0000	0.00
12	186.28	186.55	0.0000	0.00
13	205.58	205.83	0.0000	0.00
14	242.34	242.59	0.0000	0.00
15	259.79	260.03	0.0000	0.00
16	269.69	269.92	0.0000	0.00
17	295.55	295.78	0.0000	0.00
18	323.56	323.78	0.0000	0.00
19	352.18	352.39	0.0000	0.00
20	372.06	372.26	0.0000	0.00
21	388.02	388.21	0.0000	0.00
22	403.70	403.89	0.0000	0.00
23	455.34	455.51	0.0000	0.00
24	480.50	480.67	0.0000	0.00
25	511.32	511.47	0.0000	0.00
26	543.41	543.55	0.0000	0.00
27	609.56	609.68	0.0000	0.00
28	665.39	665.50	0.0000	0.00
29	703.16	703.25	0.0000	0.00
30	719.05	719.14	0.0000	0.00
31	727.10	727.18	0.0000	0.00
32	733.01	733.09	0.0000	0.00
33	742.55	742.62	0.0000	0.00
34	768.39	768.46	0.0000	0.00
35	786.82	786.88	0.0000	0.00
36	807.68	807.73	0.0000	0.00
37	839.42	839.47	0.0000	0.00
38	860.54	860.57	0.0000	0.00
39	913.92	913.94	0.0000	0.00
40	934.32	934.33	0.0000	0.00
41	964.42	964.42	0.0000	0.00
42	1000.42	1000.41	0.0000	0.00

Analysis Report for 1707085-08

HTC-A02-S003-0006-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1070.27	1070.23	0.0000	0.00
44	1120.47	1120.42	0.0000	0.00
45	1155.69	1155.63	0.0000	0.00
46	1182.43	1182.36	0.0000	0.00
47	1238.36	1238.27	0.0000	0.00
48	1281.05	1280.95	0.0000	0.00
49	1291.49	1291.38	0.0000	0.00
50	1377.84	1377.70	0.0000	0.00
51	1385.55	1385.41	0.0000	0.00
52	1397.38	1397.23	0.0000	0.00
53	1401.38	1401.23	0.0000	0.00
54	1408.02	1407.87	0.0000	0.00
55	1412.14	1411.99	0.0000	0.00
56	1460.96	1460.79	0.0000	0.00
57	1467.78	1467.61	0.0000	0.00
58	1509.30	1509.12	0.0000	0.00
59	1513.66	1513.47	0.0000	0.00
60	1540.19	1540.00	0.0000	0.00
61	1582.93	1582.73	0.0000	0.00
62	1593.87	1593.66	0.0000	0.00
63	1660.61	1660.38	0.0000	0.00
64	1692.42	1692.17	0.0000	0.00
65	1729.51	1729.26	0.0000	0.00
66	1764.64	1764.37	0.0000	0.00
67	1839.05	1838.76	0.0000	0.00
68	1847.40	1847.11	0.0000	0.00
69	1867.84	1867.54	0.0000	0.00
70	1873.83	1873.52	0.0000	0.00
71	1916.98	1916.66	0.0000	0.00
72	1970.07	1969.74	0.0000	0.00
73	2028.03	2027.67	0.0000	0.00
74	2118.87	2118.48	0.0000	0.00
75	2157.52	2157.12	0.0000	0.00
76	2204.18	2203.76	0.0000	0.00
77	2215.51	2215.09	0.0000	0.00
78	2222.02	2221.60	0.0000	0.00
79	2293.19	2292.75	0.0000	0.00
80	2401.34	2400.86	0.0000	0.00
81	2447.56	2447.06	0.0000	0.00
82	2614.85	2614.30	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707085-08

HTC-A02-S003-0006-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 12:21:41PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	46.62	44 -	49	46.94	1.19E+03	209.00	7.82E+03	1.78
	2	52.93	51 -	56	53.24	3.11E+02	223.13	9.79E+03	1.59
	3	63.53	61 -	67	63.84	1.73E+03	312.73	1.66E+04	1.65
M	4	75.11	72 -	82	75.41	3.97E+03	317.92	1.53E+04	2.15
m	5	77.44	72 -	82	77.74	6.54E+03	338.42	1.50E+04	2.03
M	6	84.28	83 -	97	84.58	6.62E+02	192.09	9.24E+03	1.96
m	7	87.86	83 -	97	88.16	2.52E+03	333.73	1.70E+04	2.71
m	8	93.03	83 -	97	93.33	3.66E+03	334.14	1.45E+04	2.72
	9	113.66	112 -	116	113.95	2.54E+02	185.31	7.36E+03	2.50
	10	144.08	142 -	147	144.36	2.42E+02	216.58	9.21E+03	1.62
	11	154.08	151 -	157	154.35	3.06E+02	239.05	1.02E+04	2.76
	12	186.28	182 -	191	186.55	3.61E+03	308.13	1.15E+04	2.22
	13	205.58	203 -	208	205.83	2.92E+02	170.65	5.56E+03	3.10
	14	242.34	238 -	247	242.59	3.03E+03	260.58	7.84E+03	2.19
	15	259.79	257 -	263	260.03	1.33E+02	161.56	4.61E+03	1.73
	16	269.69	266 -	273	269.92	3.38E+02	177.03	5.02E+03	2.35
	17	295.55	292 -	301	295.78	6.98E+03	251.09	4.96E+03	2.12
	18	323.56	321 -	327	323.78	1.39E+02	127.13	2.85E+03	1.30
	19	352.18	346 -	356	352.39	1.14E+04	274.75	4.04E+03	2.22
	20	372.06	370 -	374	372.26	8.29E+01	84.83	1.53E+03	1.11
	21	388.02	385 -	392	388.21	2.09E+02	126.19	2.52E+03	4.11
	22	403.70	400 -	408	403.89	1.81E+02	138.45	2.84E+03	5.68
	23	455.34	453 -	459	455.51	1.47E+02	92.17	1.44E+03	2.77
	24	480.50	478 -	483	480.67	1.10E+02	81.42	1.24E+03	1.83
	25	511.32	507 -	516	511.47	1.51E+02	115.86	1.82E+03	2.78
	26	543.41	541 -	547	543.55	6.92E+01	80.78	1.13E+03	3.58
	27	609.56	603 -	615	609.68	7.85E+03	210.97	1.54E+03	2.30
	28	665.39	659 -	670	665.50	2.45E+02	108.06	1.33E+03	2.51
	29	703.16	700 -	707	703.25	6.44E+01	72.14	8.25E+02	1.72
	30	719.05	716 -	723	719.14	6.50E+01	70.60	7.86E+02	4.26
	31	727.10	725 -	729	727.18	4.23E+01	47.53	4.57E+02	2.62
	32	733.01	730 -	737	733.09	9.27E+01	65.24	6.47E+02	3.71
	33	742.55	738 -	749	742.62	1.64E+02	92.37	9.87E+02	4.01
	34	768.39	763 -	773	768.46	7.61E+02	102.92	1.01E+03	2.43
	35	786.82	782 -	792	786.88	2.13E+02	86.61	8.73E+02	3.18
	36	807.68	802 -	812	807.73	2.06E+02	88.22	9.09E+02	2.66
	37	839.42	836 -	845	839.47	1.58E+02	80.39	8.39E+02	2.78
	38	860.54	856 -	866	860.57	7.94E+01	82.63	8.65E+02	4.26
	39	913.92	909 -	919	913.94	1.25E+02	83.48	8.61E+02	6.22
	40	934.32	930 -	938	934.33	3.77E+02	79.40	7.39E+02	2.47

Analysis Report for 1707085-08

HTC-A02-S003-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	964.42	961 -	967	964.42	5.33E+01	56.31	5.35E+02	3.15
	42	1000.42	996 -	1004	1000.41	9.82E+01	69.03	6.78E+02	2.13
	43	1070.27	1066 -	1073	1070.23	5.49E+01	53.78	4.40E+02	2.47
	44	1120.47	1115 -	1125	1120.42	1.55E+03	103.04	5.88E+02	2.44
	45	1155.69	1152 -	1159	1155.63	1.85E+02	56.07	3.94E+02	2.23
	46	1182.43	1178 -	1188	1182.36	6.02E+01	66.90	5.60E+02	2.98
	47	1238.36	1233 -	1246	1238.27	5.75E+02	93.06	7.06E+02	2.65
	48	1281.05	1276 -	1286	1280.95	1.63E+02	67.94	5.30E+02	2.19
	49	1291.49	1287 -	1295	1291.38	4.46E+01	47.94	3.11E+02	2.23
	50	1377.84	1373 -	1381	1377.70	4.09E+02	61.63	3.32E+02	2.68
	51	1385.55	1383 -	1388	1385.41	7.72E+01	39.10	2.46E+02	2.31
M	52	1397.38	1395 -	1414	1397.23	2.87E+01	23.58	1.21E+02	2.55
m	53	1401.38	1395 -	1414	1401.23	1.33E+02	46.60	2.50E+02	2.55
m	54	1408.02	1395 -	1414	1407.87	2.34E+02	50.28	2.67E+02	2.53
m	55	1412.14	1395 -	1414	1411.99	3.79E+01	35.68	2.08E+02	2.55
	56	1460.96	1457 -	1465	1460.79	1.38E+02	52.26	3.31E+02	2.48
	57	1467.78	1466 -	1470	1467.61	3.12E+01	30.69	1.84E+02	4.31
M	58	1509.30	1505 -	1526	1509.12	2.15E+02	53.33	2.86E+02	2.85
m	59	1513.66	1505 -	1526	1513.47	5.30E+01	45.34	2.68E+02	2.53
	60	1540.19	1535 -	1547	1540.00	6.25E+01	67.44	5.01E+02	7.16
	61	1582.93	1579 -	1586	1582.73	7.62E+01	38.47	1.96E+02	3.42
	62	1593.87	1591 -	1596	1593.66	4.06E+01	30.72	1.57E+02	1.76
	63	1660.61	1656 -	1665	1660.38	6.95E+01	38.39	1.73E+02	1.87
	64	1692.42	1688 -	1696	1692.17	3.91E+01	30.24	1.16E+02	2.70
	65	1729.51	1722 -	1735	1729.26	2.49E+02	49.47	1.61E+02	2.87
	66	1764.64	1758 -	1770	1764.37	1.13E+03	74.87	1.28E+02	2.58
	67	1839.05	1833 -	1842	1838.76	3.34E+01	29.97	1.07E+02	4.14
	68	1847.40	1843 -	1852	1847.11	1.54E+02	35.36	9.29E+01	2.06
M	69	1867.84	1865 -	1882	1867.54	1.47E+01	14.68	3.50E+01	3.63
m	70	1873.83	1865 -	1882	1873.52	3.74E+01	24.24	6.30E+01	3.00
	71	1916.98	1915 -	1919	1916.66	1.42E+01	13.21	2.76E+01	1.34
	72	1970.07	1964 -	1975	1969.74	2.73E+01	28.77	8.95E+01	2.54
	73	2028.03	2023 -	2030	2027.67	1.57E+01	18.65	4.66E+01	3.51
	74	2118.87	2111 -	2122	2118.48	7.33E+01	30.46	8.34E+01	2.42
	75	2157.52	2152 -	2161	2157.12	1.62E+01	16.19	2.36E+01	1.28
	76	2204.18	2196 -	2211	2203.76	3.25E+02	41.18	3.88E+01	2.76
	77	2215.51	2211 -	2218	2215.09	1.50E+01	9.17	3.94E+00	4.50
	78	2222.02	2219 -	2224	2221.60	7.33E+00	6.71	3.33E+00	2.72
	79	2293.19	2289 -	2297	2292.75	2.55E+01	13.88	1.51E+01	2.80
	80	2401.34	2398 -	2403	2400.86	7.00E+00	5.29	0.00E+00	2.70
	81	2447.56	2443 -	2451	2447.06	9.45E+01	20.89	9.00E+00	3.52
	82	2614.85	2608 -	2619	2614.30	2.69E+01	12.49	6.17E+00	2.34

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 1707085-08

HTC-A02-S003-0006-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 12:21:41PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	46.62	44 -	49	1.19E+03	209.00	7.82E+03	1.62E+02
	2	52.93	51 -	56	3.11E+02	223.13	9.79E+03	1.81E+02
	3	63.53	61 -	67	1.73E+03	312.73	1.66E+04	2.48E+02
M	4	75.11	72 -	82	3.97E+03	317.92	1.53E+04	2.04E+02
m	5	77.44	72 -	82	6.54E+03	338.42	1.50E+04	2.01E+02
M	6	84.28	83 -	97	6.62E+02	192.09	9.24E+03	1.58E+02
m	7	87.86	83 -	97	2.52E+03	333.73	1.70E+04	2.15E+02
m	8	93.03	83 -	97	3.66E+03	334.14	1.45E+04	1.98E+02
	9	113.66	112 -	116	2.54E+02	185.31	7.36E+03	1.50E+02
	10	144.08	142 -	147	2.42E+02	216.58	9.21E+03	1.76E+02
	11	154.08	151 -	157	3.06E+02	239.05	1.02E+04	1.94E+02
	12	186.28	182 -	191	3.61E+03	308.13	1.15E+04	2.33E+02
	13	205.58	203 -	208	2.92E+02	170.65	5.56E+03	1.37E+02
	14	242.34	238 -	247	3.03E+03	260.58	7.84E+03	1.94E+02
	15	259.79	257 -	263	1.33E+02	161.56	4.61E+03	1.31E+02
	16	269.69	266 -	273	3.38E+02	177.03	5.02E+03	6.98E+01
	17	295.55	292 -	301	6.98E+03	251.09	4.96E+03	1.54E+02
	18	323.56	321 -	327	1.39E+02	127.13	2.85E+03	1.03E+02
	19	352.18	346 -	356	1.14E+04	274.75	4.04E+03	1.43E+02
	20	372.06	370 -	374	8.29E+01	84.83	1.53E+03	6.81E+01
	21	388.02	385 -	392	2.09E+02	126.19	2.52E+03	1.01E+02
	22	403.70	400 -	408	1.81E+02	138.45	2.84E+03	1.12E+02
	23	455.34	453 -	459	1.47E+02	92.17	1.44E+03	7.31E+01
	24	480.50	478 -	483	1.10E+02	81.42	1.24E+03	6.47E+01
	25	511.32	507 -	516	1.51E+02	115.86	1.82E+03	9.31E+01
	26	543.41	541 -	547	6.92E+01	80.78	1.13E+03	6.50E+01
	27	609.56	603 -	615	7.85E+03	210.97	1.54E+03	9.41E+01
	28	665.39	659 -	670	2.45E+02	108.06	1.33E+03	8.50E+01
	29	703.16	700 -	707	6.44E+01	72.14	8.25E+02	5.78E+01
	30	719.05	716 -	723	6.50E+01	70.60	7.86E+02	5.65E+01
	31	727.10	725 -	729	4.23E+01	47.53	4.57E+02	3.76E+01
	32	733.01	730 -	737	9.27E+01	65.24	6.47E+02	5.12E+01
	33	742.55	738 -	749	1.64E+02	92.37	9.87E+02	7.30E+01
	34	768.39	763 -	773	7.61E+02	102.92	1.01E+03	7.14E+01
	35	786.82	782 -	792	2.13E+02	86.61	8.73E+02	6.70E+01
	36	807.68	802 -	812	2.06E+02	88.22	9.09E+02	6.86E+01
	37	839.42	836 -	845	1.58E+02	80.39	8.39E+02	6.28E+01
	38	860.54	856 -	866	7.94E+01	82.63	8.65E+02	6.63E+01
	39	913.92	909 -	919	1.25E+02	83.48	8.61E+02	6.61E+01
	40	934.32	930 -	938	3.77E+02	79.40	7.39E+02	5.69E+01
	41	964.42	961 -	967	5.33E+01	56.31	5.35E+02	4.47E+01

Analysis Report for 1707085-08

HTC-A02-S003-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	42	1000.42	996 -	1004	9.82E+01	69.03	6.78E+02	5.44E+01
	43	1070.27	1066 -	1073	5.49E+01	53.78	4.40E+02	4.25E+01
	44	1120.47	1115 -	1125	1.55E+03	103.04	5.88E+02	5.46E+01
	45	1155.69	1152 -	1159	1.85E+02	56.07	3.94E+02	4.03E+01
	46	1182.43	1178 -	1188	6.02E+01	66.90	5.60E+02	5.35E+01
	47	1238.36	1233 -	1246	5.75E+02	93.06	7.06E+02	3.31E+01
	48	1281.05	1276 -	1286	1.63E+02	67.94	5.30E+02	5.18E+01
	49	1291.49	1287 -	1295	4.46E+01	47.94	3.11E+02	3.78E+01
	50	1377.84	1373 -	1381	4.09E+02	61.63	3.32E+02	3.82E+01
	51	1385.55	1383 -	1388	7.72E+01	39.10	2.46E+02	2.87E+01
M	52	1397.38	1395 -	1414	2.87E+01	23.58	1.21E+02	1.81E+01
m	53	1401.38	1395 -	1414	1.33E+02	46.60	2.50E+02	2.60E+01
m	54	1408.02	1395 -	1414	2.34E+02	50.28	2.67E+02	2.69E+01
m	55	1412.14	1395 -	1414	3.79E+01	35.68	2.08E+02	2.37E+01
	56	1460.96	1457 -	1465	1.38E+02	52.26	3.31E+02	3.84E+01
	57	1467.78	1466 -	1470	3.12E+01	30.69	1.84E+02	2.35E+01
M	58	1509.30	1505 -	1526	2.15E+02	53.33	2.86E+02	2.78E+01
m	59	1513.66	1505 -	1526	5.30E+01	45.34	2.68E+02	2.69E+01
	60	1540.19	1535 -	1547	6.25E+01	67.44	5.01E+02	5.39E+01
	61	1582.93	1579 -	1586	7.62E+01	38.47	1.96E+02	2.82E+01
	62	1593.87	1591 -	1596	4.06E+01	30.72	1.57E+02	2.30E+01
	63	1660.61	1656 -	1665	6.95E+01	38.39	1.73E+02	2.84E+01
	64	1692.42	1688 -	1696	3.91E+01	30.24	1.16E+02	2.26E+01
	65	1729.51	1722 -	1735	2.49E+02	49.47	1.61E+02	3.13E+01
	66	1764.64	1758 -	1770	1.13E+03	74.87	1.28E+02	2.73E+01
	67	1839.05	1833 -	1842	3.34E+01	29.97	1.07E+02	2.27E+01
	68	1847.40	1843 -	1852	1.54E+02	35.36	9.29E+01	2.07E+01
M	69	1867.84	1865 -	1882	1.47E+01	14.68	3.50E+01	9.73E+00
m	70	1873.83	1865 -	1882	3.74E+01	24.24	6.30E+01	1.30E+01
	71	1916.98	1915 -	1919	1.42E+01	13.21	2.76E+01	8.92E+00
	72	1970.07	1964 -	1975	2.73E+01	28.77	8.95E+01	2.20E+01
	73	2028.03	2023 -	2030	1.57E+01	18.65	4.66E+01	1.39E+01
	74	2118.87	2111 -	2122	7.33E+01	30.46	8.34E+01	2.07E+01
	75	2157.52	2152 -	2161	1.62E+01	16.19	2.36E+01	1.15E+01
	76	2204.18	2196 -	2211	3.25E+02	41.18	3.88E+01	1.64E+01
	77	2215.51	2211 -	2218	1.50E+01	9.17	3.94E+00	4.02E+00
	78	2222.02	2219 -	2224	7.33E+00	6.71	3.33E+00	3.25E+00
	79	2293.19	2289 -	2297	2.55E+01	13.88	1.51E+01	7.84E+00
	80	2401.34	2398 -	2403	7.00E+00	5.29	0.00E+00	0.00E+00
	81	2447.56	2443 -	2451	9.45E+01	20.89	9.00E+00	6.29E+00
	82	2614.85	2608 -	2619	2.69E+01	12.49	6.17E+00	5.71E+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 1707085-08

HTC-A02-S003-0006-01

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/21/2017 12:21:41PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	46.62	44 -	49	46.94	1.19E+03	209.00	7.82E+03	PB-210
	2	52.93	51 -	56	53.24	3.11E+02	223.13	9.79E+03	.....
	3	63.53	61 -	67	63.84	1.73E+03	312.73	1.66E+04	TH-234
									TH-230
M	4	75.11	72 -	82	75.41	3.97E+03	317.92	1.53E+04	AM-243
m	5	77.44	72 -	82	77.74	6.54E+03	338.42	1.50E+04	TI-44
M	6	84.28	83 -	97	84.58	6.62E+02	192.09	9.24E+03	TH-231
m	7	87.86	83 -	97	88.16	2.52E+03	333.73	1.70E+04	CD-109
									SN-126
									LU-176
m	8	93.03	83 -	97	93.33	3.66E+03	334.14	1.45E+04	GA-67
	9	113.66	112 -	116	113.95	2.54E+02	185.31	7.36E+03	.....
	10	144.08	142 -	147	144.36	2.42E+02	216.58	9.21E+03	U-235
	11	154.08	151 -	157	154.35	3.06E+02	239.05	1.02E+04	CS-136
	12	186.28	182 -	191	186.55	3.61E+03	308.13	1.15E+04	RA-226
	13	205.58	203 -	208	205.83	2.92E+02	170.65	5.56E+03	U-235
	14	242.34	238 -	247	242.59	3.03E+03	260.58	7.84E+03	.....
	15	259.79	257 -	263	260.03	1.33E+02	161.56	4.61E+03	.....
	16	269.69	266 -	273	269.92	3.38E+02	177.03	5.02E+03	.....
	17	295.55	292 -	301	295.78	6.98E+03	251.09	4.96E+03	PB-214
	18	323.56	321 -	327	323.78	1.39E+02	127.13	2.85E+03	RA-223
	19	352.18	346 -	356	352.39	1.14E+04	274.75	4.04E+03	PB-214
	20	372.06	370 -	374	372.26	8.29E+01	84.83	1.53E+03	.....
	21	388.02	385 -	392	388.21	2.09E+02	126.19	2.52E+03	.....
	22	403.70	400 -	408	403.89	1.81E+02	138.45	2.84E+03	.....
	23	455.34	453 -	459	455.51	1.47E+02	92.17	1.44E+03	.....
	24	480.50	478 -	483	480.67	1.10E+02	81.42	1.24E+03	.....
	25	511.32	507 -	516	511.47	1.51E+02	115.86	1.82E+03	.....
	26	543.41	541 -	547	543.55	6.92E+01	80.78	1.13E+03	.....
	27	609.56	603 -	615	609.68	7.85E+03	210.97	1.54E+03	BI-214
	28	665.39	659 -	670	665.50	2.45E+02	108.06	1.33E+03	CE-143
									SB-126
	29	703.16	700 -	707	703.25	6.44E+01	72.14	8.25E+02	NB-94
	30	719.05	716 -	723	719.14	6.50E+01	70.60	7.86E+02	.....
	31	727.10	725 -	729	727.18	4.23E+01	47.53	4.57E+02	BI-212
	32	733.01	730 -	737	733.09	9.27E+01	65.24	6.47E+02	PA-234
	33	742.55	738 -	749	742.62	1.64E+02	92.37	9.87E+02	.....
	34	768.39	763 -	773	768.46	7.61E+02	102.92	1.01E+03	.....
	35	786.82	782 -	792	786.88	2.13E+02	86.61	8.73E+02	.....
	36	807.68	802 -	812	807.73	2.06E+02	88.22	9.09E+02	.....
	37	839.42	836 -	845	839.47	1.58E+02	80.39	8.39E+02	.....

Analysis Report for 1707085-08

HTC-A02-S003-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	38	860.54	856 -	866	860.57	7.94E+01	82.63	8.65E+02	TL-208
	39	913.92	909 -	919	913.94	1.25E+02	83.48	8.61E+02	.....
	40	934.32	930 -	938	934.33	3.77E+02	79.40	7.39E+02	.....
	41	964.42	961 -	967	964.42	5.33E+01	56.31	5.35E+02	EU-152
	42	1000.42	996 -	1004	1000.41	9.82E+01	69.03	6.78E+02	PA-234M
	43	1070.27	1066 -	1073	1070.23	5.49E+01	53.78	4.40E+02	.....
	44	1120.47	1115 -	1125	1120.42	1.55E+03	103.04	5.88E+02	SC-46 BI-214 TA-182
	45	1155.69	1152 -	1159	1155.63	1.85E+02	56.07	3.94E+02	.....
	46	1182.43	1178 -	1188	1182.36	6.02E+01	66.90	5.60E+02	.....
	47	1238.36	1233 -	1246	1238.27	5.75E+02	93.06	7.06E+02	CO-56
	48	1281.05	1276 -	1286	1280.95	1.63E+02	67.94	5.30E+02	.....
	49	1291.49	1287 -	1295	1291.38	4.46E+01	47.94	3.11E+02	FE-59
	50	1377.84	1373 -	1381	1377.70	4.09E+02	61.63	3.32E+02	.....
	51	1385.55	1383 -	1388	1385.41	7.72E+01	39.10	2.46E+02	.....
M	52	1397.38	1395 -	1414	1397.23	2.87E+01	23.58	1.21E+02	.....
m	53	1401.38	1395 -	1414	1401.23	1.33E+02	46.60	2.50E+02	.....
m	54	1408.02	1395 -	1414	1407.87	2.34E+02	50.28	2.67E+02	EU-152
m	55	1412.14	1395 -	1414	1411.99	3.79E+01	35.68	2.08E+02	.....
	56	1460.96	1457 -	1465	1460.79	1.38E+02	52.26	3.31E+02	K-40
	57	1467.78	1466 -	1470	1467.61	3.12E+01	30.69	1.84E+02	.....
M	58	1509.30	1505 -	1526	1509.12	2.15E+02	53.33	2.86E+02	.....
m	59	1513.66	1505 -	1526	1513.47	5.30E+01	45.34	2.68E+02	.....
	60	1540.19	1535 -	1547	1540.00	6.25E+01	67.44	5.01E+02	.....
	61	1582.93	1579 -	1586	1582.73	7.62E+01	38.47	1.96E+02	.....
	62	1593.87	1591 -	1596	1593.66	4.06E+01	30.72	1.57E+02	.....
	63	1660.61	1656 -	1665	1660.38	6.95E+01	38.39	1.73E+02	.....
	64	1692.42	1688 -	1696	1692.17	3.91E+01	30.24	1.16E+02	.....
	65	1729.51	1722 -	1735	1729.26	2.49E+02	49.47	1.61E+02	.....
	66	1764.64	1758 -	1770	1764.37	1.13E+03	74.87	1.28E+02	BI-214
	67	1839.05	1833 -	1842	1838.76	3.34E+01	29.97	1.07E+02	.....
	68	1847.40	1843 -	1852	1847.11	1.54E+02	35.36	9.29E+01	.....
M	69	1867.84	1865 -	1882	1867.54	1.47E+01	14.68	3.50E+01	.....
m	70	1873.83	1865 -	1882	1873.52	3.74E+01	24.24	6.30E+01	.....
	71	1916.98	1915 -	1919	1916.66	1.42E+01	13.21	2.76E+01	.....
	72	1970.07	1964 -	1975	1969.74	2.73E+01	28.77	8.95E+01	.....
	73	2028.03	2023 -	2030	2027.67	1.57E+01	18.65	4.66E+01	.....
	74	2118.87	2111 -	2122	2118.48	7.33E+01	30.46	8.34E+01	.....
	75	2157.52	2152 -	2161	2157.12	1.62E+01	16.19	2.36E+01	.....
	76	2204.18	2196 -	2211	2203.76	3.25E+02	41.18	3.88E+01	BI-214
	77	2215.51	2211 -	2218	2215.09	1.50E+01	9.17	3.94E+00	.....
	78	2222.02	2219 -	2224	2221.60	7.33E+00	6.71	3.33E+00	.....
	79	2293.19	2289 -	2297	2292.75	2.55E+01	13.88	1.51E+01	.....
	80	2401.34	2398 -	2403	2400.86	7.00E+00	5.29	0.00E+00	.....
	81	2447.56	2443 -	2451	2447.06	9.45E+01	20.89	9.00E+00	.....
	82	2614.85	2608 -	2619	2614.30	2.69E+01	12.49	6.17E+00	TL-208

Analysis Report for 1707085-08

HTC-A02-S003-0006-01

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/21/2017 12:21:41PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.62	1.19E+03	209.00	1.73E-02	1.73E-03
	2	52.93	3.11E+02	223.13	2.07E-02	1.73E-03
	3	63.53	1.73E+03	312.73	2.45E-02	1.80E-03
M	4	75.11	3.97E+03	317.92	2.65E-02	2.02E-03
m	5	77.44	6.54E+03	338.42	2.68E-02	2.06E-03
M	6	84.28	6.62E+02	192.09	2.71E-02	2.19E-03
m	7	87.86	2.52E+03	333.73	2.72E-02	2.26E-03
m	8	93.03	3.66E+03	334.14	2.71E-02	2.24E-03
	9	113.66	2.54E+02	185.31	2.59E-02	2.16E-03
	10	144.08	2.42E+02	216.58	2.32E-02	1.87E-03
	11	154.08	3.06E+02	239.05	2.23E-02	1.76E-03
	12	186.28	3.61E+03	308.13	1.96E-02	1.55E-03
	13	205.58	2.92E+02	170.65	1.82E-02	1.47E-03
	14	242.34	3.03E+03	260.58	1.59E-02	1.32E-03
	15	259.79	1.33E+02	161.56	1.50E-02	1.26E-03
	16	269.69	3.38E+02	177.03	1.46E-02	1.22E-03
	17	295.55	6.98E+03	251.09	1.35E-02	1.15E-03
	18	323.56	1.39E+02	127.13	1.24E-02	1.09E-03
	19	352.18	1.14E+04	274.75	1.15E-02	1.03E-03
	20	372.06	8.29E+01	84.83	1.10E-02	9.92E-04
	21	388.02	2.09E+02	126.19	1.06E-02	9.60E-04
	22	403.70	1.81E+02	138.45	1.02E-02	9.37E-04
	23	455.34	1.47E+02	92.17	9.16E-03	8.68E-04
	24	480.50	1.10E+02	81.42	8.73E-03	8.35E-04
	25	511.32	1.51E+02	115.86	8.25E-03	7.94E-04
	26	543.41	6.92E+01	80.78	7.81E-03	7.51E-04
	27	609.56	7.85E+03	210.97	7.04E-03	6.64E-04
	28	665.39	2.45E+02	108.06	6.51E-03	5.91E-04
	29	703.16	6.44E+01	72.14	6.19E-03	5.58E-04
	30	719.05	6.50E+01	70.60	6.07E-03	5.44E-04
	31	727.10	4.23E+01	47.53	6.01E-03	5.37E-04
	32	733.01	9.27E+01	65.24	5.97E-03	5.32E-04
	33	742.55	1.64E+02	92.37	5.90E-03	5.23E-04
	34	768.39	7.61E+02	102.92	5.72E-03	5.00E-04

Analysis Report for 1707085-08

HTC-A02-S003-0006-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	35	786.82	2.13E+02	86.61	5.60E-03	4.84E-04
	36	807.68	2.06E+02	88.22	5.47E-03	4.66E-04
	37	839.42	1.58E+02	80.39	5.29E-03	4.38E-04
	38	860.54	7.94E+01	82.63	5.17E-03	4.19E-04
	39	913.92	1.25E+02	83.48	4.91E-03	3.83E-04
	40	934.32	3.77E+02	79.40	4.81E-03	3.80E-04
	41	964.42	5.33E+01	56.31	4.68E-03	3.75E-04
	42	1000.42	9.82E+01	69.03	4.54E-03	3.69E-04
	43	1070.27	5.49E+01	53.78	4.28E-03	3.58E-04
	44	1120.47	1.55E+03	103.04	4.12E-03	3.50E-04
	45	1155.69	1.85E+02	56.07	4.01E-03	3.44E-04
	46	1182.43	6.02E+01	66.90	3.93E-03	3.38E-04
	47	1238.36	5.75E+02	93.06	3.78E-03	3.22E-04
	48	1281.05	1.63E+02	67.94	3.68E-03	3.10E-04
	49	1291.49	4.46E+01	47.94	3.66E-03	3.07E-04
	50	1377.84	4.09E+02	61.63	3.47E-03	2.88E-04
	51	1385.55	7.72E+01	39.10	3.45E-03	2.87E-04
M	52	1397.38	2.87E+01	23.58	3.43E-03	2.85E-04
m	53	1401.38	1.33E+02	46.60	3.42E-03	2.85E-04
m	54	1408.02	2.34E+02	50.28	3.41E-03	2.84E-04
m	55	1412.14	3.79E+01	35.68	3.40E-03	2.83E-04
	56	1460.96	1.38E+02	52.26	3.31E-03	2.75E-04
	57	1467.78	3.12E+01	30.69	3.30E-03	2.74E-04
M	58	1509.30	2.15E+02	53.33	3.23E-03	2.67E-04
m	59	1513.66	5.30E+01	45.34	3.22E-03	2.67E-04
	60	1540.19	6.25E+01	67.44	3.17E-03	2.62E-04
	61	1582.93	7.62E+01	38.47	3.11E-03	2.56E-04
	62	1593.87	4.06E+01	30.72	3.09E-03	2.54E-04
	63	1660.61	6.95E+01	38.39	3.00E-03	2.43E-04
	64	1692.42	3.91E+01	30.24	2.95E-03	2.38E-04
	65	1729.51	2.49E+02	49.47	2.91E-03	2.32E-04
	66	1764.64	1.13E+03	74.87	2.87E-03	2.26E-04
	67	1839.05	3.34E+01	29.97	2.78E-03	2.15E-04
	68	1847.40	1.54E+02	35.36	2.77E-03	2.15E-04
M	69	1867.84	1.47E+01	14.68	2.75E-03	2.15E-04
m	70	1873.83	3.74E+01	24.24	2.74E-03	2.15E-04
	71	1916.98	1.42E+01	13.21	2.70E-03	2.15E-04
	72	1970.07	2.73E+01	28.77	2.65E-03	2.15E-04
	73	2028.03	1.57E+01	18.65	2.60E-03	2.15E-04
	74	2118.87	7.33E+01	30.46	2.53E-03	2.15E-04
	75	2157.52	1.62E+01	16.19	2.50E-03	2.15E-04
	76	2204.18	3.25E+02	41.18	2.46E-03	2.15E-04
	77	2215.51	1.50E+01	9.17	2.46E-03	2.15E-04
	78	2222.02	7.33E+00	6.71	2.45E-03	2.15E-04
	79	2293.19	2.55E+01	13.88	2.41E-03	2.15E-04
	80	2401.34	7.00E+00	5.29	2.34E-03	2.15E-04
	81	2447.56	9.45E+01	20.89	2.32E-03	2.15E-04
	82	2614.85	2.69E+01	12.49	2.24E-03	2.15E-04

Analysis Report for 1707085-08

HTC-A02-S003-0006-01

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/21/2017 12:21:41PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055575.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.62	1.19E+03	209.00	4.47E+01	1.09E+01	1.14E+03	2.09E+02
	2	52.93	3.11E+02	223.13			3.11E+02	2.23E+02
	3	63.53	1.73E+03	312.73	4.12E+01	5.67E+00	1.69E+03	3.13E+02
M	4	75.11	3.97E+03	317.92			3.97E+03	3.18E+02
m	5	77.44	6.54E+03	338.42			6.54E+03	3.38E+02
M	6	84.28	6.62E+02	192.09	5.71E+00	6.69E+00	6.56E+02	1.92E+02
m	7	87.86	2.52E+03	333.73			2.52E+03	3.34E+02
m	8	93.03	3.66E+03	334.14	7.98E+01	7.31E+00	3.58E+03	3.34E+02
	9	113.66	2.54E+02	185.31			2.54E+02	1.85E+02
	10	144.08	2.42E+02	216.58			2.42E+02	2.17E+02
	11	154.08	3.06E+02	239.05			3.06E+02	2.39E+02
	12	186.28	3.61E+03	308.13	3.06E+01	5.82E+00	3.58E+03	3.08E+02
	13	205.58	2.92E+02	170.65			2.92E+02	1.71E+02
	14	242.34	3.03E+03	260.58			3.03E+03	2.61E+02
	15	259.79	1.33E+02	161.56			1.33E+02	1.62E+02
	16	269.69	3.38E+02	177.03			3.38E+02	1.77E+02
	17	295.55	6.98E+03	251.09			6.98E+03	2.51E+02
	18	323.56	1.39E+02	127.13			1.39E+02	1.27E+02
	19	352.18	1.14E+04	274.75	6.53E+00	4.43E+00	1.13E+04	2.75E+02
	20	372.06	8.29E+01	84.83			8.29E+01	8.48E+01
	21	388.02	2.09E+02	126.19			2.09E+02	1.26E+02
	22	403.70	1.81E+02	138.45			1.81E+02	1.38E+02
	23	455.34	1.47E+02	92.17			1.47E+02	9.22E+01
	24	480.50	1.10E+02	81.42			1.10E+02	8.14E+01
	25	511.32	1.51E+02	115.86	5.21E+01	4.74E+00	9.88E+01	1.16E+02
	26	543.41	6.92E+01	80.78			6.92E+01	8.08E+01
	27	609.56	7.85E+03	210.97	3.25E+00	2.97E+00	7.85E+03	2.11E+02
	28	665.39	2.45E+02	108.06			2.45E+02	1.08E+02
	29	703.16	6.44E+01	72.14			6.44E+01	7.21E+01
	30	719.05	6.50E+01	70.60			6.50E+01	7.06E+01
	31	727.10	4.23E+01	47.53			4.23E+01	4.75E+01
	32	733.01	9.27E+01	65.24			9.27E+01	6.52E+01
	33	742.55	1.64E+02	92.37			1.64E+02	9.24E+01
	34	768.39	7.61E+02	102.92			7.61E+02	1.03E+02
	35	786.82	2.13E+02	86.61			2.13E+02	8.66E+01

Analysis Report for 1707085-08

HTC-A02-S003-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	36	807.68	2.06E+02	88.22			2.06E+02	8.82E+01
	37	839.42	1.58E+02	80.39			1.58E+02	8.04E+01
	38	860.54	7.94E+01	82.63			7.94E+01	8.26E+01
	39	913.92	1.25E+02	83.48			1.25E+02	8.35E+01
	40	934.32	3.77E+02	79.40			3.77E+02	7.94E+01
	41	964.42	5.33E+01	56.31			5.33E+01	5.63E+01
	42	1000.42	9.82E+01	69.03			9.82E+01	6.90E+01
	43	1070.27	5.49E+01	53.78			5.49E+01	5.38E+01
	44	1120.47	1.55E+03	103.04			1.55E+03	1.03E+02
	45	1155.69	1.85E+02	56.07			1.85E+02	5.61E+01
	46	1182.43	6.02E+01	66.90			6.02E+01	6.69E+01
	47	1238.36	5.75E+02	93.06			5.75E+02	9.31E+01
	48	1281.05	1.63E+02	67.94			1.63E+02	6.79E+01
	49	1291.49	4.46E+01	47.94			4.46E+01	4.79E+01
	50	1377.84	4.09E+02	61.63			4.09E+02	6.16E+01
	51	1385.55	7.72E+01	39.10			7.72E+01	3.91E+01
M	52	1397.38	2.87E+01	23.58			2.87E+01	2.36E+01
m	53	1401.38	1.33E+02	46.60			1.33E+02	4.66E+01
m	54	1408.02	2.34E+02	50.28			2.34E+02	5.03E+01
m	55	1412.14	3.79E+01	35.68			3.79E+01	3.57E+01
	56	1460.96	1.38E+02	52.26	1.00E+00	1.77E+00	1.37E+02	5.23E+01
	57	1467.78	3.12E+01	30.69			3.12E+01	3.07E+01
M	58	1509.30	2.15E+02	53.33			2.15E+02	5.33E+01
m	59	1513.66	5.30E+01	45.34			5.30E+01	4.53E+01
	60	1540.19	6.25E+01	67.44			6.25E+01	6.74E+01
	61	1582.93	7.62E+01	38.47			7.62E+01	3.85E+01
	62	1593.87	4.06E+01	30.72			4.06E+01	3.07E+01
	63	1660.61	6.95E+01	38.39			6.95E+01	3.84E+01
	64	1692.42	3.91E+01	30.24			3.91E+01	3.02E+01
	65	1729.51	2.49E+02	49.47			2.49E+02	4.95E+01
	66	1764.64	1.13E+03	74.87			1.13E+03	7.49E+01
	67	1839.05	3.34E+01	29.97			3.34E+01	3.00E+01
	68	1847.40	1.54E+02	35.36			1.54E+02	3.54E+01
M	69	1867.84	1.47E+01	14.68			1.47E+01	1.47E+01
m	70	1873.83	3.74E+01	24.24			3.74E+01	2.42E+01
	71	1916.98	1.42E+01	13.21			1.42E+01	1.32E+01
	72	1970.07	2.73E+01	28.77			2.73E+01	2.88E+01
	73	2028.03	1.57E+01	18.65			1.57E+01	1.87E+01
	74	2118.87	7.33E+01	30.46			7.33E+01	3.05E+01
	75	2157.52	1.62E+01	16.19			1.62E+01	1.62E+01
	76	2204.18	3.25E+02	41.18			3.25E+02	4.12E+01
	77	2215.51	1.50E+01	9.17			1.50E+01	9.17E+00
	78	2222.02	7.33E+00	6.71			7.33E+00	6.71E+00
	79	2293.19	2.55E+01	13.88			2.55E+01	1.39E+01
	80	2401.34	7.00E+00	5.29			7.00E+00	5.29E+00
	81	2447.56	9.45E+01	20.89			9.45E+01	2.09E+01
	82	2614.85	2.69E+01	12.49	1.86E+00	1.12E+00	2.51E+01	1.25E+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 1707085-08

HTC-A02-S003-0006-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/21/2017 12:21:41PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055575.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	46.62	1.19E+03	209.00	4.47E+01	1.09E+01	1.14E+03	2.09E+02
	2	52.93	3.11E+02	223.13			3.11E+02	2.23E+02
	3	63.53	1.73E+03	312.73	4.12E+01	5.67E+00	1.69E+03	3.13E+02
M	4	75.11	3.97E+03	317.92			3.97E+03	3.18E+02
m	5	77.44	6.54E+03	338.42			6.54E+03	3.38E+02
M	6	84.28	6.62E+02	192.09	5.71E+00	6.69E+00	6.56E+02	1.92E+02
m	7	87.86	2.52E+03	333.73			2.52E+03	3.34E+02
m	8	93.03	3.66E+03	334.14	7.98E+01	7.31E+00	3.58E+03	3.34E+02
	9	113.66	2.54E+02	185.31			2.54E+02	1.85E+02
	10	144.08	2.42E+02	216.58			2.42E+02	2.17E+02
	11	154.08	3.06E+02	239.05			3.06E+02	2.39E+02
	12	186.28	3.61E+03	308.13	3.06E+01	5.82E+00	3.58E+03	3.08E+02
	13	205.58	2.92E+02	170.65			2.92E+02	1.71E+02
	14	242.34	3.03E+03	260.58			3.03E+03	2.61E+02
	15	259.79	1.33E+02	161.56			1.33E+02	1.62E+02
	16	269.69	3.38E+02	177.03			3.38E+02	1.77E+02
	17	295.55	6.98E+03	251.09			6.98E+03	2.51E+02
	18	323.56	1.39E+02	127.13			1.39E+02	1.27E+02
	19	352.18	1.14E+04	274.75	6.53E+00	4.43E+00	1.13E+04	2.75E+02
	20	372.06	8.29E+01	84.83			8.29E+01	8.48E+01
	21	388.02	2.09E+02	126.19			2.09E+02	1.26E+02
	22	403.70	1.81E+02	138.45			1.81E+02	1.38E+02
	23	455.34	1.47E+02	92.17			1.47E+02	9.22E+01
	24	480.50	1.10E+02	81.42			1.10E+02	8.14E+01
	25	511.32	1.51E+02	115.86	5.21E+01	4.74E+00	9.88E+01	1.16E+02
	26	543.41	6.92E+01	80.78			6.92E+01	8.08E+01
	27	609.56	7.85E+03	210.97	3.25E+00	2.97E+00	7.85E+03	2.11E+02
	28	665.39	2.45E+02	108.06			2.45E+02	1.08E+02
	29	703.16	6.44E+01	72.14			6.44E+01	7.21E+01
	30	719.05	6.50E+01	70.60			6.50E+01	7.06E+01
	31	727.10	4.23E+01	47.53			4.23E+01	4.75E+01
	32	733.01	9.27E+01	65.24			9.27E+01	6.52E+01
	33	742.55	1.64E+02	92.37			1.64E+02	9.24E+01
	34	768.39	7.61E+02	102.92			7.61E+02	1.03E+02
	35	786.82	2.13E+02	86.61			2.13E+02	8.66E+01
	36	807.68	2.06E+02	88.22			2.06E+02	8.82E+01
	37	839.42	1.58E+02	80.39			1.58E+02	8.04E+01
	38	860.54	7.94E+01	82.63			7.94E+01	8.26E+01
	39	913.92	1.25E+02	83.48			1.25E+02	8.35E+01

Analysis Report for 1707085-08

HTC-A02-S003-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	40	934.32	3.77E+02	79.40			3.77E+02	7.94E+01
	41	964.42	5.33E+01	56.31			5.33E+01	5.63E+01
	42	1000.42	9.82E+01	69.03			9.82E+01	6.90E+01
	43	1070.27	5.49E+01	53.78			5.49E+01	5.38E+01
	44	1120.47	1.55E+03	103.04			1.55E+03	1.03E+02
	45	1155.69	1.85E+02	56.07			1.85E+02	5.61E+01
	46	1182.43	6.02E+01	66.90			6.02E+01	6.69E+01
	47	1238.36	5.75E+02	93.06			5.75E+02	9.31E+01
	48	1281.05	1.63E+02	67.94			1.63E+02	6.79E+01
	49	1291.49	4.46E+01	47.94			4.46E+01	4.79E+01
	50	1377.84	4.09E+02	61.63			4.09E+02	6.16E+01
	51	1385.55	7.72E+01	39.10			7.72E+01	3.91E+01
M	52	1397.38	2.87E+01	23.58			2.87E+01	2.36E+01
m	53	1401.38	1.33E+02	46.60			1.33E+02	4.66E+01
m	54	1408.02	2.34E+02	50.28			2.34E+02	5.03E+01
m	55	1412.14	3.79E+01	35.68			3.79E+01	3.57E+01
	56	1460.96	1.38E+02	52.26	1.00E+00	1.77E+00	1.37E+02	5.23E+01
	57	1467.78	3.12E+01	30.69			3.12E+01	3.07E+01
M	58	1509.30	2.15E+02	53.33			2.15E+02	5.33E+01
m	59	1513.66	5.30E+01	45.34			5.30E+01	4.53E+01
	60	1540.19	6.25E+01	67.44			6.25E+01	6.74E+01
	61	1582.93	7.62E+01	38.47			7.62E+01	3.85E+01
	62	1593.87	4.06E+01	30.72			4.06E+01	3.07E+01
	63	1660.61	6.95E+01	38.39			6.95E+01	3.84E+01
	64	1692.42	3.91E+01	30.24			3.91E+01	3.02E+01
	65	1729.51	2.49E+02	49.47			2.49E+02	4.95E+01
	66	1764.64	1.13E+03	74.87			1.13E+03	7.49E+01
	67	1839.05	3.34E+01	29.97			3.34E+01	3.00E+01
	68	1847.40	1.54E+02	35.36			1.54E+02	3.54E+01
M	69	1867.84	1.47E+01	14.68			1.47E+01	1.47E+01
m	70	1873.83	3.74E+01	24.24			3.74E+01	2.42E+01
	71	1916.98	1.42E+01	13.21			1.42E+01	1.32E+01
	72	1970.07	2.73E+01	28.77			2.73E+01	2.88E+01
	73	2028.03	1.57E+01	18.65			1.57E+01	1.87E+01
	74	2118.87	7.33E+01	30.46			7.33E+01	3.05E+01
	75	2157.52	1.62E+01	16.19			1.62E+01	1.62E+01
	76	2204.18	3.25E+02	41.18			3.25E+02	4.12E+01
	77	2215.51	1.50E+01	9.17			1.50E+01	9.17E+00
	78	2222.02	7.33E+00	6.71			7.33E+00	6.71E+00
	79	2293.19	2.55E+01	13.88			2.55E+01	1.39E+01
	80	2401.34	7.00E+00	5.29			7.00E+00	5.29E+00
	81	2447.56	9.45E+01	20.89			9.45E+01	2.09E+01
	82	2614.85	2.69E+01	12.49	1.86E+00	1.12E+00	2.51E+01	1.25E+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 1707085-08

HTC-A02-S003-0006-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.997	1460.81	*	10.67	3.87E+00	1.52E+00
CD-109	0.995	88.03	*	3.72	2.88E+01	4.82E+00
SN-126	0.987	87.57	*	37.00	2.50E+00	3.92E-01
PB-210	0.998	46.50	*	4.25	1.56E+01	3.26E+00
BI-212	0.771	727.17	*	11.80	5.96E-01	6.72E-01
		1620.62		2.75		
BI-214	0.993	609.31	*	46.30	2.41E+01	2.36E+00
		1120.29	*	15.10	2.49E+01	2.69E+00
		1764.49	*	15.80	2.49E+01	2.57E+00
		2204.22	*	4.98	2.64E+01	4.07E+00
PB-214	0.987	295.21	*	19.19	2.70E+01	2.50E+00
		351.92	*	37.19	2.65E+01	2.45E+00
RA-223	0.985	323.87	*	3.88	2.87E+00	2.65E+00
RA-226	0.999	186.21	*	3.28	5.58E+01	1.02E+02
TH-231	0.309	25.64		14.70		
		84.21	*	6.40	3.78E+00	1.15E+00
PA-234M	0.942	1001.03	*	0.92	2.35E+01	1.66E+01
TH-234	0.991	63.29	*	3.80	1.82E+01	3.62E+00
U-235	0.612	143.76	*	10.50	9.94E-01	9.06E-01
		163.35		4.70		
		205.31	*	4.70	3.42E+00	2.10E+00
AM-243	0.970	74.67	*	66.00	2.26E+00	2.50E-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 12:21:41PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Analysis Report for 1707085-08

HTC-A02-S003-0006-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	52.93	8.65038E-02	35.83		
m	5	77.44	1.81577E+00	2.59		
m	8	93.03	9.95582E-01	4.66	Sum	
	9	113.66	7.05029E-02	36.50		
	11	154.08	8.49980E-02	39.06	Tol.	CS-136
	14	242.34	8.42246E-01	4.30		
	15	259.79	3.70369E-02	60.59		
	16	269.69	9.38894E-02	26.19	Sum	
	20	372.06	2.30315E-02	51.16	Sum	
	21	388.02	5.80306E-02	30.20	Sum	
	22	403.70	5.02151E-02	38.29		
	23	455.34	4.07267E-02	31.43		
	24	480.50	3.06384E-02	36.91		
	25	511.32	2.74394E-02	58.69		
	26	543.41	1.92278E-02	58.35		
	28	665.39	6.79724E-02	22.08	Tol.	SB-126 CE-143
	29	703.16	1.78989E-02	55.98		
	30	719.05	1.80598E-02	54.29		
	32	733.01	2.57405E-02	35.20	Tol.	PA-234
	33	742.55	4.54232E-02	28.24	D-Esc	
	34	768.39	2.11423E-01	6.76		
	35	786.82	5.92466E-02	20.30		
	36	807.68	5.70833E-02	21.46		
	37	839.42	4.39888E-02	25.38		
	38	860.54	2.20616E-02	52.02	Tol.	TL-208
	39	913.92	3.46309E-02	33.48	Sum	
	40	934.32	1.04627E-01	10.54		
	41	964.42	1.48127E-02	52.80	Tol.	EU-152
	43	1070.27	1.52495E-02	48.98		
	45	1155.69	5.13289E-02	15.17		
	46	1182.43	1.67198E-02	55.57	D-Esc	
	47	1238.36	1.59758E-01	8.09		
	48	1281.05	4.53193E-02	20.82		
	49	1291.49	1.23931E-02	53.73	Tol.	FE-59
	50	1377.84	1.13555E-01	7.54		
	51	1385.55	2.14306E-02	25.34		
M	52	1397.38	7.95908E-03	41.15		
m	53	1401.38	3.69822E-02	17.50		
m	54	1408.02	6.51155E-02	10.72	Tol.	EU-152
m	55	1412.14	1.05407E-02	47.01		
	57	1467.78	8.66870E-03	49.17		
M	58	1509.30	5.95883E-02	12.43		
m	59	1513.66	1.47264E-02	42.76		
	60	1540.19	1.73545E-02	53.97		
	61	1582.93	2.11718E-02	25.24		
	62	1593.87	1.12698E-02	37.86		
	63	1660.61	1.93109E-02	27.61		
	64	1692.42	1.08505E-02	38.71	S-Esc	
	65	1729.51	6.92946E-02	9.91	Sum	
	67	1839.05	9.27203E-03	44.89	Sum	
	68	1847.40	4.26556E-02	11.51	Sum	

Analysis Report for 1707085-08

HTC-A02-S003-0006-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	69	1867.84	4.09020E-03	49.85		
m	70	1873.83	1.03820E-02	32.43		
	71	1916.98	3.94841E-03	46.47		
	72	1970.07	7.56944E-03	52.80	Sum	
	73	2028.03	4.36610E-03	59.34		
	74	2118.87	2.03587E-02	20.78		
	75	2157.52	4.50397E-03	49.91		
	77	2215.51	4.17484E-03	30.49		
	78	2222.02	2.03704E-03	45.74		
	79	2293.19	7.07071E-03	27.27		
	80	2401.34	1.94444E-03	37.80		
	81	2447.56	2.62500E-02	11.05		
	82	2614.85	6.96073E-03	25.02	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

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81	*	10.67	3.87E+00	1.52E+00
CD-109	0.99	88.03	*	3.72	2.88E+01	4.82E+00
SN-126	0.98	87.57	*	37.00	2.50E+00	3.92E-01
PB-210	0.99	46.50	*	4.25	1.56E+01	3.26E+00
BI-212	0.77	727.17	*	11.80	5.96E-01	6.72E-01
		1620.62		2.75		
BI-214	0.99	609.31	*	46.30	2.41E+01	2.36E+00
		1120.29	*	15.10	2.49E+01	2.69E+00
		1764.49	*	15.80	2.49E+01	2.57E+00
		2204.22	*	4.98	2.64E+01	4.07E+00
PB-214	0.98	295.21	*	19.19	2.70E+01	2.50E+00
		351.92	*	37.19	2.65E+01	2.45E+00
RA-223	0.98	323.87	*	3.88	2.87E+00	2.65E+00
RA-226	0.99	186.21	*	3.28	5.58E+01	1.02E+02
TH-231	0.30	25.64		14.70		

Analysis Report for 1707085-08

HTC-A02-S003-0006-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
TH-231	0.30	84.21	*	6.40	3.78E+00	1.15E+00
PA-234M	0.94	1001.03	*	0.92	2.35E+01	1.66E+01
TH-234	0.99	63.29	*	3.80	1.82E+01	3.62E+00
U-235	0.61	143.76	*	10.50	9.94E-01	9.06E-01
		163.35		4.70		
		205.31	*	4.70	3.42E+00	2.10E+00
AM-243	0.97	74.67	*	66.00	2.26E+00	2.50E-01

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.997	3.87E+00	1.52E+00	
?	CD-109	0.995	2.88E+01	4.82E+00	
?	SN-126	0.987	2.50E+00	3.92E-01	
	PB-210	0.998	1.56E+01	3.26E+00	
	BI-212	0.771	5.96E-01	6.72E-01	
	BI-214	0.993	2.48E+01	1.37E+00	
	PB-214	0.987	2.67E+01	1.75E+00	
	RA-223	0.985	2.87E+00	2.65E+00	
	RA-226	0.999	5.58E+01	1.02E+02	
	TH-231	0.309	3.78E+00	1.15E+00	
	PA-234M	0.942	2.35E+01	1.66E+01	
	TH-234	0.991	1.82E+01	3.62E+00	
	U-235	0.612	1.37E+00	8.32E-01	
	AM-243	0.970	2.26E+00	2.50E-01	

Analysis Report for 1707085-08

HTC-A02-S003-0006-01

? = 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 1707085-08

HTC-A02-S003-0006-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 12:21:41PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	52.93	8.65038E-02	35.83		
m	5	77.44	1.81577E+00	2.59		
m	8	93.03	9.95582E-01	4.66	Sum	
	9	113.66	7.05029E-02	36.50		
	11	154.08	8.49980E-02	39.06	Tol.	CS-136
	14	242.34	8.42246E-01	4.30		
	15	259.79	3.70369E-02	60.59		
	16	269.69	9.38894E-02	26.19	Sum	
	20	372.06	2.30315E-02	51.16	Sum	
	21	388.02	5.80306E-02	30.20	Sum	
	22	403.70	5.02151E-02	38.29		
	23	455.34	4.07267E-02	31.43		
	24	480.50	3.06384E-02	36.91		
	25	511.32	2.74394E-02	58.69		
	26	543.41	1.92278E-02	58.35		
	28	665.39	6.79724E-02	22.08	Tol.	SB-126 CE-143
	29	703.16	1.78989E-02	55.98		
	30	719.05	1.80598E-02	54.29		
	32	733.01	2.57405E-02	35.20	Tol.	PA-234
	33	742.55	4.54232E-02	28.24	D-Esc	
	34	768.39	2.11423E-01	6.76		
	35	786.82	5.92466E-02	20.30		
	36	807.68	5.70833E-02	21.46		
	37	839.42	4.39888E-02	25.38		
	38	860.54	2.20616E-02	52.02	Tol.	TL-208
	39	913.92	3.46309E-02	33.48	Sum	
	40	934.32	1.04627E-01	10.54		
	41	964.42	1.48127E-02	52.80	Tol.	EU-152
	43	1070.27	1.52495E-02	48.98		
	45	1155.69	5.13289E-02	15.17		
	46	1182.43	1.67198E-02	55.57	D-Esc	
	47	1238.36	1.59758E-01	8.09		
	48	1281.05	4.53193E-02	20.82		
	49	1291.49	1.23931E-02	53.73	Tol.	FE-59

Analysis Report for 1707085-08

HTC-A02-S003-0006-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	50	1377.84	1.13555E-01	7.54		
	51	1385.55	2.14306E-02	25.34		
M	52	1397.38	7.95908E-03	41.15		
m	53	1401.38	3.69822E-02	17.50		
m	54	1408.02	6.51155E-02	10.72	Tol.	EU-152
m	55	1412.14	1.05407E-02	47.01		
	57	1467.78	8.66870E-03	49.17		
M	58	1509.30	5.95883E-02	12.43		
m	59	1513.66	1.47264E-02	42.76		
	60	1540.19	1.73545E-02	53.97		
	61	1582.93	2.11718E-02	25.24		
	62	1593.87	1.12698E-02	37.86		
	63	1660.61	1.93109E-02	27.61		
	64	1692.42	1.08505E-02	38.71	S-Esc	
	65	1729.51	6.92946E-02	9.91	Sum	
	67	1839.05	9.27203E-03	44.89	Sum	
	68	1847.40	4.26556E-02	11.51	Sum	
M	69	1867.84	4.09020E-03	49.85		
m	70	1873.83	1.03820E-02	32.43		
	71	1916.98	3.94841E-03	46.47		
	72	1970.07	7.56944E-03	52.80	Sum	
	73	2028.03	4.36610E-03	59.34		
	74	2118.87	2.03587E-02	20.78		
	75	2157.52	4.50397E-03	49.91		
	77	2215.51	4.17484E-03	30.49		
	78	2222.02	2.03704E-03	45.74		
	79	2293.19	7.07071E-03	27.27		
	80	2401.34	1.94444E-03	37.80		
	81	2447.56	2.62500E-02	11.05		
	82	2614.85	6.96073E-03	25.02	Tol.	TL-208

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

NUCLIDE MDA REPORT

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

Analysis Report for 1707085-08

HTC-A02-S003-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	-4.02E-01	5.36E+00	5.36E+00
+	NA-22	1274.54		99.94	-3.64E-02	1.87E-01	1.87E-01
+	@ NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@	2754.09		99.86	1.00E+26		1.00E+26
+	AL-26	1808.65		99.76	-3.41E-04	1.23E-01	1.23E-01
+	K-40	1460.81	*	10.67	3.87E+00	2.25E+00	2.25E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-9.74E-03	1.54E-01	1.54E-01
		78.34		96.00	1.61E+00		2.05E-01
+	SC-46	889.25		99.98	-5.57E-02	3.89E-01	3.89E-01
		1120.51		99.99	8.54E+00		1.08E+00
+	V-48	983.52		99.98	-3.53E+00	1.17E+01	1.17E+01
		1312.10		97.50	5.81E-01		1.20E+01
+	CR-51	320.08		9.83	-4.97E+00	1.69E+01	1.69E+01
+	MN-54	834.83		99.97	3.31E-02	2.18E-01	2.18E-01
+	CO-56	846.75		99.96	2.66E-01	4.14E-01	4.14E-01
		1037.75		14.03	-7.59E-01		2.79E+00
		1238.25		67.00	4.96E+00		1.20E+00
		1771.40		15.51	4.51E-02		2.20E+00
		2598.48		16.90	-1.94E-01		6.73E-01
+	CO-57	122.06		85.51	-1.74E-02	1.69E-01	1.69E-01
		136.48		10.60	-3.63E-01		1.43E+00
+	CO-58	810.76		99.40	-6.95E-02	4.32E-01	4.32E-01
+	FE-59	1099.22		56.50	-2.69E-01	1.44E+00	1.44E+00
		1291.56		43.20	1.19E+00		1.81E+00
+	CO-60	1173.22		100.00	2.79E-02	1.64E-01	1.86E-01
		1332.49		100.00	-7.12E-02		1.64E-01
+	ZN-65	1115.52		50.75	8.34E-02	4.74E-01	4.74E-01
+	GA-67	93.31		35.70	3.39E+09	4.89E+08	4.89E+08
		208.95		2.24	-5.83E+08		7.76E+09
		300.22		16.00	-7.60E+07		1.38E+09
+	SE-75	121.11		16.70	-1.86E-02	3.48E-01	1.18E+00
		136.00		59.20	-1.37E-01		3.48E-01
		264.65		59.80	-1.05E-01		4.39E-01
		279.53		25.20	-1.03E+00		1.04E+00
		400.65		11.40	-5.86E-02		2.48E+00
+	RB-82	776.52		13.00	5.92E+00	1.77E+01	1.77E+01
+	RB-83	520.41		46.00	-1.48E-01	6.86E-01	6.86E-01
		529.64		30.30	-3.08E-01		1.07E+00
		552.65		16.40	-5.24E-01		2.04E+00
+	KR-85	513.99		0.43	2.20E+01	3.71E+01	3.71E+01
+	SR-85	513.99		99.27	2.70E-01	4.55E-01	4.55E-01
+	Y-88	898.02		93.40	-1.46E-01	3.03E-01	3.51E-01
		1836.01		99.38	1.46E-01		3.03E-01
+	MO-93	263.06		56.72	-6.36E-02	1.48E-01	2.70E-01
		684.67		99.68	4.07E-02		1.48E-01
		1477.11		99.08	-4.78E-03		2.04E-01

Analysis Report for 1707085-08

HTC-A02-S003-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	NB-93M	16.57		9.43	4.99E+01	1.46E+02	1.46E+02
+	NB-94	702.63		100.00	8.62E-02	1.60E-01	1.60E-01
		871.10		100.00	1.89E-02		1.67E-01
+	NB-95	765.79		99.81	5.91E+00	1.79E+00	1.79E+00
+	NB-95M	235.69		25.00	-2.15E+07	9.78E+07	9.78E+07
+	ZR-95	724.18		43.70	-3.39E-01	8.17E-01	1.02E+00
		756.72		55.30	-1.19E-01		8.17E-01
+	MO-99	181.06		6.20	-2.20E+10	6.97E+10	1.14E+11
		739.58		12.80	3.85E+10		6.97E+10
		778.00		4.50	6.24E+10		1.95E+11
+	RU-103	497.08		89.00	1.76E-01	8.90E-01	8.90E-01
+	RU-106	621.84		9.80	1.25E-01	1.67E+00	1.67E+00
+	AG-108M	433.93		89.90	1.47E-03	1.72E-01	1.73E-01
		614.37		90.40	1.02E-02		3.17E-01
		722.95		90.50	-9.62E-02		1.72E-01
+	CD-109	88.03	*	3.72	2.88E+01	9.65E+00	9.65E+00
+	AG-110M	657.75		93.14	-2.25E-02	2.05E-01	2.05E-01
		677.61		10.53	-8.17E-01		1.74E+00
		706.67		16.46	-1.44E-01		1.22E+00
		763.93		21.98	-4.65E-02		1.06E+00
		884.67		71.63	-4.62E-02		3.08E-01
		1384.27		23.94	-1.40E+00		1.12E+00
+	CD-113M	263.70		0.02	-1.57E+02	6.57E+02	6.57E+02
+	SN-113	255.12		1.93	1.96E+00	4.38E-01	1.40E+01
		391.69		64.90	-8.42E-02		4.38E-01
+	TE123M	159.00		84.10	-7.75E-02	2.68E-01	2.68E-01
+	SB-124	602.71		97.87	-7.43E-03	4.73E-01	4.73E-01
		645.85		7.26	-1.35E+00		5.83E+00
		722.78		11.10	-2.42E+00		4.34E+00
		1691.02		49.00	5.79E-01		1.05E+00
+	I-125	35.49		6.49	-3.36E+00	1.20E+01	1.20E+01
+	SB-125	176.33		6.89	5.34E-01	6.05E-01	1.97E+00
		427.89		29.33	4.24E-01		6.05E-01
		463.38		10.35	6.95E-01		1.56E+00
		600.56		17.80	2.06E-01		8.97E-01
		635.90		11.32	3.66E-01		1.34E+00
+	SB-126	414.70		83.30	-7.56E+00	3.68E+01	4.66E+01
		666.33		99.60	9.33E+01		4.47E+01
		695.00		99.60	1.25E+01		3.68E+01
		720.50		53.80	2.02E+01		7.16E+01
+	SN-126	87.57	*	37.00	2.50E+00	8.38E-01	8.38E-01
+	SB-127	473.00		25.00	4.39E+06	1.91E+07	2.83E+07
		685.20		35.70	5.27E+06		1.91E+07
		783.80		14.70	4.35E+07		5.82E+07
+	I-129	29.78		57.00	-1.61E-01	7.72E-01	7.72E-01
		33.60		13.20	5.88E-01		2.22E+00
		39.58		7.52	2.92E-02		2.62E+00
+	I-131	284.30		6.05	-2.18E+03	8.41E+02	1.16E+04

Analysis Report for 1707085-08

HTC-A02-S003-0006-01

		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		I-131	364.48	81.20	4.96E+02	8.41E+02	8.41E+02
			636.97	7.26	-4.35E+02		9.12E+03
			722.89	1.80	-2.28E+04		4.09E+04
+		TE-132	49.72	13.10	-5.95E+09	2.01E+08	1.38E+09
			228.16	88.00	-5.60E+07		2.01E+08
+		BA-133	81.00	33.00	-4.82E+00	4.55E-01	4.55E-01
			302.84	17.80	-1.13E-02		8.33E-01
			356.01	60.00	-7.44E-04		5.57E-01
+	@	I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+		XE-133	81.00	38.00	-1.78E+06	1.67E+05	1.67E+05
+		CS-134	563.23	8.38	9.58E-02	1.98E-01	2.00E+00
			569.32	15.43	-1.28E-01		1.06E+00
			604.70	97.60	-9.08E+00		2.58E-01
			795.84	85.40	-5.34E-02		1.98E-01
			801.93	8.73	3.07E-01		2.07E+00
+		CS-135	268.24	16.00	8.68E-01	9.99E-01	9.99E-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	5.25E+01	2.92E+01	3.08E+02
			163.89	4.61	2.87E+02		4.95E+02
			176.55	13.56	4.47E+01		1.64E+02
			273.65	12.66	1.00E+02		2.24E+02
			340.57	48.50	3.65E+01		5.69E+01
			818.50	99.70	2.99E+00		2.92E+01
			1048.07	79.60	-2.34E+01		3.54E+01
			1235.34	19.70	2.83E+02		2.59E+02
+		CS-137	661.65	85.12	-2.02E-01	1.95E-01	1.95E-01
+		LA-138	788.74	34.00	5.57E-01	2.67E-01	5.21E-01
			1435.80	66.00	-9.21E-03		2.67E-01
+		CE-139	165.85	80.35	2.21E-01	2.65E-01	2.65E-01
+		BA-140	162.64	6.70	1.28E+01	1.27E+02	3.91E+02
			304.84	4.50	6.63E+01		6.60E+02
			423.70	3.20	-1.33E+02		1.05E+03
			437.55	2.00	-1.52E+03		1.49E+03
			537.32	25.00	7.34E+01		1.27E+02
+		LA-140	328.77	20.50	-5.04E+00	4.52E+01	1.51E+02
			487.03	45.50	2.97E+01		6.84E+01
			815.85	23.50	-2.67E+01		1.38E+02
			1596.49	95.49	3.61E+00		4.52E+01
+		CE-141	145.44	48.40	3.07E+00	2.20E+00	2.20E+00
+	@	CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26
	@		293.26	42.00	1.00E+26		1.00E+26
	@		664.55	5.20	1.00E+26		1.00E+26
+		CE-144	133.54	10.80	-4.28E-01	1.36E+00	1.36E+00
+		PM-144	476.78	42.00	1.27E-02	1.70E-01	4.36E-01
			618.01	98.60	4.92E-02		1.70E-01
			696.49	99.49	6.77E-02		1.86E-01
+		PM-145	36.85	21.70	2.94E-02	5.63E-01	1.07E+00

Analysis Report for 1707085-08

HTC-A02-S003-0006-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PM-145	37.36	39.70	-1.97E-01	5.63E-01	5.63E-01
		42.30	15.10	-8.56E-02		1.19E+00
		72.40	2.31	-5.02E+01		7.25E+00
+	PM-146	453.90	39.94	-4.02E-02	3.94E-01	3.94E-01
		735.90	14.01	-1.25E+00		1.10E+00
		747.13	13.10	-1.12E+00		1.19E+00
+	ND-147	91.11	28.90	-3.43E+02	2.59E+02	2.59E+02
		531.02	13.10	2.01E+01		5.62E+02
+	PM-149	285.90	3.10	-2.72E+13	1.10E+14	1.10E+14
+	EU-152	121.78	20.50	-5.72E-02	5.56E-01	5.56E-01
		244.69	5.40	2.90E+01		4.04E+00
		344.27	19.13	-2.67E-01		8.12E-01
		778.89	9.20	-1.26E-01		1.73E+00
		964.01	10.40	2.42E-01		1.79E+00
		1085.78	7.22	7.58E-01		2.28E+00
		1112.02	9.60	1.61E-01		1.75E+00
		1407.95	14.94	3.40E+00		1.78E+00
+	GD-153	97.43	31.30	2.60E-01	4.77E-01	4.77E-01
		103.18	22.20	-4.80E-01		6.40E-01
+	EU-154	123.07	40.50	3.15E-02	2.84E-01	2.84E-01
		723.30	19.70	-4.51E-01		8.08E-01
		873.19	11.50	-3.04E-02		1.49E+00
		996.32	10.30	2.15E-01		1.73E+00
		1004.76	17.90	3.46E-01		1.05E+00
		1274.45	35.50	-9.73E-02		5.01E-01
+	EU-155	86.50	30.90	1.25E+00	5.06E-01	5.06E-01
		105.30	20.70	9.09E-02		5.44E-01
+	EU-156	811.77	10.40	-1.21E+01	1.34E+02	1.34E+02
		1153.47	7.20	1.35E+01		2.69E+02
		1230.71	8.90	-2.08E+01		1.65E+02
+	HO-166M	184.41	72.60	1.78E+00	2.54E-01	2.54E-01
		280.45	29.60	-1.99E-01		5.04E-01
		410.94	11.10	3.19E-01		1.44E+00
		711.69	54.10	2.47E-02		2.83E-01
+	TM-171	66.72	0.14	7.07E+01	1.18E+02	1.18E+02
+	HF-172	67.35	5.31	-1.91E-01	1.12E+00	3.02E+00
		125.81	11.30	-3.01E-01		1.12E+00
+	LU-172	181.53	20.60	-3.12E+03	7.10E+03	1.62E+04
		900.72	29.81	7.69E+03		1.56E+04
		1093.66	62.50	1.49E+03		7.10E+03
+	LU-173	100.72	5.24	2.08E-01	8.98E-01	2.38E+00
		272.11	21.20	2.47E-01		8.98E-01
+	HF-175	343.40	84.00	-1.58E-01	4.81E-01	4.81E-01
+	LU-176	88.34	13.30	-1.45E+00	1.51E-01	1.14E+00
		201.83	86.00	3.35E-02		1.51E-01
		306.78	94.00	3.37E-02		1.55E-01
+	HF-181	133.02	41.70	-5.55E-01	9.46E-01	1.37E+00
		345.85	17.20	1.57E-01		4.49E+00
		482.03	82.80	-1.25E-01		9.46E-01

Analysis Report for 1707085-08

HTC-A02-S003-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TA-182	67.75		41.20	-4.03E-02	6.36E-01	6.36E-01
		1121.30		34.90	1.94E+01		2.48E+00
		1189.05		16.23	-3.06E-01		1.82E+00
		1221.41		26.98	-1.13E-01		1.08E+00
		1231.02		11.44	-3.33E-01		2.65E+00
+	IR-192	308.46		29.68	-2.17E-01	7.83E-01	1.22E+00
		468.07		48.10	3.02E-01		7.83E-01
+	HG-203	279.19		77.30	-5.05E-01	8.40E-01	8.40E-01
+	TL-204	374.74		94.11	-6.39E-03	1.66E-01	1.66E-01
		899.15		99.16	-2.20E-02		1.87E-01
		911.74		91.10	4.17E-02		2.17E-01
+	BI-207	569.67		97.72	-1.99E-02	1.54E-01	1.54E-01
		1063.62		74.90	1.62E-02		2.27E-01
+	TL-208	583.14		30.22	4.92E-01	3.46E-01	5.45E-01
		860.37		4.48	3.14E+00		3.88E+00
		2614.66		35.85	3.25E-01		3.46E-01
+	BI-210M	262.00		45.00	-7.85E-02	3.42E-01	3.42E-01
		300.00		23.00	-4.60E-02		8.35E-01
+	PB-210	46.50	*	4.25	1.56E+01	4.50E+00	4.50E+00
+	PB-211	404.84		2.90	3.22E+00	5.71E+00	5.71E+00
		831.96		2.90	-1.56E+00		5.72E+00
+	BI-212	727.17	*	11.80	5.96E-01	1.10E+00	1.10E+00
		1620.62		2.75	9.76E-01		5.89E+00
+	PB-212	238.63		44.60	1.45E-01	4.39E-01	4.39E-01
		300.09		3.41	-3.11E-01		5.63E+00
+	BI-214	609.31	*	46.30	2.41E+01	5.86E-01	5.86E-01
		1120.29	*	15.10	2.49E+01		1.80E+00
		1764.49	*	15.80	2.49E+01		1.27E+00
		2204.22	*	4.98	2.64E+01		2.89E+00
+	PB-214	295.21	*	19.19	2.70E+01	6.72E-01	1.20E+00
		351.92	*	37.19	2.65E+01		6.72E-01
+	RN-219	401.80		6.50	-2.21E-01	2.50E+00	2.50E+00
+	RA-223	323.87	*	3.88	2.87E+00	4.32E+00	4.32E+00
+	RA-224	240.98		3.95	4.54E+01	5.70E+00	5.70E+00
+	RA-225	40.00		31.00	6.85E-01	6.16E+01	6.16E+01
+	RA-226	186.21	*	3.28	5.58E+01	7.32E+00	7.32E+00
+	TH-227	50.10		8.40	-7.86E+00	1.39E+00	1.82E+00
		236.00		11.50	-3.07E-01		1.39E+00
		256.20		6.30	4.26E-01		2.42E+00
+	AC-228	338.32		11.40	7.96E-02	6.68E-01	1.36E+00
		911.07		27.70	-1.74E-03		6.68E-01
		969.11		16.60	2.18E-01		1.08E+00
+	TH-230	48.44		16.90	1.14E-01	9.99E-01	9.99E-01
		62.85		4.60	1.59E+01		3.66E+00
		67.67		0.37	-2.48E+00		3.91E+01
+	PA-231	283.67		1.60	3.22E+00	6.33E+00	9.40E+00
		302.67		2.30	-8.60E-02		6.33E+00
+	TH-231	25.64		14.70	6.03E-01	4.71E+00	5.60E+00

Analysis Report for 1707085-08

HTC-A02-S003-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TH-231	84.21	*	6.40	3.78E+00	4.71E+00	4.71E+00
+	PA-233	311.98		38.60	-8.15E-01	4.65E+00	4.65E+00
+	PA-234	131.20		20.40	3.58E-01	5.71E-01	5.71E-01
		733.99		8.80	1.43E+00		1.77E+00
		946.00		12.00	1.21E-01		1.40E+00
+	PA-234M	1001.03	*	0.92	2.35E+01	2.67E+01	2.67E+01
+	TH-234	63.29	*	3.80	1.82E+01	5.36E+00	5.36E+00
+	U-235	143.76	*	10.50	9.94E-01	1.46E+00	1.46E+00
		163.35		4.70	1.60E+00		2.75E+00
		205.31	*	4.70	3.42E+00		3.25E+00
+	NP-237	86.50		12.60	2.96E+00	1.20E+00	1.20E+00
+	NP-239	106.10		22.70	2.81E+11	1.68E+12	1.68E+12
		228.18		10.70	-1.38E+12		4.97E+12
		277.60		14.10	1.34E+12		3.81E+12
+	AM-241	59.54		35.90	-5.02E-02	4.13E-01	4.13E-01
+	AM-243	74.67	*	66.00	2.26E+00	4.03E-01	4.03E-01
+	CM-243	209.75		3.29	-5.47E-01	1.10E+00	4.57E+00
		228.14		10.60	-4.01E-01		1.44E+00
		277.60		14.00	3.89E-01		1.10E+00

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

NUCLIDE MDA REPORT

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

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	5.36E+00	5.36E+00	-4.02E-01	2.63E+00
NA-22	1274.54	99.94	1.87E-01	1.87E-01	-3.64E-02	8.97E-02
@ NA-24	1368.53	99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20

Analysis Report for 1707085-08

HTC-A02-S003-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@	NA-24	2754.09		99.86	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	AL-26	1808.65		99.76	1.23E-01	1.23E-01	-3.41E-04	5.68E-02
+	K-40	1460.81	*	10.67	2.25E+00	2.25E+00	3.87E+00	1.09E+00
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	1.54E-01	1.54E-01	-9.74E-03	7.62E-02
		78.34		96.00	2.05E-01		1.61E+00	1.02E-01
	SC-46	889.25		99.98	3.89E-01	3.89E-01	-5.57E-02	1.88E-01
		1120.51		99.99	1.08E+00		8.54E+00	5.31E-01
	V-48	983.52		99.98	1.17E+01	1.17E+01	-3.53E+00	5.62E+00
		1312.10		97.50	1.20E+01		5.81E-01	5.75E+00
	CR-51	320.08		9.83	1.69E+01	1.69E+01	-4.97E+00	8.33E+00
	MN-54	834.83		99.97	2.18E-01	2.18E-01	3.31E-02	1.06E-01
	CO-56	846.75		99.96	4.14E-01	4.14E-01	2.66E-01	2.01E-01
		1037.75		14.03	2.79E+00		-7.59E-01	1.34E+00
		1238.25		67.00	1.20E+00		4.96E+00	5.90E-01
		1771.40		15.51	2.20E+00		4.51E-02	1.03E+00
		2598.48		16.90	6.73E-01		-1.94E-01	2.52E-01
	CO-57	122.06		85.51	1.69E-01	1.69E-01	-1.74E-02	8.38E-02
		136.48		10.60	1.43E+00		-3.63E-01	7.07E-01
	CO-58	810.76		99.40	4.32E-01	4.32E-01	-6.95E-02	2.09E-01
	FE-59	1099.22		56.50	1.44E+00	1.44E+00	-2.69E-01	6.92E-01
		1291.56		43.20	1.81E+00		1.19E+00	8.66E-01
	CO-60	1173.22		100.00	1.86E-01	1.64E-01	2.79E-02	8.94E-02
		1332.49		100.00	1.64E-01		-7.12E-02	7.80E-02
	ZN-65	1115.52		50.75	4.74E-01	4.74E-01	8.34E-02	2.28E-01
	GA-67	93.31		35.70	4.89E+08	4.89E+08	3.39E+09	2.43E+08
		208.95		2.24	7.76E+09		-5.83E+08	3.84E+09
		300.22		16.00	1.38E+09		-7.60E+07	6.82E+08
	SE-75	121.11		16.70	1.18E+00	3.48E-01	-1.86E-02	5.84E-01
		136.00		59.20	3.48E-01		-1.37E-01	1.72E-01
		264.65		59.80	4.39E-01		-1.05E-01	2.17E-01
		279.53		25.20	1.04E+00		-1.03E+00	5.14E-01
		400.65		11.40	2.48E+00		-5.86E-02	1.22E+00
	RB-82	776.52		13.00	1.77E+01	1.77E+01	5.92E+00	8.57E+00
	RB-83	520.41		46.00	6.86E-01	6.86E-01	-1.48E-01	3.35E-01
		529.64		30.30	1.07E+00		-3.08E-01	5.22E-01
		552.65		16.40	2.04E+00		-5.24E-01	9.99E-01
	KR-85	513.99		0.43	3.71E+01	3.71E+01	2.20E+01	1.82E+01
	SR-85	513.99		99.27	4.55E-01	4.55E-01	2.70E-01	2.23E-01
	Y-88	898.02		93.40	3.51E-01	3.03E-01	-1.46E-01	1.70E-01
		1836.01		99.38	3.03E-01		1.46E-01	1.42E-01
	MO-93	263.06		56.72	2.70E-01	1.48E-01	-6.36E-02	1.33E-01
		684.67		99.68	1.48E-01		4.07E-02	7.16E-02
		1477.11		99.08	2.04E-01		-4.78E-03	9.76E-02
	NB-93M	16.57		9.43	1.46E+02	1.46E+02	4.99E+01	7.21E+01
	NB-94	702.63		100.00	1.60E-01	1.60E-01	8.62E-02	7.76E-02
		871.10		100.00	1.67E-01		1.89E-02	8.10E-02
	NB-95	765.79		99.81	1.79E+00	1.79E+00	5.91E+00	8.77E-01
	NB-95M	235.69		25.00	9.78E+07	9.78E+07	-2.15E+07	4.84E+07
	ZR-95	724.18		43.70	1.02E+00	8.17E-01	-3.39E-01	4.94E-01
		756.72		55.30	8.17E-01		-1.19E-01	3.96E-01
	MO-99	181.06		6.20	1.14E+11	6.97E+10	-2.20E+10	5.66E+10
		739.58		12.80	6.97E+10		3.85E+10	3.39E+10

Analysis Report for 1707085-08

HTC-A02-S003-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	MO-99	778.00		4.50	1.95E+11	6.97E+10	6.24E+10	9.47E+10
	RU-103	497.08		89.00	8.90E-01	8.90E-01	1.76E-01	4.35E-01
	RU-106	621.84		9.80	1.67E+00	1.67E+00	1.25E-01	8.13E-01
	AG-108M	433.93		89.90	1.73E-01	1.72E-01	1.47E-03	8.50E-02
		614.37		90.40	3.17E-01		1.02E-02	1.56E-01
		722.95		90.50	1.72E-01		-9.62E-02	8.37E-02
+	CD-109	88.03	*	3.72	9.65E+00	9.65E+00	2.88E+01	4.81E+00
	AG-110M	657.75		93.14	2.05E-01	2.05E-01	-2.25E-02	9.94E-02
		677.61		10.53	1.74E+00		-8.17E-01	8.45E-01
		706.67		16.46	1.22E+00		-1.44E-01	5.91E-01
		763.93		21.98	1.06E+00		-4.65E-02	5.17E-01
		884.67		71.63	3.08E-01		-4.62E-02	1.49E-01
		1384.27		23.94	1.12E+00		-1.40E+00	5.39E-01
	CD-113M	263.70		0.02	6.57E+02	6.57E+02	-1.57E+02	3.25E+02
	SN-113	255.12		1.93	1.40E+01	4.38E-01	1.96E+00	6.91E+00
		391.69		64.90	4.38E-01		-8.42E-02	2.16E-01
	TE123M	159.00		84.10	2.68E-01	2.68E-01	-7.75E-02	1.33E-01
	SB-124	602.71		97.87	4.73E-01	4.73E-01	-7.43E-03	2.31E-01
		645.85		7.26	5.83E+00		-1.35E+00	2.83E+00
		722.78		11.10	4.34E+00		-2.42E+00	2.11E+00
		1691.02		49.00	1.05E+00		5.79E-01	4.94E-01
	I-125	35.49		6.49	1.20E+01	1.20E+01	-3.36E+00	5.92E+00
	SB-125	176.33		6.89	1.97E+00	6.05E-01	5.34E-01	9.73E-01
		427.89		29.33	6.05E-01		4.24E-01	2.98E-01
		463.38		10.35	1.56E+00		6.95E-01	7.64E-01
		600.56		17.80	8.97E-01		2.06E-01	4.37E-01
		635.90		11.32	1.34E+00		3.66E-01	6.52E-01
	SB-126	414.70		83.30	4.66E+01	3.68E+01	-7.56E+00	2.29E+01
		666.33		99.60	4.47E+01		9.33E+01	2.18E+01
		695.00		99.60	3.68E+01		1.25E+01	1.79E+01
		720.50		53.80	7.16E+01		2.02E+01	3.48E+01
+	SN-126	87.57	*	37.00	8.38E-01	8.38E-01	2.50E+00	4.18E-01
	SB-127	473.00		25.00	2.83E+07	1.91E+07	4.39E+06	1.39E+07
		685.20		35.70	1.91E+07		5.27E+06	9.28E+06
		783.80		14.70	5.82E+07		4.35E+07	2.84E+07
	I-129	29.78		57.00	7.72E-01	7.72E-01	-1.61E-01	3.82E-01
		33.60		13.20	2.22E+00		5.88E-01	1.10E+00
		39.58		7.52	2.62E+00		2.92E-02	1.30E+00
	I-131	284.30		6.05	1.16E+04	8.41E+02	-2.18E+03	5.75E+03
		364.48		81.20	8.41E+02		4.96E+02	4.14E+02
		636.97		7.26	9.12E+03		-4.35E+02	4.43E+03
		722.89		1.80	4.09E+04		-2.28E+04	1.99E+04
	TE-132	49.72		13.10	1.38E+09	2.01E+08	-5.95E+09	6.82E+08
		228.16		88.00	2.01E+08		-5.60E+07	9.95E+07
	BA-133	81.00		33.00	4.55E-01	4.55E-01	-4.82E+00	2.26E-01
		302.84		17.80	8.33E-01		-1.13E-02	4.10E-01
		356.01		60.00	5.57E-01		-7.44E-04	2.77E-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	1.67E+05	1.67E+05	-1.78E+06	8.31E+04
	CS-134	563.23		8.38	2.00E+00	1.98E-01	9.58E-02	9.78E-01
		569.32		15.43	1.06E+00		-1.28E-01	5.19E-01
		604.70		97.60	2.58E-01		-9.08E+00	1.27E-01
		795.84		85.40	1.98E-01		-5.34E-02	9.58E-02

Analysis Report for 1707085-08

HTC-A02-S003-0006-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-134	801.93	8.73	2.07E+00	1.98E-01	3.07E-01	1.00E+00
CS-135	268.24	16.00	9.99E-01	9.99E-01	8.68E-01	4.94E-01
@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41	28.60	1.00E+26		1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		1.00E+26	1.00E+20
CS-136	153.22	7.46	3.08E+02	2.92E+01	5.25E+01	1.52E+02
	163.89	4.61	4.95E+02		2.87E+02	2.45E+02
	176.55	13.56	1.64E+02		4.47E+01	8.14E+01
	273.65	12.66	2.24E+02		1.00E+02	1.11E+02
	340.57	48.50	5.69E+01		3.65E+01	2.80E+01
	818.50	99.70	2.92E+01		2.99E+00	1.41E+01
	1048.07	79.60	3.54E+01		-2.34E+01	1.70E+01
	1235.34	19.70	2.59E+02		2.83E+02	1.26E+02
CS-137	661.65	85.12	1.95E-01	1.95E-01	-2.02E-01	9.48E-02
LA-138	788.74	34.00	5.21E-01	2.67E-01	5.57E-01	2.53E-01
	1435.80	66.00	2.67E-01		-9.21E-03	1.27E-01
CE-139	165.85	80.35	2.65E-01	2.65E-01	2.21E-01	1.31E-01
BA-140	162.64	6.70	3.91E+02	1.27E+02	1.28E+01	1.93E+02
	304.84	4.50	6.60E+02		6.63E+01	3.25E+02
	423.70	3.20	1.05E+03		-1.33E+02	5.18E+02
	437.55	2.00	1.49E+03		-1.52E+03	7.30E+02
	537.32	25.00	1.27E+02		7.34E+01	6.22E+01
LA-140	328.77	20.50	1.51E+02	4.52E+01	-5.04E+00	7.43E+01
	487.03	45.50	6.84E+01		2.97E+01	3.35E+01
	815.85	23.50	1.38E+02		-2.67E+01	6.68E+01
	1596.49	95.49	4.52E+01		3.61E+00	2.17E+01
CE-141	145.44	48.40	2.20E+00	2.20E+00	3.07E+00	1.09E+00
@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	293.26	42.00	1.00E+26		1.00E+26	1.00E+20
@	664.55	5.20	1.00E+26		1.00E+26	1.00E+20
CE-144	133.54	10.80	1.36E+00	1.36E+00	-4.28E-01	6.74E-01
PM-144	476.78	42.00	4.36E-01	1.70E-01	1.27E-02	2.13E-01
	618.01	98.60	1.70E-01		4.92E-02	8.25E-02
	696.49	99.49	1.86E-01		6.77E-02	9.05E-02
PM-145	36.85	21.70	1.07E+00	5.63E-01	2.94E-02	5.27E-01
	37.36	39.70	5.63E-01		-1.97E-01	2.79E-01
	42.30	15.10	1.19E+00		-8.56E-02	5.91E-01
	72.40	2.31	7.25E+00		-5.02E+01	3.60E+00
PM-146	453.90	39.94	3.94E-01	3.94E-01	-4.02E-02	1.93E-01
	735.90	14.01	1.10E+00		-1.25E+00	5.33E-01
	747.13	13.10	1.19E+00		-1.12E+00	5.75E-01
ND-147	91.11	28.90	2.59E+02	2.59E+02	-3.43E+02	1.28E+02
	531.02	13.10	5.62E+02		2.01E+01	2.75E+02
PM-149	285.90	3.10	1.10E+14	1.10E+14	-2.72E+13	5.45E+13
EU-152	121.78	20.50	5.56E-01	5.56E-01	-5.72E-02	2.75E-01
	244.69	5.40	4.04E+00		2.90E+01	2.00E+00
	344.27	19.13	8.12E-01		-2.67E-01	4.00E-01
	778.89	9.20	1.73E+00		-1.26E-01	8.41E-01
	964.01	10.40	1.79E+00		2.42E-01	8.67E-01
	1085.78	7.22	2.28E+00		7.58E-01	1.10E+00
	1112.02	9.60	1.75E+00		1.61E-01	8.40E-01
	1407.95	14.94	1.78E+00		3.40E+00	8.64E-01
GD-153	97.43	31.30	4.77E-01	4.77E-01	2.60E-01	2.36E-01

Analysis Report for 1707085-08

HTC-A02-S003-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	GD-153	103.18		22.20	6.40E-01	4.77E-01	-4.80E-01	3.17E-01
	EU-154	123.07		40.50	2.84E-01	2.84E-01	3.15E-02	1.41E-01
		723.30		19.70	8.08E-01		-4.51E-01	3.92E-01
		873.19		11.50	1.49E+00		-3.04E-02	7.21E-01
		996.32		10.30	1.73E+00		2.15E-01	8.35E-01
		1004.76		17.90	1.05E+00		3.46E-01	5.10E-01
		1274.45		35.50	5.01E-01		-9.73E-02	2.40E-01
	EU-155	86.50		30.90	5.06E-01	5.06E-01	1.25E+00	2.52E-01
		105.30		20.70	5.44E-01		9.09E-02	2.69E-01
	EU-156	811.77		10.40	1.34E+02	1.34E+02	-1.21E+01	6.50E+01
		1153.47		7.20	2.69E+02		1.35E+01	1.30E+02
		1230.71		8.90	1.65E+02		-2.08E+01	7.91E+01
	HO-166M	184.41		72.60	2.54E-01	2.54E-01	1.78E+00	1.26E-01
		280.45		29.60	5.04E-01		-1.99E-01	2.49E-01
		410.94		11.10	1.44E+00		3.19E-01	7.08E-01
		711.69		54.10	2.83E-01		2.47E-02	1.38E-01
	TM-171	66.72		0.14	1.18E+02	1.18E+02	7.07E+01	5.84E+01
	HF-172	67.35		5.31	3.02E+00	1.12E+00	-1.91E-01	1.50E+00
		125.81		11.30	1.12E+00		-3.01E-01	5.54E-01
	LU-172	181.53		20.60	1.62E+04	7.10E+03	-3.12E+03	8.00E+03
		900.72		29.81	1.56E+04		7.69E+03	7.58E+03
		1093.66		62.50	7.10E+03		1.49E+03	3.42E+03
	LU-173	100.72		5.24	2.38E+00	8.98E-01	2.08E-01	1.18E+00
		272.11		21.20	8.98E-01		2.47E-01	4.44E-01
	HF-175	343.40		84.00	4.81E-01	4.81E-01	-1.58E-01	2.37E-01
	LU-176	88.34		13.30	1.14E+00	1.51E-01	-1.45E+00	5.66E-01
		201.83		86.00	1.51E-01		3.35E-02	7.48E-02
		306.78		94.00	1.55E-01		3.37E-02	7.63E-02
	HF-181	133.02		41.70	1.37E+00	9.46E-01	-5.55E-01	6.80E-01
		345.85		17.20	4.49E+00		1.57E-01	2.21E+00
		482.03		82.80	9.46E-01		-1.25E-01	4.64E-01
	TA-182	67.75		41.20	6.36E-01	6.36E-01	-4.03E-02	3.16E-01
		1121.30		34.90	2.48E+00		1.94E+01	1.22E+00
		1189.05		16.23	1.82E+00		-3.06E-01	8.70E-01
		1221.41		26.98	1.08E+00		-1.13E-01	5.18E-01
		1231.02		11.44	2.65E+00		-3.33E-01	1.27E+00
	IR-192	308.46		29.68	1.22E+00	7.83E-01	-2.17E-01	6.01E-01
		468.07		48.10	7.83E-01		3.02E-01	3.84E-01
	HG-203	279.19		77.30	8.40E-01	8.40E-01	-5.05E-01	4.15E-01
	TL-204	374.74		94.11	1.66E-01	1.66E-01	-6.39E-03	8.17E-02
		899.15		99.16	1.87E-01		-2.20E-02	9.08E-02
		911.74		91.10	2.17E-01		4.17E-02	1.06E-01
	BI-207	569.67		97.72	1.54E-01	1.54E-01	-1.99E-02	7.51E-02
		1063.62		74.90	2.27E-01		1.62E-02	1.09E-01
	TL-208	583.14		30.22	5.45E-01	3.46E-01	4.92E-01	2.67E-01
		860.37		4.48	3.88E+00		3.14E+00	1.88E+00
		2614.66		35.85	3.46E-01		3.25E-01	1.56E-01
	BI-210M	262.00		45.00	3.42E-01	3.42E-01	-7.85E-02	1.69E-01
		300.00		23.00	8.35E-01		-4.60E-02	4.13E-01
+	PB-210	46.50	*	4.25	4.50E+00	4.50E+00	1.56E+01	2.23E+00
	PB-211	404.84		2.90	5.71E+00	5.71E+00	3.22E+00	2.81E+00
		831.96		2.90	5.72E+00		-1.56E+00	2.77E+00
+	BI-212	727.17	*	11.80	1.10E+00	1.10E+00	5.96E-01	5.30E-01

Analysis Report for 1707085-08

HTC-A02-S003-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BI-212	1620.62		2.75	5.89E+00	1.10E+00	9.76E-01	2.78E+00
	PB-212	238.63		44.60	4.39E-01	4.39E-01	1.45E-01	2.18E-01
		300.09		3.41	5.63E+00		-3.11E-01	2.79E+00
+	BI-214	609.31	*	46.30	5.86E-01	5.86E-01	2.41E+01	2.89E-01
		1120.29	*	15.10	1.80E+00		2.49E+01	8.79E-01
		1764.49	*	15.80	1.27E+00		2.49E+01	6.03E-01
		2204.22	*	4.98	2.89E+00		2.64E+01	1.34E+00
+	PB-214	295.21	*	19.19	1.20E+00	6.72E-01	2.70E+01	5.97E-01
		351.92	*	37.19	6.72E-01		2.65E+01	3.33E-01
	RN-219	401.80		6.50	2.50E+00	2.50E+00	-2.21E-01	1.23E+00
+	RA-223	323.87	*	3.88	4.32E+00	4.32E+00	2.87E+00	2.13E+00
	RA-224	240.98		3.95	5.70E+00	5.70E+00	4.54E+01	2.83E+00
	RA-225	40.00		31.00	6.16E+01	6.16E+01	6.85E-01	3.05E+01
+	RA-226	186.21	*	3.28	7.32E+00	7.32E+00	5.58E+01	3.64E+00
	TH-227	50.10		8.40	1.82E+00	1.39E+00	-7.86E+00	9.02E-01
		236.00		11.50	1.39E+00		-3.07E-01	6.90E-01
		256.20		6.30	2.42E+00		4.26E-01	1.19E+00
	AC-228	338.32		11.40	1.36E+00	6.68E-01	7.96E-02	6.72E-01
		911.07		27.70	6.68E-01		-1.74E-03	3.24E-01
		969.11		16.60	1.08E+00		2.18E-01	5.24E-01
	TH-230	48.44		16.90	9.99E-01	9.99E-01	1.14E-01	4.95E-01
		62.85		4.60	3.66E+00		1.59E+01	1.82E+00
		67.67		0.37	3.91E+01		-2.48E+00	1.94E+01
	PA-231	283.67		1.60	9.40E+00	6.33E+00	3.22E+00	4.64E+00
		302.67		2.30	6.33E+00		-8.60E-02	3.12E+00
+	TH-231	25.64		14.70	5.60E+00	4.71E+00	6.03E-01	2.77E+00
		84.21	*	6.40	4.71E+00		3.78E+00	2.35E+00
	PA-233	311.98		38.60	4.65E+00	4.65E+00	-8.15E-01	2.29E+00
	PA-234	131.20		20.40	5.71E-01	5.71E-01	3.58E-01	2.83E-01
		733.99		8.80	1.77E+00		1.43E+00	8.59E-01
		946.00		12.00	1.40E+00		1.21E-01	6.77E-01
+	PA-234M	1001.03	*	0.92	2.67E+01	2.67E+01	2.35E+01	1.30E+01
+	TH-234	63.29	*	3.80	5.36E+00	5.36E+00	1.82E+01	2.67E+00
+	U-235	143.76	*	10.50	1.46E+00	1.46E+00	9.94E-01	7.24E-01
		163.35		4.70	2.75E+00		1.60E+00	1.36E+00
		205.31	*	4.70	3.25E+00		3.42E+00	1.61E+00
	NP-237	86.50		12.60	1.20E+00	1.20E+00	2.96E+00	5.94E-01
	NP-239	106.10		22.70	1.68E+12	1.68E+12	2.81E+11	8.32E+11
		228.18		10.70	4.97E+12		-1.38E+12	2.46E+12
		277.60		14.10	3.81E+12		1.34E+12	1.88E+12
	AM-241	59.54		35.90	4.13E-01	4.13E-01	-5.02E-02	2.05E-01
+	AM-243	74.67	*	66.00	4.03E-01	4.03E-01	2.26E+00	2.01E-01
	CM-243	209.75		3.29	4.57E+00	1.10E+00	-5.47E-01	2.26E+00
		228.14		10.60	1.44E+00		-4.01E-01	7.12E-01
		277.60		14.00	1.10E+00		3.89E-01	5.43E-01

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

Analysis Report for 1707085-08

HTC-A02-S003-0006-01

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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*****************************************************
*****   S P E C T R A L   D A T A   R E P O R T   *****
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Sample Title: HTC-A02-S003-0006-01

Elapsed Live time: 3600
Elapsed Real Time: 3620

Channel								
1:	0	0	0	0	0	0	0	1
9:	35	656	683	716	701	677	678	702
17:	704	629	615	628	609	549	581	553
25:	496	560	585	503	503	573	524	534
33:	505	513	538	531	503	540	561	547
41:	564	593	600	615	677	901	1278	957
49:	669	704	761	849	890	998	849	857
57:	897	937	1001	1144	1121	1217	1635	2180
65:	1499	1201	1169	1277	1328	1196	1326	1275
73:	1307	1835	2865	3029	3613	4272	2125	1384
81:	1272	1269	1172	1458	1385	1187	1581	2063
89:	1417	1358	1303	1446	2274	1912	1181	930
97:	769	813	860	816	764	710	722	757
105:	755	755	742	744	740	775	770	796
113:	815	822	761	739	672	771	691	721
121:	680	740	774	736	709	770	694	765
129:	749	742	720	771	680	662	689	741
137:	689	757	706	759	783	702	761	964
145:	894	745	782	790	764	760	669	741
153:	776	851	830	794	735	739	724	683
161:	638	645	733	752	679	686	667	675
169:	626	610	636	581	596	590	623	593
177:	617	572	609	570	602	599	637	624
185:	916	1823	2036	1024	596	553	535	567
193:	578	535	541	569	560	546	562	560
201:	545	497	485	512	547	551	509	469
209:	419	442	508	455	434	453	421	447
217:	474	438	452	414	374	431	464	396
225:	432	441	413	416	410	410	393	458
233:	390	392	395	470	517	426	491	456
241:	680	1495	1631	732	377	356	306	355
249:	327	363	326	342	330	308	325	392
257:	327	323	413	397	325	336	319	296
265:	295	289	351	303	359	442	428	360
273:	315	348	355	317	307	298	278	266
281:	308	275	258	306	290	278	265	266
289:	280	278	282	261	314	635	2425	3348
297:	1406	356	234	233	249	216	249	241
305:	237	228	236	225	230	215	209	228
313:	205	239	217	207	235	189	205	169
321:	217	209	213	263	221	214	226	197
329:	211	242	236	221	241	208	226	223
337:	211	231	239	235	191	220	215	229
345:	185	210	207	204	236	337	1530	4755
353:	4327	1191	223	154	178	180	157	155
361:	173	191	171	160	144	174	168	160

369:	139	152	171	170	210	146	171	157

Sample Title: HTC-A02-S003-0006-01

Channel								
377:	170	156	171	144	151	171	174	159
385:	147	181	209	196	218	197	166	155
393:	167	158	160	182	174	176	157	148
401:	183	183	176	189	203	195	170	156
409:	169	171	165	160	156	175	144	172
417:	165	176	172	163	167	162	142	192
425:	170	171	162	164	178	156	155	146
433:	126	178	129	133	117	116	128	110
441:	120	146	124	100	121	127	125	119
449:	114	116	110	108	99	134	153	147
457:	116	113	103	101	127	137	115	105
465:	113	116	109	111	116	108	127	95
473:	114	113	119	105	99	111	109	133
481:	159	122	94	109	107	121	119	125
489:	88	97	91	102	94	85	98	82
497:	89	98	100	73	77	77	74	91
505:	100	100	95	80	112	118	141	132
513:	110	99	93	82	90	80	88	104
521:	66	89	89	81	79	103	83	78
529:	87	89	108	73	91	106	79	95
537:	109	83	106	89	77	98	105	99
545:	99	81	77	82	91	90	79	86
553:	80	86	86	98	96	92	82	96
561:	92	74	94	73	75	88	80	83
569:	76	91	64	72	86	86	75	72
577:	75	72	86	89	96	78	102	106
585:	84	89	68	81	71	78	64	72
593:	67	82	75	64	72	64	89	64
601:	78	68	66	69	66	86	131	708
609:	2608	3213	1325	178	62	62	50	53
617:	69	58	59	56	62	54	54	51
625:	52	45	51	55	48	55	64	62
633:	59	70	49	60	57	50	59	47
641:	48	60	56	57	48	52	48	51
649:	51	54	57	58	70	51	55	52
657:	51	65	52	62	60	55	80	67
665:	133	141	99	68	46	49	57	51
673:	60	55	51	61	50	55	43	47
681:	41	53	56	59	50	51	44	53
689:	50	54	51	50	44	65	46	60
697:	65	64	47	55	56	52	85	76
705:	47	57	49	55	51	51	51	64
713:	54	65	48	52	58	69	61	68
721:	66	47	37	60	46	62	57	65
729:	41	41	50	72	56	68	56	38
737:	35	45	43	62	67	69	82	61
745:	45	49	46	52	36	48	45	54
753:	65	47	46	45	56	56	50	57
761:	48	47	46	51	67	59	140	281
769:	319	148	58	54	41	49	59	46
777:	45	52	46	62	46	47	49	42
785:	83	100	89	66	43	44	47	40
793:	29	47	54	44	56	39	49	49

801:	57	50	44	48	63	83	103	74

Sample Title: HTC-A02-S003-0006-01

Channel								
809:	57	50	59	29	34	46	48	49
817:	43	54	48	47	57	50	51	48
825:	54	51	50	58	41	44	46	62
833:	57	55	35	42	59	70	90	73
841:	48	51	60	49	36	53	50	56
849:	59	62	40	51	35	54	37	45
857:	43	43	49	62	58	38	59	39
865:	39	37	39	38	59	44	42	44
873:	50	41	56	41	44	43	46	42
881:	53	42	37	49	44	47	40	53
889:	46	45	53	43	54	46	45	52
897:	37	42	50	46	52	58	47	59
905:	45	43	56	45	36	44	54	66
913:	49	67	59	48	55	44	33	43
921:	52	45	52	41	54	40	50	39
929:	35	46	43	39	106	185	160	82
937:	49	36	47	53	48	41	36	36
945:	40	49	38	36	42	30	38	46
953:	35	40	37	38	38	45	44	41
961:	40	36	53	57	50	46	39	34
969:	57	42	42	44	39	39	51	39
977:	31	36	30	36	29	33	35	43
985:	38	32	37	41	45	32	44	36
993:	47	40	30	30	38	38	49	61
1001:	84	63	35	39	50	38	39	38
1009:	32	34	47	33	48	37	37	33
1017:	30	37	38	42	36	37	32	34
1025:	26	34	34	28	30	37	40	30
1033:	37	35	37	31	38	27	34	38
1041:	21	38	31	30	26	31	27	34
1049:	36	28	27	43	39	33	30	30
1057:	31	32	30	36	30	40	39	26
1065:	29	35	27	33	30	49	42	36
1073:	23	25	27	34	36	25	37	26
1081:	25	22	30	30	36	31	27	23
1089:	25	26	28	33	22	26	48	37
1097:	32	31	37	38	27	33	33	36
1105:	42	31	43	24	23	32	29	26
1113:	37	30	24	25	35	66	243	598
1121:	527	222	51	29	25	28	34	32
1129:	31	39	29	31	28	36	34	36
1137:	27	31	33	35	18	24	31	33
1145:	23	26	32	30	30	25	33	26
1153:	25	49	105	75	54	31	17	25
1161:	24	33	28	30	33	27	25	27
1169:	35	24	27	36	33	34	34	28
1177:	24	32	21	34	38	44	38	29
1185:	28	32	25	19	28	28	21	19
1193:	30	28	25	26	21	21	22	19
1201:	33	23	23	24	21	23	39	48
1209:	28	24	24	30	22	28	28	28
1217:	33	23	29	30	19	16	21	23
1225:	24	15	30	14	28	21	26	28

1233:	23	31	23	54	142	231	176	80

Sample Title: HTC-A02-S003-0006-01

Channel								
1241:	29	23	39	26	26	25	25	27
1249:	17	18	19	30	32	27	28	22
1257:	28	24	27	27	30	25	26	27
1265:	21	17	19	7	26	19	31	22
1273:	24	20	22	24	33	13	28	57
1281:	94	66	39	27	24	23	27	18
1289:	24	21	33	30	20	18	9	15
1297:	16	26	15	22	21	17	24	17
1305:	20	16	17	17	24	18	30	25
1313:	15	18	21	25	23	21	13	16
1321:	17	17	27	19	15	22	22	23
1329:	15	17	13	21	28	19	20	19
1337:	26	29	17	29	32	18	21	18
1345:	23	24	17	20	16	21	26	27
1353:	25	26	25	23	16	24	24	22
1361:	22	30	19	20	13	26	24	20
1369:	23	21	21	26	17	19	28	64
1377:	143	164	95	30	15	16	22	30
1385:	48	52	30	18	25	15	21	22
1393:	21	16	14	15	27	18	27	38
1401:	70	53	26	24	21	34	75	109
1409:	65	26	18	33	18	12	23	16
1417:	24	25	18	20	23	21	15	26
1425:	34	27	26	21	35	25	19	27
1433:	22	22	17	18	27	21	20	19
1441:	21	18	21	24	29	31	29	29
1449:	34	20	30	23	24	17	28	26
1457:	16	30	34	53	70	45	25	22
1465:	8	25	24	29	28	17	22	21
1473:	23	15	17	18	15	25	18	30
1481:	19	17	21	23	22	21	21	18
1489:	21	15	18	20	14	24	28	28
1497:	11	23	27	20	18	23	21	15
1505:	15	19	37	55	93	70	33	17
1513:	38	29	26	22	15	20	25	22
1521:	21	25	29	23	18	15	21	15
1529:	14	27	22	28	24	23	19	22
1537:	31	39	37	24	15	17	30	29
1545:	17	21	12	24	19	12	20	24
1553:	18	16	19	16	23	16	18	21
1561:	13	17	12	14	17	21	13	17
1569:	14	20	20	12	13	11	17	19
1577:	17	10	15	16	19	34	29	29
1585:	21	11	13	14	17	11	14	20
1593:	18	31	23	13	14	23	20	19
1601:	15	20	17	17	14	20	12	7
1609:	15	7	11	9	17	9	10	10
1617:	9	9	14	13	12	14	8	12
1625:	8	14	14	6	11	6	17	14
1633:	6	15	13	11	16	10	10	9
1641:	8	9	7	10	4	15	9	12
1649:	12	5	8	9	9	14	9	5
1657:	12	18	13	19	38	25	13	8

1665:	5	15	8	10	6	7	5	10

Sample Title: HTC-A02-S003-0006-01

Channel								
1673:	8	5	9	7	7	7	5	14
1681:	4	17	9	9	12	8	6	8
1689:	6	8	15	21	18	10	7	4
1697:	8	9	5	6	5	4	9	8
1705:	6	9	10	5	9	6	10	7
1713:	8	6	4	13	6	7	8	8
1721:	6	6	11	5	4	8	15	56
1729:	78	83	28	17	6	7	6	5
1737:	6	7	4	4	9	6	6	4
1745:	11	1	8	3	7	7	4	8
1753:	5	5	6	8	9	5	8	6
1761:	9	61	188	398	319	147	34	9
1769:	3	3	3	6	3	5	2	4
1777:	4	5	10	2	5	3	4	4
1785:	4	2	5	7	2	3	3	6
1793:	10	4	4	6	6	4	8	6
1801:	6	7	4	5	4	2	7	7
1809:	5	9	3	5	7	3	6	5
1817:	9	4	5	11	4	3	6	6
1825:	3	4	2	5	9	3	8	8
1833:	7	5	7	9	10	16	10	8
1841:	12	3	4	3	11	36	72	42
1849:	13	9	6	4	7	7	7	8
1857:	2	2	4	8	6	4	10	5
1865:	2	5	14	3	8	2	4	12
1873:	18	11	5	8	8	8	4	5
1881:	6	3	4	6	5	3	5	5
1889:	8	6	10	4	2	4	6	14
1897:	10	8	7	7	2	6	3	4
1905:	3	6	4	6	7	9	10	7
1913:	5	2	0	11	7	7	3	5
1921:	9	7	9	7	4	6	4	10
1929:	6	2	4	4	7	6	14	5
1937:	8	11	6	6	3	5	5	4
1945:	5	10	1	3	8	3	6	4
1953:	7	8	5	7	5	8	7	3
1961:	8	6	2	6	4	4	6	7
1969:	9	10	5	5	6	6	4	3
1977:	4	7	5	5	5	3	8	3
1985:	5	6	7	4	4	6	5	4
1993:	7	1	5	7	3	5	7	8
2001:	4	4	5	5	5	4	5	5
2009:	3	5	1	5	1	2	5	8
2017:	4	2	5	4	2	4	4	4
2025:	3	7	4	8	8	1	3	3
2033:	2	5	2	3	6	3	5	2
2041:	6	4	4	5	2	3	3	1
2049:	2	3	3	6	9	3	3	4
2057:	3	2	2	2	4	3	3	6
2065:	3	1	3	4	2	2	3	1
2073:	1	3	3	6	3	1	4	6
2081:	1	5	2	3	4	1	1	3
2089:	7	1	3	3	4	3	1	1

2097:	2	5	1	4	3	4	2	2

Sample Title: HTC-A02-S003-0006-01

Channel								
2105:	1	2	2	3	2	7	3	5
2113:	1	1	2	6	14	35	32	14
2121:	2	0	3	1	1	1	1	1
2129:	1	3	1	1	1	1	3	2
2137:	3	5	3	1	1	3	2	5
2145:	2	1	1	0	3	3	3	3
2153:	2	3	4	4	2	7	2	1
2161:	0	0	3	2	3	2	4	0
2169:	1	2	1	1	4	0	1	1
2177:	1	2	1	2	0	2	2	3
2185:	1	1	2	3	2	3	2	2
2193:	4	2	2	2	3	2	4	5
2201:	9	43	82	103	53	27	5	4
2209:	1	1	0	1	3	2	5	2
2217:	4	0	0	1	3	3	2	0
2225:	1	1	1	1	2	2	0	3
2233:	1	1	2	3	1	1	3	0
2241:	2	0	0	3	1	4	2	1
2249:	1	1	0	0	0	2	2	0
2257:	2	1	1	0	2	1	2	0
2265:	4	1	2	1	0	0	1	0
2273:	0	2	1	1	2	2	0	0
2281:	1	0	1	0	2	1	1	0
2289:	0	1	4	8	9	5	5	1
2297:	0	3	1	3	0	0	3	0
2305:	2	3	0	2	1	0	2	0
2313:	2	3	1	1	2	2	2	0
2321:	0	0	1	2	0	1	1	1
2329:	2	3	0	2	3	1	1	1
2337:	1	3	0	0	0	1	0	1
2345:	0	0	0	2	1	0	0	0
2353:	0	0	1	0	0	0	0	2
2361:	1	1	0	0	2	1	0	1
2369:	1	0	0	0	1	0	0	0
2377:	0	1	0	1	0	1	0	2
2385:	0	0	3	0	0	1	2	0
2393:	0	1	1	0	0	0	0	3
2401:	2	2	0	0	0	0	2	3
2409:	0	1	0	0	0	0	0	0
2417:	1	1	0	0	0	1	0	0
2425:	1	1	0	1	0	0	1	0
2433:	2	1	1	0	2	0	1	1
2441:	0	1	0	3	9	25	19	29
2449:	13	1	0	1	1	0	0	0
2457:	2	0	0	0	0	0	0	0
2465:	0	0	0	2	0	2	0	0
2473:	0	0	0	0	0	0	0	2
2481:	1	0	0	0	0	0	0	1
2489:	0	0	1	1	0	0	1	0
2497:	1	0	0	0	1	0	0	0
2505:	0	1	1	0	0	0	0	0
2513:	0	0	0	0	0	0	1	1
2521:	2	0	0	0	0	0	0	0

2529:	1	0	0	1	0	1	0	0

Sample Title: HTC-A02-S003-0006-01

Channel								
2537:	0	2	1	0	0	0	1	0
2545:	1	0	0	1	0	1	1	1
2553:	0	0	0	0	0	0	0	0
2561:	0	0	0	1	0	1	0	0
2569:	0	0	1	0	0	1	0	0
2577:	0	0	0	1	0	1	0	0
2585:	0	1	0	1	0	0	1	0
2593:	0	0	1	0	0	1	0	0
2601:	0	1	1	0	2	0	1	0
2609:	1	0	0	4	3	9	8	3
2617:	1	1	0	0	0	1	0	0
2625:	1	0	1	0	0	1	1	1
2633:	0	0	0	0	0	0	0	0
2641:	0	0	0	0	1	0	0	1
2649:	0	0	0	0	1	0	0	1
2657:	0	1	0	0	0	0	0	0
2665:	0	0	0	0	1	1	0	0
2673:	0	1	1	0	0	0	0	0
2681:	0	0	0	0	0	0	0	0
2689:	0	0	1	0	2	2	0	0
2697:	1	0	0	0	0	0	0	0
2705:	0	2	0	0	0	1	0	0
2713:	0	1	0	1	0	0	0	1
2721:	0	0	0	0	0	0	0	1
2729:	1	0	0	0	0	1	0	1
2737:	0	0	0	0	0	0	1	0
2745:	0	0	0	0	0	0	1	0
2753:	0	0	0	0	0	0	0	0
2761:	0	1	0	0	1	0	0	0
2769:	0	0	0	0	1	1	0	0
2777:	0	1	0	0	1	0	0	0
2785:	0	0	0	0	0	0	1	0
2793:	0	0	0	0	0	0	0	1
2801:	1	0	0	0	0	0	0	1
2809:	0	0	0	0	0	0	1	0
2817:	0	0	0	0	0	0	0	0
2825:	0	0	0	0	1	0	0	0
2833:	0	1	0	0	0	0	0	0
2841:	0	0	0	0	0	0	0	1
2849:	0	0	0	0	1	0	0	0
2857:	0	0	0	0	0	0	2	0
2865:	0	0	1	0	0	0	0	0
2873:	0	1	0	0	0	0	0	0
2881:	0	0	1	0	0	0	1	0
2889:	0	0	0	1	0	0	0	0
2897:	0	0	0	0	0	0	1	0
2905:	0	0	0	0	0	0	1	0
2913:	0	0	0	0	0	0	0	0
2921:	0	1	1	0	0	1	0	1
2929:	0	1	1	0	0	0	0	0
2937:	0	0	1	0	0	0	0	0
2945:	1	0	0	0	1	0	2	0
2953:	0	0	1	0	0	1	0	0

2961:	0	0	1	0	0	0	1	0

Sample Title: HTC-A02-S003-0006-01

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

3393:	0	0	0	0	0	1	0	0

Sample Title: HTC-A02-S003-0006-01

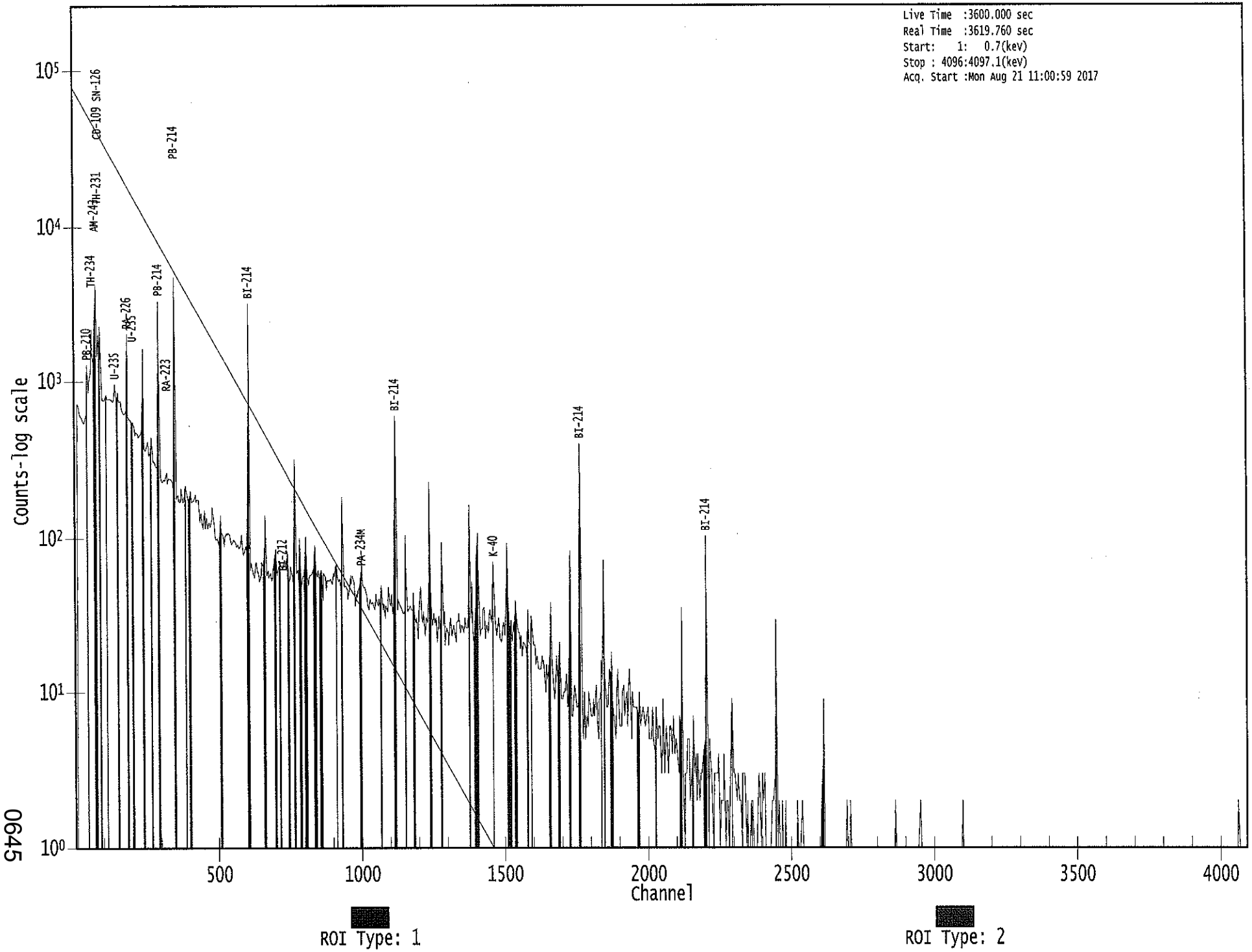
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	1	0	0	0	0	0	0	0
3417:	0	0	1	0	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	1	0	0	0	0
3441:	1	0	0	0	1	0	0	0
3449:	0	1	0	0	0	0	0	0
3457:	0	0	0	0	0	1	0	0
3465:	0	0	0	0	0	1	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	1	0	0	0	0	1	0	0
3497:	0	0	0	0	0	0	0	0
3505:	0	0	0	0	0	0	0	0
3513:	0	0	0	1	0	1	0	0
3521:	0	0	0	1	0	0	0	0
3529:	0	0	1	0	0	0	0	0
3537:	0	0	0	0	0	0	1	0
3545:	0	0	0	0	0	0	0	0
3553:	1	0	0	0	0	0	0	0
3561:	0	0	0	0	0	0	0	0
3569:	0	0	1	0	0	0	0	0
3577:	0	0	0	0	0	0	0	0
3585:	0	1	0	0	0	0	1	0
3593:	0	0	0	0	0	0	0	0
3601:	0	0	0	0	0	0	1	0
3609:	1	0	0	0	0	0	0	0
3617:	0	0	0	0	0	0	0	0
3625:	0	0	0	1	0	0	1	0
3633:	0	0	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	1	0	0	0	0	0	0
3665:	1	0	0	0	0	0	0	1
3673:	0	0	0	0	0	0	1	0
3681:	0	0	0	0	0	0	0	0
3689:	0	0	0	0	1	0	0	0
3697:	0	0	1	0	0	0	0	0
3705:	0	0	0	0	0	0	0	0
3713:	0	0	0	0	0	0	0	0
3721:	1	0	0	0	0	0	0	0
3729:	0	0	0	0	0	0	1	1
3737:	0	0	0	0	0	0	0	0
3745:	0	0	0	0	0	0	0	0
3753:	0	0	0	0	0	0	0	0
3761:	0	0	0	0	0	0	0	0
3769:	0	0	0	0	0	0	0	0
3777:	0	0	0	1	0	0	0	0
3785:	0	0	0	0	0	0	0	0
3793:	1	0	0	0	0	0	0	0
3801:	0	0	0	0	0	1	0	0
3809:	0	0	0	0	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-A02-S003-0006-01

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

0000055640.CNF



0645

 VB 8/21/17

Apex-Gamma

Analysis Report for 1707085-11

HTC-A02-S003-0006-02

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707085-11
Sample Description	: HTC-A02-S003-0006-02
Sample Type	: SOIL
Sample Size	: 7.239E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 8:07:35AM
Acquisition Started	: 8/21/2017 11:01:22AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3605.2 seconds
Dead Time	: 0.14 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 15 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55628

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/22/17

Analysis Report for 1707085-11

HTC-A02-S003-0006-02

PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 12:02:02PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	46.40	45.45	0.0000	0.00
2	63.03	62.08	0.0000	0.00
3	74.71	73.76	0.0000	0.00
4	77.19	76.25	0.0000	0.00
5	86.99	86.05	0.0000	0.00
6	92.99	92.05	0.0000	0.00
7	112.11	111.18	0.0000	0.00
8	154.16	153.24	0.0000	0.00
9	186.06	185.15	0.0000	0.00
10	242.20	241.31	0.0000	0.00
11	259.97	259.08	0.0000	0.00
12	270.23	269.35	0.0000	0.00
13	295.21	294.34	0.0000	0.00
14	338.12	337.26	0.0000	0.00
15	351.96	351.10	0.0000	0.00
16	428.08	427.25	0.0000	0.00
17	510.55	509.75	0.0000	0.00
18	547.11	546.33	0.0000	0.00
19	553.67	552.89	0.0000	0.00
20	609.28	608.52	0.0000	0.00
21	664.53	663.79	0.0000	0.00
22	703.96	703.24	0.0000	0.00
23	727.18	726.47	0.0000	0.00
24	768.19	767.50	0.0000	0.00
25	785.76	785.07	0.0000	0.00
26	806.87	806.19	0.0000	0.00
27	837.79	837.12	0.0000	0.00
28	933.87	933.24	0.0000	0.00
29	1000.31	999.72	0.0000	0.00
30	1119.81	1119.27	0.0000	0.00
31	1156.98	1156.45	0.0000	0.00
32	1178.88	1178.37	0.0000	0.00
33	1237.76	1237.28	0.0000	0.00
34	1280.49	1280.03	0.0000	0.00
35	1377.46	1377.04	0.0000	0.00
36	1400.91	1400.51	0.0000	0.00
37	1407.81	1407.40	0.0000	0.00
38	1460.23	1459.85	0.0000	0.00
39	1508.58	1508.23	0.0000	0.00
40	1729.06	1728.83	0.0000	0.00
41	1763.86	1763.65	0.0000	0.00
42	1847.22	1847.05	0.0000	0.00

Analysis Report for 1707085-11

HTC-A02-S003-0006-02

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1857.15	1856.99	0.0000	0.00
44	1962.98	1962.88	0.0000	0.00
45	2079.21	2079.18	0.0000	0.00
46	2103.43	2103.41	0.0000	0.00
47	2118.67	2118.66	0.0000	0.00
48	2203.35	2203.39	0.0000	0.00
49	2446.86	2447.07	0.0000	0.00
50	2613.47	2613.79	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707085-11

HTC-A02-S003-0006-02

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 12:02:02PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	46.40	42 -	48	45.45	4.15E+02	155.04	4.09E+03	2.16
	2	63.03	56 -	68	62.08	1.24E+03	315.17	1.11E+04	2.77
M	3	74.71	69 -	81	73.76	1.59E+03	270.68	8.77E+03	2.88
m	4	77.19	69 -	81	76.25	2.69E+03	232.17	6.75E+03	2.35
	5	86.99	83 -	88	86.05	4.07E+02	181.20	6.25E+03	1.77
	6	92.99	88 -	95	92.05	1.08E+03	217.65	6.92E+03	2.12
	7	112.11	108 -	115	111.18	2.33E+02	168.46	4.57E+03	2.64
	8	154.16	151 -	156	153.24	1.81E+02	127.53	3.09E+03	3.13
	9	186.06	180 -	188	185.15	1.33E+03	178.41	4.08E+03	2.24
	10	242.20	237 -	246	241.31	1.15E+03	161.48	2.99E+03	2.19
	11	259.97	257 -	261	259.08	6.66E+01	76.92	1.23E+03	2.63
	12	270.23	266 -	272	269.35	1.66E+02	96.98	1.60E+03	3.71
	13	295.21	288 -	299	294.34	2.36E+03	169.26	2.40E+03	2.32
	14	338.12	335 -	339	337.26	9.37E+01	62.64	7.81E+02	1.89
	15	351.96	346 -	356	351.10	3.81E+03	160.14	1.38E+03	2.34
	16	428.08	425 -	431	427.25	6.10E+01	66.23	7.48E+02	1.79
	17	510.55	505 -	514	509.75	1.16E+02	71.07	6.56E+02	2.42
	18	547.11	544 -	550	546.33	3.95E+01	47.83	3.85E+02	4.75
	19	553.67	550 -	555	552.89	3.78E+01	40.24	2.88E+02	2.17
	20	609.28	602 -	614	608.52	2.58E+03	123.01	5.64E+02	2.43
	21	664.53	657 -	670	663.79	1.32E+02	68.93	4.69E+02	2.77
	22	703.96	701 -	706	703.24	3.62E+01	36.73	2.38E+02	2.83
	23	727.18	720 -	733	726.47	6.09E+01	66.38	4.64E+02	6.76
	24	768.19	761 -	772	767.50	2.17E+02	66.84	4.50E+02	2.49
	25	785.76	781 -	790	785.07	6.42E+01	50.33	3.26E+02	3.17
	26	806.87	801 -	810	806.19	7.84E+01	50.76	3.19E+02	4.81
	27	837.79	834 -	840	837.12	5.26E+01	33.70	1.69E+02	3.94
	28	933.87	929 -	936	933.24	1.07E+02	46.95	2.96E+02	1.41
	29	1000.31	994 -	1004	999.72	9.25E+01	43.05	1.97E+02	3.95
	30	1119.81	1113 -	1125	1119.27	5.47E+02	63.78	2.22E+02	2.68
	31	1156.98	1152 -	1161	1156.45	3.44E+01	42.63	2.27E+02	6.46
	32	1178.88	1175 -	1182	1178.37	2.70E+01	30.07	1.34E+02	2.89
	33	1237.76	1231 -	1242	1237.28	1.42E+02	52.23	2.70E+02	2.55
	34	1280.49	1275 -	1284	1280.03	7.91E+01	35.94	1.38E+02	2.72
	35	1377.46	1372 -	1381	1377.04	1.11E+02	38.65	1.50E+02	3.06
	36	1400.91	1397 -	1403	1400.51	3.10E+01	29.56	1.36E+02	1.39
	37	1407.81	1404 -	1410	1407.40	7.23E+01	30.34	1.13E+02	1.83
	38	1460.23	1454 -	1466	1459.85	7.27E+01	44.09	1.93E+02	2.89
	39	1508.58	1504 -	1512	1508.23	4.36E+01	31.93	1.29E+02	2.24
	40	1729.06	1724 -	1735	1728.83	7.56E+01	25.38	4.47E+01	3.22

Analysis Report for 1707085-11

HTC-A02-S003-0006-02

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1763.86	1756 -	1768	1763.65	3.94E+02	43.61	3.68E+01	2.98
42	1847.22	1842 -	1855	1847.05	4.76E+01	25.28	5.27E+01	3.14
43	1857.15	1855 -	1859	1856.99	6.63E+00	8.90	1.08E+01	2.68
44	1962.98	1958 -	1966	1962.88	1.28E+01	14.04	2.24E+01	3.18
45	2079.21	2075 -	2083	2079.18	8.17E+00	9.41	7.67E+00	1.34
46	2103.43	2100 -	2105	2103.41	5.71E+00	6.08	2.57E+00	1.41
47	2118.67	2113 -	2124	2118.66	2.12E+01	15.10	1.76E+01	2.55
48	2203.35	2199 -	2208	2203.39	8.78E+01	21.42	1.63E+01	1.99
49	2446.86	2442 -	2451	2447.07	2.35E+01	14.11	1.49E+01	2.24
50	2613.47	2610 -	2617	2613.79	6.19E+00	6.93	3.63E+00	1.85

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 12:02:02PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	46.40	42 -	48	4.15E+02	155.04	4.09E+03	1.23E+02
	2	63.03	56 -	68	1.24E+03	315.17	1.11E+04	2.53E+02
M	3	74.71	69 -	81	1.59E+03	270.68	8.77E+03	1.54E+02
m	4	77.19	69 -	81	2.69E+03	232.17	6.75E+03	1.35E+02
	5	86.99	83 -	88	4.07E+02	181.20	6.25E+03	1.45E+02
	6	92.99	88 -	95	1.08E+03	217.65	6.92E+03	1.71E+02
	7	112.11	108 -	115	2.33E+02	168.46	4.57E+03	1.36E+02
	8	154.16	151 -	156	1.81E+02	127.53	3.09E+03	1.02E+02
	9	186.06	180 -	188	1.33E+03	178.41	4.08E+03	1.34E+02
	10	242.20	237 -	246	1.15E+03	161.48	2.99E+03	1.20E+02
	11	259.97	257 -	261	6.66E+01	76.92	1.23E+03	6.18E+01
	12	270.23	266 -	272	1.66E+02	96.98	1.60E+03	7.69E+01
	13	295.21	288 -	299	2.36E+03	169.26	2.40E+03	1.14E+02
	14	338.12	335 -	339	9.37E+01	62.64	7.81E+02	4.90E+01
	15	351.96	346 -	356	3.81E+03	160.14	1.38E+03	8.39E+01
	16	428.08	425 -	431	6.10E+01	66.23	7.48E+02	5.29E+01
	17	510.55	505 -	514	1.16E+02	71.07	6.56E+02	5.57E+01

Analysis Report for 1707085-11

HTC-A02-S003-0006-02

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
18	547.11	544 -	550	3.95E+01	47.83	3.85E+02	3.79E+01
19	553.67	550 -	555	3.78E+01	40.24	2.88E+02	3.15E+01
20	609.28	602 -	614	2.58E+03	123.01	5.64E+02	5.70E+01
21	664.53	657 -	670	1.32E+02	68.93	4.69E+02	5.34E+01
22	703.96	701 -	706	3.62E+01	36.73	2.38E+02	2.85E+01
23	727.18	720 -	733	6.09E+01	66.38	4.64E+02	2.83E+01
24	768.19	761 -	772	2.17E+02	66.84	4.50E+02	4.93E+01
25	785.76	781 -	790	6.42E+01	50.33	3.26E+02	3.92E+01
26	806.87	801 -	810	7.84E+01	50.76	3.19E+02	3.91E+01
27	837.79	834 -	840	5.26E+01	33.70	1.69E+02	2.50E+01
28	933.87	929 -	936	1.07E+02	46.95	2.96E+02	3.46E+01
29	1000.31	994 -	1004	9.25E+01	43.05	1.97E+02	3.17E+01
30	1119.81	1113 -	1125	5.47E+02	63.78	2.22E+02	3.57E+01
31	1156.98	1152 -	1161	3.44E+01	42.63	2.27E+02	3.37E+01
32	1178.88	1175 -	1182	2.70E+01	30.07	1.34E+02	2.32E+01
33	1237.76	1231 -	1242	1.42E+02	52.23	2.70E+02	3.82E+01
34	1280.49	1275 -	1284	7.91E+01	35.94	1.38E+02	2.57E+01
35	1377.46	1372 -	1381	1.11E+02	38.65	1.50E+02	2.66E+01
36	1400.91	1397 -	1403	3.10E+01	29.56	1.36E+02	2.25E+01
37	1407.81	1404 -	1410	7.23E+01	30.34	1.13E+02	2.07E+01
38	1460.23	1454 -	1466	7.27E+01	44.09	1.93E+02	3.34E+01
39	1508.58	1504 -	1512	4.36E+01	31.93	1.29E+02	2.39E+01
40	1729.06	1724 -	1735	7.56E+01	25.38	4.47E+01	1.52E+01
41	1763.86	1756 -	1768	3.94E+02	43.61	3.68E+01	1.49E+01
42	1847.22	1842 -	1855	4.76E+01	25.28	5.27E+01	1.74E+01
43	1857.15	1855 -	1859	6.63E+00	8.90	1.08E+01	5.97E+00
44	1962.98	1958 -	1966	1.28E+01	14.04	2.24E+01	9.94E+00
45	2079.21	2075 -	2083	8.17E+00	9.41	7.67E+00	6.14E+00
46	2103.43	2100 -	2105	5.71E+00	6.08	2.57E+00	3.09E+00
47	2118.67	2113 -	2124	2.12E+01	15.10	1.76E+01	9.84E+00
48	2203.35	2199 -	2208	8.78E+01	21.42	1.63E+01	8.53E+00
49	2446.86	2442 -	2451	2.35E+01	14.11	1.49E+01	8.42E+00
50	2613.47	2610 -	2617	6.19E+00	6.93	3.63E+00	3.96E+00

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

Analysis Report for 1707085-11

HTC-A02-S003-0006-02

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/21/2017 12:02:02PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	46.40	42 -	48	45.45	4.15E+02	155.04	4.09E+03	PB-210
	2	63.03	56 -	68	62.08	1.24E+03	315.17	1.11E+04	TH-230
									TH-234
M	3	74.71	69 -	81	73.76	1.59E+03	270.68	8.77E+03	AM-243
m	4	77.19	69 -	81	76.25	2.69E+03	232.17	6.75E+03	.....
	5	86.99	83 -	88	86.05	4.07E+02	181.20	6.25E+03	NP-237
									EU-155
									SN-126
	6	92.99	88 -	95	92.05	1.08E+03	217.65	6.92E+03	GA-67
	7	112.11	108 -	115	111.18	2.33E+02	168.46	4.57E+03	.....
	8	154.16	151 -	156	153.24	1.81E+02	127.53	3.09E+03	CS-136
	9	186.06	180 -	188	185.15	1.33E+03	178.41	4.08E+03	RA-226
	10	242.20	237 -	246	241.31	1.15E+03	161.48	2.99E+03	.....
	11	259.97	257 -	261	259.08	6.66E+01	76.92	1.23E+03	.....
	12	270.23	266 -	272	269.35	1.66E+02	96.98	1.60E+03	.....
	13	295.21	288 -	299	294.34	2.36E+03	169.26	2.40E+03	PB-214
	14	338.12	335 -	339	337.26	9.37E+01	62.64	7.81E+02	AC-228
	15	351.96	346 -	356	351.10	3.81E+03	160.14	1.38E+03	PB-214
	16	428.08	425 -	431	427.25	6.10E+01	66.23	7.48E+02	SB-125
	17	510.55	505 -	514	509.75	1.16E+02	71.07	6.56E+02	.....
	18	547.11	544 -	550	546.33	3.95E+01	47.83	3.85E+02	.....
	19	553.67	550 -	555	552.89	3.78E+01	40.24	2.88E+02	.....
	20	609.28	602 -	614	608.52	2.58E+03	123.01	5.64E+02	BI-214
	21	664.53	657 -	670	663.79	1.32E+02	68.93	4.69E+02	CE-143
	22	703.96	701 -	706	703.24	3.62E+01	36.73	2.38E+02	.....
	23	727.18	720 -	733	726.47	6.09E+01	66.38	4.64E+02	BI-212
	24	768.19	761 -	772	767.50	2.17E+02	66.84	4.50E+02	.....
	25	785.76	781 -	790	785.07	6.42E+01	50.33	3.26E+02	.....
	26	806.87	801 -	810	806.19	7.84E+01	50.76	3.19E+02	.....
	27	837.79	834 -	840	837.12	5.26E+01	33.70	1.69E+02	.....
	28	933.87	929 -	936	933.24	1.07E+02	46.95	2.96E+02	.....
	29	1000.31	994 -	1004	999.72	9.25E+01	43.05	1.97E+02	PA-234M
	30	1119.81	1113 -	1125	1119.27	5.47E+02	63.78	2.22E+02	BI-214
									SC-46
	31	1156.98	1152 -	1161	1156.45	3.44E+01	42.63	2.27E+02	.....
	32	1178.88	1175 -	1182	1178.37	2.70E+01	30.07	1.34E+02	.....
	33	1237.76	1231 -	1242	1237.28	1.42E+02	52.23	2.70E+02	CO-56
	34	1280.49	1275 -	1284	1280.03	7.91E+01	35.94	1.38E+02	.....
	35	1377.46	1372 -	1381	1377.04	1.11E+02	38.65	1.50E+02	.....
	36	1400.91	1397 -	1403	1400.51	3.10E+01	29.56	1.36E+02	.....
	37	1407.81	1404 -	1410	1407.40	7.23E+01	30.34	1.13E+02	EU-152

Analysis Report for 1707085-11

HTC-A02-S003-0006-02

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
38	1460.23	1454 -	1466	1459.85	7.27E+01	44.09	1.93E+02	K-40
39	1508.58	1504 -	1512	1508.23	4.36E+01	31.93	1.29E+02	.....
40	1729.06	1724 -	1735	1728.83	7.56E+01	25.38	4.47E+01	.....
41	1763.86	1756 -	1768	1763.65	3.94E+02	43.61	3.68E+01	BI-214
42	1847.22	1842 -	1855	1847.05	4.76E+01	25.28	5.27E+01	.....
43	1857.15	1855 -	1859	1856.99	6.63E+00	8.90	1.08E+01	.....
44	1962.98	1958 -	1966	1962.88	1.28E+01	14.04	2.24E+01	.....
45	2079.21	2075 -	2083	2079.18	8.17E+00	9.41	7.67E+00	.....
46	2103.43	2100 -	2105	2103.41	5.71E+00	6.08	2.57E+00	.....
47	2118.67	2113 -	2124	2118.66	2.12E+01	15.10	1.76E+01	.....
48	2203.35	2199 -	2208	2203.39	8.78E+01	21.42	1.63E+01	BI-214
49	2446.86	2442 -	2451	2447.07	2.35E+01	14.11	1.49E+01	.....
50	2613.47	2610 -	2617	2613.79	6.19E+00	6.93	3.63E+00	.....

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/21/2017 12:02:02PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.40	4.15E+02	155.04	1.64E-02	1.56E-03
	2	63.03	1.24E+03	315.17	2.15E-02	1.63E-03
M	3	74.71	1.59E+03	270.68	2.31E-02	1.88E-03
m	4	77.19	2.69E+03	232.17	2.33E-02	1.94E-03
	5	86.99	4.07E+02	181.20	2.37E-02	2.14E-03
	6	92.99	1.08E+03	217.65	2.37E-02	2.09E-03
	7	112.11	2.33E+02	168.46	2.28E-02	1.80E-03
	8	154.16	1.81E+02	127.53	1.94E-02	1.54E-03
	9	186.06	1.33E+03	178.41	1.69E-02	1.40E-03
	10	242.20	1.15E+03	161.48	1.34E-02	1.13E-03
	11	259.97	6.66E+01	76.92	1.25E-02	1.04E-03
	12	270.23	1.66E+02	96.98	1.20E-02	9.90E-04
	13	295.21	2.36E+03	169.26	1.10E-02	9.13E-04
	14	338.12	9.37E+01	62.64	9.60E-03	8.23E-04
	15	351.96	3.81E+03	160.14	9.22E-03	7.94E-04
	16	428.08	6.10E+01	66.23	7.53E-03	6.95E-04
	17	510.55	1.16E+02	71.07	6.29E-03	6.61E-04

Analysis Report for 1707085-11

HTC-A02-S003-0006-02

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
18	547.11	3.95E+01	47.83	5.87E-03	6.46E-04
19	553.67	3.78E+01	40.24	5.80E-03	6.43E-04
20	609.28	2.58E+03	123.01	5.27E-03	6.20E-04
21	664.53	1.32E+02	68.93	4.85E-03	5.95E-04
22	703.96	3.62E+01	36.73	4.59E-03	5.46E-04
23	727.18	6.09E+01	66.38	4.45E-03	5.16E-04
24	768.19	2.17E+02	66.84	4.23E-03	4.65E-04
25	785.76	6.42E+01	50.33	4.14E-03	4.43E-04
26	806.87	7.84E+01	50.76	4.04E-03	4.16E-04
27	837.79	5.26E+01	33.70	3.90E-03	3.78E-04
28	933.87	1.07E+02	46.95	3.54E-03	2.94E-04
29	1000.31	9.25E+01	43.05	3.33E-03	2.78E-04
30	1119.81	5.47E+02	63.78	3.02E-03	2.50E-04
31	1156.98	3.44E+01	42.63	2.93E-03	2.41E-04
32	1178.88	2.70E+01	30.07	2.88E-03	2.37E-04
33	1237.76	1.42E+02	52.23	2.76E-03	2.33E-04
34	1280.49	7.91E+01	35.94	2.68E-03	2.31E-04
35	1377.46	1.11E+02	38.65	2.51E-03	2.20E-04
36	1400.91	3.10E+01	29.56	2.48E-03	2.17E-04
37	1407.81	7.23E+01	30.34	2.47E-03	2.16E-04
38	1460.23	7.27E+01	44.09	2.39E-03	2.08E-04
39	1508.58	4.36E+01	31.93	2.32E-03	2.01E-04
40	1729.06	7.56E+01	25.38	2.04E-03	1.67E-04
41	1763.86	3.94E+02	43.61	2.00E-03	1.62E-04
42	1847.22	4.76E+01	25.28	1.91E-03	1.51E-04
43	1857.15	6.63E+00	8.90	1.90E-03	1.51E-04
44	1962.98	1.28E+01	14.04	1.79E-03	1.51E-04
45	2079.21	8.17E+00	9.41	1.69E-03	1.51E-04
46	2103.43	5.71E+00	6.08	1.67E-03	1.51E-04
47	2118.67	2.12E+01	15.10	1.65E-03	1.51E-04
48	2203.35	8.78E+01	21.42	1.58E-03	1.51E-04
49	2446.86	2.35E+01	14.11	1.40E-03	1.51E-04
50	2613.47	6.19E+00	6.93	1.28E-03	1.51E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/21/2017 12:02:02PM

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

Analysis Report for 1707085-11

HTC-A02-S003-0006-02

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.40	4.15E+02	155.04	2.81E+01	8.29E+00	3.87E+02	1.55E+02
	2	63.03	1.24E+03	315.17	5.67E+01	8.57E+00	1.19E+03	3.15E+02
M	3	74.71	1.59E+03	270.68	2.66E+01	8.34E+00	1.56E+03	2.71E+02
m	4	77.19	2.69E+03	232.17			2.69E+03	2.32E+02
	5	86.99	4.07E+02	181.20			4.07E+02	1.81E+02
	6	92.99	1.08E+03	217.65	5.99E+01	8.61E+00	1.02E+03	2.18E+02
	7	112.11	2.33E+02	168.46			2.33E+02	1.68E+02
	8	154.16	1.81E+02	127.53			1.81E+02	1.28E+02
	9	186.06	1.33E+03	178.41	2.43E+01	7.50E+00	1.31E+03	1.79E+02
	10	242.20	1.15E+03	161.48			1.15E+03	1.61E+02
	11	259.97	6.66E+01	76.92			6.66E+01	7.69E+01
	12	270.23	1.66E+02	96.98			1.66E+02	9.70E+01
	13	295.21	2.36E+03	169.26			2.36E+03	1.69E+02
	14	338.12	9.37E+01	62.64			9.37E+01	6.26E+01
	15	351.96	3.81E+03	160.14			3.81E+03	1.60E+02
	16	428.08	6.10E+01	66.23			6.10E+01	6.62E+01
	17	510.55	1.16E+02	71.07	4.55E+01	4.99E+00	7.03E+01	7.12E+01
	18	547.11	3.95E+01	47.83			3.95E+01	4.78E+01
	19	553.67	3.78E+01	40.24			3.78E+01	4.02E+01
	20	609.28	2.58E+03	123.01			2.58E+03	1.23E+02
	21	664.53	1.32E+02	68.93			1.32E+02	6.89E+01
	22	703.96	3.62E+01	36.73			3.62E+01	3.67E+01
	23	727.18	6.09E+01	66.38			6.09E+01	6.64E+01
	24	768.19	2.17E+02	66.84			2.17E+02	6.68E+01
	25	785.76	6.42E+01	50.33			6.42E+01	5.03E+01
	26	806.87	7.84E+01	50.76			7.84E+01	5.08E+01
	27	837.79	5.26E+01	33.70			5.26E+01	3.37E+01
	28	933.87	1.07E+02	46.95			1.07E+02	4.69E+01
	29	1000.31	9.25E+01	43.05			9.25E+01	4.30E+01
	30	1119.81	5.47E+02	63.78			5.47E+02	6.38E+01
	31	1156.98	3.44E+01	42.63			3.44E+01	4.26E+01
	32	1178.88	2.70E+01	30.07			2.70E+01	3.01E+01
	33	1237.76	1.42E+02	52.23			1.42E+02	5.22E+01
	34	1280.49	7.91E+01	35.94			7.91E+01	3.59E+01
	35	1377.46	1.11E+02	38.65			1.11E+02	3.87E+01
	36	1400.91	3.10E+01	29.56			3.10E+01	2.96E+01
	37	1407.81	7.23E+01	30.34			7.23E+01	3.03E+01
	38	1460.23	7.27E+01	44.09			7.27E+01	4.41E+01
	39	1508.58	4.36E+01	31.93			4.36E+01	3.19E+01
	40	1729.06	7.56E+01	25.38			7.56E+01	2.54E+01
	41	1763.86	3.94E+02	43.61			3.94E+02	4.36E+01
	42	1847.22	4.76E+01	25.28			4.76E+01	2.53E+01
	43	1857.15	6.63E+00	8.90			6.63E+00	8.90E+00
	44	1962.98	1.28E+01	14.04			1.28E+01	1.40E+01
	45	2079.21	8.17E+00	9.41			8.17E+00	9.41E+00
	46	2103.43	5.71E+00	6.08			5.71E+00	6.08E+00
	47	2118.67	2.12E+01	15.10			2.12E+01	1.51E+01
	48	2203.35	8.78E+01	21.42			8.78E+01	2.14E+01
	49	2446.86	2.35E+01	14.11			2.35E+01	1.41E+01
	50	2613.47	6.19E+00	6.93			6.19E+00	6.93E+00

Analysis Report for 1707085-11

HTC-A02-S003-0006-02

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/21/2017 12:02:02PM

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

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	46.40	4.15E+02	155.04	2.81E+01	8.29E+00	3.87E+02	1.55E+02
	2	63.03	1.24E+03	315.17	5.67E+01	8.57E+00	1.19E+03	3.15E+02
M	3	74.71	1.59E+03	270.68	2.66E+01	8.34E+00	1.56E+03	2.71E+02
m	4	77.19	2.69E+03	232.17			2.69E+03	2.32E+02
	5	86.99	4.07E+02	181.20			4.07E+02	1.81E+02
	6	92.99	1.08E+03	217.65	5.99E+01	8.61E+00	1.02E+03	2.18E+02
	7	112.11	2.33E+02	168.46			2.33E+02	1.68E+02
	8	154.16	1.81E+02	127.53			1.81E+02	1.28E+02
	9	186.06	1.33E+03	178.41	2.43E+01	7.50E+00	1.31E+03	1.79E+02
	10	242.20	1.15E+03	161.48			1.15E+03	1.61E+02
	11	259.97	6.66E+01	76.92			6.66E+01	7.69E+01
	12	270.23	1.66E+02	96.98			1.66E+02	9.70E+01
	13	295.21	2.36E+03	169.26			2.36E+03	1.69E+02
	14	338.12	9.37E+01	62.64			9.37E+01	6.26E+01
	15	351.96	3.81E+03	160.14			3.81E+03	1.60E+02
	16	428.08	6.10E+01	66.23			6.10E+01	6.62E+01
	17	510.55	1.16E+02	71.07	4.55E+01	4.99E+00	7.03E+01	7.12E+01
	18	547.11	3.95E+01	47.83			3.95E+01	4.78E+01
	19	553.67	3.78E+01	40.24			3.78E+01	4.02E+01
	20	609.28	2.58E+03	123.01			2.58E+03	1.23E+02
	21	664.53	1.32E+02	68.93			1.32E+02	6.89E+01
	22	703.96	3.62E+01	36.73			3.62E+01	3.67E+01
	23	727.18	6.09E+01	66.38			6.09E+01	6.64E+01
	24	768.19	2.17E+02	66.84			2.17E+02	6.68E+01
	25	785.76	6.42E+01	50.33			6.42E+01	5.03E+01
	26	806.87	7.84E+01	50.76			7.84E+01	5.08E+01
	27	837.79	5.26E+01	33.70			5.26E+01	3.37E+01
	28	933.87	1.07E+02	46.95			1.07E+02	4.69E+01
	29	1000.31	9.25E+01	43.05			9.25E+01	4.30E+01
	30	1119.81	5.47E+02	63.78			5.47E+02	6.38E+01
	31	1156.98	3.44E+01	42.63			3.44E+01	4.26E+01
	32	1178.88	2.70E+01	30.07			2.70E+01	3.01E+01

Analysis Report for 1707085-11

HTC-A02-S003-0006-02

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
33	1237.76	1.42E+02	52.23			1.42E+02	5.22E+01
34	1280.49	7.91E+01	35.94			7.91E+01	3.59E+01
35	1377.46	1.11E+02	38.65			1.11E+02	3.87E+01
36	1400.91	3.10E+01	29.56			3.10E+01	2.96E+01
37	1407.81	7.23E+01	30.34			7.23E+01	3.03E+01
38	1460.23	7.27E+01	44.09			7.27E+01	4.41E+01
39	1508.58	4.36E+01	31.93			4.36E+01	3.19E+01
40	1729.06	7.56E+01	25.38			7.56E+01	2.54E+01
41	1763.86	3.94E+02	43.61			3.94E+02	4.36E+01
42	1847.22	4.76E+01	25.28			4.76E+01	2.53E+01
43	1857.15	6.63E+00	8.90			6.63E+00	8.90E+00
44	1962.98	1.28E+01	14.04			1.28E+01	1.40E+01
45	2079.21	8.17E+00	9.41			8.17E+00	9.41E+00
46	2103.43	5.71E+00	6.08			5.71E+00	6.08E+00
47	2118.67	2.12E+01	15.10			2.12E+01	1.51E+01
48	2203.35	8.78E+01	21.42			8.78E+01	2.14E+01
49	2446.86	2.35E+01	14.11			2.35E+01	1.41E+01
50	2613.47	6.19E+00	6.93			6.19E+00	6.93E+00

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.947	1460.81	*	10.67	2.96E+00	1.82E+00
SN-126	0.947	87.57	*	37.00	4.82E-01	2.19E-01
EU-155	0.340	86.50	*	30.90	5.99E-01	2.72E-01
		105.30		20.70		
PB-210	0.998	46.50	*	4.25	5.80E+00	2.39E+00
BI-212	0.776	727.17	*	11.80	1.20E+00	1.32E+00
		1620.62		2.75		
BI-214	0.974	609.31	*	46.30	1.10E+01	1.39E+00
		1120.29	*	15.10	1.25E+01	1.78E+00
		1764.49	*	15.80	1.29E+01	1.77E+00
		2204.22	*	4.98	1.16E+01	3.03E+00
PB-214	1.000	295.21	*	19.19	1.16E+01	1.27E+00
		351.92	*	37.19	1.15E+01	1.10E+00

Analysis Report for 1707085-11

HTC-A02-S003-0006-02

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
RA-226	0.997	186.21	*	3.28	2.44E+01	4.49E+01
PA-234M	0.921	1001.03	*	0.92	3.13E+01	1.48E+01
TH-234	0.989	63.29	*	3.80	1.51E+01	4.17E+00
NP-237	0.963	86.50	*	12.60	1.41E+00	6.43E-01
AM-243	1.000	74.67	*	66.00	1.06E+00	2.03E-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 12:02:02PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	4	77.19	7.47926E-01	4.31		
	6	92.99	2.83030E-01	10.69	Sum	
	7	112.11	6.46152E-02	36.21		
	8	154.16	5.01992E-02	35.28	Tol.	CS-136
	10	242.20	3.20581E-01	7.00		
	11	259.97	1.84960E-02	57.76	Sum	
	12	270.23	4.60820E-02	29.23		
	14	338.12	2.60204E-02	33.43	Tol.	AC-228
	16	428.08	1.69349E-02	54.32	Tol.	SB-125
	17	510.55	1.95383E-02	50.65		
	18	547.11	1.09710E-02	60.55		
	19	553.67	1.05121E-02	53.16		
	21	664.53	3.67461E-02	26.05	Tol.	CE-143
	22	703.96	1.00475E-02	50.77	Sum	
	24	768.19	6.02749E-02	15.40		
	25	785.76	1.78469E-02	39.17		
	26	806.87	2.17840E-02	32.37		
	27	837.79	1.46198E-02	32.02		
	28	933.87	2.97603E-02	21.91		
	31	1156.98	9.54392E-03	62.03		
	32	1178.88	7.50148E-03	55.67		
	33	1237.76	3.94650E-02	18.38	Tol.	CO-56
	34	1280.49	2.19651E-02	22.73		
	35	1377.46	3.08333E-02	17.41		

Analysis Report for 1707085-11

HTC-A02-S003-0006-02

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
36	1400.91	8.59848E-03	47.75		
37	1407.81	2.00743E-02	20.99	Tol.	EU-152
39	1508.58	1.21142E-02	36.60		
40	1729.06	2.10105E-02	16.78	Sum	
42	1847.22	1.32320E-02	26.53	Sum	
43	1857.15	1.84028E-03	67.19		
44	1962.98	3.55324E-03	54.90		
45	2079.21	2.26852E-03	57.60		
46	2103.43	1.58730E-03	53.22		
47	2118.67	5.88426E-03	35.64		
49	2446.86	6.53674E-03	29.97		
50	2613.47	1.71875E-03	55.99		

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	2.96E+00	1.82E+00
SN-126	0.94	87.57	*	37.00	4.82E-01	2.19E-01
EU-155	0.34	86.50	*	30.90	5.99E-01	2.72E-01
		105.30		20.70		
PB-210	0.99	46.50	*	4.25	5.80E+00	2.39E+00
BI-212	0.77	727.17	*	11.80	1.20E+00	1.32E+00
		1620.62		2.75		
BI-214	0.97	609.31	*	46.30	1.10E+01	1.39E+00
		1120.29	*	15.10	1.25E+01	1.78E+00
		1764.49	*	15.80	1.29E+01	1.77E+00
		2204.22	*	4.98	1.16E+01	3.03E+00
PB-214	1.00	295.21	*	19.19	1.16E+01	1.27E+00
		351.92	*	37.19	1.15E+01	1.10E+00
RA-226	0.99	186.21	*	3.28	2.44E+01	4.49E+01
PA-234M	0.92	1001.03	*	0.92	3.13E+01	1.48E+01
TH-234	0.98	63.29	*	3.80	1.51E+01	4.17E+00

Analysis Report for 1707085-11

HTC-A02-S003-0006-02

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
NP-237	0.96	86.50	*	12.60	1.41E+00	6.43E-01
AM-243	1.00	74.67	*	66.00	1.06E+00	2.03E-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	0.947	2.96E+00	1.82E+00	
?	SN-126	0.947	4.82E-01	2.19E-01	
?	EU-155	0.340	5.99E-01	2.72E-01	
	PB-210	0.998	5.80E+00	2.39E+00	
	BI-212	0.776	1.20E+00	1.32E+00	
	BI-214	0.974	1.19E+01	8.92E-01	
	PB-214	1.000	1.15E+01	8.33E-01	
	RA-226	0.997	2.44E+01	4.49E+01	
	PA-234M	0.921	3.13E+01	1.48E+01	
	TH-234	0.989	1.51E+01	4.17E+00	
?	NP-237	0.963	1.41E+00	6.43E-01	
	AM-243	1.000	1.06E+00	2.03E-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 1707085-11

HTC-A02-S003-0006-02

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 12:02:02PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	4	77.19	7.47926E-01	4.31		
	6	92.99	2.83030E-01	10.69	Sum	
	7	112.11	6.46152E-02	36.21		
	8	154.16	5.01992E-02	35.28	Tol.	CS-136
	10	242.20	3.20581E-01	7.00		
	11	259.97	1.84960E-02	57.76	Sum	
	12	270.23	4.60820E-02	29.23		
	14	338.12	2.60204E-02	33.43	Tol.	AC-228
	16	428.08	1.69349E-02	54.32	Tol.	SB-125
	17	510.55	1.95383E-02	50.65		
	18	547.11	1.09710E-02	60.55		
	19	553.67	1.05121E-02	53.16		
	21	664.53	3.67461E-02	26.05	Tol.	CE-143
	22	703.96	1.00475E-02	50.77	Sum	
	24	768.19	6.02749E-02	15.40		
	25	785.76	1.78469E-02	39.17		
	26	806.87	2.17840E-02	32.37		
	27	837.79	1.46198E-02	32.02		
	28	933.87	2.97603E-02	21.91		
	31	1156.98	9.54392E-03	62.03		
	32	1178.88	7.50148E-03	55.67		
	33	1237.76	3.94650E-02	18.38	Tol.	CO-56
	34	1280.49	2.19651E-02	22.73		
	35	1377.46	3.08333E-02	17.41		
	36	1400.91	8.59848E-03	47.75		
	37	1407.81	2.00743E-02	20.99	Tol.	EU-152
	39	1508.58	1.21142E-02	36.60		
	40	1729.06	2.10105E-02	16.78	Sum	
	42	1847.22	1.32320E-02	26.53	Sum	
	43	1857.15	1.84028E-03	67.19		
	44	1962.98	3.55324E-03	54.90		
	45	2079.21	2.26852E-03	57.60		
	46	2103.43	1.58730E-03	53.22		
	47	2118.67	5.88426E-03	35.64		
	49	2446.86	6.53674E-03	29.97		

Analysis Report for 1707085-11

HTC-A02-S003-0006-02

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
50	2613.47	1.71875E-03	55.99		

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	-3.28E+00	4.22E+00	4.22E+00
+	NA-22	1274.54		99.94	3.86E-02	1.91E-01	1.91E-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	6.40E-02	1.28E-01	1.28E-01
+	K-40	1460.81	*	10.67	2.96E+00	2.83E+00	2.83E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-4.67E-01	1.39E-01	1.39E-01
		78.34		96.00	1.46E+00		1.83E-01
+	SC-46	889.25		99.98	-1.41E-02	3.94E-01	3.94E-01
		1120.51		99.99	3.93E+00		9.13E-01
+	V-48	983.52		99.98	-2.97E+00	1.23E+01	1.23E+01
		1312.10		97.50	5.07E+00		1.26E+01
+	CR-51	320.08		9.83	-3.33E+00	1.40E+01	1.40E+01
+	MN-54	834.83		99.97	5.05E-02	2.11E-01	2.11E-01
+	CO-56	846.75		99.96	1.67E-01	3.93E-01	3.93E-01
		1037.75		14.03	-4.68E-01		2.86E+00
		1238.25		67.00	1.98E+00		1.00E+00
		1771.40		15.51	-1.90E+00		2.11E+00
		2598.48		16.90	-7.52E-02		8.30E-01
+	CO-57	122.06		85.51	1.77E-02	1.51E-01	1.51E-01
		136.48		10.60	-5.69E-01		1.28E+00
+	CO-58	810.76		99.40	-7.54E-02	4.54E-01	4.54E-01
+	FE-59	1099.22		56.50	-6.31E-02	1.47E+00	1.47E+00
		1291.56		43.20	1.37E+00		1.85E+00
+	CO-60	1173.22		100.00	5.10E-02	1.80E-01	1.80E-01
		1332.49		100.00	-2.70E-03		1.90E-01
+	ZN-65	1115.52		50.75	-1.96E-02	8.15E-01	8.15E-01

Analysis Report for 1707085-11

HTC-A02-S003-0006-02

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	GA-67	93.31	35.70	1.48E+09	4.19E+08	4.19E+08
		208.95	2.24	-4.05E+07		5.80E+09
		300.22	16.00	-7.11E+07		9.99E+08
+	SE-75	121.11	16.70	-1.28E-01	3.13E-01	1.06E+00
		136.00	59.20	-1.91E-01		3.13E-01
		264.65	59.80	8.97E-03		3.33E-01
		279.53	25.20	1.83E-02		8.39E-01
		400.65	11.40	4.48E-01		2.10E+00
+	RB-82	776.52	13.00	3.77E+00	1.71E+01	1.71E+01
+	RB-83	520.41	46.00	-2.88E-01	5.76E-01	5.76E-01
		529.64	30.30	-1.22E-01		9.45E-01
		552.65	16.40	-6.76E-02		1.70E+00
+	KR-85	513.99	0.43	2.53E+00	3.32E+01	3.32E+01
+	SR-85	513.99	99.27	3.10E-02	4.07E-01	4.07E-01
+	Y-88	898.02	93.40	-9.74E-02	2.47E-01	3.59E-01
		1836.01	99.38	2.45E-03		2.47E-01
+	MO-93	263.06	56.72	5.42E-03	1.48E-01	2.10E-01
		684.67	99.68	-5.11E-02		1.48E-01
		1477.11	99.08	1.06E-01		1.97E-01
+	NB-93M	16.57	9.43	3.58E+01	1.17E+01	1.17E+01
+	NB-94	702.63	100.00	2.53E-02	1.69E-01	1.69E-01
		871.10	100.00	5.50E-03		1.71E-01
+	NB-95	765.79	99.81	3.43E+00	1.60E+00	1.60E+00
+	NB-95M	235.69	25.00	6.36E+06	7.64E+07	7.64E+07
+	ZR-95	724.18	43.70	1.40E-01	8.63E-01	1.02E+00
		756.72	55.30	1.41E-01		8.63E-01
+	MO-99	181.06	6.20	-9.84E+09	6.83E+10	1.01E+11
		739.58	12.80	2.13E+10		6.83E+10
		778.00	4.50	4.18E+10		1.85E+11
+	RU-103	497.08	89.00	-2.74E-01	7.69E-01	7.69E-01
+	RU-106	621.84	9.80	-7.07E-01	1.53E+00	1.53E+00
+	AG-108M	433.93	89.90	-2.10E-03	1.38E-01	1.38E-01
		614.37	90.40	1.09E-02		1.52E-01
		722.95	90.50	1.34E-02		1.67E-01
+	CD-109	88.03	3.72	-8.70E+00	4.08E+00	4.08E+00
+	AG-110M	657.75	93.14	-1.15E-02	1.96E-01	1.96E-01
		677.61	10.53	1.30E+00		1.96E+00
		706.67	16.46	-8.61E-03		1.30E+00
		763.93	21.98	6.38E-03		1.17E+00
		884.67	71.63	-7.11E-02		3.20E-01
		1384.27	23.94	4.61E-01		1.10E+00
+	CD-113M	263.70	0.02	1.34E+01	5.03E+02	5.03E+02
+	SN-113	255.12	1.93	-3.17E+00	3.59E-01	1.09E+01
		391.69	64.90	-1.35E-01		3.59E-01
+	TE123M	159.00	84.10	1.84E-02	2.34E-01	2.34E-01
+	SB-124	602.71	97.87	6.15E-03	4.23E-01	4.23E-01
		645.85	7.26	2.92E+00		5.30E+00
		722.78	11.10	3.38E-01		4.20E+00

Analysis Report for 1707085-11

HTC-A02-S003-0006-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-124	1691.02		49.00	1.36E-01	4.23E-01	9.26E-01
+	I-125	35.49		6.49	6.44E-01	8.51E+00	8.51E+00
+	SB-125	176.33		6.89	-4.63E-01	5.02E-01	1.73E+00
		427.89		29.33	4.16E-02		5.02E-01
		463.38		10.35	3.17E-01		1.29E+00
		600.56		17.80	8.57E-02		8.08E-01
		635.90		11.32	4.69E-01		1.19E+00
+	SB-126	414.70		83.30	-1.00E+01	3.64E+01	3.87E+01
		666.33		99.60	1.93E+01		3.99E+01
		695.00		99.60	-2.58E+01		3.64E+01
		720.50		53.80	-6.96E-01		6.40E+01
+	SN-126	87.57	*	37.00	4.82E-01	3.47E-01	3.47E-01
+	SB-127	473.00		25.00	1.22E+07	1.92E+07	2.44E+07
		685.20		35.70	-6.63E+06		1.92E+07
		783.80		14.70	8.60E+06		5.70E+07
+	I-129	29.78		57.00	-2.22E-01	4.26E-01	4.26E-01
		33.60		13.20	-5.15E-01		1.45E+00
		39.58		7.52	-6.30E-02		2.06E+00
+	I-131	284.30		6.05	3.19E+03	6.95E+02	9.27E+03
		364.48		81.20	1.57E+02		6.95E+02
		636.97		7.26	9.72E+02		7.98E+03
		722.89		1.80	3.18E+03		3.95E+04
+	TE-132	49.72		13.10	-1.38E+08	1.55E+08	1.23E+09
		228.16		88.00	6.05E+07		1.55E+08
+	BA-133	81.00		33.00	-1.97E+00	3.75E-01	4.29E-01
		302.84		17.80	-1.82E-01		6.72E-01
		356.01		60.00	-1.64E-02		3.75E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-7.25E+05	1.58E+05	1.58E+05
+	CS-134	563.23		8.38	-7.00E-01	2.08E-01	1.68E+00
		569.32		15.43	5.75E-01		9.97E-01
		604.70		97.60	-3.48E+00		2.43E-01
		795.84		85.40	3.20E-02		2.08E-01
		801.93		8.73	3.34E-01		2.19E+00
+	CS-135	268.24		16.00	2.74E-02	7.70E-01	7.70E-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	1.59E+00	2.92E+01	2.68E+02
		163.89		4.61	2.47E+02		4.35E+02
		176.55		13.56	-6.68E+01		1.43E+02
		273.65		12.66	4.28E+01		1.76E+02
		340.57		48.50	-9.84E+00		4.65E+01
		818.50		99.70	-6.76E+00		2.92E+01
		1048.07		79.60	-7.17E+00		3.86E+01
		1235.34		19.70	5.22E+02		2.53E+02
+	CS-137	661.65		85.12	1.39E-01	1.93E-01	1.93E-01
+	LA-138	788.74		34.00	-5.17E-02	2.53E-01	5.12E-01
		1435.80		66.00	-7.80E-02		2.53E-01

Analysis Report for 1707085-11

HTC-A02-S003-0006-02

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		CE-139	165.85		80.35	3.22E-02	2.30E-01	2.30E-01
+		BA-140	162.64		6.70	1.73E+02	9.95E+01	3.47E+02
			304.84		4.50	-2.98E+02		5.30E+02
			423.70		3.20	-5.94E+01		8.73E+02
			437.55		2.00	-7.70E+02		1.21E+03
			537.32		25.00	-8.98E+01		9.95E+01
+		LA-140	328.77		20.50	-1.50E+01	3.56E+01	1.23E+02
			487.03		45.50	-1.41E+01		5.73E+01
			815.85		23.50	-7.99E+01		1.38E+02
			1596.49		95.49	1.01E+00		3.56E+01
+		CE-141	145.44		48.40	8.10E-01	1.88E+00	1.88E+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	3.62E-02	1.23E+00	1.23E+00
+		PM-144	476.78		42.00	-3.02E-01	1.46E-01	3.55E-01
			618.01		98.60	2.30E-02		1.46E-01
			696.49		99.49	2.03E-02		1.90E-01
+		PM-145	36.85		21.70	-2.61E-01	4.16E-01	7.79E-01
			37.36		39.70	-1.40E-01		4.16E-01
			42.30		15.10	5.29E-03		9.73E-01
			72.40		2.31	-4.25E+01		6.41E+00
+		PM-146	453.90		39.94	1.90E-01	3.40E-01	3.40E-01
			735.90		14.01	7.23E-02		1.13E+00
			747.13		13.10	1.90E-01		1.29E+00
+		ND-147	91.11		28.90	7.84E+02	2.33E+02	2.33E+02
			531.02		13.10	2.28E+02		5.04E+02
+		PM-149	285.90		3.10	-6.18E+12	8.57E+13	8.57E+13
+		EU-152	121.78		20.50	5.81E-02	4.95E-01	4.95E-01
			244.69		5.40	1.11E+01		2.99E+00
			344.27		19.13	-2.36E-01		6.38E-01
			778.89		9.20	3.43E-01		1.69E+00
			964.01		10.40	2.37E-01		1.89E+00
			1085.78		7.22	-5.41E-01		2.35E+00
			1112.02		9.60	-5.73E-01		1.72E+00
			1407.95		14.94	-1.16E-01		1.67E+00
+		GD-153	97.43		31.30	-4.80E-02	4.50E-01	4.50E-01
			103.18		22.20	-2.59E-01		5.68E-01
+		EU-154	123.07		40.50	2.38E-01	2.57E-01	2.57E-01
			723.30		19.70	1.10E-01		8.01E-01
			873.19		11.50	-1.24E-01		1.54E+00
			996.32		10.30	1.90E-01		1.84E+00
			1004.76		17.90	-1.87E-01		1.06E+00
			1274.45		35.50	1.03E-01		5.11E-01
+		EU-155	86.50	*	30.90	5.99E-01	4.32E-01	4.32E-01
			105.30		20.70	-1.51E-01		4.77E-01
+		EU-156	811.77		10.40	3.67E+01	1.45E+02	1.45E+02
			1153.47		7.20	4.01E+01		2.63E+02
			1230.71		8.90	-1.01E+01		1.80E+02

Analysis Report for 1707085-11

HTC-A02-S003-0006-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	HO-166M	184.41		72.60	1.12E+00	2.13E-01	2.13E-01
		280.45		29.60	5.89E-02		4.02E-01
		410.94		11.10	-5.53E-01		1.19E+00
		711.69		54.10	1.18E-01		2.82E-01
+	TM-171	66.72		0.14	-1.39E+02	1.07E+02	1.07E+02
+	HF-172	67.35		5.31	-3.66E+00	9.89E-01	2.82E+00
		125.81		11.30	-8.47E-02		9.89E-01
+	LU-172	181.53		20.60	-1.29E+02	7.10E+03	1.53E+04
		900.72		29.81	-1.62E+03		1.53E+04
		1093.66		62.50	2.26E+03		7.10E+03
+	LU-173	100.72		5.24	3.08E-01	7.03E-01	2.11E+00
		272.11		21.20	3.56E-02		7.03E-01
+	HF-175	343.40		84.00	-1.40E-01	3.78E-01	3.78E-01
+	LU-176	88.34		13.30	-2.10E+00	1.27E-01	9.86E-01
		201.83		86.00	1.33E-02		1.36E-01
		306.78		94.00	5.64E-02		1.27E-01
+	HF-181	133.02		41.70	7.67E-01	7.61E-01	1.26E+00
		345.85		17.20	1.28E-01		3.57E+00
		482.03		82.80	7.84E-02		7.61E-01
+	TA-182	67.75		41.20	-1.93E+00	5.77E-01	5.77E-01
		1121.30		34.90	8.97E+00		2.10E+00
		1189.05		16.23	-1.48E-01		2.03E+00
		1221.41		26.98	2.11E-01		1.18E+00
		1231.02		11.44	-4.55E-01		2.86E+00
+	IR-192	308.46		29.68	-7.17E-02	6.39E-01	9.91E-01
		468.07		48.10	-2.77E-01		6.39E-01
+	HG-203	279.19		77.30	-1.90E-01	6.68E-01	6.68E-01
+	TL-204	374.74		94.11	-3.82E-02	1.34E-01	1.34E-01
		899.15		99.16	7.37E-03		1.90E-01
		911.74		91.10	9.47E-02		2.12E-01
+	BI-207	569.67		97.72	8.34E-02	1.45E-01	1.45E-01
		1063.62		74.90	-8.81E-02		2.23E-01
+	TL-208	583.14		30.22	5.26E-01	3.77E-01	4.90E-01
		860.37		4.48	-1.53E+00		3.64E+00
		2614.66		35.85	7.54E-03		3.77E-01
+	BI-210M	262.00		45.00	3.52E-02	2.65E-01	2.65E-01
		300.00		23.00	-4.31E-02		6.05E-01
+	PB-210	46.50	*	4.25	5.80E+00	3.75E+00	3.75E+00
+	PB-211	404.84		2.90	-1.02E+00	4.67E+00	4.67E+00
		831.96		2.90	1.10E+00		5.43E+00
+	BI-212	727.17	*	11.80	1.20E+00	2.15E+00	2.15E+00
		1620.62		2.75	1.98E+00		5.65E+00
+	PB-212	238.63		44.60	4.75E-02	3.55E-01	3.55E-01
		300.09		3.41	-2.91E-01		4.08E+00
+	BI-214	609.31	*	46.30	1.10E+01	4.96E-01	4.96E-01
		1120.29	*	15.10	1.25E+01		1.69E+00
		1764.49	*	15.80	1.29E+01		1.07E+00
		2204.22	*	4.98	1.16E+01		2.60E+00

Analysis Report for 1707085-11

HTC-A02-S003-0006-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	PB-214	295.21	*	19.19	1.16E+01	5.16E-01	1.13E+00
		351.92	*	37.19	1.15E+01		5.16E-01
+	RN-219	401.80		6.50	2.39E-01	2.11E+00	2.11E+00
+	RA-223	323.87		3.88	-2.39E-01	3.04E+00	3.04E+00
+	RA-224	240.98		3.95	2.20E+01	4.36E+00	4.36E+00
+	RA-225	40.00		31.00	-1.49E+00	4.88E+01	4.88E+01
+	RA-226	186.21	*	3.28	2.44E+01	5.07E+00	5.07E+00
+	TH-227	50.10		8.40	-1.83E-01	1.09E+00	1.63E+00
		236.00		11.50	9.07E-02		1.09E+00
		256.20		6.30	-4.08E-02		1.91E+00
+	AC-228	338.32		11.40	4.34E-01	6.66E-01	1.14E+00
		911.07		27.70	2.17E-01		6.66E-01
		969.11		16.60	4.32E-01		1.12E+00
+	TH-230	48.44		16.90	-2.95E-01	8.49E-01	8.49E-01
		62.85		4.60	7.67E+00		3.15E+00
		67.67		0.37	-1.19E+02		3.55E+01
+	PA-231	283.67		1.60	2.54E+00	5.10E+00	7.40E+00
		302.67		2.30	-1.39E+00		5.10E+00
+	TH-231	25.64		14.70	1.76E+00	1.98E+00	2.46E+00
		84.21		6.40	-2.94E+00		1.98E+00
+	PA-233	311.98		38.60	-2.04E-02	3.84E+00	3.84E+00
+	PA-234	131.20		20.40	6.21E-02	5.10E-01	5.10E-01
		733.99		8.80	-6.68E-03		1.72E+00
		946.00		12.00	-4.01E-02		1.53E+00
+	PA-234M	1001.03	*	0.92	3.13E+01	2.24E+01	2.24E+01
+	TH-234	63.29	*	3.80	1.51E+01	6.46E+00	6.46E+00
+	U-235	143.76		10.50	4.01E-01	1.06E+00	1.06E+00
		163.35		4.70	1.21E+00		2.43E+00
		205.31		4.70	6.72E-01		2.49E+00
+	NP-237	86.50	*	12.60	1.41E+00	1.02E+00	1.02E+00
+	NP-239	106.10		22.70	-4.17E+11	1.47E+12	1.47E+12
		228.18		10.70	1.50E+12		3.83E+12
		277.60		14.10	2.86E+11		3.01E+12
+	AM-241	59.54		35.90	-4.15E-02	3.87E-01	3.87E-01
+	AM-243	74.67	*	66.00	1.06E+00	3.55E-01	3.55E-01
+	CM-243	209.75		3.29	5.91E-01	8.71E-01	3.45E+00
		228.14		10.60	4.33E-01		1.11E+00
		277.60		14.00	8.26E-02		8.71E-01

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

Analysis Report for 1707085-11

HTC-A02-S003-0006-02

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	4.22E+00	4.22E+00	-3.28E+00	2.04E+00
	NA-22	1274.54		99.94	1.91E-01	1.91E-01	3.86E-02	8.98E-02
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		0.00E+00	1.00E+20
	AL-26	1808.65		99.76	1.28E-01	1.28E-01	6.40E-02	5.68E-02
+	K-40	1460.81	*	10.67	2.83E+00	2.83E+00	2.96E+00	1.36E+00
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	1.39E-01	1.39E-01	-4.67E-01	6.89E-02
		78.34		96.00	1.83E-01		1.46E+00	9.10E-02
	SC-46	889.25		99.98	3.94E-01	3.94E-01	-1.41E-02	1.89E-01
		1120.51		99.99	9.13E-01		3.93E+00	4.46E-01
	V-48	983.52		99.98	1.23E+01	1.23E+01	-2.97E+00	5.87E+00
		1312.10		97.50	1.26E+01		5.07E+00	5.93E+00
	CR-51	320.08		9.83	1.40E+01	1.40E+01	-3.33E+00	6.84E+00
	MN-54	834.83		99.97	2.11E-01	2.11E-01	5.05E-02	1.01E-01
	CO-56	846.75		99.96	3.93E-01	3.93E-01	1.67E-01	1.88E-01
		1037.75		14.03	2.86E+00		-4.68E-01	1.36E+00
		1238.25		67.00	1.00E+00		1.98E+00	4.83E-01
		1771.40		15.51	2.11E+00		-1.90E+00	9.45E-01
		2598.48		16.90	8.30E-01		-7.52E-02	2.62E-01
	CO-57	122.06		85.51	1.51E-01	1.51E-01	1.77E-02	7.44E-02
		136.48		10.60	1.28E+00		-5.69E-01	6.31E-01
	CO-58	810.76		99.40	4.54E-01	4.54E-01	-7.54E-02	2.18E-01
	FE-59	1099.22		56.50	1.47E+00	1.47E+00	-6.31E-02	6.98E-01
		1291.56		43.20	1.85E+00		1.37E+00	8.67E-01
	CO-60	1173.22		100.00	1.80E-01	1.80E-01	5.10E-02	8.50E-02
		1332.49		100.00	1.90E-01		-2.70E-03	8.95E-02
	ZN-65	1115.52		50.75	8.15E-01	8.15E-01	-1.96E-02	3.95E-01
	GA-67	93.31		35.70	4.19E+08	4.19E+08	1.48E+09	2.08E+08
		208.95		2.24	5.80E+09		-4.05E+07	2.86E+09
		300.22		16.00	9.99E+08		-7.11E+07	4.90E+08
	SE-75	121.11		16.70	1.06E+00	3.13E-01	-1.28E-01	5.21E-01
		136.00		59.20	3.13E-01		-1.91E-01	1.54E-01
		264.65		59.80	3.33E-01		8.97E-03	1.63E-01
		279.53		25.20	8.39E-01		1.83E-02	4.11E-01
		400.65		11.40	2.10E+00		4.48E-01	1.02E+00
	RB-82	776.52		13.00	1.71E+01	1.71E+01	3.77E+00	8.16E+00

Analysis Report for 1707085-11

HTC-A02-S003-0006-02

	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	5.76E-01	5.76E-01	-2.88E-01	2.77E-01
		529.64		30.30	9.45E-01		-1.22E-01	4.56E-01
		552.65		16.40	1.70E+00		-6.76E-02	8.20E-01
	KR-85	513.99		0.43	3.32E+01	3.32E+01	2.53E+00	1.61E+01
	SR-85	513.99		99.27	4.07E-01	4.07E-01	3.10E-02	1.97E-01
	Y-88	898.02		93.40	3.59E-01	2.47E-01	-9.74E-02	1.72E-01
		1836.01		99.38	2.47E-01		2.45E-03	1.10E-01
	MO-93	263.06		56.72	2.10E-01	1.48E-01	5.42E-03	1.03E-01
		684.67		99.68	1.48E-01		-5.11E-02	7.11E-02
		1477.11		99.08	1.97E-01		1.06E-01	9.26E-02
	NB-93M	16.57		9.43	1.17E+01	1.17E+01	3.58E+01	5.73E+00
	NB-94	702.63		100.00	1.69E-01	1.69E-01	2.53E-02	8.13E-02
		871.10		100.00	1.71E-01		5.50E-03	8.20E-02
	NB-95	765.79		99.81	1.60E+00	1.60E+00	3.43E+00	7.76E-01
	NB-95M	235.69		25.00	7.64E+07	7.64E+07	6.36E+06	3.76E+07
	ZR-95	724.18		43.70	1.02E+00	8.63E-01	1.40E-01	4.92E-01
		756.72		55.30	8.63E-01		1.41E-01	4.14E-01
	MO-99	181.06		6.20	1.01E+11	6.83E+10	-9.84E+09	5.00E+10
		739.58		12.80	6.83E+10		2.13E+10	3.28E+10
		778.00		4.50	1.85E+11		4.18E+10	8.83E+10
	RU-103	497.08		89.00	7.69E-01	7.69E-01	-2.74E-01	3.71E-01
	RU-106	621.84		9.80	1.53E+00	1.53E+00	-7.07E-01	7.31E-01
	AG-108M	433.93		89.90	1.38E-01	1.38E-01	-2.10E-03	6.67E-02
		614.37		90.40	1.52E-01		1.09E-02	7.30E-02
		722.95		90.50	1.67E-01		1.34E-02	7.98E-02
	CD-109	88.03		3.72	4.08E+00	4.08E+00	-8.70E+00	2.02E+00
	AG-110M	657.75		93.14	1.96E-01	1.96E-01	-1.15E-02	9.40E-02
		677.61		10.53	1.96E+00		1.30E+00	9.44E-01
		706.67		16.46	1.30E+00		-8.61E-03	6.26E-01
		763.93		21.98	1.17E+00		6.38E-03	5.64E-01
		884.67		71.63	3.20E-01		-7.11E-02	1.53E-01
		1384.27		23.94	1.10E+00		4.61E-01	5.18E-01
	CD-113M	263.70		0.02	5.03E+02	5.03E+02	1.34E+01	2.46E+02
	SN-113	255.12		1.93	1.09E+01	3.59E-01	-3.17E+00	5.37E+00
		391.69		64.90	3.59E-01		-1.35E-01	1.75E-01
	TE123M	159.00		84.10	2.34E-01	2.34E-01	1.84E-02	1.15E-01
	SB-124	602.71		97.87	4.23E-01	4.23E-01	6.15E-03	2.03E-01
		645.85		7.26	5.30E+00		2.92E+00	2.53E+00
		722.78		11.10	4.20E+00		3.38E-01	2.01E+00
		1691.02		49.00	9.26E-01		1.36E-01	4.20E-01
	I-125	35.49		6.49	8.51E+00	8.51E+00	6.44E-01	4.19E+00
	SB-125	176.33		6.89	1.73E+00	5.02E-01	-4.63E-01	8.51E-01
		427.89		29.33	5.02E-01		4.16E-02	2.44E-01
		463.38		10.35	1.29E+00		3.17E-01	6.25E-01
		600.56		17.80	8.08E-01		8.57E-02	3.88E-01
		635.90		11.32	1.19E+00		4.69E-01	5.66E-01
	SB-126	414.70		83.30	3.87E+01	3.64E+01	-1.00E+01	1.88E+01
		666.33		99.60	3.99E+01		1.93E+01	1.92E+01
		695.00		99.60	3.64E+01		-2.58E+01	1.75E+01
		720.50		53.80	6.40E+01		-6.96E-01	3.06E+01
+	SN-126	87.57	*	37.00	3.47E-01	3.47E-01	4.82E-01	1.72E-01
	SB-127	473.00		25.00	2.44E+07	1.92E+07	1.22E+07	1.18E+07
		685.20		35.70	1.92E+07		-6.63E+06	9.21E+06

Analysis Report for 1707085-11

HTC-A02-S003-0006-02

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
SB-127	783.80	14.70	5.70E+07	1.92E+07	8.60E+06	2.74E+07
I-129	29.78	57.00	4.26E-01	4.26E-01	-2.22E-01	2.10E-01
	33.60	13.20	1.45E+00		-5.15E-01	7.15E-01
	39.58	7.52	2.06E+00		-6.30E-02	1.02E+00
I-131	284.30	6.05	9.27E+03	6.95E+02	3.19E+03	4.54E+03
	364.48	81.20	6.95E+02		1.57E+02	3.38E+02
	636.97	7.26	7.98E+03		9.72E+02	3.81E+03
	722.89	1.80	3.95E+04		3.18E+03	1.89E+04
TE-132	49.72	13.10	1.23E+09	1.55E+08	-1.38E+08	6.07E+08
	228.16	88.00	1.55E+08		6.05E+07	7.61E+07
BA-133	81.00	33.00	4.29E-01	3.75E-01	-1.97E+00	2.13E-01
	302.84	17.80	6.72E-01		-1.82E-01	3.28E-01
	356.01	60.00	3.75E-01		-1.64E-02	1.85E-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	1.58E+05	1.58E+05	-7.25E+05	7.83E+04
CS-134	563.23	8.38	1.68E+00	2.08E-01	-7.00E-01	8.07E-01
	569.32	15.43	9.97E-01		5.75E-01	4.81E-01
	604.70	97.60	2.43E-01		-3.48E+00	1.18E-01
	795.84	85.40	2.08E-01		3.20E-02	9.94E-02
	801.93	8.73	2.19E+00		3.34E-01	1.05E+00
CS-135	268.24	16.00	7.70E-01	7.70E-01	2.74E-02	3.78E-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	2.68E+02	2.92E+01	1.59E+00	1.33E+02
	163.89	4.61	4.35E+02		2.47E+02	2.14E+02
	176.55	13.56	1.43E+02		-6.68E+01	7.06E+01
	273.65	12.66	1.76E+02		4.28E+01	8.66E+01
	340.57	48.50	4.65E+01		-9.84E+00	2.27E+01
	818.50	99.70	2.92E+01		-6.76E+00	1.40E+01
	1048.07	79.60	3.86E+01		-7.17E+00	1.83E+01
	1235.34	19.70	2.53E+02		5.22E+02	1.22E+02
CS-137	661.65	85.12	1.93E-01	1.93E-01	1.39E-01	9.30E-02
LA-138	788.74	34.00	5.12E-01	2.53E-01	-5.17E-02	2.46E-01
	1435.80	66.00	2.53E-01		-7.80E-02	1.18E-01
CE-139	165.85	80.35	2.30E-01	2.30E-01	3.22E-02	1.14E-01
BA-140	162.64	6.70	3.47E+02	9.95E+01	1.73E+02	1.71E+02
	304.84	4.50	5.30E+02		-2.98E+02	2.59E+02
	423.70	3.20	8.73E+02		-5.94E+01	4.25E+02
	437.55	2.00	1.21E+03		-7.70E+02	5.84E+02
	537.32	25.00	9.95E+01		-8.98E+01	4.78E+01
LA-140	328.77	20.50	1.23E+02	3.56E+01	-1.50E+01	6.01E+01
	487.03	45.50	5.73E+01		-1.41E+01	2.77E+01
	815.85	23.50	1.38E+02		-7.99E+01	6.61E+01
	1596.49	95.49	3.56E+01		1.01E+00	1.64E+01
CE-141	145.44	48.40	1.88E+00	1.88E+00	8.10E-01	9.30E-01
@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	293.26	42.00	1.00E+26		1.00E+26	1.00E+20
@	664.55	5.20	1.00E+26		1.00E+26	1.00E+20
CE-144	133.54	10.80	1.23E+00	1.23E+00	3.62E-02	6.07E-01
PM-144	476.78	42.00	3.55E-01	1.46E-01	-3.02E-01	1.72E-01
	618.01	98.60	1.46E-01		2.30E-02	6.97E-02
	696.49	99.49	1.90E-01		2.03E-02	9.12E-02

Analysis Report for 1707085-11

HTC-A02-S003-0006-02

	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	7.79E-01	4.16E-01	-2.61E-01	3.84E-01
		37.36		39.70	4.16E-01		-1.40E-01	2.05E-01
		42.30		15.10	9.73E-01		5.29E-03	4.80E-01
		72.40		2.31	6.41E+00		-4.25E+01	3.18E+00
	PM-146	453.90		39.94	3.40E-01	3.40E-01	1.90E-01	1.65E-01
		735.90		14.01	1.13E+00		7.23E-02	5.40E-01
		747.13		13.10	1.29E+00		1.90E-01	6.19E-01
	ND-147	91.11		28.90	2.33E+02	2.33E+02	7.84E+02	1.16E+02
		531.02		13.10	5.04E+02		2.28E+02	2.43E+02
	PM-149	285.90		3.10	8.57E+13	8.57E+13	-6.18E+12	4.19E+13
	EU-152	121.78		20.50	4.95E-01	4.95E-01	5.81E-02	2.45E-01
		244.69		5.40	2.99E+00		1.11E+01	1.47E+00
		344.27		19.13	6.38E-01		-2.36E-01	3.11E-01
		778.89		9.20	1.69E+00		3.43E-01	8.06E-01
		964.01		10.40	1.89E+00		2.37E-01	9.04E-01
		1085.78		7.22	2.35E+00		-5.41E-01	1.11E+00
		1112.02		9.60	1.72E+00		-5.73E-01	8.10E-01
		1407.95		14.94	1.67E+00		-1.16E-01	7.97E-01
	GD-153	97.43		31.30	4.50E-01	4.50E-01	-4.80E-02	2.22E-01
		103.18		22.20	5.68E-01		-2.59E-01	2.80E-01
	EU-154	123.07		40.50	2.57E-01	2.57E-01	2.38E-01	1.27E-01
		723.30		19.70	8.01E-01		1.10E-01	3.84E-01
		873.19		11.50	1.54E+00		-1.24E-01	7.39E-01
		996.32		10.30	1.84E+00		1.90E-01	8.77E-01
		1004.76		17.90	1.06E+00		-1.87E-01	5.05E-01
		1274.45		35.50	5.11E-01		1.03E-01	2.40E-01
+	EU-155	86.50	*	30.90	4.32E-01	4.32E-01	5.99E-01	2.14E-01
		105.30		20.70	4.77E-01		-1.51E-01	2.35E-01
	EU-156	811.77		10.40	1.45E+02	1.45E+02	3.67E+01	6.94E+01
		1153.47		7.20	2.63E+02		4.01E+01	1.26E+02
		1230.71		8.90	1.80E+02		-1.01E+01	8.51E+01
	HO-166M	184.41		72.60	2.13E-01	2.13E-01	1.12E+00	1.05E-01
		280.45		29.60	4.02E-01		5.89E-02	1.97E-01
		410.94		11.10	1.19E+00		-5.53E-01	5.79E-01
		711.69		54.10	2.82E-01		1.18E-01	1.35E-01
	TM-171	66.72		0.14	1.07E+02	1.07E+02	-1.39E+02	5.31E+01
	HF-172	67.35		5.31	2.82E+00	9.89E-01	-3.66E+00	1.40E+00
		125.81		11.30	9.89E-01		-8.47E-02	4.88E-01
	LU-172	181.53		20.60	1.53E+04	7.10E+03	-1.29E+02	7.56E+03
		900.72		29.81	1.53E+04		-1.62E+03	7.32E+03
		1093.66		62.50	7.10E+03		2.26E+03	3.36E+03
	LU-173	100.72		5.24	2.11E+00	7.03E-01	3.08E-01	1.04E+00
		272.11		21.20	7.03E-01		3.56E-02	3.45E-01
	HF-175	343.40		84.00	3.78E-01	3.78E-01	-1.40E-01	1.84E-01
	LU-176	88.34		13.30	9.86E-01	1.27E-01	-2.10E+00	4.89E-01
		201.83		86.00	1.36E-01		1.33E-02	6.68E-02
		306.78		94.00	1.27E-01		5.64E-02	6.20E-02
	HF-181	133.02		41.70	1.26E+00	7.61E-01	7.67E-01	6.21E-01
		345.85		17.20	3.57E+00		1.28E-01	1.74E+00
		482.03		82.80	7.61E-01		7.84E-02	3.68E-01
	TA-182	67.75		41.20	5.77E-01	5.77E-01	-1.93E+00	2.86E-01
		1121.30		34.90	2.10E+00		8.97E+00	1.03E+00
		1189.05		16.23	2.03E+00		-1.48E-01	9.60E-01

Analysis Report for 1707085-11

HTC-A02-S003-0006-02

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TA-182	1221.41		26.98	1.18E+00	5.77E-01	2.11E-01	5.56E-01
		1231.02		11.44	2.86E+00		-4.55E-01	1.35E+00
	IR-192	308.46		29.68	9.91E-01	6.39E-01	-7.17E-02	4.84E-01
		468.07		48.10	6.39E-01		-2.77E-01	3.09E-01
	HG-203	279.19		77.30	6.68E-01	6.68E-01	-1.90E-01	3.27E-01
	TL-204	374.74		94.11	1.34E-01	1.34E-01	-3.82E-02	6.50E-02
		899.15		99.16	1.90E-01		7.37E-03	9.10E-02
		911.74		91.10	2.12E-01		9.47E-02	1.02E-01
	BI-207	569.67		97.72	1.45E-01	1.45E-01	8.34E-02	6.98E-02
		1063.62		74.90	2.23E-01		-8.81E-02	1.06E-01
	TL-208	583.14		30.22	4.90E-01	3.77E-01	5.26E-01	2.36E-01
		860.37		4.48	3.64E+00		-1.53E+00	1.74E+00
		2614.66		35.85	3.77E-01		7.54E-03	1.58E-01
	BI-210M	262.00		45.00	2.65E-01	2.65E-01	3.52E-02	1.30E-01
		300.00		23.00	6.05E-01		-4.31E-02	2.97E-01
+	PB-210	46.50	*	4.25	3.75E+00	3.75E+00	5.80E+00	1.85E+00
	PB-211	404.84		2.90	4.67E+00	4.67E+00	-1.02E+00	2.27E+00
		831.96		2.90	5.43E+00		1.10E+00	2.59E+00
+	BI-212	727.17	*	11.80	2.15E+00	2.15E+00	1.20E+00	1.05E+00
		1620.62		2.75	5.65E+00		1.98E+00	2.59E+00
	PB-212	238.63		44.60	3.55E-01	3.55E-01	4.75E-02	1.75E-01
		300.09		3.41	4.08E+00		-2.91E-01	2.00E+00
+	BI-214	609.31	*	46.30	4.96E-01	4.96E-01	1.10E+01	2.42E-01
		1120.29	*	15.10	1.69E+00		1.25E+01	8.12E-01
		1764.49	*	15.80	1.07E+00		1.29E+01	4.88E-01
		2204.22	*	4.98	2.60E+00		1.16E+01	1.12E+00
+	PB-214	295.21	*	19.19	1.13E+00	5.16E-01	1.16E+01	5.58E-01
		351.92	*	37.19	5.16E-01		1.15E+01	2.54E-01
	RN-219	401.80		6.50	2.11E+00	2.11E+00	2.39E-01	1.03E+00
	RA-223	323.87		3.88	3.04E+00	3.04E+00	-2.39E-01	1.49E+00
	RA-224	240.98		3.95	4.36E+00	4.36E+00	2.20E+01	2.16E+00
	RA-225	40.00		31.00	4.88E+01	4.88E+01	-1.49E+00	2.41E+01
+	RA-226	186.21	*	3.28	5.07E+00	5.07E+00	2.44E+01	2.51E+00
	TH-227	50.10		8.40	1.63E+00	1.09E+00	-1.83E-01	8.05E-01
		236.00		11.50	1.09E+00		9.07E-02	5.36E-01
		256.20		6.30	1.91E+00		-4.08E-02	9.36E-01
	AC-228	338.32		11.40	1.14E+00	6.66E-01	4.34E-01	5.59E-01
		911.07		27.70	6.66E-01		2.17E-01	3.19E-01
		969.11		16.60	1.12E+00		4.32E-01	5.37E-01
	TH-230	48.44		16.90	8.49E-01	8.49E-01	-2.95E-01	4.20E-01
		62.85		4.60	3.15E+00		7.67E+00	1.56E+00
		67.67		0.37	3.55E+01		-1.19E+02	1.76E+01
	PA-231	283.67		1.60	7.40E+00	5.10E+00	2.54E+00	3.62E+00
		302.67		2.30	5.10E+00		-1.39E+00	2.50E+00
	TH-231	25.64		14.70	2.46E+00	1.98E+00	1.76E+00	1.21E+00
		84.21		6.40	1.98E+00		-2.94E+00	9.83E-01
	PA-233	311.98		38.60	3.84E+00	3.84E+00	-2.04E-02	1.88E+00
	PA-234	131.20		20.40	5.10E-01	5.10E-01	6.21E-02	2.52E-01
		733.99		8.80	1.72E+00		-6.68E-03	8.24E-01
		946.00		12.00	1.53E+00		-4.01E-02	7.33E-01
+	PA-234M	1001.03	*	0.92	2.24E+01	2.24E+01	3.13E+01	1.07E+01
+	TH-234	63.29	*	3.80	6.46E+00	6.46E+00	1.51E+01	3.21E+00
	U-235	143.76		10.50	1.06E+00	1.06E+00	4.01E-01	5.25E-01

Analysis Report for 1707085-11

HTC-A02-S003-0006-02

	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	2.43E+00	1.06E+00	1.21E+00	1.20E+00
		205.31		4.70	2.49E+00		6.72E-01	1.23E+00
+	NP-237	86.50	*	12.60	1.02E+00	1.02E+00	1.41E+00	5.05E-01
	NP-239	106.10		22.70	1.47E+12	1.47E+12	-4.17E+11	7.25E+11
		228.18		10.70	3.83E+12		1.50E+12	1.88E+12
		277.60		14.10	3.01E+12		2.86E+11	1.48E+12
	AM-241	59.54		35.90	3.87E-01	3.87E-01	-4.15E-02	1.92E-01
+	AM-243	74.67	*	66.00	3.55E-01	3.55E-01	1.06E+00	1.76E-01
	CM-243	209.75		3.29	3.45E+00	8.71E-01	5.91E-01	1.70E+00
		228.14		10.60	1.11E+00		4.33E-01	5.45E-01
		277.60		14.00	8.71E-01		8.26E-02	4.27E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A02-S003-0612-01

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	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	138	222	259	271
33:	299	818	209	223	237	202	233	247
41:	199	238	230	199	256	311	672	286
49:	259	275	293	259	353	410	280	286
57:	292	333	329	379	399	425	690	924
65:	416	402	418	489	475	411	484	485
73:	427	522	1550	766	1828	1579	437	467
81:	429	398	364	611	453	337	725	710
89:	348	541	400	512	1162	465	363	271
97:	244	309	291	261	242	246	239	253
105:	210	253	239	245	250	237	236	255
113:	285	264	229	237	223	224	230	223
121:	218	247	225	254	233	258	222	232
129:	268	243	219	256	247	240	238	255
137:	261	258	248	249	252	247	251	402
145:	267	244	242	233	250	250	244	272
153:	245	286	281	238	257	266	230	208
161:	232	225	229	241	198	236	184	196
169:	196	220	209	210	199	214	216	209
177:	229	204	259	231	218	203	211	215
185:	344	1040	603	183	174	182	200	206
193:	207	177	226	185	184	184	188	167
201:	185	184	181	195	190	181	146	167
209:	172	161	166	137	142	176	159	150
217:	139	156	152	136	151	140	124	168
225:	138	149	142	152	161	123	154	141
233:	141	151	150	194	155	282	534	178
241:	296	1037	416	101	132	130	111	127
249:	115	105	105	109	107	103	115	142
257:	120	135	141	137	101	113	123	95
265:	116	115	97	103	154	181	170	116
273:	112	125	142	116	104	95	105	104
281:	99	105	109	96	94	122	92	107
289:	106	107	101	103	96	263	1707	1081
297:	107	92	90	134	105	80	105	99
305:	90	88	94	93	79	60	88	88
313:	82	87	92	86	88	69	75	67
321:	90	75	82	110	82	80	74	92
329:	98	94	81	80	96	77	78	85
337:	83	128	133	75	76	80	68	72
345:	78	65	93	79	87	114	877	3223
353:	812	68	59	71	52	70	62	59
361:	59	82	65	71	42	48	62	64

369:	55	84	57	65	65	57	69	54

Sample Title: HTC-A02-S003-0612-01

Channel								
377:	59	58	60	55	69	54	57	55
385:	55	71	102	76	105	90	58	63
393:	72	63	53	73	61	61	69	52
401:	66	96	69	79	80	68	62	64
409:	70	56	64	69	75	64	55	76
417:	69	73	65	45	63	69	64	49
425:	62	64	68	65	67	49	50	53
433:	62	43	47	61	57	51	48	43
441:	49	50	57	49	66	46	37	35
449:	51	48	39	56	47	51	83	61
457:	52	47	45	47	46	60	60	48
465:	41	50	50	41	53	57	51	48
473:	40	54	48	45	46	46	32	61
481:	48	33	33	36	40	41	62	43
489:	30	34	35	33	37	33	40	44
497:	38	34	42	26	31	38	43	26
505:	42	40	34	37	57	96	92	81
513:	49	45	37	35	36	42	31	40
521:	38	27	36	40	25	32	30	32
529:	38	37	32	39	51	46	36	33
537:	36	25	28	43	31	32	33	46
545:	26	38	33	31	27	34	23	22
553:	30	32	37	27	32	33	25	14
561:	39	45	30	29	27	31	39	35
569:	26	32	42	35	24	37	29	28
577:	32	32	19	52	32	63	117	78
585:	31	44	30	28	37	17	28	33
593:	31	39	40	29	26	23	24	23
601:	30	26	35	37	29	37	70	482
609:	1894	1180	86	34	22	26	24	34
617:	25	24	34	27	19	18	20	24
625:	19	23	23	31	19	34	21	29
633:	22	31	17	26	37	25	26	20
641:	22	25	20	26	16	26	19	20
649:	23	26	33	14	24	16	26	32
657:	21	29	26	25	25	24	22	33
665:	75	73	31	26	18	22	17	23
673:	22	23	15	14	24	10	24	24
681:	23	31	16	27	21	23	22	30
689:	24	27	23	25	28	29	23	19
697:	25	32	19	17	31	43	34	33
705:	27	23	28	20	25	22	29	28
713:	24	33	18	21	24	31	30	39
721:	24	26	28	16	25	31	39	30
729:	18	13	21	19	18	18	30	31
737:	21	20	17	27	42	24	25	22
745:	18	30	16	28	16	22	23	35
753:	14	34	18	28	25	17	19	20
761:	20	18	25	13	42	40	78	161
769:	124	28	19	18	20	22	26	24
777:	23	14	16	29	30	24	17	25
785:	49	44	40	18	21	20	18	27
793:	24	29	34	23	18	23	24	18

801:	15	16	22	25	41	54	41	14

Sample Title: HTC-A02-S003-0612-01

Channel								
809:	29	16	14	18	15	24	19	29
817:	24	19	20	20	20	22	27	18
825:	17	22	23	24	25	16	19	18
833:	12	25	16	25	19	31	41	31
841:	23	21	20	22	23	16	20	23
849:	23	22	18	17	16	16	16	17
857:	19	26	27	30	37	14	30	15
865:	20	12	21	17	17	17	31	21
873:	19	20	23	22	22	24	17	26
881:	21	20	26	19	25	18	25	25
889:	21	22	22	31	23	13	21	23
897:	30	20	24	16	24	22	27	23
905:	19	28	24	22	15	32	82	52
913:	21	21	20	23	17	24	18	15
921:	20	15	19	27	18	23	20	19
929:	14	13	28	21	63	115	51	16
937:	16	24	20	15	15	23	18	21
945:	16	21	14	19	25	12	11	19
953:	13	15	19	15	21	17	25	18
961:	20	21	24	30	37	30	26	29
969:	55	21	14	18	19	21	15	19
977:	6	12	19	14	26	18	19	17
985:	18	24	20	18	8	20	18	15
993:	16	17	22	18	20	13	16	35
1001:	47	24	18	23	22	21	14	16
1009:	19	14	16	14	18	14	21	10
1017:	15	17	9	16	13	12	19	12
1025:	16	15	15	12	18	10	13	11
1033:	13	15	17	15	9	13	20	14
1041:	7	12	18	11	10	21	18	10
1049:	14	8	23	15	11	20	14	11
1057:	22	17	17	8	11	18	12	17
1065:	21	10	14	15	12	22	23	11
1073:	14	14	7	15	21	13	16	23
1081:	9	18	17	19	14	16	18	17
1089:	19	10	20	14	16	9	14	20
1097:	14	13	19	11	11	12	19	13
1105:	15	18	17	11	11	12	19	15
1113:	21	12	16	19	31	57	175	338
1121:	187	32	17	11	13	20	9	10
1129:	22	10	17	19	16	20	15	16
1137:	16	10	19	12	17	14	15	9
1145:	12	18	10	14	15	17	14	11
1153:	21	39	51	29	17	11	9	20
1161:	12	11	14	13	18	12	8	17
1169:	17	12	11	14	18	18	14	9
1177:	17	5	6	17	12	13	14	14
1185:	12	14	9	17	18	12	20	14
1193:	13	9	15	16	8	17	12	16
1201:	9	6	15	5	12	10	19	21
1209:	8	9	18	15	16	10	15	11
1217:	12	30	18	13	5	13	12	17
1225:	18	11	11	9	16	14	8	10

1233:	13	16	11	41	81	131	51	13

Sample Title: HTC-A02-S003-0612-01

Channel								
1241:	11	5	10	15	18	8	10	13
1249:	16	17	18	18	20	10	13	15
1257:	9	7	13	13	9	12	11	11
1265:	10	9	11	10	11	18	14	8
1273:	9	13	10	4	14	12	17	35
1281:	43	20	6	15	8	10	9	15
1289:	10	11	11	9	9	8	13	8
1297:	11	13	8	5	12	16	7	9
1305:	11	6	10	9	6	8	11	12
1313:	7	14	14	8	10	10	15	11
1321:	17	14	8	12	5	10	7	7
1329:	10	5	4	13	8	12	12	7
1337:	11	9	7	12	5	13	11	9
1345:	10	11	5	5	11	5	8	5
1353:	14	11	13	9	6	2	13	8
1361:	13	6	10	15	12	12	6	9
1369:	14	6	8	7	14	6	18	42
1377:	67	53	24	14	6	8	7	24
1385:	17	16	14	7	10	9	14	3
1393:	6	8	5	6	10	10	16	14
1401:	23	26	9	5	17	18	38	45
1409:	21	7	8	11	10	14	8	9
1417:	12	11	4	9	7	6	11	7
1425:	9	10	9	5	12	13	7	11
1433:	14	6	11	8	6	7	5	7
1441:	6	9	10	3	9	8	9	7
1449:	11	11	8	5	14	11	10	12
1457:	20	47	94	174	159	52	12	12
1465:	7	8	8	6	10	6	7	7
1473:	8	10	9	8	9	8	10	11
1481:	13	7	10	7	9	6	9	5
1489:	7	7	3	12	8	8	14	10
1497:	10	7	17	9	10	9	13	13
1505:	9	7	15	36	35	24	12	6
1513:	13	11	12	12	8	3	7	6
1521:	8	9	6	10	7	6	9	4
1529:	16	6	8	10	14	10	14	10
1537:	16	17	14	6	10	12	13	12
1545:	8	7	10	2	11	5	3	6
1553:	5	6	8	9	5	5	3	7
1561:	3	7	3	13	9	4	6	4
1569:	4	10	6	3	3	6	12	3
1577:	3	5	6	11	11	16	19	9
1585:	9	8	4	12	4	10	8	15
1593:	21	11	5	4	10	8	13	9
1601:	9	2	6	9	9	4	4	6
1609:	4	5	9	9	5	6	3	6
1617:	8	10	5	8	10	6	5	2
1625:	6	5	1	1	3	6	10	4
1633:	7	3	4	4	4	3	5	2
1641:	4	2	2	1	3	3	5	3
1649:	5	3	5	5	7	6	3	5
1657:	6	4	7	18	21	12	6	9

1665:	3	8	2	6	1	0	3	0

Sample Title: HTC-A02-S003-0612-01

Channel								
1673:	2	3	3	3	1	1	1	2
1681:	6	6	5	4	4	2	3	3
1689:	2	5	4	6	9	3	2	2
1697:	1	3	6	2	2	3	2	1
1705:	0	2	2	0	2	1	3	6
1713:	5	5	2	6	0	4	1	2
1721:	1	3	2	3	2	3	15	39
1729:	37	36	11	3	1	2	4	3
1737:	2	3	5	4	5	1	2	6
1745:	5	3	5	1	1	5	1	3
1753:	3	3	7	3	3	3	6	11
1761:	14	57	137	205	132	20	5	2
1769:	1	1	1	3	5	1	1	2
1777:	3	4	3	2	3	4	4	4
1785:	3	2	1	0	2	1	1	4
1793:	3	3	4	3	4	0	2	1
1801:	3	2	2	1	1	4	4	3
1809:	3	3	2	2	1	2	2	2
1817:	5	3	2	3	3	2	6	1
1825:	3	2	0	3	2	2	2	7
1833:	3	5	4	5	5	10	5	2
1841:	2	4	2	6	15	18	24	10
1849:	3	2	1	3	3	1	1	0
1857:	1	4	2	2	3	1	2	4
1865:	0	1	1	2	3	2	1	2
1873:	6	6	5	2	3	0	2	2
1881:	1	6	1	2	1	1	4	1
1889:	4	3	1	5	4	5	6	3
1897:	7	3	5	4	4	3	1	3
1905:	2	1	3	1	1	0	4	3
1913:	1	6	6	1	3	2	4	2
1921:	4	3	4	2	3	2	3	3
1929:	1	2	3	2	1	3	3	3
1937:	1	3	2	5	3	0	6	3
1945:	4	2	4	1	1	2	4	0
1953:	2	2	3	4	3	2	2	2
1961:	0	0	2	2	0	1	1	1
1969:	3	2	2	2	1	2	1	3
1977:	1	1	0	1	2	0	3	1
1985:	2	3	0	1	3	1	0	1
1993:	2	2	0	1	2	0	4	1
2001:	0	2	6	1	2	3	2	2
2009:	1	3	2	1	1	2	2	3
2017:	7	1	1	3	5	4	1	0
2025:	0	1	3	1	1	1	1	2
2033:	2	1	1	2	3	2	0	1
2041:	2	1	3	1	0	1	3	3
2049:	1	0	1	1	0	0	1	6
2057:	1	0	1	0	2	3	1	2
2065:	2	0	2	1	0	3	1	1
2073:	1	2	1	3	1	0	1	2
2081:	2	1	0	2	1	3	1	1
2089:	1	1	1	3	0	1	0	2

2097:	4	2	1	2	3	2	4	2

Sample Title: HTC-A02-S003-0612-01

Channel								
2105:	3	0	0	1	1	2	2	2
2113:	2	3	3	5	5	11	7	2
2121:	0	0	1	0	1	2	1	1
2129:	1	0	1	0	4	0	1	1
2137:	0	0	1	0	2	0	1	2
2145:	0	1	3	1	2	1	1	0
2153:	0	3	2	0	1	2	1	3
2161:	4	2	1	1	1	1	1	0
2169:	1	0	1	1	1	2	2	1
2177:	3	1	0	2	2	0	1	3
2185:	1	1	1	1	1	1	0	2
2193:	1	1	2	0	1	3	2	7
2201:	12	31	47	45	17	4	2	1
2209:	0	0	2	3	1	0	0	2
2217:	1	1	2	0	2	1	1	1
2225:	0	0	3	0	5	2	0	0
2233:	1	1	1	0	0	2	0	2
2241:	0	0	2	0	0	0	0	2
2249:	1	1	1	1	1	0	2	1
2257:	1	2	2	0	1	0	1	3
2265:	1	3	4	1	1	0	1	0
2273:	0	2	1	0	0	1	0	2
2281:	1	2	1	0	2	1	0	0
2289:	3	4	3	5	3	4	0	0
2297:	1	0	0	0	0	0	0	2
2305:	1	4	2	0	0	0	3	1
2313:	2	0	2	0	0	1	1	0
2321:	0	3	2	3	2	1	1	0
2329:	1	1	3	0	0	2	0	0
2337:	1	0	1	2	1	1	1	0
2345:	0	0	0	1	1	2	1	2
2353:	2	0	0	2	2	2	1	1
2361:	1	0	0	0	1	1	1	0
2369:	2	1	1	1	1	1	1	0
2377:	0	1	0	1	0	0	3	0
2385:	2	0	0	0	0	0	0	0
2393:	0	1	0	0	1	1	1	0
2401:	2	0	0	0	0	0	0	0
2409:	0	1	0	0	3	0	0	0
2417:	0	0	0	1	1	1	0	0
2425:	0	0	0	1	0	2	2	1
2433:	1	0	0	1	0	0	0	0
2441:	1	1	3	1	10	15	14	10
2449:	2	1	0	1	1	0	3	0
2457:	0	0	2	1	0	0	0	1
2465:	2	0	1	0	1	0	0	2
2473:	1	0	0	0	0	0	0	0
2481:	0	0	2	0	1	2	0	0
2489:	0	0	0	0	1	1	0	0
2497:	0	0	0	0	1	0	0	1
2505:	2	0	0	0	0	0	0	1
2513:	0	0	0	0	1	1	0	1
2521:	0	0	0	1	1	0	1	0

2529:	0	0	0	1	0	1	0	0

Sample Title: HTC-A02-S003-0612-01

Channel								
2537:	0	0	0	0	0	0	0	0
2545:	1	0	0	0	0	0	0	0
2553:	0	0	3	0	0	0	1	0
2561:	1	1	1	1	0	1	0	1
2569:	0	1	0	0	3	0	0	0
2577:	0	1	1	0	1	0	2	2
2585:	0	0	0	0	1	2	0	0
2593:	0	0	0	0	1	0	0	0
2601:	0	0	0	1	0	1	0	3
2609:	1	0	4	10	18	15	14	0
2617:	1	0	0	0	0	1	1	0
2625:	2	0	0	0	1	2	0	0
2633:	0	0	0	0	0	0	0	1
2641:	1	1	1	0	1	1	0	0
2649:	0	1	0	2	0	1	0	0
2657:	0	1	0	0	0	0	1	1
2665:	0	0	0	1	0	1	0	0
2673:	0	1	0	0	0	1	0	0
2681:	0	0	0	1	0	0	0	0
2689:	0	0	2	0	0	1	0	0
2697:	1	0	0	0	0	0	0	0
2705:	0	2	1	0	0	0	0	1
2713:	1	1	0	1	1	0	0	0
2721:	0	0	1	0	0	0	1	1
2729:	0	0	0	0	0	0	0	0
2737:	0	0	0	0	0	0	1	0
2745:	0	0	1	0	1	1	0	0
2753:	0	0	0	0	0	0	0	1
2761:	0	0	1	0	0	2	0	1
2769:	1	0	0	0	1	1	1	0
2777:	1	0	0	0	0	0	0	0
2785:	1	0	0	0	0	0	0	0
2793:	0	0	0	0	0	0	0	0
2801:	0	0	0	0	0	0	0	0
2809:	0	0	0	1	0	0	0	1
2817:	1	0	0	2	0	0	0	0
2825:	0	1	0	0	0	0	0	0
2833:	2	0	0	1	0	0	0	0
2841:	1	0	1	1	0	1	0	0
2849:	0	0	0	0	1	1	0	0
2857:	0	0	0	0	0	0	0	0
2865:	1	0	0	1	0	1	0	0
2873:	0	0	0	1	1	0	0	0
2881:	0	0	1	0	0	1	1	1
2889:	0	1	0	1	0	0	0	0
2897:	0	0	0	1	0	0	0	0
2905:	0	0	1	0	1	0	1	0
2913:	0	0	0	0	0	0	0	2
2921:	0	0	0	0	0	0	0	0
2929:	0	0	0	3	0	0	0	0
2937:	0	0	0	2	0	0	1	0
2945:	1	0	0	0	1	1	0	0
2953:	0	0	0	0	1	0	0	0

2961:	0	0	0	0	0	0	1	0

Sample Title: HTC-A02-S003-0612-01

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

3393:	0	0	0	1	0	0	0	0

Sample Title: HTC-A02-S003-0612-01

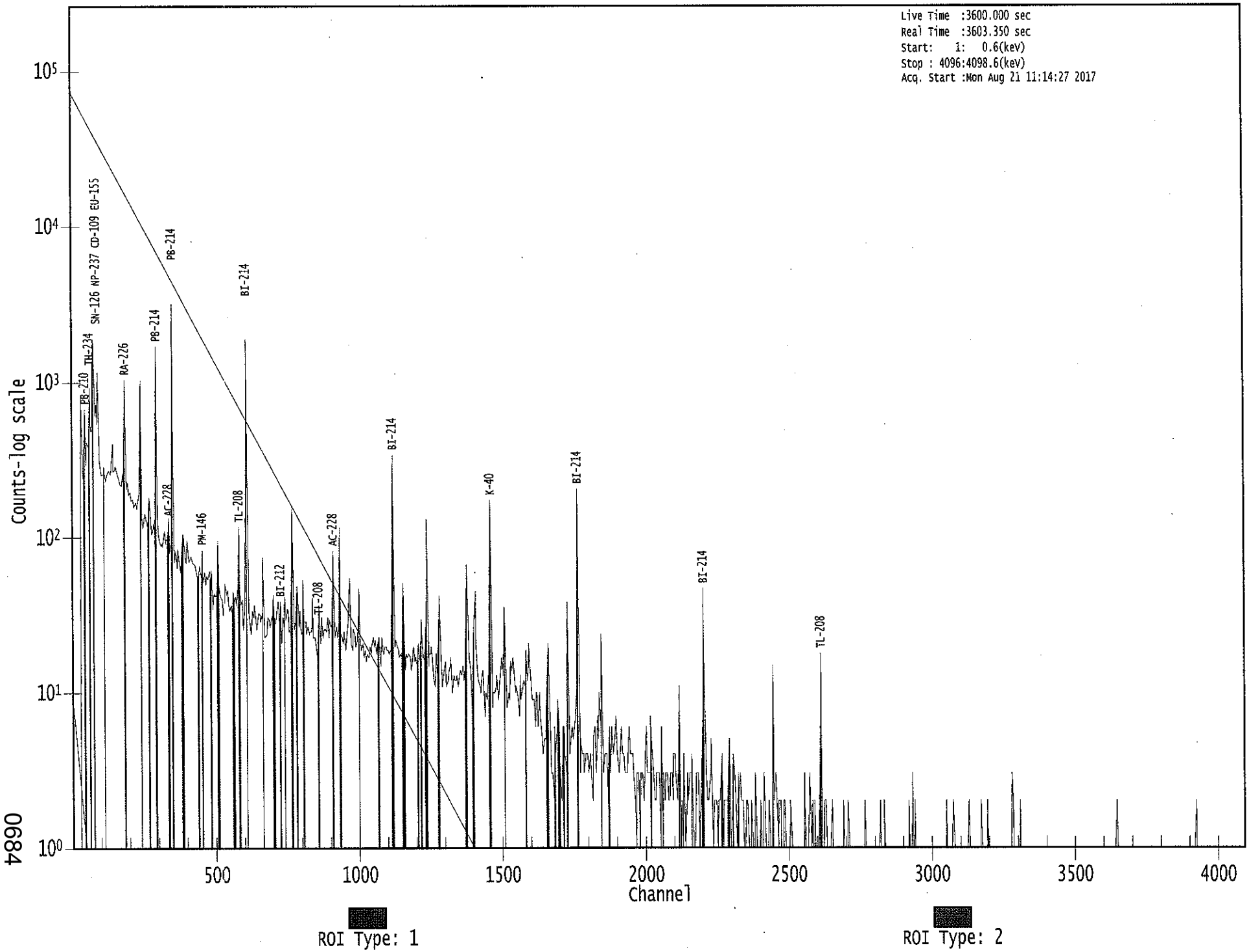
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	1	0	0
3425:	0	0	0	0	0	0	0	0
3433:	1	0	0	0	1	0	0	0
3441:	1	0	1	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	1	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	1	0	0	0	0
3489:	0	0	0	0	0	1	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	1	0	0	0	1	0	0

Sample Title: HTC-A02-S003-0612-01

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

0000055629.CNF



0684

Apex-Gamma

Analysis Report for 1707085-12
HTC-A02-S003-0612-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707085-12
Sample Description	: HTC-A02-S003-0612-01
Sample Type	: SOIL
Sample Size	: 4.967E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 8:08:07AM
Acquisition Started	: 8/21/2017 11:14:27AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE2
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3603.4 seconds
Dead Time	: 0.09 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 29 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 8/19/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55641

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/22/17

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 12:24:03PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	46.45	46.79	0.0000	0.00
2	53.30	53.64	0.0000	0.00
3	62.99	63.32	0.0000	0.00
4	76.29	76.60	0.0000	0.00
5	87.17	87.47	0.0000	0.00
6	92.94	93.23	0.0000	0.00
7	113.12	113.39	0.0000	0.00
8	143.93	144.17	0.0000	0.00
9	185.98	186.17	0.0000	0.00
10	242.12	242.25	0.0000	0.00
11	269.96	270.07	0.0000	0.00
12	295.22	295.30	0.0000	0.00
13	338.43	338.46	0.0000	0.00
14	351.96	351.98	0.0000	0.00
15	388.21	388.19	0.0000	0.00
16	427.40	427.34	0.0000	0.00
17	444.08	444.00	0.0000	0.00
18	454.90	454.81	0.0000	0.00
19	486.85	486.73	0.0000	0.00
20	511.19	511.04	0.0000	0.00
21	563.80	563.60	0.0000	0.00
22	580.38	580.16	0.0000	0.00
23	583.32	583.10	0.0000	0.00
24	586.39	586.17	0.0000	0.00
25	594.09	593.86	0.0000	0.00
26	609.46	609.22	0.0000	0.00
27	666.00	665.70	0.0000	0.00
28	703.38	703.05	0.0000	0.00
29	727.23	726.87	0.0000	0.00
30	741.68	741.30	0.0000	0.00
31	768.27	767.87	0.0000	0.00
32	786.32	785.90	0.0000	0.00
33	806.25	805.81	0.0000	0.00
34	809.44	809.00	0.0000	0.00
35	860.74	860.25	0.0000	0.00
36	911.75	911.21	0.0000	0.00
37	931.75	931.20	0.0000	0.00
38	934.56	934.00	0.0000	0.00
39	1002.17	1001.55	0.0000	0.00
40	1071.83	1071.15	0.0000	0.00
41	1120.61	1119.88	0.0000	0.00
42	1155.78	1155.01	0.0000	0.00

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1207.41	1206.60	0.0000	0.00
44	1219.01	1218.19	0.0000	0.00
45	1238.38	1237.54	0.0000	0.00
46	1279.17	1278.31	0.0000	0.00
47	1281.87	1281.00	0.0000	0.00
48	1378.06	1377.10	0.0000	0.00
49	1385.96	1385.00	0.0000	0.00
50	1401.48	1400.50	0.0000	0.00
51	1408.29	1407.31	0.0000	0.00
52	1461.20	1460.18	0.0000	0.00
53	1509.85	1508.79	0.0000	0.00
54	1583.01	1581.88	0.0000	0.00
55	1661.94	1660.75	0.0000	0.00
56	1683.90	1682.69	0.0000	0.00
57	1696.50	1695.28	0.0000	0.00
58	1714.44	1713.20	0.0000	0.00
59	1730.18	1728.93	0.0000	0.00
60	1765.01	1763.74	0.0000	0.00
61	1847.69	1846.36	0.0000	0.00
62	1875.71	1874.35	0.0000	0.00
63	2020.36	2018.90	0.0000	0.00
64	2119.19	2117.66	0.0000	0.00
65	2161.69	2160.12	0.0000	0.00
66	2204.71	2203.11	0.0000	0.00
67	2230.21	2228.60	0.0000	0.00
68	2267.54	2265.90	0.0000	0.00
69	2293.33	2291.67	0.0000	0.00
70	2307.33	2305.67	0.0000	0.00
71	2325.40	2323.72	0.0000	0.00
72	2447.93	2446.17	0.0000	0.00
73	2615.04	2613.17	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 12:24:03PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	46.45	44 -	50	46.79	4.85E+02	145.76	3.55E+03	1.13
	2	53.30	52 -	55	53.64	1.81E+02	98.39	2.24E+03	1.56
	3	62.99	59 -	67	63.32	8.17E+02	222.04	7.13E+03	1.62
	4	76.29	73 -	83	76.60	3.54E+03	303.56	1.05E+04	3.72
	5	87.17	86 -	89	87.47	4.16E+02	123.27	3.41E+03	1.64
	6	92.94	91 -	96	93.23	1.16E+03	160.61	4.03E+03	1.20
	7	113.12	112 -	116	113.39	9.01E+01	104.99	2.36E+03	1.84
	8	143.93	141 -	147	144.17	2.04E+02	139.91	3.40E+03	1.12
	9	185.98	182 -	190	186.17	1.36E+03	169.94	3.59E+03	1.56
	10	242.12	240 -	244	242.25	9.71E+02	118.40	2.11E+03	1.24
	11	269.96	267 -	273	270.07	1.42E+02	96.08	1.58E+03	2.56
	12	295.22	291 -	299	295.30	2.67E+03	152.67	1.95E+03	1.70
	13	338.43	335 -	342	338.46	1.34E+02	88.32	1.21E+03	1.91
	14	351.96	348 -	355	351.98	4.72E+03	161.58	1.20E+03	1.33
	15	388.21	384 -	392	388.19	1.15E+02	87.76	1.12E+03	3.83
	16	427.40	425 -	430	427.34	6.35E+01	58.22	6.23E+02	3.96
	17	444.08	440 -	447	444.00	7.60E+01	64.78	6.42E+02	3.01
	18	454.90	451 -	459	454.81	7.71E+01	74.49	8.08E+02	1.45
	19	486.85	484 -	490	486.73	4.45E+01	53.24	4.83E+02	1.38
	20	511.19	506 -	516	511.04	1.85E+02	83.91	8.36E+02	3.10
	21	563.80	560 -	569	563.60	6.85E+01	60.70	4.93E+02	6.31
M	22	580.38	579 -	590	580.16	4.74E+01	25.06	1.51E+02	1.51
m	23	583.32	579 -	590	583.10	1.85E+02	43.41	2.41E+02	1.71
m	24	586.39	579 -	590	586.17	3.62E+01	42.43	2.34E+02	1.82
	25	594.09	591 -	598	593.86	6.43E+01	49.68	3.69E+02	3.98
	26	609.46	605 -	613	609.22	3.58E+03	132.83	5.07E+02	1.84
	27	666.00	662 -	670	665.70	1.30E+02	55.48	3.89E+02	2.11
	28	703.38	700 -	708	703.05	7.07E+01	51.62	3.71E+02	3.12
	29	727.23	724 -	730	726.87	3.87E+01	40.54	2.67E+02	2.32
	30	741.68	739 -	744	741.30	4.08E+01	36.35	2.32E+02	1.40
	31	768.27	764 -	772	767.87	3.52E+02	60.26	3.42E+02	2.19
	32	786.32	783 -	790	785.90	7.71E+01	46.90	3.14E+02	2.81
M	33	806.25	802 -	812	805.81	8.10E+01	36.93	1.91E+02	2.06
m	34	809.44	802 -	812	809.00	2.51E+01	35.33	1.95E+02	1.88
	35	860.74	855 -	864	860.25	6.31E+01	50.98	3.36E+02	4.08
	36	911.75	908 -	915	911.21	8.79E+01	49.84	3.54E+02	1.58
M	37	931.75	930 -	940	931.20	2.41E+01	19.40	8.19E+01	1.79
m	38	934.56	930 -	940	934.00	1.99E+02	41.10	1.70E+02	2.00
	39	1002.17	997 -	1006	1001.55	5.71E+01	52.74	3.64E+02	1.72
	40	1071.83	1068 -	1074	1071.15	2.59E+01	32.50	1.70E+02	1.74

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1120.61	1114	1125	1119.88	7.10E+02	77.51	3.96E+02	2.05
	42	1155.78	1151	1160	1155.01	6.41E+01	49.63	3.16E+02	2.10
	43	1207.41	1203	1209	1206.60	2.41E+01	28.73	1.32E+02	1.79
	44	1219.01	1214	1221	1218.19	2.81E+01	34.06	1.72E+02	1.37
	45	1238.38	1232	1242	1237.54	2.92E+02	50.30	1.81E+02	2.03
M	46	1279.17	1276	1286	1278.31	2.21E+01	23.11	7.49E+01	3.08
m	47	1281.87	1276	1286	1281.00	8.20E+01	31.56	1.18E+02	2.26
	48	1378.06	1372	1381	1377.10	1.79E+02	41.58	1.45E+02	2.74
	49	1385.96	1382	1388	1385.00	3.80E+01	27.42	1.10E+02	2.02
	50	1401.48	1395	1404	1400.50	3.68E+01	37.03	1.74E+02	2.01
	51	1408.29	1404	1411	1407.31	9.16E+01	34.12	1.35E+02	2.29
	52	1461.20	1454	1466	1460.18	4.87E+02	64.84	2.62E+02	2.59
	53	1509.85	1505	1512	1508.79	6.26E+01	35.10	1.63E+02	2.57
	54	1583.01	1578	1587	1581.88	3.58E+01	31.50	1.24E+02	2.38
	55	1661.94	1656	1665	1660.75	4.30E+01	28.97	9.60E+01	2.33
	56	1683.90	1679	1688	1682.69	1.77E+01	17.86	3.66E+01	3.14
	57	1696.50	1688	1705	1695.28	2.43E+01	29.53	6.34E+01	7.35
	58	1714.44	1708	1717	1713.20	1.51E+01	16.43	2.97E+01	5.09
	59	1730.18	1723	1733	1728.93	1.30E+02	29.15	4.44E+01	3.31
	60	1765.01	1757	1771	1763.74	5.61E+02	54.36	7.34E+01	2.67
	61	1847.69	1843	1851	1846.36	5.96E+01	22.95	4.28E+01	2.91
	62	1875.71	1871	1878	1874.35	1.54E+01	13.42	1.92E+01	3.04
	63	2020.36	2013	2024	2018.90	2.46E+01	13.86	1.07E+01	6.01
	64	2119.19	2113	2121	2117.66	2.98E+01	15.26	1.63E+01	2.12
	65	2161.69	2157	2165	2160.12	8.88E+00	11.17	1.43E+01	2.11
	66	2204.71	2196	2209	2203.11	1.65E+02	28.04	1.40E+01	3.08
	67	2230.21	2226	2231	2228.60	1.00E+01	6.32	0.00E+00	2.98
	68	2267.54	2262	2270	2265.90	9.50E+00	9.82	9.00E+00	3.91
	69	2293.33	2287	2295	2291.67	1.97E+01	10.40	4.59E+00	5.45
	70	2307.33	2301	2308	2305.67	9.00E+00	6.00	0.00E+00	1.66
	71	2325.40	2320	2328	2323.72	7.50E+00	9.41	9.00E+00	3.67
	72	2447.93	2440	2451	2446.17	5.51E+01	16.37	5.76E+00	3.52
	73	2615.04	2607	2616	2613.17	6.00E+01	17.61	1.00E+01	3.43

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 12:24:03PM

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

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	46.45	44 -	50	4.85E+02	145.76	3.55E+03	1.14E+02
	2	53.30	52 -	55	1.81E+02	98.39	2.24E+03	7.78E+01
	3	62.99	59 -	67	8.17E+02	222.04	7.13E+03	1.76E+02
	4	76.29	73 -	83	3.54E+03	303.56	1.05E+04	2.30E+02
	5	87.17	86 -	89	4.16E+02	123.27	3.41E+03	9.56E+01
	6	92.94	91 -	96	1.16E+03	160.61	4.03E+03	1.20E+02
	7	113.12	112 -	116	9.01E+01	104.99	2.36E+03	8.49E+01
	8	143.93	141 -	147	2.04E+02	139.91	3.40E+03	1.13E+02
	9	185.98	182 -	190	1.36E+03	169.94	3.59E+03	1.26E+02
	10	242.12	240 -	244	9.71E+02	118.40	2.11E+03	8.28E+01
	11	269.96	267 -	273	1.42E+02	96.08	1.58E+03	7.65E+01
	12	295.22	291 -	299	2.67E+03	152.67	1.95E+03	9.24E+01
	13	338.43	335 -	342	1.34E+02	88.32	1.21E+03	7.01E+01
	14	351.96	348 -	355	4.72E+03	161.58	1.20E+03	6.99E+01
	15	388.21	384 -	392	1.15E+02	87.76	1.12E+03	7.00E+01
	16	427.40	425 -	430	6.35E+01	58.22	6.23E+02	4.60E+01
	17	444.08	440 -	447	7.60E+01	64.78	6.42E+02	5.13E+01
	18	454.90	451 -	459	7.71E+01	74.49	8.08E+02	5.95E+01
	19	486.85	484 -	490	4.45E+01	53.24	4.83E+02	4.24E+01
	20	511.19	506 -	516	1.85E+02	83.91	8.36E+02	6.52E+01
	21	563.80	560 -	569	6.85E+01	60.70	4.93E+02	4.80E+01
M	22	580.38	579 -	590	4.74E+01	25.06	1.51E+02	2.02E+01
m	23	583.32	579 -	590	1.85E+02	43.41	2.41E+02	2.55E+01
m	24	586.39	579 -	590	3.62E+01	42.43	2.34E+02	2.51E+01
	25	594.09	591 -	598	6.43E+01	49.68	3.69E+02	3.86E+01
	26	609.46	605 -	613	3.58E+03	132.83	5.07E+02	4.74E+01
	27	666.00	662 -	670	1.30E+02	55.48	3.89E+02	4.16E+01
	28	703.38	700 -	708	7.07E+01	51.62	3.71E+02	4.01E+01
	29	727.23	724 -	730	3.87E+01	40.54	2.67E+02	3.17E+01
	30	741.68	739 -	744	4.08E+01	36.35	2.32E+02	2.80E+01
	31	768.27	764 -	772	3.52E+02	60.26	3.42E+02	3.88E+01
	32	786.32	783 -	790	7.71E+01	46.90	3.14E+02	3.58E+01
M	33	806.25	802 -	812	8.10E+01	36.93	1.91E+02	2.27E+01
m	34	809.44	802 -	812	2.51E+01	35.33	1.95E+02	2.30E+01
	35	860.74	855 -	864	6.31E+01	50.98	3.36E+02	3.98E+01
	36	911.75	908 -	915	8.79E+01	49.84	3.54E+02	3.80E+01
M	37	931.75	930 -	940	2.41E+01	19.40	8.19E+01	1.49E+01
m	38	934.56	930 -	940	1.99E+02	41.10	1.70E+02	2.15E+01
	39	1002.17	997 -	1006	5.71E+01	52.74	3.64E+02	4.15E+01
	40	1071.83	1068 -	1074	2.59E+01	32.50	1.70E+02	2.54E+01
	41	1120.61	1114 -	1125	7.10E+02	77.51	3.96E+02	4.63E+01
	42	1155.78	1151 -	1160	6.41E+01	49.63	3.16E+02	3.86E+01
	43	1207.41	1203 -	1209	2.41E+01	28.73	1.32E+02	2.22E+01
	44	1219.01	1214 -	1221	2.81E+01	34.06	1.72E+02	2.66E+01
	45	1238.38	1232 -	1242	2.92E+02	50.30	1.81E+02	3.03E+01
M	46	1279.17	1276 -	1286	2.21E+01	23.11	7.49E+01	1.42E+01
m	47	1281.87	1276 -	1286	8.20E+01	31.56	1.18E+02	1.79E+01
	48	1378.06	1372 -	1381	1.79E+02	41.58	1.45E+02	2.62E+01
	49	1385.96	1382 -	1388	3.80E+01	27.42	1.10E+02	2.01E+01
	50	1401.48	1395 -	1404	3.68E+01	37.03	1.74E+02	2.88E+01
	51	1408.29	1404 -	1411	9.16E+01	34.12	1.35E+02	2.32E+01

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
52	1461.20	1454 -	1466	4.87E+02	64.84	2.62E+02	3.91E+01
53	1509.85	1505 -	1512	6.26E+01	35.10	1.63E+02	2.58E+01
54	1583.01	1578 -	1587	3.58E+01	31.50	1.24E+02	2.39E+01
55	1661.94	1656 -	1665	4.30E+01	28.97	9.60E+01	2.12E+01
56	1683.90	1679 -	1688	1.77E+01	17.86	3.66E+01	1.29E+01
57	1696.50	1688 -	1705	2.43E+01	29.53	6.34E+01	2.29E+01
58	1714.44	1708 -	1717	1.51E+01	16.43	2.97E+01	1.19E+01
59	1730.18	1723 -	1733	1.30E+02	29.15	4.44E+01	1.50E+01
60	1765.01	1757 -	1771	5.61E+02	54.36	7.34E+01	2.19E+01
61	1847.69	1843 -	1851	5.96E+01	22.95	4.28E+01	1.40E+01
62	1875.71	1871 -	1878	1.54E+01	13.42	1.92E+01	8.94E+00
63	2020.36	2013 -	2024	2.46E+01	13.86	1.07E+01	7.95E+00
64	2119.19	2113 -	2121	2.98E+01	15.26	1.63E+01	8.76E+00
65	2161.69	2157 -	2165	8.88E+00	11.17	1.43E+01	7.77E+00
66	2204.71	2196 -	2209	1.65E+02	28.04	1.40E+01	9.23E+00
67	2230.21	2226 -	2231	1.00E+01	6.32	0.00E+00	0.00E+00
68	2267.54	2262 -	2270	9.50E+00	9.82	9.00E+00	6.29E+00
69	2293.33	2287 -	2295	1.97E+01	10.40	4.59E+00	4.46E+00
70	2307.33	2301 -	2308	9.00E+00	6.00	0.00E+00	0.00E+00
71	2325.40	2320 -	2328	7.50E+00	9.41	9.00E+00	6.29E+00
72	2447.93	2440 -	2451	5.51E+01	16.37	5.76E+00	5.67E+00
73	2615.04	2607 -	2616	6.00E+01	17.61	1.00E+01	6.88E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/21/2017 12:24:03PM

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

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

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
1	46.45	44 -	50	46.79	4.85E+02	145.76	3.55E+03	PB-210
2	53.30	52 -	55	53.64	1.81E+02	98.39	2.24E+03	.....
3	62.99	59 -	67	63.32	8.17E+02	222.04	7.13E+03	TH-230

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									TH-234
	4	76.29	73 -	83	76.60	3.54E+03	303.56	1.05E+04	.....
	5	87.17	86 -	89	87.47	4.16E+02	123.27	3.41E+03	SN-126
									NP-237
									EU-155
									CD-109
	6	92.94	91 -	96	93.23	1.16E+03	160.61	4.03E+03	GA-67
	7	113.12	112 -	116	113.39	9.01E+01	104.99	2.36E+03	.....
	8	143.93	141 -	147	144.17	2.04E+02	139.91	3.40E+03	U-235
	9	185.98	182 -	190	186.17	1.36E+03	169.94	3.59E+03	RA-226
	10	242.12	240 -	244	242.25	9.71E+02	118.40	2.11E+03	.....
	11	269.96	267 -	273	270.07	1.42E+02	96.08	1.58E+03	.....
	12	295.22	291 -	299	295.30	2.67E+03	152.67	1.95E+03	PB-214
	13	338.43	335 -	342	338.46	1.34E+02	88.32	1.21E+03	AC-228
	14	351.96	348 -	355	351.98	4.72E+03	161.58	1.20E+03	PB-214
	15	388.21	384 -	392	388.19	1.15E+02	87.76	1.12E+03	.....
	16	427.40	425 -	430	427.34	6.35E+01	58.22	6.23E+02	SB-125
	17	444.08	440 -	447	444.00	7.60E+01	64.78	6.42E+02	.....
	18	454.90	451 -	459	454.81	7.71E+01	74.49	8.08E+02	PM-146
	19	486.85	484 -	490	486.73	4.45E+01	53.24	4.83E+02	LA-140
	20	511.19	506 -	516	511.04	1.85E+02	83.91	8.36E+02	.....
	21	563.80	560 -	569	563.60	6.85E+01	60.70	4.93E+02	CS-134
M	22	580.38	579 -	590	580.16	4.74E+01	25.06	1.51E+02	.....
m	23	583.32	579 -	590	583.10	1.85E+02	43.41	2.41E+02	TL-208
m	24	586.39	579 -	590	586.17	3.62E+01	42.43	2.34E+02	.....
	25	594.09	591 -	598	593.86	6.43E+01	49.68	3.69E+02	.....
	26	609.46	605 -	613	609.22	3.58E+03	132.83	5.07E+02	BI-214
	27	666.00	662 -	670	665.70	1.30E+02	55.48	3.89E+02	SB-126
	28	703.38	700 -	708	703.05	7.07E+01	51.62	3.71E+02	NB-94
	29	727.23	724 -	730	726.87	3.87E+01	40.54	2.67E+02	BI-212
	30	741.68	739 -	744	741.30	4.08E+01	36.35	2.32E+02	.....
	31	768.27	764 -	772	767.87	3.52E+02	60.26	3.42E+02	.....
	32	786.32	783 -	790	785.90	7.71E+01	46.90	3.14E+02	.....
M	33	806.25	802 -	812	805.81	8.10E+01	36.93	1.91E+02	.....
m	34	809.44	802 -	812	809.00	2.51E+01	35.33	1.95E+02	.....
	35	860.74	855 -	864	860.25	6.31E+01	50.98	3.36E+02	TL-208
	36	911.75	908 -	915	911.21	8.79E+01	49.84	3.54E+02	TL-204
									AC-228
M	37	931.75	930 -	940	931.20	2.41E+01	19.40	8.19E+01	.....
m	38	934.56	930 -	940	934.00	1.99E+02	41.10	1.70E+02	.....
	39	1002.17	997 -	1006	1001.55	5.71E+01	52.74	3.64E+02	.....
	40	1071.83	1068 -	1074	1071.15	2.59E+01	32.50	1.70E+02	.....
	41	1120.61	1114 -	1125	1119.88	7.10E+02	77.51	3.96E+02	SC-46
									BI-214
									TA-182
	42	1155.78	1151 -	1160	1155.01	6.41E+01	49.63	3.16E+02	.....
	43	1207.41	1203 -	1209	1206.60	2.41E+01	28.73	1.32E+02	.....
	44	1219.01	1214 -	1221	1218.19	2.81E+01	34.06	1.72E+02	.....
	45	1238.38	1232 -	1242	1237.54	2.92E+02	50.30	1.81E+02	CO-56
M	46	1279.17	1276 -	1286	1278.31	2.21E+01	23.11	7.49E+01	.....
m	47	1281.87	1276 -	1286	1281.00	8.20E+01	31.56	1.18E+02	.....
	48	1378.06	1372 -	1381	1377.10	1.79E+02	41.58	1.45E+02	.....
	49	1385.96	1382 -	1388	1385.00	3.80E+01	27.42	1.10E+02	.....
	50	1401.48	1395 -	1404	1400.50	3.68E+01	37.03	1.74E+02	.....

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
51	1408.29	1404 -	1411	1407.31	9.16E+01	34.12	1.35E+02	EU-152
52	1461.20	1454 -	1466	1460.18	4.87E+02	64.84	2.62E+02	K-40
53	1509.85	1505 -	1512	1508.79	6.26E+01	35.10	1.63E+02	.....
54	1583.01	1578 -	1587	1581.88	3.58E+01	31.50	1.24E+02	.....
55	1661.94	1656 -	1665	1660.75	4.30E+01	28.97	9.60E+01	.....
56	1683.90	1679 -	1688	1682.69	1.77E+01	17.86	3.66E+01	.....
57	1696.50	1688 -	1705	1695.28	2.43E+01	29.53	6.34E+01	.....
58	1714.44	1708 -	1717	1713.20	1.51E+01	16.43	2.97E+01	.....
59	1730.18	1723 -	1733	1728.93	1.30E+02	29.15	4.44E+01	.....
60	1765.01	1757 -	1771	1763.74	5.61E+02	54.36	7.34E+01	BI-214
61	1847.69	1843 -	1851	1846.36	5.96E+01	22.95	4.28E+01	.....
62	1875.71	1871 -	1878	1874.35	1.54E+01	13.42	1.92E+01	.....
63	2020.36	2013 -	2024	2018.90	2.46E+01	13.86	1.07E+01	.....
64	2119.19	2113 -	2121	2117.66	2.98E+01	15.26	1.63E+01	.....
65	2161.69	2157 -	2165	2160.12	8.88E+00	11.17	1.43E+01	.....
66	2204.71	2196 -	2209	2203.11	1.65E+02	28.04	1.40E+01	BI-214
67	2230.21	2226 -	2231	2228.60	1.00E+01	6.32	0.00E+00	.....
68	2267.54	2262 -	2270	2265.90	9.50E+00	9.82	9.00E+00	.....
69	2293.33	2287 -	2295	2291.67	1.97E+01	10.40	4.59E+00	.....
70	2307.33	2301 -	2308	2305.67	9.00E+00	6.00	0.00E+00	.....
71	2325.40	2320 -	2328	2323.72	7.50E+00	9.41	9.00E+00	.....
72	2447.93	2440 -	2451	2446.17	5.51E+01	16.37	5.76E+00	.....
73	2615.04	2607 -	2616	2613.17	6.00E+01	17.61	1.00E+01	TL-208

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/21/2017 12:24:03PM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
1	46.45	4.85E+02	145.76	1.58E-02	1.67E-03
2	53.30	1.81E+02	98.39	1.98E-02	1.67E-03
3	62.99	8.17E+02	222.04	2.37E-02	1.77E-03
4	76.29	3.54E+03	303.56	2.63E-02	2.12E-03
5	87.17	4.16E+02	123.27	2.70E-02	2.40E-03
6	92.94	1.16E+03	160.61	2.70E-02	2.33E-03
7	113.12	9.01E+01	104.99	2.60E-02	1.95E-03

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	8	143.93	2.04E+02	139.91	2.35E-02	1.70E-03
	9	185.98	1.36E+03	169.94	2.03E-02	1.53E-03
	10	242.12	9.71E+02	118.40	1.71E-02	1.28E-03
	11	269.96	1.42E+02	96.08	1.58E-02	1.16E-03
	12	295.22	2.67E+03	152.67	1.48E-02	1.10E-03
	13	338.43	1.34E+02	88.32	1.34E-02	1.04E-03
	14	351.96	4.72E+03	161.58	1.31E-02	1.02E-03
	15	388.21	1.15E+02	87.76	1.22E-02	9.73E-04
	16	427.40	6.35E+01	58.22	1.13E-02	9.38E-04
	17	444.08	7.60E+01	64.78	1.10E-02	9.23E-04
	18	454.90	7.71E+01	74.49	1.08E-02	9.14E-04
	19	486.85	4.45E+01	53.24	1.02E-02	8.86E-04
	20	511.19	1.85E+02	83.91	9.87E-03	8.65E-04
	21	563.80	6.85E+01	60.70	9.14E-03	8.19E-04
M	22	580.38	4.74E+01	25.06	8.94E-03	8.05E-04
m	23	583.32	1.85E+02	43.41	8.90E-03	8.02E-04
m	24	586.39	3.62E+01	42.43	8.87E-03	7.99E-04
	25	594.09	6.43E+01	49.68	8.78E-03	7.93E-04
	26	609.46	3.58E+03	132.83	8.60E-03	7.79E-04
	27	666.00	1.30E+02	55.48	8.01E-03	7.30E-04
	28	703.38	7.07E+01	51.62	7.67E-03	6.94E-04
	29	727.23	3.87E+01	40.54	7.47E-03	6.71E-04
	30	741.68	4.08E+01	36.35	7.35E-03	6.57E-04
	31	768.27	3.52E+02	60.26	7.14E-03	6.31E-04
	32	786.32	7.71E+01	46.90	7.01E-03	6.14E-04
M	33	806.25	8.10E+01	36.93	6.87E-03	5.95E-04
m	34	809.44	2.51E+01	35.33	6.84E-03	5.92E-04
	35	860.74	6.31E+01	50.98	6.51E-03	5.42E-04
	36	911.75	8.79E+01	49.84	6.21E-03	5.01E-04
M	37	931.75	2.41E+01	19.40	6.10E-03	4.94E-04
m	38	934.56	1.99E+02	41.10	6.08E-03	4.93E-04
	39	1002.17	5.71E+01	52.74	5.74E-03	4.70E-04
	40	1071.83	2.59E+01	32.50	5.44E-03	4.46E-04
	41	1120.61	7.10E+02	77.51	5.24E-03	4.28E-04
	42	1155.78	6.41E+01	49.63	5.11E-03	4.16E-04
	43	1207.41	2.41E+01	28.73	4.94E-03	4.13E-04
	44	1219.01	2.81E+01	34.06	4.90E-03	4.14E-04
	45	1238.38	2.92E+02	50.30	4.84E-03	4.16E-04
M	46	1279.17	2.21E+01	23.11	4.72E-03	4.20E-04
m	47	1281.87	8.20E+01	31.56	4.71E-03	4.20E-04
	48	1378.06	1.79E+02	41.58	4.45E-03	4.12E-04
	49	1385.96	3.80E+01	27.42	4.43E-03	4.09E-04
	50	1401.48	3.68E+01	37.03	4.40E-03	4.05E-04
	51	1408.29	9.16E+01	34.12	4.38E-03	4.03E-04
	52	1461.20	4.87E+02	64.84	4.26E-03	3.88E-04
	53	1509.85	6.26E+01	35.10	4.16E-03	3.73E-04
	54	1583.01	3.58E+01	31.50	4.02E-03	3.52E-04
	55	1661.94	4.30E+01	28.97	3.89E-03	3.29E-04
	56	1683.90	1.77E+01	17.86	3.86E-03	3.23E-04
	57	1696.50	2.43E+01	29.53	3.84E-03	3.20E-04
	58	1714.44	1.51E+01	16.43	3.82E-03	3.14E-04
	59	1730.18	1.30E+02	29.15	3.79E-03	3.10E-04
	60	1765.01	5.61E+02	54.36	3.75E-03	3.00E-04

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
61	1847.69	5.96E+01	22.95	3.64E-03	2.79E-04
62	1875.71	1.54E+01	13.42	3.61E-03	2.79E-04
63	2020.36	2.46E+01	13.86	3.47E-03	2.79E-04
64	2119.19	2.98E+01	15.26	3.40E-03	2.79E-04
65	2161.69	8.88E+00	11.17	3.37E-03	2.79E-04
66	2204.71	1.65E+02	28.04	3.34E-03	2.79E-04
67	2230.21	1.00E+01	6.32	3.33E-03	2.79E-04
68	2267.54	9.50E+00	9.82	3.31E-03	2.79E-04
69	2293.33	1.97E+01	10.40	3.29E-03	2.79E-04
70	2307.33	9.00E+00	6.00	3.29E-03	2.79E-04
71	2325.40	7.50E+00	9.41	3.28E-03	2.79E-04
72	2447.93	5.51E+01	16.37	3.23E-03	2.79E-04
73	2615.04	6.00E+01	17.61	3.20E-03	2.79E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/21/2017 12:24:03PM

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

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
1	46.45	4.85E+02	145.76	3.74E+01	5.77E+00	4.48E+02	1.46E+02
2	53.30	1.81E+02	98.39			1.81E+02	9.84E+01
3	62.99	8.17E+02	222.04	6.29E+01	1.34E+01	7.54E+02	2.22E+02
4	76.29	3.54E+03	303.56			3.54E+03	3.04E+02
5	87.17	4.16E+02	123.27			4.16E+02	1.23E+02
6	92.94	1.16E+03	160.61	4.88E+01	1.30E+00	1.11E+03	1.61E+02
7	113.12	9.01E+01	104.99			9.01E+01	1.05E+02
8	143.93	2.04E+02	139.91	1.06E+01	1.02E+01	1.93E+02	1.40E+02
9	185.98	1.36E+03	169.94	3.48E+01	7.32E+00	1.32E+03	1.70E+02
10	242.12	9.71E+02	118.40			9.71E+02	1.18E+02
11	269.96	1.42E+02	96.08			1.42E+02	9.61E+01
12	295.22	2.67E+03	152.67			2.67E+03	1.53E+02
13	338.43	1.34E+02	88.32			1.34E+02	8.83E+01
14	351.96	4.72E+03	161.58	1.04E+01	5.08E+00	4.71E+03	1.62E+02
15	388.21	1.15E+02	87.76			1.15E+02	8.78E+01
16	427.40	6.35E+01	58.22			6.35E+01	5.82E+01
17	444.08	7.60E+01	64.78			7.60E+01	6.48E+01

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	18	454.90	7.71E+01	74.49			7.71E+01	7.45E+01
	19	486.85	4.45E+01	53.24			4.45E+01	5.32E+01
	20	511.19	1.85E+02	83.91	7.08E+01	4.94E+00	1.14E+02	8.41E+01
	21	563.80	6.85E+01	60.70			6.85E+01	6.07E+01
M	22	580.38	4.74E+01	25.06			4.74E+01	2.51E+01
m	23	583.32	1.85E+02	43.41	5.65E+00	3.57E+00	1.79E+02	4.36E+01
m	24	586.39	3.62E+01	42.43			3.62E+01	4.24E+01
	25	594.09	6.43E+01	49.68			6.43E+01	4.97E+01
	26	609.46	3.58E+03	132.83	1.07E+01	3.96E+00	3.57E+03	1.33E+02
	27	666.00	1.30E+02	55.48			1.30E+02	5.55E+01
	28	703.38	7.07E+01	51.62			7.07E+01	5.16E+01
	29	727.23	3.87E+01	40.54			3.87E+01	4.05E+01
	30	741.68	4.08E+01	36.35			4.08E+01	3.63E+01
	31	768.27	3.52E+02	60.26			3.52E+02	6.03E+01
	32	786.32	7.71E+01	46.90			7.71E+01	4.69E+01
M	33	806.25	8.10E+01	36.93			8.10E+01	3.69E+01
m	34	809.44	2.51E+01	35.33			2.51E+01	3.53E+01
	35	860.74	6.31E+01	50.98			6.31E+01	5.10E+01
	36	911.75	8.79E+01	49.84	2.63E+00	2.49E+00	8.53E+01	4.99E+01
M	37	931.75	2.41E+01	19.40			2.41E+01	1.94E+01
m	38	934.56	1.99E+02	41.10			1.99E+02	4.11E+01
	39	1002.17	5.71E+01	52.74	4.07E+00	2.59E+00	5.31E+01	5.28E+01
	40	1071.83	2.59E+01	32.50			2.59E+01	3.25E+01
	41	1120.61	7.10E+02	77.51	2.45E+00	2.38E+00	7.08E+02	7.75E+01
	42	1155.78	6.41E+01	49.63			6.41E+01	4.96E+01
	43	1207.41	2.41E+01	28.73			2.41E+01	2.87E+01
	44	1219.01	2.81E+01	34.06			2.81E+01	3.41E+01
	45	1238.38	2.92E+02	50.30			2.92E+02	5.03E+01
M	46	1279.17	2.21E+01	23.11			2.21E+01	2.31E+01
m	47	1281.87	8.20E+01	31.56			8.20E+01	3.16E+01
	48	1378.06	1.79E+02	41.58			1.79E+02	4.16E+01
	49	1385.96	3.80E+01	27.42			3.80E+01	2.74E+01
	50	1401.48	3.68E+01	37.03			3.68E+01	3.70E+01
	51	1408.29	9.16E+01	34.12			9.16E+01	3.41E+01
	52	1461.20	4.87E+02	64.84	5.90E+00	2.63E+00	4.81E+02	6.49E+01
	53	1509.85	6.26E+01	35.10			6.26E+01	3.51E+01
	54	1583.01	3.58E+01	31.50			3.58E+01	3.15E+01
	55	1661.94	4.30E+01	28.97			4.30E+01	2.90E+01
	56	1683.90	1.77E+01	17.86			1.77E+01	1.79E+01
	57	1696.50	2.43E+01	29.53			2.43E+01	2.95E+01
	58	1714.44	1.51E+01	16.43			1.51E+01	1.64E+01
	59	1730.18	1.30E+02	29.15			1.30E+02	2.92E+01
	60	1765.01	5.61E+02	54.36	3.33E+00	1.73E+00	5.58E+02	5.44E+01
	61	1847.69	5.96E+01	22.95			5.96E+01	2.29E+01
	62	1875.71	1.54E+01	13.42			1.54E+01	1.34E+01
	63	2020.36	2.46E+01	13.86			2.46E+01	1.39E+01
	64	2119.19	2.98E+01	15.26			2.98E+01	1.53E+01
	65	2161.69	8.88E+00	11.17			8.88E+00	1.12E+01
	66	2204.71	1.65E+02	28.04			1.65E+02	2.80E+01
	67	2230.21	1.00E+01	6.32			1.00E+01	6.32E+00
	68	2267.54	9.50E+00	9.82			9.50E+00	9.82E+00
	69	2293.33	1.97E+01	10.40			1.97E+01	1.04E+01
	70	2307.33	9.00E+00	6.00			9.00E+00	6.00E+00
	71	2325.40	7.50E+00	9.41			7.50E+00	9.41E+00

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
72	2447.93	5.51E+01	16.37			5.51E+01	1.64E+01
73	2615.04	6.00E+01	17.61	4.77E+00	1.52E+00	5.52E+01	1.77E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/21/2017 12:24:03PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055574.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	46.45	4.85E+02	145.76	3.74E+01	5.77E+00	4.48E+02	1.46E+02
	2	53.30	1.81E+02	98.39			1.81E+02	9.84E+01
	3	62.99	8.17E+02	222.04	6.29E+01	1.34E+01	7.54E+02	2.22E+02
	4	76.29	3.54E+03	303.56			3.54E+03	3.04E+02
	5	87.17	4.16E+02	123.27			4.16E+02	1.23E+02
	6	92.94	1.16E+03	160.61	4.88E+01	1.30E+00	1.11E+03	1.61E+02
	7	113.12	9.01E+01	104.99			9.01E+01	1.05E+02
	8	143.93	2.04E+02	139.91	1.06E+01	1.02E+01	1.93E+02	1.40E+02
	9	185.98	1.36E+03	169.94	3.48E+01	7.32E+00	1.32E+03	1.70E+02
	10	242.12	9.71E+02	118.40			9.71E+02	1.18E+02
	11	269.96	1.42E+02	96.08			1.42E+02	9.61E+01
	12	295.22	2.67E+03	152.67			2.67E+03	1.53E+02
	13	338.43	1.34E+02	88.32			1.34E+02	8.83E+01
	14	351.96	4.72E+03	161.58	1.04E+01	5.08E+00	4.71E+03	1.62E+02
	15	388.21	1.15E+02	87.76			1.15E+02	8.78E+01
	16	427.40	6.35E+01	58.22			6.35E+01	5.82E+01
	17	444.08	7.60E+01	64.78			7.60E+01	6.48E+01
	18	454.90	7.71E+01	74.49			7.71E+01	7.45E+01
	19	486.85	4.45E+01	53.24			4.45E+01	5.32E+01
	20	511.19	1.85E+02	83.91	7.08E+01	4.94E+00	1.14E+02	8.41E+01
	21	563.80	6.85E+01	60.70			6.85E+01	6.07E+01
M	22	580.38	4.74E+01	25.06			4.74E+01	2.51E+01
m	23	583.32	1.85E+02	43.41	5.65E+00	3.57E+00	1.79E+02	4.36E+01
m	24	586.39	3.62E+01	42.43			3.62E+01	4.24E+01
	25	594.09	6.43E+01	49.68			6.43E+01	4.97E+01
	26	609.46	3.58E+03	132.83	1.07E+01	3.96E+00	3.57E+03	1.33E+02

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	27	666.00	1.30E+02	55.48			1.30E+02	5.55E+01
	28	703.38	7.07E+01	51.62			7.07E+01	5.16E+01
	29	727.23	3.87E+01	40.54			3.87E+01	4.05E+01
	30	741.68	4.08E+01	36.35			4.08E+01	3.63E+01
	31	768.27	3.52E+02	60.26			3.52E+02	6.03E+01
	32	786.32	7.71E+01	46.90			7.71E+01	4.69E+01
M	33	806.25	8.10E+01	36.93			8.10E+01	3.69E+01
m	34	809.44	2.51E+01	35.33			2.51E+01	3.53E+01
	35	860.74	6.31E+01	50.98			6.31E+01	5.10E+01
	36	911.75	8.79E+01	49.84	2.63E+00	2.49E+00	8.53E+01	4.99E+01
M	37	931.75	2.41E+01	19.40			2.41E+01	1.94E+01
m	38	934.56	1.99E+02	41.10			1.99E+02	4.11E+01
	39	1002.17	5.71E+01	52.74	4.07E+00	2.59E+00	5.31E+01	5.28E+01
	40	1071.83	2.59E+01	32.50			2.59E+01	3.25E+01
	41	1120.61	7.10E+02	77.51	2.45E+00	2.38E+00	7.08E+02	7.75E+01
	42	1155.78	6.41E+01	49.63			6.41E+01	4.96E+01
	43	1207.41	2.41E+01	28.73			2.41E+01	2.87E+01
	44	1219.01	2.81E+01	34.06			2.81E+01	3.41E+01
	45	1238.38	2.92E+02	50.30			2.92E+02	5.03E+01
M	46	1279.17	2.21E+01	23.11			2.21E+01	2.31E+01
m	47	1281.87	8.20E+01	31.56			8.20E+01	3.16E+01
	48	1378.06	1.79E+02	41.58			1.79E+02	4.16E+01
	49	1385.96	3.80E+01	27.42			3.80E+01	2.74E+01
	50	1401.48	3.68E+01	37.03			3.68E+01	3.70E+01
	51	1408.29	9.16E+01	34.12			9.16E+01	3.41E+01
	52	1461.20	4.87E+02	64.84	5.90E+00	2.63E+00	4.81E+02	6.49E+01
	53	1509.85	6.26E+01	35.10			6.26E+01	3.51E+01
	54	1583.01	3.58E+01	31.50			3.58E+01	3.15E+01
	55	1661.94	4.30E+01	28.97			4.30E+01	2.90E+01
	56	1683.90	1.77E+01	17.86			1.77E+01	1.79E+01
	57	1696.50	2.43E+01	29.53			2.43E+01	2.95E+01
	58	1714.44	1.51E+01	16.43			1.51E+01	1.64E+01
	59	1730.18	1.30E+02	29.15			1.30E+02	2.92E+01
	60	1765.01	5.61E+02	54.36	3.33E+00	1.73E+00	5.58E+02	5.44E+01
	61	1847.69	5.96E+01	22.95			5.96E+01	2.29E+01
	62	1875.71	1.54E+01	13.42			1.54E+01	1.34E+01
	63	2020.36	2.46E+01	13.86			2.46E+01	1.39E+01
	64	2119.19	2.98E+01	15.26			2.98E+01	1.53E+01
	65	2161.69	8.88E+00	11.17			8.88E+00	1.12E+01
	66	2204.71	1.65E+02	28.04			1.65E+02	2.80E+01
	67	2230.21	1.00E+01	6.32			1.00E+01	6.32E+00
	68	2267.54	9.50E+00	9.82			9.50E+00	9.82E+00
	69	2293.33	1.97E+01	10.40			1.97E+01	1.04E+01
	70	2307.33	9.00E+00	6.00			9.00E+00	6.00E+00
	71	2325.40	7.50E+00	9.41			7.50E+00	9.41E+00
	72	2447.93	5.51E+01	16.37			5.51E+01	1.64E+01
	73	2615.04	6.00E+01	17.61	4.77E+00	1.52E+00	5.52E+01	1.77E+01

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

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

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	0.976	1460.81	*	10.67	1.60E+01	2.62E+00
CD-109	0.888	88.03	*	3.72	7.26E+00	2.29E+00
SN-126	0.975	87.57	*	37.00	6.31E-01	1.95E-01
PM-146	0.335	453.90	*	39.94	2.80E-01	2.71E-01
		735.90		14.01		
		747.13		13.10		
EU-155	0.319	86.50	*	30.90	7.84E-01	2.42E-01
		105.30		20.70		
TL-208	0.985	583.14	*	30.22	1.00E+00	2.61E-01
		860.37	*	4.48	3.27E+00	2.66E+00
		2614.66	*	35.85	7.29E-01	2.42E-01
PB-210	1.000	46.50	*	4.25	1.02E+01	3.48E+00
BI-212	0.767	727.17	*	11.80	6.64E-01	6.98E-01
		1620.62		2.75		
BI-214	0.985	609.31	*	46.30	1.36E+01	1.33E+00
		1120.29	*	15.10	1.35E+01	1.85E+00
		1764.49	*	15.80	1.43E+01	1.80E+00
		2204.22	*	4.98	1.50E+01	2.84E+00
PB-214	1.000	295.21	*	19.19	1.41E+01	1.32E+00
		351.92	*	37.19	1.46E+01	1.25E+00
RA-226	0.991	186.21	*	3.28	3.00E+01	5.51E+01
AC-228	0.537	338.32	*	11.40	1.32E+00	8.77E-01
		911.07	*	27.70	7.50E-01	4.43E-01
		969.11		16.60		
TH-234	0.986	63.29	*	3.80	1.27E+01	3.85E+00
NP-237	0.931	86.50	*	12.60	1.85E+00	5.73E-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 1707085-12

HTC-A02-S003-0612-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 12:24:03PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	53.30	5.02285E-02	27.21		
	4	76.29	9.83293E-01	4.29		
	6	92.94	3.07422E-01	7.26	Sum	
	7	113.12	2.50341E-02	58.25		
	8	143.93	5.36082E-02	36.34	Tol.	U-235
	10	242.12	2.69588E-01	6.10		
	11	269.96	3.94904E-02	33.79		
	15	388.21	3.19158E-02	38.19		
	16	427.40	1.76311E-02	45.87	Tol.	SB-125
	17	444.08	2.10982E-02	42.64		
	19	486.85	1.23611E-02	59.82		
	20	511.19	3.17753E-02	36.74		
	21	563.80	1.90331E-02	44.30		
M	22	580.38	1.31647E-02	26.44		
m	24	586.39	1.00670E-02	58.53		
	25	594.09	1.78748E-02	38.60		
	27	666.00	3.60288E-02	21.39	Tol.	SB-126
	28	703.38	1.96463E-02	36.49	Sum	
	30	741.68	1.13208E-02	44.59		
	31	768.27	9.77778E-02	8.56		
	32	786.32	2.14049E-02	30.43		
M	33	806.25	2.24927E-02	22.81	Sum	
m	34	809.44	6.97278E-03	70.37		
M	37	931.75	6.69362E-03	40.25		
m	38	934.56	5.51436E-02	10.35	Sum	
	39	1002.17	1.47434E-02	49.74		
	40	1071.83	7.18343E-03	62.84		
	42	1155.78	1.78166E-02	38.69	Sum	
	43	1207.41	6.69444E-03	59.61	Sum	
	44	1219.01	7.80702E-03	60.59	Sum	
	45	1238.38	8.12496E-02	8.60		
M	46	1279.17	6.12868E-03	52.38		
m	47	1281.87	2.27863E-02	19.24		
	48	1378.06	4.95944E-02	11.64		
	49	1385.96	1.05690E-02	36.03		
	50	1401.48	1.02095E-02	50.37		
	51	1408.29	2.54577E-02	18.61	Tol.	EU-152
	53	1509.85	1.73872E-02	28.04		
	54	1583.01	9.95465E-03	43.94		
	55	1661.94	1.19460E-02	33.68		
	56	1683.90	4.91898E-03	50.43		
	57	1696.50	6.74603E-03	60.80		
	58	1714.44	4.20370E-03	54.29		
	59	1730.18	3.60490E-02	11.23	Sum	
	61	1847.69	1.65535E-02	19.25	Sum	

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
62	1875.71	4.27778E-03	43.56		
63	2020.36	6.84259E-03	28.13		
64	2119.19	8.28947E-03	25.58		
65	2161.69	2.46528E-03	62.92		
67	2230.21	2.77778E-03	31.62		
68	2267.54	2.63889E-03	51.70	Sum	
69	2293.33	5.47349E-03	26.40		
70	2307.33	2.50000E-03	33.33		
71	2325.40	2.08333E-03	62.72		
72	2447.93	1.53113E-02	14.85		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.97	1460.81	*	10.67	1.60E+01	2.62E+00
CD-109	0.88	88.03	*	3.72	7.26E+00	2.29E+00
SN-126	0.97	87.57	*	37.00	6.31E-01	1.95E-01
PM-146	0.33	453.90	*	39.94	2.80E-01	2.71E-01
		735.90		14.01		
		747.13		13.10		
EU-155	0.31	86.50	*	30.90	7.84E-01	2.42E-01
		105.30		20.70		
TL-208	0.98	583.14	*	30.22	1.00E+00	2.61E-01
		860.37	*	4.48	3.27E+00	2.66E+00
		2614.66	*	35.85	7.29E-01	2.42E-01
PB-210	1.00	46.50	*	4.25	1.02E+01	3.48E+00
BI-212	0.76	727.17	*	11.80	6.64E-01	6.98E-01
		1620.62		2.75		
BI-214	0.98	609.31	*	46.30	1.36E+01	1.33E+00
		1120.29	*	15.10	1.35E+01	1.85E+00
		1764.49	*	15.80	1.43E+01	1.80E+00
		2204.22	*	4.98	1.50E+01	2.84E+00

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PB-214	1.00	295.21	*	19.19	1.41E+01	1.32E+00
		351.92	*	37.19	1.46E+01	1.25E+00
RA-226	0.99	186.21	*	3.28	3.00E+01	5.51E+01
AC-228	0.53	338.32	*	11.40	1.32E+00	8.77E-01
		911.07	*	27.70	7.50E-01	4.43E-01
		969.11		16.60		
TH-234	0.98	63.29	*	3.80	1.27E+01	3.85E+00
NP-237	0.93	86.50	*	12.60	1.85E+00	5.73E-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	0.976	1.60E+01	2.62E+00	
?	CD-109	0.888	7.26E+00	2.29E+00	
?	SN-126	0.975	6.31E-01	1.95E-01	
	PM-146	0.335	2.80E-01	2.71E-01	
?	EU-155	0.319	7.84E-01	2.42E-01	
	TL-208	0.985	8.67E-01	1.77E-01	
	PB-210	1.000	1.02E+01	3.48E+00	
	BI-212	0.767	6.64E-01	6.98E-01	
	BI-214	0.985	1.38E+01	8.79E-01	
	PB-214	1.000	1.44E+01	9.08E-01	
	RA-226	0.991	3.00E+01	5.51E+01	
	AC-228	0.537	8.65E-01	3.95E-01	
	TH-234	0.986	1.27E+01	3.85E+00	
?	NP-237	0.931	1.85E+00	5.73E-01	

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

? = 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 1707085-12

HTC-A02-S003-0612-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 12:24:03PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	53.30	5.02285E-02	27.21		
	4	76.29	9.83293E-01	4.29		
	6	92.94	3.07422E-01	7.26	Sum	
	7	113.12	2.50341E-02	58.25		
	8	143.93	5.36082E-02	36.34	Tol.	U-235
	10	242.12	2.69588E-01	6.10		
	11	269.96	3.94904E-02	33.79		
	15	388.21	3.19158E-02	38.19		
	16	427.40	1.76311E-02	45.87	Tol.	SB-125
	17	444.08	2.10982E-02	42.64		
	19	486.85	1.23611E-02	59.82		
	20	511.19	3.17753E-02	36.74		
	21	563.80	1.90331E-02	44.30		
M	22	580.38	1.31647E-02	26.44		
m	24	586.39	1.00670E-02	58.53		
	25	594.09	1.78748E-02	38.60		
	27	666.00	3.60288E-02	21.39	Tol.	SB-126
	28	703.38	1.96463E-02	36.49	Sum	
	30	741.68	1.13208E-02	44.59		
	31	768.27	9.77778E-02	8.56		
	32	786.32	2.14049E-02	30.43		
M	33	806.25	2.24927E-02	22.81	Sum	
m	34	809.44	6.97278E-03	70.37		
M	37	931.75	6.69362E-03	40.25		
m	38	934.56	5.51436E-02	10.35	Sum	
	39	1002.17	1.47434E-02	49.74		
	40	1071.83	7.18343E-03	62.84		
	42	1155.78	1.78166E-02	38.69	Sum	
	43	1207.41	6.69444E-03	59.61	Sum	
	44	1219.01	7.80702E-03	60.59	Sum	
	45	1238.38	8.12496E-02	8.60		
M	46	1279.17	6.12868E-03	52.38		
m	47	1281.87	2.27863E-02	19.24		
	48	1378.06	4.95944E-02	11.64		
	49	1385.96	1.05690E-02	36.03		

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
50	1401.48	1.02095E-02	50.37		
51	1408.29	2.54577E-02	18.61	Tol.	EU-152
53	1509.85	1.73872E-02	28.04		
54	1583.01	9.95465E-03	43.94		
55	1661.94	1.19460E-02	33.68		
56	1683.90	4.91898E-03	50.43		
57	1696.50	6.74603E-03	60.80		
58	1714.44	4.20370E-03	54.29		
59	1730.18	3.60490E-02	11.23	Sum	
61	1847.69	1.65535E-02	19.25	Sum	
62	1875.71	4.27778E-03	43.56		
63	2020.36	6.84259E-03	28.13		
64	2119.19	8.28947E-03	25.58		
65	2161.69	2.46528E-03	62.92		
67	2230.21	2.77778E-03	31.62		
68	2267.54	2.63889E-03	51.70	Sum	
69	2293.33	5.47349E-03	26.40		
70	2307.33	2.50000E-03	33.33		
71	2325.40	2.08333E-03	62.72		
72	2447.93	1.53113E-02	14.85		

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	-2.07E+00	3.55E+00	3.55E+00
+	NA-22	1274.54		99.94	-5.82E-03	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	2.68E-02	1.03E-01	1.03E-01
+	K-40	1460.81	*	10.67	1.60E+01	2.70E+00	2.70E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TI-44	67.88	94.40	8.91E-02	1.13E-01	1.13E-01
		78.34	96.00	2.52E-01		1.40E-01
+	SC-46	889.25	99.98	1.36E-01	3.35E-01	3.35E-01
		1120.51	99.99	4.78E+00		8.91E-01
+	V-48	983.52	99.98	2.54E+00	9.68E+00	1.05E+01
		1312.10	97.50	-1.42E-02		9.68E+00
+	CR-51	320.08	9.83	-5.94E+00	1.19E+01	1.19E+01
+	MN-54	834.83	99.97	-1.96E-01	1.59E-01	1.59E-01
+	CO-56	846.75	99.96	4.85E-03	3.22E-01	3.22E-01
		1037.75	14.03	1.33E+00		2.29E+00
		1238.25	67.00	3.05E+00		9.84E-01
		1771.40	15.51	2.34E-01		1.96E+00
		2598.48	16.90	-3.98E-01		4.88E-01
+	CO-57	122.06	85.51	-3.65E-02	1.12E-01	1.12E-01
		136.48	10.60	2.52E-01		1.27E+00
+	CO-58	810.76	99.40	-3.87E-01	3.44E-01	3.44E-01
+	FE-59	1099.22	56.50	1.38E-03	1.14E+00	1.14E+00
		1291.56	43.20	7.41E-02		1.46E+00
+	CO-60	1173.22	100.00	4.51E-02	1.37E-01	1.55E-01
		1332.49	100.00	2.66E-02		1.37E-01
+	ZN-65	1115.52	50.75	5.33E-02	4.75E-01	4.75E-01
+	GA-67	93.31	35.70	1.86E+09	3.79E+08	3.79E+08
		208.95	2.24	1.53E+09		5.57E+09
		300.22	16.00	1.22E+08		7.91E+08
+	SE-75	121.11	16.70	4.92E-02	3.10E-01	7.84E-01
		136.00	59.20	2.62E-02		3.12E-01
		264.65	59.80	1.03E-01		3.10E-01
		279.53	25.20	-1.84E-01		7.38E-01
		400.65	11.40	-9.36E-02		1.77E+00
+	RB-82	776.52	13.00	-7.26E+00	1.38E+01	1.38E+01
+	RB-83	520.41	46.00	-5.44E-02	4.82E-01	4.82E-01
		529.64	30.30	-2.53E-01		7.23E-01
		552.65	16.40	-2.83E-01		1.27E+00
+	KR-85	513.99	0.43	-1.26E+01	2.73E+01	2.73E+01
+	SR-85	513.99	99.27	-1.54E-01	3.36E-01	3.36E-01
+	Y-88	898.02	93.40	-1.28E-01	2.70E-01	2.88E-01
		1836.01	99.38	1.85E-01		2.70E-01
+	MO-93	263.06	56.72	-1.20E-01	1.22E-01	1.88E-01
		684.67	99.68	-3.40E-02		1.22E-01
		1477.11	99.08	1.76E-02		1.63E-01
+	NB-93M	16.57	9.43	0.00E+00	8.84E+00	8.84E+00
+	NB-94	702.63	100.00	3.08E-02	1.36E-01	1.36E-01
		871.10	100.00	7.55E-03		1.36E-01
+	NB-95	765.79	99.81	-1.13E-01	1.37E+00	1.37E+00
+	NB-95M	235.69	25.00	-4.47E+08	7.70E+07	7.70E+07
+	ZR-95	724.18	43.70	2.38E-02	6.63E-01	8.91E-01
		756.72	55.30	-1.24E-01		6.63E-01

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	MO-99	181.06		6.20	6.37E+10	5.78E+10	1.03E+11
		739.58		12.80	3.80E+09		5.78E+10
		778.00		4.50	4.44E+10		1.62E+11
+	RU-103	497.08		89.00	4.05E-01	6.47E-01	6.47E-01
+	RU-106	621.84		9.80	-8.84E-02	1.35E+00	1.35E+00
+	AG-108M	433.93		89.90	-7.49E-03	1.18E-01	1.18E-01
		614.37		90.40	-1.07E-02		1.50E-01
		722.95		90.50	4.75E-02		1.49E-01
+	CD-109	88.03	*	3.72	7.26E+00	3.39E+00	3.39E+00
+	AG-110M	657.75		93.14	5.46E-02	1.69E-01	1.69E-01
		677.61		10.53	-9.76E-01		1.35E+00
		706.67		16.46	-3.13E-01		1.05E+00
		763.93		21.98	-1.37E-01		9.34E-01
		884.67		71.63	-1.06E-02		2.63E-01
		1384.27		23.94	-1.47E+00		8.84E-01
+	CD-113M	263.70		0.02	2.86E+02	4.68E+02	4.68E+02
+	SN-113	255.12		1.93	-2.85E+00	3.11E-01	9.92E+00
		391.69		64.90	8.48E-02		3.11E-01
+	TE123M	159.00		84.10	6.14E-02	2.32E-01	2.32E-01
+	SB-124	602.71		97.87	3.34E-03	3.81E-01	3.81E-01
		645.85		7.26	-3.02E+00		4.68E+00
		722.78		11.10	1.76E+00		3.74E+00
		1691.02		49.00	2.28E-01		7.69E-01
+	I-125	35.49		6.49	-5.36E+01	1.14E+01	1.14E+01
+	SB-125	176.33		6.89	-3.09E-02	4.15E-01	1.77E+00
		427.89		29.33	1.96E-01		4.15E-01
		463.38		10.35	1.86E-01		1.13E+00
		600.56		17.80	-8.83E-02		6.92E-01
		635.90		11.32	4.22E-01		1.13E+00
+	SB-126	414.70		83.30	-6.82E+00	3.09E+01	3.35E+01
		666.33		99.60	5.84E+01		3.67E+01
		695.00		99.60	1.60E+01		3.09E+01
		720.50		53.80	5.54E+01		6.21E+01
+	SN-126	87.57	*	37.00	6.31E-01	2.94E-01	2.94E-01
+	SB-127	473.00		25.00	-1.50E+06	1.62E+07	2.04E+07
		685.20		35.70	-6.23E+05		1.62E+07
		783.80		14.70	1.77E+07		4.94E+07
+	I-129	29.78		57.00	8.89E-01	8.11E-01	8.11E-01
		33.60		13.20	1.09E+01		3.07E+00
		39.58		7.52	-1.48E-02		2.29E+00
+	I-131	284.30		6.05	4.01E+03	5.83E+02	8.48E+03
		364.48		81.20	2.15E+01		5.83E+02
		636.97		7.26	1.38E+03		7.77E+03
		722.89		1.80	1.13E+04		3.53E+04
+	TE-132	49.72		13.10	1.66E+08	1.45E+08	1.03E+09
		228.16		88.00	-1.33E+07		1.45E+08
+	BA-133	81.00		33.00	2.32E-01	1.70E-01	2.97E-01
		302.84		17.80	-3.08E-01		6.20E-01
		356.01		60.00	1.98E-02		1.70E-01

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+		XE-133	81.00		38.00	8.54E+04	1.09E+05	1.09E+05
+		CS-134	563.23		8.38	4.82E-01	1.53E-01	1.37E+00
			569.32		15.43	1.71E-01		7.57E-01
			604.70		97.60	2.23E-02		1.53E-01
			795.84		85.40	1.02E-01		1.81E-01
			801.93		8.73	5.58E-02		1.60E+00
+		CS-135	268.24		16.00	-4.54E-01	7.21E-01	7.21E-01
+	@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26
	@		1260.41		28.60	1.00E+26		1.00E+26
	@		1678.03		9.54	1.00E+26		1.00E+26
+		CS-136	153.22		7.46	1.77E+02	2.35E+01	2.70E+02
			163.89		4.61	2.98E+02		4.18E+02
			176.55		13.56	-2.59E+00		1.48E+02
			273.65		12.66	8.47E+01		1.58E+02
			340.57		48.50	-9.74E+00		4.07E+01
			818.50		99.70	-2.41E+00		2.35E+01
			1048.07		79.60	-1.78E+01		2.86E+01
			1235.34		19.70	4.96E+02		2.33E+02
+		CS-137	661.65		85.12	1.77E-02	1.46E-01	1.46E-01
+		LA-138	788.74		34.00	2.64E-01	2.28E-01	4.46E-01
			1435.80		66.00	-2.54E-02		2.28E-01
+		CE-139	165.85		80.35	1.74E-02	2.18E-01	2.18E-01
+		BA-140	162.64		6.70	-6.16E-01	7.96E+01	3.32E+02
			304.84		4.50	1.71E+02		4.93E+02
			423.70		3.20	-4.15E+01		7.15E+02
			437.55		2.00	6.81E+02		1.09E+03
			537.32		25.00	-6.28E+01		7.96E+01
+		LA-140	328.77		20.50	4.28E+01	3.88E+01	1.10E+02
			487.03		45.50	2.88E+01		4.71E+01
			815.85		23.50	3.95E+01		1.15E+02
			1596.49		95.49	1.73E+01		3.88E+01
+		CE-141	145.44		48.40	1.48E+00	1.91E+00	1.91E+00
+	@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26
	@		293.26		42.00	1.00E+26		1.00E+26
	@		664.55		5.20	1.00E+26		1.00E+26
+		CE-144	133.54		10.80	-2.99E-01	9.33E-01	9.33E-01
+		PM-144	476.78		42.00	-1.73E-01	1.44E-01	2.97E-01
			618.01		98.60	8.59E-02		1.44E-01
			696.49		99.49	1.66E-02		1.52E-01
+		PM-145	36.85		21.70	-1.10E-01	5.15E-01	9.77E-01
			37.36		39.70	-1.89E-01		5.15E-01
			42.30		15.10	5.49E-01		9.63E-01
			72.40		2.31	-5.44E+01		4.58E+00
+		PM-146	453.90	*	39.94	2.80E-01	4.42E-01	4.42E-01
			735.90		14.01	1.68E-01		9.15E-01
			747.13		13.10	-4.98E-01		9.81E-01
+		ND-147	91.11		28.90	-1.17E+03	1.71E+02	1.71E+02
			531.02		13.10	7.93E+01		4.02E+02

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	PM-149	285.90		3.10	-1.84E+13	7.92E+13	7.92E+13
+	EU-152	121.78		20.50	-1.20E-01	3.68E-01	3.68E-01
		244.69		5.40	2.77E-01		2.37E+00
		344.27		19.13	-4.20E-01		5.51E-01
		778.89		9.20	4.00E-01		1.46E+00
		964.01		10.40	2.45E-01		1.62E+00
		1085.78		7.22	5.15E-01		2.11E+00
		1112.02		9.60	-1.55E-01		1.50E+00
		1407.95		14.94	3.37E-01		1.48E+00
+	GD-153	97.43		31.30	1.20E-01	3.29E-01	3.29E-01
		103.18		22.20	2.57E-01		4.38E-01
+	EU-154	123.07		40.50	6.36E-02	1.93E-01	1.93E-01
		723.30		19.70	2.23E-01		6.97E-01
		873.19		11.50	2.07E-01		1.26E+00
		996.32		10.30	1.82E-01		1.41E+00
		1004.76		17.90	4.11E-01		9.51E-01
		1274.45		35.50	-1.56E-02		3.88E-01
+	EU-155	86.50	*	30.90	7.84E-01	3.60E-01	3.65E-01
		105.30		20.70	-1.18E-01		3.60E-01
+	EU-156	811.77		10.40	-7.65E+00	1.05E+02	1.05E+02
		1153.47		7.20	2.97E+02		2.37E+02
		1230.71		8.90	-1.68E+01		1.37E+02
+	HO-166M	184.41		72.60	1.47E+00	2.36E-01	2.36E-01
		280.45		29.60	1.46E-01		3.62E-01
		410.94		11.10	1.64E-01		1.03E+00
		711.69		54.10	1.18E-01		2.40E-01
+	TM-171	66.72		0.14	-2.56E+01	8.23E+01	8.23E+01
+	HF-172	67.35		5.31	1.75E+00	7.50E-01	2.22E+00
		125.81		11.30	-2.75E-02		7.50E-01
+	LU-172	181.53		20.60	1.45E+03	5.80E+03	1.42E+04
		900.72		29.81	2.71E+03		1.29E+04
		1093.66		62.50	-6.47E+02		5.80E+03
+	LU-173	100.72		5.24	-2.34E-01	6.55E-01	1.61E+00
		272.11		21.20	-1.41E-01		6.55E-01
+	HF-175	343.40		84.00	2.61E-02	3.31E-01	3.31E-01
+	LU-176	88.34		13.30	4.56E-01	1.12E-01	7.95E-01
		201.83		86.00	-3.09E-02		1.31E-01
		306.78		94.00	7.52E-02		1.12E-01
+	HF-181	133.02		41.70	3.51E-01	6.19E-01	9.57E-01
		345.85		17.20	3.10E-01		3.11E+00
		482.03		82.80	1.92E-01		6.19E-01
+	TA-182	67.75		41.20	3.69E-01	4.68E-01	4.68E-01
		1121.30		34.90	1.02E+01		2.03E+00
		1189.05		16.23	1.98E-01		1.68E+00
		1221.41		26.98	9.39E-02		1.06E+00
		1231.02		11.44	-2.68E-01		2.20E+00
+	IR-192	308.46		29.68	-2.31E-01	5.70E-01	8.64E-01
		468.07		48.10	1.03E-01		5.70E-01
+	HG-203	279.19		77.30	-2.18E-01	5.86E-01	5.86E-01

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TL-204	374.74		94.11	4.67E-04	1.13E-01	1.13E-01
		899.15		99.16	1.80E-02		1.57E-01
		911.74		91.10	2.26E-01		2.12E-01
+	BI-207	569.67		97.72	2.48E-02	1.10E-01	1.10E-01
		1063.62		74.90	-4.69E-02		1.80E-01
+	TL-208	583.14	*	30.22	1.00E+00	2.43E-01	5.98E-01
		860.37	*	4.48	3.27E+00		4.27E+00
		2614.66	*	35.85	7.29E-01		2.43E-01
+	BI-210M	262.00		45.00	-1.21E-01	2.36E-01	2.36E-01
		300.00		23.00	7.37E-02		4.79E-01
+	PB-210	46.50	*	4.25	1.02E+01	5.28E+00	5.28E+00
+	PB-211	404.84		2.90	-1.05E+00	4.02E+00	4.02E+00
		831.96		2.90	-7.94E-01		4.48E+00
+	BI-212	727.17	*	11.80	6.64E-01	1.14E+00	1.14E+00
		1620.62		2.75	2.60E+00		5.42E+00
+	PB-212	238.63		44.60	8.16E-01	3.53E-01	3.53E-01
		300.09		3.41	4.97E-01		3.23E+00
+	BI-214	609.31	*	46.30	1.36E+01	3.73E-01	3.73E-01
		1120.29	*	15.10	1.35E+01		1.82E+00
		1764.49	*	15.80	1.43E+01		1.20E+00
		2204.22	*	4.98	1.50E+01		1.92E+00
+	PB-214	295.21	*	19.19	1.41E+01	4.46E-01	9.96E-01
		351.92	*	37.19	1.46E+01		4.46E-01
+	RN-219	401.80		6.50	-2.80E-01	1.79E+00	1.79E+00
+	RA-223	323.87		3.88	7.47E-01	2.78E+00	2.78E+00
+	RA-224	240.98		3.95	3.46E+01	5.22E+00	5.22E+00
+	RA-225	40.00		31.00	-3.46E-01	5.35E+01	5.35E+01
+	RA-226	186.21	*	3.28	3.00E+01	5.80E+00	5.80E+00
+	TH-227	50.10		8.40	2.18E-01	1.10E+00	1.36E+00
		236.00		11.50	-6.35E+00		1.10E+00
		256.20		6.30	-2.66E-01		1.73E+00
+	AC-228	338.32	*	11.40	1.32E+00	6.94E-01	1.41E+00
		911.07	*	27.70	7.50E-01		6.94E-01
		969.11		16.60	2.66E-01		1.04E+00
+	TH-230	48.44		16.90	-2.27E+00	7.12E-01	7.12E-01
		62.85		4.60	1.13E+01		2.96E+00
		67.67		0.37	2.27E+01		2.88E+01
+	PA-231	283.67		1.60	3.20E+00	4.71E+00	6.77E+00
		302.67		2.30	-2.34E+00		4.71E+00
+	TH-231	25.64		14.70	0.00E+00	1.57E-01	1.57E-01
		84.21		6.40	3.32E+00		1.55E+00
+	PA-233	311.98		38.60	-9.37E-01	3.29E+00	3.29E+00
+	PA-234	131.20		20.40	-1.34E-01	3.84E-01	3.84E-01
		733.99		8.80	8.85E-01		1.42E+00
		946.00		12.00	2.61E-01		1.17E+00
+	PA-234M	1001.03		0.92	6.77E+00	1.83E+01	1.83E+01
+	TH-234	63.29	*	3.80	1.27E+01	6.00E+00	6.00E+00

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	U-235	143.76		10.50	1.11E+00	1.09E+00	1.09E+00
		163.35		4.70	1.66E+00		2.33E+00
		205.31		4.70	4.32E-01		2.39E+00
+	NP-237	86.50	*	12.60	1.85E+00	8.63E-01	8.63E-01
+	NP-239	106.10		22.70	-3.66E+11	1.12E+12	1.12E+12
		228.18		10.70	-3.28E+11		3.58E+12
		277.60		14.10	-1.34E+12		2.66E+12
+	AM-241	59.54		35.90	-1.31E-01	2.94E-01	2.94E-01
+	AM-243	74.67		66.00	-9.85E-01	2.20E-01	2.20E-01
+	CM-243	209.75		3.29	2.10E+00	7.65E-01	3.31E+00
		228.14		10.60	-9.47E-02		1.04E+00
		277.60		14.00	-3.86E-01		7.65E-01

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	3.55E+00	3.55E+00	-2.07E+00	1.71E+00
	NA-22	1274.54		99.94	1.45E-01	1.45E-01	-5.82E-03	6.78E-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	1.03E-01	1.03E-01	2.68E-02	4.58E-02
+	K-40	1460.81	*	10.67	2.70E+00	2.70E+00	1.60E+01	1.31E+00
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	1.13E-01	1.13E-01	8.91E-02	5.56E-02
		78.34		96.00	1.40E-01		2.52E-01	6.90E-02
	SC-46	889.25		99.98	3.35E-01	3.35E-01	1.36E-01	1.60E-01

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	SC-46	1120.51		99.99	8.91E-01	3.35E-01	4.78E+00	4.37E-01
	V-48	983.52		99.98	1.05E+01	9.68E+00	2.54E+00	4.98E+00
		1312.10		97.50	9.68E+00		-1.42E-02	4.52E+00
	CR-51	320.08		9.83	1.19E+01	1.19E+01	-5.94E+00	5.77E+00
	MN-54	834.83		99.97	1.59E-01	1.59E-01	-1.96E-01	7.59E-02
	CO-56	846.75		99.96	3.22E-01	3.22E-01	4.85E-03	1.53E-01
		1037.75		14.03	2.29E+00		1.33E+00	1.08E+00
		1238.25		67.00	9.84E-01		3.05E+00	4.77E-01
		1771.40		15.51	1.96E+00		2.34E-01	8.99E-01
		2598.48		16.90	4.88E-01		-3.98E-01	1.54E-01
	CO-57	122.06		85.51	1.12E-01	1.12E-01	-3.65E-02	5.48E-02
		136.48		10.60	1.27E+00		2.52E-01	6.27E-01
	CO-58	810.76		99.40	3.44E-01	3.44E-01	-3.87E-01	1.64E-01
	FE-59	1099.22		56.50	1.14E+00	1.14E+00	1.38E-03	5.37E-01
		1291.56		43.20	1.46E+00		7.41E-02	6.82E-01
	CO-60	1173.22		100.00	1.55E-01	1.37E-01	4.51E-02	7.35E-02
		1332.49		100.00	1.37E-01		2.66E-02	6.38E-02
	ZN-65	1115.52		50.75	4.75E-01	4.75E-01	5.33E-02	2.27E-01
	GA-67	93.31		35.70	3.79E+08	3.79E+08	1.86E+09	1.87E+08
		208.95		2.24	5.57E+09		1.53E+09	2.73E+09
		300.22		16.00	7.91E+08		1.22E+08	3.86E+08
	SE-75	121.11		16.70	7.84E-01	3.10E-01	4.92E-02	3.84E-01
		136.00		59.20	3.12E-01		2.62E-02	1.53E-01
		264.65		59.80	3.10E-01		1.03E-01	1.51E-01
		279.53		25.20	7.38E-01		-1.84E-01	3.60E-01
		400.65		11.40	1.77E+00		-9.36E-02	8.60E-01
	RB-82	776.52		13.00	1.38E+01	1.38E+01	-7.26E+00	6.60E+00
	RB-83	520.41		46.00	4.82E-01	4.82E-01	-5.44E-02	2.31E-01
		529.64		30.30	7.23E-01		-2.53E-01	3.46E-01
		552.65		16.40	1.27E+00		-2.83E-01	6.04E-01
	KR-85	513.99		0.43	2.73E+01	2.73E+01	-1.26E+01	1.32E+01
	SR-85	513.99		99.27	3.36E-01	3.36E-01	-1.54E-01	1.62E-01
	Y-88	898.02		93.40	2.88E-01	2.70E-01	-1.28E-01	1.38E-01
		1836.01		99.38	2.70E-01		1.85E-01	1.24E-01
	MO-93	263.06		56.72	1.88E-01	1.22E-01	-1.20E-01	9.17E-02
		684.67		99.68	1.22E-01		-3.40E-02	5.84E-02
		1477.11		99.08	1.63E-01		1.76E-02	7.64E-02
	NB-93M	16.57		9.43	8.84E+00	8.84E+00	0.00E+00	0.00E+00
	NB-94	702.63		100.00	1.36E-01	1.36E-01	3.08E-02	6.54E-02
		871.10		100.00	1.36E-01		7.55E-03	6.50E-02
	NB-95	765.79		99.81	1.37E+00	1.37E+00	-1.13E-01	6.65E-01
	NB-95M	235.69		25.00	7.70E+07	7.70E+07	-4.47E+08	3.78E+07
	ZR-95	724.18		43.70	8.91E-01	6.63E-01	2.38E-02	4.27E-01
		756.72		55.30	6.63E-01		-1.24E-01	3.17E-01
	MO-99	181.06		6.20	1.03E+11	5.78E+10	6.37E+10	5.06E+10
		739.58		12.80	5.78E+10		3.80E+09	2.77E+10
		778.00		4.50	1.62E+11		4.44E+10	7.75E+10
	RU-103	497.08		89.00	6.47E-01	6.47E-01	4.05E-01	3.11E-01
	RU-106	621.84		9.80	1.35E+00	1.35E+00	-8.84E-02	6.47E-01
	AG-108M	433.93		89.90	1.18E-01	1.18E-01	-7.49E-03	5.71E-02
		614.37		90.40	1.50E-01		-1.07E-02	7.22E-02
		722.95		90.50	1.49E-01		4.75E-02	7.13E-02
+	CD-109	88.03	*	3.72	3.39E+00	3.39E+00	7.26E+00	1.67E+00

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	AG-110M	657.75		93.14	1.69E-01	1.69E-01	5.46E-02	8.10E-02
		677.61		10.53	1.35E+00		-9.76E-01	6.42E-01
		706.67		16.46	1.05E+00		-3.13E-01	5.06E-01
		763.93		21.98	9.34E-01		-1.37E-01	4.50E-01
		884.67		71.63	2.63E-01		-1.06E-02	1.26E-01
		1384.27		23.94	8.84E-01		-1.47E+00	4.17E-01
	CD-113M	263.70		0.02	4.68E+02	4.68E+02	2.86E+02	2.28E+02
	SN-113	255.12		1.93	9.92E+00	3.11E-01	-2.85E+00	4.84E+00
		391.69		64.90	3.11E-01		8.48E-02	1.51E-01
	TE123M	159.00		84.10	2.32E-01	2.32E-01	6.14E-02	1.14E-01
	SB-124	602.71		97.87	3.81E-01	3.81E-01	3.34E-03	1.83E-01
		645.85		7.26	4.68E+00		-3.02E+00	2.24E+00
		722.78		11.10	3.74E+00		1.76E+00	1.79E+00
		1691.02		49.00	7.69E-01		2.28E-01	3.51E-01
	I-125	35.49		6.49	1.14E+01	1.14E+01	-5.36E+01	5.57E+00
	SB-125	176.33		6.89	1.77E+00	4.15E-01	-3.09E-02	8.69E-01
		427.89		29.33	4.15E-01		1.96E-01	2.01E-01
		463.38		10.35	1.13E+00		1.86E-01	5.45E-01
		600.56		17.80	6.92E-01		-8.83E-02	3.32E-01
		635.90		11.32	1.13E+00		4.22E-01	5.42E-01
	SB-126	414.70		83.30	3.35E+01	3.09E+01	-6.82E+00	1.62E+01
		666.33		99.60	3.67E+01		5.84E+01	1.77E+01
		695.00		99.60	3.09E+01		1.60E+01	1.48E+01
		720.50		53.80	6.21E+01		5.54E+01	2.98E+01
+	SN-126	87.57	*	37.00	2.94E-01	2.94E-01	6.31E-01	1.45E-01
	SB-127	473.00		25.00	2.04E+07	1.62E+07	-1.50E+06	9.85E+06
		685.20		35.70	1.62E+07		-6.23E+05	7.75E+06
		783.80		14.70	4.94E+07		1.77E+07	2.38E+07
	I-129	29.78		57.00	8.11E-01	8.11E-01	8.89E-01	3.96E-01
		33.60		13.20	3.07E+00		1.09E+01	1.51E+00
		39.58		7.52	2.29E+00		-1.48E-02	1.12E+00
	I-131	284.30		6.05	8.48E+03	5.83E+02	4.01E+03	4.14E+03
		364.48		81.20	5.83E+02		2.15E+01	2.82E+02
		636.97		7.26	7.77E+03		1.38E+03	3.72E+03
		722.89		1.80	3.53E+04		1.13E+04	1.69E+04
	TE-132	49.72		13.10	1.03E+09	1.45E+08	1.66E+08	5.06E+08
		228.16		88.00	1.45E+08		-1.33E+07	7.09E+07
	BA-133	81.00		33.00	2.97E-01	1.70E-01	2.32E-01	1.46E-01
		302.84		17.80	6.20E-01		-3.08E-01	3.02E-01
		356.01		60.00	1.70E-01		1.98E-02	8.24E-02
@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	XE-133	81.00		38.00	1.09E+05	1.09E+05	8.54E+04	5.38E+04
	CS-134	563.23		8.38	1.37E+00	1.53E-01	4.82E-01	6.54E-01
		569.32		15.43	7.57E-01		1.71E-01	3.63E-01
		604.70		97.60	1.53E-01		2.23E-02	7.40E-02
		795.84		85.40	1.81E-01		1.02E-01	8.67E-02
		801.93		8.73	1.60E+00		5.58E-02	7.65E-01
	CS-135	268.24		16.00	7.21E-01	7.21E-01	-4.54E-01	3.53E-01
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	2.70E+02	2.35E+01	1.77E+02	1.33E+02
		163.89		4.61	4.18E+02		2.98E+02	2.06E+02

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CS-136	176.55		13.56	1.48E+02	2.35E+01	-2.59E+00	7.27E+01
		273.65		12.66	1.58E+02		8.47E+01	7.71E+01
		340.57		48.50	4.07E+01		-9.74E+00	1.98E+01
		818.50		99.70	2.35E+01		-2.41E+00	1.12E+01
		1048.07		79.60	2.86E+01		-1.78E+01	1.35E+01
		1235.34		19.70	2.33E+02		4.96E+02	1.13E+02
	CS-137	661.65		85.12	1.46E-01	1.46E-01	1.77E-02	7.00E-02
	LA-138	788.74		34.00	4.46E-01	2.28E-01	2.64E-01	2.14E-01
		1435.80		66.00	2.28E-01		-2.54E-02	1.07E-01
	CE-139	165.85		80.35	2.18E-01	2.18E-01	1.74E-02	1.07E-01
	BA-140	162.64		6.70	3.32E+02	7.96E+01	-6.16E-01	1.63E+02
		304.84		4.50	4.93E+02		1.71E+02	2.40E+02
		423.70		3.20	7.15E+02		-4.15E+01	3.46E+02
		437.55		2.00	1.09E+03		6.81E+02	5.25E+02
		537.32		25.00	7.96E+01		-6.28E+01	3.80E+01
	LA-140	328.77		20.50	1.10E+02	3.88E+01	4.28E+01	5.34E+01
		487.03		45.50	4.71E+01		2.88E+01	2.26E+01
		815.85		23.50	1.15E+02		3.95E+01	5.47E+01
		1596.49		95.49	3.88E+01		1.73E+01	1.83E+01
	CE-141	145.44		48.40	1.91E+00	1.91E+00	1.48E+00	9.38E-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	9.33E-01	9.33E-01	-2.99E-01	4.57E-01
	PM-144	476.78		42.00	2.97E-01	1.44E-01	-1.73E-01	1.43E-01
		618.01		98.60	1.44E-01		8.59E-02	6.92E-02
		696.49		99.49	1.52E-01		1.66E-02	7.29E-02
	PM-145	36.85		21.70	9.77E-01	5.15E-01	-1.10E-01	4.78E-01
		37.36		39.70	5.15E-01		-1.89E-01	2.52E-01
		42.30		15.10	9.63E-01		5.49E-01	4.71E-01
		72.40		2.31	4.58E+00		-5.44E+01	2.26E+00
+	PM-146	453.90	*	39.94	4.42E-01	4.42E-01	2.80E-01	2.16E-01
		735.90		14.01	9.15E-01		1.68E-01	4.37E-01
		747.13		13.10	9.81E-01		-4.98E-01	4.69E-01
	ND-147	91.11		28.90	1.71E+02	1.71E+02	-1.17E+03	8.43E+01
		531.02		13.10	4.02E+02		7.93E+01	1.93E+02
	PM-149	285.90		3.10	7.92E+13	7.92E+13	-1.84E+13	3.86E+13
	EU-152	121.78		20.50	3.68E-01	3.68E-01	-1.20E-01	1.80E-01
		244.69		5.40	2.37E+00		2.77E-01	1.16E+00
		344.27		19.13	5.51E-01		-4.20E-01	2.67E-01
		778.89		9.20	1.46E+00		4.00E-01	6.99E-01
		964.01		10.40	1.62E+00		2.45E-01	7.76E-01
		1085.78		7.22	2.11E+00		5.15E-01	1.00E+00
		1112.02		9.60	1.50E+00		-1.55E-01	7.07E-01
		1407.95		14.94	1.48E+00		3.37E-01	7.06E-01
	GD-153	97.43		31.30	3.29E-01	3.29E-01	1.20E-01	1.61E-01
		103.18		22.20	4.38E-01		2.57E-01	2.14E-01
	EU-154	123.07		40.50	1.93E-01	1.93E-01	6.36E-02	9.47E-02
		723.30		19.70	6.97E-01		2.23E-01	3.34E-01
		873.19		11.50	1.26E+00		2.07E-01	6.01E-01
		996.32		10.30	1.41E+00		1.82E-01	6.67E-01
		1004.76		17.90	9.51E-01		4.11E-01	4.55E-01
		1274.45		35.50	3.88E-01		-1.56E-02	1.81E-01

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
+	EU-155	86.50	*	30.90	3.65E-01	3.60E-01	7.84E-01	1.80E-01
		105.30		20.70	3.60E-01		-1.18E-01	1.76E-01
	EU-156	811.77		10.40	1.05E+02	1.05E+02	-7.65E+00	4.98E+01
		1153.47		7.20	2.37E+02		2.97E+02	1.13E+02
		1230.71		8.90	1.37E+02		-1.68E+01	6.44E+01
	HO-166M	184.41		72.60	2.36E-01	2.36E-01	1.47E+00	1.17E-01
		280.45		29.60	3.62E-01		1.46E-01	1.76E-01
		410.94		11.10	1.03E+00		1.64E-01	4.97E-01
		711.69		54.10	2.40E-01		1.18E-01	1.15E-01
	TM-171	66.72		0.14	8.23E+01	8.23E+01	-2.56E+01	4.05E+01
	HF-172	67.35		5.31	2.22E+00	7.50E-01	1.75E+00	1.09E+00
		125.81		11.30	7.50E-01		-2.75E-02	3.67E-01
	LU-172	181.53		20.60	1.42E+04	5.80E+03	1.45E+03	6.98E+03
		900.72		29.81	1.29E+04		2.71E+03	6.17E+03
		1093.66		62.50	5.80E+03		-6.47E+02	2.74E+03
	LU-173	100.72		5.24	1.61E+00	6.55E-01	-2.34E-01	7.87E-01
		272.11		21.20	6.55E-01		-1.41E-01	3.21E-01
	HF-175	343.40		84.00	3.31E-01	3.31E-01	2.61E-02	1.61E-01
	LU-176	88.34		13.30	7.95E-01	1.12E-01	4.56E-01	3.92E-01
		201.83		86.00	1.31E-01		-3.09E-02	6.40E-02
		306.78		94.00	1.12E-01		7.52E-02	5.46E-02
	HF-181	133.02		41.70	9.57E-01	6.19E-01	3.51E-01	4.68E-01
		345.85		17.20	3.11E+00		3.10E-01	1.51E+00
		482.03		82.80	6.19E-01		1.92E-01	2.97E-01
	TA-182	67.75		41.20	4.68E-01	4.68E-01	3.69E-01	2.30E-01
		1121.30		34.90	2.03E+00		1.02E+01	9.96E-01
		1189.05		16.23	1.68E+00		1.98E-01	7.93E-01
		1221.41		26.98	1.06E+00		9.39E-02	5.02E-01
		1231.02		11.44	2.20E+00		-2.68E-01	1.03E+00
	IR-192	308.46		29.68	8.64E-01	5.70E-01	-2.31E-01	4.20E-01
		468.07		48.10	5.70E-01		1.03E-01	2.75E-01
	HG-203	279.19		77.30	5.86E-01	5.86E-01	-2.18E-01	2.86E-01
	TL-204	374.74		94.11	1.13E-01	1.13E-01	4.67E-04	5.49E-02
		899.15		99.16	1.57E-01		1.80E-02	7.48E-02
		911.74		91.10	2.12E-01		2.26E-01	1.02E-01
	BI-207	569.67		97.72	1.10E-01	1.10E-01	2.48E-02	5.26E-02
		1063.62		74.90	1.80E-01		-4.69E-02	8.50E-02
+	TL-208	583.14	*	30.22	5.98E-01	2.43E-01	1.00E+00	2.91E-01
		860.37	*	4.48	4.27E+00		3.27E+00	2.07E+00
		2614.66	*	35.85	2.43E-01		7.29E-01	1.04E-01
	BI-210M	262.00		45.00	2.36E-01	2.36E-01	-1.21E-01	1.15E-01
		300.00		23.00	4.79E-01		7.37E-02	2.33E-01
+	PB-210	46.50	*	4.25	5.28E+00	5.28E+00	1.02E+01	2.61E+00
	PB-211	404.84		2.90	4.02E+00	4.02E+00	-1.05E+00	1.95E+00
		831.96		2.90	4.48E+00		-7.94E-01	2.14E+00
+	BI-212	727.17	*	11.80	1.14E+00	1.14E+00	6.64E-01	5.45E-01
		1620.62		2.75	5.42E+00		2.60E+00	2.52E+00
	PB-212	238.63		44.60	3.53E-01	3.53E-01	8.16E-01	1.74E-01
		300.09		3.41	3.23E+00		4.97E-01	1.57E+00
+	BI-214	609.31	*	46.30	3.73E-01	3.73E-01	1.36E+01	1.82E-01
		1120.29	*	15.10	1.82E+00		1.35E+01	8.86E-01
		1764.49	*	15.80	1.20E+00		1.43E+01	5.66E-01
		2204.22	*	4.98	1.92E+00		1.50E+01	8.39E-01

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
+	PB-214	295.21	*	19.19	9.96E-01	4.46E-01	1.41E+01	4.91E-01
		351.92	*	37.19	4.46E-01		1.46E+01	2.19E-01
	RN-219	401.80		6.50	1.79E+00	1.79E+00	-2.80E-01	8.69E-01
	RA-223	323.87		3.88	2.78E+00	2.78E+00	7.47E-01	1.35E+00
	RA-224	240.98		3.95	5.22E+00	5.22E+00	3.46E+01	2.58E+00
	RA-225	40.00		31.00	5.35E+01	5.35E+01	-3.46E-01	2.62E+01
+	RA-226	186.21	*	3.28	5.80E+00	5.80E+00	3.00E+01	2.87E+00
	TH-227	50.10		8.40	1.36E+00	1.10E+00	2.18E-01	6.66E-01
		236.00		11.50	1.10E+00		-6.35E+00	5.38E-01
		256.20		6.30	1.73E+00		-2.66E-01	8.44E-01
+	AC-228	338.32	*	11.40	1.41E+00	6.94E-01	1.32E+00	6.91E-01
		911.07	*	27.70	6.94E-01		7.50E-01	3.35E-01
		969.11		16.60	1.04E+00		2.66E-01	4.99E-01
	TH-230	48.44		16.90	7.12E-01	7.12E-01	-2.27E+00	3.49E-01
		62.85		4.60	2.96E+00		1.13E+01	1.46E+00
		67.67		0.37	2.88E+01		2.27E+01	1.42E+01
	PA-231	283.67		1.60	6.77E+00	4.71E+00	3.20E+00	3.30E+00
		302.67		2.30	4.71E+00		-2.34E+00	2.30E+00
	TH-231	25.64		14.70	1.57E-01	1.57E-01	0.00E+00	0.00E+00
		84.21		6.40	1.55E+00		3.32E+00	7.65E-01
	PA-233	311.98		38.60	3.29E+00	3.29E+00	-9.37E-01	1.60E+00
	PA-234	131.20		20.40	3.84E-01	3.84E-01	-1.34E-01	1.88E-01
		733.99		8.80	1.42E+00		8.85E-01	6.78E-01
		946.00		12.00	1.17E+00		2.61E-01	5.59E-01
	PA-234M	1001.03		0.92	1.83E+01	1.83E+01	6.77E+00	8.75E+00
+	TH-234	63.29	*	3.80	6.00E+00	6.00E+00	1.27E+01	2.98E+00
	U-235	143.76		10.50	1.09E+00	1.09E+00	1.11E+00	5.34E-01
		163.35		4.70	2.33E+00		1.66E+00	1.14E+00
		205.31		4.70	2.39E+00		4.32E-01	1.17E+00
+	NP-237	86.50	*	12.60	8.63E-01	8.63E-01	1.85E+00	4.26E-01
	NP-239	106.10		22.70	1.12E+12	1.12E+12	-3.66E+11	5.46E+11
		228.18		10.70	3.58E+12		-3.28E+11	1.75E+12
		277.60		14.10	2.66E+12		-1.34E+12	1.29E+12
	AM-241	59.54		35.90	2.94E-01	2.94E-01	-1.31E-01	1.45E-01
	AM-243	74.67		66.00	2.20E-01	2.20E-01	-9.85E-01	1.09E-01
	CM-243	209.75		3.29	3.31E+00	7.65E-01	2.10E+00	1.62E+00
		228.14		10.60	1.04E+00		-9.47E-02	5.07E-01
		277.60		14.00	7.65E-01		-3.86E-01	3.73E-01

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

No Action Level results available for reporting purposes.

Analysis Report for 1707085-12

HTC-A02-S003-0612-01

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A02-S003-0612-01

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	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	138	222	259	271
33:	299	818	209	223	237	202	233	247
41:	199	238	230	199	256	311	672	286
49:	259	275	293	259	353	410	280	286
57:	292	333	329	379	399	425	690	924
65:	416	402	418	489	475	411	484	485
73:	427	522	1550	766	1828	1579	437	467
81:	429	398	364	611	453	337	725	710
89:	348	541	400	512	1162	465	363	271
97:	244	309	291	261	242	246	239	253
105:	210	253	239	245	250	237	236	255
113:	285	264	229	237	223	224	230	223
121:	218	247	225	254	233	258	222	232
129:	268	243	219	256	247	240	238	255
137:	261	258	248	249	252	247	251	402
145:	267	244	242	233	250	250	244	272
153:	245	286	281	238	257	266	230	208
161:	232	225	229	241	198	236	184	196
169:	196	220	209	210	199	214	216	209
177:	229	204	259	231	218	203	211	215
185:	344	1040	603	183	174	182	200	206
193:	207	177	226	185	184	184	188	167
201:	185	184	181	195	190	181	146	167
209:	172	161	166	137	142	176	159	150
217:	139	156	152	136	151	140	124	168
225:	138	149	142	152	161	123	154	141
233:	141	151	150	194	155	282	534	178
241:	296	1037	416	101	132	130	111	127
249:	115	105	105	109	107	103	115	142
257:	120	135	141	137	101	113	123	95
265:	116	115	97	103	154	181	170	116
273:	112	125	142	116	104	95	105	104
281:	99	105	109	96	94	122	92	107
289:	106	107	101	103	96	263	1707	1081
297:	107	92	90	134	105	80	105	99
305:	90	88	94	93	79	60	88	88
313:	82	87	92	86	88	69	75	67
321:	90	75	82	110	82	80	74	92
329:	98	94	81	80	96	77	78	85
337:	83	128	133	75	76	80	68	72
345:	78	65	93	79	87	114	877	3223
353:	812	68	59	71	52	70	62	59
361:	59	82	65	71	42	48	62	64

369:	55	84	57	65	65	57	69	54

Sample Title: HTC-A02-S003-0612-01

Channel								
377:	59	58	60	55	69	54	57	55
385:	55	71	102	76	105	90	58	63
393:	72	63	53	73	61	61	69	52
401:	66	96	69	79	80	68	62	64
409:	70	56	64	69	75	64	55	76
417:	69	73	65	45	63	69	64	49
425:	62	64	68	65	67	49	50	53
433:	62	43	47	61	57	51	48	43
441:	49	50	57	49	66	46	37	35
449:	51	48	39	56	47	51	83	61
457:	52	47	45	47	46	60	60	48
465:	41	50	50	41	53	57	51	48
473:	40	54	48	45	46	46	32	61
481:	48	33	33	36	40	41	62	43
489:	30	34	35	33	37	33	40	44
497:	38	34	42	26	31	38	43	26
505:	42	40	34	37	57	96	92	81
513:	49	45	37	35	36	42	31	40
521:	38	27	36	40	25	32	30	32
529:	38	37	32	39	51	46	36	33
537:	36	25	28	43	31	32	33	46
545:	26	38	33	31	27	34	23	22
553:	30	32	37	27	32	33	25	14
561:	39	45	30	29	27	31	39	35
569:	26	32	42	35	24	37	29	28
577:	32	32	19	52	32	63	117	78
585:	31	44	30	28	37	17	28	33
593:	31	39	40	29	26	23	24	23
601:	30	26	35	37	29	37	70	482
609:	1894	1180	86	34	22	26	24	34
617:	25	24	34	27	19	18	20	24
625:	19	23	23	31	19	34	21	29
633:	22	31	17	26	37	25	26	20
641:	22	25	20	26	16	26	19	20
649:	23	26	33	14	24	16	26	32
657:	21	29	26	25	25	24	22	33
665:	75	73	31	26	18	22	17	23
673:	22	23	15	14	24	10	24	24
681:	23	31	16	27	21	23	22	30
689:	24	27	23	25	28	29	23	19
697:	25	32	19	17	31	43	34	33
705:	27	23	28	20	25	22	29	28
713:	24	33	18	21	24	31	30	39
721:	24	26	28	16	25	31	39	30
729:	18	13	21	19	18	18	30	31
737:	21	20	17	27	42	24	25	22
745:	18	30	16	28	16	22	23	35
753:	14	34	18	28	25	17	19	20
761:	20	18	25	13	42	40	78	161
769:	124	28	19	18	20	22	26	24
777:	23	14	16	29	30	24	17	25
785:	49	44	40	18	21	20	18	27
793:	24	29	34	23	18	23	24	18

801:	15	16	22	25	41	54	41	14

Sample Title: HTC-A02-S003-0612-01

Channel								
809:	29	16	14	18	15	24	19	29
817:	24	19	20	20	20	22	27	18
825:	17	22	23	24	25	16	19	18
833:	12	25	16	25	19	31	41	31
841:	23	21	20	22	23	16	20	23
849:	23	22	18	17	16	16	16	17
857:	19	26	27	30	37	14	30	15
865:	20	12	21	17	17	17	31	21
873:	19	20	23	22	22	24	17	26
881:	21	20	26	19	25	18	25	25
889:	21	22	22	31	23	13	21	23
897:	30	20	24	16	24	22	27	23
905:	19	28	24	22	15	32	82	52
913:	21	21	20	23	17	24	18	15
921:	20	15	19	27	18	23	20	19
929:	14	13	28	21	63	115	51	16
937:	16	24	20	15	15	23	18	21
945:	16	21	14	19	25	12	11	19
953:	13	15	19	15	21	17	25	18
961:	20	21	24	30	37	30	26	29
969:	55	21	14	18	19	21	15	19
977:	6	12	19	14	26	18	19	17
985:	18	24	20	18	8	20	18	15
993:	16	17	22	18	20	13	16	35
1001:	47	24	18	23	22	21	14	16
1009:	19	14	16	14	18	14	21	10
1017:	15	17	9	16	13	12	19	12
1025:	16	15	15	12	18	10	13	11
1033:	13	15	17	15	9	13	20	14
1041:	7	12	18	11	10	21	18	10
1049:	14	8	23	15	11	20	14	11
1057:	22	17	17	8	11	18	12	17
1065:	21	10	14	15	12	22	23	11
1073:	14	14	7	15	21	13	16	23
1081:	9	18	17	19	14	16	18	17
1089:	19	10	20	14	16	9	14	20
1097:	14	13	19	11	11	12	19	13
1105:	15	18	17	11	11	12	19	15
1113:	21	12	16	19	31	57	175	338
1121:	187	32	17	11	13	20	9	10
1129:	22	10	17	19	16	20	15	16
1137:	16	10	19	12	17	14	15	9
1145:	12	18	10	14	15	17	14	11
1153:	21	39	51	29	17	11	9	20
1161:	12	11	14	13	18	12	8	17
1169:	17	12	11	14	18	18	14	9
1177:	17	5	6	17	12	13	14	14
1185:	12	14	9	17	18	12	20	14
1193:	13	9	15	16	8	17	12	16
1201:	9	6	15	5	12	10	19	21
1209:	8	9	18	15	16	10	15	11
1217:	12	30	18	13	5	13	12	17
1225:	18	11	11	9	16	14	8	10

1233:	13	16	11	41	81	131	51	13

Sample Title: HTC-A02-S003-0612-01

Channel								
1241:	11	5	10	15	18	8	10	13
1249:	16	17	18	18	20	10	13	15
1257:	9	7	13	13	9	12	11	11
1265:	10	9	11	10	11	18	14	8
1273:	9	13	10	4	14	12	17	35
1281:	43	20	6	15	8	10	9	15
1289:	10	11	11	9	9	8	13	8
1297:	11	13	8	5	12	16	7	9
1305:	11	6	10	9	6	8	11	12
1313:	7	14	14	8	10	10	15	11
1321:	17	14	8	12	5	10	7	7
1329:	10	5	4	13	8	12	12	7
1337:	11	9	7	12	5	13	11	9
1345:	10	11	5	5	11	5	8	5
1353:	14	11	13	9	6	2	13	8
1361:	13	6	10	15	12	12	6	9
1369:	14	6	8	7	14	6	18	42
1377:	67	53	24	14	6	8	7	24
1385:	17	16	14	7	10	9	14	3
1393:	6	8	5	6	10	10	16	14
1401:	23	26	9	5	17	18	38	45
1409:	21	7	8	11	10	14	8	9
1417:	12	11	4	9	7	6	11	7
1425:	9	10	9	5	12	13	7	11
1433:	14	6	11	8	6	7	5	7
1441:	6	9	10	3	9	8	9	7
1449:	11	11	8	5	14	11	10	12
1457:	20	47	94	174	159	52	12	12
1465:	7	8	8	6	10	6	7	7
1473:	8	10	9	8	9	8	10	11
1481:	13	7	10	7	9	6	9	5
1489:	7	7	3	12	8	8	14	10
1497:	10	7	17	9	10	9	13	13
1505:	9	7	15	36	35	24	12	6
1513:	13	11	12	12	8	3	7	6
1521:	8	9	6	10	7	6	9	4
1529:	16	6	8	10	14	10	14	10
1537:	16	17	14	6	10	12	13	12
1545:	8	7	10	2	11	5	3	6
1553:	5	6	8	9	5	5	3	7
1561:	3	7	3	13	9	4	6	4
1569:	4	10	6	3	3	6	12	3
1577:	3	5	6	11	11	16	19	9
1585:	9	8	4	12	4	10	8	15
1593:	21	11	5	4	10	8	13	9
1601:	9	2	6	9	9	4	4	6
1609:	4	5	9	9	5	6	3	6
1617:	8	10	5	8	10	6	5	2
1625:	6	5	1	1	3	6	10	4
1633:	7	3	4	4	4	3	5	2
1641:	4	2	2	1	3	3	5	3
1649:	5	3	5	5	7	6	3	5
1657:	6	4	7	18	21	12	6	9

1665:	3	8	2	6	1	0	3	0

Sample Title: HTC-A02-S003-0612-01

Channel								
1673:	2	3	3	3	1	1	1	2
1681:	6	6	5	4	4	2	3	3
1689:	2	5	4	6	9	3	2	2
1697:	1	3	6	2	2	3	2	1
1705:	0	2	2	0	2	1	3	6
1713:	5	5	2	6	0	4	1	2
1721:	1	3	2	3	2	3	15	39
1729:	37	36	11	3	1	2	4	3
1737:	2	3	5	4	5	1	2	6
1745:	5	3	5	1	1	5	1	3
1753:	3	3	7	3	3	3	6	11
1761:	14	57	137	205	132	20	5	2
1769:	1	1	1	3	5	1	1	2
1777:	3	4	3	2	3	4	4	4
1785:	3	2	1	0	2	1	1	4
1793:	3	3	4	3	4	0	2	1
1801:	3	2	2	1	1	4	4	3
1809:	3	3	2	2	1	2	2	2
1817:	5	3	2	3	3	2	6	1
1825:	3	2	0	3	2	2	2	7
1833:	3	5	4	5	5	10	5	2
1841:	2	4	2	6	15	18	24	10
1849:	3	2	1	3	3	1	1	0
1857:	1	4	2	2	3	1	2	4
1865:	0	1	1	2	3	2	1	2
1873:	6	6	5	2	3	0	2	2
1881:	1	6	1	2	1	1	4	1
1889:	4	3	1	5	4	5	6	3
1897:	7	3	5	4	4	3	1	3
1905:	2	1	3	1	1	0	4	3
1913:	1	6	6	1	3	2	4	2
1921:	4	3	4	2	3	2	3	3
1929:	1	2	3	2	1	3	3	3
1937:	1	3	2	5	3	0	6	3
1945:	4	2	4	1	1	2	4	0
1953:	2	2	3	4	3	2	2	2
1961:	0	0	2	2	0	1	1	1
1969:	3	2	2	2	1	2	1	3
1977:	1	1	0	1	2	0	3	1
1985:	2	3	0	1	3	1	0	1
1993:	2	2	0	1	2	0	4	1
2001:	0	2	6	1	2	3	2	2
2009:	1	3	2	1	1	2	2	3
2017:	7	1	1	3	5	4	1	0
2025:	0	1	3	1	1	1	1	2
2033:	2	1	1	2	3	2	0	1
2041:	2	1	3	1	0	1	3	3
2049:	1	0	1	1	0	0	1	6
2057:	1	0	1	0	2	3	1	2
2065:	2	0	2	1	0	3	1	1
2073:	1	2	1	3	1	0	1	2
2081:	2	1	0	2	1	3	1	1
2089:	1	1	1	3	0	1	0	2

2097:	4	2	1	2	3	2	4	2

Sample Title: HTC-A02-S003-0612-01

Channel								
2105:	3	0	0	1	1	2	2	2
2113:	2	3	3	5	5	11	7	2
2121:	0	0	1	0	1	2	1	1
2129:	1	0	1	0	4	0	1	1
2137:	0	0	1	0	2	0	1	2
2145:	0	1	3	1	2	1	1	0
2153:	0	3	2	0	1	2	1	3
2161:	4	2	1	1	1	1	1	0
2169:	1	0	1	1	1	2	2	1
2177:	3	1	0	2	2	0	1	3
2185:	1	1	1	1	1	1	0	2
2193:	1	1	2	0	1	3	2	7
2201:	12	31	47	45	17	4	2	1
2209:	0	0	2	3	1	0	0	2
2217:	1	1	2	0	2	1	1	1
2225:	0	0	3	0	5	2	0	0
2233:	1	1	1	0	0	2	0	2
2241:	0	0	2	0	0	0	0	2
2249:	1	1	1	1	1	0	2	1
2257:	1	2	2	0	1	0	1	3
2265:	1	3	4	1	1	0	1	0
2273:	0	2	1	0	0	1	0	2
2281:	1	2	1	0	2	1	0	0
2289:	3	4	3	5	3	4	0	0
2297:	1	0	0	0	0	0	0	2
2305:	1	4	2	0	0	0	3	1
2313:	2	0	2	0	0	1	1	0
2321:	0	3	2	3	2	1	1	0
2329:	1	1	3	0	0	2	0	0
2337:	1	0	1	2	1	1	1	0
2345:	0	0	0	1	1	2	1	2
2353:	2	0	0	2	2	2	1	1
2361:	1	0	0	0	1	1	1	0
2369:	2	1	1	1	1	1	1	0
2377:	0	1	0	1	0	0	3	0
2385:	2	0	0	0	0	0	0	0
2393:	0	1	0	0	1	1	1	0
2401:	2	0	0	0	0	0	0	0
2409:	0	1	0	0	3	0	0	0
2417:	0	0	0	1	1	1	0	0
2425:	0	0	0	1	0	2	2	1
2433:	1	0	0	1	0	0	0	0
2441:	1	1	3	1	10	15	14	10
2449:	2	1	0	1	1	0	3	0
2457:	0	0	2	1	0	0	0	1
2465:	2	0	1	0	1	0	0	2
2473:	1	0	0	0	0	0	0	0
2481:	0	0	2	0	1	2	0	0
2489:	0	0	0	0	1	1	0	0
2497:	0	0	0	0	1	0	0	1
2505:	2	0	0	0	0	0	0	1
2513:	0	0	0	0	1	1	0	1
2521:	0	0	0	1	1	0	1	0

2529:	0	0	0	1	0	1	0	0

Sample Title: HTC-A02-S003-0612-01

Channel								
2537:	0	0	0	0	0	0	0	0
2545:	1	0	0	0	0	0	0	0
2553:	0	0	3	0	0	0	1	0
2561:	1	1	1	1	0	1	0	1
2569:	0	1	0	0	3	0	0	0
2577:	0	1	1	0	1	0	2	2
2585:	0	0	0	0	1	2	0	0
2593:	0	0	0	0	1	0	0	0
2601:	0	0	0	1	0	1	0	3
2609:	1	0	4	10	18	15	14	0
2617:	1	0	0	0	0	1	1	0
2625:	2	0	0	0	1	2	0	0
2633:	0	0	0	0	0	0	0	1
2641:	1	1	1	0	1	1	0	0
2649:	0	1	0	2	0	1	0	0
2657:	0	1	0	0	0	0	1	1
2665:	0	0	0	1	0	1	0	0
2673:	0	1	0	0	0	1	0	0
2681:	0	0	0	1	0	0	0	0
2689:	0	0	2	0	0	1	0	0
2697:	1	0	0	0	0	0	0	0
2705:	0	2	1	0	0	0	0	1
2713:	1	1	0	1	1	0	0	0
2721:	0	0	1	0	0	0	1	1
2729:	0	0	0	0	0	0	0	0
2737:	0	0	0	0	0	0	1	0
2745:	0	0	1	0	1	1	0	0
2753:	0	0	0	0	0	0	0	1
2761:	0	0	1	0	0	2	0	1
2769:	1	0	0	0	1	1	1	0
2777:	1	0	0	0	0	0	0	0
2785:	1	0	0	0	0	0	0	0
2793:	0	0	0	0	0	0	0	0
2801:	0	0	0	0	0	0	0	0
2809:	0	0	0	1	0	0	0	1
2817:	1	0	0	2	0	0	0	0
2825:	0	1	0	0	0	0	0	0
2833:	2	0	0	1	0	0	0	0
2841:	1	0	1	1	0	1	0	0
2849:	0	0	0	0	1	1	0	0
2857:	0	0	0	0	0	0	0	0
2865:	1	0	0	1	0	1	0	0
2873:	0	0	0	1	1	0	0	0
2881:	0	0	1	0	0	1	1	1
2889:	0	1	0	1	0	0	0	0
2897:	0	0	0	1	0	0	0	0
2905:	0	0	1	0	1	0	1	0
2913:	0	0	0	0	0	0	0	2
2921:	0	0	0	0	0	0	0	0
2929:	0	0	0	3	0	0	0	0
2937:	0	0	0	2	0	0	1	0
2945:	1	0	0	0	1	1	0	0
2953:	0	0	0	0	1	0	0	0

2961:	0	0	0	0	0	0	1	0

Sample Title: HTC-A02-S003-0612-01

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

3393:	0	0	0	1	0	0	0	0

Sample Title: HTC-A02-S003-0612-01

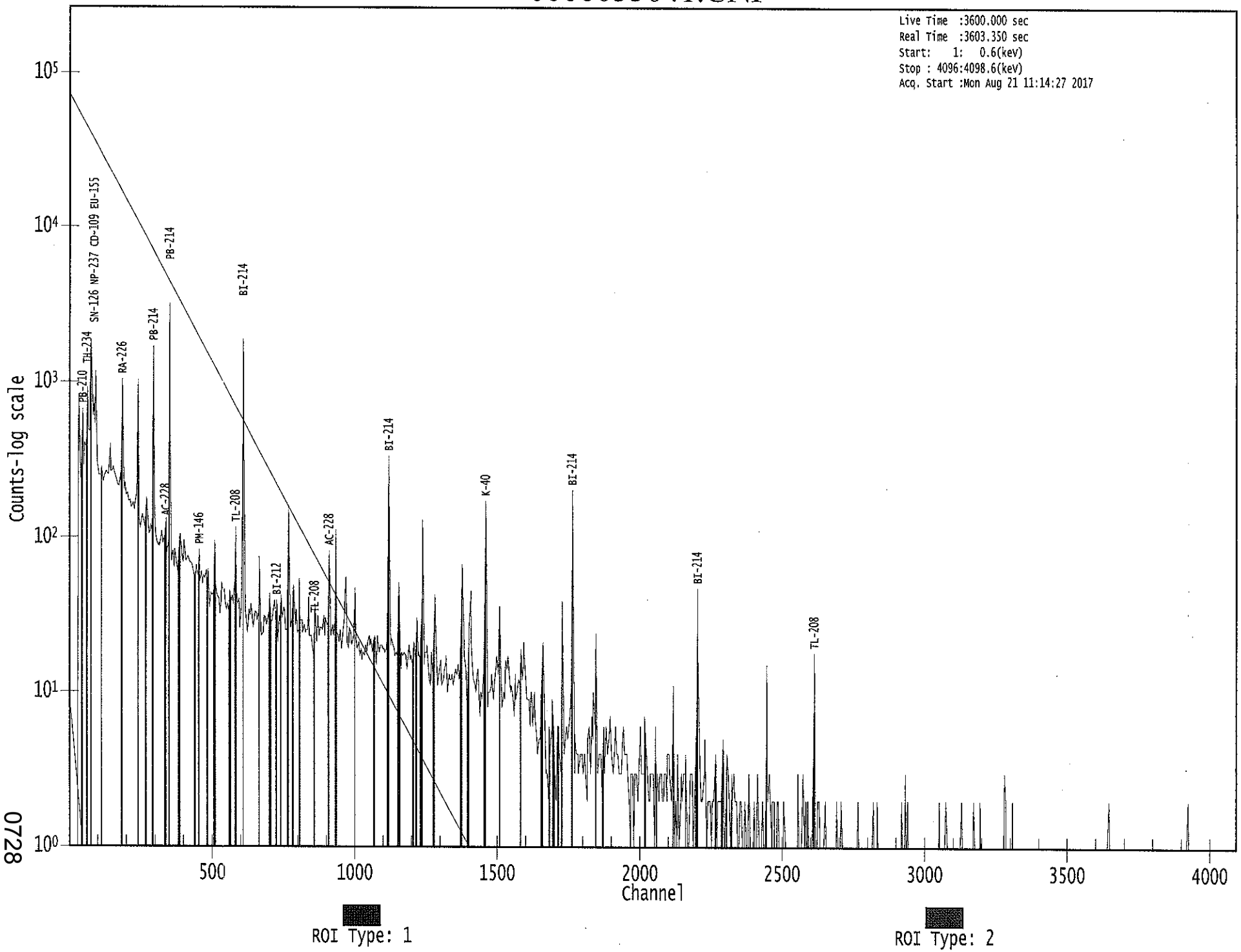
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	1	0	0
3425:	0	0	0	0	0	0	0	0
3433:	1	0	0	0	1	0	0	0
3441:	1	0	1	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	1	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	1	0	0	0	0
3489:	0	0	0	0	0	1	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	1	0	0	0	1	0	0

Sample Title: HTC-A02-S003-0612-01

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

0000055641.CNF



0728

Apex-Gamma

Analysis Report for 1707085-13

HTC-A02-S003-1218-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707085-13
Sample Description	: HTC-A02-S003-1218-01
Sample Type	: SOIL
Sample Size	: 4.989E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 8:11:29AM
Acquisition Started	: 8/21/2017 11:15:20AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3601.4 seconds
Dead Time	: 0.04 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 19 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55630

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/22/17

Analysis Report for 1707085-13

HTC-A02-S003-1218-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 12:15:24PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	46.00	46.62	0.0000	0.00
2	63.18	63.79	0.0000	0.00
3	74.69	75.29	0.0000	0.00
4	77.25	77.84	0.0000	0.00
5	87.57	88.15	0.0000	0.00
6	92.27	92.85	0.0000	0.00
7	130.50	131.03	0.0000	0.00
8	185.66	186.14	0.0000	0.00
9	234.12	234.55	0.0000	0.00
10	238.62	239.04	0.0000	0.00
11	241.58	242.00	0.0000	0.00
12	270.32	270.72	0.0000	0.00
13	295.26	295.63	0.0000	0.00
14	300.02	300.38	0.0000	0.00
15	327.94	328.27	0.0000	0.00
16	338.22	338.54	0.0000	0.00
17	348.99	349.30	0.0000	0.00
18	351.99	352.30	0.0000	0.00
19	394.08	394.35	0.0000	0.00
20	438.69	438.92	0.0000	0.00
21	464.86	465.05	0.0000	0.00
22	511.05	511.20	0.0000	0.00
23	583.33	583.41	0.0000	0.00
24	599.07	599.13	0.0000	0.00
25	609.48	609.53	0.0000	0.00
26	723.26	723.19	0.0000	0.00
27	727.26	727.19	0.0000	0.00
28	756.37	756.28	0.0000	0.00
29	768.64	768.53	0.0000	0.00
30	795.67	795.54	0.0000	0.00
31	861.43	861.23	0.0000	0.00
32	911.63	911.38	0.0000	0.00
33	933.85	933.58	0.0000	0.00
34	965.10	964.80	0.0000	0.00
35	969.41	969.10	0.0000	0.00
36	1059.95	1059.55	0.0000	0.00
37	1072.17	1071.76	0.0000	0.00
38	1097.48	1097.04	0.0000	0.00
39	1120.99	1120.53	0.0000	0.00
40	1193.55	1193.02	0.0000	0.00
41	1238.13	1237.56	0.0000	0.00
42	1242.02	1241.44	0.0000	0.00

Analysis Report for 1707085-13

HTC-A02-S003-1218-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1264.31	1263.71	0.0000	0.00
44	1319.49	1318.83	0.0000	0.00
45	1339.46	1338.79	0.0000	0.00
46	1378.16	1377.45	0.0000	0.00
47	1389.13	1388.41	0.0000	0.00
48	1405.92	1405.18	0.0000	0.00
49	1461.35	1460.56	0.0000	0.00
50	1465.55	1464.75	0.0000	0.00
51	1510.24	1509.40	0.0000	0.00
52	1588.42	1587.50	0.0000	0.00
53	1620.51	1619.56	0.0000	0.00
54	1630.28	1629.31	0.0000	0.00
55	1660.57	1659.58	0.0000	0.00
56	1684.79	1683.78	0.0000	0.00
57	1688.79	1687.78	0.0000	0.00
58	1730.38	1729.32	0.0000	0.00
59	1765.13	1764.03	0.0000	0.00
60	1847.90	1846.73	0.0000	0.00
61	1926.78	1925.53	0.0000	0.00
62	1945.00	1943.73	0.0000	0.00
63	2033.35	2032.00	0.0000	0.00
64	2096.20	2094.79	0.0000	0.00
65	2103.42	2102.00	0.0000	0.00
66	2118.24	2116.80	0.0000	0.00
67	2134.17	2132.72	0.0000	0.00
68	2159.87	2158.40	0.0000	0.00
69	2204.88	2203.36	0.0000	0.00
70	2254.47	2252.90	0.0000	0.00
71	2615.29	2613.38	0.0000	0.00
72	2705.19	2703.20	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707085-13

HTC-A02-S003-1218-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 12:15:24PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	46.00	43 -	49	46.62	1.05E+02	81.12	1.13E+03	1.57
	2	63.18	61 -	66	63.79	1.75E+02	92.82	1.59E+03	1.32
M	3	74.69	71 -	82	75.29	4.08E+02	92.41	1.31E+03	1.81
m	4	77.25	71 -	82	77.84	6.25E+02	99.32	1.24E+03	1.82
m	5	87.57	83 -	97	88.15	2.17E+02	78.33	1.08E+03	1.67
m	6	92.27	83 -	97	92.85	3.11E+02	81.55	1.05E+03	1.67
	7	130.50	127 -	134	131.03	8.75E+01	85.14	1.14E+03	3.85
	8	185.66	182 -	189	186.14	2.59E+02	82.29	9.55E+02	1.85
M	9	234.12	233 -	246	234.55	4.17E+01	31.84	2.81E+02	2.20
m	10	238.62	233 -	246	239.04	9.30E+02	76.56	4.19E+02	1.63
m	11	241.58	233 -	246	242.00	2.44E+02	85.05	5.36E+02	2.21
	12	270.32	268 -	274	270.72	8.64E+01	49.39	3.85E+02	1.51
M	13	295.26	291 -	306	295.63	3.43E+02	53.34	3.00E+02	1.89
m	14	300.02	291 -	306	300.38	1.38E+02	50.28	3.17E+02	2.49
	15	327.94	324 -	331	328.27	4.86E+01	52.54	4.27E+02	2.32
	16	338.22	335 -	343	338.54	1.67E+02	58.34	4.26E+02	2.17
M	17	348.99	348 -	355	349.30	2.10E+01	23.60	1.40E+02	1.68
m	18	351.99	348 -	355	352.30	5.19E+02	55.68	2.26E+02	1.76
	19	394.08	391 -	397	394.35	3.64E+01	40.09	2.65E+02	2.90
	20	438.69	434 -	445	438.92	6.14E+01	52.42	3.15E+02	4.91
	21	464.86	461 -	471	465.05	9.94E+01	52.10	3.11E+02	2.24
	22	511.05	507 -	515	511.20	1.87E+02	49.99	2.68E+02	2.16
	23	583.33	578 -	588	583.41	3.31E+02	58.86	2.85E+02	2.06
	24	599.07	594 -	603	599.13	3.53E+01	41.34	2.22E+02	2.51
	25	609.48	604 -	615	609.53	3.96E+02	63.18	3.04E+02	2.10
M	26	723.26	722 -	730	723.19	1.87E+01	12.37	3.93E+01	2.11
m	27	727.26	722 -	730	727.19	6.86E+01	29.27	1.10E+02	2.12
	28	756.37	754 -	759	756.28	3.41E+01	22.07	7.17E+01	3.12
	29	768.64	765 -	771	768.53	3.03E+01	32.87	1.73E+02	1.82
	30	795.67	792 -	800	795.54	4.82E+01	32.98	1.34E+02	1.96
	31	861.43	857 -	868	861.23	4.53E+01	42.71	2.09E+02	2.23
	32	911.63	907 -	915	911.38	1.71E+02	44.03	1.93E+02	1.93
	33	933.85	930 -	937	933.58	2.20E+01	27.57	1.12E+02	1.70
M	34	965.10	959 -	974	964.80	3.99E+01	26.20	8.56E+01	2.22
m	35	969.41	959 -	974	969.10	9.84E+01	31.02	8.87E+01	2.22
	36	1059.95	1056 -	1063	1059.55	2.46E+01	25.92	9.49E+01	2.93
	37	1072.17	1068 -	1075	1071.76	1.97E+01	24.08	8.25E+01	1.29
	38	1097.48	1094 -	1100	1097.04	1.95E+01	23.63	8.69E+01	1.41
	39	1120.99	1116 -	1126	1120.53	9.75E+01	38.24	1.43E+02	2.05
	40	1193.55	1190 -	1196	1193.02	2.61E+01	24.55	8.97E+01	3.24

Analysis Report for 1707085-13

HTC-A02-S003-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	41	1238.13	1234	1247	1237.56	2.97E+01	30.98	1.38E+02	2.56
m	42	1242.02	1234	1247	1241.44	2.43E+01	30.53	1.25E+02	2.56
	43	1264.31	1261	1266	1263.71	2.14E+01	18.36	4.92E+01	1.27
M	44	1319.49	1316	1342	1318.83	2.02E+01	12.41	2.00E+01	2.36
m	45	1339.46	1316	1342	1338.79	1.35E+01	15.17	2.80E+01	2.36
	46	1378.16	1373	1381	1377.45	3.14E+01	18.16	3.12E+01	1.57
	47	1389.13	1383	1396	1388.41	2.91E+01	22.32	4.38E+01	6.95
	48	1405.92	1398	1415	1405.18	4.00E+01	27.46	5.40E+01	8.83
M	49	1461.35	1454	1471	1460.56	1.02E+03	65.38	2.80E+01	2.23
m	50	1465.55	1454	1471	1464.75	2.79E+01	49.80	3.20E+01	2.65
	51	1510.24	1505	1513	1509.40	2.11E+01	12.99	1.18E+01	3.75
	52	1588.42	1584	1590	1587.50	1.94E+01	14.48	2.33E+01	3.40
	53	1620.51	1615	1622	1619.56	9.00E+00	11.49	1.60E+01	1.47
	54	1630.28	1627	1633	1629.31	7.31E+00	9.42	1.14E+01	1.17
	55	1660.57	1656	1662	1659.58	9.32E+00	7.50	3.36E+00	2.65
M	56	1684.79	1679	1691	1683.78	1.04E+01	10.43	1.19E+01	2.48
m	57	1688.79	1679	1691	1687.78	9.17E+00	9.84	4.15E+00	2.48
	58	1730.38	1725	1734	1729.32	1.21E+01	14.73	2.19E+01	1.18
	59	1765.13	1758	1768	1764.03	5.12E+01	24.01	4.96E+01	2.05
	60	1847.90	1843	1850	1846.73	1.79E+01	9.80	4.20E+00	1.98
	61	1926.78	1921	1928	1925.53	6.89E+00	7.21	4.22E+00	1.38
	62	1945.00	1942	1946	1943.73	6.14E+00	5.85	1.71E+00	2.49
	63	2033.35	2029	2034	2032.00	7.00E+00	5.29	0.00E+00	2.99
	64	2096.20	2092	2097	2094.79	5.89E+00	7.35	6.22E+00	2.91
	65	2103.42	2098	2107	2102.00	1.50E+01	14.14	2.00E+01	1.99
	66	2118.24	2113	2123	2116.80	1.12E+01	14.59	2.36E+01	1.26
	67	2134.17	2130	2135	2132.72	7.39E+00	6.71	3.22E+00	1.89
	68	2159.87	2154	2161	2158.40	7.95E+00	7.48	4.10E+00	3.10
	69	2204.88	2199	2208	2203.36	2.18E+01	16.16	2.43E+01	2.27
	70	2254.47	2248	2258	2252.90	1.37E+01	9.71	4.69E+00	4.97
	71	2615.29	2610	2617	2613.38	9.93E+01	20.49	3.37E+00	2.52
	72	2705.19	2699	2705	2703.20	5.00E+00	4.47	0.00E+00	2.31

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 12:15:24PM

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

Analysis Report for 1707085-13

HTC-A02-S003-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	46.00	43 -	49	1.05E+02	81.12	1.13E+03	6.45E+01
	2	63.18	61 -	66	1.75E+02	92.82	1.59E+03	7.31E+01
M	3	74.69	71 -	82	4.08E+02	92.41	1.31E+03	5.96E+01
m	4	77.25	71 -	82	6.25E+02	99.32	1.24E+03	5.79E+01
m	5	87.57	83 -	97	2.17E+02	78.33	1.08E+03	5.41E+01
m	6	92.27	83 -	97	3.11E+02	81.55	1.05E+03	5.33E+01
	7	130.50	127 -	134	8.75E+01	85.14	1.14E+03	6.83E+01
	8	185.66	182 -	189	2.59E+02	82.29	9.55E+02	3.13E+01
M	9	234.12	233 -	246	4.17E+01	31.84	2.81E+02	2.76E+01
m	10	238.62	233 -	246	9.30E+02	76.56	4.19E+02	3.37E+01
m	11	241.58	233 -	246	2.44E+02	85.05	5.36E+02	3.81E+01
	12	270.32	268 -	274	8.64E+01	49.39	3.85E+02	3.76E+01
M	13	295.26	291 -	306	3.43E+02	53.34	3.00E+02	2.85E+01
m	14	300.02	291 -	306	1.38E+02	50.28	3.17E+02	2.93E+01
	15	327.94	324 -	331	4.86E+01	52.54	4.27E+02	4.16E+01
	16	338.22	335 -	343	1.67E+02	58.34	4.26E+02	4.30E+01
M	17	348.99	348 -	355	2.10E+01	23.60	1.40E+02	1.95E+01
m	18	351.99	348 -	355	5.19E+02	55.68	2.26E+02	2.47E+01
	19	394.08	391 -	397	3.64E+01	40.09	2.65E+02	3.14E+01
	20	438.69	434 -	445	6.14E+01	52.42	3.15E+02	4.11E+01
	21	464.86	461 -	471	9.94E+01	52.10	3.11E+02	3.96E+01
	22	511.05	507 -	515	1.87E+02	49.99	2.68E+02	3.44E+01
	23	583.33	578 -	588	3.31E+02	58.86	2.85E+02	3.81E+01
	24	599.07	594 -	603	3.53E+01	41.34	2.22E+02	3.25E+01
	25	609.48	604 -	615	3.96E+02	63.18	3.04E+02	4.03E+01
M	26	723.26	722 -	730	1.87E+01	12.37	3.93E+01	1.03E+01
m	27	727.26	722 -	730	6.86E+01	29.27	1.10E+02	1.72E+01
	28	756.37	754 -	759	3.41E+01	22.07	7.17E+01	1.54E+01
	29	768.64	765 -	771	3.03E+01	32.87	1.73E+02	2.55E+01
	30	795.67	792 -	800	4.82E+01	32.98	1.34E+02	2.46E+01
	31	861.43	857 -	868	4.53E+01	42.71	2.09E+02	3.33E+01
	32	911.63	907 -	915	1.71E+02	44.03	1.93E+02	2.91E+01
	33	933.85	930 -	937	2.20E+01	27.57	1.12E+02	2.13E+01
M	34	965.10	959 -	974	3.99E+01	26.20	8.56E+01	1.52E+01
m	35	969.41	959 -	974	9.84E+01	31.02	8.87E+01	1.55E+01
	36	1059.95	1056 -	1063	2.46E+01	25.92	9.49E+01	1.97E+01
	37	1072.17	1068 -	1075	1.97E+01	24.08	8.25E+01	1.84E+01
	38	1097.48	1094 -	1100	1.95E+01	23.63	8.69E+01	1.80E+01
	39	1120.99	1116 -	1126	9.75E+01	38.24	1.43E+02	2.69E+01
	40	1193.55	1190 -	1196	2.61E+01	24.55	8.97E+01	1.83E+01
M	41	1238.13	1234 -	1247	2.97E+01	30.98	1.38E+02	1.93E+01
m	42	1242.02	1234 -	1247	2.43E+01	30.53	1.25E+02	1.84E+01
	43	1264.31	1261 -	1266	2.14E+01	18.36	4.92E+01	1.30E+01
M	44	1319.49	1316 -	1342	2.02E+01	12.41	2.00E+01	7.35E+00
m	45	1339.46	1316 -	1342	1.35E+01	15.17	2.80E+01	8.70E+00
	46	1378.16	1373 -	1381	3.14E+01	18.16	3.12E+01	1.17E+01
	47	1389.13	1383 -	1396	2.91E+01	22.32	4.38E+01	1.61E+01
	48	1405.92	1398 -	1415	4.00E+01	27.46	5.40E+01	2.00E+01
M	49	1461.35	1454 -	1471	1.02E+03	65.38	2.80E+01	8.70E+00
m	50	1465.55	1454 -	1471	2.79E+01	49.80	3.20E+01	9.30E+00
	51	1510.24	1505 -	1513	2.11E+01	12.99	1.18E+01	7.55E+00

Analysis Report for 1707085-13

HTC-A02-S003-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	52	1588.42	1584 -	1590	1.94E+01	14.48	2.33E+01	9.46E+00
	53	1620.51	1615 -	1622	9.00E+00	11.49	1.60E+01	8.05E+00
	54	1630.28	1627 -	1633	7.31E+00	9.42	1.14E+01	6.34E+00
	55	1660.57	1656 -	1662	9.32E+00	7.50	3.36E+00	3.58E+00
M	56	1684.79	1679 -	1691	1.04E+01	10.43	1.19E+01	5.67E+00
m	57	1688.79	1679 -	1691	9.17E+00	9.84	4.15E+00	3.35E+00
	58	1730.38	1725 -	1734	1.21E+01	14.73	2.19E+01	1.07E+01
	59	1765.13	1758 -	1768	5.12E+01	24.01	4.96E+01	1.58E+01
	60	1847.90	1843 -	1850	1.79E+01	9.80	4.20E+00	4.06E+00
	61	1926.78	1921 -	1928	6.89E+00	7.21	4.22E+00	4.06E+00
	62	1945.00	1942 -	1946	6.14E+00	5.85	1.71E+00	2.56E+00
	63	2033.35	2029 -	2034	7.00E+00	5.29	0.00E+00	0.00E+00
	64	2096.20	2092 -	2097	5.89E+00	7.35	6.22E+00	4.54E+00
	65	2103.42	2098 -	2107	1.50E+01	14.14	2.00E+01	9.73E+00
	66	2118.24	2113 -	2123	1.12E+01	14.59	2.36E+01	1.07E+01
	67	2134.17	2130 -	2135	7.39E+00	6.71	3.22E+00	3.23E+00
	68	2159.87	2154 -	2161	7.95E+00	7.48	4.10E+00	4.04E+00
	69	2204.88	2199 -	2208	2.18E+01	16.16	2.43E+01	1.08E+01
	70	2254.47	2248 -	2258	1.37E+01	9.71	4.69E+00	5.17E+00
	71	2615.29	2610 -	2617	9.93E+01	20.49	3.37E+00	3.92E+00
	72	2705.19	2699 -	2705	5.00E+00	4.47	0.00E+00	0.00E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/21/2017 12:15:24PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	46.00	43 -	49	46.62	1.05E+02	81.12	1.13E+03	PB-210
	2	63.18	61 -	66	63.79	1.75E+02	92.82	1.59E+03	TH-234 TH-230
M	3	74.69	71 -	82	75.29	4.08E+02	92.41	1.31E+03	AM-243

Analysis Report for 1707085-13

HTC-A02-S003-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
m	4	77.25	71 -	82	77.84	6.25E+02	99.32	1.24E+03	.....
m	5	87.57	83 -	97	88.15	2.17E+02	78.33	1.08E+03	SN-126
									CD-109
									LU-176
m	6	92.27	83 -	97	92.85	3.11E+02	81.55	1.05E+03	.....
	7	130.50	127 -	134	131.03	8.75E+01	85.14	1.14E+03	PA-234
	8	185.66	182 -	189	186.14	2.59E+02	82.29	9.55E+02	RA-226
M	9	234.12	233 -	246	234.55	4.17E+01	31.84	2.81E+02	.....
m	10	238.62	233 -	246	239.04	9.30E+02	76.56	4.19E+02	PB-212
m	11	241.58	233 -	246	242.00	2.44E+02	85.05	5.36E+02	RA-224
	12	270.32	268 -	274	270.72	8.64E+01	49.39	3.85E+02	.....
M	13	295.26	291 -	306	295.63	3.43E+02	53.34	3.00E+02	PB-214
m	14	300.02	291 -	306	300.38	1.38E+02	50.28	3.17E+02	BI-210M
									PB-212
									GA-67
	15	327.94	324 -	331	328.27	4.86E+01	52.54	4.27E+02	LA-140
	16	338.22	335 -	343	338.54	1.67E+02	58.34	4.26E+02	AC-228
M	17	348.99	348 -	355	349.30	2.10E+01	23.60	1.40E+02	.....
m	18	351.99	348 -	355	352.30	5.19E+02	55.68	2.26E+02	PB-214
	19	394.08	391 -	397	394.35	3.64E+01	40.09	2.65E+02	.....
	20	438.69	434 -	445	438.92	6.14E+01	52.42	3.15E+02	.....
	21	464.86	461 -	471	465.05	9.94E+01	52.10	3.11E+02	.....
	22	511.05	507 -	515	511.20	1.87E+02	49.99	2.68E+02	.....
	23	583.33	578 -	588	583.41	3.31E+02	58.86	2.85E+02	TL-208
	24	599.07	594 -	603	599.13	3.53E+01	41.34	2.22E+02	.....
	25	609.48	604 -	615	609.53	3.96E+02	63.18	3.04E+02	BI-214
M	26	723.26	722 -	730	723.19	1.87E+01	12.37	3.93E+01	EU-154
									AG-108M
									I-131
									SB-124
									ZR-95
m	27	727.26	722 -	730	727.19	6.86E+01	29.27	1.10E+02	BI-212
	28	756.37	754 -	759	756.28	3.41E+01	22.07	7.17E+01	ZR-95
	29	768.64	765 -	771	768.53	3.03E+01	32.87	1.73E+02	.....
	30	795.67	792 -	800	795.54	4.82E+01	32.98	1.34E+02	CS-134
	31	861.43	857 -	868	861.23	4.53E+01	42.71	2.09E+02	.....
	32	911.63	907 -	915	911.38	1.71E+02	44.03	1.93E+02	TL-204
									AC-228
	33	933.85	930 -	937	933.58	2.20E+01	27.57	1.12E+02	.....
M	34	965.10	959 -	974	964.80	3.99E+01	26.20	8.56E+01	.....
m	35	969.41	959 -	974	969.10	9.84E+01	31.02	8.87E+01	AC-228
	36	1059.95	1056 -	1063	1059.55	2.46E+01	25.92	9.49E+01	.....
	37	1072.17	1068 -	1075	1071.76	1.97E+01	24.08	8.25E+01	.....
	38	1097.48	1094 -	1100	1097.04	1.95E+01	23.63	8.69E+01	.....
	39	1120.99	1116 -	1126	1120.53	9.75E+01	38.24	1.43E+02	TA-182
									SC-46
									BI-214
	40	1193.55	1190 -	1196	1193.02	2.61E+01	24.55	8.97E+01	.....
M	41	1238.13	1234 -	1247	1237.56	2.97E+01	30.98	1.38E+02	CO-56
m	42	1242.02	1234 -	1247	1241.44	2.43E+01	30.53	1.25E+02	.....
	43	1264.31	1261 -	1266	1263.71	2.14E+01	18.36	4.92E+01	.....
M	44	1319.49	1316 -	1342	1318.83	2.02E+01	12.41	2.00E+01	.....
m	45	1339.46	1316 -	1342	1338.79	1.35E+01	15.17	2.80E+01	.....
	46	1378.16	1373 -	1381	1377.45	3.14E+01	18.16	3.12E+01	.....

Analysis Report for 1707085-13

HTC-A02-S003-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	47	1389.13	1383 -	1396	1388.41	2.91E+01	22.32	4.38E+01	.....
	48	1405.92	1398 -	1415	1405.18	4.00E+01	27.46	5.40E+01	.....
M	49	1461.35	1454 -	1471	1460.56	1.02E+03	65.38	2.80E+01	K-40
m	50	1465.55	1454 -	1471	1464.75	2.79E+01	49.80	3.20E+01	.....
	51	1510.24	1505 -	1513	1509.40	2.11E+01	12.99	1.18E+01	.....
	52	1588.42	1584 -	1590	1587.50	1.94E+01	14.48	2.33E+01	.....
	53	1620.51	1615 -	1622	1619.56	9.00E+00	11.49	1.60E+01	BI-212
	54	1630.28	1627 -	1633	1629.31	7.31E+00	9.42	1.14E+01	.....
	55	1660.57	1656 -	1662	1659.58	9.32E+00	7.50	3.36E+00	.....
M	56	1684.79	1679 -	1691	1683.78	1.04E+01	10.43	1.19E+01	.....
m	57	1688.79	1679 -	1691	1687.78	9.17E+00	9.84	4.15E+00	.....
	58	1730.38	1725 -	1734	1729.32	1.21E+01	14.73	2.19E+01	.....
	59	1765.13	1758 -	1768	1764.03	5.12E+01	24.01	4.96E+01	BI-214
	60	1847.90	1843 -	1850	1846.73	1.79E+01	9.80	4.20E+00	.....
	61	1926.78	1921 -	1928	1925.53	6.89E+00	7.21	4.22E+00	.....
	62	1945.00	1942 -	1946	1943.73	6.14E+00	5.85	1.71E+00	.....
	63	2033.35	2029 -	2034	2032.00	7.00E+00	5.29	0.00E+00	.....
	64	2096.20	2092 -	2097	2094.79	5.89E+00	7.35	6.22E+00	.....
	65	2103.42	2098 -	2107	2102.00	1.50E+01	14.14	2.00E+01	.....
	66	2118.24	2113 -	2123	2116.80	1.12E+01	14.59	2.36E+01	.....
	67	2134.17	2130 -	2135	2132.72	7.39E+00	6.71	3.22E+00	.....
	68	2159.87	2154 -	2161	2158.40	7.95E+00	7.48	4.10E+00	.....
	69	2204.88	2199 -	2208	2203.36	2.18E+01	16.16	2.43E+01	BI-214
	70	2254.47	2248 -	2258	2252.90	1.37E+01	9.71	4.69E+00	.....
	71	2615.29	2610 -	2617	2613.38	9.93E+01	20.49	3.37E+00	TL-208
	72	2705.19	2699 -	2705	2703.20	5.00E+00	4.47	0.00E+00	.....

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/21/2017 12:15:24PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.00	1.05E+02	81.12	2.45E-02	2.22E-03
	2	63.18	1.75E+02	92.82	2.70E-02	2.26E-03
M	3	74.69	4.08E+02	92.41	2.75E-02	2.38E-03
m	4	77.25	6.25E+02	99.32	2.75E-02	2.41E-03

Analysis Report for 1707085-13

HTC-A02-S003-1218-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	5	87.57	2.17E+02	78.33	2.74E-02	2.52E-03
m	6	92.27	3.11E+02	81.55	2.73E-02	2.45E-03
	7	130.50	8.75E+01	85.14	2.53E-02	1.93E-03
	8	185.66	2.59E+02	82.29	2.17E-02	1.68E-03
M	9	234.12	4.17E+01	31.84	1.91E-02	1.54E-03
m	10	238.62	9.30E+02	76.56	1.89E-02	1.53E-03
m	11	241.58	2.44E+02	85.05	1.87E-02	1.52E-03
	12	270.32	8.64E+01	49.39	1.74E-02	1.43E-03
M	13	295.26	3.43E+02	53.34	1.64E-02	1.37E-03
m	14	300.02	1.38E+02	50.28	1.63E-02	1.36E-03
	15	327.94	4.86E+01	52.54	1.53E-02	1.29E-03
	16	338.22	1.67E+02	58.34	1.50E-02	1.27E-03
M	17	348.99	2.10E+01	23.60	1.46E-02	1.24E-03
m	18	351.99	5.19E+02	55.68	1.45E-02	1.24E-03
	19	394.08	3.64E+01	40.09	1.34E-02	1.14E-03
	20	438.69	6.14E+01	52.42	1.24E-02	1.11E-03
	21	464.86	9.94E+01	52.10	1.18E-02	1.10E-03
	22	511.05	1.87E+02	49.99	1.10E-02	1.07E-03
	23	583.33	3.31E+02	58.86	9.96E-03	1.02E-03
	24	599.07	3.53E+01	41.34	9.76E-03	1.01E-03
	25	609.48	3.96E+02	63.18	9.63E-03	1.01E-03
M	26	723.26	1.87E+01	12.37	8.45E-03	8.74E-04
m	27	727.26	6.86E+01	29.27	8.41E-03	8.68E-04
	28	756.37	3.41E+01	22.07	8.16E-03	8.21E-04
	29	768.64	3.03E+01	32.87	8.06E-03	8.02E-04
	30	795.67	4.82E+01	32.98	7.85E-03	7.59E-04
	31	861.43	4.53E+01	42.71	7.39E-03	6.55E-04
	32	911.63	1.71E+02	44.03	7.08E-03	5.91E-04
	33	933.85	2.20E+01	27.57	6.96E-03	5.83E-04
M	34	965.10	3.99E+01	26.20	6.79E-03	5.71E-04
m	35	969.41	9.84E+01	31.02	6.76E-03	5.69E-04
	36	1059.95	2.46E+01	25.92	6.33E-03	5.34E-04
	37	1072.17	1.97E+01	24.08	6.27E-03	5.30E-04
	38	1097.48	1.95E+01	23.63	6.17E-03	5.20E-04
	39	1120.99	9.75E+01	38.24	6.07E-03	5.11E-04
	40	1193.55	2.61E+01	24.55	5.80E-03	4.86E-04
M	41	1238.13	2.97E+01	30.98	5.64E-03	4.76E-04
m	42	1242.02	2.43E+01	30.53	5.63E-03	4.75E-04
	43	1264.31	2.14E+01	18.36	5.56E-03	4.70E-04
M	44	1319.49	2.02E+01	12.41	5.39E-03	4.57E-04
m	45	1339.46	1.35E+01	15.17	5.33E-03	4.53E-04
	46	1378.16	3.14E+01	18.16	5.22E-03	4.44E-04
	47	1389.13	2.91E+01	22.32	5.19E-03	4.41E-04
	48	1405.92	4.00E+01	27.46	5.15E-03	4.37E-04
M	49	1461.35	1.02E+03	65.38	5.00E-03	4.25E-04
m	50	1465.55	2.79E+01	49.80	4.99E-03	4.24E-04
	51	1510.24	2.11E+01	12.99	4.89E-03	4.13E-04
	52	1588.42	1.94E+01	14.48	4.71E-03	3.95E-04
	53	1620.51	9.00E+00	11.49	4.65E-03	3.88E-04
	54	1630.28	7.31E+00	9.42	4.63E-03	3.86E-04
	55	1660.57	9.32E+00	7.50	4.57E-03	3.78E-04
M	56	1684.79	1.04E+01	10.43	4.52E-03	3.73E-04
m	57	1688.79	9.17E+00	9.84	4.51E-03	3.72E-04

Analysis Report for 1707085-13

HTC-A02-S003-1218-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
58	1730.38	1.21E+01	14.73	4.44E-03	3.62E-04
59	1765.13	5.12E+01	24.01	4.37E-03	3.54E-04
60	1847.90	1.79E+01	9.80	4.23E-03	3.38E-04
61	1926.78	6.89E+00	7.21	4.11E-03	3.38E-04
62	1945.00	6.14E+00	5.85	4.08E-03	3.38E-04
63	2033.35	7.00E+00	5.29	3.96E-03	3.38E-04
64	2096.20	5.89E+00	7.35	3.87E-03	3.38E-04
65	2103.42	1.50E+01	14.14	3.86E-03	3.38E-04
66	2118.24	1.12E+01	14.59	3.84E-03	3.38E-04
67	2134.17	7.39E+00	6.71	3.82E-03	3.38E-04
68	2159.87	7.95E+00	7.48	3.79E-03	3.38E-04
69	2204.88	2.18E+01	16.16	3.74E-03	3.38E-04
70	2254.47	1.37E+01	9.71	3.68E-03	3.38E-04
71	2615.29	9.93E+01	20.49	3.31E-03	3.38E-04
72	2705.19	5.00E+00	4.47	3.22E-03	3.38E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/21/2017 12:15:24PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055573.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.00	1.05E+02	81.12	3.67E+01	8.40E+00	6.83E+01	8.15E+01
	2	63.18	1.75E+02	92.82	8.94E+01	1.41E+01	8.61E+01	9.39E+01
M	3	74.69	4.08E+02	92.41			4.08E+02	9.24E+01
m	4	77.25	6.25E+02	99.32	7.20E+00	1.47E+00	6.18E+02	9.93E+01
m	5	87.57	2.17E+02	78.33			2.17E+02	7.83E+01
m	6	92.27	3.11E+02	81.55	1.38E+02	1.72E+01	1.73E+02	8.33E+01
	7	130.50	8.75E+01	85.14			8.75E+01	8.51E+01
	8	185.66	2.59E+02	82.29	5.22E+01	7.59E+00	2.07E+02	8.26E+01
M	9	234.12	4.17E+01	31.84			4.17E+01	3.18E+01
m	10	238.62	9.30E+02	76.56	2.13E+01	6.33E+00	9.09E+02	7.68E+01
m	11	241.58	2.44E+02	85.05			2.44E+02	8.51E+01
	12	270.32	8.64E+01	49.39	1.23E+00	4.98E+00	8.52E+01	4.96E+01
M	13	295.26	3.43E+02	53.34			3.43E+02	5.33E+01
m	14	300.02	1.38E+02	50.28			1.38E+02	5.03E+01
	15	327.94	4.86E+01	52.54			4.86E+01	5.25E+01

Analysis Report for 1707085-13

HTC-A02-S003-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	16	338.22	1.67E+02	58.34			1.67E+02	5.83E+01
M	17	348.99	2.10E+01	23.60			2.10E+01	2.36E+01
m	18	351.99	5.19E+02	55.68	5.79E+00	4.49E+00	5.13E+02	5.59E+01
	19	394.08	3.64E+01	40.09			3.64E+01	4.01E+01
	20	438.69	6.14E+01	52.42			6.14E+01	5.24E+01
	21	464.86	9.94E+01	52.10			9.94E+01	5.21E+01
	22	511.05	1.87E+02	49.99	7.28E+01	5.30E+00	1.14E+02	5.03E+01
	23	583.33	3.31E+02	58.86	2.72E+00	3.05E+00	3.28E+02	5.89E+01
	24	599.07	3.53E+01	41.34			3.53E+01	4.13E+01
	25	609.48	3.96E+02	63.18	6.35E+00	4.02E+00	3.90E+02	6.33E+01
M	26	723.26	1.87E+01	12.37			1.87E+01	1.24E+01
m	27	727.26	6.86E+01	29.27			6.86E+01	2.93E+01
	28	756.37	3.41E+01	22.07			3.41E+01	2.21E+01
	29	768.64	3.03E+01	32.87			3.03E+01	3.29E+01
	30	795.67	4.82E+01	32.98			4.82E+01	3.30E+01
	31	861.43	4.53E+01	42.71			4.53E+01	4.27E+01
	32	911.63	1.71E+02	44.03	5.31E+00	3.00E+00	1.65E+02	4.41E+01
	33	933.85	2.20E+01	27.57			2.20E+01	2.76E+01
M	34	965.10	3.99E+01	26.20			3.99E+01	2.62E+01
m	35	969.41	9.84E+01	31.02			9.84E+01	3.10E+01
	36	1059.95	2.46E+01	25.92			2.46E+01	2.59E+01
	37	1072.17	1.97E+01	24.08			1.97E+01	2.41E+01
	38	1097.48	1.95E+01	23.63			1.95E+01	2.36E+01
	39	1120.99	9.75E+01	38.24			9.75E+01	3.82E+01
	40	1193.55	2.61E+01	24.55			2.61E+01	2.45E+01
M	41	1238.13	2.97E+01	30.98			2.97E+01	3.10E+01
m	42	1242.02	2.43E+01	30.53			2.43E+01	3.05E+01
	43	1264.31	2.14E+01	18.36			2.14E+01	1.84E+01
M	44	1319.49	2.02E+01	12.41			2.02E+01	1.24E+01
m	45	1339.46	1.35E+01	15.17			1.35E+01	1.52E+01
	46	1378.16	3.14E+01	18.16			3.14E+01	1.82E+01
	47	1389.13	2.91E+01	22.32			2.91E+01	2.23E+01
	48	1405.92	4.00E+01	27.46			4.00E+01	2.75E+01
M	49	1461.35	1.02E+03	65.38	8.09E+00	2.23E+00	1.01E+03	6.54E+01
m	50	1465.55	2.79E+01	49.80			2.79E+01	4.98E+01
	51	1510.24	2.11E+01	12.99			2.11E+01	1.30E+01
	52	1588.42	1.94E+01	14.48			1.94E+01	1.45E+01
	53	1620.51	9.00E+00	11.49			9.00E+00	1.15E+01
	54	1630.28	7.31E+00	9.42			7.31E+00	9.42E+00
	55	1660.57	9.32E+00	7.50			9.32E+00	7.50E+00
M	56	1684.79	1.04E+01	10.43			1.04E+01	1.04E+01
m	57	1688.79	9.17E+00	9.84			9.17E+00	9.84E+00
	58	1730.38	1.21E+01	14.73			1.21E+01	1.47E+01
	59	1765.13	5.12E+01	24.01			5.12E+01	2.40E+01
	60	1847.90	1.79E+01	9.80	1.22E+00	1.50E+00	1.67E+01	9.91E+00
	61	1926.78	6.89E+00	7.21			6.89E+00	7.21E+00
	62	1945.00	6.14E+00	5.85			6.14E+00	5.85E+00
	63	2033.35	7.00E+00	5.29			7.00E+00	5.29E+00
	64	2096.20	5.89E+00	7.35			5.89E+00	7.35E+00
	65	2103.42	1.50E+01	14.14			1.50E+01	1.41E+01
	66	2118.24	1.12E+01	14.59			1.12E+01	1.46E+01
	67	2134.17	7.39E+00	6.71			7.39E+00	6.71E+00
	68	2159.87	7.95E+00	7.48			7.95E+00	7.48E+00
	69	2204.88	2.18E+01	16.16			2.18E+01	1.62E+01

Analysis Report for 1707085-13

HTC-A02-S003-1218-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
70	2254.47	1.37E+01	9.71			1.37E+01	9.71E+00
71	2615.29	9.93E+01	20.49	5.63E+00	1.38E+00	9.37E+01	2.05E+01
72	2705.19	5.00E+00	4.47			5.00E+00	4.47E+00

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/21/2017 12:15:24PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055573.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	46.00	1.05E+02	81.12	3.67E+01	8.40E+00	6.83E+01	8.15E+01
	2	63.18	1.75E+02	92.82	8.94E+01	1.41E+01	8.61E+01	9.39E+01
M	3	74.69	4.08E+02	92.41			4.08E+02	9.24E+01
m	4	77.25	6.25E+02	99.32	7.20E+00	1.47E+00	6.18E+02	9.93E+01
m	5	87.57	2.17E+02	78.33			2.17E+02	7.83E+01
m	6	92.27	3.11E+02	81.55	1.38E+02	1.72E+01	1.73E+02	8.33E+01
	7	130.50	8.75E+01	85.14			8.75E+01	8.51E+01
	8	185.66	2.59E+02	82.29	5.22E+01	7.59E+00	2.07E+02	8.26E+01
M	9	234.12	4.17E+01	31.84			4.17E+01	3.18E+01
m	10	238.62	9.30E+02	76.56	2.13E+01	6.33E+00	9.09E+02	7.68E+01
m	11	241.58	2.44E+02	85.05			2.44E+02	8.51E+01
	12	270.32	8.64E+01	49.39	1.23E+00	4.98E+00	8.52E+01	4.96E+01
M	13	295.26	3.43E+02	53.34			3.43E+02	5.33E+01
m	14	300.02	1.38E+02	50.28			1.38E+02	5.03E+01
	15	327.94	4.86E+01	52.54			4.86E+01	5.25E+01
	16	338.22	1.67E+02	58.34			1.67E+02	5.83E+01
M	17	348.99	2.10E+01	23.60			2.10E+01	2.36E+01
m	18	351.99	5.19E+02	55.68	5.79E+00	4.49E+00	5.13E+02	5.59E+01
	19	394.08	3.64E+01	40.09			3.64E+01	4.01E+01
	20	438.69	6.14E+01	52.42			6.14E+01	5.24E+01
	21	464.86	9.94E+01	52.10			9.94E+01	5.21E+01
	22	511.05	1.87E+02	49.99	7.28E+01	5.30E+00	1.14E+02	5.03E+01
	23	583.33	3.31E+02	58.86	2.72E+00	3.05E+00	3.28E+02	5.89E+01
	24	599.07	3.53E+01	41.34			3.53E+01	4.13E+01
	25	609.48	3.96E+02	63.18	6.35E+00	4.02E+00	3.90E+02	6.33E+01

Analysis Report for 1707085-13

HTC-A02-S003-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	26	723.26	1.87E+01	12.37			1.87E+01	1.24E+01
m	27	727.26	6.86E+01	29.27			6.86E+01	2.93E+01
	28	756.37	3.41E+01	22.07			3.41E+01	2.21E+01
	29	768.64	3.03E+01	32.87			3.03E+01	3.29E+01
	30	795.67	4.82E+01	32.98			4.82E+01	3.30E+01
	31	861.43	4.53E+01	42.71			4.53E+01	4.27E+01
	32	911.63	1.71E+02	44.03	5.31E+00	3.00E+00	1.65E+02	4.41E+01
	33	933.85	2.20E+01	27.57			2.20E+01	2.76E+01
M	34	965.10	3.99E+01	26.20			3.99E+01	2.62E+01
m	35	969.41	9.84E+01	31.02			9.84E+01	3.10E+01
	36	1059.95	2.46E+01	25.92			2.46E+01	2.59E+01
	37	1072.17	1.97E+01	24.08			1.97E+01	2.41E+01
	38	1097.48	1.95E+01	23.63			1.95E+01	2.36E+01
	39	1120.99	9.75E+01	38.24			9.75E+01	3.82E+01
	40	1193.55	2.61E+01	24.55			2.61E+01	2.45E+01
M	41	1238.13	2.97E+01	30.98			2.97E+01	3.10E+01
m	42	1242.02	2.43E+01	30.53			2.43E+01	3.05E+01
	43	1264.31	2.14E+01	18.36			2.14E+01	1.84E+01
M	44	1319.49	2.02E+01	12.41			2.02E+01	1.24E+01
m	45	1339.46	1.35E+01	15.17			1.35E+01	1.52E+01
	46	1378.16	3.14E+01	18.16			3.14E+01	1.82E+01
	47	1389.13	2.91E+01	22.32			2.91E+01	2.23E+01
	48	1405.92	4.00E+01	27.46			4.00E+01	2.75E+01
M	49	1461.35	1.02E+03	65.38	8.09E+00	2.23E+00	1.01E+03	6.54E+01
m	50	1465.55	2.79E+01	49.80			2.79E+01	4.98E+01
	51	1510.24	2.11E+01	12.99			2.11E+01	1.30E+01
	52	1588.42	1.94E+01	14.48			1.94E+01	1.45E+01
	53	1620.51	9.00E+00	11.49			9.00E+00	1.15E+01
	54	1630.28	7.31E+00	9.42			7.31E+00	9.42E+00
	55	1660.57	9.32E+00	7.50			9.32E+00	7.50E+00
M	56	1684.79	1.04E+01	10.43			1.04E+01	1.04E+01
m	57	1688.79	9.17E+00	9.84			9.17E+00	9.84E+00
	58	1730.38	1.21E+01	14.73			1.21E+01	1.47E+01
	59	1765.13	5.12E+01	24.01			5.12E+01	2.40E+01
	60	1847.90	1.79E+01	9.80	1.22E+00	1.50E+00	1.67E+01	9.91E+00
	61	1926.78	6.89E+00	7.21			6.89E+00	7.21E+00
	62	1945.00	6.14E+00	5.85			6.14E+00	5.85E+00
	63	2033.35	7.00E+00	5.29			7.00E+00	5.29E+00
	64	2096.20	5.89E+00	7.35			5.89E+00	7.35E+00
	65	2103.42	1.50E+01	14.14			1.50E+01	1.41E+01
	66	2118.24	1.12E+01	14.59			1.12E+01	1.46E+01
	67	2134.17	7.39E+00	6.71			7.39E+00	6.71E+00
	68	2159.87	7.95E+00	7.48			7.95E+00	7.48E+00
	69	2204.88	2.18E+01	16.16			2.18E+01	1.62E+01
	70	2254.47	1.37E+01	9.71			1.37E+01	9.71E+00
	71	2615.29	9.93E+01	20.49	5.63E+00	1.38E+00	9.37E+01	2.05E+01
	72	2705.19	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 1707085-13

HTC-A02-S003-1218-01

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	0.954	1460.81	*	10.67	2.84E+01	3.09E+00
ZR-95	0.920	724.18	*	43.70	2.20E-01	1.48E-01
		756.72	*	55.30	3.29E-01	2.16E-01
CD-109	0.966	88.03	*	3.72	3.71E+00	1.40E+00
SN-126	1.000	87.57	*	37.00	3.22E-01	1.20E-01
TL-208	0.853	583.14	*	30.22	1.64E+00	3.39E-01
		860.37		4.48		
		2614.66	*	35.85	1.19E+00	2.88E-01
PB-210	0.961	46.50	*	4.25	9.94E-01	1.19E+00
BI-212	0.999	727.17	*	11.80	1.04E+00	4.57E-01
		1620.62	*	2.75	1.06E+00	1.36E+00
PB-212	1.000	238.63	*	44.60	1.63E+00	1.90E-01
		300.09	*	3.41	3.74E+00	1.40E+00
BI-214	0.967	609.31	*	46.30	1.32E+00	2.54E-01
		1120.29	*	15.10	1.60E+00	6.42E-01
		1764.49	*	15.80	1.12E+00	5.31E-01
		2204.22	*	4.98	1.77E+00	1.32E+00
PB-214	0.999	295.21	*	19.19	1.63E+00	2.89E-01
		351.92	*	37.19	1.43E+00	1.97E-01
RA-224	0.944	240.98	*	3.95	4.97E+00	1.78E+00
RA-226	0.953	186.21	*	3.28	4.38E+00	8.20E+00
AC-228	0.971	338.32	*	11.40	1.48E+00	5.30E-01
		911.07	*	27.70	1.27E+00	3.55E-01
		969.11	*	16.60	1.32E+00	4.30E-01
PA-234	0.390	131.20	*	20.40	2.56E-01	2.49E-01
		733.99		8.80		
		946.00		12.00		
TH-234	0.998	63.29	*	3.80	1.26E+00	1.38E+00
AM-243	1.000	74.67	*	66.00	3.39E-01	8.21E-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 1707085-13

HTC-A02-S003-1218-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 12:15:24PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	4	77.25	1.71631E-01	8.04		
m	6	92.27	4.80596E-02	24.08	Sum	
M	9	234.12	1.15709E-02	38.22		
	12	270.32	2.36572E-02	29.14		
	15	327.94	1.34940E-02	54.07	Tol.	LA-140
M	17	348.99	5.82483E-03	56.26		
	19	394.08	1.01044E-02	55.10		
	20	438.69	1.70662E-02	42.66	D-Esc	
	21	464.86	2.76187E-02	26.20		
	22	511.05	3.17098E-02	22.02		
	24	599.07	9.79167E-03	58.64	D-Esc	
	29	768.64	8.42474E-03	54.19	Sum	
	30	795.67	1.34022E-02	34.18	Sum	
	31	861.43	1.25778E-02	47.16		
	33	933.85	6.11111E-03	62.65		
M	34	965.10	1.10779E-02	32.84	Sum	
	36	1059.95	6.82485E-03	52.75		
	37	1072.17	5.48270E-03	61.01		
	38	1097.48	5.42989E-03	60.44	Sum	
	40	1193.55	7.26135E-03	46.95	Sum	
M	41	1238.13	8.24347E-03	52.20	Tol.	CO-56
m	42	1242.02	6.76283E-03	62.70		
	43	1264.31	5.93901E-03	42.93	Sum	
M	44	1319.49	5.61250E-03	30.71		
m	45	1339.46	3.75282E-03	56.13	Sum	
	46	1378.16	8.72045E-03	28.92		
	47	1389.13	8.08279E-03	38.35		
	48	1405.92	1.11111E-02	34.32		
m	50	1465.55	7.74271E-03	89.33		
	51	1510.24	5.86420E-03	30.77		
	52	1588.42	5.37634E-03	37.41		
	54	1630.28	2.02991E-03	64.46		
	55	1660.57	2.58838E-03	40.24		
M	56	1684.79	2.89937E-03	49.95		
m	57	1688.79	2.54758E-03	53.62		
	58	1730.38	3.35145E-03	61.05	Sum	
	60	1847.90	4.63211E-03	29.72	Sum	
	61	1926.78	1.91358E-03	52.34		
	62	1945.00	1.70635E-03	47.64		
	63	2033.35	1.94444E-03	37.80	Sum	
	64	2096.20	1.63580E-03	62.39		
	65	2103.42	4.16667E-03	47.14	S-Esc	
	66	2118.24	3.10990E-03	65.18		
	67	2134.17	2.05247E-03	45.39		
	68	2159.87	2.20833E-03	47.06		

Analysis Report for 1707085-13

HTC-A02-S003-1218-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
70	2254.47	3.79340E-03	35.55		
72	2705.19	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	0.95	1460.81	*	10.67	2.84E+01	3.09E+00
ZR-95	0.92	724.18	*	43.70	2.20E-01	1.48E-01
		756.72	*	55.30	3.29E-01	2.16E-01
CD-109	0.96	88.03	*	3.72	3.71E+00	1.40E+00
SN-126	1.00	87.57	*	37.00	3.22E-01	1.20E-01
TL-208	0.85	583.14	*	30.22	1.64E+00	3.39E-01
		860.37		4.48		
		2614.66	*	35.85	1.19E+00	2.88E-01
PB-210	0.96	46.50	*	4.25	9.94E-01	1.19E+00
BI-212	0.99	727.17	*	11.80	1.04E+00	4.57E-01
		1620.62	*	2.75	1.06E+00	1.36E+00
PB-212	1.00	238.63	*	44.60	1.63E+00	1.90E-01
		300.09	*	3.41	3.74E+00	1.40E+00
BI-214	0.96	609.31	*	46.30	1.32E+00	2.54E-01
		1120.29	*	15.10	1.60E+00	6.42E-01
		1764.49	*	15.80	1.12E+00	5.31E-01
		2204.22	*	4.98	1.77E+00	1.32E+00
PB-214	0.99	295.21	*	19.19	1.63E+00	2.89E-01
		351.92	*	37.19	1.43E+00	1.97E-01
RA-224	0.94	240.98	*	3.95	4.97E+00	1.78E+00
RA-226	0.95	186.21	*	3.28	4.38E+00	8.20E+00
AC-228	0.97	338.32	*	11.40	1.48E+00	5.30E-01
		911.07	*	27.70	1.27E+00	3.55E-01
		969.11	*	16.60	1.32E+00	4.30E-01
PA-234	0.39	131.20	*	20.40	2.56E-01	2.49E-01
		733.99		8.80		

Analysis Report for 1707085-13

HTC-A02-S003-1218-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PA-234	0.39	946.00		12.00		
TH-234	0.99	63.29	*	3.80	1.26E+00	1.38E+00
AM-243	1.00	74.67	*	66.00	3.39E-01	8.21E-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	0.954	2.84E+01	3.09E+00	
	ZR-95	0.920	2.55E-01	1.22E-01	
?	CD-109	0.966	3.71E+00	1.40E+00	
?	SN-126	1.000	3.22E-01	1.20E-01	
	TL-208	0.853	1.38E+00	2.19E-01	
	PB-210	0.961	9.94E-01	1.19E+00	
	BI-212	0.999	1.04E+00	4.33E-01	
	PB-212	1.000	1.66E+00	1.89E-01	
	BI-214	0.967	1.33E+00	2.13E-01	
	PB-214	0.999	1.49E+00	1.63E-01	
	RA-224	0.944	4.97E+00	1.78E+00	
	RA-226	0.953	4.38E+00	8.20E+00	
	AC-228	0.971	1.33E+00	2.43E-01	
	PA-234	0.390	2.56E-01	2.49E-01	
	TH-234	0.998	1.26E+00	1.38E+00	
	AM-243	1.000	3.39E-01	8.21E-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 1707085-13

HTC-A02-S003-1218-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 12:15:24PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	4	77.25	1.71631E-01	8.04		
m	6	92.27	4.80596E-02	24.08	Sum	
M	9	234.12	1.15709E-02	38.22		
	12	270.32	2.36572E-02	29.14		
	15	327.94	1.34940E-02	54.07	Tol.	LA-140
M	17	348.99	5.82483E-03	56.26		
	19	394.08	1.01044E-02	55.10		
	20	438.69	1.70662E-02	42.66	D-Esc	
	21	464.86	2.76187E-02	26.20		
	22	511.05	3.17098E-02	22.02		
	24	599.07	9.79167E-03	58.64	D-Esc	
	29	768.64	8.42474E-03	54.19	Sum	
	30	795.67	1.34022E-02	34.18	Sum	
	31	861.43	1.25778E-02	47.16		
	33	933.85	6.11111E-03	62.65		
M	34	965.10	1.10779E-02	32.84	Sum	
	36	1059.95	6.82485E-03	52.75		
	37	1072.17	5.48270E-03	61.01		
	38	1097.48	5.42989E-03	60.44	Sum	
	40	1193.55	7.26135E-03	46.95	Sum	
M	41	1238.13	8.24347E-03	52.20	Tol.	CO-56
m	42	1242.02	6.76283E-03	62.70		
	43	1264.31	5.93901E-03	42.93	Sum	
M	44	1319.49	5.61250E-03	30.71		
m	45	1339.46	3.75282E-03	56.13	Sum	
	46	1378.16	8.72045E-03	28.92		
	47	1389.13	8.08279E-03	38.35		
	48	1405.92	1.11111E-02	34.32		
m	50	1465.55	7.74271E-03	89.33		
	51	1510.24	5.86420E-03	30.77		
	52	1588.42	5.37634E-03	37.41		
	54	1630.28	2.02991E-03	64.46		
	55	1660.57	2.58838E-03	40.24		
M	56	1684.79	2.89937E-03	49.95		
m	57	1688.79	2.54758E-03	53.62		

Analysis Report for 1707085-13

HTC-A02-S003-1218-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
58	1730.38	3.35145E-03	61.05	Sum	
60	1847.90	4.63211E-03	29.72	Sum	
61	1926.78	1.91358E-03	52.34		
62	1945.00	1.70635E-03	47.64		
63	2033.35	1.94444E-03	37.80	Sum	
64	2096.20	1.63580E-03	62.39		
65	2103.42	4.16667E-03	47.14	S-Esc	
66	2118.24	3.10990E-03	65.18		
67	2134.17	2.05247E-03	45.39		
68	2159.87	2.20833E-03	47.06		
70	2254.47	3.79340E-03	35.55		
72	2705.19	1.38889E-03	44.72		

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	1.98E-01	2.36E+00	2.36E+00
+	NA-22	1274.54		99.94	-1.44E-02	9.72E-02	9.72E-02
+	@ NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@	2754.09		99.86	0.00E+00		1.00E+26
+	AL-26	1808.65		99.76	1.28E-02	6.84E-02	6.84E-02
+	K-40	1460.81	*	10.67	2.84E+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	7.55E-03	7.29E-02	7.29E-02
		78.34		96.00	2.34E-01		9.67E-02
+	SC-46	889.25		99.98	3.19E-02	2.01E-01	2.01E-01
		1120.51		99.99	4.95E-01		3.20E-01
+	V-48	983.52		99.98	1.45E+00	6.17E+00	6.17E+00
		1312.10		97.50	2.32E+00		6.49E+00
+	CR-51	320.08		9.83	-4.38E+00	7.65E+00	7.65E+00
+	MN-54	834.83		99.97	-9.04E-03	1.09E-01	1.09E-01
+	CO-56	846.75		99.96	1.10E-02	1.82E-01	1.82E-01

Analysis Report for 1707085-13

HTC-A02-S003-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CO-56	1037.75		14.03	3.93E-01	1.82E-01	1.52E+00
		1238.25		67.00	2.06E-01		4.65E-01
		1771.40		15.51	3.11E-01		9.57E-01
		2598.48		16.90	2.54E-01		7.64E-01
+	CO-57	122.06		85.51	7.42E-03	8.29E-02	8.29E-02
		136.48		10.60	-1.26E-01		6.58E-01
+	CO-58	810.76		99.40	-1.65E-01	1.80E-01	1.80E-01
+	FE-59	1099.22		56.50	-9.36E-02	7.87E-01	7.87E-01
		1291.56		43.20	-4.66E-01		8.84E-01
+	CO-60	1173.22		100.00	2.79E-02	7.96E-02	1.05E-01
		1332.49		100.00	-4.08E-02		7.96E-02
+	ZN-65	1115.52		50.75	-2.63E-02	2.47E-01	2.47E-01
+	GA-67	93.31		35.70	5.10E+08	2.54E+08	2.54E+08
		208.95		2.24	3.27E+09		3.33E+09
		300.22		16.00	-7.66E+08		5.70E+08
+	SE-75	121.11		16.70	9.69E-03	1.61E-01	5.75E-01
		136.00		59.20	-3.09E-02		1.61E-01
		264.65		59.80	4.56E-02		1.82E-01
		279.53		25.20	4.24E-01		5.06E-01
		400.65		11.40	-9.53E-02		1.02E+00
+	RB-82	776.52		13.00	6.89E-01	8.81E+00	8.81E+00
+	RB-83	520.41		46.00	-1.13E-01	3.14E-01	3.14E-01
		529.64		30.30	4.15E-02		4.78E-01
		552.65		16.40	4.68E-01		1.01E+00
+	KR-85	513.99		0.43	5.25E-01	2.44E+01	2.44E+01
+	SR-85	513.99		99.27	6.44E-03	2.99E-01	2.99E-01
+	Y-88	898.02		93.40	5.24E-02	1.40E-01	1.66E-01
		1836.01		99.38	4.52E-02		1.40E-01
+	MO-93	263.06		56.72	5.48E-02	6.06E-02	1.16E-01
		684.67		99.68	1.78E-02		7.54E-02
		1477.11		99.08	1.01E-02		6.06E-02
+	NB-93M	16.57		9.43	-9.01E-02	5.91E-01	5.91E-01
+	NB-94	702.63		100.00	1.15E-02	7.63E-02	7.63E-02
		871.10		100.00	-2.24E-02		8.02E-02
+	NB-95	765.79		99.81	8.13E-02	7.05E-01	7.05E-01
+	NB-95M	235.69		25.00	-3.26E+08	4.84E+07	4.84E+07
+	ZR-95	724.18	*	43.70	2.20E-01	3.23E-01	5.90E-01
		756.72	*	55.30	3.29E-01		3.23E-01
+	MO-99	181.06		6.20	-1.12E+10	3.22E+10	5.25E+10
		739.58		12.80	-1.20E+10		3.22E+10
		778.00		4.50	-2.93E+10		9.40E+10
+	RU-103	497.08		89.00	-1.32E-01	4.11E-01	4.11E-01
+	RU-106	621.84		9.80	-1.81E-01	8.88E-01	8.88E-01
+	AG-108M	433.93		89.90	-9.86E-03	6.80E-02	6.80E-02
		614.37		90.40	-3.74E-03		1.02E-01
		722.95		90.50	-1.56E-02		9.42E-02
+	CD-109	88.03	*	3.72	3.71E+00	4.60E+00	4.60E+00
+	AG-110M	657.75		93.14	-2.71E-02	1.06E-01	1.06E-01

Analysis Report for 1707085-13

HTC-A02-S003-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	AG-110M	677.61		10.53	6.73E-02	1.06E-01	9.42E-01
		706.67		16.46	6.63E-03		6.19E-01
		763.93		21.98	9.00E-02		5.03E-01
		884.67		71.63	1.78E-02		1.54E-01
		1384.27		23.94	-1.92E-01		3.65E-01
+	CD-113M	263.70		0.02	7.11E+00	2.74E+02	2.74E+02
+	SN-113	255.12		1.93	2.48E-01	1.93E-01	5.12E+00
		391.69		64.90	-2.63E-03		1.93E-01
+	TE123M	159.00		84.10	-4.28E-02	1.19E-01	1.19E-01
+	SB-124	602.71		97.87	-4.56E-01	2.31E-01	2.31E-01
		645.85		7.26	-6.11E-01		3.33E+00
		722.78		11.10	-3.93E-01		2.37E+00
		1691.02		49.00	0.00E+00		3.51E-01
+	I-125	35.49		6.49	-3.69E-01	3.09E+00	3.09E+00
+	SB-125	176.33		6.89	1.76E-01	2.35E-01	9.01E-01
		427.89		29.33	5.86E-02		2.35E-01
		463.38		10.35	6.52E-01		8.39E-01
		600.56		17.80	1.26E-01		4.74E-01
		635.90		11.32	-6.09E-01		6.39E-01
+	SB-126	414.70		83.30	-7.26E+00	1.92E+01	1.93E+01
		666.33		99.60	7.50E+00		2.02E+01
		695.00		99.60	6.64E+00		1.92E+01
		720.50		53.80	2.35E+00		3.94E+01
+	SN-126	87.57	*	37.00	3.22E-01	3.99E-01	3.99E-01
+	SB-127	473.00		25.00	-4.86E+06	9.78E+06	1.27E+07
		685.20		35.70	2.30E+06		9.78E+06
		783.80		14.70	1.07E+07		2.76E+07
+	I-129	29.78		57.00	-6.91E-02	1.16E-01	1.16E-01
		33.60		13.20	-7.91E-02		4.95E-01
		39.58		7.52	1.49E-01		8.19E-01
+	I-131	284.30		6.05	4.31E+02	3.67E+02	5.06E+03
		364.48		81.20	-1.98E+02		3.67E+02
		636.97		7.26	-1.41E+03		4.61E+03
		722.89		1.80	-3.70E+03		2.24E+04
+	TE-132	49.72		13.10	1.32E+08	8.24E+07	5.47E+08
		228.16		88.00	3.12E+07		8.24E+07
+	BA-133	81.00		33.00	-7.73E-01	1.61E-01	2.03E-01
		302.84		17.80	4.67E-01		4.35E-01
		356.01		60.00	-3.01E-03		1.61E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-2.85E+05	7.49E+04	7.49E+04
+	CS-134	563.23		8.38	2.12E-01	9.27E-02	9.76E-01
		569.32		15.43	3.10E-01		5.51E-01
		604.70		97.60	-7.97E-01		9.27E-02
		795.84		85.40	1.23E-01		1.22E-01
		801.93		8.73	-4.00E-01		8.76E-01
+	CS-135	268.24		16.00	1.92E-02	4.30E-01	4.30E-01
+	@ I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41		28.60	1.00E+26		1.00E+26

Analysis Report for 1707085-13

HTC-A02-S003-1218-01

		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	-3.15E+00	1.37E+01	1.37E+02
			163.89	4.61	1.06E+02		2.17E+02
			176.55	13.56	1.47E+01		7.54E+01
			273.65	12.66	-1.30E+01		9.82E+01
			340.57	48.50	3.66E+01		3.15E+01
			818.50	99.70	-6.20E+00		1.37E+01
			1048.07	79.60	8.79E-01		1.82E+01
			1235.34	19.70	3.11E+00		1.12E+02
+		CS-137	661.65	85.12	-8.39E-02	8.77E-02	8.77E-02
+		LA-138	788.74	34.00	-1.99E-02	1.19E-01	2.36E-01
			1435.80	66.00	2.25E-02		1.19E-01
+		CE-139	165.85	80.35	-1.60E-02	1.12E-01	1.12E-01
+		BA-140	162.64	6.70	7.71E+01	5.37E+01	1.73E+02
			304.84	4.50	-1.85E+01		2.90E+02
			423.70	3.20	2.40E+02		4.25E+02
			437.55	2.00	6.28E+02		7.26E+02
			537.32	25.00	1.08E+01		5.37E+01
+		LA-140	328.77	20.50	4.55E+01	1.57E+01	7.24E+01
			487.03	45.50	-6.40E+00		2.99E+01
			815.85	23.50	4.48E+01		6.92E+01
			1596.49	95.49	1.05E+00		1.57E+01
+		CE-141	145.44	48.40	6.77E-01	9.73E-01	9.73E-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	-4.07E-02	6.56E-01	6.56E-01
+		PM-144	476.78	42.00	-7.18E-02	9.05E-02	1.92E-01
			618.01	98.60	-6.10E-02		9.05E-02
			696.49	99.49	-1.55E-02		9.30E-02
+		PM-145	36.85	21.70	-5.52E-02	1.62E-01	2.96E-01
			37.36	39.70	-1.93E-02		1.62E-01
			42.30	15.10	9.21E-03		3.98E-01
			72.40	2.31	-4.48E+00		3.54E+00
+		PM-146	453.90	39.94	1.57E-02	1.69E-01	1.69E-01
			735.90	14.01	-2.89E-01		5.47E-01
			747.13	13.10	-1.72E-01		5.72E-01
+		ND-147	91.11	28.90	2.10E+02	1.40E+02	1.40E+02
			531.02	13.10	-3.45E+01		2.36E+02
+		PM-149	285.90	3.10	-1.37E+13	4.63E+13	4.63E+13
+		EU-152	121.78	20.50	4.54E-03	2.70E-01	2.70E-01
			244.69	5.40	-9.73E-01		1.20E+00
			344.27	19.13	-1.80E-02		3.64E-01
			778.89	9.20	-7.27E-02		8.36E-01
			964.01	10.40	-1.63E+00		1.04E+00
			1085.78	7.22	8.67E-02		1.22E+00
			1112.02	9.60	4.38E-01		1.05E+00
			1407.95	14.94	3.21E-01		5.77E-01
+		GD-153	97.43	31.30	1.10E-01	2.54E-01	2.54E-01

Analysis Report for 1707085-13

HTC-A02-S003-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	GD-153	103.18		22.20	1.42E-02	2.54E-01	3.41E-01
+	EU-154	123.07		40.50	5.14E-02	1.42E-01	1.42E-01
		723.30		19.70	-7.31E-02		4.42E-01
		873.19		11.50	-4.47E-01		6.62E-01
		996.32		10.30	-3.71E-01		7.56E-01
		1004.76		17.90	1.57E-01		5.01E-01
		1274.45		35.50	-3.85E-02		2.60E-01
+	EU-155	86.50		30.90	2.10E-01	2.55E-01	2.55E-01
		105.30		20.70	2.96E-02		2.87E-01
+	EU-156	811.77		10.40	-4.00E+01	5.82E+01	5.82E+01
		1153.47		7.20	-1.26E+02		1.12E+02
		1230.71		8.90	-2.34E+01		1.12E+02
+	HO-166M	184.41		72.60	2.16E-01	1.06E-01	1.06E-01
		280.45		29.60	1.44E-01		2.37E-01
		410.94		11.10	5.68E-01		6.58E-01
		711.69		54.10	2.65E-02		1.52E-01
+	TM-171	66.72		0.14	6.56E-01	5.44E+01	5.44E+01
+	HF-172	67.35		5.31	1.48E-01	5.58E-01	1.43E+00
		125.81		11.30	2.09E-01		5.58E-01
+	LU-172	181.53		20.60	-1.58E+03	3.69E+03	7.39E+03
		900.72		29.81	-3.47E+03		6.58E+03
		1093.66		62.50	-6.21E+01		3.69E+03
+	LU-173	100.72		5.24	-1.04E-01	3.85E-01	1.25E+00
		272.11		21.20	-9.73E-02		3.85E-01
+	HF-175	343.40		84.00	-1.07E-02	2.18E-01	2.18E-01
+	LU-176	88.34		13.30	-3.99E-01	6.41E-02	5.82E-01
		201.83		86.00	-1.81E-02		6.41E-02
		306.78		94.00	-2.60E-02		6.49E-02
+	HF-181	133.02		41.70	-4.12E-02	4.30E-01	6.65E-01
		345.85		17.20	-9.85E-02		2.02E+00
		482.03		82.80	6.69E-02		4.30E-01
+	TA-182	67.75		41.20	3.13E-02	3.02E-01	3.02E-01
		1121.30		34.90	1.21E+00		7.49E-01
		1189.05		16.23	3.18E-01		1.23E+00
		1221.41		26.98	-3.80E-01		6.92E-01
		1231.02		11.44	-3.75E-01		1.80E+00
+	IR-192	308.46		29.68	8.40E-02	3.85E-01	5.39E-01
		468.07		48.10	-2.62E-01		3.85E-01
+	HG-203	279.19		77.30	3.37E-01	4.02E-01	4.02E-01
+	TL-204	374.74		94.11	-3.58E-02	7.12E-02	7.12E-02
		899.15		99.16	-2.73E-03		8.63E-02
		911.74		91.10	4.29E-01		1.87E-01
+	BI-207	569.67		97.72	4.61E-02	8.00E-02	8.00E-02
		1063.62		74.90	1.92E-02		1.23E-01
+	TL-208	583.14	*	30.22	1.64E+00	1.78E-01	3.96E-01
		860.37		4.48	1.13E+00		2.14E+00
		2614.66	*	35.85	1.19E+00		1.78E-01
+	BI-210M	262.00		45.00	3.71E-02	1.44E-01	1.44E-01
		300.00		23.00	-1.03E+00		3.54E-01

Analysis Report for 1707085-13

HTC-A02-S003-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	PB-210	46.50	*	4.25	9.94E-01	1.95E+00	1.95E+00
+	PB-211	404.84		2.90	-2.39E+00	2.21E+00	2.21E+00
		831.96		2.90	-1.32E+00		2.71E+00
+	BI-212	727.17	*	11.80	1.04E+00	8.17E-01	8.17E-01
		1620.62	*	2.75	1.06E+00		2.22E+00
+	PB-212	238.63	*	44.60	1.63E+00	2.87E-01	2.87E-01
		300.09	*	3.41	3.74E+00		3.77E+00
+	BI-214	609.31	*	46.30	1.32E+00	2.84E-01	2.84E-01
		1120.29	*	15.10	1.60E+00		9.29E-01
		1764.49	*	15.80	1.12E+00		7.49E-01
		2204.22	*	4.98	1.77E+00		1.97E+00
+	PB-214	295.21	*	19.19	1.63E+00	2.10E-01	6.61E-01
		351.92	*	37.19	1.43E+00		2.10E-01
+	RN-219	401.80		6.50	-2.81E-02	1.03E+00	1.03E+00
+	RA-223	323.87		3.88	-1.50E-01	1.70E+00	1.70E+00
+	RA-224	240.98	*	3.95	4.97E+00	3.28E+00	3.28E+00
+	RA-225	40.00		31.00	5.24E+00	1.96E+01	1.96E+01
+	RA-226	186.21	*	3.28	4.38E+00	2.75E+00	2.75E+00
+	TH-227	50.10		8.40	-1.21E-01	6.89E-01	7.20E-01
		236.00		11.50	-4.65E+00		6.89E-01
		256.20		6.30	6.10E-01		1.04E+00
+	AC-228	338.32	*	11.40	1.48E+00	4.73E-01	7.83E-01
		911.07	*	27.70	1.27E+00		4.73E-01
		969.11	*	16.60	1.32E+00		9.66E-01
+	TH-230	48.44		16.90	3.18E-02	3.87E-01	3.87E-01
		62.85		4.60	2.60E+00		1.67E+00
		67.67		0.37	1.92E+00		1.86E+01
+	PA-231	283.67		1.60	-2.77E-02	3.31E+00	4.11E+00
		302.67		2.30	3.55E+00		3.31E+00
+	TH-231	25.64		14.70	-3.07E+00	6.16E-01	6.16E-01
		84.21		6.40	-9.13E-01		1.09E+00
+	PA-233	311.98		38.60	8.69E-01	2.18E+00	2.18E+00
+	PA-234	131.20	*	20.40	2.56E-01	4.07E-01	4.07E-01
		733.99		8.80	9.64E-02		8.64E-01
		946.00		12.00	4.66E-01		8.26E-01
+	PA-234M	1001.03		0.92	-4.25E-01	9.06E+00	9.06E+00
+	TH-234	63.29	*	3.80	1.26E+00	2.26E+00	2.26E+00
+	U-235	143.76		10.50	1.07E-01	5.46E-01	5.46E-01
		163.35		4.70	5.88E-01		1.21E+00
		205.31		4.70	-6.75E-01		1.28E+00
+	NP-237	86.50		12.60	4.97E-01	6.03E-01	6.03E-01
+	NP-239	106.10		22.70	5.82E+11	9.01E+11	9.01E+11
		228.18		10.70	7.72E+11		2.04E+12
		277.60		14.10	9.87E+11		1.77E+12
+	AM-241	59.54		35.90	3.79E-02	1.90E-01	1.90E-01
+	AM-243	74.67	*	66.00	3.39E-01	2.00E-01	2.00E-01
+	CM-243	209.75		3.29	5.22E-02	5.11E-01	1.88E+00

Analysis Report for 1707085-13

HTC-A02-S003-1218-01

Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
CM-243	228.14	10.60	2.23E-01	5.11E-01	5.89E-01
	277.60	14.00	2.85E-01		5.11E-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

	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+00	2.36E+00	1.98E-01	1.12E+00
	NA-22	1274.54		99.94	9.72E-02	9.72E-02	-1.44E-02	4.47E-02
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		0.00E+00	1.00E+20
	AL-26	1808.65		99.76	6.84E-02	6.84E-02	1.28E-02	2.94E-02
+	K-40	1460.81	*	10.67	1.34E+00	1.34E+00	2.84E+01	6.31E-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	7.29E-02	7.29E-02	7.55E-03	3.57E-02
		78.34		96.00	9.67E-02		2.34E-01	4.76E-02
	SC-46	889.25		99.98	2.01E-01	2.01E-01	3.19E-02	9.40E-02
		1120.51		99.99	3.20E-01		4.95E-01	1.52E-01
	V-48	983.52		99.98	6.17E+00	6.17E+00	1.45E+00	2.87E+00
		1312.10		97.50	6.49E+00		2.32E+00	2.97E+00
	CR-51	320.08		9.83	7.65E+00	7.65E+00	-4.38E+00	3.67E+00
	MN-54	834.83		99.97	1.09E-01	1.09E-01	-9.04E-03	5.11E-02
	CO-56	846.75		99.96	1.82E-01	1.82E-01	1.10E-02	8.45E-02
		1037.75		14.03	1.52E+00		3.93E-01	7.07E-01
		1238.25		67.00	4.65E-01		2.06E-01	2.20E-01
		1771.40		15.51	9.57E-01		3.11E-01	4.07E-01
		2598.48		16.90	7.64E-01		2.54E-01	2.96E-01
	CO-57	122.06		85.51	8.29E-02	8.29E-02	7.42E-03	4.03E-02
		136.48		10.60	6.58E-01		-1.26E-01	3.19E-01

Analysis Report for 1707085-13

HTC-A02-S003-1218-01

	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	1.80E-01	1.80E-01	-1.65E-01	8.33E-02
	FE-59	1099.22		56.50	7.87E-01	7.87E-01	-9.36E-02	3.67E-01
		1291.56		43.20	8.84E-01		-4.66E-01	4.02E-01
	CO-60	1173.22		100.00	1.05E-01	7.96E-02	2.79E-02	4.90E-02
		1332.49		100.00	7.96E-02		-4.08E-02	3.59E-02
	ZN-65	1115.52		50.75	2.47E-01	2.47E-01	-2.63E-02	1.15E-01
	GA-67	93.31		35.70	2.54E+08	2.54E+08	5.10E+08	1.25E+08
		208.95		2.24	3.33E+09		3.27E+09	1.61E+09
		300.22		16.00	5.70E+08		-7.66E+08	2.76E+08
	SE-75	121.11		16.70	5.75E-01	1.61E-01	9.69E-03	2.79E-01
		136.00		59.20	1.61E-01		-3.09E-02	7.83E-02
		264.65		59.80	1.82E-01		4.56E-02	8.75E-02
		279.53		25.20	5.06E-01		4.24E-01	2.44E-01
		400.65		11.40	1.02E+00		-9.53E-02	4.88E-01
	RB-82	776.52		13.00	8.81E+00	8.81E+00	6.89E-01	4.12E+00
	RB-83	520.41		46.00	3.14E-01	3.14E-01	-1.13E-01	1.48E-01
		529.64		30.30	4.78E-01		4.15E-02	2.25E-01
		552.65		16.40	1.01E+00		4.68E-01	4.77E-01
	KR-85	513.99		0.43	2.44E+01	2.44E+01	5.25E-01	1.18E+01
	SR-85	513.99		99.27	2.99E-01	2.99E-01	6.44E-03	1.44E-01
	Y-88	898.02		93.40	1.66E-01	1.40E-01	5.24E-02	7.74E-02
		1836.01		99.38	1.40E-01		4.52E-02	6.07E-02
	MO-93	263.06		56.72	1.16E-01	6.06E-02	5.48E-02	5.58E-02
		684.67		99.68	7.54E-02		1.78E-02	3.54E-02
		1477.11		99.08	6.06E-02		1.01E-02	2.61E-02
	NB-93M	16.57		9.43	5.91E-01	5.91E-01	-9.01E-02	2.75E-01
	NB-94	702.63		100.00	7.63E-02	7.63E-02	1.15E-02	3.58E-02
		871.10		100.00	8.02E-02		-2.24E-02	3.73E-02
	NB-95	765.79		99.81	7.05E-01	7.05E-01	8.13E-02	3.35E-01
	NB-95M	235.69		25.00	4.84E+07	4.84E+07	-3.26E+08	2.36E+07
+	ZR-95	724.18	*	43.70	5.90E-01	3.23E-01	2.20E-01	2.79E-01
		756.72	*	55.30	3.23E-01		3.29E-01	1.49E-01
	MO-99	181.06		6.20	5.25E+10	3.22E+10	-1.12E+10	2.55E+10
		739.58		12.80	3.22E+10		-1.20E+10	1.51E+10
		778.00		4.50	9.40E+10		-2.93E+10	4.39E+10
	RU-103	497.08		89.00	4.11E-01	4.11E-01	-1.32E-01	1.94E-01
	RU-106	621.84		9.80	8.88E-01	8.88E-01	-1.81E-01	4.18E-01
	AG-108M	433.93		89.90	6.80E-02	6.80E-02	-9.86E-03	3.22E-02
		614.37		90.40	1.02E-01		-3.74E-03	4.86E-02
		722.95		90.50	9.42E-02		-1.56E-02	4.45E-02
+	CD-109	88.03	*	3.72	4.60E+00	4.60E+00	3.71E+00	2.28E+00
	AG-110M	657.75		93.14	1.06E-01	1.06E-01	-2.71E-02	5.01E-02
		677.61		10.53	9.42E-01		6.73E-02	4.42E-01
		706.67		16.46	6.19E-01		6.63E-03	2.91E-01
		763.93		21.98	5.03E-01		9.00E-02	2.37E-01
		884.67		71.63	1.54E-01		1.78E-02	7.20E-02
		1384.27		23.94	3.65E-01		-1.92E-01	1.61E-01
	CD-113M	263.70		0.02	2.74E+02	2.74E+02	7.11E+00	1.32E+02
	SN-113	255.12		1.93	5.12E+00	1.93E-01	2.48E-01	2.46E+00
		391.69		64.90	1.93E-01		-2.63E-03	9.24E-02
	TE123M	159.00		84.10	1.19E-01	1.19E-01	-4.28E-02	5.75E-02
	SB-124	602.71		97.87	2.31E-01	2.31E-01	-4.56E-01	1.09E-01
		645.85		7.26	3.33E+00		-6.11E-01	1.57E+00

Analysis Report for 1707085-13

HTC-A02-S003-1218-01

	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	2.37E+00	2.31E-01	-3.93E-01	1.12E+00
		1691.02		49.00	3.51E-01		0.00E+00	1.47E-01
	I-125	35.49		6.49	3.09E+00	3.09E+00	-3.69E-01	1.50E+00
	SB-125	176.33		6.89	9.01E-01	2.35E-01	1.76E-01	4.37E-01
		427.89		29.33	2.35E-01		5.86E-02	1.11E-01
		463.38		10.35	8.39E-01		6.52E-01	4.02E-01
		600.56		17.80	4.74E-01		1.26E-01	2.24E-01
		635.90		11.32	6.39E-01		-6.09E-01	2.99E-01
	SB-126	414.70		83.30	1.93E+01	1.92E+01	-7.26E+00	9.21E+00
		666.33		99.60	2.02E+01		7.50E+00	9.57E+00
		695.00		99.60	1.92E+01		6.64E+00	9.04E+00
		720.50		53.80	3.94E+01		2.35E+00	1.86E+01
+	SN-126	87.57	*	37.00	3.99E-01	3.99E-01	3.22E-01	1.98E-01
	SB-127	473.00		25.00	1.27E+07	9.78E+06	-4.86E+06	6.04E+06
		685.20		35.70	9.78E+06		2.30E+06	4.59E+06
		783.80		14.70	2.76E+07		1.07E+07	1.30E+07
	I-129	29.78		57.00	1.16E-01	1.16E-01	-6.91E-02	5.63E-02
		33.60		13.20	4.95E-01		-7.91E-02	2.40E-01
		39.58		7.52	8.19E-01		1.49E-01	3.98E-01
	I-131	284.30		6.05	5.06E+03	3.67E+02	4.31E+02	2.44E+03
		364.48		81.20	3.67E+02		-1.98E+02	1.75E+02
		636.97		7.26	4.61E+03		-1.41E+03	2.16E+03
		722.89		1.80	2.24E+04		-3.70E+03	1.06E+04
	TE-132	49.72		13.10	5.47E+08	8.24E+07	1.32E+08	2.66E+08
		228.16		88.00	8.24E+07		3.12E+07	3.98E+07
	BA-133	81.00		33.00	2.03E-01	1.61E-01	-7.73E-01	9.93E-02
		302.84		17.80	4.35E-01		4.67E-01	2.10E-01
		356.01		60.00	1.61E-01		-3.01E-03	7.82E-02
@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	XE-133	81.00		38.00	7.49E+04	7.49E+04	-2.85E+05	3.66E+04
	CS-134	563.23		8.38	9.76E-01	9.27E-02	2.12E-01	4.62E-01
		569.32		15.43	5.51E-01		3.10E-01	2.61E-01
		604.70		97.60	9.27E-02		-7.97E-01	4.40E-02
		795.84		85.40	1.22E-01		1.23E-01	5.74E-02
		801.93		8.73	8.76E-01		-4.00E-01	4.05E-01
	CS-135	268.24		16.00	4.30E-01	4.30E-01	1.92E-02	2.08E-01
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	1.37E+02	1.37E+01	-3.15E+00	6.66E+01
		163.89		4.61	2.17E+02		1.06E+02	1.05E+02
		176.55		13.56	7.54E+01		1.47E+01	3.65E+01
		273.65		12.66	9.82E+01		-1.30E+01	4.75E+01
		340.57		48.50	3.15E+01		3.66E+01	1.53E+01
		818.50		99.70	1.37E+01		-6.20E+00	6.38E+00
		1048.07		79.60	1.82E+01		8.79E-01	8.40E+00
		1235.34		19.70	1.12E+02		3.11E+00	5.27E+01
	CS-137	661.65		85.12	8.77E-02	8.77E-02	-8.39E-02	4.12E-02
	LA-138	788.74		34.00	2.36E-01	1.19E-01	-1.99E-02	1.11E-01
		1435.80		66.00	1.19E-01		2.25E-02	5.34E-02
	CE-139	165.85		80.35	1.12E-01	1.12E-01	-1.60E-02	5.40E-02
	BA-140	162.64		6.70	1.73E+02	5.37E+01	7.71E+01	8.36E+01
		304.84		4.50	2.90E+02		-1.85E+01	1.39E+02

Analysis Report for 1707085-13

HTC-A02-S003-1218-01

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	4.25E+02	5.37E+01	2.40E+02	2.02E+02
	437.55	2.00	7.26E+02		6.28E+02	3.46E+02
	537.32	25.00	5.37E+01		1.08E+01	2.53E+01
LA-140	328.77	20.50	7.24E+01	1.57E+01	4.55E+01	3.49E+01
	487.03	45.50	2.99E+01		-6.40E+00	1.42E+01
	815.85	23.50	6.92E+01		4.48E+01	3.23E+01
	1596.49	95.49	1.57E+01		1.05E+00	6.95E+00
CE-141	145.44	48.40	9.73E-01	9.73E-01	6.77E-01	4.72E-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	6.56E-01	6.56E-01	-4.07E-02	3.19E-01
PM-144	476.78	42.00	1.92E-01	9.05E-02	-7.18E-02	9.08E-02
	618.01	98.60	9.05E-02		-6.10E-02	4.26E-02
	696.49	99.49	9.30E-02		-1.55E-02	4.37E-02
PM-145	36.85	21.70	2.96E-01	1.62E-01	-5.52E-02	1.44E-01
	37.36	39.70	1.62E-01		-1.93E-02	7.84E-02
	42.30	15.10	3.98E-01		9.21E-03	1.93E-01
	72.40	2.31	3.54E+00		-4.48E+00	1.74E+00
PM-146	453.90	39.94	1.69E-01	1.69E-01	1.57E-02	8.03E-02
	735.90	14.01	5.47E-01		-2.89E-01	2.56E-01
	747.13	13.10	5.72E-01		-1.72E-01	2.66E-01
ND-147	91.11	28.90	1.40E+02	1.40E+02	2.10E+02	6.86E+01
	531.02	13.10	2.36E+02		-3.45E+01	1.11E+02
PM-149	285.90	3.10	4.63E+13	4.63E+13	-1.37E+13	2.23E+13
EU-152	121.78	20.50	2.70E-01	2.70E-01	4.54E-03	1.31E-01
	244.69	5.40	1.20E+00		-9.73E-01	5.80E-01
	344.27	19.13	3.64E-01		-1.80E-02	1.74E-01
	778.89	9.20	8.36E-01		-7.27E-02	3.90E-01
	964.01	10.40	1.04E+00		-1.63E+00	4.90E-01
	1085.78	7.22	1.22E+00		8.67E-02	5.65E-01
	1112.02	9.60	1.05E+00		4.38E-01	4.88E-01
	1407.95	14.94	5.77E-01		3.21E-01	2.61E-01
GD-153	97.43	31.30	2.54E-01	2.54E-01	1.10E-01	1.24E-01
	103.18	22.20	3.41E-01		1.42E-02	1.66E-01
EU-154	123.07	40.50	1.42E-01	1.42E-01	5.14E-02	6.88E-02
	723.30	19.70	4.42E-01		-7.31E-02	2.08E-01
	873.19	11.50	6.62E-01		-4.47E-01	3.06E-01
	996.32	10.30	7.56E-01		-3.71E-01	3.48E-01
	1004.76	17.90	5.01E-01		1.57E-01	2.33E-01
	1274.45	35.50	2.60E-01		-3.85E-02	1.20E-01
EU-155	86.50	30.90	2.55E-01	2.55E-01	2.10E-01	1.25E-01
	105.30	20.70	2.87E-01		2.96E-02	1.40E-01
EU-156	811.77	10.40	5.82E+01	5.82E+01	-4.00E+01	2.68E+01
	1153.47	7.20	1.12E+02		-1.26E+02	5.20E+01
	1230.71	8.90	1.12E+02		-2.34E+01	5.26E+01
HO-166M	184.41	72.60	1.06E-01	1.06E-01	2.16E-01	5.16E-02
	280.45	29.60	2.37E-01		1.44E-01	1.15E-01
	410.94	11.10	6.58E-01		5.68E-01	3.15E-01
	711.69	54.10	1.52E-01		2.65E-02	7.18E-02
TM-171	66.72	0.14	5.44E+01	5.44E+01	6.56E-01	2.66E+01
HF-172	67.35	5.31	1.43E+00	5.58E-01	1.48E-01	6.99E-01
	125.81	11.30	5.58E-01		2.09E-01	2.71E-01

Analysis Report for 1707085-13

HTC-A02-S003-1218-01

	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	7.39E+03	3.69E+03	-1.58E+03	3.58E+03
		900.72		29.81	6.58E+03		-3.47E+03	3.04E+03
		1093.66		62.50	3.69E+03		-6.21E+01	1.71E+03
	LU-173	100.72		5.24	1.25E+00	3.85E-01	-1.04E-01	6.08E-01
		272.11		21.20	3.85E-01		-9.73E-02	1.86E-01
	HF-175	343.40		84.00	2.18E-01	2.18E-01	-1.07E-02	1.04E-01
	LU-176	88.34		13.30	5.82E-01	6.41E-02	-3.99E-01	2.85E-01
		201.83		86.00	6.41E-02		-1.81E-02	3.09E-02
		306.78		94.00	6.49E-02		-2.60E-02	3.11E-02
	HF-181	133.02		41.70	6.65E-01	4.30E-01	-4.12E-02	3.23E-01
		345.85		17.20	2.02E+00		-9.85E-02	9.71E-01
		482.03		82.80	4.30E-01		6.69E-02	2.04E-01
	TA-182	67.75		41.20	3.02E-01	3.02E-01	3.13E-02	1.48E-01
		1121.30		34.90	7.49E-01		1.21E+00	3.57E-01
		1189.05		16.23	1.23E+00		3.18E-01	5.75E-01
		1221.41		26.98	6.92E-01		-3.80E-01	3.22E-01
		1231.02		11.44	1.80E+00		-3.75E-01	8.42E-01
	IR-192	308.46		29.68	5.39E-01	3.85E-01	8.40E-02	2.59E-01
		468.07		48.10	3.85E-01		-2.62E-01	1.83E-01
	HG-203	279.19		77.30	4.02E-01	4.02E-01	3.37E-01	1.94E-01
	TL-204	374.74		94.11	7.12E-02	7.12E-02	-3.58E-02	3.40E-02
		899.15		99.16	8.63E-02		-2.73E-03	4.01E-02
		911.74		91.10	1.87E-01		4.29E-01	9.01E-02
	BI-207	569.67		97.72	8.00E-02	8.00E-02	4.61E-02	3.79E-02
		1063.62		74.90	1.23E-01		1.92E-02	5.72E-02
+	TL-208	583.14	*	30.22	3.96E-01	1.78E-01	1.64E+00	1.91E-01
		860.37		4.48	2.14E+00		1.13E+00	1.01E+00
		2614.66	*	35.85	1.78E-01		1.19E+00	7.17E-02
	BI-210M	262.00		45.00	1.44E-01	1.44E-01	3.71E-02	6.94E-02
		300.00		23.00	3.54E-01		-1.03E+00	1.71E-01
+	PB-210	46.50	*	4.25	1.95E+00	1.95E+00	9.94E-01	9.55E-01
	PB-211	404.84		2.90	2.21E+00	2.21E+00	-2.39E+00	1.05E+00
		831.96		2.90	2.71E+00		-1.32E+00	1.26E+00
+	BI-212	727.17	*	11.80	8.17E-01	8.17E-01	1.04E+00	3.88E-01
		1620.62	*	2.75	2.22E+00		1.06E+00	9.49E-01
+	PB-212	238.63	*	44.60	2.87E-01	2.87E-01	1.63E+00	1.41E-01
		300.09	*	3.41	3.77E+00		3.74E+00	1.85E+00
+	BI-214	609.31	*	46.30	2.84E-01	2.84E-01	1.32E+00	1.37E-01
		1120.29	*	15.10	9.29E-01		1.60E+00	4.42E-01
		1764.49	*	15.80	7.49E-01		1.12E+00	3.45E-01
		2204.22	*	4.98	1.97E+00		1.77E+00	8.77E-01
+	PB-214	295.21	*	19.19	6.61E-01	2.10E-01	1.63E+00	3.24E-01
		351.92	*	37.19	2.10E-01		1.43E+00	1.01E-01
	RN-219	401.80		6.50	1.03E+00	1.03E+00	-2.81E-02	4.91E-01
	RA-223	323.87		3.88	1.70E+00	1.70E+00	-1.50E-01	8.15E-01
+	RA-224	240.98	*	3.95	3.28E+00	3.28E+00	4.97E+00	1.61E+00
	RA-225	40.00		31.00	1.96E+01	1.96E+01	5.24E+00	9.51E+00
+	RA-226	186.21	*	3.28	2.75E+00	2.75E+00	4.38E+00	1.35E+00
	TH-227	50.10		8.40	7.20E-01	6.89E-01	-1.21E-01	3.51E-01
		236.00		11.50	6.89E-01		-4.65E+00	3.35E-01
		256.20		6.30	1.04E+00		6.10E-01	5.02E-01
+	AC-228	338.32	*	11.40	7.83E-01	4.73E-01	1.48E+00	3.80E-01
		911.07	*	27.70	4.73E-01		1.27E+00	2.26E-01

Analysis Report for 1707085-13

HTC-A02-S003-1218-01

	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	9.66E-01	4.73E-01	1.32E+00	4.65E-01
	TH-230	48.44		16.90	3.87E-01	3.87E-01	3.18E-02	1.88E-01
		62.85		4.60	1.67E+00		2.60E+00	8.19E-01
		67.67		0.37	1.86E+01		1.92E+00	9.07E+00
	PA-231	283.67		1.60	4.11E+00	3.31E+00	-2.77E-02	1.98E+00
		302.67		2.30	3.31E+00		3.55E+00	1.60E+00
	TH-231	25.64		14.70	6.16E-01	6.16E-01	-3.07E+00	3.00E-01
		84.21		6.40	1.09E+00		-9.13E-01	5.31E-01
	PA-233	311.98		38.60	2.18E+00	2.18E+00	8.69E-01	1.05E+00
+	PA-234	131.20	*	20.40	4.07E-01	4.07E-01	2.56E-01	2.00E-01
		733.99		8.80	8.64E-01		9.64E-02	4.04E-01
		946.00		12.00	8.26E-01		4.66E-01	3.88E-01
	PA-234M	1001.03		0.92	9.06E+00	9.06E+00	-4.25E-01	4.20E+00
+	TH-234	63.29	*	3.80	2.26E+00	2.26E+00	1.26E+00	1.11E+00
	U-235	143.76		10.50	5.46E-01	5.46E-01	1.07E-01	2.65E-01
		163.35		4.70	1.21E+00		5.88E-01	5.86E-01
		205.31		4.70	1.28E+00		-6.75E-01	6.17E-01
	NP-237	86.50		12.60	6.03E-01	6.03E-01	4.97E-01	2.96E-01
	NP-239	106.10		22.70	9.01E+11	9.01E+11	5.82E+11	4.39E+11
		228.18		10.70	2.04E+12		7.72E+11	9.84E+11
		277.60		14.10	1.77E+12		9.87E+11	8.56E+11
	AM-241	59.54		35.90	1.90E-01	1.90E-01	3.79E-02	9.28E-02
+	AM-243	74.67	*	66.00	2.00E-01	2.00E-01	3.39E-01	9.89E-02
	CM-243	209.75		3.29	1.88E+00	5.11E-01	5.22E-02	9.10E-01
		228.14		10.60	5.89E-01		2.23E-01	2.84E-01
		277.60		14.00	5.11E-01		2.85E-01	2.47E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

Analysis Report for 1707085-13

HTC-A02-S003-1218-01

No Data Review Comments Entered.

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

Sample Title: HTC-A02-S003-1218-01

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	62	68	75	141	493	174
25:	74	76	61	59	65	56	70	51
33:	76	71	79	73	75	71	76	83
41:	77	73	71	86	72	110	149	101
49:	79	96	95	95	91	110	105	102
57:	87	116	137	125	134	132	172	255
65:	149	126	142	142	130	143	142	155
73:	154	165	350	314	355	467	183	144
81:	130	125	100	141	163	142	165	241
89:	142	175	159	146	299	215	144	104
97:	100	103	99	107	76	84	93	74
105:	103	99	101	76	88	89	67	79
113:	91	85	93	89	84	66	72	66
121:	75	80	63	97	74	88	74	77
129:	96	95	71	100	71	72	55	78
137:	69	68	79	70	79	69	64	97
145:	74	72	66	73	65	58	86	65
153:	73	73	70	87	71	80	67	72
161:	52	64	76	64	73	54	45	65
169:	62	54	51	68	55	65	50	67
177:	55	68	81	61	62	59	80	63
185:	77	184	141	78	55	63	62	57
193:	64	62	54	38	46	51	53	50
201:	51	45	53	50	59	52	81	49
209:	71	88	47	44	49	61	42	52
217:	46	54	47	48	53	51	40	54
225:	60	42	54	49	61	46	65	45
233:	50	65	44	71	58	199	607	230
241:	109	152	103	52	41	36	37	47
249:	34	35	29	28	31	34	30	43
257:	37	40	40	42	30	36	38	36
265:	30	37	22	25	28	53	81	31
273:	34	27	34	32	46	49	45	35
281:	41	40	33	29	32	23	35	33
289:	25	28	27	34	29	51	137	192
297:	47	37	43	87	50	33	38	30
305:	25	25	17	30	26	26	31	40
313:	30	26	37	37	22	31	29	27
321:	25	28	27	28	30	23	33	48
329:	43	34	23	29	34	16	25	29
337:	36	76	89	43	28	32	22	30
345:	30	32	23	24	38	26	80	292
353:	186	49	15	29	27	31	24	25
361:	27	24	19	21	16	16	24	28

369:	28	23	26	21	17	25	26	27

Sample Title: HTC-A02-S003-1218-01

Channel								
377:	16	14	19	32	14	17	21	25
385:	23	24	26	30	21	18	21	14
393:	31	28	30	22	23	14	20	29
401:	24	20	19	16	17	23	22	14
409:	25	31	25	22	22	29	9	13
417:	23	19	17	21	15	22	15	23
425:	15	18	24	9	12	26	17	16
433:	9	14	17	12	21	22	25	23
441:	24	17	13	17	14	15	10	15
449:	13	12	13	7	24	15	13	17
457:	25	22	15	13	13	21	41	40
465:	21	19	19	17	24	25	15	15
473:	14	16	15	14	18	18	10	19
481:	23	20	14	16	23	12	19	12
489:	13	11	14	19	17	13	13	16
497:	9	14	12	20	17	12	14	9
505:	15	19	13	19	25	47	93	67
513:	27	21	9	19	11	18	10	12
521:	10	16	10	16	18	14	20	14
529:	13	11	9	8	15	12	8	11
537:	8	17	13	19	12	10	10	12
545:	16	20	13	11	10	8	18	20
553:	14	20	15	16	16	12	12	13
561:	13	21	19	12	11	18	13	17
569:	17	20	15	14	18	7	13	22
577:	14	14	16	20	19	41	150	143
585:	26	10	19	15	9	11	10	11
593:	15	11	13	10	15	23	22	16
601:	15	13	8	11	13	15	15	43
609:	172	162	43	15	13	23	23	8
617:	19	9	11	8	12	15	9	14
625:	16	15	11	12	12	16	17	19
633:	10	14	14	5	12	10	6	17
641:	12	12	15	13	17	14	12	9
649:	14	16	17	13	15	12	9	20
657:	12	16	5	11	12	15	13	12
665:	13	25	17	10	13	13	9	12
673:	16	8	9	18	8	16	10	9
681:	11	11	10	15	10	13	10	7
689:	12	6	17	14	15	11	14	6
697:	13	13	8	10	11	14	12	15
705:	9	7	11	9	12	17	8	12
713:	16	9	16	9	17	18	15	12
721:	10	10	19	12	11	20	43	32
729:	13	8	9	13	12	8	12	11
737:	7	13	5	12	16	8	8	13
745:	12	8	3	6	11	10	12	13
753:	5	4	16	15	19	11	5	9
761:	9	9	10	17	10	12	17	25
769:	32	14	7	16	14	10	13	12
777:	6	9	9	12	6	11	11	6
785:	25	10	15	7	10	11	12	7
793:	10	14	30	21	12	7	7	7

801:	5	5	7	12	9	16	13	10

Sample Title: HTC-A02-S003-1218-01

Channel								
809:	8	5	4	3	12	7	10	9
817:	10	9	10	5	10	16	10	11
825:	7	7	8	5	4	13	9	8
833:	13	6	10	20	12	10	11	14
841:	12	10	7	9	9	4	10	3
849:	12	11	9	6	8	14	9	5
857:	6	10	12	21	23	11	8	9
865:	14	9	13	14	9	10	6	5
873:	7	10	7	7	11	10	10	7
881:	7	11	5	10	8	13	12	9
889:	9	13	11	7	6	14	9	10
897:	11	9	8	8	6	8	2	12
905:	9	14	9	8	10	31	98	69
913:	22	12	8	12	10	10	8	9
921:	12	6	13	8	7	12	4	9
929:	10	4	9	10	12	18	11	8
937:	6	8	7	8	12	7	10	12
945:	17	9	14	12	10	10	5	11
953:	12	9	6	12	6	8	4	5
961:	9	10	10	20	25	13	8	32
969:	50	37	14	10	8	6	7	3
977:	5	2	8	7	12	8	7	9
985:	5	12	5	13	6	9	6	9
993:	9	4	6	6	4	7	8	6
1001:	13	3	5	11	12	8	7	4
1009:	9	9	5	10	10	8	8	6
1017:	6	5	15	7	6	6	8	6
1025:	6	4	7	4	2	14	5	8
1033:	7	3	9	7	4	13	14	9
1041:	3	10	9	7	9	4	7	4
1049:	10	4	10	6	5	10	7	6
1057:	9	8	14	12	11	7	5	6
1065:	10	8	7	5	8	3	16	10
1073:	9	3	7	2	4	8	8	7
1081:	4	7	12	2	7	5	11	7
1089:	9	7	4	11	7	6	8	11
1097:	17	7	10	4	8	6	12	8
1105:	9	7	8	7	9	16	9	7
1113:	7	11	6	7	6	15	13	45
1121:	37	15	7	10	5	9	4	8
1129:	13	10	4	12	5	10	13	9
1137:	9	7	10	11	8	9	8	7
1145:	7	7	7	15	12	3	8	10
1153:	6	14	6	5	10	16	12	11
1161:	14	13	10	13	6	5	7	7
1169:	8	5	8	8	7	11	12	12
1177:	9	6	5	11	11	7	12	4
1185:	12	14	8	14	7	7	9	14
1193:	15	13	9	4	8	10	7	5
1201:	13	11	13	9	6	12	8	11
1209:	14	11	8	17	10	11	13	7
1217:	11	9	7	10	7	7	12	9
1225:	13	15	18	12	7	7	9	10

1233:	11	8	13	8	19	22	11	8

Sample Title: HTC-A02-S003-1218-01

Channel								
1241:	19	12	13	9	7	10	6	8
1249:	8	5	8	6	9	8	7	11
1257:	6	6	4	4	6	8	5	17
1265:	8	2	5	9	11	5	8	6
1273:	1	9	9	4	6	7	5	8
1281:	3	8	7	7	5	2	10	4
1289:	2	5	8	2	8	6	9	8
1297:	3	3	7	7	4	6	4	6
1305:	6	6	7	5	1	9	7	7
1313:	5	6	3	1	4	9	11	1
1321:	2	4	9	7	5	5	5	7
1329:	6	6	5	6	1	1	3	5
1337:	7	1	8	6	3	1	3	4
1345:	5	5	4	5	4	3	5	2
1353:	5	3	5	5	5	2	4	2
1361:	1	3	4	1	6	2	5	2
1369:	4	1	3	2	2	3	4	6
1377:	7	15	6	2	2	1	0	3
1385:	3	8	2	7	3	2	6	6
1393:	4	2	3	2	3	0	5	4
1401:	11	2	2	3	4	2	6	8
1409:	7	2	3	2	3	1	2	1
1417:	4	1	2	2	5	4	3	3
1425:	3	3	4	1	2	5	1	3
1433:	3	3	6	4	2	5	4	2
1441:	0	4	3	5	1	2	2	4
1449:	4	1	2	2	3	1	2	6
1457:	7	16	115	357	399	127	23	10
1465:	14	11	3	1	1	1	2	2
1473:	4	0	2	2	1	2	2	1
1481:	1	2	1	1	1	0	2	1
1489:	3	0	1	3	3	1	5	0
1497:	7	3	1	4	1	1	1	2
1505:	1	3	2	4	6	5	4	2
1513:	0	0	0	2	1	2	2	3
1521:	1	3	1	1	4	3	1	1
1529:	1	2	1	2	3	1	3	2
1537:	2	2	1	2	1	3	3	5
1545:	2	3	2	1	2	4	1	1
1553:	3	1	1	3	2	5	3	4
1561:	3	4	3	1	0	3	3	1
1569:	1	2	2	1	3	1	2	1
1577:	1	1	2	3	4	1	2	3
1585:	1	6	7	8	6	0	2	6
1593:	3	3	5	2	1	0	5	3
1601:	0	3	3	2	1	0	1	3
1609:	2	0	4	1	0	1	1	1
1617:	1	3	3	5	1	2	0	3
1625:	0	1	0	3	2	6	1	1
1633:	0	2	1	0	1	3	2	1
1641:	0	5	3	0	2	2	2	0
1649:	2	3	1	2	1	0	0	0
1657:	1	0	4	3	3	0	1	0

1665:	0	3	3	1	2	1	0	2

Sample Title: HTC-A02-S003-1218-01

Channel								
1673:	0	0	1	1	1	3	0	4
1681:	2	1	4	5	1	1	2	4
1689:	1	1	0	0	1	0	1	1
1697:	1	1	2	1	1	1	1	1
1705:	0	0	1	2	1	3	1	2
1713:	1	1	1	0	2	0	0	1
1721:	2	3	0	2	2	2	0	3
1729:	10	2	1	1	1	1	0	0
1737:	1	1	2	1	1	2	3	1
1745:	0	1	0	1	0	2	2	0
1753:	1	1	2	2	3	2	4	1
1761:	3	2	12	28	19	4	1	0
1769:	4	2	0	0	4	2	0	0
1777:	1	2	1	1	0	1	3	0
1785:	1	0	0	0	2	2	0	2
1793:	0	1	2	5	1	1	1	0
1801:	1	2	3	2	1	1	4	3
1809:	2	0	2	1	0	0	1	0
1817:	2	2	1	0	0	1	0	0
1825:	0	2	1	1	1	1	3	2
1833:	2	3	1	1	3	3	0	1
1841:	2	0	0	1	3	3	7	4
1849:	2	0	1	1	0	0	0	1
1857:	2	0	1	0	1	2	1	0
1865:	0	0	1	0	1	3	1	2
1873:	0	3	1	2	2	1	1	2
1881:	1	0	1	0	1	2	0	3
1889:	1	1	3	0	0	2	0	0
1897:	0	1	1	1	3	2	1	0
1905:	1	2	1	0	0	0	5	0
1913:	0	1	0	0	1	1	2	0
1921:	1	0	2	0	0	2	4	0
1929:	0	0	1	1	0	0	0	0
1937:	0	1	3	0	1	0	4	1
1945:	2	0	0	1	1	0	1	1
1953:	0	2	0	1	0	1	2	1
1961:	0	1	0	1	1	1	0	1
1969:	0	2	0	0	1	0	0	0
1977:	3	2	1	2	2	0	1	1
1985:	2	0	0	2	2	0	3	2
1993:	1	0	2	2	2	0	2	2
2001:	1	0	3	1	2	0	1	1
2009:	1	1	0	0	0	1	0	2
2017:	1	2	0	2	1	1	1	1
2025:	1	2	1	0	0	0	3	1
2033:	3	0	0	0	1	2	1	2
2041:	0	0	1	0	2	0	1	1
2049:	1	1	0	2	2	0	1	1
2057:	0	0	3	0	1	2	0	1
2065:	2	1	0	0	2	0	1	0
2073:	1	0	1	0	2	0	1	1
2081:	1	1	0	1	4	1	3	0
2089:	2	0	0	0	1	2	3	3

2097:	0	2	1	3	3	6	4	1

Sample Title: HTC-A02-S003-1218-01

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

2529:	0	0	0	0	1	2	2	0

Sample Title: HTC-A02-S003-1218-01

Channel								
2537:	0	1	1	0	0	0	0	0
2545:	1	0	0	2	0	0	0	0
2553:	0	0	2	0	0	0	1	1
2561:	0	2	1	0	0	0	0	0
2569:	0	0	1	0	0	0	0	0
2577:	1	0	0	0	1	0	1	0
2585:	0	0	1	0	0	1	0	0
2593:	2	0	0	1	0	0	0	1
2601:	0	0	0	0	2	0	0	0
2609:	1	0	5	16	36	28	13	3
2617:	0	0	1	0	0	0	0	0
2625:	0	0	2	1	1	1	0	0
2633:	0	1	1	0	0	0	0	0
2641:	1	0	0	0	0	0	1	0
2649:	0	0	0	0	0	0	0	0
2657:	0	0	0	1	1	1	0	1
2665:	0	1	0	0	1	0	0	0
2673:	0	2	0	1	0	0	0	1
2681:	0	1	0	0	0	0	0	0
2689:	1	0	1	0	0	0	0	1
2697:	0	0	0	0	0	1	2	2
2705:	0	0	0	1	0	1	0	0
2713:	0	0	0	0	1	1	2	0
2721:	0	1	0	1	0	0	1	0
2729:	0	0	0	0	1	1	0	0
2737:	0	0	0	0	0	1	0	0
2745:	0	0	0	0	0	0	0	0
2753:	0	0	0	0	0	2	0	0
2761:	0	0	0	0	1	0	0	0
2769:	1	0	0	1	0	0	0	0
2777:	0	0	0	0	0	0	0	0
2785:	0	1	0	0	0	0	0	0
2793:	0	0	1	0	0	0	1	0
2801:	1	1	0	0	1	1	0	0
2809:	0	3	0	0	1	0	0	2
2817:	0	1	0	0	0	0	0	0
2825:	0	0	0	0	1	1	0	1
2833:	0	1	0	0	1	0	1	1
2841:	0	0	0	0	0	1	0	0
2849:	0	0	0	0	0	0	0	0
2857:	0	0	0	0	0	3	0	0
2865:	0	1	0	0	0	0	0	0
2873:	0	1	1	0	1	1	1	0
2881:	0	0	0	0	0	0	0	0
2889:	0	0	0	0	1	0	0	0
2897:	0	2	0	0	0	1	0	0
2905:	0	0	0	0	0	0	1	0
2913:	0	1	0	0	0	1	0	0
2921:	2	0	0	0	0	0	0	0
2929:	0	0	0	1	0	2	0	1
2937:	0	0	0	1	0	1	0	0
2945:	0	0	0	0	1	2	0	0
2953:	0	0	1	2	0	0	1	0

2961:	0	1	0	0	1	0	0	1

Sample Title: HTC-A02-S003-1218-01

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

3393:	0	0	0	1	0	0	1	0

Sample Title: HTC-A02-S003-1218-01

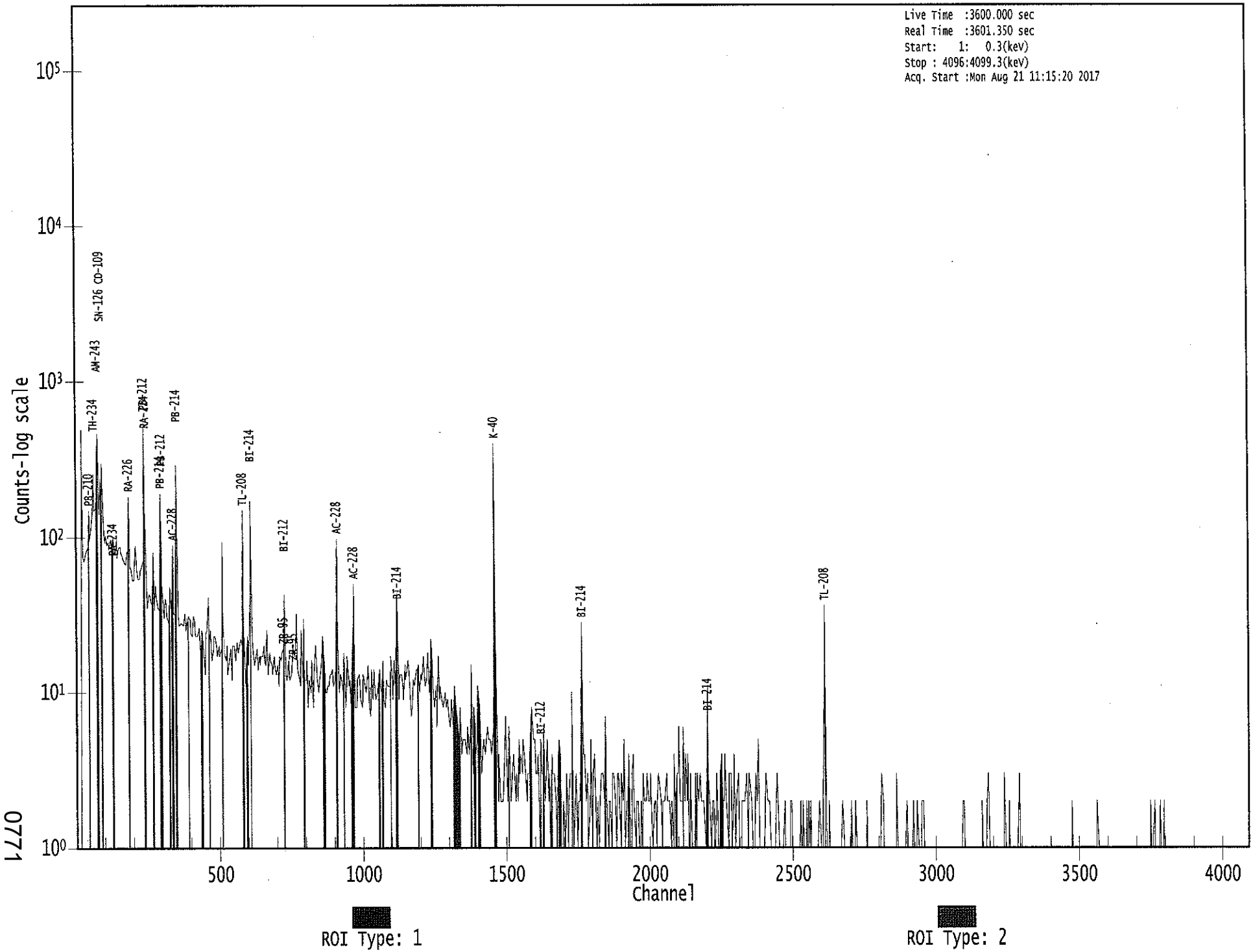
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	1	0	0	1	0	1	0	0
3425:	0	1	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	1	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	2	0	0	0	0	0
3481:	0	0	0	1	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	1	0	0	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A02-S003-1218-01

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

0000055630.CNF



0771

Apex-Gamma

8/21

Analysis Report for 1707085-14
HTC-A02-S003-1824-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707085-14
Sample Description	: HTC-A02-S003-1824-01
Sample Type	: SOIL
Sample Size	: 4.847E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 8:12:01AM
Acquisition Started	: 8/21/2017 12:03:48PM
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	: 55634

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/22/17

Analysis Report for 1707085-14

HTC-A02-S003-1824-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 1:16:17PM
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	63.57	63.88	0.0000	0.00
2	75.10	75.41	0.0000	0.00
3	77.76	78.06	0.0000	0.00
4	87.86	88.16	0.0000	0.00
5	92.46	92.75	0.0000	0.00
6	129.36	129.64	0.0000	0.00
7	186.45	186.72	0.0000	0.00
8	227.10	227.36	0.0000	0.00
9	239.16	239.41	0.0000	0.00
10	242.31	242.56	0.0000	0.00
11	270.51	270.74	0.0000	0.00
12	277.56	277.80	0.0000	0.00
13	295.65	295.88	0.0000	0.00
14	300.93	301.16	0.0000	0.00
15	328.66	328.88	0.0000	0.00
16	338.79	339.01	0.0000	0.00
17	352.23	352.44	0.0000	0.00
18	463.54	463.71	0.0000	0.00
19	490.49	490.66	0.0000	0.00
20	511.51	511.66	0.0000	0.00
21	583.61	583.74	0.0000	0.00
22	609.62	609.75	0.0000	0.00
23	626.67	626.79	0.0000	0.00
24	656.83	656.94	0.0000	0.00
25	667.42	667.53	0.0000	0.00
26	727.42	727.50	0.0000	0.00
27	737.46	737.54	0.0000	0.00
28	768.13	768.20	0.0000	0.00
29	911.44	911.46	0.0000	0.00
30	934.98	934.99	0.0000	0.00
31	966.00	966.00	0.0000	0.00
32	970.00	970.00	0.0000	0.00
33	1008.04	1008.03	0.0000	0.00
34	1117.27	1117.22	0.0000	0.00
35	1120.30	1120.25	0.0000	0.00
36	1240.66	1240.56	0.0000	0.00
37	1407.35	1407.21	0.0000	0.00
38	1454.16	1454.00	0.0000	0.00
39	1460.86	1460.69	0.0000	0.00
40	1590.44	1590.23	0.0000	0.00
41	1630.44	1630.21	0.0000	0.00
42	1729.54	1729.29	0.0000	0.00

Analysis Report for 1707085-14

HTC-A02-S003-1824-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1764.61	1764.34	0.0000	0.00
44	1847.49	1847.19	0.0000	0.00
45	1978.17	1977.83	0.0000	0.00
46	2202.69	2202.27	0.0000	0.00
47	2329.26	2328.80	0.0000	0.00
48	2366.39	2365.92	0.0000	0.00
49	2447.50	2447.00	0.0000	0.00
50	2502.37	2501.86	0.0000	0.00
51	2613.88	2613.32	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707085-14

HTC-A02-S003-1824-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 1:16:17PM

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	63.57	60 -	66	63.88	1.68E+02	99.31	1.67E+03	2.52
M	2	75.10	71 -	97	75.41	5.44E+02	114.73	1.71E+03	2.80
m	3	77.76	71 -	97	78.06	6.20E+02	106.77	1.36E+03	2.30
m	4	87.86	71 -	97	88.16	3.75E+02	140.30	1.97E+03	3.97
m	5	92.46	71 -	97	92.75	3.93E+02	112.36	1.35E+03	3.03
	6	129.36	127 -	132	129.64	9.28E+01	60.42	6.58E+02	2.99
	7	186.45	182 -	191	186.72	2.05E+02	86.05	9.30E+02	2.46
	8	227.10	224 -	231	227.36	7.03E+01	60.07	5.59E+02	4.94
M	9	239.16	235 -	245	239.41	7.36E+02	77.83	5.27E+02	2.19
m	10	242.31	235 -	245	242.56	1.77E+02	63.91	3.81E+02	1.98
	11	270.51	267 -	274	270.74	8.94E+01	51.30	3.77E+02	2.14
	12	277.56	275 -	282	277.80	6.17E+01	50.08	3.79E+02	1.54
M	13	295.65	291 -	305	295.88	2.41E+02	51.94	3.14E+02	2.33
m	14	300.93	291 -	305	301.16	4.68E+01	44.07	2.84E+02	2.33
	15	328.66	326 -	331	328.88	3.07E+01	38.12	2.65E+02	1.39
	16	338.79	336 -	344	339.01	1.69E+02	58.23	4.25E+02	1.86
	17	352.23	349 -	355	352.44	3.37E+02	53.17	2.69E+02	2.20
	18	463.54	458 -	468	463.71	5.09E+01	47.10	2.66E+02	1.91
	19	490.49	487 -	494	490.66	2.63E+01	30.72	1.39E+02	3.80
	20	511.51	507 -	518	511.66	1.68E+02	52.00	2.42E+02	2.85
	21	583.61	579 -	590	583.74	1.67E+02	56.71	3.21E+02	2.27
	22	609.62	607 -	613	609.75	2.69E+02	41.23	1.10E+02	2.23
	23	626.67	621 -	637	626.79	6.00E+01	49.74	2.14E+02	8.88
	24	656.83	650 -	664	656.94	6.38E+01	46.63	2.00E+02	10.78
	25	667.42	665 -	671	667.53	3.64E+01	23.35	7.12E+01	2.84
	26	727.42	724 -	732	727.50	5.04E+01	29.01	9.72E+01	3.12
	27	737.46	732 -	744	737.54	4.15E+01	38.65	1.57E+02	9.53
	28	768.13	761 -	777	768.20	9.15E+01	44.41	1.53E+02	10.23
	29	911.44	907 -	916	911.46	1.33E+02	36.43	1.10E+02	2.37
	30	934.98	931 -	940	934.99	2.61E+01	26.48	8.58E+01	2.00
M	31	966.00	965 -	973	966.00	1.27E+01	11.53	3.77E+01	2.14
m	32	970.00	965 -	973	970.00	3.15E+01	26.48	1.10E+02	2.14
	33	1008.04	1006 -	1010	1008.03	1.12E+01	14.76	3.97E+01	2.56
M	34	1117.27	1116 -	1129	1117.22	1.60E+01	10.82	2.75E+01	2.85
m	35	1120.30	1116 -	1129	1120.25	5.68E+01	29.27	8.81E+01	2.94
	36	1240.66	1233 -	1249	1240.56	5.42E+01	49.42	2.10E+02	10.83
	37	1407.35	1401 -	1412	1407.21	1.87E+01	20.20	4.06E+01	1.96
M	38	1454.16	1453 -	1470	1454.00	1.11E+01	0.71	1.00E+00	2.34
m	39	1460.86	1453 -	1470	1460.69	5.92E+02	49.52	8.00E+00	2.58
	40	1590.44	1581 -	1602	1590.23	5.48E+01	19.10	1.24E+01	4.64

Analysis Report for 1707085-14

HTC-A02-S003-1824-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1630.44	1626 -	1633	1630.21	7.27E+00	8.72	7.45E+00	1.03
42	1729.54	1724 -	1734	1729.29	1.82E+01	10.69	5.57E+00	8.29
43	1764.61	1758 -	1769	1764.34	3.81E+01	18.55	2.38E+01	2.21
44	1847.49	1844 -	1851	1847.19	1.17E+01	8.49	4.64E+00	2.11
45	1978.17	1975 -	1980	1977.83	6.00E+00	4.90	0.00E+00	1.98
46	2202.69	2198 -	2206	2202.27	1.37E+01	9.18	4.63E+00	1.27
47	2329.26	2326 -	2331	2328.80	6.40E+00	8.19	7.20E+00	1.78
48	2366.39	2363 -	2368	2365.92	5.00E+00	7.07	6.00E+00	1.45
49	2447.50	2443 -	2449	2447.00	8.00E+00	5.66	0.00E+00	2.00
50	2502.37	2497 -	2504	2501.86	7.00E+00	5.29	0.00E+00	2.98
51	2613.88	2608 -	2618	2613.32	6.80E+01	16.49	0.00E+00	3.27

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 1:16:17PM

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	63.57	60 -	66	1.68E+02	99.31	1.67E+03	7.88E+01
M	2	75.10	71 -	97	5.44E+02	114.73	1.71E+03	6.79E+01
m	3	77.76	71 -	97	6.20E+02	106.77	1.36E+03	6.07E+01
m	4	87.86	71 -	97	3.75E+02	140.30	1.97E+03	7.29E+01
m	5	92.46	71 -	97	3.93E+02	112.36	1.35E+03	6.04E+01
	6	129.36	127 -	132	9.28E+01	60.42	6.58E+02	4.71E+01
	7	186.45	182 -	191	2.05E+02	86.05	9.30E+02	6.67E+01
	8	227.10	224 -	231	7.03E+01	60.07	5.59E+02	4.74E+01
M	9	239.16	235 -	245	7.36E+02	77.83	5.27E+02	3.78E+01
m	10	242.31	235 -	245	1.77E+02	63.91	3.81E+02	3.21E+01
	11	270.51	267 -	274	8.94E+01	51.30	3.77E+02	3.92E+01
	12	277.56	275 -	282	6.17E+01	50.08	3.79E+02	3.91E+01
M	13	295.65	291 -	305	2.41E+02	51.94	3.14E+02	2.91E+01
m	14	300.93	291 -	305	4.68E+01	44.07	2.84E+02	2.77E+01
	15	328.66	326 -	331	3.07E+01	38.12	2.65E+02	3.00E+01
	16	338.79	336 -	344	1.69E+02	58.23	4.25E+02	4.28E+01
	17	352.23	349 -	355	3.37E+02	53.17	2.69E+02	3.16E+01

Analysis Report for 1707085-14

HTC-A02-S003-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	18	463.54	458 -	468	5.09E+01	47.10	2.66E+02	3.69E+01
	19	490.49	487 -	494	2.63E+01	30.72	1.39E+02	2.38E+01
	20	511.51	507 -	518	1.68E+02	52.00	2.42E+02	3.70E+01
	21	583.61	579 -	590	1.67E+02	56.71	3.21E+02	4.15E+01
	22	609.62	607 -	613	2.69E+02	41.23	1.10E+02	2.05E+01
	23	626.67	621 -	637	6.00E+01	49.74	2.14E+02	3.89E+01
	24	656.83	650 -	664	6.38E+01	46.63	2.00E+02	3.60E+01
	25	667.42	665 -	671	3.64E+01	23.35	7.12E+01	1.64E+01
	26	727.42	724 -	732	5.04E+01	29.01	9.72E+01	2.08E+01
	27	737.46	732 -	744	4.15E+01	38.65	1.57E+02	3.00E+01
	28	768.13	761 -	777	9.15E+01	44.41	1.53E+02	3.29E+01
	29	911.44	907 -	916	1.33E+02	36.43	1.10E+02	2.32E+01
	30	934.98	931 -	940	2.61E+01	26.48	8.58E+01	2.01E+01
M	31	966.00	965 -	973	1.27E+01	11.53	3.77E+01	1.01E+01
m	32	970.00	965 -	973	3.15E+01	26.48	1.10E+02	1.73E+01
	33	1008.04	1006 -	1010	1.12E+01	14.76	3.97E+01	1.08E+01
M	34	1117.27	1116 -	1129	1.60E+01	10.82	2.75E+01	8.63E+00
m	35	1120.30	1116 -	1129	5.68E+01	29.27	8.81E+01	1.54E+01
	36	1240.66	1233 -	1249	5.42E+01	49.42	2.10E+02	3.88E+01
	37	1407.35	1401 -	1412	1.87E+01	20.20	4.06E+01	1.50E+01
M	38	1454.16	1453 -	1470	1.11E+01	0.71	1.00E+00	1.64E+00
m	39	1460.86	1453 -	1470	5.92E+02	49.52	8.00E+00	4.65E+00
	40	1590.44	1581 -	1602	5.48E+01	19.10	1.24E+01	9.92E+00
	41	1630.44	1626 -	1633	7.27E+00	8.72	7.45E+00	5.63E+00
	42	1729.54	1724 -	1734	1.82E+01	10.69	5.57E+00	5.29E+00
	43	1764.61	1758 -	1769	3.81E+01	18.55	2.38E+01	1.14E+01
	44	1847.49	1844 -	1851	1.17E+01	8.49	4.64E+00	4.13E+00
	45	1978.17	1975 -	1980	6.00E+00	4.90	0.00E+00	0.00E+00
	46	2202.69	2198 -	2206	1.37E+01	9.18	4.63E+00	4.46E+00
	47	2329.26	2326 -	2331	6.40E+00	8.19	7.20E+00	5.29E+00
	48	2366.39	2363 -	2368	5.00E+00	7.07	6.00E+00	4.50E+00
	49	2447.50	2443 -	2449	8.00E+00	5.66	0.00E+00	0.00E+00
	50	2502.37	2497 -	2504	7.00E+00	5.29	0.00E+00	0.00E+00
	51	2613.88	2608 -	2618	6.80E+01	16.49	0.00E+00	0.00E+00

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

Analysis Report for 1707085-14

HTC-A02-S003-1824-01

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/21/2017 1:16:17PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	63.57	60 -	66	63.88	1.68E+02	99.31	1.67E+03	TH-234
									TH-230
M	2	75.10	71 -	97	75.41	5.44E+02	114.73	1.71E+03	AM-243
m	3	77.76	71 -	97	78.06	6.20E+02	106.77	1.36E+03	TI-44
m	4	87.86	71 -	97	88.16	3.75E+02	140.30	1.97E+03	CD-109
									SN-126
									LU-176
m	5	92.46	71 -	97	92.75	3.93E+02	112.36	1.35E+03	GA-67
	6	129.36	127 -	132	129.64	9.28E+01	60.42	6.58E+02	.....
	7	186.45	182 -	191	186.72	2.05E+02	86.05	9.30E+02	RA-226
	8	227.10	224 -	231	227.36	7.03E+01	60.07	5.59E+02	.....
M	9	239.16	235 -	245	239.41	7.36E+02	77.83	5.27E+02	PB-212
m	10	242.31	235 -	245	242.56	1.77E+02	63.91	3.81E+02	.....
	11	270.51	267 -	274	270.74	8.94E+01	51.30	3.77E+02	.....
	12	277.56	275 -	282	277.80	6.17E+01	50.08	3.79E+02	CM-243
									NP-239
M	13	295.65	291 -	305	295.88	2.41E+02	51.94	3.14E+02	PB-214
m	14	300.93	291 -	305	301.16	4.68E+01	44.07	2.84E+02	GA-67
									PB-212
									BI-210M
	15	328.66	326 -	331	328.88	3.07E+01	38.12	2.65E+02	LA-140
	16	338.79	336 -	344	339.01	1.69E+02	58.23	4.25E+02	AC-228
	17	352.23	349 -	355	352.44	3.37E+02	53.17	2.69E+02	PB-214
	18	463.54	458 -	468	463.71	5.09E+01	47.10	2.66E+02	SB-125
	19	490.49	487 -	494	490.66	2.63E+01	30.72	1.39E+02	.....
	20	511.51	507 -	518	511.66	1.68E+02	52.00	2.42E+02	.....
	21	583.61	579 -	590	583.74	1.67E+02	56.71	3.21E+02	TL-208
	22	609.62	607 -	613	609.75	2.69E+02	41.23	1.10E+02	BI-214
	23	626.67	621 -	637	626.79	6.00E+01	49.74	2.14E+02	.....
	24	656.83	650 -	664	656.94	6.38E+01	46.63	2.00E+02	AG-110M
	25	667.42	665 -	671	667.53	3.64E+01	23.35	7.12E+01	.....
	26	727.42	724 -	732	727.50	5.04E+01	29.01	9.72E+01	BI-212
	27	737.46	732 -	744	737.54	4.15E+01	38.65	1.57E+02	.....
	28	768.13	761 -	777	768.20	9.15E+01	44.41	1.53E+02	.....
	29	911.44	907 -	916	911.46	1.33E+02	36.43	1.10E+02	TL-204
									AC-228
	30	934.98	931 -	940	934.99	2.61E+01	26.48	8.58E+01	.....
M	31	966.00	965 -	973	966.00	1.27E+01	11.53	3.77E+01	.....
m	32	970.00	965 -	973	970.00	3.15E+01	26.48	1.10E+02	AC-228
	33	1008.04	1006 -	1010	1008.03	1.12E+01	14.76	3.97E+01	.....
M	34	1117.27	1116 -	1129	1117.22	1.60E+01	10.82	2.75E+01	.....

Analysis Report for 1707085-14

HTC-A02-S003-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
m	35	1120.30	1116 -	1129	1120.25	5.68E+01	29.27	8.81E+01	BI-214 SC-46 TA-182
	36	1240.66	1233 -	1249	1240.56	5.42E+01	49.42	2.10E+02	.....
	37	1407.35	1401 -	1412	1407.21	1.87E+01	20.20	4.06E+01	EU-152
M	38	1454.16	1453 -	1470	1454.00	1.11E+01	0.71	1.00E+00	.....
m	39	1460.86	1453 -	1470	1460.69	5.92E+02	49.52	8.00E+00	K-40
	40	1590.44	1581 -	1602	1590.23	5.48E+01	19.10	1.24E+01	.....
	41	1630.44	1626 -	1633	1630.21	7.27E+00	8.72	7.45E+00	.....
	42	1729.54	1724 -	1734	1729.29	1.82E+01	10.69	5.57E+00	.....
	43	1764.61	1758 -	1769	1764.34	3.81E+01	18.55	2.38E+01	BI-214
	44	1847.49	1844 -	1851	1847.19	1.17E+01	8.49	4.64E+00	.....
	45	1978.17	1975 -	1980	1977.83	6.00E+00	4.90	0.00E+00	.....
	46	2202.69	2198 -	2206	2202.27	1.37E+01	9.18	4.63E+00	.....
	47	2329.26	2326 -	2331	2328.80	6.40E+00	8.19	7.20E+00	.....
	48	2366.39	2363 -	2368	2365.92	5.00E+00	7.07	6.00E+00	.....
	49	2447.50	2443 -	2449	2447.00	8.00E+00	5.66	0.00E+00	.....
	50	2502.37	2497 -	2504	2501.86	7.00E+00	5.29	0.00E+00	.....
	51	2613.88	2608 -	2618	2613.32	6.80E+01	16.49	0.00E+00	TL-208

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/21/2017 1:16:17PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	63.57	1.68E+02	99.31	2.45E-02	1.80E-03
M	2	75.10	5.44E+02	114.73	2.65E-02	2.02E-03
m	3	77.76	6.20E+02	106.77	2.68E-02	2.07E-03
m	4	87.86	3.75E+02	140.30	2.72E-02	2.26E-03
m	5	92.46	3.93E+02	112.36	2.71E-02	2.24E-03
	6	129.36	9.28E+01	60.42	2.45E-02	2.04E-03
	7	186.45	2.05E+02	86.05	1.96E-02	1.55E-03
	8	227.10	7.03E+01	60.07	1.68E-02	1.39E-03
M	9	239.16	7.36E+02	77.83	1.61E-02	1.34E-03
m	10	242.31	1.77E+02	63.91	1.59E-02	1.33E-03
	11	270.51	8.94E+01	51.30	1.45E-02	1.21E-03

Analysis Report for 1707085-14

HTC-A02-S003-1824-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	12	277.56	6.17E+01	50.08	1.42E-02	1.19E-03
M	13	295.65	2.41E+02	51.94	1.35E-02	1.15E-03
m	14	300.93	4.68E+01	44.07	1.32E-02	1.14E-03
	15	328.66	3.07E+01	38.12	1.23E-02	1.08E-03
	16	338.79	1.69E+02	58.23	1.19E-02	1.06E-03
	17	352.23	3.37E+02	53.17	1.15E-02	1.03E-03
	18	463.54	5.09E+01	47.10	9.01E-03	8.57E-04
	19	490.49	2.63E+01	30.72	8.56E-03	8.22E-04
	20	511.51	1.68E+02	52.00	8.25E-03	7.94E-04
	21	583.61	1.67E+02	56.71	7.32E-03	6.98E-04
	22	609.62	2.69E+02	41.23	7.04E-03	6.64E-04
	23	626.67	6.00E+01	49.74	6.87E-03	6.41E-04
	24	656.83	6.38E+01	46.63	6.58E-03	6.01E-04
	25	667.42	3.64E+01	23.35	6.49E-03	5.89E-04
	26	727.42	5.04E+01	29.01	6.01E-03	5.37E-04
	27	737.46	4.15E+01	38.65	5.93E-03	5.28E-04
	28	768.13	9.15E+01	44.41	5.72E-03	5.01E-04
	29	911.44	1.33E+02	36.43	4.92E-03	3.84E-04
	30	934.98	2.61E+01	26.48	4.81E-03	3.80E-04
M	31	966.00	1.27E+01	11.53	4.68E-03	3.75E-04
m	32	970.00	3.15E+01	26.48	4.66E-03	3.74E-04
	33	1008.04	1.12E+01	14.76	4.51E-03	3.68E-04
M	34	1117.27	1.60E+01	10.82	4.13E-03	3.50E-04
m	35	1120.30	5.68E+01	29.27	4.12E-03	3.50E-04
	36	1240.66	5.42E+01	49.42	3.78E-03	3.22E-04
	37	1407.35	1.87E+01	20.20	3.41E-03	2.84E-04
M	38	1454.16	1.11E+01	0.71	3.32E-03	2.76E-04
m	39	1460.86	5.92E+02	49.52	3.31E-03	2.75E-04
	40	1590.44	5.48E+01	19.10	3.10E-03	2.54E-04
	41	1630.44	7.27E+00	8.72	3.04E-03	2.48E-04
	42	1729.54	1.82E+01	10.69	2.91E-03	2.32E-04
	43	1764.61	3.81E+01	18.55	2.87E-03	2.26E-04
	44	1847.49	1.17E+01	8.49	2.77E-03	2.15E-04
	45	1978.17	6.00E+00	4.90	2.64E-03	2.15E-04
	46	2202.69	1.37E+01	9.18	2.47E-03	2.15E-04
	47	2329.26	6.40E+00	8.19	2.38E-03	2.15E-04
	48	2366.39	5.00E+00	7.07	2.36E-03	2.15E-04
	49	2447.50	8.00E+00	5.66	2.32E-03	2.15E-04
	50	2502.37	7.00E+00	5.29	2.29E-03	2.15E-04
	51	2613.88	6.80E+01	16.49	2.24E-03	2.15E-04

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

Analysis Report for 1707085-14

HTC-A02-S003-1824-01

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/21/2017 1:16:17PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055575.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	63.57	1.68E+02	99.31	4.12E+01	5.67E+00	1.26E+02	9.95E+01
M	2	75.10	5.44E+02	114.73			5.44E+02	1.15E+02
m	3	77.76	6.20E+02	106.77			6.20E+02	1.07E+02
m	4	87.86	3.75E+02	140.30			3.75E+02	1.40E+02
m	5	92.46	3.93E+02	112.36	7.98E+01	7.31E+00	3.13E+02	1.13E+02
	6	129.36	9.28E+01	60.42			9.28E+01	6.04E+01
	7	186.45	2.05E+02	86.05	3.06E+01	5.82E+00	1.74E+02	8.62E+01
	8	227.10	7.03E+01	60.07			7.03E+01	6.01E+01
M	9	239.16	7.36E+02	77.83	1.40E+01	2.71E+00	7.22E+02	7.79E+01
m	10	242.31	1.77E+02	63.91			1.77E+02	6.39E+01
	11	270.51	8.94E+01	51.30			8.94E+01	5.13E+01
	12	277.56	6.17E+01	50.08			6.17E+01	5.01E+01
M	13	295.65	2.41E+02	51.94			2.41E+02	5.19E+01
m	14	300.93	4.68E+01	44.07			4.68E+01	4.41E+01
	15	328.66	3.07E+01	38.12			3.07E+01	3.81E+01
	16	338.79	1.69E+02	58.23			1.69E+02	5.82E+01
	17	352.23	3.37E+02	53.17	6.53E+00	4.43E+00	3.30E+02	5.34E+01
	18	463.54	5.09E+01	47.10			5.09E+01	4.71E+01
	19	490.49	2.63E+01	30.72			2.63E+01	3.07E+01
	20	511.51	1.68E+02	52.00	5.21E+01	4.74E+00	1.16E+02	5.22E+01
	21	583.61	1.67E+02	56.71			1.67E+02	5.67E+01
	22	609.62	2.69E+02	41.23	3.25E+00	2.97E+00	2.66E+02	4.13E+01
	23	626.67	6.00E+01	49.74			6.00E+01	4.97E+01
	24	656.83	6.38E+01	46.63			6.38E+01	4.66E+01
	25	667.42	3.64E+01	23.35			3.64E+01	2.34E+01
	26	727.42	5.04E+01	29.01			5.04E+01	2.90E+01
	27	737.46	4.15E+01	38.65			4.15E+01	3.87E+01
	28	768.13	9.15E+01	44.41	6.96E-01	2.84E+00	9.08E+01	4.45E+01
	29	911.44	1.33E+02	36.43	2.85E+00	2.76E+00	1.30E+02	3.65E+01
	30	934.98	2.61E+01	26.48			2.61E+01	2.65E+01
M	31	966.00	1.27E+01	11.53			1.27E+01	1.15E+01
m	32	970.00	3.15E+01	26.48			3.15E+01	2.65E+01
	33	1008.04	1.12E+01	14.76			1.12E+01	1.48E+01
M	34	1117.27	1.60E+01	10.82			1.60E+01	1.08E+01
m	35	1120.30	5.68E+01	29.27			5.68E+01	2.93E+01
	36	1240.66	5.42E+01	49.42			5.42E+01	4.94E+01
	37	1407.35	1.87E+01	20.20			1.87E+01	2.02E+01
M	38	1454.16	1.11E+01	0.71			1.11E+01	7.07E-01
m	39	1460.86	5.92E+02	49.52	1.00E+00	1.77E+00	5.91E+02	4.95E+01
	40	1590.44	5.48E+01	19.10			5.48E+01	1.91E+01
	41	1630.44	7.27E+00	8.72			7.27E+00	8.72E+00
	42	1729.54	1.82E+01	10.69			1.82E+01	1.07E+01
	43	1764.61	3.81E+01	18.55			3.81E+01	1.85E+01
	44	1847.49	1.17E+01	8.49			1.17E+01	8.49E+00

Analysis Report for 1707085-14

HTC-A02-S003-1824-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
45	1978.17	6.00E+00	4.90			6.00E+00	4.90E+00
46	2202.69	1.37E+01	9.18			1.37E+01	9.18E+00
47	2329.26	6.40E+00	8.19			6.40E+00	8.19E+00
48	2366.39	5.00E+00	7.07			5.00E+00	7.07E+00
49	2447.50	8.00E+00	5.66			8.00E+00	5.66E+00
50	2502.37	7.00E+00	5.29			7.00E+00	5.29E+00
51	2613.88	6.80E+01	16.49	1.86E+00	1.12E+00	6.61E+01	1.65E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/21/2017 1:16:17PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055575.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	63.57	1.68E+02	99.31	4.12E+01	5.67E+00	1.26E+02	9.95E+01
M	2	75.10	5.44E+02	114.73			5.44E+02	1.15E+02
m	3	77.76	6.20E+02	106.77			6.20E+02	1.07E+02
m	4	87.86	3.75E+02	140.30			3.75E+02	1.40E+02
m	5	92.46	3.93E+02	112.36	7.98E+01	7.31E+00	3.13E+02	1.13E+02
	6	129.36	9.28E+01	60.42			9.28E+01	6.04E+01
	7	186.45	2.05E+02	86.05	3.06E+01	5.82E+00	1.74E+02	8.62E+01
	8	227.10	7.03E+01	60.07			7.03E+01	6.01E+01
M	9	239.16	7.36E+02	77.83	1.40E+01	2.71E+00	7.22E+02	7.79E+01
m	10	242.31	1.77E+02	63.91			1.77E+02	6.39E+01
	11	270.51	8.94E+01	51.30			8.94E+01	5.13E+01
	12	277.56	6.17E+01	50.08			6.17E+01	5.01E+01
M	13	295.65	2.41E+02	51.94			2.41E+02	5.19E+01
m	14	300.93	4.68E+01	44.07			4.68E+01	4.41E+01
	15	328.66	3.07E+01	38.12			3.07E+01	3.81E+01
	16	338.79	1.69E+02	58.23			1.69E+02	5.82E+01
	17	352.23	3.37E+02	53.17	6.53E+00	4.43E+00	3.30E+02	5.34E+01
	18	463.54	5.09E+01	47.10			5.09E+01	4.71E+01
	19	490.49	2.63E+01	30.72			2.63E+01	3.07E+01
	20	511.51	1.68E+02	52.00	5.21E+01	4.74E+00	1.16E+02	5.22E+01
	21	583.61	1.67E+02	56.71			1.67E+02	5.67E+01

Analysis Report for 1707085-14

HTC-A02-S003-1824-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	22	609.62	2.69E+02	41.23	3.25E+00	2.97E+00	2.66E+02	4.13E+01
	23	626.67	6.00E+01	49.74			6.00E+01	4.97E+01
	24	656.83	6.38E+01	46.63			6.38E+01	4.66E+01
	25	667.42	3.64E+01	23.35			3.64E+01	2.34E+01
	26	727.42	5.04E+01	29.01			5.04E+01	2.90E+01
	27	737.46	4.15E+01	38.65			4.15E+01	3.87E+01
	28	768.13	9.15E+01	44.41	6.96E-01	2.84E+00	9.08E+01	4.45E+01
	29	911.44	1.33E+02	36.43	2.85E+00	2.76E+00	1.30E+02	3.65E+01
	30	934.98	2.61E+01	26.48			2.61E+01	2.65E+01
M	31	966.00	1.27E+01	11.53			1.27E+01	1.15E+01
m	32	970.00	3.15E+01	26.48			3.15E+01	2.65E+01
	33	1008.04	1.12E+01	14.76			1.12E+01	1.48E+01
M	34	1117.27	1.60E+01	10.82			1.60E+01	1.08E+01
m	35	1120.30	5.68E+01	29.27			5.68E+01	2.93E+01
	36	1240.66	5.42E+01	49.42			5.42E+01	4.94E+01
	37	1407.35	1.87E+01	20.20			1.87E+01	2.02E+01
M	38	1454.16	1.11E+01	0.71			1.11E+01	7.07E-01
m	39	1460.86	5.92E+02	49.52	1.00E+00	1.77E+00	5.91E+02	4.95E+01
	40	1590.44	5.48E+01	19.10			5.48E+01	1.91E+01
	41	1630.44	7.27E+00	8.72			7.27E+00	8.72E+00
	42	1729.54	1.82E+01	10.69			1.82E+01	1.07E+01
	43	1764.61	3.81E+01	18.55			3.81E+01	1.85E+01
	44	1847.49	1.17E+01	8.49			1.17E+01	8.49E+00
	45	1978.17	6.00E+00	4.90			6.00E+00	4.90E+00
	46	2202.69	1.37E+01	9.18			1.37E+01	9.18E+00
	47	2329.26	6.40E+00	8.19			6.40E+00	8.19E+00
	48	2366.39	5.00E+00	7.07			5.00E+00	7.07E+00
	49	2447.50	8.00E+00	5.66			8.00E+00	5.66E+00
	50	2502.37	7.00E+00	5.29			7.00E+00	5.29E+00
	51	2613.88	6.80E+01	16.49	1.86E+00	1.12E+00	6.61E+01	1.65E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	1.000	1460.81	*	10.67	2.59E+01	3.11E+00

Analysis Report for 1707085-14

HTC-A02-S003-1824-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CD-109	0.995	88.03	*	3.72	6.65E+00	2.58E+00
SN-126	0.987	87.57	*	37.00	5.77E-01	2.22E-01
TL-208	0.825	583.14	*	30.22	1.17E+00	4.12E-01
		860.37		4.48		
		2614.66	*	35.85	1.28E+00	3.42E-01
BI-212	0.764	727.17	*	11.80	1.10E+00	6.41E-01
		1620.62		2.75		
PB-212	0.951	238.63	*	44.60	1.56E+00	2.12E-01
		300.09	*	3.41	1.60E+00	1.52E+00
BI-214	0.924	609.31	*	46.30	1.26E+00	2.30E-01
		1120.29	*	15.10	1.42E+00	7.39E-01
		1764.49	*	15.80	1.30E+00	6.43E-01
		2204.22		4.98		
PB-214	0.979	295.21	*	19.19	1.45E+00	3.35E-01
		351.92	*	37.19	1.19E+00	2.20E-01
RA-226	0.991	186.21	*	3.28	4.21E+00	7.99E+00
AC-228	0.945	338.32	*	11.40	1.93E+00	6.84E-01
		911.07	*	27.70	1.48E+00	4.31E-01
		969.11	*	16.60	6.31E-01	5.33E-01
TH-234	0.988	63.29	*	3.80	2.10E+00	1.66E+00
AM-243	0.970	74.67	*	66.00	4.81E-01	1.08E-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 1:16:17PM
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	77.76	1.72233E-01	8.61		
m	5	92.46	8.70764E-02	17.96	Tol.	GA-67
	6	129.36	2.57899E-02	32.54		
	8	227.10	1.95341E-02	42.71		
m	10	242.31	4.92499E-02	18.02		
	11	270.51	2.48266E-02	28.70		
	12	277.56	1.71503E-02	40.56	Tol.	NP-239 CM-243

Analysis Report for 1707085-14

HTC-A02-S003-1824-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	15	328.66	8.51397E-03	62.18	Tol.	LA-140
	18	463.54	1.41402E-02	46.26	Tol.	SB-125
	19	490.49	7.30179E-03	58.44		
	20	511.51	3.22291E-02	22.50		
	23	626.67	1.66750E-02	41.43		
	24	656.83	1.77202E-02	36.55	Tol.	AG-110M
	25	667.42	1.01100E-02	32.08		
	27	737.46	1.15278E-02	46.57		
	28	768.13	2.52233E-02	24.51		
	30	934.98	7.25644E-03	50.68	Sum	
M	31	966.00	3.52234E-03	45.47	Sum	
	33	1008.04	3.10036E-03	66.11		
M	34	1117.27	4.43143E-03	33.90		
	36	1240.66	1.50629E-02	45.57		
	37	1407.35	5.19231E-03	54.03	Tol.	EU-152
M	38	1454.16	3.09596E-03	3.17	Sum	
	40	1590.44	1.52277E-02	17.43		
	41	1630.44	2.02020E-03	59.93		
	42	1729.54	5.05952E-03	29.34	Sum	
	44	1847.49	3.24405E-03	36.33	Sum	
	45	1978.17	1.66667E-03	40.82		
	46	2202.69	3.80208E-03	33.53		
	47	2329.26	1.77778E-03	63.95		
	48	2366.39	1.38889E-03	70.71		
	49	2447.50	2.22222E-03	35.36		
	50	2502.37	1.94444E-03	37.80		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	1.00	1460.81	*	10.67	2.59E+01	3.11E+00
CD-109	0.99	88.03	*	3.72	6.65E+00	2.58E+00

Analysis Report for 1707085-14

HTC-A02-S003-1824-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
SN-126	0.98	87.57	*	37.00	5.77E-01	2.22E-01
TL-208	0.82	583.14	*	30.22	1.17E+00	4.12E-01
		860.37		4.48		
		2614.66	*	35.85	1.28E+00	3.42E-01
BI-212	0.76	727.17	*	11.80	1.10E+00	6.41E-01
		1620.62		2.75		
PB-212	0.95	238.63	*	44.60	1.56E+00	2.12E-01
		300.09	*	3.41	1.60E+00	1.52E+00
BI-214	0.92	609.31	*	46.30	1.26E+00	2.30E-01
		1120.29	*	15.10	1.42E+00	7.39E-01
		1764.49	*	15.80	1.30E+00	6.43E-01
		2204.22		4.98		
PB-214	0.97	295.21	*	19.19	1.45E+00	3.35E-01
		351.92	*	37.19	1.19E+00	2.20E-01
RA-226	0.99	186.21	*	3.28	4.21E+00	7.99E+00
AC-228	0.94	338.32	*	11.40	1.93E+00	6.84E-01
		911.07	*	27.70	1.48E+00	4.31E-01
		969.11	*	16.60	6.31E-01	5.33E-01
TH-234	0.98	63.29	*	3.80	2.10E+00	1.66E+00
AM-243	0.97	74.67	*	66.00	4.81E-01	1.08E-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	1.000	2.59E+01	3.11E+00	
?	CD-109	0.995	6.65E+00	2.58E+00	
?	SN-126	0.987	5.77E-01	2.22E-01	
	TL-208	0.825	1.23E+00	2.63E-01	
	BI-212	0.764	1.10E+00	6.41E-01	
	PB-212	0.951	1.56E+00	2.10E-01	
	BI-214	0.924	1.28E+00	2.08E-01	

Analysis Report for 1707085-14

HTC-A02-S003-1824-01

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
PB-214	0.979	1.27E+00	1.84E-01	
RA-226	0.991	4.21E+00	7.99E+00	
AC-228	0.945	1.29E+00	3.01E-01	
TH-234	0.988	2.10E+00	1.66E+00	
AM-243	0.970	4.81E-01	1.08E-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 1707085-14

HTC-A02-S003-1824-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 1:16:17PM
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	77.76	1.72233E-01	8.61		
m	5	92.46	8.70764E-02	17.96	Tol.	GA-67
	6	129.36	2.57899E-02	32.54		
	8	227.10	1.95341E-02	42.71		
m	10	242.31	4.92499E-02	18.02		
	11	270.51	2.48266E-02	28.70		
	12	277.56	1.71503E-02	40.56	Tol.	NP-239
						CM-243
	15	328.66	8.51397E-03	62.18	Tol.	LA-140
	18	463.54	1.41402E-02	46.26	Tol.	SB-125
	19	490.49	7.30179E-03	58.44		
	20	511.51	3.22291E-02	22.50		
	23	626.67	1.66750E-02	41.43		
	24	656.83	1.77202E-02	36.55	Tol.	AG-110M
	25	667.42	1.01100E-02	32.08		
	27	737.46	1.15278E-02	46.57		
	28	768.13	2.52233E-02	24.51		
	30	934.98	7.25644E-03	50.68	Sum	
M	31	966.00	3.52234E-03	45.47	Sum	
	33	1008.04	3.10036E-03	66.11		
M	34	1117.27	4.43143E-03	33.90		
	36	1240.66	1.50629E-02	45.57		
	37	1407.35	5.19231E-03	54.03	Tol.	EU-152
M	38	1454.16	3.09596E-03	3.17	Sum	
	40	1590.44	1.52277E-02	17.43		
	41	1630.44	2.02020E-03	59.93		
	42	1729.54	5.05952E-03	29.34	Sum	
	44	1847.49	3.24405E-03	36.33	Sum	
	45	1978.17	1.66667E-03	40.82		
	46	2202.69	3.80208E-03	33.53		
	47	2329.26	1.77778E-03	63.95		
	48	2366.39	1.38889E-03	70.71		
	49	2447.50	2.22222E-03	35.36		
	50	2502.37	1.94444E-03	37.80		

Analysis Report for 1707085-14

HTC-A02-S003-1824-01

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

NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	9.06E-01	2.92E+00	2.92E+00
+		NA-22	1274.54		99.94	-2.03E-02	1.34E-01	1.34E-01
+	@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@		2754.09		99.86	0.00E+00		1.00E+26
+		AL-26	1808.65		99.76	2.36E-02	1.00E-01	1.00E-01
+		K-40	1460.81	*	10.67	2.59E+01	1.10E+00	1.10E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	2.53E-02	7.68E-02	7.68E-02
			78.34		96.00	2.06E-01		9.65E-02
+		SC-46	889.25		99.98	-9.95E-03	2.35E-01	2.35E-01
			1120.51		99.99	4.16E-01		4.13E-01
+		V-48	983.52		99.98	3.12E+00	7.92E+00	7.92E+00
			1312.10		97.50	-2.69E+00		7.96E+00
+		CR-51	320.08		9.83	-3.35E+00	8.51E+00	8.51E+00
+		MN-54	834.83		99.97	1.68E-02	1.47E-01	1.47E-01
+		CO-56	846.75		99.96	-1.99E-01	2.28E-01	2.28E-01
			1037.75		14.03	-5.13E-01		2.04E+00
			1238.25		67.00	2.46E-01		6.35E-01
			1771.40		15.51	-1.66E-01		1.32E+00
			2598.48		16.90	-3.23E-02		8.99E-01
+		CO-57	122.06		85.51	1.97E-02	8.04E-02	8.04E-02
			136.48		10.60	5.90E-02		6.90E-01
+		CO-58	810.76		99.40	-9.29E-02	2.71E-01	2.71E-01
+		FE-59	1099.22		56.50	9.15E-02	1.09E+00	1.09E+00
			1291.56		43.20	-1.26E-01		1.23E+00
+		CO-60	1173.22		100.00	8.10E-03	1.27E-01	1.55E-01
			1332.49		100.00	-3.26E-02		1.27E-01
+		ZN-65	1115.52		50.75	-8.13E-02	3.10E-01	3.10E-01
+		GA-67	93.31		35.70	4.93E+08	2.34E+08	2.34E+08
			208.95		2.24	1.45E+09		4.08E+09
			300.22		16.00	-6.78E+08		6.79E+08
+		SE-75	121.11		16.70	-3.34E-01	1.70E-01	5.55E-01

Analysis Report for 1707085-14

HTC-A02-S003-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00		59.20	1.79E-02	1.70E-01	1.70E-01
		264.65		59.80	-1.97E-02		2.10E-01
		279.53		25.20	1.93E-01		5.38E-01
		400.65		11.40	2.22E-01		1.33E+00
+	RB-82	776.52		13.00	-4.78E-01	9.80E+00	9.80E+00
+	RB-83	520.41		46.00	7.74E-02	3.80E-01	3.80E-01
		529.64		30.30	-1.93E-01		5.94E-01
		552.65		16.40	-2.26E-01		1.25E+00
+	KR-85	513.99		0.43	4.29E+01	2.97E+01	2.97E+01
+	SR-85	513.99		99.27	5.27E-01	3.65E-01	3.65E-01
+	Y-88	898.02		93.40	1.39E-02	1.27E-01	2.28E-01
		1836.01		99.38	-8.48E-02		1.27E-01
+	MO-93	263.06		56.72	-6.20E-02	9.44E-02	1.28E-01
		684.67		99.68	-8.09E-03		9.58E-02
		1477.11		99.08	3.04E-02		9.44E-02
+	NB-93M	16.57		9.43	-8.14E+01	8.60E+01	8.60E+01
+	NB-94	702.63		100.00	2.15E-02	9.83E-02	1.04E-01
		871.10		100.00	-1.42E-02		9.83E-02
+	NB-95	765.79		99.81	4.72E-01	8.73E-01	8.73E-01
+	NB-95M	235.69		25.00	5.26E+06	7.30E+07	7.30E+07
+	ZR-95	724.18		43.70	1.10E-01	5.20E-01	7.50E-01
		756.72		55.30	-1.43E-01		5.20E-01
+	MO-99	181.06		6.20	6.24E+09	4.66E+10	5.48E+10
		739.58		12.80	-2.00E+08		4.66E+10
		778.00		4.50	9.41E+09		1.12E+11
+	RU-103	497.08		89.00	-1.57E-01	5.17E-01	5.17E-01
+	RU-106	621.84		9.80	-2.25E-01	1.20E+00	1.20E+00
+	AG-108M	433.93		89.90	-1.25E-02	9.29E-02	9.29E-02
		614.37		90.40	-2.48E-02		1.24E-01
		722.95		90.50	2.48E-02		1.09E-01
+	CD-109	88.03	*	3.72	6.65E+00	7.83E+00	7.83E+00
+	AG-110M	657.75		93.14	-1.01E-01	1.38E-01	1.38E-01
		677.61		10.53	1.78E-01		1.26E+00
		706.67		16.46	-3.14E-01		8.29E-01
		763.93		21.98	-2.49E-01		6.79E-01
		884.67		71.63	-8.61E-02		1.61E-01
		1384.27		23.94	2.44E-01		6.50E-01
+	CD-113M	263.70		0.02	-1.04E+02	3.13E+02	3.13E+02
+	SN-113	255.12		1.93	-1.25E+00	2.22E-01	7.08E+00
		391.69		64.90	-7.40E-02		2.22E-01
+	TE123M	159.00		84.10	2.53E-02	1.18E-01	1.18E-01
+	SB-124	602.71		97.87	-1.23E-01	3.09E-01	3.09E-01
		645.85		7.26	3.51E-01		4.06E+00
		722.78		11.10	6.24E-01		2.75E+00
		1691.02		49.00	2.15E-01		6.01E-01
+	I-125	35.49		6.49	-5.65E+00	7.55E+00	7.55E+00
+	SB-125	176.33		6.89	-1.85E-01	2.96E-01	8.74E-01
		427.89		29.33	8.89E-02		2.96E-01

Analysis Report for 1707085-14

HTC-A02-S003-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-125	463.38		10.35	1.10E+00	2.96E-01	1.03E+00
		600.56		17.80	-3.60E-02		5.64E-01
		635.90		11.32	1.01E-02		7.69E-01
+	SB-126	414.70		83.30	-9.93E+00	2.26E+01	2.26E+01
		666.33		99.60	1.24E+01		2.58E+01
		695.00		99.60	1.08E+01		2.47E+01
		720.50		53.80	1.46E+01		4.20E+01
+	SN-126	87.57	*	37.00	5.77E-01	6.80E-01	6.80E-01
+	SB-127	473.00		25.00	4.21E+06	1.25E+07	1.57E+07
		685.20		35.70	-1.06E+06		1.25E+07
		783.80		14.70	1.04E+07		3.50E+07
+	I-129	29.78		57.00	-8.42E-02	5.11E-01	5.11E-01
		33.60		13.20	1.59E+00		1.47E+00
		39.58		7.52	5.41E-01		1.63E+00
+	I-131	284.30		6.05	5.77E+02	4.84E+02	5.64E+03
		364.48		81.20	1.05E+02		4.84E+02
		636.97		7.26	-1.07E+03		5.07E+03
		722.89		1.80	5.90E+03		2.60E+04
+	TE-132	49.72		13.10	-2.11E+07	1.07E+08	7.94E+08
		228.16		88.00	6.66E+07		1.07E+08
+	BA-133	81.00		33.00	-5.38E-01	1.89E-01	2.19E-01
		302.84		17.80	1.11E-01		4.56E-01
		356.01		60.00	-4.05E-02		1.89E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-1.99E+05	8.11E+04	8.11E+04
+	CS-134	563.23		8.38	2.47E-01	1.22E-01	1.25E+00
		569.32		15.43	2.94E-02		6.95E-01
		604.70		97.60	-3.63E-02		1.22E-01
		795.84		85.40	9.57E-03		1.40E-01
		801.93		8.73	-4.18E-01		1.26E+00
+	CS-135	268.24		16.00	-6.19E-02	4.97E-01	4.97E-01
+	@ I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41		28.60	1.00E+26		1.00E+26
	@	1678.03		9.54	1.00E+26		1.00E+26
+	CS-136	153.22		7.46	5.10E+01	1.64E+01	1.35E+02
		163.89		4.61	-2.91E+01		2.16E+02
		176.55		13.56	-1.55E+01		7.32E+01
		273.65		12.66	-6.85E+01		1.10E+02
		340.57		48.50	8.94E+01		4.18E+01
		818.50		99.70	-5.64E+00		1.64E+01
		1048.07		79.60	-2.29E+01		2.18E+01
		1235.34		19.70	-4.98E+01		1.47E+02
+	CS-137	661.65		85.12	-7.52E-02	1.13E-01	1.13E-01
+	LA-138	788.74		34.00	2.23E-01	1.57E-01	3.32E-01
		1435.80		66.00	2.74E-02		1.57E-01
+	CE-139	165.85		80.35	6.71E-02	1.19E-01	1.19E-01
+	BA-140	162.64		6.70	-4.40E+00	7.45E+01	1.73E+02
		304.84		4.50	-1.65E-01		3.41E+02
		423.70		3.20	5.58E+01		5.20E+02

Analysis Report for 1707085-14

HTC-A02-S003-1824-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	BA-140	437.55	2.00	1.80E+02	7.45E+01	8.96E+02
		537.32	25.00	1.50E+00		7.45E+01
+	LA-140	328.77	20.50	3.28E+01	2.58E+01	8.38E+01
		487.03	45.50	1.01E-01		3.58E+01
		815.85	23.50	4.25E+01		9.09E+01
		1596.49	95.49	6.68E+00		2.58E+01
+	CE-141	145.44	48.40	5.49E-01	9.71E-01	9.71E-01
+	@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26
	@	293.26	42.00	1.00E+26		1.00E+26
	@	664.55	5.20	1.00E+26		1.00E+26
+	CE-144	133.54	10.80	-9.80E-02	6.44E-01	6.44E-01
+	PM-144	476.78	42.00	2.02E-02	1.10E-01	2.43E-01
		618.01	98.60	9.01E-04		1.10E-01
		696.49	99.49	-3.95E-02		1.17E-01
+	PM-145	36.85	21.70	1.63E-01	3.48E-01	6.76E-01
		37.36	39.70	-2.99E-01		3.48E-01
		42.30	15.10	-1.55E-01		7.25E-01
		72.40	2.31	-4.86E+00		3.57E+00
+	PM-146	453.90	39.94	4.97E-02	2.11E-01	2.11E-01
		735.90	14.01	3.38E-01		7.73E-01
		747.13	13.10	-4.68E-02		7.82E-01
+	ND-147	91.11	28.90	-1.57E+02	1.21E+02	1.21E+02
		531.02	13.10	-1.34E+02		3.06E+02
+	PM-149	285.90	3.10	-9.33E+12	5.22E+13	5.22E+13
+	EU-152	121.78	20.50	6.49E-02	2.64E-01	2.64E-01
		244.69	5.40	-2.59E-01		1.71E+00
		344.27	19.13	-2.62E-02		4.47E-01
		778.89	9.20	9.11E-02		1.00E+00
		964.01	10.40	-5.34E-02		1.30E+00
		1085.78	7.22	-1.19E+00		1.55E+00
		1112.02	9.60	-1.09E+00		1.19E+00
		1407.95	14.94	3.81E-01		8.15E-01
+	GD-153	97.43	31.30	-8.33E-03	2.19E-01	2.19E-01
		103.18	22.20	3.61E-02		3.21E-01
+	EU-154	123.07	40.50	1.13E-01	1.39E-01	1.39E-01
		723.30	19.70	1.16E-01		5.11E-01
		873.19	11.50	2.97E-01		9.32E-01
		996.32	10.30	-6.50E-02		1.17E+00
		1004.76	17.90	7.33E-03		6.49E-01
		1274.45	35.50	-5.43E-02		3.60E-01
+	EU-155	86.50	30.90	2.29E-01	2.46E-01	2.46E-01
		105.30	20.70	1.27E-02		2.66E-01
+	EU-156	811.77	10.40	-1.37E+01	8.98E+01	8.98E+01
		1153.47	7.20	-1.18E+01		1.55E+02
		1230.71	8.90	-1.97E+01		1.51E+02
+	HO-166M	184.41	72.60	1.26E-01	1.04E-01	1.04E-01
		280.45	29.60	2.65E-02		2.60E-01
		410.94	11.10	-4.51E-02		7.28E-01
		711.69	54.10	4.67E-02		1.91E-01

Analysis Report for 1707085-14

HTC-A02-S003-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TM-171	66.72		0.14	2.08E+01	5.98E+01	5.98E+01
+	HF-172	67.35		5.31	4.97E-01	5.19E-01	1.51E+00
		125.81		11.30	7.30E-02		5.19E-01
+	LU-172	181.53		20.60	3.60E+02	5.21E+03	7.61E+03
		900.72		29.81	7.88E+02		9.86E+03
		1093.66		62.50	6.61E+00		5.21E+03
+	LU-173	100.72		5.24	7.06E-02	4.42E-01	1.15E+00
		272.11		21.20	2.30E-01		4.42E-01
+	HF-175	343.40		84.00	-1.55E-02	2.65E-01	2.65E-01
+	LU-176	88.34		13.30	1.95E-01	7.13E-02	5.51E-01
		201.83		86.00	-1.49E-02		7.13E-02
		306.78		94.00	-4.40E-03		7.57E-02
+	HF-181	133.02		41.70	-2.73E-02	4.96E-01	6.68E-01
		345.85		17.20	-2.55E-01		2.36E+00
		482.03		82.80	1.78E-01		4.96E-01
+	TA-182	67.75		41.20	1.05E-01	3.18E-01	3.18E-01
		1121.30		34.90	8.33E-01		9.44E-01
		1189.05		16.23	2.25E-01		1.66E+00
		1221.41		26.98	1.83E-01		1.01E+00
		1231.02		11.44	-3.15E-01		2.42E+00
+	IR-192	308.46		29.68	1.90E-01	4.14E-01	6.14E-01
		468.07		48.10	1.36E-02		4.14E-01
+	HG-203	279.19		77.30	3.43E-01	4.40E-01	4.40E-01
+	TL-204	374.74		94.11	-1.32E-04	8.70E-02	8.70E-02
		899.15		99.16	-8.24E-03		1.17E-01
		911.74		91.10	5.09E-01		2.31E-01
+	BI-207	569.67		97.72	-3.47E-02	9.98E-02	9.98E-02
		1063.62		74.90	1.75E-02		1.48E-01
+	TL-208	583.14	*	30.22	1.17E+00	1.46E-01	6.00E-01
		860.37		4.48	8.58E-01		2.67E+00
		2614.66	*	35.85	1.28E+00		1.46E-01
+	BI-210M	262.00		45.00	2.09E-02	1.66E-01	1.66E-01
		300.00		23.00	-4.07E-01		4.08E-01
+	PB-210	46.50		4.25	2.60E+00	2.44E+00	2.44E+00
+	PB-211	404.84		2.90	-3.70E-01	2.92E+00	2.92E+00
		831.96		2.90	-6.17E-01		3.85E+00
+	BI-212	727.17	*	11.80	1.10E+00	9.68E-01	9.68E-01
		1620.62		2.75	5.07E-01		3.71E+00
+	PB-212	238.63	*	44.60	1.56E+00	2.71E-01	2.71E-01
		300.09	*	3.41	1.60E+00		4.26E+00
+	BI-214	609.31	*	46.30	1.26E+00	2.12E-01	2.12E-01
		1120.29	*	15.10	1.42E+00		1.46E+00
		1764.49	*	15.80	1.30E+00		8.72E-01
		2204.22		4.98	4.21E-02		2.62E+00
+	PB-214	295.21	*	19.19	1.45E+00	2.42E-01	7.50E-01
		351.92	*	37.19	1.19E+00		2.42E-01
+	RN-219	401.80		6.50	1.41E-01	1.31E+00	1.31E+00
+	RA-223	323.87		3.88	-7.99E-02	1.88E+00	1.88E+00

Analysis Report for 1707085-14

HTC-A02-S003-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98		3.95	2.19E+01	3.90E+00	3.90E+00
+	RA-225	40.00		31.00	1.27E+01	3.84E+01	3.84E+01
+	RA-226	186.21	*	3.28	4.21E+00	3.33E+00	3.33E+00
+	TH-227	50.10		8.40	-2.77E-02	1.03E+00	1.04E+00
		236.00		11.50	7.45E-02		1.03E+00
		256.20		6.30	8.30E-01		1.24E+00
+	AC-228	338.32	*	11.40	1.93E+00	5.64E-01	1.01E+00
		911.07	*	27.70	1.48E+00		5.64E-01
		969.11	*	16.60	6.31E-01		1.08E+00
+	TH-230	48.44		16.90	6.42E-02	5.61E-01	5.61E-01
		62.85		4.60	2.48E+00		1.83E+00
		67.67		0.37	6.44E+00		1.96E+01
+	PA-231	283.67		1.60	-1.08E+00	3.47E+00	4.39E+00
		302.67		2.30	8.46E-01		3.47E+00
+	TH-231	25.64		14.70	-8.44E-01	1.06E+00	3.69E+00
		84.21		6.40	-7.50E-01		1.06E+00
+	PA-233	311.98		38.60	-1.75E-01	2.34E+00	2.34E+00
+	PA-234	131.20		20.40	7.28E-02	2.83E-01	2.83E-01
		733.99		8.80	-5.39E-01		1.10E+00
		946.00		12.00	-2.37E-01		8.30E-01
+	PA-234M	1001.03		0.92	8.14E+00	1.32E+01	1.32E+01
+	TH-234	63.29	*	3.80	2.10E+00	2.70E+00	2.70E+00
+	U-235	143.76		10.50	8.12E-03	5.42E-01	5.42E-01
		163.35		4.70	-1.62E-01		1.20E+00
		205.31		4.70	-9.52E-01		1.60E+00
+	NP-237	86.50		12.60	5.42E-01	5.80E-01	5.80E-01
+	NP-239	106.10		22.70	3.96E+10	8.30E+11	8.30E+11
		228.18		10.70	1.65E+12		2.64E+12
		277.60		14.10	1.33E+12		1.98E+12
+	AM-241	59.54		35.90	2.52E-03	2.12E-01	2.12E-01
+	AM-243	74.67	*	66.00	4.81E-01	3.89E-01	3.89E-01
+	CM-243	209.75		3.29	3.84E-01	5.66E-01	2.40E+00
		228.14		10.60	4.73E-01		7.56E-01
		277.60		14.00	3.81E-01		5.66E-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 1707085-14

HTC-A02-S003-1824-01

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	2.92E+00	2.92E+00	9.06E-01	1.38E+00
	NA-22	1274.54		99.94	1.34E-01	1.34E-01	-2.03E-02	6.11E-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	1.00E-01	1.00E-01	2.36E-02	4.26E-02
+	K-40	1460.81	*	10.67	1.10E+00	1.10E+00	2.59E+01	4.91E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	7.68E-02	7.68E-02	2.53E-02	3.75E-02
		78.34		96.00	9.65E-02		2.06E-01	4.74E-02
	SC-46	889.25		99.98	2.35E-01	2.35E-01	-9.95E-03	1.08E-01
		1120.51		99.99	4.13E-01		4.16E-01	1.95E-01
	V-48	983.52		99.98	7.92E+00	7.92E+00	3.12E+00	3.64E+00
		1312.10		97.50	7.96E+00		-2.69E+00	3.56E+00
	CR-51	320.08		9.83	8.51E+00	8.51E+00	-3.35E+00	4.06E+00
	MN-54	834.83		99.97	1.47E-01	1.47E-01	1.68E-02	6.85E-02
	CO-56	846.75		99.96	2.28E-01	2.28E-01	-1.99E-01	1.04E-01
		1037.75		14.03	2.04E+00		-5.13E-01	9.40E-01
		1238.25		67.00	6.35E-01		2.46E-01	2.98E-01
		1771.40		15.51	1.32E+00		-1.66E-01	5.46E-01
		2598.48		16.90	8.99E-01		-3.23E-02	3.19E-01
	CO-57	122.06		85.51	8.04E-02	8.04E-02	1.97E-02	3.89E-02
		136.48		10.60	6.90E-01		5.90E-02	3.34E-01
	CO-58	810.76		99.40	2.71E-01	2.71E-01	-9.29E-02	1.25E-01
	FE-59	1099.22		56.50	1.09E+00	1.09E+00	9.15E-02	5.05E-01
		1291.56		43.20	1.23E+00		-1.26E-01	5.55E-01
	CO-60	1173.22		100.00	1.55E-01	1.27E-01	8.10E-03	7.18E-02
		1332.49		100.00	1.27E-01		-3.26E-02	5.74E-02
	ZN-65	1115.52		50.75	3.10E-01	3.10E-01	-8.13E-02	1.42E-01
	GA-67	93.31		35.70	2.34E+08	2.34E+08	4.93E+08	1.15E+08
		208.95		2.24	4.08E+09		1.45E+09	1.98E+09
		300.22		16.00	6.79E+08		-6.78E+08	3.28E+08
	SE-75	121.11		16.70	5.55E-01	1.70E-01	-3.34E-01	2.69E-01
		136.00		59.20	1.70E-01		1.79E-02	8.24E-02
		264.65		59.80	2.10E-01		-1.97E-02	1.01E-01
		279.53		25.20	5.38E-01		1.93E-01	2.58E-01
		400.65		11.40	1.33E+00		2.22E-01	6.35E-01
	RB-82	776.52		13.00	9.80E+00	9.80E+00	-4.78E-01	4.49E+00
	RB-83	520.41		46.00	3.80E-01	3.80E-01	7.74E-02	1.78E-01
		529.64		30.30	5.94E-01		-1.93E-01	2.78E-01
		552.65		16.40	1.25E+00		-2.26E-01	5.87E-01
	KR-85	513.99		0.43	2.97E+01	2.97E+01	4.29E+01	1.43E+01
	SR-85	513.99		99.27	3.65E-01	3.65E-01	5.27E-01	1.75E-01

Analysis Report for 1707085-14

HTC-A02-S003-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	Y-88	898.02		93.40	2.28E-01	1.27E-01	1.39E-02	1.06E-01
		1836.01		99.38	1.27E-01		-8.48E-02	4.93E-02
	MO-93	263.06		56.72	1.28E-01	9.44E-02	-6.20E-02	6.16E-02
		684.67		99.68	9.58E-02		-8.09E-03	4.45E-02
		1477.11		99.08	9.44E-02		3.04E-02	4.07E-02
	NB-93M	16.57		9.43	8.60E+01	8.60E+01	-8.14E+01	4.19E+01
	NB-94	702.63		100.00	1.04E-01	9.83E-02	2.15E-02	4.87E-02
		871.10		100.00	9.83E-02		-1.42E-02	4.51E-02
	NB-95	765.79		99.81	8.73E-01	8.73E-01	4.72E-01	4.11E-01
	NB-95M	235.69		25.00	7.30E+07	7.30E+07	5.26E+06	3.57E+07
	ZR-95	724.18		43.70	7.50E-01	5.20E-01	1.10E-01	3.52E-01
		756.72		55.30	5.20E-01		-1.43E-01	2.41E-01
	MO-99	181.06		6.20	5.48E+10	4.66E+10	6.24E+09	2.65E+10
		739.58		12.80	4.66E+10		-2.00E+08	2.18E+10
		778.00		4.50	1.12E+11		9.41E+09	5.15E+10
	RU-103	497.08		89.00	5.17E-01	5.17E-01	-1.57E-01	2.43E-01
	RU-106	621.84		9.80	1.20E+00	1.20E+00	-2.25E-01	5.61E-01
	AG-108M	433.93		89.90	9.29E-02	9.29E-02	-1.25E-02	4.40E-02
		614.37		90.40	1.24E-01		-2.48E-02	5.85E-02
		722.95		90.50	1.09E-01		2.48E-02	5.07E-02
+	CD-109	88.03	*	3.72	7.83E+00	7.83E+00	6.65E+00	3.89E+00
	AG-110M	657.75		93.14	1.38E-01	1.38E-01	-1.01E-01	6.46E-02
		677.61		10.53	1.26E+00		1.78E-01	5.91E-01
		706.67		16.46	8.29E-01		-3.14E-01	3.87E-01
		763.93		21.98	6.79E-01		-2.49E-01	3.18E-01
		884.67		71.63	1.61E-01		-8.61E-02	7.28E-02
		1384.27		23.94	6.50E-01		2.44E-01	2.92E-01
	CD-113M	263.70		0.02	3.13E+02	3.13E+02	-1.04E+02	1.50E+02
	SN-113	255.12		1.93	7.08E+00	2.22E-01	-1.25E+00	3.41E+00
		391.69		64.90	2.22E-01		-7.40E-02	1.06E-01
	TE123M	159.00		84.10	1.18E-01	1.18E-01	2.53E-02	5.68E-02
	SB-124	602.71		97.87	3.09E-01	3.09E-01	-1.23E-01	1.45E-01
		645.85		7.26	4.06E+00		3.51E-01	1.90E+00
		722.78		11.10	2.75E+00		6.24E-01	1.28E+00
		1691.02		49.00	6.01E-01		2.15E-01	2.55E-01
	I-125	35.49		6.49	7.55E+00	7.55E+00	-5.65E+00	3.67E+00
	SB-125	176.33		6.89	8.74E-01	2.96E-01	-1.85E-01	4.21E-01
		427.89		29.33	2.96E-01		8.89E-02	1.40E-01
		463.38		10.35	1.03E+00		1.10E+00	4.90E-01
		600.56		17.80	5.64E-01		-3.60E-02	2.65E-01
		635.90		11.32	7.69E-01		1.01E-02	3.55E-01
	SB-126	414.70		83.30	2.26E+01	2.26E+01	-9.93E+00	1.07E+01
		666.33		99.60	2.58E+01		1.24E+01	1.21E+01
		695.00		99.60	2.47E+01		1.08E+01	1.15E+01
		720.50		53.80	4.20E+01		1.46E+01	1.95E+01
+	SN-126	87.57	*	37.00	6.80E-01	6.80E-01	5.77E-01	3.38E-01
	SB-127	473.00		25.00	1.57E+07	1.25E+07	4.21E+06	7.42E+06
		685.20		35.70	1.25E+07		-1.06E+06	5.81E+06
		783.80		14.70	3.50E+07		1.04E+07	1.63E+07
	I-129	29.78		57.00	5.11E-01	5.11E-01	-8.42E-02	2.49E-01
		33.60		13.20	1.47E+00		1.59E+00	7.15E-01
		39.58		7.52	1.63E+00		5.41E-01	7.93E-01
	I-131	284.30		6.05	5.64E+03	4.84E+02	5.77E+02	2.70E+03

Analysis Report for 1707085-14

HTC-A02-S003-1824-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
I-131	364.48	81.20	4.84E+02	4.84E+02	1.05E+02	2.31E+02
	636.97	7.26	5.07E+03		-1.07E+03	2.33E+03
	722.89	1.80	2.60E+04		5.90E+03	1.21E+04
TE-132	49.72	13.10	7.94E+08	1.07E+08	-2.11E+07	3.87E+08
	228.16	88.00	1.07E+08		6.66E+07	5.16E+07
BA-133	81.00	33.00	2.19E-01	1.89E-01	-5.38E-01	1.07E-01
	302.84	17.80	4.56E-01		1.11E-01	2.19E-01
	356.01	60.00	1.89E-01		-4.05E-02	9.14E-02
@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
XE-133	81.00	38.00	8.11E+04	8.11E+04	-1.99E+05	3.97E+04
CS-134	563.23	8.38	1.25E+00	1.22E-01	2.47E-01	5.87E-01
	569.32	15.43	6.95E-01		2.94E-02	3.27E-01
	604.70	97.60	1.22E-01		-3.63E-02	5.76E-02
	795.84	85.40	1.40E-01		9.57E-03	6.50E-02
	801.93	8.73	1.26E+00		-4.18E-01	5.80E-01
CS-135	268.24	16.00	4.97E-01	4.97E-01	-6.19E-02	2.40E-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	1.35E+02	1.64E+01	5.10E+01	6.53E+01
	163.89	4.61	2.16E+02		-2.91E+01	1.04E+02
	176.55	13.56	7.32E+01		-1.55E+01	3.53E+01
	273.65	12.66	1.10E+02		-6.85E+01	5.32E+01
	340.57	48.50	4.18E+01		8.94E+01	2.02E+01
	818.50	99.70	1.64E+01		-5.64E+00	7.54E+00
	1048.07	79.60	2.18E+01		-2.29E+01	9.85E+00
	1235.34	19.70	1.47E+02		-4.98E+01	6.85E+01
CS-137	661.65	85.12	1.13E-01	1.13E-01	-7.52E-02	5.25E-02
LA-138	788.74	34.00	3.32E-01	1.57E-01	2.23E-01	1.55E-01
	1435.80	66.00	1.57E-01		2.74E-02	6.90E-02
CE-139	165.85	80.35	1.19E-01	1.19E-01	6.71E-02	5.75E-02
BA-140	162.64	6.70	1.73E+02	7.45E+01	-4.40E+00	8.34E+01
	304.84	4.50	3.41E+02		-1.65E-01	1.63E+02
	423.70	3.20	5.20E+02		5.58E+01	2.46E+02
	437.55	2.00	8.96E+02		1.80E+02	4.25E+02
	537.32	25.00	7.45E+01		1.50E+00	3.51E+01
LA-140	328.77	20.50	8.38E+01	2.58E+01	3.28E+01	4.02E+01
	487.03	45.50	3.58E+01		1.01E-01	1.68E+01
	815.85	23.50	9.09E+01		4.25E+01	4.21E+01
	1596.49	95.49	2.58E+01		6.68E+00	1.15E+01
CE-141	145.44	48.40	9.71E-01	9.71E-01	5.49E-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	6.44E-01	6.44E-01	-9.80E-02	3.12E-01
PM-144	476.78	42.00	2.43E-01	1.10E-01	2.02E-02	1.15E-01
	618.01	98.60	1.10E-01		9.01E-04	5.11E-02
	696.49	99.49	1.17E-01		-3.95E-02	5.46E-02
PM-145	36.85	21.70	6.76E-01	3.48E-01	1.63E-01	3.29E-01
	37.36	39.70	3.48E-01		-2.99E-01	1.69E-01
	42.30	15.10	7.25E-01		-1.55E-01	3.53E-01
	72.40	2.31	3.57E+00		-4.86E+00	1.75E+00
PM-146	453.90	39.94	2.11E-01	2.11E-01	4.97E-02	9.95E-02

Analysis Report for 1707085-14

HTC-A02-S003-1824-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
PM-146	735.90	14.01	7.73E-01	2.11E-01	3.38E-01	3.61E-01
	747.13	13.10	7.82E-01		-4.68E-02	3.63E-01
ND-147	91.11	28.90	1.21E+02	1.21E+02	-1.57E+02	5.91E+01
	531.02	13.10	3.06E+02		-1.34E+02	1.43E+02
PM-149	285.90	3.10	5.22E+13	5.22E+13	-9.33E+12	2.50E+13
EU-152	121.78	20.50	2.64E-01	2.64E-01	6.49E-02	1.28E-01
	244.69	5.40	1.71E+00		-2.59E-01	8.29E-01
	344.27	19.13	4.47E-01		-2.62E-02	2.14E-01
	778.89	9.20	1.00E+00		9.11E-02	4.61E-01
	964.01	10.40	1.30E+00		-5.34E-02	6.04E-01
	1085.78	7.22	1.55E+00		-1.19E+00	7.08E-01
	1112.02	9.60	1.19E+00		-1.09E+00	5.43E-01
	1407.95	14.94	8.15E-01		3.81E-01	3.66E-01
GD-153	97.43	31.30	2.19E-01	2.19E-01	-8.33E-03	1.06E-01
	103.18	22.20	3.21E-01		3.61E-02	1.56E-01
EU-154	123.07	40.50	1.39E-01	1.39E-01	1.13E-01	6.74E-02
	723.30	19.70	5.11E-01		1.16E-01	2.38E-01
	873.19	11.50	9.32E-01		2.97E-01	4.29E-01
	996.32	10.30	1.17E+00		-6.50E-02	5.38E-01
	1004.76	17.90	6.49E-01		7.33E-03	2.98E-01
	1274.45	35.50	3.60E-01		-5.43E-02	1.64E-01
EU-155	86.50	30.90	2.46E-01	2.46E-01	2.29E-01	1.20E-01
	105.30	20.70	2.66E-01		1.27E-02	1.29E-01
EU-156	811.77	10.40	8.98E+01	8.98E+01	-1.37E+01	4.16E+01
	1153.47	7.20	1.55E+02		-1.18E+01	7.13E+01
	1230.71	8.90	1.51E+02		-1.97E+01	7.03E+01
HO-166M	184.41	72.60	1.04E-01	1.04E-01	1.26E-01	5.06E-02
	280.45	29.60	2.60E-01		2.65E-02	1.25E-01
	410.94	11.10	7.28E-01		-4.51E-02	3.45E-01
	711.69	54.10	1.91E-01		4.67E-02	8.90E-02
TM-171	66.72	0.14	5.98E+01	5.98E+01	2.08E+01	2.92E+01
HF-172	67.35	5.31	1.51E+00	5.19E-01	4.97E-01	7.38E-01
	125.81	11.30	5.19E-01		7.30E-02	2.51E-01
LU-172	181.53	20.60	7.61E+03	5.21E+03	3.60E+02	3.67E+03
	900.72	29.81	9.86E+03		7.88E+02	4.56E+03
	1093.66	62.50	5.21E+03		6.61E+00	2.40E+03
LU-173	100.72	5.24	1.15E+00	4.42E-01	7.06E-02	5.60E-01
	272.11	21.20	4.42E-01		2.30E-01	2.13E-01
HF-175	343.40	84.00	2.65E-01	2.65E-01	-1.55E-02	1.27E-01
LU-176	88.34	13.30	5.51E-01	7.13E-02	1.95E-01	2.70E-01
	201.83	86.00	7.13E-02		-1.49E-02	3.43E-02
	306.78	94.00	7.57E-02		-4.40E-03	3.62E-02
HF-181	133.02	41.70	6.68E-01	4.96E-01	-2.73E-02	3.24E-01
	345.85	17.20	2.36E+00		-2.55E-01	1.13E+00
	482.03	82.80	4.96E-01		1.78E-01	2.34E-01
TA-182	67.75	41.20	3.18E-01	3.18E-01	1.05E-01	1.56E-01
	1121.30	34.90	9.44E-01		8.33E-01	4.46E-01
	1189.05	16.23	1.66E+00		2.25E-01	7.69E-01
	1221.41	26.98	1.01E+00		1.83E-01	4.69E-01
	1231.02	11.44	2.42E+00		-3.15E-01	1.12E+00
IR-192	308.46	29.68	6.14E-01	4.14E-01	1.90E-01	2.93E-01
	468.07	48.10	4.14E-01		1.36E-02	1.95E-01
HG-203	279.19	77.30	4.40E-01	4.40E-01	3.43E-01	2.12E-01

Analysis Report for 1707085-14

HTC-A02-S003-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TL-204	374.74		94.11	8.70E-02	8.70E-02	-1.32E-04	4.14E-02
		899.15		99.16	1.17E-01		-8.24E-03	5.42E-02
		911.74		91.10	2.31E-01		5.09E-01	1.11E-01
	BI-207	569.67		97.72	9.98E-02	9.98E-02	-3.47E-02	4.70E-02
		1063.62		74.90	1.48E-01		1.75E-02	6.74E-02
+	TL-208	583.14	*	30.22	6.00E-01	1.46E-01	1.17E+00	2.91E-01
		860.37		4.48	2.67E+00		8.58E-01	1.24E+00
		2614.66	*	35.85	1.46E-01		1.28E+00	4.68E-02
	BI-210M	262.00		45.00	1.66E-01	1.66E-01	2.09E-02	7.98E-02
		300.00		23.00	4.08E-01		-4.07E-01	1.97E-01
	PB-210	46.50		4.25	2.44E+00	2.44E+00	2.60E+00	1.19E+00
	PB-211	404.84		2.90	2.92E+00	2.92E+00	-3.70E-01	1.39E+00
		831.96		2.90	3.85E+00		-6.17E-01	1.79E+00
+	BI-212	727.17	*	11.80	9.68E-01	9.68E-01	1.10E+00	4.55E-01
		1620.62		2.75	3.71E+00		5.07E-01	1.61E+00
+	PB-212	238.63	*	44.60	2.71E-01	2.71E-01	1.56E+00	1.33E-01
		300.09	*	3.41	4.26E+00		1.60E+00	2.08E+00
+	BI-214	609.31	*	46.30	2.12E-01	2.12E-01	1.26E+00	9.94E-02
		1120.29	*	15.10	1.46E+00		1.42E+00	6.97E-01
		1764.49	*	15.80	8.72E-01		1.30E+00	3.89E-01
		2204.22		4.98	2.62E+00		4.21E-02	1.14E+00
+	PB-214	295.21	*	19.19	7.50E-01	2.42E-01	1.45E+00	3.67E-01
		351.92	*	37.19	2.42E-01		1.19E+00	1.16E-01
	RN-219	401.80		6.50	1.31E+00	1.31E+00	1.41E-01	6.21E-01
	RA-223	323.87		3.88	1.88E+00	1.88E+00	-7.99E-02	8.94E-01
	RA-224	240.98		3.95	3.90E+00	3.90E+00	2.19E+01	1.92E+00
	RA-225	40.00		31.00	3.84E+01	3.84E+01	1.27E+01	1.87E+01
+	RA-226	186.21	*	3.28	3.33E+00	3.33E+00	4.21E+00	1.63E+00
	TH-227	50.10		8.40	1.04E+00	1.03E+00	-2.77E-02	5.07E-01
		236.00		11.50	1.03E+00		7.45E-02	5.05E-01
		256.20		6.30	1.24E+00		8.30E-01	5.99E-01
+	AC-228	338.32	*	11.40	1.01E+00	5.64E-01	1.93E+00	4.88E-01
		911.07	*	27.70	5.64E-01		1.48E+00	2.67E-01
		969.11	*	16.60	1.08E+00		6.31E-01	5.13E-01
	TH-230	48.44		16.90	5.61E-01	5.61E-01	6.42E-02	2.74E-01
		62.85		4.60	1.83E+00		2.48E+00	8.94E-01
		67.67		0.37	1.96E+01		6.44E+00	9.57E+00
	PA-231	283.67		1.60	4.39E+00	3.47E+00	-1.08E+00	2.10E+00
		302.67		2.30	3.47E+00		8.46E-01	1.66E+00
	TH-231	25.64		14.70	3.69E+00	1.06E+00	-8.44E-01	1.80E+00
		84.21		6.40	1.06E+00		-7.50E-01	5.19E-01
	PA-233	311.98		38.60	2.34E+00	2.34E+00	-1.75E-01	1.12E+00
	PA-234	131.20		20.40	2.83E-01	2.83E-01	7.28E-02	1.37E-01
		733.99		8.80	1.10E+00		-5.39E-01	5.10E-01
		946.00		12.00	8.30E-01		-2.37E-01	3.78E-01
	PA-234M	1001.03		0.92	1.32E+01	1.32E+01	8.14E+00	6.11E+00
+	TH-234	63.29	*	3.80	2.70E+00	2.70E+00	2.10E+00	1.33E+00
	U-235	143.76		10.50	5.42E-01	5.42E-01	8.12E-03	2.62E-01
		163.35		4.70	1.20E+00		-1.62E-01	5.78E-01
		205.31		4.70	1.60E+00		-9.52E-01	7.77E-01
	NP-237	86.50		12.60	5.80E-01	5.80E-01	5.42E-01	2.84E-01
	NP-239	106.10		22.70	8.30E+11	8.30E+11	3.96E+10	4.03E+11
		228.18		10.70	2.64E+12		1.65E+12	1.28E+12

Analysis Report for 1707085-14

HTC-A02-S003-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	NP-239	277.60		14.10	1.98E+12	8.30E+11	1.33E+12	9.54E+11
	AM-241	59.54		35.90	2.12E-01	2.12E-01	2.52E-03	1.03E-01
+	AM-243	74.67	*	66.00	3.89E-01	3.89E-01	4.81E-01	1.93E-01
	CM-243	209.75		3.29	2.40E+00	5.66E-01	3.84E-01	1.16E+00
		228.14		10.60	7.56E-01		4.73E-01	3.66E-01
		277.60		14.00	5.66E-01		3.81E-01	2.72E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A02-S003-1824-01

Elapsed Live time: 3600
Elapsed Real Time: 3608

Channel								
1:	0	0	0	0	0	0	0	0
9:	24	215	249	211	207	191	126	92
17:	95	80	75	71	77	73	93	92
25:	97	97	86	102	104	98	71	91
33:	103	83	103	83	70	81	96	81
41:	96	83	88	89	96	104	147	136
49:	96	93	84	111	79	107	102	106
57:	97	115	112	118	118	114	176	193
65:	168	118	129	141	121	115	116	118
73:	136	186	291	290	301	381	243	115
81:	102	104	113	125	131	109	147	195
89:	144	112	134	115	180	204	132	77
97:	61	76	80	58	78	70	77	75
105:	72	77	72	62	73	65	61	66
113:	86	81	74	72	88	61	69	49
121:	68	67	65	79	68	49	55	64
129:	83	85	76	59	55	72	70	60
137:	73	62	69	73	60	51	62	67
145:	71	64	58	62	52	55	70	52
153:	62	57	53	49	55	46	66	43
161:	59	42	58	54	53	55	51	63
169:	52	35	39	45	39	49	44	46
177:	45	47	53	56	53	54	53	48
185:	71	111	121	77	46	49	40	42
193:	50	39	46	42	55	49	46	37
201:	46	48	46	51	49	50	46	42
209:	56	67	59	45	42	49	48	31
217:	48	45	51	42	35	37	31	29
225:	46	44	46	54	52	44	35	43
233:	45	45	43	39	46	135	335	288
241:	121	97	110	46	26	34	37	25
249:	33	41	28	26	45	24	35	32
257:	37	39	42	32	29	28	23	40
265:	27	22	28	29	27	52	57	34
273:	35	16	29	34	28	46	34	26
281:	26	28	21	28	18	19	29	34
289:	17	25	23	18	31	31	94	119
297:	83	32	30	29	42	32	31	23
305:	19	20	27	18	20	24	21	26
313:	14	23	25	26	19	19	20	25
321:	14	20	25	20	24	23	17	32
329:	48	26	17	25	22	26	21	18
337:	26	67	107	54	31	23	27	29
345:	24	18	22	24	16	26	55	161
353:	142	57	14	23	19	19	18	24
361:	12	23	19	23	18	26	24	18

369:	15	27	17	16	19	13	14	17

Sample Title: HTC-A02-S003-1824-01

Channel								
377:	24	23	13	16	17	22	8	20
385:	18	18	20	20	12	22	11	20
393:	14	20	23	21	19	26	16	19
401:	19	23	19	15	21	13	16	23
409:	19	21	15	14	9	13	15	21
417:	13	19	19	17	18	16	15	14
425:	16	15	15	12	13	17	19	10
433:	14	20	17	14	16	19	17	22
441:	15	16	13	13	10	12	17	11
449:	12	14	22	13	14	13	3	14
457:	17	11	12	13	15	18	30	37
465:	14	13	14	7	14	10	14	16
473:	10	12	19	11	10	14	11	18
481:	13	13	11	12	10	10	8	12
489:	13	15	18	11	14	5	12	17
497:	13	10	12	12	19	18	12	11
505:	15	18	10	17	20	43	49	64
513:	26	17	15	13	8	7	8	9
521:	7	14	12	13	10	11	14	6
529:	10	12	11	8	11	13	14	12
537:	16	10	10	13	14	15	14	9
545:	14	16	10	14	15	18	7	13
553:	12	11	17	9	13	13	14	9
561:	12	14	12	9	15	18	11	8
569:	16	15	3	21	16	11	17	17
577:	9	16	9	10	12	20	84	90
585:	44	11	16	8	10	13	15	8
593:	9	6	12	9	14	9	7	8
601:	11	11	13	17	11	11	9	30
609:	96	120	49	15	5	8	10	8
617:	10	15	10	6	6	18	8	16
625:	13	10	9	12	11	15	8	6
633:	10	4	5	10	6	7	8	5
641:	9	10	8	12	12	11	4	14
649:	7	8	10	9	22	11	17	8
657:	11	7	7	10	10	11	15	8
665:	4	17	15	13	9	9	5	4
673:	8	10	11	11	14	7	9	13
681:	6	14	5	9	6	10	9	6
689:	9	8	8	10	10	10	9	5
697:	13	11	6	7	7	15	8	12
705:	10	11	9	9	9	9	11	14
713:	3	10	11	7	8	6	10	8
721:	11	6	8	4	6	16	28	13
729:	19	6	4	3	7	13	13	9
737:	6	8	9	9	9	15	12	7
745:	10	11	8	8	5	7	6	10
753:	11	8	9	10	3	8	14	3
761:	6	11	8	8	11	11	17	17
769:	16	10	9	11	10	6	6	9
777:	2	7	5	6	8	6	6	6
785:	6	16	14	7	11	7	5	7
793:	3	8	14	16	10	6	4	5

801:	15	3	12	3	8	8	11	8

Sample Title: HTC-A02-S003-1824-01

Channel								
809:	8	10	5	7	5	9	11	7
817:	9	5	7	5	4	4	6	6
825:	10	9	12	3	10	10	7	10
833:	7	8	7	11	10	13	12	6
841:	11	22	6	6	7	2	5	7
849:	7	7	9	4	4	9	8	12
857:	10	8	6	14	16	6	4	5
865:	6	4	8	3	5	5	7	9
873:	8	4	7	7	5	7	8	4
881:	6	3	5	0	9	5	6	3
889:	8	8	11	4	10	7	8	7
897:	5	8	8	7	9	6	6	9
905:	8	8	7	4	12	27	50	54
913:	16	7	6	5	3	8	3	8
921:	9	4	7	6	9	3	7	1
929:	11	3	5	5	6	10	15	9
937:	5	4	7	3	6	5	4	6
945:	6	7	6	3	4	5	9	10
953:	6	5	5	6	7	7	4	2
961:	8	7	7	10	9	15	9	22
969:	20	23	9	9	11	7	5	7
977:	7	4	5	6	9	7	5	6
985:	5	4	7	0	7	7	4	7
993:	6	6	10	10	2	9	4	5
1001:	11	9	4	8	3	2	8	9
1009:	10	2	8	9	6	6	4	4
1017:	5	5	7	5	1	4	4	6
1025:	7	5	8	2	7	6	6	10
1033:	8	7	6	9	6	5	11	6
1041:	3	7	9	7	4	8	3	4
1049:	2	2	6	12	5	3	10	5
1057:	4	3	5	9	7	8	5	8
1065:	3	3	2	4	3	7	6	6
1073:	6	9	6	4	9	1	6	8
1081:	11	5	6	5	6	6	2	4
1089:	6	11	6	5	7	6	9	7
1097:	6	6	4	7	10	12	6	7
1105:	6	9	4	15	4	4	6	5
1113:	8	4	4	5	12	1	15	30
1121:	22	9	9	10	8	6	9	9
1129:	5	6	8	4	7	8	5	7
1137:	10	2	6	4	5	9	5	8
1145:	2	4	3	11	8	5	6	8
1153:	6	5	6	6	5	3	7	5
1161:	8	9	9	12	4	7	11	7
1169:	9	9	4	8	15	8	9	5
1177:	9	7	6	7	6	11	10	8
1185:	8	5	8	6	6	7	8	16
1193:	7	6	5	8	7	10	5	12
1201:	8	8	8	8	9	11	4	11
1209:	4	10	5	6	5	8	10	7
1217:	8	12	6	7	9	5	10	6
1225:	6	7	4	6	7	8	10	5

1233:	9	11	4	11	8	17	14	13

Sample Title: HTC-A02-S003-1824-01

Channel								
1241:	11	10	5	9	4	6	10	14
1249:	3	8	3	8	10	11	6	5
1257:	5	5	14	7	3	10	8	9
1265:	5	1	6	5	7	4	8	4
1273:	2	6	8	1	5	6	5	3
1281:	6	5	7	3	8	7	4	1
1289:	4	6	5	7	1	4	3	4
1297:	5	7	5	5	4	4	10	8
1305:	3	1	4	8	3	2	2	2
1313:	1	7	7	2	4	8	7	2
1321:	6	3	2	1	3	3	4	5
1329:	3	5	3	5	5	5	4	8
1337:	4	3	7	4	7	4	4	4
1345:	3	4	5	4	1	1	2	3
1353:	1	3	4	5	2	2	3	4
1361:	0	1	1	2	1	6	5	6
1369:	1	1	4	1	5	9	6	3
1377:	8	7	2	2	5	3	3	5
1385:	3	4	3	3	2	4	3	2
1393:	3	5	1	4	2	4	4	4
1401:	1	3	3	4	2	4	8	5
1409:	3	2	2	2	0	1	2	1
1417:	0	2	2	2	1	1	1	8
1425:	1	5	1	0	1	1	4	2
1433:	3	4	3	3	3	0	2	0
1441:	3	2	3	3	3	4	1	1
1449:	3	1	4	1	0	5	3	2
1457:	8	12	63	182	206	108	23	3
1465:	3	3	1	1	2	0	1	1
1473:	0	2	0	1	3	2	4	1
1481:	0	1	0	4	3	0	1	3
1489:	0	2	3	3	1	2	2	3
1497:	4	1	1	1	1	3	0	1
1505:	2	1	2	3	2	2	1	2
1513:	0	0	1	2	1	0	3	1
1521:	1	2	1	0	0	0	3	1
1529:	1	0	1	1	2	3	0	2
1537:	0	2	1	2	3	0	0	1
1545:	0	3	0	2	2	1	2	0
1553:	0	3	1	2	3	1	1	0
1561:	2	1	2	1	0	3	0	0
1569:	2	0	0	3	1	2	2	1
1577:	1	0	1	0	0	2	1	1
1585:	5	2	8	8	6	3	2	3
1593:	4	2	1	2	1	2	3	3
1601:	2	0	1	0	3	0	1	1
1609:	1	1	1	0	1	2	1	1
1617:	1	0	3	2	2	1	3	1
1625:	1	1	0	2	0	5	1	2
1633:	0	0	0	0	0	1	0	1
1641:	3	0	0	1	1	0	0	3
1649:	0	0	0	2	2	2	0	2
1657:	0	2	0	0	0	2	1	0

1665:	0	0	2	0	1	3	1	0

Sample Title: HTC-A02-S003-1824-01

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

2097:	0	1	2	2	1	2	0	3

Sample Title: HTC-A02-S003-1824-01

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

2529:	1	0	0	0	0	0	0	0

Sample Title: HTC-A02-S003-1824-01

Channel								
2537:	0	1	0	0	2	1	1	2
2545:	0	0	0	1	0	0	1	0
2553:	0	0	1	1	1	0	2	0
2561:	2	0	0	0	1	0	0	1
2569:	0	0	0	0	0	0	0	0
2577:	0	0	0	1	0	0	0	0
2585:	0	2	0	2	0	0	0	0
2593:	0	0	0	0	1	0	0	0
2601:	0	1	2	0	0	0	0	0
2609:	1	1	5	11	20	15	11	3
2617:	1	0	0	0	1	0	0	1
2625:	0	1	0	0	0	0	0	0
2633:	0	1	0	1	0	0	0	0
2641:	0	0	0	0	0	0	2	0
2649:	0	0	0	0	1	0	0	0
2657:	0	1	0	0	0	1	1	0
2665:	0	0	0	0	0	0	0	0
2673:	0	0	0	0	0	0	0	0
2681:	1	0	0	0	0	0	0	0
2689:	0	0	0	0	0	1	0	0
2697:	0	0	0	0	0	0	0	0
2705:	1	0	0	0	0	0	0	1
2713:	0	0	0	0	0	0	1	0
2721:	1	0	0	0	0	0	1	0
2729:	0	0	0	0	0	0	0	1
2737:	1	0	2	0	0	0	0	0
2745:	0	0	0	1	0	0	0	0
2753:	0	0	0	0	0	0	0	0
2761:	0	0	0	0	1	0	0	0
2769:	0	0	0	0	0	0	0	0
2777:	1	0	0	0	0	0	0	0
2785:	0	0	0	1	1	0	0	1
2793:	0	1	1	1	1	0	0	0
2801:	0	0	0	0	0	0	0	1
2809:	0	0	0	0	0	0	0	1
2817:	0	0	1	0	0	1	0	0
2825:	0	0	0	0	0	1	0	0
2833:	0	0	0	1	0	1	2	0
2841:	0	0	0	0	0	0	0	0
2849:	0	0	0	0	0	1	0	0
2857:	0	1	0	0	0	3	1	0
2865:	0	0	1	0	1	1	0	0
2873:	0	1	0	0	0	0	0	0
2881:	0	0	0	1	0	0	0	0
2889:	0	0	1	1	0	1	0	0
2897:	0	1	0	0	0	0	0	0
2905:	0	0	0	0	0	1	0	0
2913:	2	1	1	0	0	0	0	0
2921:	0	0	0	0	0	0	1	0
2929:	0	0	1	0	0	0	0	0
2937:	1	0	0	0	0	1	0	1
2945:	0	0	0	0	0	0	0	0
2953:	0	0	0	0	0	0	0	1

2961:	0	0	0	1	1	0	1	1

Sample Title: HTC-A02-S003-1824-01

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

3393:	0	0	1	0	0	0	0	0

Sample Title: HTC-A02-S003-1824-01

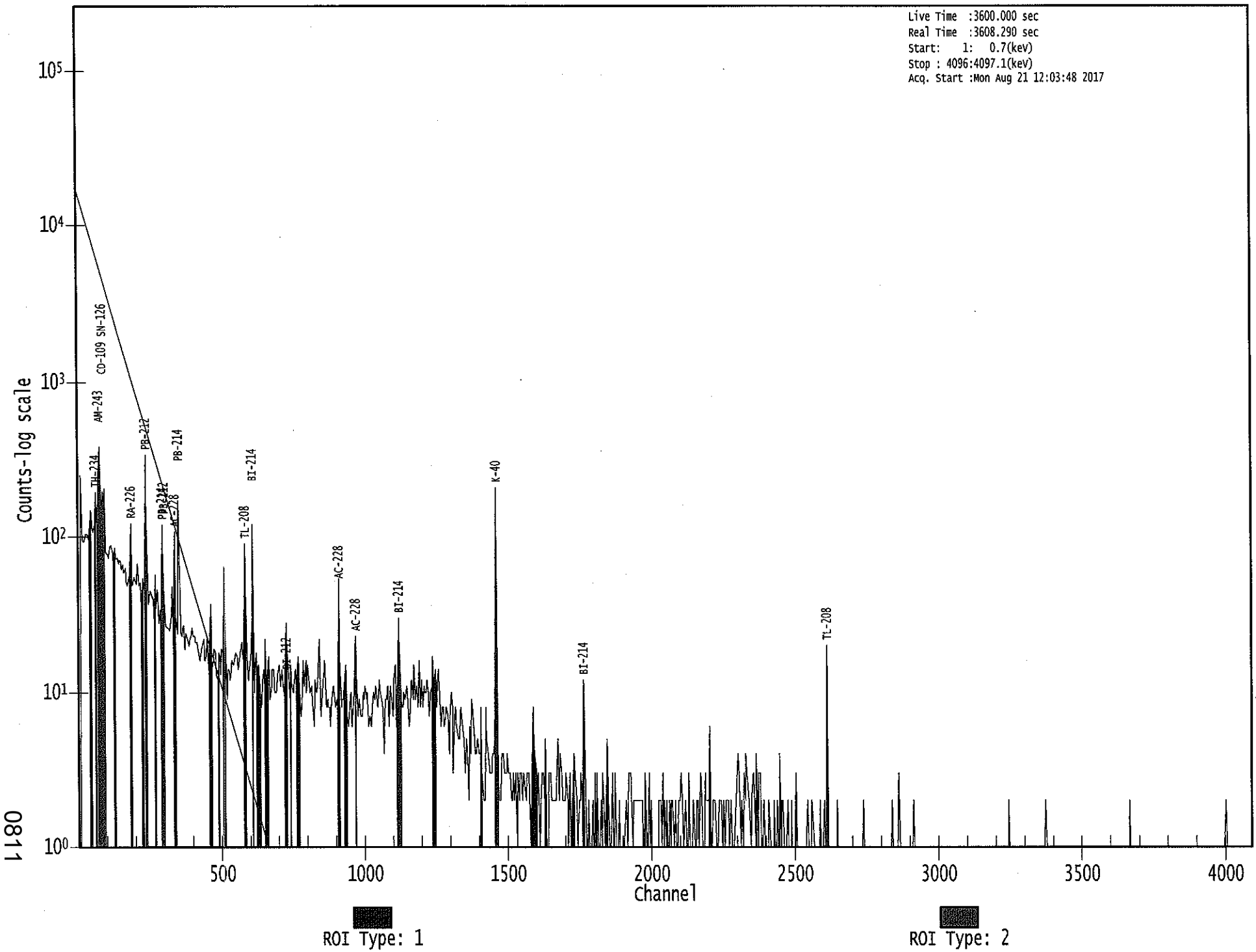
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	1	0	0	0	0	0	0
3417:	0	0	0	0	1	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	1	0	0	0	0	0	0	0
3449:	0	1	0	0	0	1	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	1	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	1	0	0	0
3497:	0	0	0	0	1	0	0	1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

3825:	0	0	0	0	0	1	1	0

Sample Title: HTC-A02-S003-1824-01

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

0000055634.CNF



0811

Apex-Gamma

8/21

Analysis Report for 1707085-15

HTC-A02-S003-2430-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707085-15
Sample Description	: HTC-A02-S003-2430-01
Sample Type	: SOIL
Sample Size	: 4.507E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 8:12:36AM
Acquisition Started	: 8/21/2017 12:16:56PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3601.3 seconds
Dead Time	: 0.04 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 17 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55638

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/22/17

Analysis Report for 1707085-15

HTC-A02-S003-2430-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 1:19:26PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	46.24	46.86	0.0000	0.00
2	62.87	63.47	0.0000	0.00
3	74.72	75.31	0.0000	0.00
4	77.12	77.71	0.0000	0.00
5	87.64	88.22	0.0000	0.00
6	92.62	93.20	0.0000	0.00
7	129.96	130.50	0.0000	0.00
8	185.75	186.23	0.0000	0.00
9	209.18	209.64	0.0000	0.00
10	238.61	239.04	0.0000	0.00
11	241.74	242.17	0.0000	0.00
12	269.86	270.25	0.0000	0.00
13	295.24	295.61	0.0000	0.00
14	300.12	300.48	0.0000	0.00
15	313.01	313.36	0.0000	0.00
16	327.84	328.18	0.0000	0.00
17	338.80	339.13	0.0000	0.00
18	352.00	352.31	0.0000	0.00
19	411.37	411.62	0.0000	0.00
20	510.83	510.98	0.0000	0.00
21	547.74	547.86	0.0000	0.00
22	556.17	556.28	0.0000	0.00
23	583.34	583.41	0.0000	0.00
24	586.63	586.71	0.0000	0.00
25	609.48	609.53	0.0000	0.00
26	638.53	638.55	0.0000	0.00
27	675.18	675.17	0.0000	0.00
28	727.23	727.16	0.0000	0.00
29	768.86	768.75	0.0000	0.00
30	796.23	796.10	0.0000	0.00
31	848.30	848.11	0.0000	0.00
32	861.79	861.59	0.0000	0.00
33	911.50	911.25	0.0000	0.00
34	953.39	953.10	0.0000	0.00
35	959.71	959.41	0.0000	0.00
36	969.26	968.95	0.0000	0.00
37	1053.40	1053.00	0.0000	0.00
38	1056.72	1056.33	0.0000	0.00
39	1117.63	1117.17	0.0000	0.00
40	1120.61	1120.15	0.0000	0.00
41	1138.00	1137.52	0.0000	0.00
42	1156.54	1156.05	0.0000	0.00

Analysis Report for 1707085-15

HTC-A02-S003-2430-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1281.94	1281.32	0.0000	0.00
44	1378.15	1377.44	0.0000	0.00
45	1461.27	1460.48	0.0000	0.00
46	1466.34	1465.54	0.0000	0.00
47	1528.61	1527.75	0.0000	0.00
48	1594.56	1593.63	0.0000	0.00
49	1621.95	1621.00	0.0000	0.00
50	1630.24	1629.28	0.0000	0.00
51	1638.72	1637.75	0.0000	0.00
52	1655.96	1654.97	0.0000	0.00
53	1704.03	1703.00	0.0000	0.00
54	1764.91	1763.82	0.0000	0.00
55	1821.10	1819.95	0.0000	0.00
56	1847.28	1846.11	0.0000	0.00
57	1999.75	1998.43	0.0000	0.00
58	2104.06	2102.63	0.0000	0.00
59	2119.75	2118.32	0.0000	0.00
60	2204.36	2202.84	0.0000	0.00
61	2254.26	2252.70	0.0000	0.00
62	2351.17	2349.51	0.0000	0.00
63	2615.48	2613.57	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707085-15

HTC-A02-S003-2430-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 1:19:26PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	46.24	44 -	49	46.86	1.26E+02	70.13	8.85E+02	1.45
	2	62.87	60 -	66	63.47	2.03E+02	96.11	1.54E+03	1.67
M	3	74.72	71 -	81	75.31	3.97E+02	90.99	1.25E+03	1.81
m	4	77.12	71 -	81	77.71	6.53E+02	98.16	1.25E+03	1.82
m	5	87.64	83 -	97	88.22	2.83E+02	95.22	1.39E+03	2.44
m	6	92.62	83 -	97	93.20	4.35E+02	95.47	1.16E+03	2.45
	7	129.96	125 -	136	130.50	1.47E+02	111.16	1.47E+03	3.71
	8	185.75	182 -	191	186.23	2.14E+02	89.86	1.03E+03	1.93
	9	209.18	207 -	212	209.64	9.32E+01	53.07	4.84E+02	1.97
M	10	238.61	233 -	249	239.04	9.14E+02	73.04	3.66E+02	1.82
m	11	241.74	233 -	249	242.17	2.14E+02	74.43	3.39E+02	1.82
	12	269.86	267 -	272	270.25	6.37E+01	47.47	4.01E+02	1.82
M	13	295.24	292 -	304	295.61	2.69E+02	48.72	2.95E+02	1.71
m	14	300.12	292 -	304	300.48	5.13E+01	44.61	3.54E+02	2.05
	15	313.01	311 -	317	313.36	3.74E+01	43.71	3.23E+02	2.75
	16	327.84	325 -	331	328.18	3.70E+01	46.59	3.68E+02	1.62
	17	338.80	335 -	344	339.13	1.98E+02	62.98	4.50E+02	1.83
	18	352.00	348 -	357	352.31	5.07E+02	69.75	4.07E+02	1.91
	19	411.37	406 -	417	411.62	7.72E+01	57.48	3.64E+02	5.57
	20	510.83	507 -	515	510.98	1.37E+02	50.45	3.09E+02	1.75
	21	547.74	545 -	551	547.86	3.10E+01	29.28	1.34E+02	1.36
	22	556.17	554 -	559	556.28	2.38E+01	24.96	1.06E+02	2.93
M	23	583.34	581 -	590	583.41	2.93E+02	39.35	8.62E+01	1.73
m	24	586.63	581 -	590	586.71	2.38E+01	42.81	1.10E+02	2.25
	25	609.48	604 -	615	609.53	3.27E+02	63.21	3.35E+02	1.98
	26	638.53	635 -	643	638.55	4.27E+01	33.23	1.43E+02	6.42
	27	675.18	672 -	679	675.17	2.77E+01	30.13	1.35E+02	2.25
	28	727.23	725 -	733	727.16	5.50E+01	39.74	2.14E+02	1.93
	29	768.86	766 -	771	768.75	3.83E+01	24.88	9.34E+01	1.48
	30	796.23	792 -	800	796.10	4.15E+01	32.18	1.31E+02	1.95
	31	848.30	843 -	852	848.11	2.79E+01	29.63	1.08E+02	6.76
	32	861.79	855 -	869	861.59	6.20E+01	42.63	1.66E+02	2.68
	33	911.50	907 -	914	911.25	2.06E+02	39.29	1.20E+02	2.10
	34	953.39	951 -	956	953.10	1.75E+01	20.59	6.91E+01	2.14
	35	959.71	957 -	961	959.41	1.46E+01	17.18	5.28E+01	1.77
	36	969.26	967 -	973	968.95	7.37E+01	31.77	1.31E+02	1.94
M	37	1053.40	1051 -	1058	1053.00	1.94E+01	12.37	3.94E+01	2.38
m	38	1056.72	1051 -	1058	1056.33	2.09E+01	16.52	3.33E+01	1.78
M	39	1117.63	1116 -	1124	1117.17	1.58E+01	12.11	2.73E+01	2.21
m	40	1120.61	1116 -	1124	1120.15	7.57E+01	28.71	7.60E+01	2.51

Analysis Report for 1707085-15

HTC-A02-S003-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1138.00	1135 -	1140	1137.52	1.65E+01	20.69	7.29E+01	3.15
	42	1156.54	1151 -	1162	1156.05	4.41E+01	36.50	1.46E+02	6.73
	43	1281.94	1276 -	1285	1281.32	3.64E+01	29.83	9.72E+01	4.72
	44	1378.15	1374 -	1380	1377.44	2.49E+01	13.90	1.62E+01	2.97
M	45	1461.27	1454 -	1468	1460.48	1.11E+03	68.34	2.82E+01	2.25
m	46	1466.34	1454 -	1468	1465.54	3.07E+01	18.87	1.82E+01	2.65
	47	1528.61	1525 -	1531	1527.75	1.07E+01	7.76	2.58E+00	3.50
	48	1594.56	1590 -	1599	1593.63	1.46E+01	16.94	2.68E+01	1.25
	49	1621.95	1617 -	1624	1621.00	1.20E+01	6.93	0.00E+00	1.85
	50	1630.24	1625 -	1633	1629.28	1.80E+01	8.49	0.00E+00	4.44
	51	1638.72	1635 -	1641	1637.75	9.50E+00	8.75	7.00E+00	1.87
	52	1655.96	1648 -	1662	1654.97	1.85E+01	14.71	1.50E+01	7.46
	53	1704.03	1700 -	1705	1703.00	4.43E+00	6.78	5.14E+00	2.81
	54	1764.91	1759 -	1768	1763.82	5.90E+01	19.39	2.00E+01	1.78
	55	1821.10	1813 -	1823	1819.95	9.33E+00	10.98	1.13E+01	3.65
	56	1847.28	1842 -	1849	1846.11	2.20E+01	10.58	4.00E+00	4.02
	57	1999.75	1996 -	2000	1998.43	7.00E+00	5.29	0.00E+00	1.77
	58	2104.06	2098 -	2105	2102.63	1.15E+01	11.83	1.51E+01	1.93
	59	2119.75	2115 -	2121	2118.32	6.11E+00	7.78	5.78E+00	2.61
	60	2204.36	2198 -	2211	2202.84	1.49E+01	13.78	1.62E+01	4.70
	61	2254.26	2249 -	2255	2252.70	1.00E+01	6.32	0.00E+00	3.60
	62	2351.17	2344 -	2355	2349.51	1.29E+01	10.00	6.19E+00	3.25
	63	2615.48	2610 -	2621	2613.57	1.07E+02	21.73	3.56E+00	2.76

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 1:19:26PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	46.24	44 -	49	1.26E+02	70.13	8.85E+02	5.46E+01
	2	62.87	60 -	66	2.03E+02	96.11	1.54E+03	7.55E+01
M	3	74.72	71 -	81	3.97E+02	90.99	1.25E+03	5.81E+01
m	4	77.12	71 -	81	6.53E+02	98.16	1.25E+03	5.80E+01
m	5	87.64	83 -	97	2.83E+02	95.22	1.39E+03	6.12E+01

Analysis Report for 1707085-15

HTC-A02-S003-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	6	92.62	83 -	97	4.35E+02	95.47	1.16E+03	5.60E+01
	7	129.96	125 -	136	1.47E+02	111.16	1.47E+03	8.92E+01
	8	185.75	182 -	191	2.14E+02	89.86	1.03E+03	6.98E+01
	9	209.18	207 -	212	9.32E+01	53.07	4.84E+02	4.06E+01
M	10	238.61	233 -	249	9.14E+02	73.04	3.66E+02	3.15E+01
m	11	241.74	233 -	249	2.14E+02	74.43	3.39E+02	3.03E+01
	12	269.86	267 -	272	6.37E+01	47.47	4.01E+02	3.67E+01
M	13	295.24	292 -	304	2.69E+02	48.72	2.95E+02	2.82E+01
m	14	300.12	292 -	304	5.13E+01	44.61	3.54E+02	3.09E+01
	15	313.01	311 -	317	3.74E+01	43.71	3.23E+02	3.45E+01
	16	327.84	325 -	331	3.70E+01	46.59	3.68E+02	3.70E+01
	17	338.80	335 -	344	1.98E+02	62.98	4.50E+02	4.63E+01
	18	352.00	348 -	357	5.07E+02	69.75	4.07E+02	4.38E+01
	19	411.37	406 -	417	7.72E+01	57.48	3.64E+02	4.50E+01
	20	510.83	507 -	515	1.37E+02	50.45	3.09E+02	3.67E+01
	21	547.74	545 -	551	3.10E+01	29.28	1.34E+02	2.23E+01
	22	556.17	554 -	559	2.38E+01	24.96	1.06E+02	1.89E+01
M	23	583.34	581 -	590	2.93E+02	39.35	8.62E+01	1.53E+01
m	24	586.63	581 -	590	2.38E+01	42.81	1.10E+02	1.72E+01
	25	609.48	604 -	615	3.27E+02	63.21	3.35E+02	4.26E+01
	26	638.53	635 -	643	4.27E+01	33.23	1.43E+02	2.51E+01
	27	675.18	672 -	679	2.77E+01	30.13	1.35E+02	2.32E+01
	28	727.23	725 -	733	5.50E+01	39.74	2.14E+02	3.03E+01
	29	768.86	766 -	771	3.83E+01	24.88	9.34E+01	1.77E+01
	30	796.23	792 -	800	4.15E+01	32.18	1.31E+02	2.42E+01
	31	848.30	843 -	852	2.79E+01	29.63	1.08E+02	2.28E+01
	32	861.79	855 -	869	6.20E+01	42.63	1.66E+02	3.26E+01
	33	911.50	907 -	914	2.06E+02	39.29	1.20E+02	2.21E+01
	34	953.39	951 -	956	1.75E+01	20.59	6.91E+01	1.55E+01
	35	959.71	957 -	961	1.46E+01	17.18	5.28E+01	1.26E+01
	36	969.26	967 -	973	7.37E+01	31.77	1.31E+02	2.20E+01
M	37	1053.40	1051 -	1058	1.94E+01	12.37	3.94E+01	1.03E+01
m	38	1056.72	1051 -	1058	2.09E+01	16.52	3.33E+01	9.49E+00
M	39	1117.63	1116 -	1124	1.58E+01	12.11	2.73E+01	8.60E+00
m	40	1120.61	1116 -	1124	7.57E+01	28.71	7.60E+01	1.43E+01
	41	1138.00	1135 -	1140	1.65E+01	20.69	7.29E+01	1.56E+01
	42	1156.54	1151 -	1162	4.41E+01	36.50	1.46E+02	2.79E+01
	43	1281.94	1276 -	1285	3.64E+01	29.83	9.72E+01	2.24E+01
	44	1378.15	1374 -	1380	2.49E+01	13.90	1.62E+01	7.95E+00
M	45	1461.27	1454 -	1468	1.11E+03	68.34	2.82E+01	8.72E+00
m	46	1466.34	1454 -	1468	3.07E+01	18.87	1.82E+01	7.00E+00
	47	1528.61	1525 -	1531	1.07E+01	7.76	2.58E+00	3.43E+00
	48	1594.56	1590 -	1599	1.46E+01	16.94	2.68E+01	1.24E+01
	49	1621.95	1617 -	1624	1.20E+01	6.93	0.00E+00	0.00E+00
	50	1630.24	1625 -	1633	1.80E+01	8.49	0.00E+00	0.00E+00
	51	1638.72	1635 -	1641	9.50E+00	8.75	7.00E+00	5.10E+00
	52	1655.96	1648 -	1662	1.85E+01	14.71	1.50E+01	9.81E+00
	53	1704.03	1700 -	1705	4.43E+00	6.78	5.14E+00	4.37E+00
	54	1764.91	1759 -	1768	5.90E+01	19.39	2.00E+01	9.73E+00
	55	1821.10	1813 -	1823	9.33E+00	10.98	1.13E+01	7.50E+00
	56	1847.28	1842 -	1849	2.20E+01	10.58	4.00E+00	4.03E+00

Analysis Report for 1707085-15

HTC-A02-S003-2430-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
57	1999.75	1996 -	2000	7.00E+00	5.29	0.00E+00	0.00E+00
58	2104.06	2098 -	2105	1.15E+01	11.83	1.51E+01	7.97E+00
59	2119.75	2115 -	2121	6.11E+00	7.78	5.78E+00	4.94E+00
60	2204.36	2198 -	2211	1.49E+01	13.78	1.62E+01	9.38E+00
61	2254.26	2249 -	2255	1.00E+01	6.32	0.00E+00	0.00E+00
62	2351.17	2344 -	2355	1.29E+01	10.00	6.19E+00	5.72E+00
63	2615.48	2610 -	2621	1.07E+02	21.73	3.56E+00	5.40E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/21/2017 1:19:26PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	46.24	44 -	49	46.86	1.26E+02	70.13	8.85E+02	PB-210
	2	62.87	60 -	66	63.47	2.03E+02	96.11	1.54E+03	TH-230
									TH-234
M	3	74.72	71 -	81	75.31	3.97E+02	90.99	1.25E+03	AM-243
m	4	77.12	71 -	81	77.71	6.53E+02	98.16	1.25E+03	.....
m	5	87.64	83 -	97	88.22	2.83E+02	95.22	1.39E+03	SN-126
									CD-109
									LU-176
m	6	92.62	83 -	97	93.20	4.35E+02	95.47	1.16E+03	GA-67
	7	129.96	125 -	136	130.50	1.47E+02	111.16	1.47E+03	.....
	8	185.75	182 -	191	186.23	2.14E+02	89.86	1.03E+03	RA-226
	9	209.18	207 -	212	209.64	9.32E+01	53.07	4.84E+02	GA-67
									CM-243
M	10	238.61	233 -	249	239.04	9.14E+02	73.04	3.66E+02	PB-212
m	11	241.74	233 -	249	242.17	2.14E+02	74.43	3.39E+02	RA-224
	12	269.86	267 -	272	270.25	6.37E+01	47.47	4.01E+02	.....
M	13	295.24	292 -	304	295.61	2.69E+02	48.72	2.95E+02	PB-214
m	14	300.12	292 -	304	300.48	5.13E+01	44.61	3.54E+02	PB-212
									GA-67

Analysis Report for 1707085-15

HTC-A02-S003-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									BI-210M
	15	313.01	311 -	317	313.36	3.74E+01	43.71	3.23E+02	.....
	16	327.84	325 -	331	328.18	3.70E+01	46.59	3.68E+02	LA-140
	17	338.80	335 -	344	339.13	1.98E+02	62.98	4.50E+02	AC-228
	18	352.00	348 -	357	352.31	5.07E+02	69.75	4.07E+02	PB-214
	19	411.37	406 -	417	411.62	7.72E+01	57.48	3.64E+02	HO-166M
	20	510.83	507 -	515	510.98	1.37E+02	50.45	3.09E+02	.....
	21	547.74	545 -	551	547.86	3.10E+01	29.28	1.34E+02	.....
	22	556.17	554 -	559	556.28	2.38E+01	24.96	1.06E+02	.....
M	23	583.34	581 -	590	583.41	2.93E+02	39.35	8.62E+01	TL-208
m	24	586.63	581 -	590	586.71	2.38E+01	42.81	1.10E+02	.....
	25	609.48	604 -	615	609.53	3.27E+02	63.21	3.35E+02	BI-214
	26	638.53	635 -	643	638.55	4.27E+01	33.23	1.43E+02	.....
	27	675.18	672 -	679	675.17	2.77E+01	30.13	1.35E+02	.....
	28	727.23	725 -	733	727.16	5.50E+01	39.74	2.14E+02	BI-212
	29	768.86	766 -	771	768.75	3.83E+01	24.88	9.34E+01	.....
	30	796.23	792 -	800	796.10	4.15E+01	32.18	1.31E+02	CS-134
	31	848.30	843 -	852	848.11	2.79E+01	29.63	1.08E+02	.....
	32	861.79	855 -	869	861.59	6.20E+01	42.63	1.66E+02	.....
	33	911.50	907 -	914	911.25	2.06E+02	39.29	1.20E+02	TL-204
									AC-228
	34	953.39	951 -	956	953.10	1.75E+01	20.59	6.91E+01	.....
	35	959.71	957 -	961	959.41	1.46E+01	17.18	5.28E+01	.....
	36	969.26	967 -	973	968.95	7.37E+01	31.77	1.31E+02	AC-228
M	37	1053.40	1051 -	1058	1053.00	1.94E+01	12.37	3.94E+01	.....
m	38	1056.72	1051 -	1058	1056.33	2.09E+01	16.52	3.33E+01	.....
M	39	1117.63	1116 -	1124	1117.17	1.58E+01	12.11	2.73E+01	.....
m	40	1120.61	1116 -	1124	1120.15	7.57E+01	28.71	7.60E+01	SC-46
									BI-214
									TA-182
	41	1138.00	1135 -	1140	1137.52	1.65E+01	20.69	7.29E+01	.....
	42	1156.54	1151 -	1162	1156.05	4.41E+01	36.50	1.46E+02	.....
	43	1281.94	1276 -	1285	1281.32	3.64E+01	29.83	9.72E+01	.....
	44	1378.15	1374 -	1380	1377.44	2.49E+01	13.90	1.62E+01	.....
M	45	1461.27	1454 -	1468	1460.48	1.11E+03	68.34	2.82E+01	K-40
m	46	1466.34	1454 -	1468	1465.54	3.07E+01	18.87	1.82E+01	.....
	47	1528.61	1525 -	1531	1527.75	1.07E+01	7.76	2.58E+00	.....
	48	1594.56	1590 -	1599	1593.63	1.46E+01	16.94	2.68E+01	.....
	49	1621.95	1617 -	1624	1621.00	1.20E+01	6.93	0.00E+00	.....
	50	1630.24	1625 -	1633	1629.28	1.80E+01	8.49	0.00E+00	.....
	51	1638.72	1635 -	1641	1637.75	9.50E+00	8.75	7.00E+00	.....
	52	1655.96	1648 -	1662	1654.97	1.85E+01	14.71	1.50E+01	.....
	53	1704.03	1700 -	1705	1703.00	4.43E+00	6.78	5.14E+00	.....
	54	1764.91	1759 -	1768	1763.82	5.90E+01	19.39	2.00E+01	BI-214
	55	1821.10	1813 -	1823	1819.95	9.33E+00	10.98	1.13E+01	.....
	56	1847.28	1842 -	1849	1846.11	2.20E+01	10.58	4.00E+00	.....
	57	1999.75	1996 -	2000	1998.43	7.00E+00	5.29	0.00E+00	.....
	58	2104.06	2098 -	2105	2102.63	1.15E+01	11.83	1.51E+01	.....
	59	2119.75	2115 -	2121	2118.32	6.11E+00	7.78	5.78E+00	.....
	60	2204.36	2198 -	2211	2202.84	1.49E+01	13.78	1.62E+01	BI-214
	61	2254.26	2249 -	2255	2252.70	1.00E+01	6.32	0.00E+00	.....
	62	2351.17	2344 -	2355	2349.51	1.29E+01	10.00	6.19E+00	.....
	63	2615.48	2610 -	2621	2613.57	1.07E+02	21.73	3.56E+00	TL-208

Analysis Report for 1707085-15

HTC-A02-S003-2430-01

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 : 8/21/2017 1:19:26PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.24	1.26E+02	70.13	2.46E-02	2.22E-03
	2	62.87	2.03E+02	96.11	2.70E-02	2.25E-03
M	3	74.72	3.97E+02	90.99	2.75E-02	2.38E-03
m	4	77.12	6.53E+02	98.16	2.75E-02	2.40E-03
m	5	87.64	2.83E+02	95.22	2.74E-02	2.52E-03
m	6	92.62	4.35E+02	95.47	2.73E-02	2.45E-03
	7	129.96	1.47E+02	111.16	2.53E-02	1.93E-03
	8	185.75	2.14E+02	89.86	2.17E-02	1.68E-03
	9	209.18	9.32E+01	53.07	2.04E-02	1.61E-03
M	10	238.61	9.14E+02	73.04	1.89E-02	1.53E-03
m	11	241.74	2.14E+02	74.43	1.87E-02	1.52E-03
	12	269.86	6.37E+01	47.47	1.74E-02	1.44E-03
M	13	295.24	2.69E+02	48.72	1.64E-02	1.37E-03
m	14	300.12	5.13E+01	44.61	1.63E-02	1.36E-03
	15	313.01	3.74E+01	43.71	1.58E-02	1.33E-03
	16	327.84	3.70E+01	46.59	1.53E-02	1.29E-03
	17	338.80	1.98E+02	62.98	1.49E-02	1.27E-03
	18	352.00	5.07E+02	69.75	1.45E-02	1.24E-03
	19	411.37	7.72E+01	57.48	1.30E-02	1.13E-03
	20	510.83	1.37E+02	50.45	1.10E-02	1.07E-03
	21	547.74	3.10E+01	29.28	1.05E-02	1.04E-03
	22	556.17	2.38E+01	24.96	1.03E-02	1.04E-03
M	23	583.34	2.93E+02	39.35	9.96E-03	1.02E-03
m	24	586.63	2.38E+01	42.81	9.92E-03	1.02E-03
	25	609.48	3.27E+02	63.21	9.63E-03	1.01E-03
	26	638.53	4.27E+01	33.23	9.29E-03	9.87E-04
	27	675.18	2.77E+01	30.13	8.90E-03	9.50E-04
	28	727.23	5.50E+01	39.74	8.41E-03	8.68E-04
	29	768.86	3.83E+01	24.88	8.06E-03	8.02E-04
	30	796.23	4.15E+01	32.18	7.85E-03	7.58E-04
	31	848.30	2.79E+01	29.63	7.48E-03	6.75E-04
	32	861.79	6.20E+01	42.63	7.39E-03	6.54E-04
	33	911.50	2.06E+02	39.29	7.08E-03	5.91E-04
	34	953.39	1.75E+01	20.59	6.85E-03	5.75E-04

Analysis Report for 1707085-15

HTC-A02-S003-2430-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	35	959.71	1.46E+01	17.18	6.81E-03	5.73E-04
	36	969.26	7.37E+01	31.77	6.76E-03	5.69E-04
M	37	1053.40	1.94E+01	12.37	6.36E-03	5.37E-04
m	38	1056.72	2.09E+01	16.52	6.34E-03	5.36E-04
M	39	1117.63	1.58E+01	12.11	6.08E-03	5.12E-04
m	40	1120.61	7.57E+01	28.71	6.07E-03	5.11E-04
	41	1138.00	1.65E+01	20.69	6.00E-03	5.05E-04
	42	1156.54	4.41E+01	36.50	5.93E-03	4.97E-04
	43	1281.94	3.64E+01	29.83	5.50E-03	4.66E-04
	44	1378.15	2.49E+01	13.90	5.22E-03	4.44E-04
M	45	1461.27	1.11E+03	68.34	5.00E-03	4.25E-04
m	46	1466.34	3.07E+01	18.87	4.99E-03	4.23E-04
	47	1528.61	1.07E+01	7.76	4.85E-03	4.09E-04
	48	1594.56	1.46E+01	16.94	4.70E-03	3.94E-04
	49	1621.95	1.20E+01	6.93	4.64E-03	3.87E-04
	50	1630.24	1.80E+01	8.49	4.63E-03	3.86E-04
	51	1638.72	9.50E+00	8.75	4.61E-03	3.84E-04
	52	1655.96	1.85E+01	14.71	4.58E-03	3.80E-04
	53	1704.03	4.43E+00	6.78	4.48E-03	3.68E-04
	54	1764.91	5.90E+01	19.39	4.37E-03	3.54E-04
	55	1821.10	9.33E+00	10.98	4.28E-03	3.41E-04
	56	1847.28	2.20E+01	10.58	4.23E-03	3.38E-04
	57	1999.75	7.00E+00	5.29	4.00E-03	3.38E-04
	58	2104.06	1.15E+01	11.83	3.86E-03	3.38E-04
	59	2119.75	6.11E+00	7.78	3.84E-03	3.38E-04
	60	2204.36	1.49E+01	13.78	3.74E-03	3.38E-04
	61	2254.26	1.00E+01	6.32	3.68E-03	3.38E-04
	62	2351.17	1.29E+01	10.00	3.57E-03	3.38E-04
	63	2615.48	1.07E+02	21.73	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 : 8/21/2017 1:19:26PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055573.CNF

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
1	46.24	1.26E+02	70.13	3.67E+01	8.40E+00	8.88E+01	7.06E+01

Analysis Report for 1707085-15

HTC-A02-S003-2430-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	2	62.87	2.03E+02	96.11	8.94E+01	1.41E+01	1.13E+02	9.71E+01
M	3	74.72	3.97E+02	90.99			3.97E+02	9.10E+01
m	4	77.12	6.53E+02	98.16	7.20E+00	1.47E+00	6.46E+02	9.82E+01
m	5	87.64	2.83E+02	95.22			2.83E+02	9.52E+01
m	6	92.62	4.35E+02	95.47	1.38E+02	1.72E+01	2.97E+02	9.70E+01
	7	129.96	1.47E+02	111.16			1.47E+02	1.11E+02
	8	185.75	2.14E+02	89.86	5.22E+01	7.59E+00	1.62E+02	9.02E+01
	9	209.18	9.32E+01	53.07			9.32E+01	5.31E+01
M	10	238.61	9.14E+02	73.04	2.13E+01	6.33E+00	8.93E+02	7.33E+01
m	11	241.74	2.14E+02	74.43			2.14E+02	7.44E+01
	12	269.86	6.37E+01	47.47	1.23E+00	4.98E+00	6.25E+01	4.77E+01
M	13	295.24	2.69E+02	48.72			2.69E+02	4.87E+01
m	14	300.12	5.13E+01	44.61			5.13E+01	4.46E+01
	15	313.01	3.74E+01	43.71			3.74E+01	4.37E+01
	16	327.84	3.70E+01	46.59			3.70E+01	4.66E+01
	17	338.80	1.98E+02	62.98			1.98E+02	6.30E+01
	18	352.00	5.07E+02	69.75	5.79E+00	4.49E+00	5.01E+02	6.99E+01
	19	411.37	7.72E+01	57.48			7.72E+01	5.75E+01
	20	510.83	1.37E+02	50.45	7.28E+01	5.30E+00	6.47E+01	5.07E+01
	21	547.74	3.10E+01	29.28			3.10E+01	2.93E+01
	22	556.17	2.38E+01	24.96			2.38E+01	2.50E+01
M	23	583.34	2.93E+02	39.35	2.72E+00	3.05E+00	2.90E+02	3.95E+01
m	24	586.63	2.38E+01	42.81			2.38E+01	4.28E+01
	25	609.48	3.27E+02	63.21	6.35E+00	4.02E+00	3.21E+02	6.33E+01
	26	638.53	4.27E+01	33.23			4.27E+01	3.32E+01
	27	675.18	2.77E+01	30.13			2.77E+01	3.01E+01
	28	727.23	5.50E+01	39.74			5.50E+01	3.97E+01
	29	768.86	3.83E+01	24.88			3.83E+01	2.49E+01
	30	796.23	4.15E+01	32.18			4.15E+01	3.22E+01
	31	848.30	2.79E+01	29.63			2.79E+01	2.96E+01
	32	861.79	6.20E+01	42.63			6.20E+01	4.26E+01
	33	911.50	2.06E+02	39.29	5.31E+00	3.00E+00	2.01E+02	3.94E+01
	34	953.39	1.75E+01	20.59			1.75E+01	2.06E+01
	35	959.71	1.46E+01	17.18			1.46E+01	1.72E+01
	36	969.26	7.37E+01	31.77			7.37E+01	3.18E+01
M	37	1053.40	1.94E+01	12.37			1.94E+01	1.24E+01
m	38	1056.72	2.09E+01	16.52			2.09E+01	1.65E+01
M	39	1117.63	1.58E+01	12.11			1.58E+01	1.21E+01
m	40	1120.61	7.57E+01	28.71			7.57E+01	2.87E+01
	41	1138.00	1.65E+01	20.69			1.65E+01	2.07E+01
	42	1156.54	4.41E+01	36.50			4.41E+01	3.65E+01
	43	1281.94	3.64E+01	29.83			3.64E+01	2.98E+01
	44	1378.15	2.49E+01	13.90			2.49E+01	1.39E+01
M	45	1461.27	1.11E+03	68.34	8.09E+00	2.23E+00	1.10E+03	6.84E+01
m	46	1466.34	3.07E+01	18.87			3.07E+01	1.89E+01
	47	1528.61	1.07E+01	7.76			1.07E+01	7.76E+00
	48	1594.56	1.46E+01	16.94			1.46E+01	1.69E+01
	49	1621.95	1.20E+01	6.93			1.20E+01	6.93E+00
	50	1630.24	1.80E+01	8.49			1.80E+01	8.49E+00
	51	1638.72	9.50E+00	8.75			9.50E+00	8.75E+00
	52	1655.96	1.85E+01	14.71			1.85E+01	1.47E+01
	53	1704.03	4.43E+00	6.78			4.43E+00	6.78E+00
	54	1764.91	5.90E+01	19.39			5.90E+01	1.94E+01
	55	1821.10	9.33E+00	10.98			9.33E+00	1.10E+01

Analysis Report for 1707085-15

HTC-A02-S003-2430-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
56	1847.28	2.20E+01	10.58	1.22E+00	1.50E+00	2.08E+01	1.07E+01
57	1999.75	7.00E+00	5.29			7.00E+00	5.29E+00
58	2104.06	1.15E+01	11.83			1.15E+01	1.18E+01
59	2119.75	6.11E+00	7.78			6.11E+00	7.78E+00
60	2204.36	1.49E+01	13.78			1.49E+01	1.38E+01
61	2254.26	1.00E+01	6.32			1.00E+01	6.32E+00
62	2351.17	1.29E+01	10.00			1.29E+01	1.00E+01
63	2615.48	1.07E+02	21.73	5.63E+00	1.38E+00	1.02E+02	2.18E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/21/2017 1:19:26PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055573.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	46.24	1.26E+02	70.13	3.67E+01	8.40E+00	8.88E+01	7.06E+01
	2	62.87	2.03E+02	96.11	8.94E+01	1.41E+01	1.13E+02	9.71E+01
M	3	74.72	3.97E+02	90.99			3.97E+02	9.10E+01
m	4	77.12	6.53E+02	98.16	7.20E+00	1.47E+00	6.46E+02	9.82E+01
m	5	87.64	2.83E+02	95.22			2.83E+02	9.52E+01
m	6	92.62	4.35E+02	95.47	1.38E+02	1.72E+01	2.97E+02	9.70E+01
	7	129.96	1.47E+02	111.16			1.47E+02	1.11E+02
	8	185.75	2.14E+02	89.86	5.22E+01	7.59E+00	1.62E+02	9.02E+01
	9	209.18	9.32E+01	53.07			9.32E+01	5.31E+01
M	10	238.61	9.14E+02	73.04	2.13E+01	6.33E+00	8.93E+02	7.33E+01
m	11	241.74	2.14E+02	74.43			2.14E+02	7.44E+01
	12	269.86	6.37E+01	47.47	1.23E+00	4.98E+00	6.25E+01	4.77E+01
M	13	295.24	2.69E+02	48.72			2.69E+02	4.87E+01
m	14	300.12	5.13E+01	44.61			5.13E+01	4.46E+01
	15	313.01	3.74E+01	43.71			3.74E+01	4.37E+01
	16	327.84	3.70E+01	46.59			3.70E+01	4.66E+01
	17	338.80	1.98E+02	62.98			1.98E+02	6.30E+01
	18	352.00	5.07E+02	69.75	5.79E+00	4.49E+00	5.01E+02	6.99E+01
	19	411.37	7.72E+01	57.48			7.72E+01	5.75E+01
	20	510.83	1.37E+02	50.45	7.28E+01	5.30E+00	6.47E+01	5.07E+01

Analysis Report for 1707085-15

HTC-A02-S003-2430-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	21	547.74	3.10E+01	29.28			3.10E+01	2.93E+01
	22	556.17	2.38E+01	24.96			2.38E+01	2.50E+01
M	23	583.34	2.93E+02	39.35	2.72E+00	3.05E+00	2.90E+02	3.95E+01
m	24	586.63	2.38E+01	42.81			2.38E+01	4.28E+01
	25	609.48	3.27E+02	63.21	6.35E+00	4.02E+00	3.21E+02	6.33E+01
	26	638.53	4.27E+01	33.23			4.27E+01	3.32E+01
	27	675.18	2.77E+01	30.13			2.77E+01	3.01E+01
	28	727.23	5.50E+01	39.74			5.50E+01	3.97E+01
	29	768.86	3.83E+01	24.88			3.83E+01	2.49E+01
	30	796.23	4.15E+01	32.18			4.15E+01	3.22E+01
	31	848.30	2.79E+01	29.63			2.79E+01	2.96E+01
	32	861.79	6.20E+01	42.63			6.20E+01	4.26E+01
	33	911.50	2.06E+02	39.29	5.31E+00	3.00E+00	2.01E+02	3.94E+01
	34	953.39	1.75E+01	20.59			1.75E+01	2.06E+01
	35	959.71	1.46E+01	17.18			1.46E+01	1.72E+01
	36	969.26	7.37E+01	31.77			7.37E+01	3.18E+01
M	37	1053.40	1.94E+01	12.37			1.94E+01	1.24E+01
m	38	1056.72	2.09E+01	16.52			2.09E+01	1.65E+01
M	39	1117.63	1.58E+01	12.11			1.58E+01	1.21E+01
m	40	1120.61	7.57E+01	28.71			7.57E+01	2.87E+01
	41	1138.00	1.65E+01	20.69			1.65E+01	2.07E+01
	42	1156.54	4.41E+01	36.50			4.41E+01	3.65E+01
	43	1281.94	3.64E+01	29.83			3.64E+01	2.98E+01
	44	1378.15	2.49E+01	13.90			2.49E+01	1.39E+01
M	45	1461.27	1.11E+03	68.34	8.09E+00	2.23E+00	1.10E+03	6.84E+01
m	46	1466.34	3.07E+01	18.87			3.07E+01	1.89E+01
	47	1528.61	1.07E+01	7.76			1.07E+01	7.76E+00
	48	1594.56	1.46E+01	16.94			1.46E+01	1.69E+01
	49	1621.95	1.20E+01	6.93			1.20E+01	6.93E+00
	50	1630.24	1.80E+01	8.49			1.80E+01	8.49E+00
	51	1638.72	9.50E+00	8.75			9.50E+00	8.75E+00
	52	1655.96	1.85E+01	14.71			1.85E+01	1.47E+01
	53	1704.03	4.43E+00	6.78			4.43E+00	6.78E+00
	54	1764.91	5.90E+01	19.39			5.90E+01	1.94E+01
	55	1821.10	9.33E+00	10.98			9.33E+00	1.10E+01
	56	1847.28	2.20E+01	10.58	1.22E+00	1.50E+00	2.08E+01	1.07E+01
	57	1999.75	7.00E+00	5.29			7.00E+00	5.29E+00
	58	2104.06	1.15E+01	11.83			1.15E+01	1.18E+01
	59	2119.75	6.11E+00	7.78			6.11E+00	7.78E+00
	60	2204.36	1.49E+01	13.78			1.49E+01	1.38E+01
	61	2254.26	1.00E+01	6.32			1.00E+01	6.32E+00
	62	2351.17	1.29E+01	10.00			1.29E+01	1.00E+01
	63	2615.48	1.07E+02	21.73	5.63E+00	1.38E+00	1.02E+02	2.18E+01

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

Analysis Report for 1707085-15

HTC-A02-S003-2430-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.966	1460.81	*	10.67	3.43E+01	3.68E+00
CD-109	0.975	88.03	*	3.72	5.35E+00	1.89E+00
SN-126	0.999	87.57	*	37.00	4.64E-01	1.62E-01
TL-208	0.831	583.14	*	30.22	1.61E+00	2.74E-01
		860.37		4.48		
		2614.66	*	35.85	1.43E+00	3.39E-01
PB-210	0.989	46.50	*	4.25	1.43E+00	1.14E+00
BI-212	0.763	727.17	*	11.80	9.22E-01	6.74E-01
		1620.62		2.75		
PB-212	1.000	238.63	*	44.60	1.77E+00	2.04E-01
		300.09	*	3.41	1.54E+00	1.35E+00
BI-214	0.989	609.31	*	46.30	1.20E+00	2.68E-01
		1120.29	*	15.10	1.38E+00	5.34E-01
		1764.49	*	15.80	1.42E+00	4.81E-01
		2204.22	*	4.98	1.34E+00	1.24E+00
PB-214	0.999	295.21	*	19.19	1.42E+00	2.83E-01
		351.92	*	37.19	1.54E+00	2.52E-01
RA-224	0.911	240.98	*	3.95	4.83E+00	1.72E+00
RA-226	0.966	186.21	*	3.28	3.78E+00	7.24E+00
AC-228	0.977	338.32	*	11.40	1.94E+00	6.38E-01
		911.07	*	27.70	1.70E+00	3.64E-01
		969.11	*	16.60	1.09E+00	4.80E-01
TH-234	0.972	63.29	*	3.80	1.85E+00	1.59E+00
AM-243	1.000	74.67	*	66.00	3.64E-01	8.93E-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 1707085-15

HTC-A02-S003-2430-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 1:19:26PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	4	77.12	1.79365E-01	7.60		
m	6	92.62	8.24927E-02	16.33	Sum	
	7	129.96	4.08786E-02	37.77		
	9	209.18	2.58964E-02	28.46	Tol.	CM-243
	12	269.86	1.73609E-02	38.18		
	15	313.01	1.03853E-02	58.46	Sum	
	16	327.84	1.02847E-02	62.91		
	19	411.37	2.14554E-02	37.21	Tol.	HO-166M
	20	510.83	1.79745E-02	39.20		
	21	547.74	8.60544E-03	47.26		
	22	556.17	6.59993E-03	52.53		
m	24	586.63	6.62190E-03	89.79		
	26	638.53	1.18567E-02	38.92	Sum	
	27	675.18	7.69737E-03	54.37		
	29	768.86	1.06324E-02	32.50	Sum	
	30	796.23	1.15291E-02	38.77	Tol.	CS-134
	31	848.30	7.75068E-03	53.10	Sum	
	32	861.79	1.72261E-02	34.37		
	34	953.39	4.85043E-03	58.96		
	35	959.71	4.05827E-03	58.81		
M	37	1053.40	5.39814E-03	31.83		
m	38	1056.72	5.79371E-03	39.61	Sum	
M	39	1117.63	4.39404E-03	38.29		
	41	1138.00	4.59119E-03	62.58		
	42	1156.54	1.22578E-02	41.35		
	43	1281.94	1.01176E-02	40.95		
	44	1378.15	6.91919E-03	27.90		
m	46	1466.34	8.54079E-03	30.68		
	47	1528.61	2.97454E-03	36.24		
	48	1594.56	4.05754E-03	57.99		
	49	1621.95	3.33333E-03	28.87		
	50	1630.24	5.00000E-03	23.57		
	51	1638.72	2.63889E-03	46.03	Sum	
	52	1655.96	5.13889E-03	39.77		
	53	1704.03	1.23016E-03	76.57	Sum	
	55	1821.10	2.59259E-03	58.81		
	56	1847.28	5.77100E-03	25.72	Sum	
	57	1999.75	1.94444E-03	37.80		
	58	2104.06	3.18713E-03	51.56	S-Esc	
	59	2119.75	1.69753E-03	63.64		
	61	2254.26	2.77778E-03	31.62		
	62	2351.17	3.58507E-03	38.74		

Analysis Report for 1707085-15

HTC-A02-S003-2430-01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.96	1460.81	*	10.67	3.43E+01	3.68E+00
CD-109	0.97	88.03	*	3.72	5.35E+00	1.89E+00
SN-126	0.99	87.57	*	37.00	4.64E-01	1.62E-01
TL-208	0.83	583.14	*	30.22	1.61E+00	2.74E-01
		860.37		4.48		
		2614.66	*	35.85	1.43E+00	3.39E-01
PB-210	0.98	46.50	*	4.25	1.43E+00	1.14E+00
BI-212	0.76	727.17	*	11.80	9.22E-01	6.74E-01
		1620.62		2.75		
PB-212	1.00	238.63	*	44.60	1.77E+00	2.04E-01
		300.09	*	3.41	1.54E+00	1.35E+00
BI-214	0.98	609.31	*	46.30	1.20E+00	2.68E-01
		1120.29	*	15.10	1.38E+00	5.34E-01
		1764.49	*	15.80	1.42E+00	4.81E-01
		2204.22	*	4.98	1.34E+00	1.24E+00
PB-214	0.99	295.21	*	19.19	1.42E+00	2.83E-01
		351.92	*	37.19	1.54E+00	2.52E-01
RA-224	0.91	240.98	*	3.95	4.83E+00	1.72E+00
RA-226	0.96	186.21	*	3.28	3.78E+00	7.24E+00
AC-228	0.97	338.32	*	11.40	1.94E+00	6.38E-01
		911.07	*	27.70	1.70E+00	3.64E-01
		969.11	*	16.60	1.09E+00	4.80E-01
TH-234	0.97	63.29	*	3.80	1.85E+00	1.59E+00
AM-243	1.00	74.67	*	66.00	3.64E-01	8.93E-02

Analysis Report for 1707085-15

HTC-A02-S003-2430-01

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.966	3.43E+01	3.68E+00	
?	CD-109	0.975	5.35E+00	1.89E+00	
?	SN-126	0.999	4.64E-01	1.62E-01	
	TL-208	0.831	1.54E+00	2.13E-01	
	PB-210	0.989	1.43E+00	1.14E+00	
	BI-212	0.763	9.22E-01	6.74E-01	
	PB-212	1.000	1.76E+00	2.02E-01	
	BI-214	0.989	1.27E+00	2.11E-01	
	PB-214	0.999	1.49E+00	1.88E-01	
	RA-224	0.911	4.83E+00	1.72E+00	
	RA-226	0.966	3.78E+00	7.24E+00	
	AC-228	0.977	1.56E+00	2.64E-01	
	TH-234	0.972	1.85E+00	1.59E+00	
	AM-243	1.000	3.64E-01	8.93E-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 1707085-15

HTC-A02-S003-2430-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 1:19:26PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	4	77.12	1.79365E-01	7.60		
m	6	92.62	8.24927E-02	16.33	Sum	
	7	129.96	4.08786E-02	37.77		
	9	209.18	2.58964E-02	28.46	Tol.	CM-243
	12	269.86	1.73609E-02	38.18		
	15	313.01	1.03853E-02	58.46	Sum	
	16	327.84	1.02847E-02	62.91		
	19	411.37	2.14554E-02	37.21	Tol.	HO-166M
	20	510.83	1.79745E-02	39.20		
	21	547.74	8.60544E-03	47.26		
	22	556.17	6.59993E-03	52.53		
m	24	586.63	6.62190E-03	89.79		
	26	638.53	1.18567E-02	38.92	Sum	
	27	675.18	7.69737E-03	54.37		
	29	768.86	1.06324E-02	32.50	Sum	
	30	796.23	1.15291E-02	38.77	Tol.	CS-134
	31	848.30	7.75068E-03	53.10	Sum	
	32	861.79	1.72261E-02	34.37		
	34	953.39	4.85043E-03	58.96		
	35	959.71	4.05827E-03	58.81		
M	37	1053.40	5.39814E-03	31.83		
m	38	1056.72	5.79371E-03	39.61	Sum	
M	39	1117.63	4.39404E-03	38.29		
	41	1138.00	4.59119E-03	62.58		
	42	1156.54	1.22578E-02	41.35		
	43	1281.94	1.01176E-02	40.95		
	44	1378.15	6.91919E-03	27.90		
m	46	1466.34	8.54079E-03	30.68		
	47	1528.61	2.97454E-03	36.24		
	48	1594.56	4.05754E-03	57.99		
	49	1621.95	3.33333E-03	28.87		
	50	1630.24	5.00000E-03	23.57		
	51	1638.72	2.63889E-03	46.03	Sum	
	52	1655.96	5.13889E-03	39.77		

Analysis Report for 1707085-15

HTC-A02-S003-2430-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
53	1704.03	1.23016E-03	76.57	Sum	
55	1821.10	2.59259E-03	58.81		
56	1847.28	5.77100E-03	25.72	Sum	
57	1999.75	1.94444E-03	37.80		
58	2104.06	3.18713E-03	51.56	S-Esc	
59	2119.75	1.69753E-03	63.64		
61	2254.26	2.77778E-03	31.62		
62	2351.17	3.58507E-03	38.74		

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	-6.73E-01	2.56E+00	2.56E+00
+	NA-22	1274.54		99.94	-2.99E-02	1.14E-01	1.14E-01
+	@ NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@	2754.09		99.86	1.00E+26		1.00E+26
+	AL-26	1808.65		99.76	-3.88E-03	5.48E-02	5.48E-02
+	K-40	1460.81	*	10.67	3.43E+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	5.95E-02	7.71E-02	7.71E-02
		78.34		96.00	2.22E-01		1.04E-01
+	SC-46	889.25		99.98	2.72E-04	2.12E-01	2.12E-01
		1120.51		99.99	5.78E-01		3.41E-01
+	V-48	983.52		99.98	7.04E-02	5.92E+00	6.79E+00
		1312.10		97.50	-1.90E-01		5.92E+00
+	CR-51	320.08		9.83	9.25E-01	8.46E+00	8.46E+00
+	MN-54	834.83		99.97	1.79E-02	1.15E-01	1.15E-01
+	CO-56	846.75		99.96	1.13E-01	2.12E-01	2.12E-01
		1037.75		14.03	1.93E-01		1.63E+00
		1238.25		67.00	1.19E-01		5.10E-01
		1771.40		15.51	1.95E-02		7.66E-01
		2598.48		16.90	6.54E-02		1.06E+00

Analysis Report for 1707085-15

HTC-A02-S003-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CO-57	122.06		85.51	2.62E-05	8.63E-02	8.63E-02
		136.48		10.60	-2.95E-03		6.92E-01
+	CO-58	810.76		99.40	-7.34E-02	2.05E-01	2.05E-01
+	FE-59	1099.22		56.50	-2.91E-03	8.05E-01	8.05E-01
		1291.56		43.20	3.45E-01		1.11E+00
+	CO-60	1173.22		100.00	-3.59E-02	8.67E-02	1.08E-01
		1332.49		100.00	-1.45E-02		8.67E-02
+	ZN-65	1115.52		50.75	2.85E-02	2.80E-01	2.80E-01
+	GA-67	93.31		35.70	6.38E+08	2.70E+08	2.70E+08
		208.95		2.24	4.06E+09		3.54E+09
		300.22		16.00	-1.11E+09		5.65E+08
+	SE-75	121.11		16.70	-2.78E-02	1.70E-01	6.10E-01
		136.00		59.20	-7.25E-04		1.70E-01
		264.65		59.80	-1.07E-01		1.99E-01
		279.53		25.20	-9.09E-02		5.02E-01
		400.65		11.40	1.26E-01		1.18E+00
+	RB-82	776.52		13.00	3.84E+00	9.88E+00	9.88E+00
+	RB-83	520.41		46.00	3.07E-02	3.58E-01	3.58E-01
		529.64		30.30	-6.11E-02		5.15E-01
		552.65		16.40	-2.69E-02		9.38E-01
+	KR-85	513.99		0.43	-4.31E-01	2.62E+01	2.62E+01
+	SR-85	513.99		99.27	-5.30E-03	3.22E-01	3.22E-01
+	Y-88	898.02		93.40	1.24E-02	1.12E-01	1.94E-01
		1836.01		99.38	-1.07E-02		1.12E-01
+	MO-93	263.06		56.72	-3.63E-02	7.34E-02	1.23E-01
		684.67		99.68	3.28E-02		8.65E-02
		1477.11		99.08	-1.12E-02		7.34E-02
+	NB-93M	16.57		9.43	-2.43E-01	6.64E-01	6.64E-01
+	NB-94	702.63		100.00	4.32E-04	8.89E-02	8.89E-02
		871.10		100.00	1.63E-03		9.01E-02
+	NB-95	765.79		99.81	5.93E-02	6.88E-01	6.88E-01
+	NB-95M	235.69		25.00	-3.59E+08	5.09E+07	5.09E+07
+	ZR-95	724.18		43.70	-2.30E-01	4.45E-01	6.85E-01
		756.72		55.30	1.69E-01		4.45E-01
+	MO-99	181.06		6.20	-5.92E+09	3.86E+10	5.34E+10
		739.58		12.80	2.01E+10		3.86E+10
		778.00		4.50	-9.11E+10		9.83E+10
+	RU-103	497.08		89.00	-1.48E-01	4.55E-01	4.55E-01
+	RU-106	621.84		9.80	-3.62E-01	9.39E-01	9.39E-01
+	AG-108M	433.93		89.90	-3.46E-02	8.08E-02	8.08E-02
		614.37		90.40	1.54E-02		1.06E-01
		722.95		90.50	-1.95E-02		1.02E-01
+	CD-109	88.03	*	3.72	5.35E+00	4.87E+00	4.87E+00
+	AG-110M	657.75		93.14	-2.86E-03	1.10E-01	1.10E-01
		677.61		10.53	-9.36E-02		1.05E+00
		706.67		16.46	-4.04E-01		6.39E-01
		763.93		21.98	-2.21E-01		4.69E-01
		884.67		71.63	6.32E-03		1.67E-01

Analysis Report for 1707085-15

HTC-A02-S003-2430-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		AG-110M	1384.27		23.94	-1.28E-01	1.10E-01	3.74E-01
+		CD-113M	263.70		0.02	-2.28E+02	2.91E+02	2.91E+02
+		SN-113	255.12		1.93	-2.34E+00	2.04E-01	5.58E+00
			391.69		64.90	-7.04E-02		2.04E-01
+		TE123M	159.00		84.10	4.06E-02	1.27E-01	1.27E-01
+		SB-124	602.71		97.87	7.17E-02	2.78E-01	2.78E-01
			645.85		7.26	-7.29E-01		3.42E+00
			722.78		11.10	-4.92E-01		2.56E+00
			1691.02		49.00	2.60E-01		4.55E-01
+		I-125	35.49		6.49	1.30E+00	3.33E+00	3.33E+00
+		SB-125	176.33		6.89	2.20E-01	2.81E-01	9.47E-01
			427.89		29.33	1.07E-01		2.81E-01
			463.38		10.35	8.40E-01		8.79E-01
			600.56		17.80	2.61E-01		5.22E-01
			635.90		11.32	1.10E-01		8.31E-01
+		SB-126	414.70		83.30	-1.14E+01	1.99E+01	2.11E+01
			666.33		99.60	5.48E+00		1.99E+01
			695.00		99.60	-7.37E+00		2.02E+01
			720.50		53.80	6.83E+00		3.97E+01
+		SN-126	87.57	*	37.00	4.64E-01	4.23E-01	4.23E-01
+		SB-127	473.00		25.00	1.34E+06	1.13E+07	1.49E+07
			685.20		35.70	4.29E+06		1.13E+07
			783.80		14.70	-5.68E+06		2.81E+07
+		I-129	29.78		57.00	-5.68E-02	1.29E-01	1.29E-01
			33.60		13.20	7.13E-02		5.40E-01
			39.58		7.52	-3.81E-01		8.67E-01
+		I-131	284.30		6.05	-1.32E+03	4.18E+02	5.31E+03
			364.48		81.20	1.89E+02		4.18E+02
			636.97		7.26	8.87E+01		5.51E+03
			722.89		1.80	-4.65E+03		2.42E+04
+		TE-132	49.72		13.10	-3.05E+07	8.92E+07	5.90E+08
			228.16		88.00	4.53E+07		8.92E+07
+		BA-133	81.00		33.00	-8.05E-01	1.69E-01	2.17E-01
			302.84		17.80	-6.37E-02		4.44E-01
			356.01		60.00	-2.15E-02		1.69E-01
+	@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+		XE-133	81.00		38.00	-2.98E+05	8.02E+04	8.02E+04
+		CS-134	563.23		8.38	4.89E-01	1.09E-01	1.01E+00
			569.32		15.43	7.99E-02		5.62E-01
			604.70		97.60	1.49E-02		1.09E-01
			795.84		85.40	1.14E-01		1.29E-01
			801.93		8.73	-6.46E-02		1.03E+00
+		CS-135	268.24		16.00	4.01E-01	4.92E-01	4.92E-01
+	@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26
	@		1260.41		28.60	1.00E+26		1.00E+26
	@		1678.03		9.54	1.00E+26		1.00E+26
+		CS-136	153.22		7.46	3.62E+01	1.38E+01	1.47E+02
			163.89		4.61	-1.84E+01		2.27E+02
			176.55		13.56	1.84E+01		7.93E+01

Analysis Report for 1707085-15

HTC-A02-S003-2430-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CS-136	273.65	12.66	-4.44E+01	1.38E+01	1.08E+02
		340.57	48.50	7.52E+01		3.66E+01
		818.50	99.70	-3.48E+00		1.38E+01
		1048.07	79.60	9.39E+00		2.36E+01
		1235.34	19.70	4.87E+01		1.32E+02
+	CS-137	661.65	85.12	-3.70E-02	8.88E-02	8.88E-02
+	LA-138	788.74	34.00	7.71E-02	1.22E-01	2.63E-01
		1435.80	66.00	4.16E-02		1.22E-01
+	CE-139	165.85	80.35	-4.93E-03	1.21E-01	1.21E-01
+	BA-140	162.64	6.70	-2.81E+01	5.90E+01	1.79E+02
		304.84	4.50	-2.08E+01		3.17E+02
		423.70	3.20	-2.56E+02		4.45E+02
		437.55	2.00	-2.68E+02		7.30E+02
		537.32	25.00	-1.54E+01		5.90E+01
+	LA-140	328.77	20.50	5.46E+01	1.62E+01	7.95E+01
		487.03	45.50	-1.73E+01		3.26E+01
		815.85	23.50	-1.43E+01		6.58E+01
		1596.49	95.49	1.35E+00		1.62E+01
+	CE-141	145.44	48.40	4.60E-01	1.03E+00	1.03E+00
+	@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26
	@	293.26	42.00	1.00E+26		1.00E+26
	@	664.55	5.20	1.00E+26		1.00E+26
+	CE-144	133.54	10.80	-6.03E-02	7.11E-01	7.11E-01
+	PM-144	476.78	42.00	-2.87E-02	9.86E-02	2.13E-01
		618.01	98.60	-2.25E-02		9.86E-02
		696.49	99.49	-3.99E-02		1.02E-01
+	PM-145	36.85	21.70	-1.04E-02	1.72E-01	3.16E-01
		37.36	39.70	-4.22E-02		1.72E-01
		42.30	15.10	6.94E-02		4.28E-01
		72.40	2.31	-8.41E+00		3.70E+00
+	PM-146	453.90	39.94	-1.77E-02	1.94E-01	1.94E-01
		735.90	14.01	4.44E-01		6.91E-01
		747.13	13.10	-2.67E-01		6.37E-01
+	ND-147	91.11	28.90	2.35E+02	1.50E+02	1.50E+02
		531.02	13.10	1.59E+01		2.68E+02
+	PM-149	285.90	3.10	-1.48E+13	5.11E+13	5.11E+13
+	EU-152	121.78	20.50	-1.30E-02	2.86E-01	2.86E-01
		244.69	5.40	4.23E-01		1.38E+00
		344.27	19.13	3.84E-02		3.70E-01
		778.89	9.20	-5.59E-02		9.12E-01
		964.01	10.40	5.55E-02		1.08E+00
		1085.78	7.22	-3.69E-01		1.35E+00
		1112.02	9.60	2.43E-01		1.12E+00
		1407.95	14.94	3.44E-01		6.47E-01
+	GD-153	97.43	31.30	8.37E-02	2.55E-01	2.55E-01
		103.18	22.20	-1.31E-01		3.42E-01
+	EU-154	123.07	40.50	-3.72E-02	1.42E-01	1.42E-01
		723.30	19.70	-9.15E-02		4.77E-01
		873.19	11.50	1.50E-01		8.13E-01

Analysis Report for 1707085-15

HTC-A02-S003-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-154	996.32		10.30	-6.97E-02	1.42E-01	9.58E-01
		1004.76		17.90	1.44E-02		5.76E-01
		1274.45		35.50	-8.01E-02		3.06E-01
+	EU-155	86.50		30.90	2.50E-01	2.75E-01	2.75E-01
		105.30		20.70	1.37E-02		2.88E-01
+	EU-156	811.77		10.40	-1.75E+01	6.57E+01	6.57E+01
		1153.47		7.20	-1.34E+01		1.37E+02
		1230.71		8.90	-2.92E+00		1.31E+02
+	HO-166M	184.41		72.60	2.40E-01	1.09E-01	1.09E-01
		280.45		29.60	1.94E-02		2.42E-01
		410.94		11.10	4.34E-01		7.43E-01
		711.69		54.10	-1.99E-02		1.52E-01
+	TM-171	66.72		0.14	1.64E+01	5.73E+01	5.73E+01
+	HF-172	67.35		5.31	1.17E+00	5.52E-01	1.51E+00
		125.81		11.30	-5.73E-01		5.52E-01
+	LU-172	181.53		20.60	-8.27E+02	4.10E+03	7.47E+03
		900.72		29.81	-2.04E+03		7.76E+03
		1093.66		62.50	-9.51E+02		4.10E+03
+	LU-173	100.72		5.24	1.03E+00	4.35E-01	1.34E+00
		272.11		21.20	-9.77E-02		4.35E-01
+	HF-175	343.40		84.00	2.28E-02	2.31E-01	2.31E-01
+	LU-176	88.34		13.30	-1.56E-01	7.30E-02	6.32E-01
		201.83		86.00	6.68E-03		7.31E-02
		306.78		94.00	-1.64E-02		7.30E-02
+	HF-181	133.02		41.70	-6.11E-02	4.34E-01	7.21E-01
		345.85		17.20	2.11E-01		2.00E+00
		482.03		82.80	-1.78E-01		4.34E-01
+	TA-182	67.75		41.20	2.47E-01	3.19E-01	3.19E-01
		1121.30		34.90	1.08E+00		7.59E-01
		1189.05		16.23	-3.40E-01		1.26E+00
		1221.41		26.98	3.75E-01		9.00E-01
		1231.02		11.44	-4.66E-02		2.10E+00
+	IR-192	308.46		29.68	-1.11E-01	4.00E-01	5.73E-01
		468.07		48.10	-3.37E-01		4.00E-01
+	HG-203	279.19		77.30	-7.23E-02	3.99E-01	3.99E-01
+	TL-204	374.74		94.11	9.27E-03	7.68E-02	7.68E-02
		899.15		99.16	-4.08E-02		9.77E-02
		911.74		91.10	5.16E-01		2.10E-01
+	BI-207	569.67		97.72	1.22E-02	8.24E-02	8.24E-02
		1063.62		74.90	6.51E-03		1.21E-01
+	TL-208	583.14	*	30.22	1.61E+00	2.28E-01	3.09E-01
		860.37		4.48	1.93E+00		2.29E+00
		2614.66	*	35.85	1.43E+00		2.28E-01
+	BI-210M	262.00		45.00	3.76E-03	1.54E-01	1.54E-01
		300.00		23.00	-1.29E+00		3.48E-01
+	PB-210	46.50	*	4.25	1.43E+00	1.84E+00	1.84E+00
+	PB-211	404.84		2.90	-4.92E-01	2.52E+00	2.52E+00
		831.96		2.90	2.90E-01		3.13E+00

Analysis Report for 1707085-15

HTC-A02-S003-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BI-212	727.17	*	11.80	9.22E-01	1.06E+00	1.06E+00
		1620.62		2.75	1.04E+00		2.45E+00
+	PB-212	238.63	*	44.60	1.77E+00	3.49E-01	3.49E-01
		300.09	*	3.41	1.54E+00		3.81E+00
+	BI-214	609.31	*	46.30	1.20E+00	3.31E-01	3.31E-01
		1120.29	*	15.10	1.38E+00		7.42E-01
		1764.49	*	15.80	1.42E+00		5.34E-01
		2204.22	*	4.98	1.34E+00		1.92E+00
+	PB-214	295.21	*	19.19	1.42E+00	2.80E-01	6.63E-01
		351.92	*	37.19	1.54E+00		2.80E-01
+	RN-219	401.80		6.50	-1.08E-01	1.17E+00	1.17E+00
+	RA-223	323.87		3.88	3.01E-01	1.87E+00	1.87E+00
+	RA-224	240.98	*	3.95	4.83E+00	3.94E+00	3.94E+00
+	RA-225	40.00		31.00	2.07E+00	2.09E+01	2.09E+01
+	RA-226	186.21	*	3.28	3.78E+00	3.39E+00	3.39E+00
+	TH-227	50.10		8.40	1.41E-02	7.18E-01	7.85E-01
		236.00		11.50	-5.07E+00		7.18E-01
		256.20		6.30	4.91E-01		1.15E+00
+	AC-228	338.32	*	11.40	1.94E+00	4.05E-01	9.33E-01
		911.07	*	27.70	1.70E+00		4.05E-01
		969.11	*	16.60	1.09E+00		6.92E-01
+	TH-230	48.44		16.90	-2.61E-02	4.18E-01	4.18E-01
		62.85		4.60	3.43E+00		1.77E+00
		67.67		0.37	1.51E+01		1.96E+01
+	PA-231	283.67		1.60	-1.21E+00	3.37E+00	4.26E+00
		302.67		2.30	-4.84E-01		3.37E+00
+	TH-231	25.64		14.70	-3.59E+00	6.73E-01	6.73E-01
		84.21		6.40	-1.28E+00		1.16E+00
+	PA-233	311.98		38.60	-1.29E-01	2.31E+00	2.31E+00
+	PA-234	131.20		20.40	2.53E-01	3.15E-01	3.15E-01
		733.99		8.80	-1.93E-01		1.00E+00
		946.00		12.00	-4.36E-02		6.69E-01
+	PA-234M	1001.03		0.92	9.36E-01	1.09E+01	1.09E+01
+	TH-234	63.29	*	3.80	1.85E+00	2.58E+00	2.58E+00
+	U-235	143.76		10.50	1.96E-01	5.78E-01	5.78E-01
		163.35		4.70	-1.02E-01		1.26E+00
		205.31		4.70	-1.07E-01		1.27E+00
+	NP-237	86.50		12.60	5.91E-01	6.50E-01	6.50E-01
+	NP-239	106.10		22.70	-1.66E+11	9.00E+11	9.00E+11
		228.18		10.70	1.12E+12		2.21E+12
		277.60		14.10	8.04E+11		1.88E+12
+	AM-241	59.54		35.90	-1.62E-02	1.93E-01	1.93E-01
+	AM-243	74.67	*	66.00	3.64E-01	2.03E-01	2.03E-01
+	CM-243	209.75		3.29	1.72E+00	5.34E-01	2.08E+00
		228.14		10.60	3.21E-01		6.32E-01
		277.60		14.00	2.29E-01		5.34E-01

Analysis Report for 1707085-15

HTC-A02-S003-2430-01

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	2.56E+00	2.56E+00	-6.73E-01	1.21E+00
	NA-22	1274.54		99.94	1.14E-01	1.14E-01	-2.99E-02	5.28E-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	5.48E-02	5.48E-02	-3.88E-03	2.21E-02
+	K-40	1460.81	*	10.67	1.28E+00	1.28E+00	3.43E+01	5.98E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	7.71E-02	7.71E-02	5.95E-02	3.77E-02
		78.34		96.00	1.04E-01		2.22E-01	5.12E-02
	SC-46	889.25		99.98	2.12E-01	2.12E-01	2.72E-04	9.90E-02
		1120.51		99.99	3.41E-01		5.78E-01	1.62E-01
	V-48	983.52		99.98	6.79E+00	5.92E+00	7.04E-02	3.16E+00
		1312.10		97.50	5.92E+00		-1.90E-01	2.66E+00
	CR-51	320.08		9.83	8.46E+00	8.46E+00	9.25E-01	4.06E+00
	MN-54	834.83		99.97	1.15E-01	1.15E-01	1.79E-02	5.40E-02
	CO-56	846.75		99.96	2.12E-01	2.12E-01	1.13E-01	9.90E-02
		1037.75		14.03	1.63E+00		1.93E-01	7.56E-01
		1238.25		67.00	5.10E-01		1.19E-01	2.41E-01
		1771.40		15.51	7.66E-01		1.95E-02	3.04E-01
		2598.48		16.90	1.06E+00		6.54E-02	4.34E-01
	CO-57	122.06		85.51	8.63E-02	8.63E-02	2.62E-05	4.18E-02
		136.48		10.60	6.92E-01		-2.95E-03	3.35E-01
	CO-58	810.76		99.40	2.05E-01	2.05E-01	-7.34E-02	9.50E-02
	FE-59	1099.22		56.50	8.05E-01	8.05E-01	-2.91E-03	3.73E-01
		1291.56		43.20	1.11E+00		3.45E-01	5.11E-01
	CO-60	1173.22		100.00	1.08E-01	8.67E-02	-3.59E-02	5.03E-02
		1332.49		100.00	8.67E-02		-1.45E-02	3.90E-02
	ZN-65	1115.52		50.75	2.80E-01	2.80E-01	2.85E-02	1.30E-01
	GA-67	93.31		35.70	2.70E+08	2.70E+08	6.38E+08	1.32E+08

Analysis Report for 1707085-15

HTC-A02-S003-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	GA-67	208.95		2.24	3.54E+09	2.70E+08	4.06E+09	1.71E+09
		300.22		16.00	5.65E+08		-1.11E+09	2.73E+08
	SE-75	121.11		16.70	6.10E-01	1.70E-01	-2.78E-02	2.96E-01
		136.00		59.20	1.70E-01		-7.25E-04	8.22E-02
		264.65		59.80	1.99E-01		-1.07E-01	9.56E-02
		279.53		25.20	5.02E-01		-9.09E-02	2.42E-01
		400.65		11.40	1.18E+00		1.26E-01	5.63E-01
	RB-82	776.52		13.00	9.88E+00	9.88E+00	3.84E+00	4.63E+00
	RB-83	520.41		46.00	3.58E-01	3.58E-01	3.07E-02	1.69E-01
		529.64		30.30	5.15E-01		-6.11E-02	2.42E-01
		552.65		16.40	9.38E-01		-2.69E-02	4.40E-01
	KR-85	513.99		0.43	2.62E+01	2.62E+01	-4.31E-01	1.26E+01
	SR-85	513.99		99.27	3.22E-01	3.22E-01	-5.30E-03	1.55E-01
	Y-88	898.02		93.40	1.94E-01	1.12E-01	1.24E-02	9.04E-02
		1836.01		99.38	1.12E-01		-1.07E-02	4.59E-02
	MO-93	263.06		56.72	1.23E-01	7.34E-02	-3.63E-02	5.93E-02
		684.67		99.68	8.65E-02		3.28E-02	4.07E-02
		1477.11		99.08	7.34E-02		-1.12E-02	3.20E-02
	NB-93M	16.57		9.43	6.64E-01	6.64E-01	-2.43E-01	3.10E-01
	NB-94	702.63		100.00	8.89E-02	8.89E-02	4.32E-04	4.19E-02
		871.10		100.00	9.01E-02		1.63E-03	4.20E-02
	NB-95	765.79		99.81	6.88E-01	6.88E-01	5.93E-02	3.24E-01
	NB-95M	235.69		25.00	5.09E+07	5.09E+07	-3.59E+08	2.47E+07
	ZR-95	724.18		43.70	6.85E-01	4.45E-01	-2.30E-01	3.25E-01
		756.72		55.30	4.45E-01		1.69E-01	2.08E-01
	MO-99	181.06		6.20	5.34E+10	3.86E+10	-5.92E+09	2.58E+10
		739.58		12.80	3.86E+10		2.01E+10	1.81E+10
		778.00		4.50	9.83E+10		-9.11E+10	4.57E+10
	RU-103	497.08		89.00	4.55E-01	4.55E-01	-1.48E-01	2.15E-01
	RU-106	621.84		9.80	9.39E-01	9.39E-01	-3.62E-01	4.40E-01
	AG-108M	433.93		89.90	8.08E-02	8.08E-02	-3.46E-02	3.84E-02
		614.37		90.40	1.06E-01		1.54E-02	5.05E-02
		722.95		90.50	1.02E-01		-1.95E-02	4.79E-02
+	CD-109	88.03	*	3.72	4.87E+00	4.87E+00	5.35E+00	2.41E+00
	AG-110M	657.75		93.14	1.10E-01	1.10E-01	-2.86E-03	5.17E-02
		677.61		10.53	1.05E+00		-9.36E-02	4.93E-01
		706.67		16.46	6.39E-01		-4.04E-01	2.99E-01
		763.93		21.98	4.69E-01		-2.21E-01	2.18E-01
		884.67		71.63	1.67E-01		6.32E-03	7.78E-02
		1384.27		23.94	3.74E-01		-1.28E-01	1.63E-01
	CD-113M	263.70		0.02	2.91E+02	2.91E+02	-2.28E+02	1.40E+02
	SN-113	255.12		1.93	5.58E+00	2.04E-01	-2.34E+00	2.67E+00
		391.69		64.90	2.04E-01		-7.04E-02	9.72E-02
	TE123M	159.00		84.10	1.27E-01	1.27E-01	4.06E-02	6.17E-02
	SB-124	602.71		97.87	2.78E-01	2.78E-01	7.17E-02	1.32E-01
		645.85		7.26	3.42E+00		-7.29E-01	1.61E+00
		722.78		11.10	2.56E+00		-4.92E-01	1.21E+00
		1691.02		49.00	4.55E-01		2.60E-01	1.96E-01
	I-125	35.49		6.49	3.33E+00	3.33E+00	1.30E+00	1.61E+00
	SB-125	176.33		6.89	9.47E-01	2.81E-01	2.20E-01	4.58E-01
		427.89		29.33	2.81E-01		1.07E-01	1.34E-01
		463.38		10.35	8.79E-01		8.40E-01	4.20E-01
		600.56		17.80	5.22E-01		2.61E-01	2.47E-01

Analysis Report for 1707085-15

HTC-A02-S003-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	SB-125	635.90		11.32	8.31E-01	2.81E-01	1.10E-01	3.93E-01
	SB-126	414.70		83.30	2.11E+01	1.99E+01	-1.14E+01	1.00E+01
		666.33		99.60	1.99E+01		5.48E+00	9.36E+00
		695.00		99.60	2.02E+01		-7.37E+00	9.49E+00
		720.50		53.80	3.97E+01		6.83E+00	1.86E+01
+	SN-126	87.57	*	37.00	4.23E-01	4.23E-01	4.64E-01	2.09E-01
	SB-127	473.00		25.00	1.49E+07	1.13E+07	1.34E+06	7.08E+06
		685.20		35.70	1.13E+07		4.29E+06	5.31E+06
		783.80		14.70	2.81E+07		-5.68E+06	1.31E+07
	I-129	29.78		57.00	1.29E-01	1.29E-01	-5.68E-02	6.26E-02
		33.60		13.20	5.40E-01		7.13E-02	2.62E-01
		39.58		7.52	8.67E-01		-3.81E-01	4.21E-01
	I-131	284.30		6.05	5.31E+03	4.18E+02	-1.32E+03	2.55E+03
		364.48		81.20	4.18E+02		1.89E+02	2.00E+02
		636.97		7.26	5.51E+03		8.87E+01	2.60E+03
		722.89		1.80	2.42E+04		-4.65E+03	1.14E+04
	TE-132	49.72		13.10	5.90E+08	8.92E+07	-3.05E+07	2.87E+08
		228.16		88.00	8.92E+07		4.53E+07	4.30E+07
	BA-133	81.00		33.00	2.17E-01	1.69E-01	-8.05E-01	1.06E-01
		302.84		17.80	4.44E-01		-6.37E-02	2.14E-01
		356.01		60.00	1.69E-01		-2.15E-02	8.18E-02
@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	XE-133	81.00		38.00	8.02E+04	8.02E+04	-2.98E+05	3.92E+04
	CS-134	563.23		8.38	1.01E+00	1.09E-01	4.89E-01	4.77E-01
		569.32		15.43	5.62E-01		7.99E-02	2.65E-01
		604.70		97.60	1.09E-01		1.49E-02	5.17E-02
		795.84		85.40	1.29E-01		1.14E-01	6.10E-02
		801.93		8.73	1.03E+00		-6.46E-02	4.78E-01
	CS-135	268.24		16.00	4.92E-01	4.92E-01	4.01E-01	2.38E-01
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	1.47E+02	1.38E+01	3.62E+01	7.12E+01
		163.89		4.61	2.27E+02		-1.84E+01	1.10E+02
		176.55		13.56	7.93E+01		1.84E+01	3.83E+01
		273.65		12.66	1.08E+02		-4.44E+01	5.20E+01
		340.57		48.50	3.66E+01		7.52E+01	1.77E+01
		818.50		99.70	1.38E+01		-3.48E+00	6.36E+00
		1048.07		79.60	2.36E+01		9.39E+00	1.10E+01
		1235.34		19.70	1.32E+02		4.87E+01	6.22E+01
	CS-137	661.65		85.12	8.88E-02	8.88E-02	-3.70E-02	4.15E-02
	LA-138	788.74		34.00	2.63E-01	1.22E-01	7.71E-02	1.23E-01
		1435.80		66.00	1.22E-01		4.16E-02	5.43E-02
	CE-139	165.85		80.35	1.21E-01	1.21E-01	-4.93E-03	5.85E-02
	BA-140	162.64		6.70	1.79E+02	5.90E+01	-2.81E+01	8.65E+01
		304.84		4.50	3.17E+02		-2.08E+01	1.52E+02
		423.70		3.20	4.45E+02		-2.56E+02	2.11E+02
		437.55		2.00	7.30E+02		-2.68E+02	3.46E+02
		537.32		25.00	5.90E+01		-1.54E+01	2.77E+01
	LA-140	328.77		20.50	7.95E+01	1.62E+01	5.46E+01	3.83E+01
		487.03		45.50	3.26E+01		-1.73E+01	1.54E+01
		815.85		23.50	6.58E+01		-1.43E+01	3.03E+01
		1596.49		95.49	1.62E+01		1.35E+00	7.07E+00

Analysis Report for 1707085-15

HTC-A02-S003-2430-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CE-141	145.44	48.40	1.03E+00	1.03E+00	4.60E-01	5.01E-01
@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	293.26	42.00	1.00E+26		1.00E+26	1.00E+20
@	664.55	5.20	1.00E+26		1.00E+26	1.00E+20
CE-144	133.54	10.80	7.11E-01	7.11E-01	-6.03E-02	3.45E-01
PM-144	476.78	42.00	2.13E-01	9.86E-02	-2.87E-02	1.01E-01
	618.01	98.60	9.86E-02		-2.25E-02	4.64E-02
	696.49	99.49	1.02E-01		-3.99E-02	4.80E-02
PM-145	36.85	21.70	3.16E-01	1.72E-01	-1.04E-02	1.53E-01
	37.36	39.70	1.72E-01		-4.22E-02	8.34E-02
	42.30	15.10	4.28E-01		6.94E-02	2.07E-01
	72.40	2.31	3.70E+00		-8.41E+00	1.81E+00
PM-146	453.90	39.94	1.94E-01	1.94E-01	-1.77E-02	9.23E-02
	735.90	14.01	6.91E-01		4.44E-01	3.26E-01
	747.13	13.10	6.37E-01		-2.67E-01	2.97E-01
ND-147	91.11	28.90	1.50E+02	1.50E+02	2.35E+02	7.35E+01
	531.02	13.10	2.68E+02		1.59E+01	1.26E+02
PM-149	285.90	3.10	5.11E+13	5.11E+13	-1.48E+13	2.46E+13
EU-152	121.78	20.50	2.86E-01	2.86E-01	-1.30E-02	1.39E-01
	244.69	5.40	1.38E+00		4.23E-01	6.67E-01
	344.27	19.13	3.70E-01		3.84E-02	1.77E-01
	778.89	9.20	9.12E-01		-5.59E-02	4.25E-01
	964.01	10.40	1.08E+00		5.55E-02	5.07E-01
	1085.78	7.22	1.35E+00		-3.69E-01	6.25E-01
	1112.02	9.60	1.12E+00		2.43E-01	5.19E-01
	1407.95	14.94	6.47E-01		3.44E-01	2.94E-01
GD-153	97.43	31.30	2.55E-01	2.55E-01	8.37E-02	1.24E-01
	103.18	22.20	3.42E-01		-1.31E-01	1.66E-01
EU-154	123.07	40.50	1.42E-01	1.42E-01	-3.72E-02	6.87E-02
	723.30	19.70	4.77E-01		-9.15E-02	2.24E-01
	873.19	11.50	8.13E-01		1.50E-01	3.79E-01
	996.32	10.30	9.58E-01		-6.97E-02	4.45E-01
	1004.76	17.90	5.76E-01		1.44E-02	2.69E-01
	1274.45	35.50	3.06E-01		-8.01E-02	1.41E-01
EU-155	86.50	30.90	2.75E-01	2.75E-01	2.50E-01	1.35E-01
	105.30	20.70	2.88E-01		1.37E-02	1.40E-01
EU-156	811.77	10.40	6.57E+01	6.57E+01	-1.75E+01	3.04E+01
	1153.47	7.20	1.37E+02		-1.34E+01	6.40E+01
	1230.71	8.90	1.31E+02		-2.92E+00	6.18E+01
HO-166M	184.41	72.60	1.09E-01	1.09E-01	2.40E-01	5.33E-02
	280.45	29.60	2.42E-01		1.94E-02	1.17E-01
	410.94	11.10	7.43E-01		4.34E-01	3.56E-01
	711.69	54.10	1.52E-01		-1.99E-02	7.11E-02
TM-171	66.72	0.14	5.73E+01	5.73E+01	1.64E+01	2.80E+01
HF-172	67.35	5.31	1.51E+00	5.52E-01	1.17E+00	7.38E-01
	125.81	11.30	5.52E-01		-5.73E-01	2.67E-01
LU-172	181.53	20.60	7.47E+03	4.10E+03	-8.27E+02	3.61E+03
	900.72	29.81	7.76E+03		-2.04E+03	3.60E+03
	1093.66	62.50	4.10E+03		-9.51E+02	1.90E+03
LU-173	100.72	5.24	1.34E+00	4.35E-01	1.03E+00	6.50E-01
	272.11	21.20	4.35E-01		-9.77E-02	2.10E-01
HF-175	343.40	84.00	2.31E-01	2.31E-01	2.28E-02	1.11E-01
LU-176	88.34	13.30	6.32E-01	7.30E-02	-1.56E-01	3.10E-01

Analysis Report for 1707085-15

HTC-A02-S003-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	LU-176	201.83		86.00	7.31E-02	7.30E-02	6.68E-03	3.53E-02
		306.78		94.00	7.30E-02		-1.64E-02	3.50E-02
	HF-181	133.02		41.70	7.21E-01	4.34E-01	-6.11E-02	3.50E-01
		345.85		17.20	2.00E+00		2.11E-01	9.58E-01
		482.03		82.80	4.34E-01		-1.78E-01	2.05E-01
	TA-182	67.75		41.20	3.19E-01	3.19E-01	2.47E-01	1.56E-01
		1121.30		34.90	7.59E-01		1.08E+00	3.60E-01
		1189.05		16.23	1.26E+00		-3.40E-01	5.86E-01
		1221.41		26.98	9.00E-01		3.75E-01	4.24E-01
		1231.02		11.44	2.10E+00		-4.66E-02	9.87E-01
	IR-192	308.46		29.68	5.73E-01	4.00E-01	-1.11E-01	2.75E-01
		468.07		48.10	4.00E-01		-3.37E-01	1.90E-01
	HG-203	279.19		77.30	3.99E-01	3.99E-01	-7.23E-02	1.92E-01
	TL-204	374.74		94.11	7.68E-02	7.68E-02	9.27E-03	3.66E-02
		899.15		99.16	9.77E-02		-4.08E-02	4.55E-02
		911.74		91.10	2.10E-01		5.16E-01	1.01E-01
	BI-207	569.67		97.72	8.24E-02	8.24E-02	1.22E-02	3.89E-02
		1063.62		74.90	1.21E-01		6.51E-03	5.59E-02
+	TL-208	583.14	*	30.22	3.09E-01	2.28E-01	1.61E+00	1.47E-01
		860.37		4.48	2.29E+00		1.93E+00	1.08E+00
		2614.66	*	35.85	2.28E-01		1.43E+00	9.50E-02
	BI-210M	262.00		45.00	1.54E-01	1.54E-01	3.76E-03	7.41E-02
		300.00		23.00	3.48E-01		-1.29E+00	1.68E-01
+	PB-210	46.50	*	4.25	1.84E+00	1.84E+00	1.43E+00	8.99E-01
	PB-211	404.84		2.90	2.52E+00	2.52E+00	-4.92E-01	1.20E+00
		831.96		2.90	3.13E+00		2.90E-01	1.46E+00
+	BI-212	727.17	*	11.80	1.06E+00	1.06E+00	9.22E-01	5.09E-01
		1620.62		2.75	2.45E+00		1.04E+00	1.05E+00
+	PB-212	238.63	*	44.60	3.49E-01	3.49E-01	1.77E+00	1.72E-01
		300.09	*	3.41	3.81E+00		1.54E+00	1.87E+00
+	BI-214	609.31	*	46.30	3.31E-01	3.31E-01	1.20E+00	1.60E-01
		1120.29	*	15.10	7.42E-01		1.38E+00	3.46E-01
		1764.49	*	15.80	5.34E-01		1.42E+00	2.35E-01
		2204.22	*	4.98	1.92E+00		1.34E+00	8.41E-01
+	PB-214	295.21	*	19.19	6.63E-01	2.80E-01	1.42E+00	3.24E-01
		351.92	*	37.19	2.80E-01		1.54E+00	1.36E-01
	RN-219	401.80		6.50	1.17E+00	1.17E+00	-1.08E-01	5.58E-01
	RA-223	323.87		3.88	1.87E+00	1.87E+00	3.01E-01	8.97E-01
+	RA-224	240.98	*	3.95	3.94E+00	3.94E+00	4.83E+00	1.94E+00
	RA-225	40.00		31.00	2.09E+01	2.09E+01	2.07E+00	1.01E+01
+	RA-226	186.21	*	3.28	3.39E+00	3.39E+00	3.78E+00	1.66E+00
	TH-227	50.10		8.40	7.85E-01	7.18E-01	1.41E-02	3.82E-01
		236.00		11.50	7.18E-01		-5.07E+00	3.49E-01
		256.20		6.30	1.15E+00		4.91E-01	5.56E-01
+	AC-228	338.32	*	11.40	9.33E-01	4.05E-01	1.94E+00	4.53E-01
		911.07	*	27.70	4.05E-01		1.70E+00	1.91E-01
		969.11	*	16.60	6.92E-01		1.09E+00	3.26E-01
	TH-230	48.44		16.90	4.18E-01	4.18E-01	-2.61E-02	2.04E-01
		62.85		4.60	1.77E+00		3.43E+00	8.64E-01
		67.67		0.37	1.96E+01		1.51E+01	9.59E+00
	PA-231	283.67		1.60	4.26E+00	3.37E+00	-1.21E+00	2.05E+00
		302.67		2.30	3.37E+00		-4.84E-01	1.63E+00
	TH-231	25.64		14.70	6.73E-01	6.73E-01	-3.59E+00	3.27E-01

Analysis Report for 1707085-15

HTC-A02-S003-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TH-231	84.21		6.40	1.16E+00	6.73E-01	-1.28E+00	5.69E-01
	PA-233	311.98		38.60	2.31E+00	2.31E+00	-1.29E-01	1.11E+00
	PA-234	131.20		20.40	3.15E-01	3.15E-01	2.53E-01	1.53E-01
		733.99		8.80	1.00E+00		-1.93E-01	4.72E-01
		946.00		12.00	6.69E-01		-4.36E-02	3.07E-01
	PA-234M	1001.03		0.92	1.09E+01	1.09E+01	9.36E-01	5.06E+00
+	TH-234	63.29	*	3.80	2.58E+00	2.58E+00	1.85E+00	1.27E+00
	U-235	143.76		10.50	5.78E-01	5.78E-01	1.96E-01	2.80E-01
		163.35		4.70	1.26E+00		-1.02E-01	6.09E-01
		205.31		4.70	1.27E+00		-1.07E-01	6.11E-01
	NP-237	86.50		12.60	6.50E-01	6.50E-01	5.91E-01	3.19E-01
	NP-239	106.10		22.70	9.00E+11	9.00E+11	-1.66E+11	4.37E+11
		228.18		10.70	2.21E+12		1.12E+12	1.07E+12
		277.60		14.10	1.88E+12		8.04E+11	9.05E+11
	AM-241	59.54		35.90	1.93E-01	1.93E-01	-1.62E-02	9.44E-02
+	AM-243	74.67	*	66.00	2.03E-01	2.03E-01	3.64E-01	1.00E-01
	CM-243	209.75		3.29	2.08E+00	5.34E-01	1.72E+00	1.00E+00
		228.14		10.60	6.32E-01		3.21E-01	3.05E-01
		277.60		14.00	5.34E-01		2.29E-01	2.58E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

Analysis Report for 1707085-15

HTC-A02-S003-2430-01

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

Sample Title: HTC-A02-S003-2430-01

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:	1	2	61	74	85	146	493	161
25:	68	83	67	53	64	62	54	71
33:	69	60	73	66	73	76	58	76
41:	75	62	80	63	77	104	158	95
49:	71	80	92	96	102	106	93	81
57:	102	112	98	112	125	96	177	233
65:	134	94	133	138	124	133	118	143
73:	129	153	318	336	354	470	151	110
81:	123	125	106	128	148	116	168	235
89:	141	147	157	134	272	215	111	88
97:	64	82	95	91	90	70	81	73
105:	64	83	78	72	71	72	82	69
113:	77	72	78	94	63	74	75	70
121:	87	67	70	54	65	71	64	71
129:	74	113	66	79	89	65	76	51
137:	75	54	58	65	59	47	71	93
145:	71	61	65	61	62	66	68	61
153:	69	78	69	65	58	66	63	69
161:	48	69	55	55	59	54	57	64
169:	52	60	50	69	67	56	52	68
177:	62	62	44	42	56	43	64	62
185:	64	148	136	54	44	56	60	47
193:	39	57	50	43	53	53	63	46
201:	47	63	59	50	42	52	38	51
209:	75	89	50	32	42	50	55	55
217:	36	42	46	44	50	45	57	43
225:	50	52	50	55	54	50	49	33
233:	45	49	45	55	63	174	562	258
241:	86	139	118	57	41	44	30	34
249:	28	36	35	33	40	41	29	38
257:	33	37	37	51	30	31	25	25
265:	35	32	32	38	37	60	66	31
273:	38	32	35	42	34	40	38	30
281:	32	30	27	33	32	24	26	28
289:	33	29	36	23	29	43	133	160
297:	44	26	27	54	53	28	30	31
305:	28	19	31	26	30	20	21	32
313:	31	39	25	25	26	24	26	29
321:	30	27	26	29	23	25	32	52
329:	39	27	23	30	25	25	24	19
337:	28	81	116	44	36	26	28	21
345:	21	27	22	17	22	34	83	260
353:	174	44	24	25	27	15	13	17
361:	18	20	25	22	22	25	16	26

369:	17	21	24	17	20	18	17	20

Sample Title: HTC-A02-S003-2430-01

Channel								
377:	18	28	13	18	26	18	30	18
385:	18	34	18	31	28	22	16	17
393:	21	16	27	17	30	22	24	30
401:	21	22	20	15	21	18	23	20
409:	22	39	24	28	16	26	24	14
417:	5	19	23	14	11	27	14	14
425:	18	15	18	30	16	22	24	19
433:	21	18	15	14	12	14	30	18
441:	14	20	19	19	13	9	18	9
449:	15	21	20	14	12	20	24	13
457:	20	20	17	15	17	25	38	28
465:	16	12	19	16	9	30	21	15
473:	17	13	16	14	21	19	16	12
481:	14	21	19	11	10	17	15	23
489:	17	9	22	12	15	16	16	12
497:	9	12	22	10	19	17	16	15
505:	21	18	12	17	23	40	90	55
513:	20	16	19	19	14	19	15	15
521:	14	11	14	10	10	13	13	14
529:	10	8	12	16	12	14	14	8
537:	12	15	9	14	17	11	11	8
545:	10	15	14	16	24	9	10	10
553:	10	6	16	16	19	12	8	11
561:	23	10	10	12	14	13	12	8
569:	14	18	14	17	15	10	15	13
577:	17	14	9	12	7	32	147	123
585:	25	15	20	10	14	6	9	14
593:	14	10	12	11	8	20	8	16
601:	16	18	18	11	16	14	23	33
609:	159	144	27	18	15	20	15	12
617:	20	9	10	11	10	12	11	6
625:	17	14	11	10	11	7	11	9
633:	19	10	7	16	21	13	14	10
641:	8	16	9	6	22	10	14	11
649:	8	13	15	10	8	18	11	10
657:	9	15	7	9	13	9	9	8
665:	12	12	12	12	15	9	8	5
673:	8	18	18	13	14	8	11	9
681:	9	15	8	11	13	10	11	14
689:	9	10	11	15	6	8	12	11
697:	11	14	17	14	15	13	18	11
705:	4	12	10	11	8	13	11	13
713:	7	8	12	11	12	14	8	19
721:	9	9	11	11	9	21	44	33
729:	11	12	9	12	11	15	12	9
737:	12	12	19	5	6	17	9	5
745:	8	7	11	7	10	16	10	10
753:	14	9	10	13	10	3	16	9
761:	3	6	9	13	7	8	12	15
769:	30	15	5	11	19	15	7	7
777:	11	9	7	9	8	12	9	7
785:	12	10	11	13	14	7	9	9
793:	7	9	24	22	9	14	8	5

801:	7	3	15	9	12	15	10	9

Sample Title: HTC-A02-S003-2430-01

Channel								
809:	7	7	5	12	5	7	8	6
817:	10	5	7	7	8	6	15	6
825:	12	8	10	6	9	7	10	8
833:	10	11	14	9	12	8	14	6
841:	10	8	5	8	13	4	8	8
849:	12	12	9	3	6	7	3	7
857:	5	10	13	19	21	11	6	9
865:	7	9	8	12	5	7	12	5
873:	8	14	8	11	8	8	17	8
881:	7	8	15	8	7	9	9	6
889:	6	12	10	15	10	13	11	14
897:	9	9	9	9	7	6	10	12
905:	4	9	9	9	10	40	101	77
913:	14	6	6	14	8	9	9	6
921:	6	5	8	2	5	8	5	9
929:	15	8	3	11	12	18	14	7
937:	9	7	7	6	8	4	4	4
945:	2	7	8	4	14	9	5	12
953:	15	10	4	6	4	7	11	14
961:	5	6	9	19	26	13	5	32
969:	52	28	8	6	8	11	8	10
977:	8	12	7	8	7	9	10	8
985:	9	8	9	6	7	10	8	8
993:	10	7	8	7	5	11	11	7
1001:	12	11	7	4	16	4	10	6
1009:	12	6	5	12	5	7	12	9
1017:	12	12	8	15	6	6	5	13
1025:	8	8	3	9	10	11	9	6
1033:	4	10	9	9	6	14	3	4
1041:	8	9	10	9	13	9	14	9
1049:	6	9	7	5	15	4	8	14
1057:	9	2	2	3	12	3	9	10
1065:	2	7	10	9	9	8	6	10
1073:	6	10	8	9	6	6	11	7
1081:	6	7	7	12	11	3	8	3
1089:	11	9	3	7	11	8	9	7
1097:	9	12	7	5	6	7	7	7
1105:	8	11	8	5	8	8	8	11
1113:	11	8	6	3	13	10	17	40
1121:	32	7	8	4	6	4	9	10
1129:	10	8	12	10	6	6	5	11
1137:	8	14	10	5	8	8	10	10
1145:	9	6	12	8	9	5	5	5
1153:	13	12	13	11	13	9	11	10
1161:	7	8	6	5	14	9	8	10
1169:	10	5	7	5	12	11	8	6
1177:	8	10	5	8	12	13	11	14
1185:	12	12	10	4	9	10	6	11
1193:	11	6	13	7	11	12	11	11
1201:	9	13	6	5	11	8	6	7
1209:	6	6	9	4	8	13	14	5
1217:	13	16	11	9	10	10	13	17
1225:	7	13	21	6	7	12	9	11

1233:	17	9	18	12	10	26	14	13

Sample Title: HTC-A02-S003-2430-01

Channel								
1241:	5	17	7	8	8	9	10	5
1249:	11	11	6	4	4	11	8	2
1257:	8	5	9	4	6	5	5	10
1265:	4	7	3	4	9	7	5	1
1273:	7	10	9	9	8	10	6	13
1281:	13	9	7	9	1	3	6	7
1289:	4	8	6	6	7	8	2	9
1297:	7	2	8	4	2	6	4	9
1305:	4	5	4	6	4	3	8	1
1313:	1	3	4	3	1	7	4	6
1321:	3	2	7	3	3	3	4	3
1329:	6	5	6	2	2	4	2	5
1337:	5	4	6	5	5	6	5	2
1345:	2	2	6	5	3	4	3	5
1353:	6	3	3	6	2	3	0	7
1361:	4	3	4	5	4	1	2	5
1369:	3	3	4	1	2	2	2	6
1377:	10	8	5	0	1	2	1	5
1385:	4	3	0	5	3	3	3	2
1393:	4	3	3	1	6	1	4	4
1401:	8	3	1	1	2	5	8	8
1409:	2	7	3	3	4	3	2	1
1417:	2	1	1	3	2	2	4	2
1425:	0	3	3	2	4	3	3	4
1433:	1	3	3	4	1	6	1	1
1441:	0	0	0	2	1	2	1	3
1449:	5	3	3	2	1	4	5	2
1457:	6	28	119	418	415	124	33	9
1465:	10	14	5	0	3	0	1	3
1473:	1	0	2	4	6	2	1	4
1481:	3	1	2	2	3	2	1	2
1489:	0	1	0	2	1	2	1	2
1497:	0	5	1	2	6	1	2	2
1505:	1	0	0	4	5	5	4	2
1513:	3	3	1	5	0	1	5	2
1521:	3	1	2	0	1	2	4	0
1529:	4	1	0	0	3	4	2	1
1537:	2	3	2	5	1	1	3	1
1545:	2	0	2	1	4	1	0	1
1553:	0	0	0	2	2	2	3	1
1561:	0	0	3	2	3	1	2	1
1569:	3	0	1	1	1	4	1	1
1577:	0	3	1	1	2	2	4	2
1585:	2	2	6	5	3	3	5	4
1593:	7	1	2	1	1	3	1	0
1601:	2	2	2	1	2	0	2	2
1609:	4	3	1	1	1	1	2	0
1617:	0	0	1	3	5	1	2	0
1625:	0	0	2	4	4	4	3	1
1633:	0	0	1	1	3	5	2	1
1641:	0	1	1	2	3	1	0	1
1649:	1	2	1	1	4	5	1	1
1657:	1	1	3	3	1	0	1	1

1665:	2	1	0	1	1	0	1	1

Sample Title: HTC-A02-S003-2430-01

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

2097:	1	0	1	2	2	2	6	6

Sample Title: HTC-A02-S003-2430-01

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

2529:	0	0	1	1	1	2	1	0

Sample Title: HTC-A02-S003-2430-01

Channel								
2537:	0	0	1	0	1	1	0	0
2545:	1	0	0	1	0	0	0	0
2553:	0	0	0	1	2	0	0	0
2561:	0	0	0	0	0	1	1	1
2569:	0	0	0	0	0	1	1	0
2577:	1	0	0	1	0	1	1	0
2585:	0	0	0	0	1	0	1	0
2593:	0	0	1	0	0	2	1	1
2601:	2	1	1	0	0	2	0	0
2609:	1	0	5	23	35	27	7	5
2617:	2	2	1	2	0	0	0	0
2625:	0	0	1	1	0	0	1	0
2633:	1	0	0	0	0	0	0	0
2641:	0	1	0	0	0	0	0	0
2649:	0	1	0	0	1	1	0	1
2657:	0	0	1	0	2	0	0	1
2665:	0	0	0	0	0	0	1	0
2673:	0	1	0	0	0	0	0	0
2681:	0	1	0	0	0	1	1	0
2689:	0	0	0	0	0	0	0	0
2697:	0	0	0	1	0	1	0	3
2705:	0	0	0	1	0	0	1	0
2713:	1	0	0	0	0	1	0	0
2721:	1	0	0	0	0	0	2	0
2729:	0	0	2	0	2	0	0	0
2737:	0	1	0	0	1	1	2	0
2745:	0	0	1	0	0	1	0	0
2753:	0	0	0	0	1	0	1	0
2761:	0	0	0	0	0	0	0	1
2769:	1	1	0	1	0	0	0	0
2777:	0	0	0	1	0	0	0	0
2785:	0	0	0	0	0	0	1	1
2793:	0	1	0	0	0	0	1	0
2801:	0	0	0	0	0	1	0	1
2809:	0	0	0	2	0	0	2	0
2817:	0	0	0	0	0	0	0	0
2825:	0	0	0	0	0	1	0	1
2833:	0	0	0	0	0	1	0	0
2841:	0	1	0	0	1	0	0	0
2849:	1	0	0	1	0	0	0	0
2857:	0	1	0	0	0	0	0	1
2865:	0	0	1	0	0	0	0	1
2873:	0	0	0	0	1	1	0	0
2881:	0	1	0	0	0	0	0	0
2889:	0	0	0	0	1	1	0	0
2897:	1	2	0	0	0	0	0	0
2905:	0	0	0	0	0	0	2	0
2913:	0	0	1	1	0	0	0	0
2921:	0	1	1	0	0	0	0	0
2929:	0	0	0	0	0	0	1	0
2937:	0	0	0	0	0	0	0	0
2945:	1	0	0	0	0	0	0	0
2953:	0	0	1	0	0	0	0	0

2961:	0	0	0	0	0	0	0	0

Sample Title: HTC-A02-S003-2430-01

Channel								
2969:	2	0	0	0	0	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	0	0
3001:	0	0	0	0	1	0	1	1
3009:	0	0	0	1	0	0	0	0
3017:	0	1	1	0	0	0	0	0
3025:	0	0	0	0	0	0	0	0
3033:	0	1	0	0	1	0	0	0
3041:	0	1	0	0	0	1	0	2
3049:	0	0	0	0	0	0	0	0
3057:	0	0	0	0	0	0	0	1
3065:	0	0	0	0	0	0	0	0
3073:	0	0	0	0	0	0	0	0
3081:	1	0	0	0	0	0	1	0
3089:	0	1	0	0	0	0	0	0
3097:	0	1	0	0	0	0	1	0
3105:	0	0	0	1	0	1	0	1
3113:	0	0	0	0	0	0	0	0
3121:	1	0	0	0	1	0	0	1
3129:	0	0	1	0	1	0	0	0
3137:	0	1	0	0	0	0	0	0
3145:	0	0	0	0	0	0	0	1
3153:	0	0	0	0	0	0	0	0
3161:	0	0	0	1	0	1	0	0
3169:	1	0	1	2	1	0	1	0
3177:	0	1	0	0	0	0	0	0
3185:	0	0	0	0	0	0	2	0
3193:	0	0	1	2	0	1	0	0
3201:	0	0	0	3	0	0	1	0
3209:	1	0	0	0	0	0	0	1
3217:	1	0	0	0	0	0	0	0
3225:	1	0	0	0	0	0	0	0
3233:	0	0	0	0	1	0	1	1
3241:	0	0	0	1	1	0	0	0
3249:	0	2	0	0	0	0	0	0
3257:	0	0	0	1	0	0	0	0
3265:	1	0	0	0	0	0	0	0
3273:	0	0	0	0	0	0	0	0
3281:	0	0	0	0	0	0	0	0
3289:	0	0	0	0	0	0	0	1
3297:	0	0	0	0	0	0	0	0
3305:	0	0	0	0	0	0	0	0
3313:	0	0	1	1	0	0	0	0
3321:	0	0	0	0	0	0	0	1
3329:	0	0	0	0	0	0	0	0
3337:	0	0	0	0	0	0	0	0
3345:	0	0	0	1	0	0	0	0
3353:	0	0	0	0	0	1	1	1
3361:	0	0	1	0	0	0	0	0
3369:	0	1	0	0	0	1	0	0
3377:	0	1	0	0	2	0	1	0
3385:	0	0	0	0	0	0	0	0

3393:	0	0	0	0	0	1	0	0

Sample Title: HTC-A02-S003-2430-01

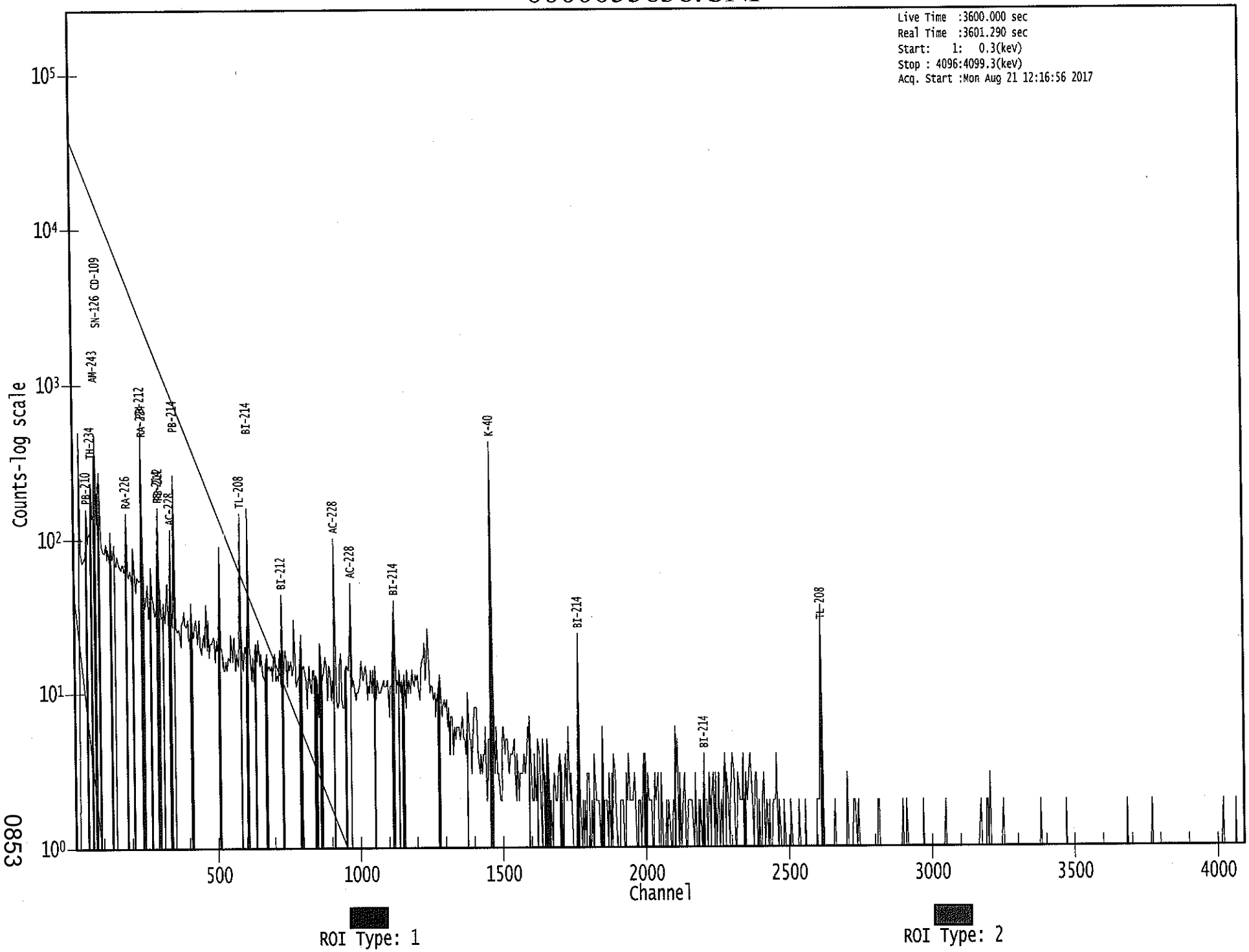
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	1	0	1	0
3425:	1	1	0	0	0	0	0	0
3433:	1	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	1
3449:	0	0	0	1	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	2	0	0
3473:	1	0	0	0	0	0	0	0
3481:	0	1	0	0	0	0	0	0
3489:	0	0	0	0	0	0	1	0
3497:	0	0	0	0	0	0	0	1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

3825:	0	1	0	0	0	0	0	0

Sample Title: HTC-A02-S003-2430-01

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

0000055638.CNF



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Apex-Gamma

8/21

Analysis Report for 1707085-16

HTC-A02-S003-3036-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707085-16
Sample Description	: HTC-A02-S003-3036-01
Sample Type	: SOIL
Sample Size	: 4.813E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 8:13:11AM
Acquisition Started	: 8/21/2017 12:17:03PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE2
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3601.0 seconds
Dead Time	: 0.03 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 29 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 8/19/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55639

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/22/17

Analysis Report for 1707085-16

HTC-A02-S003-3036-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 1:18:41PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	39.92	40.27	0.0000	0.00
2	46.40	46.74	0.0000	0.00
3	76.16	76.47	0.0000	0.00
4	87.39	87.69	0.0000	0.00
5	93.14	93.43	0.0000	0.00
6	128.79	129.04	0.0000	0.00
7	185.64	185.83	0.0000	0.00
8	209.53	209.70	0.0000	0.00
9	238.79	238.92	0.0000	0.00
10	242.00	242.13	0.0000	0.00
11	270.06	270.17	0.0000	0.00
12	277.95	278.04	0.0000	0.00
13	295.26	295.34	0.0000	0.00
14	300.80	300.87	0.0000	0.00
15	327.65	327.70	0.0000	0.00
16	338.63	338.66	0.0000	0.00
17	348.11	348.14	0.0000	0.00
18	352.01	352.03	0.0000	0.00
19	401.02	400.99	0.0000	0.00
20	463.34	463.25	0.0000	0.00
21	511.60	511.45	0.0000	0.00
22	583.26	583.04	0.0000	0.00
23	609.51	609.26	0.0000	0.00
24	616.90	616.65	0.0000	0.00
25	726.77	726.41	0.0000	0.00
26	756.31	755.92	0.0000	0.00
27	768.73	768.33	0.0000	0.00
28	862.14	861.65	0.0000	0.00
29	911.71	911.17	0.0000	0.00
30	934.35	933.79	0.0000	0.00
31	951.57	951.00	0.0000	0.00
32	968.20	967.61	0.0000	0.00
33	1092.81	1092.11	0.0000	0.00
34	1120.55	1119.82	0.0000	0.00
35	1170.63	1169.86	0.0000	0.00
36	1196.31	1195.51	0.0000	0.00
37	1363.59	1362.65	0.0000	0.00
38	1375.82	1374.87	0.0000	0.00
39	1378.96	1378.00	0.0000	0.00
40	1409.01	1408.03	0.0000	0.00
41	1461.38	1460.36	0.0000	0.00
42	1591.44	1590.31	0.0000	0.00

Analysis Report for 1707085-16

HTC-A02-S003-3036-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1728.69	1727.44	0.0000	0.00
44	1765.18	1763.91	0.0000	0.00
45	1841.34	1840.01	0.0000	0.00
46	2105.09	2103.57	0.0000	0.00
47	2203.95	2202.35	0.0000	0.00
48	2615.13	2613.27	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707085-16

HTC-A02-S003-3036-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 1:18:41PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	39.92	38 -	43	40.27	1.24E+02	67.48	7.83E+02	2.91
	2	46.40	44 -	49	46.74	1.29E+02	62.46	6.81E+02	1.56
	3	76.16	72 -	79	76.47	8.50E+02	109.51	1.43E+03	3.95
	4	87.39	86 -	89	87.69	6.92E+01	58.48	7.92E+02	1.20
	5	93.14	92 -	97	93.43	1.85E+02	74.43	9.24E+02	1.59
	6	128.79	125 -	132	129.04	7.58E+01	74.05	8.62E+02	1.24
	7	185.64	182 -	189	185.83	1.08E+02	71.50	7.80E+02	1.28
	8	209.53	208 -	214	209.70	6.27E+01	57.86	5.63E+02	1.84
M	9	238.79	234 -	247	238.92	6.22E+02	62.77	2.73E+02	1.45
m	10	242.00	234 -	247	242.13	1.06E+02	42.85	2.48E+02	1.46
	11	270.06	268 -	273	270.17	4.59E+01	39.91	2.86E+02	2.33
	12	277.95	274 -	282	278.04	4.71E+01	56.80	4.66E+02	1.82
	13	295.26	293 -	299	295.34	1.47E+02	54.80	4.59E+02	1.81
	14	300.80	299 -	304	300.87	6.79E+01	41.47	2.74E+02	1.82
	15	327.65	324 -	331	327.70	5.88E+01	46.26	3.12E+02	1.14
	16	338.63	334 -	343	338.66	1.54E+02	57.42	3.79E+02	1.80
M	17	348.11	347 -	358	348.14	1.85E+01	20.10	1.09E+02	1.50
m	18	352.01	347 -	358	352.03	3.88E+02	45.21	1.28E+02	1.44
	19	401.02	399 -	403	400.99	2.70E+01	27.43	1.44E+02	2.51
	20	463.34	459 -	468	463.25	8.37E+01	39.90	1.79E+02	2.21
	21	511.60	507 -	518	511.45	1.43E+02	55.06	2.94E+02	2.96
	22	583.26	578 -	587	583.04	2.45E+02	46.18	1.64E+02	1.54
M	23	609.51	605 -	621	609.26	2.65E+02	38.96	9.00E+01	2.03
m	24	616.90	605 -	621	616.65	1.84E+01	22.85	9.00E+01	2.04
	25	726.77	722 -	733	726.41	5.37E+01	42.52	2.03E+02	2.42
	26	756.31	753 -	758	755.92	1.86E+01	21.79	7.88E+01	1.70
	27	768.73	765 -	772	768.33	2.94E+01	23.92	7.53E+01	1.84
	28	862.14	858 -	868	861.65	4.06E+01	32.89	1.27E+02	3.14
	29	911.71	905 -	916	911.17	1.52E+02	40.20	1.26E+02	2.06
	30	934.35	930 -	937	933.79	2.53E+01	26.98	1.05E+02	1.63
	31	951.57	947 -	954	951.00	3.10E+01	21.45	5.60E+01	3.80
	32	968.20	959 -	972	967.61	8.14E+01	43.65	1.77E+02	1.41
	33	1092.81	1089 -	1095	1092.11	2.10E+01	23.02	8.20E+01	1.31
	34	1120.55	1115 -	1126	1119.82	8.05E+01	39.75	1.61E+02	2.44
	35	1170.63	1166 -	1173	1169.86	2.66E+01	22.72	6.88E+01	4.10
	36	1196.31	1191 -	1201	1195.51	3.68E+01	32.27	1.14E+02	6.54
	37	1363.59	1357 -	1366	1362.65	1.48E+01	17.29	3.24E+01	3.30
M	38	1375.82	1373 -	1381	1374.87	9.84E+00	9.17	1.45E+01	3.40
m	39	1378.96	1373 -	1381	1378.00	2.43E+01	14.75	1.81E+01	2.33
	40	1409.01	1398 -	1423	1408.03	3.43E+01	36.19	7.95E+01	7.68

Analysis Report for 1707085-16

HTC-A02-S003-3036-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1461.38	1454 -	1466	1460.36	7.43E+02	61.18	8.98E+01	2.37
42	1591.44	1584 -	1594	1590.31	2.24E+01	17.18	2.73E+01	1.86
43	1728.69	1722 -	1732	1727.44	2.93E+01	12.58	5.47E+00	6.59
44	1765.18	1760 -	1769	1763.91	4.71E+01	17.18	1.59E+01	1.94
45	1841.34	1836 -	1843	1840.01	7.00E+00	9.80	1.00E+01	1.79
46	2105.09	2100 -	2107	2103.57	1.13E+01	8.25	3.38E+00	2.01
47	2203.95	2199 -	2206	2202.35	9.00E+00	9.17	8.00E+00	2.25
48	2615.13	2608 -	2617	2613.27	7.73E+01	20.37	1.54E+01	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 : 8/21/2017 1:18:41PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	39.92	38 -	43	1.24E+02	67.48	7.83E+02	5.24E+01
	2	46.40	44 -	49	1.29E+02	62.46	6.81E+02	4.78E+01
	3	76.16	72 -	79	8.50E+02	109.51	1.43E+03	7.62E+01
	4	87.39	86 -	89	6.92E+01	58.48	7.92E+02	4.61E+01
	5	93.14	92 -	97	1.85E+02	74.43	9.24E+02	5.70E+01
	6	128.79	125 -	132	7.58E+01	74.05	8.62E+02	5.92E+01
	7	185.64	182 -	189	1.08E+02	71.50	7.80E+02	5.62E+01
	8	209.53	208 -	214	6.27E+01	57.86	5.63E+02	4.58E+01
M	9	238.79	234 -	247	6.22E+02	62.77	2.73E+02	2.72E+01
m	10	242.00	234 -	247	1.06E+02	42.85	2.48E+02	2.59E+01
	11	270.06	268 -	273	4.59E+01	39.91	2.86E+02	3.09E+01
	12	277.95	274 -	282	4.71E+01	56.80	4.66E+02	4.53E+01
	13	295.26	293 -	299	1.47E+02	54.80	4.59E+02	4.04E+01
	14	300.80	299 -	304	6.79E+01	41.47	2.74E+02	3.13E+01
	15	327.65	324 -	331	5.88E+01	46.26	3.12E+02	3.59E+01
	16	338.63	334 -	343	1.54E+02	57.42	3.79E+02	4.26E+01
M	17	348.11	347 -	358	1.85E+01	20.10	1.09E+02	1.71E+01
m	18	352.01	347 -	358	3.88E+02	45.21	1.28E+02	1.86E+01
	19	401.02	399 -	403	2.70E+01	27.43	1.44E+02	2.09E+01

Analysis Report for 1707085-16

HTC-A02-S003-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	20	463.34	459 -	468	8.37E+01	39.90	1.79E+02	2.91E+01
	21	511.60	507 -	518	1.43E+02	55.06	2.94E+02	4.08E+01
	22	583.26	578 -	587	2.45E+02	46.18	1.64E+02	2.79E+01
M	23	609.51	605 -	621	2.65E+02	38.96	9.00E+01	1.56E+01
m	24	616.90	605 -	621	1.84E+01	22.85	9.00E+01	1.56E+01
	25	726.77	722 -	733	5.37E+01	42.52	2.03E+02	3.28E+01
	26	756.31	753 -	758	1.86E+01	21.79	7.88E+01	1.65E+01
	27	768.73	765 -	772	2.94E+01	23.92	7.53E+01	1.75E+01
	28	862.14	858 -	868	4.06E+01	32.89	1.27E+02	2.49E+01
	29	911.71	905 -	916	1.52E+02	40.20	1.26E+02	2.61E+01
	30	934.35	930 -	937	2.53E+01	26.98	1.05E+02	2.06E+01
	31	951.57	947 -	954	3.10E+01	21.45	5.60E+01	1.51E+01
	32	968.20	959 -	972	8.14E+01	43.65	1.77E+02	1.83E+01
	33	1092.81	1089 -	1095	2.10E+01	23.02	8.20E+01	1.74E+01
	34	1120.55	1115 -	1126	8.05E+01	39.75	1.61E+02	2.92E+01
	35	1170.63	1166 -	1173	2.66E+01	22.72	6.88E+01	1.66E+01
	36	1196.31	1191 -	1201	3.68E+01	32.27	1.14E+02	2.46E+01
	37	1363.59	1357 -	1366	1.48E+01	17.29	3.24E+01	1.27E+01
M	38	1375.82	1373 -	1381	9.84E+00	9.17	1.45E+01	6.25E+00
m	39	1378.96	1373 -	1381	2.43E+01	14.75	1.81E+01	7.00E+00
	40	1409.01	1398 -	1423	3.43E+01	36.19	7.95E+01	2.82E+01
	41	1461.38	1454 -	1466	7.43E+02	61.18	8.98E+01	2.28E+01
	42	1591.44	1584 -	1594	2.24E+01	17.18	2.73E+01	1.18E+01
	43	1728.69	1722 -	1732	2.93E+01	12.58	5.47E+00	5.28E+00
	44	1765.18	1760 -	1769	4.71E+01	17.18	1.59E+01	8.49E+00
	45	1841.34	1836 -	1843	7.00E+00	9.80	1.00E+01	6.78E+00
	46	2105.09	2100 -	2107	1.13E+01	8.25	3.38E+00	3.92E+00
	47	2203.95	2199 -	2206	9.00E+00	9.17	8.00E+00	5.70E+00
	48	2615.13	2608 -	2617	7.73E+01	20.37	1.54E+01	8.45E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/21/2017 1:18:41PM

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

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

Analysis Report for 1707085-16

HTC-A02-S003-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	39.92	38 -	43	40.27	1.24E+02	67.48	7.83E+02	RA-225
									I-129
	2	46.40	44 -	49	46.74	1.29E+02	62.46	6.81E+02	PB-210
	3	76.16	72 -	79	76.47	8.50E+02	109.51	1.43E+03	.....
	4	87.39	86 -	89	87.69	6.92E+01	58.48	7.92E+02	SN-126
									CD-109
									NP-237
									EU-155
									LU-176
	5	93.14	92 -	97	93.43	1.85E+02	74.43	9.24E+02	GA-67
	6	128.79	125 -	132	129.04	7.58E+01	74.05	8.62E+02	.....
	7	185.64	182 -	189	185.83	1.08E+02	71.50	7.80E+02	RA-226
	8	209.53	208 -	214	209.70	6.27E+01	57.86	5.63E+02	CM-243
									GA-67
M	9	238.79	234 -	247	238.92	6.22E+02	62.77	2.73E+02	PB-212
m	10	242.00	234 -	247	242.13	1.06E+02	42.85	2.48E+02	.....
	11	270.06	268 -	273	270.17	4.59E+01	39.91	2.86E+02	.....
	12	277.95	274 -	282	278.04	4.71E+01	56.80	4.66E+02	CM-243
									NP-239
	13	295.26	293 -	299	295.34	1.47E+02	54.80	4.59E+02	PB-214
	14	300.80	299 -	304	300.87	6.79E+01	41.47	2.74E+02	GA-67
									PB-212
									BI-210M
	15	327.65	324 -	331	327.70	5.88E+01	46.26	3.12E+02	.....
	16	338.63	334 -	343	338.66	1.54E+02	57.42	3.79E+02	AC-228
M	17	348.11	347 -	358	348.14	1.85E+01	20.10	1.09E+02	.....
m	18	352.01	347 -	358	352.03	3.88E+02	45.21	1.28E+02	PB-214
	19	401.02	399 -	403	400.99	2.70E+01	27.43	1.44E+02	SE-75
									RN-219
	20	463.34	459 -	468	463.25	8.37E+01	39.90	1.79E+02	SB-125
	21	511.60	507 -	518	511.45	1.43E+02	55.06	2.94E+02	.....
	22	583.26	578 -	587	583.04	2.45E+02	46.18	1.64E+02	TL-208
M	23	609.51	605 -	621	609.26	2.65E+02	38.96	9.00E+01	BI-214
m	24	616.90	605 -	621	616.65	1.84E+01	22.85	9.00E+01	.....
	25	726.77	722 -	733	726.41	5.37E+01	42.52	2.03E+02	BI-212
	26	756.31	753 -	758	755.92	1.86E+01	21.79	7.88E+01	ZR-95
	27	768.73	765 -	772	768.33	2.94E+01	23.92	7.53E+01	.....
	28	862.14	858 -	868	861.65	4.06E+01	32.89	1.27E+02	.....
	29	911.71	905 -	916	911.17	1.52E+02	40.20	1.26E+02	TL-204
									AC-228
	30	934.35	930 -	937	933.79	2.53E+01	26.98	1.05E+02	.....
	31	951.57	947 -	954	951.00	3.10E+01	21.45	5.60E+01	.....
	32	968.20	959 -	972	967.61	8.14E+01	43.65	1.77E+02	AC-228
	33	1092.81	1089 -	1095	1092.11	2.10E+01	23.02	8.20E+01	LU-172
	34	1120.55	1115 -	1126	1119.82	8.05E+01	39.75	1.61E+02	SC-46
									BI-214
									TA-182
	35	1170.63	1166 -	1173	1169.86	2.66E+01	22.72	6.88E+01	.....
	36	1196.31	1191 -	1201	1195.51	3.68E+01	32.27	1.14E+02	.....
	37	1363.59	1357 -	1366	1362.65	1.48E+01	17.29	3.24E+01	.....
M	38	1375.82	1373 -	1381	1374.87	9.84E+00	9.17	1.45E+01	.....

Analysis Report for 1707085-16

HTC-A02-S003-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
m	39	1378.96	1373 -	1381	1378.00	2.43E+01	14.75	1.81E+01	.....
	40	1409.01	1398 -	1423	1408.03	3.43E+01	36.19	7.95E+01	.....
	41	1461.38	1454 -	1466	1460.36	7.43E+02	61.18	8.98E+01	K-40
	42	1591.44	1584 -	1594	1590.31	2.24E+01	17.18	2.73E+01	.....
	43	1728.69	1722 -	1732	1727.44	2.93E+01	12.58	5.47E+00	.....
	44	1765.18	1760 -	1769	1763.91	4.71E+01	17.18	1.59E+01	BI-214
	45	1841.34	1836 -	1843	1840.01	7.00E+00	9.80	1.00E+01	.....
	46	2105.09	2100 -	2107	2103.57	1.13E+01	8.25	3.38E+00	.....
	47	2203.95	2199 -	2206	2202.35	9.00E+00	9.17	8.00E+00	BI-214
	48	2615.13	2608 -	2617	2613.27	7.73E+01	20.37	1.54E+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 : 8/21/2017 1:18:41PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	39.92	1.24E+02	67.48	1.11E-02	1.67E-03
	2	46.40	1.29E+02	62.46	1.58E-02	1.67E-03
	3	76.16	8.50E+02	109.51	2.63E-02	2.11E-03
	4	87.39	6.92E+01	58.48	2.70E-02	2.41E-03
	5	93.14	1.85E+02	74.43	2.70E-02	2.33E-03
	6	128.79	7.58E+01	74.05	2.48E-02	1.75E-03
	7	185.64	1.08E+02	71.50	2.03E-02	1.53E-03
	8	209.53	6.27E+01	57.86	1.88E-02	1.43E-03
M	9	238.79	6.22E+02	62.77	1.72E-02	1.30E-03
m	10	242.00	1.06E+02	42.85	1.71E-02	1.28E-03
	11	270.06	4.59E+01	39.91	1.58E-02	1.16E-03
	12	277.95	4.71E+01	56.80	1.55E-02	1.12E-03
	13	295.26	1.47E+02	54.80	1.48E-02	1.10E-03
	14	300.80	6.79E+01	41.47	1.46E-02	1.09E-03
	15	327.65	5.88E+01	46.26	1.38E-02	1.05E-03
	16	338.63	1.54E+02	57.42	1.34E-02	1.04E-03
M	17	348.11	1.85E+01	20.10	1.32E-02	1.03E-03
m	18	352.01	3.88E+02	45.21	1.31E-02	1.02E-03
	19	401.02	2.70E+01	27.43	1.19E-02	9.61E-04
	20	463.34	8.37E+01	39.90	1.06E-02	9.06E-04

Analysis Report for 1707085-16

HTC-A02-S003-3036-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	21	511.60	1.43E+02	55.06	9.86E-03	8.64E-04
	22	583.26	2.45E+02	46.18	8.90E-03	8.02E-04
M	23	609.51	2.65E+02	38.96	8.60E-03	7.79E-04
m	24	616.90	1.84E+01	22.85	8.52E-03	7.73E-04
	25	726.77	5.37E+01	42.52	7.47E-03	6.71E-04
	26	756.31	1.86E+01	21.79	7.23E-03	6.43E-04
	27	768.73	2.94E+01	23.92	7.14E-03	6.31E-04
	28	862.14	4.06E+01	32.89	6.50E-03	5.41E-04
	29	911.71	1.52E+02	40.20	6.21E-03	5.01E-04
	30	934.35	2.53E+01	26.98	6.08E-03	4.93E-04
	31	951.57	3.10E+01	21.45	5.99E-03	4.87E-04
	32	968.20	8.14E+01	43.65	5.91E-03	4.82E-04
	33	1092.81	2.10E+01	23.02	5.35E-03	4.38E-04
	34	1120.55	8.05E+01	39.75	5.24E-03	4.29E-04
	35	1170.63	2.66E+01	22.72	5.06E-03	4.11E-04
	36	1196.31	3.68E+01	32.27	4.97E-03	4.12E-04
	37	1363.59	1.48E+01	17.29	4.49E-03	4.16E-04
M	38	1375.82	9.84E+00	9.17	4.46E-03	4.12E-04
m	39	1378.96	2.43E+01	14.75	4.45E-03	4.11E-04
	40	1409.01	3.43E+01	36.19	4.38E-03	4.03E-04
	41	1461.38	7.43E+02	61.18	4.26E-03	3.87E-04
	42	1591.44	2.24E+01	17.18	4.01E-03	3.50E-04
	43	1728.69	2.93E+01	12.58	3.79E-03	3.10E-04
	44	1765.18	4.71E+01	17.18	3.75E-03	3.00E-04
	45	1841.34	7.00E+00	9.80	3.65E-03	2.79E-04
	46	2105.09	1.13E+01	8.25	3.41E-03	2.79E-04
	47	2203.95	9.00E+00	9.17	3.34E-03	2.79E-04
	48	2615.13	7.73E+01	20.37	3.20E-03	2.79E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/21/2017 1:18:41PM

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

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
1	39.92	1.24E+02	67.48	6.74E+01	9.19E+00	5.63E+01	6.81E+01
2	46.40	1.29E+02	62.46	3.74E+01	5.77E+00	9.12E+01	6.27E+01

Analysis Report for 1707085-16

HTC-A02-S003-3036-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	3	76.16	8.50E+02	109.51			8.50E+02	1.10E+02
	4	87.39	6.92E+01	58.48			6.92E+01	5.85E+01
	5	93.14	1.85E+02	74.43	4.88E+01	1.30E+00	1.36E+02	7.44E+01
	6	128.79	7.58E+01	74.05			7.58E+01	7.41E+01
	7	185.64	1.08E+02	71.50	3.48E+01	7.32E+00	7.34E+01	7.19E+01
	8	209.53	6.27E+01	57.86			6.27E+01	5.79E+01
M	9	238.79	6.22E+02	62.77	7.09E+00	6.85E+00	6.15E+02	6.31E+01
m	10	242.00	1.06E+02	42.85			1.06E+02	4.28E+01
	11	270.06	4.59E+01	39.91			4.59E+01	3.99E+01
	12	277.95	4.71E+01	56.80			4.71E+01	5.68E+01
	13	295.26	1.47E+02	54.80			1.47E+02	5.48E+01
	14	300.80	6.79E+01	41.47			6.79E+01	4.15E+01
	15	327.65	5.88E+01	46.26			5.88E+01	4.63E+01
	16	338.63	1.54E+02	57.42			1.54E+02	5.74E+01
M	17	348.11	1.85E+01	20.10			1.85E+01	2.01E+01
m	18	352.01	3.88E+02	45.21	1.04E+01	5.08E+00	3.77E+02	4.55E+01
	19	401.02	2.70E+01	27.43			2.70E+01	2.74E+01
	20	463.34	8.37E+01	39.90			8.37E+01	3.99E+01
	21	511.60	1.43E+02	55.06	7.08E+01	4.94E+00	7.24E+01	5.53E+01
	22	583.26	2.45E+02	46.18	5.65E+00	3.57E+00	2.40E+02	4.63E+01
M	23	609.51	2.65E+02	38.96	1.07E+01	3.96E+00	2.54E+02	3.92E+01
m	24	616.90	1.84E+01	22.85			1.84E+01	2.28E+01
	25	726.77	5.37E+01	42.52			5.37E+01	4.25E+01
	26	756.31	1.86E+01	21.79			1.86E+01	2.18E+01
	27	768.73	2.94E+01	23.92			2.94E+01	2.39E+01
	28	862.14	4.06E+01	32.89			4.06E+01	3.29E+01
	29	911.71	1.52E+02	40.20	2.63E+00	2.49E+00	1.49E+02	4.03E+01
	30	934.35	2.53E+01	26.98			2.53E+01	2.70E+01
	31	951.57	3.10E+01	21.45			3.10E+01	2.14E+01
	32	968.20	8.14E+01	43.65			8.14E+01	4.36E+01
	33	1092.81	2.10E+01	23.02			2.10E+01	2.30E+01
	34	1120.55	8.05E+01	39.75	2.45E+00	2.38E+00	7.80E+01	3.98E+01
	35	1170.63	2.66E+01	22.72			2.66E+01	2.27E+01
	36	1196.31	3.68E+01	32.27			3.68E+01	3.23E+01
	37	1363.59	1.48E+01	17.29			1.48E+01	1.73E+01
M	38	1375.82	9.84E+00	9.17			9.84E+00	9.17E+00
m	39	1378.96	2.43E+01	14.75			2.43E+01	1.47E+01
	40	1409.01	3.43E+01	36.19			3.43E+01	3.62E+01
	41	1461.38	7.43E+02	61.18	5.90E+00	2.63E+00	7.37E+02	6.12E+01
	42	1591.44	2.24E+01	17.18			2.24E+01	1.72E+01
	43	1728.69	2.93E+01	12.58			2.93E+01	1.26E+01
	44	1765.18	4.71E+01	17.18	3.33E+00	1.73E+00	4.37E+01	1.73E+01
	45	1841.34	7.00E+00	9.80	0.00E+00	0.00E+00	7.00E+00	9.80E+00
	46	2105.09	1.13E+01	8.25			1.13E+01	8.25E+00
	47	2203.95	9.00E+00	9.17			9.00E+00	9.17E+00
	48	2615.13	7.73E+01	20.37	4.77E+00	1.52E+00	7.26E+01	2.04E+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 1707085-16

HTC-A02-S003-3036-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/21/2017 1:18:41PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055574.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	39.92	1.24E+02	67.48	6.74E+01	9.19E+00	5.63E+01	6.81E+01
	2	46.40	1.29E+02	62.46	3.74E+01	5.77E+00	9.12E+01	6.27E+01
	3	76.16	8.50E+02	109.51			8.50E+02	1.10E+02
	4	87.39	6.92E+01	58.48			6.92E+01	5.85E+01
	5	93.14	1.85E+02	74.43	4.88E+01	1.30E+00	1.36E+02	7.44E+01
	6	128.79	7.58E+01	74.05			7.58E+01	7.41E+01
	7	185.64	1.08E+02	71.50	3.48E+01	7.32E+00	7.34E+01	7.19E+01
	8	209.53	6.27E+01	57.86			6.27E+01	5.79E+01
M	9	238.79	6.22E+02	62.77	7.09E+00	6.85E+00	6.15E+02	6.31E+01
m	10	242.00	1.06E+02	42.85			1.06E+02	4.28E+01
	11	270.06	4.59E+01	39.91			4.59E+01	3.99E+01
	12	277.95	4.71E+01	56.80			4.71E+01	5.68E+01
	13	295.26	1.47E+02	54.80			1.47E+02	5.48E+01
	14	300.80	6.79E+01	41.47			6.79E+01	4.15E+01
	15	327.65	5.88E+01	46.26			5.88E+01	4.63E+01
	16	338.63	1.54E+02	57.42			1.54E+02	5.74E+01
M	17	348.11	1.85E+01	20.10			1.85E+01	2.01E+01
m	18	352.01	3.88E+02	45.21	1.04E+01	5.08E+00	3.77E+02	4.55E+01
	19	401.02	2.70E+01	27.43			2.70E+01	2.74E+01
	20	463.34	8.37E+01	39.90			8.37E+01	3.99E+01
	21	511.60	1.43E+02	55.06	7.08E+01	4.94E+00	7.24E+01	5.53E+01
	22	583.26	2.45E+02	46.18	5.65E+00	3.57E+00	2.40E+02	4.63E+01
M	23	609.51	2.65E+02	38.96	1.07E+01	3.96E+00	2.54E+02	3.92E+01
m	24	616.90	1.84E+01	22.85			1.84E+01	2.28E+01
	25	726.77	5.37E+01	42.52			5.37E+01	4.25E+01
	26	756.31	1.86E+01	21.79			1.86E+01	2.18E+01
	27	768.73	2.94E+01	23.92			2.94E+01	2.39E+01
	28	862.14	4.06E+01	32.89			4.06E+01	3.29E+01
	29	911.71	1.52E+02	40.20	2.63E+00	2.49E+00	1.49E+02	4.03E+01
	30	934.35	2.53E+01	26.98			2.53E+01	2.70E+01
	31	951.57	3.10E+01	21.45			3.10E+01	2.14E+01
	32	968.20	8.14E+01	43.65			8.14E+01	4.36E+01
	33	1092.81	2.10E+01	23.02			2.10E+01	2.30E+01
	34	1120.55	8.05E+01	39.75	2.45E+00	2.38E+00	7.80E+01	3.98E+01
	35	1170.63	2.66E+01	22.72			2.66E+01	2.27E+01
	36	1196.31	3.68E+01	32.27			3.68E+01	3.23E+01
	37	1363.59	1.48E+01	17.29			1.48E+01	1.73E+01
M	38	1375.82	9.84E+00	9.17			9.84E+00	9.17E+00
m	39	1378.96	2.43E+01	14.75			2.43E+01	1.47E+01

Analysis Report for 1707085-16

HTC-A02-S003-3036-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
40	1409.01	3.43E+01	36.19			3.43E+01	3.62E+01
41	1461.38	7.43E+02	61.18	5.90E+00	2.63E+00	7.37E+02	6.12E+01
42	1591.44	2.24E+01	17.18			2.24E+01	1.72E+01
43	1728.69	2.93E+01	12.58			2.93E+01	1.26E+01
44	1765.18	4.71E+01	17.18	3.33E+00	1.73E+00	4.37E+01	1.73E+01
45	1841.34	7.00E+00	9.80	0.00E+00	0.00E+00	7.00E+00	9.80E+00
46	2105.09	1.13E+01	8.25			1.13E+01	8.25E+00
47	2203.95	9.00E+00	9.17			9.00E+00	9.17E+00
48	2615.13	7.73E+01	20.37	4.77E+00	1.52E+00	7.26E+01	2.04E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.949	1460.81	*	10.67	2.53E+01	3.16E+00
CD-109	0.936	88.03	*	3.72	1.25E+00	1.06E+00
SN-126	0.995	87.57	*	37.00	1.08E-01	9.19E-02
TL-208	0.870	583.14	*	30.22	1.39E+00	2.96E-01
		860.37		4.48		
		2614.66	*	35.85	9.88E-01	2.91E-01
PB-210	0.998	46.50	*	4.25	2.14E+00	1.49E+00
BI-212	0.748	727.17	*	11.80	9.50E-01	7.57E-01
		1620.62		2.75		
PB-212	0.991	238.63	*	44.60	1.25E+00	1.59E-01
		300.09	*	3.41	2.12E+00	1.30E+00
BI-214	0.980	609.31	*	46.30	9.95E-01	1.78E-01
		1120.29	*	15.10	1.54E+00	7.95E-01
		1764.49	*	15.80	1.15E+00	4.64E-01
		2204.22	*	4.98	8.44E-01	8.62E-01
PB-214	0.999	295.21	*	19.19	8.07E-01	3.06E-01
		351.92	*	37.19	1.21E+00	1.74E-01
RN-219	0.908	401.80	*	6.50	5.45E-01	5.57E-01
RA-225	0.802	40.00	*	31.00	2.52E+01	3.08E+01
RA-226	0.949	186.21	*	3.28	1.72E+00	3.57E+00
AC-228	0.927	338.32	*	11.40	1.56E+00	5.97E-01
		911.07	*	27.70	1.36E+00	3.81E-01

Analysis Report for 1707085-16

HTC-A02-S003-3036-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
AC-228	0.927	969.11	*	16.60	1.29E+00	7.02E-01
NP-237	0.882	86.50	*	12.60	3.18E-01	2.70E-01
CM-243	0.363	209.75	*	3.29	1.59E+00	1.47E+00
		228.14		10.60		
		277.60	*	14.00	3.41E-01	4.12E-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 1:18:41PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	76.16	2.36207E-01	6.44		
	5	93.14	3.77710E-02	27.37	Sum	
	6	128.79	2.10602E-02	48.84		
m	10	242.00	2.93709E-02	20.26		
	11	270.06	1.27469E-02	43.49		
	15	327.65	1.63243E-02	39.36		
M	17	348.11	5.14275E-03	54.28	Sum	
	20	463.34	2.32434E-02	23.84	Sum	
	21	511.60	2.01193E-02	38.16		
m	24	616.90	5.11214E-03	62.07	Sum	
	26	756.31	5.16044E-03	58.66	Tol.	ZR-95
	27	768.73	8.15299E-03	40.74	Sum	
	28	862.14	1.12740E-02	40.51	Sum	
	30	934.35	7.02279E-03	53.36	Sum	
	31	951.57	8.61111E-03	34.59	Sum	
	33	1092.81	5.84005E-03	54.74	Tol.	LU-172
	35	1170.63	7.39071E-03	42.69		
	36	1196.31	1.02275E-02	43.83		
	37	1363.59	4.10842E-03	58.46		
M	38	1375.82	2.73274E-03	46.58		
m	39	1378.96	6.75034E-03	30.34		
	40	1409.01	9.51952E-03	52.81		
	42	1591.44	6.21528E-03	38.40		
	43	1728.69	8.12934E-03	21.49		

Analysis Report for 1707085-16

HTC-A02-S003-3036-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
45	1841.34	1.94444E-03	69.99		
46	2105.09	3.14103E-03	36.46	S-Esc	

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.94	1460.81	*	10.67	2.53E+01	3.16E+00
CD-109	0.93	88.03	*	3.72	1.25E+00	1.06E+00
SN-126	0.99	87.57	*	37.00	1.08E-01	9.19E-02
TL-208	0.87	583.14	*	30.22	1.39E+00	2.96E-01
		860.37		4.48		
		2614.66	*	35.85	9.88E-01	2.91E-01
PB-210	0.99	46.50	*	4.25	2.14E+00	1.49E+00
BI-212	0.74	727.17	*	11.80	9.50E-01	7.57E-01
		1620.62		2.75		
PB-212	0.99	238.63	*	44.60	1.25E+00	1.59E-01
		300.09	*	3.41	2.12E+00	1.30E+00
BI-214	0.98	609.31	*	46.30	9.95E-01	1.78E-01
		1120.29	*	15.10	1.54E+00	7.95E-01
		1764.49	*	15.80	1.15E+00	4.64E-01
		2204.22	*	4.98	8.44E-01	8.62E-01
PB-214	0.99	295.21	*	19.19	8.07E-01	3.06E-01
		351.92	*	37.19	1.21E+00	1.74E-01
RN-219	0.90	401.80	*	6.50	5.45E-01	5.57E-01
RA-225	0.80	40.00	*	31.00	2.52E+01	3.08E+01
RA-226	0.94	186.21	*	3.28	1.72E+00	3.57E+00
AC-228	0.92	338.32	*	11.40	1.56E+00	5.97E-01
		911.07	*	27.70	1.36E+00	3.81E-01
		969.11	*	16.60	1.29E+00	7.02E-01
NP-237	0.88	86.50	*	12.60	3.18E-01	2.70E-01
CM-243	0.36	209.75	*	3.29	1.59E+00	1.47E+00
		228.14		10.60		

Analysis Report for 1707085-16

HTC-A02-S003-3036-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CM-243	0.36	277.60	*	14.00	3.41E-01	4.12E-01

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.949	2.53E+01	3.16E+00	
?	CD-109	0.936	1.25E+00	1.06E+00	
?	SN-126	0.995	1.08E-01	9.19E-02	
	TL-208	0.870	1.18E+00	2.08E-01	
	PB-210	0.998	2.14E+00	1.49E+00	
	BI-212	0.748	9.50E-01	7.57E-01	
	PB-212	0.991	1.26E+00	1.58E-01	
	BI-214	0.980	1.03E+00	1.60E-01	
	PB-214	0.999	1.11E+00	1.51E-01	
	RN-219	0.908	5.45E-01	5.57E-01	
	RA-225	0.802	2.52E+01	3.08E+01	
	RA-226	0.949	1.72E+00	3.57E+00	
	AC-228	0.927	1.39E+00	2.92E-01	
?	NP-237	0.882	3.18E-01	2.70E-01	
	CM-243	0.363	4.31E-01	3.97E-01	

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

Errors quoted at 2.000sigma

Analysis Report for 1707085-16

HTC-A02-S003-3036-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 1:18:41PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	76.16	2.36207E-01	6.44		
	5	93.14	3.77710E-02	27.37	Sum	
	6	128.79	2.10602E-02	48.84		
m	10	242.00	2.93709E-02	20.26		
	11	270.06	1.27469E-02	43.49		
	15	327.65	1.63243E-02	39.36		
M	17	348.11	5.14275E-03	54.28	Sum	
	20	463.34	2.32434E-02	23.84	Sum	
	21	511.60	2.01193E-02	38.16		
m	24	616.90	5.11214E-03	62.07	Sum	
	26	756.31	5.16044E-03	58.66	Tol.	ZR-95
	27	768.73	8.15299E-03	40.74	Sum	
	28	862.14	1.12740E-02	40.51	Sum	
	30	934.35	7.02279E-03	53.36	Sum	
	31	951.57	8.61111E-03	34.59	Sum	
	33	1092.81	5.84005E-03	54.74	Tol.	LU-172
	35	1170.63	7.39071E-03	42.69		
	36	1196.31	1.02275E-02	43.83		
	37	1363.59	4.10842E-03	58.46		
M	38	1375.82	2.73274E-03	46.58		
m	39	1378.96	6.75034E-03	30.34		
	40	1409.01	9.51952E-03	52.81		
	42	1591.44	6.21528E-03	38.40		
	43	1728.69	8.12934E-03	21.49		
	45	1841.34	1.94444E-03	69.99		
	46	2105.09	3.14103E-03	36.46	S-Esc	

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 1707085-16

HTC-A02-S003-3036-01

NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	-1.75E-01	1.99E+00	1.99E+00
+		NA-22	1274.54		99.94	3.07E-02	1.18E-01	1.18E-01
+	@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@		2754.09		99.86	1.00E+26		1.00E+26
+		AL-26	1808.65		99.76	1.94E-03	6.72E-02	6.72E-02
+		K-40	1460.81	*	10.67	2.53E+01	1.69E+00	1.69E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	1.80E-02	5.54E-02	5.54E-02
			78.34		96.00	7.88E-02		6.52E-02
+		SC-46	889.25		99.98	-1.07E-01	1.80E-01	1.80E-01
			1120.51		99.99	5.24E-01		3.69E-01
+		V-48	983.52		99.98	1.35E+00	6.76E+00	6.76E+00
			1312.10		97.50	3.19E-01		7.42E+00
+		CR-51	320.08		9.83	8.05E-01	6.87E+00	6.87E+00
+		MN-54	834.83		99.97	-1.72E-02	1.09E-01	1.09E-01
+		CO-56	846.75		99.96	5.39E-02	2.05E-01	2.05E-01
			1037.75		14.03	-7.58E-01		1.33E+00
			1238.25		67.00	1.21E-01		5.09E-01
			1771.40		15.51	-3.90E-01		1.16E+00
			2598.48		16.90	-1.60E-01		7.37E-01
+		CO-57	122.06		85.51	1.01E-02	5.92E-02	5.92E-02
			136.48		10.60	-1.95E-01		6.54E-01
+		CO-58	810.76		99.40	3.06E-02	2.02E-01	2.02E-01
+		FE-59	1099.22		56.50	-4.10E-01	8.08E-01	8.08E-01
			1291.56		43.20	4.95E-01		1.21E+00
+		CO-60	1173.22		100.00	-2.47E-02	8.31E-02	1.20E-01
			1332.49		100.00	-2.74E-02		8.31E-02
+		ZN-65	1115.52		50.75	1.67E-02	2.70E-01	2.70E-01
+		GA-67	93.31		35.70	3.70E+08	1.83E+08	1.83E+08
			208.95		2.24	2.08E+09		3.37E+09
			300.22		16.00	2.70E+08		5.12E+08
+		SE-75	121.11		16.70	3.04E-02	1.56E-01	4.01E-01
			136.00		59.20	-2.87E-03		1.57E-01
			264.65		59.80	6.60E-02		1.56E-01
			279.53		25.20	1.10E-01		4.37E-01
			400.65		11.40	4.64E-01		9.97E-01
+		RB-82	776.52		13.00	2.70E-01	8.25E+00	8.25E+00
+		RB-83	520.41		46.00	-7.43E-02	2.58E-01	2.58E-01
			529.64		30.30	-1.33E-01		4.28E-01
			552.65		16.40	2.26E-02		8.39E-01
+		KR-85	513.99		0.43	-2.24E+00	1.91E+01	1.91E+01
+		SR-85	513.99		99.27	-2.75E-02	2.34E-01	2.34E-01

Analysis Report for 1707085-16

HTC-A02-S003-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	Y-88	898.02		93.40	-7.64E-02	1.29E-01	1.60E-01
		1836.01		99.38	-4.60E-02		1.29E-01
+	MO-93	263.06		56.72	-7.13E-02	7.38E-02	9.32E-02
		684.67		99.68	2.08E-02		8.22E-02
		1477.11		99.08	-1.37E-02		7.38E-02
+	NB-93M	16.57		9.43	0.00E+00	9.12E+00	9.12E+00
+	NB-94	702.63		100.00	-2.87E-02	8.29E-02	8.29E-02
		871.10		100.00	1.75E-02		8.78E-02
+	NB-95	765.79		99.81	1.11E-01	6.03E-01	6.03E-01
+	NB-95M	235.69		25.00	-4.07E+08	5.30E+07	5.30E+07
+	ZR-95	724.18		43.70	9.61E-02	4.54E-01	6.69E-01
		756.72		55.30	2.95E-01		4.54E-01
+	MO-99	181.06		6.20	-5.62E+09	3.25E+10	5.09E+10
		739.58		12.80	-2.64E+10		3.25E+10
		778.00		4.50	-1.75E+10		9.15E+10
+	RU-103	497.08		89.00	-5.52E-03	3.65E-01	3.65E-01
+	RU-106	621.84		9.80	0.00E+00	9.35E-01	9.35E-01
+	AG-108M	433.93		89.90	1.24E-02	6.16E-02	6.16E-02
		614.37		90.40	-5.96E-01		9.12E-02
		722.95		90.50	-8.39E-03		1.01E-01
+	CD-109	88.03	*	3.72	1.25E+00	1.71E+00	1.71E+00
+	AG-110M	657.75		93.14	5.30E-02	1.24E-01	1.24E-01
		677.61		10.53	3.86E-02		9.97E-01
		706.67		16.46	-1.64E-01		6.73E-01
		763.93		21.98	5.51E-02		4.62E-01
		884.67		71.63	1.71E-02		1.52E-01
		1384.27		23.94	3.86E-02		4.11E-01
+	CD-113M	263.70		0.02	6.50E+01	2.35E+02	2.35E+02
+	SN-113	255.12		1.93	2.35E+00	1.74E-01	5.21E+00
		391.69		64.90	-1.47E-02		1.74E-01
+	TE123M	159.00		84.10	-1.50E-02	1.08E-01	1.08E-01
+	SB-124	602.71		97.87	1.28E-01	2.57E-01	2.57E-01
		645.85		7.26	2.06E-01		3.44E+00
		722.78		11.10	-1.91E-01		2.40E+00
		1691.02		49.00	4.95E-02		4.46E-01
+	I-125	35.49		6.49	-4.85E+01	8.16E+00	8.16E+00
+	SB-125	176.33		6.89	2.70E-01	2.18E-01	8.45E-01
		427.89		29.33	1.06E-01		2.18E-01
		463.38		10.35	7.80E-01		7.94E-01
		600.56		17.80	2.53E-01		4.88E-01
		635.90		11.32	2.15E-01		7.23E-01
+	SB-126	414.70		83.30	4.00E+00	1.92E+01	1.92E+01
		666.33		99.60	3.64E-02		2.07E+01
		695.00		99.60	9.73E+00		2.10E+01
		720.50		53.80	-9.79E+00		3.70E+01
+	SN-126	87.57	*	37.00	1.08E-01	1.48E-01	1.48E-01
+	SB-127	473.00		25.00	1.65E+06	1.07E+07	1.15E+07
		685.20		35.70	1.64E+06		1.07E+07

Analysis Report for 1707085-16

HTC-A02-S003-3036-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-127	783.80	14.70	2.04E+07	1.07E+07	2.85E+07
+	I-129	29.78	57.00	3.67E-01	5.68E-01	5.68E-01
		33.60	13.20	1.15E+01		2.72E+00
		39.58	7.52	2.21E+00		1.65E+00
+	I-131	284.30	6.05	-2.73E+02	3.23E+02	4.29E+03
		364.48	81.20	-1.47E+00		3.23E+02
		636.97	7.26	7.83E+02		4.97E+03
		722.89	1.80	-2.00E+03		2.42E+04
+	TE-132	49.72	13.10	-1.32E+08	7.88E+07	5.18E+08
		228.16	88.00	2.99E+06		7.88E+07
+	BA-133	81.00	33.00	4.67E-02	9.31E-02	1.38E-01
		302.84	17.80	-2.81E-01		3.47E-01
		356.01	60.00	-2.42E-01		9.31E-02
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	1.73E+04	5.11E+04	5.11E+04
+	CS-134	563.23	8.38	3.58E-01	9.22E-02	9.51E-01
		569.32	15.43	-1.72E-01		4.80E-01
		604.70	97.60	5.94E-03		9.22E-02
		795.84	85.40	2.36E-02		1.09E-01
		801.93	8.73	-1.70E-01		1.01E+00
+	CS-135	268.24	16.00	6.29E-02	3.63E-01	3.63E-01
+	@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41	28.60	1.00E+26		1.00E+26
	@	1678.03	9.54	1.00E+26		1.00E+26
+	CS-136	153.22	7.46	4.43E+01	1.61E+01	1.28E+02
		163.89	4.61	3.33E+01		2.03E+02
		176.55	13.56	2.26E+01		7.08E+01
		273.65	12.66	-7.52E+01		7.87E+01
		340.57	48.50	-1.54E+01		2.59E+01
		818.50	99.70	1.17E+01		1.61E+01
		1048.07	79.60	8.42E+00		2.12E+01
		1235.34	19.70	2.78E+01		1.25E+02
+	CS-137	661.65	85.12	2.60E-02	1.09E-01	1.09E-01
+	LA-138	788.74	34.00	1.23E-01	1.42E-01	2.56E-01
		1435.80	66.00	5.18E-02		1.42E-01
+	CE-139	165.85	80.35	6.29E-02	1.12E-01	1.12E-01
+	BA-140	162.64	6.70	-6.83E+01	5.05E+01	1.58E+02
		304.84	4.50	-2.94E+01		2.55E+02
		423.70	3.20	-6.30E+01		3.84E+02
		437.55	2.00	6.32E+01		5.98E+02
		537.32	25.00	-1.16E+01		5.05E+01
+	LA-140	328.77	20.50	4.16E+01	1.96E+01	6.48E+01
		487.03	45.50	4.98E+00		2.81E+01
		815.85	23.50	9.51E+00		7.24E+01
		1596.49	95.49	-8.36E-01		1.96E+01
+	CE-141	145.44	48.40	3.33E-01	8.99E-01	8.99E-01
+	@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26
	@	293.26	42.00	1.00E+26		1.00E+26
	@	664.55	5.20	1.00E+26		1.00E+26

Analysis Report for 1707085-16

HTC-A02-S003-3036-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CE-144	133.54	10.80	8.98E-03	4.70E-01	4.70E-01
+	PM-144	476.78	42.00	-1.46E-02	9.59E-02	1.67E-01
		618.01	98.60	8.97E-03		9.59E-02
		696.49	99.49	3.19E-03		1.01E-01
+	PM-145	36.85	21.70	3.30E-01	3.49E-01	6.57E-01
		37.36	39.70	-1.54E-01		3.49E-01
		42.30	15.10	-4.48E-01		5.18E-01
		72.40	2.31	-1.16E+01		2.24E+00
+	PM-146	453.90	39.94	6.55E-02	1.63E-01	1.63E-01
		735.90	14.01	2.63E-01		6.08E-01
		747.13	13.10	3.99E-03		6.38E-01
+	ND-147	91.11	28.90	5.66E+01	8.61E+01	8.61E+01
		531.02	13.10	6.34E+00		2.26E+02
+	PM-149	285.90	3.10	-6.96E+12	4.26E+13	4.26E+13
+	EU-152	121.78	20.50	3.31E-02	1.94E-01	1.94E-01
		244.69	5.40	-1.39E+00		1.14E+00
		344.27	19.13	3.06E-02		3.01E-01
		778.89	9.20	-1.57E-01		8.17E-01
		964.01	10.40	-5.45E-01		1.00E+00
		1085.78	7.22	-1.39E-01		1.41E+00
		1112.02	9.60	3.71E-01		1.12E+00
		1407.95	14.94	-1.07E-01		6.60E-01
+	GD-153	97.43	31.30	8.01E-04	1.68E-01	1.68E-01
		103.18	22.20	-6.10E-02		2.28E-01
+	EU-154	123.07	40.50	3.60E-02	1.01E-01	1.01E-01
		723.30	19.70	-3.93E-02		4.75E-01
		873.19	11.50	1.72E-01		7.88E-01
		996.32	10.30	-1.31E-01		8.51E-01
		1004.76	17.90	3.06E-01		5.83E-01
		1274.45	35.50	8.23E-02		3.15E-01
+	EU-155	86.50	30.90	2.79E-01	1.85E-01	1.85E-01
		105.30	20.70	6.65E-02		1.97E-01
+	EU-156	811.77	10.40	-6.36E+01	6.16E+01	6.16E+01
		1153.47	7.20	8.03E+00		1.24E+02
		1230.71	8.90	-5.02E+00		1.27E+02
+	HO-166M	184.41	72.60	1.36E-01	9.57E-02	9.57E-02
		280.45	29.60	4.84E-02		1.99E-01
		410.94	11.10	1.05E-01		5.91E-01
		711.69	54.10	-1.94E-02		1.55E-01
+	TM-171	66.72	0.14	-3.08E+00	4.14E+01	4.14E+01
+	HF-172	67.35	5.31	3.54E-01	3.89E-01	1.09E+00
		125.81	11.30	2.86E-02		3.89E-01
+	LU-172	181.53	20.60	-1.66E+03	4.67E+03	7.16E+03
		900.72	29.81	1.10E+03		6.92E+03
		1093.66	62.50	1.95E+03		4.67E+03
+	LU-173	100.72	5.24	-4.61E-02	3.38E-01	8.37E-01
		272.11	21.20	1.66E-01		3.38E-01
+	HF-175	343.40	84.00	1.86E-02	1.84E-01	1.84E-01
+	LU-176	88.34	13.30	2.60E-01	5.74E-02	4.11E-01

Analysis Report for 1707085-16

HTC-A02-S003-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LU-176	201.83		86.00	-4.79E-03	5.74E-02	7.01E-02
		306.78		94.00	-1.19E-02		5.74E-02
+	HF-181	133.02		41.70	-1.24E-01	3.58E-01	4.62E-01
		345.85		17.20	1.68E-01		1.73E+00
		482.03		82.80	9.60E-02		3.58E-01
+	TA-182	67.75		41.20	7.47E-02	2.29E-01	2.29E-01
		1121.30		34.90	1.16E+00		8.52E-01
		1189.05		16.23	-2.66E-01		1.24E+00
		1221.41		26.98	-1.78E-01		7.34E-01
		1231.02		11.44	-8.02E-02		2.03E+00
+	IR-192	308.46		29.68	-3.11E-01	2.84E-01	4.60E-01
		468.07		48.10	-3.31E-02		2.84E-01
+	HG-203	279.19		77.30	2.41E-01	3.59E-01	3.59E-01
+	TL-204	374.74		94.11	1.55E-02	6.61E-02	6.61E-02
		899.15		99.16	-1.54E-02		8.46E-02
		911.74		91.10	4.52E-01		1.95E-01
+	BI-207	569.67		97.72	-2.49E-02	6.96E-02	6.96E-02
		1063.62		74.90	-2.99E-02		1.22E-01
+	TL-208	583.14	*	30.22	1.39E+00	2.89E-01	3.44E-01
		860.37		4.48	1.08E+00		2.24E+00
		2614.66	*	35.85	9.88E-01		2.89E-01
+	BI-210M	262.00		45.00	-3.86E-04	1.19E-01	1.19E-01
		300.00		23.00	1.62E-01		3.07E-01
+	PB-210	46.50	*	4.25	2.14E+00	2.37E+00	2.37E+00
+	PB-211	404.84		2.90	3.15E-01	1.99E+00	1.99E+00
		831.96		2.90	1.74E-01		3.09E+00
+	BI-212	727.17	*	11.80	9.50E-01	1.21E+00	1.21E+00
		1620.62		2.75	6.80E-01		3.05E+00
+	PB-212	238.63	*	44.60	1.25E+00	2.90E-01	2.90E-01
		300.09	*	3.41	2.12E+00		2.04E+00
+	BI-214	609.31	*	46.30	9.95E-01	3.27E-01	3.27E-01
		1120.29	*	15.10	1.54E+00		1.21E+00
		1764.49	*	15.80	1.15E+00		5.52E-01
		2204.22	*	4.98	8.44E-01		1.32E+00
+	PB-214	295.21	*	19.19	8.07E-01	2.79E-01	4.57E-01
		351.92	*	37.19	1.21E+00		2.79E-01
+	RN-219	401.80	*	6.50	5.45E-01	8.99E-01	8.99E-01
+	RA-223	323.87		3.88	-7.27E-02	1.57E+00	1.57E+00
+	RA-224	240.98		3.95	1.01E+01	3.12E+00	3.12E+00
+	RA-225	40.00	*	31.00	2.52E+01	5.02E+01	5.02E+01
+	RA-226	186.21	*	3.28	1.72E+00	2.75E+00	2.75E+00
+	TH-227	50.10		8.40	-1.73E-01	6.77E-01	6.77E-01
		236.00		11.50	-5.75E+00		7.48E-01
		256.20		6.30	-1.05E-01		8.54E-01
+	AC-228	338.32	*	11.40	1.56E+00	5.02E-01	8.95E-01
		911.07	*	27.70	1.36E+00		5.02E-01
		969.11	*	16.60	1.29E+00		1.08E+00
+	TH-230	48.44		16.90	-2.84E-01	3.69E-01	3.69E-01

Analysis Report for 1707085-16

HTC-A02-S003-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TH-230	62.85		4.60	1.41E+00	3.69E-01	1.33E+00
		67.67		0.37	4.59E+00		1.41E+01
+	PA-231	283.67		1.60	-2.17E-01	2.64E+00	3.41E+00
		302.67		2.30	-2.14E+00		2.64E+00
+	TH-231	25.64		14.70	0.00E+00	1.62E-01	1.62E-01
		84.21		6.40	5.70E-01		7.56E-01
+	PA-233	311.98		38.60	1.36E+00	1.94E+00	1.94E+00
+	PA-234	131.20		20.40	-3.97E-02	2.06E-01	2.06E-01
		733.99		8.80	4.36E-01		9.76E-01
		946.00		12.00	2.59E-01		7.01E-01
+	PA-234M	1001.03		0.92	2.45E+00	1.06E+01	1.06E+01
+	TH-234	63.29		3.80	1.40E+00	1.61E+00	1.61E+00
+	U-235	143.76		10.50	2.98E-01	5.17E-01	5.17E-01
		163.35		4.70	1.85E-01		1.13E+00
		205.31		4.70	4.34E-01		1.26E+00
+	NP-237	86.50	*	12.60	3.18E-01	4.36E-01	4.36E-01
+	NP-239	106.10		22.70	2.08E+11	6.16E+11	6.16E+11
		228.18		10.70	7.43E+10		1.96E+12
		277.60		14.10	6.81E+11		1.61E+12
+	AM-241	59.54		35.90	-1.40E-04	1.50E-01	1.50E-01
+	AM-243	74.67		66.00	-9.24E-02	1.08E-01	1.08E-01
+	CM-243	209.75	*	3.29	1.59E+00	5.58E-01	2.39E+00
		228.14		10.60	2.12E-02		5.58E-01
		277.60	*	14.00	3.41E-01		6.76E-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

NUCLIDE MDA REPORT

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

Analysis Report for 1707085-16

HTC-A02-S003-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	1.99E+00	1.99E+00	-1.75E-01	9.27E-01
	NA-22	1274.54		99.94	1.18E-01	1.18E-01	3.07E-02	5.41E-02
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	6.72E-02	6.72E-02	1.94E-03	2.79E-02
+	K-40	1460.81	*	10.67	1.69E+00	1.69E+00	2.53E+01	7.99E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	5.54E-02	5.54E-02	1.80E-02	2.68E-02
		78.34		96.00	6.52E-02		7.88E-02	3.18E-02
	SC-46	889.25		99.98	1.80E-01	1.80E-01	-1.07E-01	8.26E-02
		1120.51		99.99	3.69E-01		5.24E-01	1.76E-01
	V-48	983.52		99.98	6.76E+00	6.76E+00	1.35E+00	3.12E+00
		1312.10		97.50	7.42E+00		3.19E-01	3.38E+00
	CR-51	320.08		9.83	6.87E+00	6.87E+00	8.05E-01	3.25E+00
	MN-54	834.83		99.97	1.09E-01	1.09E-01	-1.72E-02	5.06E-02
	CO-56	846.75		99.96	2.05E-01	2.05E-01	5.39E-02	9.51E-02
		1037.75		14.03	1.33E+00		-7.58E-01	6.02E-01
		1238.25		67.00	5.09E-01		1.21E-01	2.39E-01
		1771.40		15.51	1.16E+00		-3.90E-01	4.93E-01
		2598.48		16.90	7.37E-01		-1.60E-01	2.76E-01
	CO-57	122.06		85.51	5.92E-02	5.92E-02	1.01E-02	2.83E-02
		136.48		10.60	6.54E-01		-1.95E-01	3.16E-01
	CO-58	810.76		99.40	2.02E-01	2.02E-01	3.06E-02	9.27E-02
	FE-59	1099.22		56.50	8.08E-01	8.08E-01	-4.10E-01	3.72E-01
		1291.56		43.20	1.21E+00		4.95E-01	5.59E-01
	CO-60	1173.22		100.00	1.20E-01	8.31E-02	-2.47E-02	5.57E-02
		1332.49		100.00	8.31E-02		-2.74E-02	3.68E-02
	ZN-65	1115.52		50.75	2.70E-01	2.70E-01	1.67E-02	1.24E-01
	GA-67	93.31		35.70	1.83E+08	1.83E+08	3.70E+08	8.90E+07
		208.95		2.24	3.37E+09		2.08E+09	1.62E+09
		300.22		16.00	5.12E+08		2.70E+08	2.46E+08
	SE-75	121.11		16.70	4.01E-01	1.56E-01	3.04E-02	1.92E-01
		136.00		59.20	1.57E-01		-2.87E-03	7.61E-02
		264.65		59.80	1.56E-01		6.60E-02	7.44E-02
		279.53		25.20	4.37E-01		1.10E-01	2.09E-01
		400.65		11.40	9.97E-01		4.64E-01	4.71E-01
	RB-82	776.52		13.00	8.25E+00	8.25E+00	2.70E-01	3.80E+00
	RB-83	520.41		46.00	2.58E-01	2.58E-01	-7.43E-02	1.18E-01
		529.64		30.30	4.28E-01		-1.33E-01	1.98E-01
		552.65		16.40	8.39E-01		2.26E-02	3.89E-01
	KR-85	513.99		0.43	1.91E+01	1.91E+01	-2.24E+00	9.04E+00
	SR-85	513.99		99.27	2.34E-01	2.34E-01	-2.75E-02	1.11E-01
	Y-88	898.02		93.40	1.60E-01	1.29E-01	-7.64E-02	7.31E-02
		1836.01		99.38	1.29E-01		-4.60E-02	5.35E-02
	MO-93	263.06		56.72	9.32E-02	7.38E-02	-7.13E-02	4.43E-02
		684.67		99.68	8.22E-02		2.08E-02	3.84E-02
		1477.11		99.08	7.38E-02		-1.37E-02	3.18E-02
	NB-93M	16.57		9.43	9.12E+00	9.12E+00	0.00E+00	0.00E+00
	NB-94	702.63		100.00	8.29E-02	8.29E-02	-2.87E-02	3.87E-02
		871.10		100.00	8.78E-02		1.75E-02	4.06E-02
	NB-95	765.79		99.81	6.03E-01	6.03E-01	1.11E-01	2.81E-01
	NB-95M	235.69		25.00	5.30E+07	5.30E+07	-4.07E+08	2.57E+07
	ZR-95	724.18		43.70	6.69E-01	4.54E-01	9.61E-02	3.16E-01

Analysis Report for 1707085-16

HTC-A02-S003-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	ZR-95	756.72		55.30	4.54E-01	4.54E-01	2.95E-01	2.12E-01
	MO-99	181.06		6.20	5.09E+10	3.25E+10	-5.62E+09	2.45E+10
		739.58		12.80	3.25E+10		-2.64E+10	1.50E+10
		778.00		4.50	9.15E+10		-1.75E+10	4.21E+10
	RU-103	497.08		89.00	3.65E-01	3.65E-01	-5.52E-03	1.69E-01
	RU-106	621.84		9.80	9.35E-01	9.35E-01	0.00E+00	4.37E-01
	AG-108M	433.93		89.90	6.16E-02	6.16E-02	1.24E-02	2.87E-02
		614.37		90.40	9.12E-02		-5.96E-01	4.29E-02
		722.95		90.50	1.01E-01		-8.39E-03	4.76E-02
+	CD-109	88.03	*	3.72	1.71E+00	1.71E+00	1.25E+00	8.30E-01
	AG-110M	657.75		93.14	1.24E-01	1.24E-01	5.30E-02	5.83E-02
		677.61		10.53	9.97E-01		3.86E-02	4.65E-01
		706.67		16.46	6.73E-01		-1.64E-01	3.15E-01
		763.93		21.98	4.62E-01		5.51E-02	2.14E-01
		884.67		71.63	1.52E-01		1.71E-02	7.01E-02
		1384.27		23.94	4.11E-01		3.86E-02	1.79E-01
	CD-113M	263.70		0.02	2.35E+02	2.35E+02	6.50E+01	1.12E+02
	SN-113	255.12		1.93	5.21E+00	1.74E-01	2.35E+00	2.49E+00
		391.69		64.90	1.74E-01		-1.47E-02	8.24E-02
	TE123M	159.00		84.10	1.08E-01	1.08E-01	-1.50E-02	5.19E-02
	SB-124	602.71		97.87	2.57E-01	2.57E-01	1.28E-01	1.21E-01
		645.85		7.26	3.44E+00		2.06E-01	1.61E+00
		722.78		11.10	2.40E+00		-1.91E-01	1.12E+00
		1691.02		49.00	4.46E-01		4.95E-02	1.88E-01
	I-125	35.49		6.49	8.16E+00	8.16E+00	-4.85E+01	3.95E+00
	SB-125	176.33		6.89	8.45E-01	2.18E-01	2.70E-01	4.07E-01
		427.89		29.33	2.18E-01		1.06E-01	1.02E-01
		463.38		10.35	7.94E-01		7.80E-01	3.76E-01
		600.56		17.80	4.88E-01		2.53E-01	2.30E-01
		635.90		11.32	7.23E-01		2.15E-01	3.37E-01
	SB-126	414.70		83.30	1.92E+01	1.92E+01	4.00E+00	9.06E+00
		666.33		99.60	2.07E+01		3.64E-02	9.72E+00
		695.00		99.60	2.10E+01		9.73E+00	9.86E+00
		720.50		53.80	3.70E+01		-9.79E+00	1.72E+01
+	SN-126	87.57	*	37.00	1.48E-01	1.48E-01	1.08E-01	7.21E-02
	SB-127	473.00		25.00	1.15E+07	1.07E+07	1.65E+06	5.36E+06
		685.20		35.70	1.07E+07		1.64E+06	5.02E+06
		783.80		14.70	2.85E+07		2.04E+07	1.33E+07
	I-129	29.78		57.00	5.68E-01	5.68E-01	3.67E-01	2.74E-01
		33.60		13.20	2.72E+00		1.15E+01	1.34E+00
		39.58		7.52	1.65E+00		2.21E+00	7.99E-01
	I-131	284.30		6.05	4.29E+03	3.23E+02	-2.73E+02	2.04E+03
		364.48		81.20	3.23E+02		-1.47E+00	1.52E+02
		636.97		7.26	4.97E+03		7.83E+02	2.32E+03
		722.89		1.80	2.42E+04		-2.00E+03	1.13E+04
	TE-132	49.72		13.10	5.18E+08	7.88E+07	-1.32E+08	2.48E+08
		228.16		88.00	7.88E+07		2.99E+06	3.78E+07
	BA-133	81.00		33.00	1.38E-01	9.31E-02	4.67E-02	6.66E-02
		302.84		17.80	3.47E-01		-2.81E-01	1.65E-01
		356.01		60.00	9.31E-02		-2.42E-01	4.38E-02
@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	XE-133	81.00		38.00	5.11E+04	5.11E+04	1.73E+04	2.47E+04
	CS-134	563.23		8.38	9.51E-01	9.22E-02	3.58E-01	4.46E-01

Analysis Report for 1707085-16

HTC-A02-S003-3036-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-134	569.32	15.43	4.80E-01	9.22E-02	-1.72E-01	2.23E-01
	604.70	97.60	9.22E-02		5.94E-03	4.34E-02
	795.84	85.40	1.09E-01		2.36E-02	5.06E-02
	801.93	8.73	1.01E+00		-1.70E-01	4.67E-01
CS-135	268.24	16.00	3.63E-01	3.63E-01	6.29E-02	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	1.28E+02	1.61E+01	4.43E+01	6.18E+01
	163.89	4.61	2.03E+02		3.33E+01	9.76E+01
	176.55	13.56	7.08E+01		2.26E+01	3.41E+01
	273.65	12.66	7.87E+01		-7.52E+01	3.75E+01
	340.57	48.50	2.59E+01		-1.54E+01	1.24E+01
	818.50	99.70	1.61E+01		1.17E+01	7.51E+00
	1048.07	79.60	2.12E+01		8.42E+00	9.73E+00
	1235.34	19.70	1.25E+02		2.78E+01	5.84E+01
CS-137	661.65	85.12	1.09E-01	1.09E-01	2.60E-02	5.13E-02
LA-138	788.74	34.00	2.56E-01	1.42E-01	1.23E-01	1.19E-01
	1435.80	66.00	1.42E-01		5.18E-02	6.37E-02
CE-139	165.85	80.35	1.12E-01	1.12E-01	6.29E-02	5.40E-02
BA-140	162.64	6.70	1.58E+02	5.05E+01	-6.83E+01	7.59E+01
	304.84	4.50	2.55E+02		-2.94E+01	1.21E+02
	423.70	3.20	3.84E+02		-6.30E+01	1.80E+02
	437.55	2.00	5.98E+02		6.32E+01	2.80E+02
	537.32	25.00	5.05E+01		-1.16E+01	2.34E+01
LA-140	328.77	20.50	6.48E+01	1.96E+01	4.16E+01	3.09E+01
	487.03	45.50	2.81E+01		4.98E+00	1.31E+01
	815.85	23.50	7.24E+01		9.51E+00	3.35E+01
	1596.49	95.49	1.96E+01		-8.36E-01	8.69E+00
CE-141	145.44	48.40	8.99E-01	8.99E-01	3.33E-01	4.34E-01
@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	293.26	42.00	1.00E+26		1.00E+26	1.00E+20
@	664.55	5.20	1.00E+26		1.00E+26	1.00E+20
CE-144	133.54	10.80	4.70E-01	4.70E-01	8.98E-03	2.25E-01
PM-144	476.78	42.00	1.67E-01	9.59E-02	-1.46E-02	7.75E-02
	618.01	98.60	9.59E-02		8.97E-03	4.49E-02
	696.49	99.49	1.01E-01		3.19E-03	4.73E-02
PM-145	36.85	21.70	6.57E-01	3.49E-01	3.30E-01	3.17E-01
	37.36	39.70	3.49E-01		-1.54E-01	1.68E-01
	42.30	15.10	5.18E-01		-4.48E-01	2.48E-01
	72.40	2.31	2.24E+00		-1.16E+01	1.09E+00
PM-146	453.90	39.94	1.63E-01	1.63E-01	6.55E-02	7.63E-02
	735.90	14.01	6.08E-01		2.63E-01	2.83E-01
	747.13	13.10	6.38E-01		3.99E-03	2.96E-01
ND-147	91.11	28.90	8.61E+01	8.61E+01	5.66E+01	4.17E+01
	531.02	13.10	2.26E+02		6.34E+00	1.05E+02
PM-149	285.90	3.10	4.26E+13	4.26E+13	-6.96E+12	2.03E+13
EU-152	121.78	20.50	1.94E-01	1.94E-01	3.31E-02	9.31E-02
	244.69	5.40	1.14E+00		-1.39E+00	5.46E-01
	344.27	19.13	3.01E-01		3.06E-02	1.42E-01
	778.89	9.20	8.17E-01		-1.57E-01	3.76E-01
	964.01	10.40	1.00E+00		-5.45E-01	4.66E-01
	1085.78	7.22	1.41E+00		-1.39E-01	6.49E-01

Analysis Report for 1707085-16

HTC-A02-S003-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-152	1112.02		9.60	1.12E+00	1.94E-01	3.71E-01	5.19E-01
		1407.95		14.94	6.60E-01		-1.07E-01	2.97E-01
	GD-153	97.43		31.30	1.68E-01	1.68E-01	8.01E-04	8.09E-02
		103.18		22.20	2.28E-01		-6.10E-02	1.09E-01
	EU-154	123.07		40.50	1.01E-01	1.01E-01	3.60E-02	4.84E-02
		723.30		19.70	4.75E-01		-3.93E-02	2.23E-01
		873.19		11.50	7.88E-01		1.72E-01	3.65E-01
		996.32		10.30	8.51E-01		-1.31E-01	3.89E-01
		1004.76		17.90	5.83E-01		3.06E-01	2.70E-01
		1274.45		35.50	3.15E-01		8.23E-02	1.45E-01
	EU-155	86.50		30.90	1.85E-01	1.85E-01	2.79E-01	8.99E-02
		105.30		20.70	1.97E-01		6.65E-02	9.44E-02
	EU-156	811.77		10.40	6.16E+01	6.16E+01	-6.36E+01	2.82E+01
		1153.47		7.20	1.24E+02		8.03E+00	5.70E+01
		1230.71		8.90	1.27E+02		-5.02E+00	5.92E+01
	HO-166M	184.41		72.60	9.57E-02	9.57E-02	1.36E-01	4.64E-02
		280.45		29.60	1.99E-01		4.84E-02	9.49E-02
		410.94		11.10	5.91E-01		1.05E-01	2.79E-01
		711.69		54.10	1.55E-01		-1.94E-02	7.23E-02
	TM-171	66.72		0.14	4.14E+01	4.14E+01	-3.08E+00	2.01E+01
	HF-172	67.35		5.31	1.09E+00	3.89E-01	3.54E-01	5.27E-01
		125.81		11.30	3.89E-01		2.86E-02	1.86E-01
	LU-172	181.53		20.60	7.16E+03	4.67E+03	-1.66E+03	3.45E+03
		900.72		29.81	6.92E+03		1.10E+03	3.17E+03
		1093.66		62.50	4.67E+03		1.95E+03	2.17E+03
	LU-173	100.72		5.24	8.37E-01	3.38E-01	-4.61E-02	4.01E-01
		272.11		21.20	3.38E-01		1.66E-01	1.62E-01
	HF-175	343.40		84.00	1.84E-01	1.84E-01	1.86E-02	8.71E-02
	LU-176	88.34		13.30	4.11E-01	5.74E-02	2.60E-01	1.99E-01
		201.83		86.00	7.01E-02		-4.79E-03	3.38E-02
		306.78		94.00	5.74E-02		-1.19E-02	2.71E-02
	HF-181	133.02		41.70	4.62E-01	3.58E-01	-1.24E-01	2.21E-01
		345.85		17.20	1.73E+00		1.68E-01	8.21E-01
		482.03		82.80	3.58E-01		9.60E-02	1.66E-01
	TA-182	67.75		41.20	2.29E-01	2.29E-01	7.47E-02	1.11E-01
		1121.30		34.90	8.52E-01		1.16E+00	4.05E-01
		1189.05		16.23	1.24E+00		-2.66E-01	5.73E-01
		1221.41		26.98	7.34E-01		-1.78E-01	3.38E-01
		1231.02		11.44	2.03E+00		-8.02E-02	9.46E-01
	IR-192	308.46		29.68	4.60E-01	2.84E-01	-3.11E-01	2.17E-01
		468.07		48.10	2.84E-01		-3.31E-02	1.32E-01
	HG-203	279.19		77.30	3.59E-01	3.59E-01	2.41E-01	1.72E-01
	TL-204	374.74		94.11	6.61E-02	6.61E-02	1.55E-02	3.11E-02
		899.15		99.16	8.46E-02		-1.54E-02	3.87E-02
		911.74		91.10	1.95E-01		4.52E-01	9.34E-02
	BI-207	569.67		97.72	6.96E-02	6.96E-02	-2.49E-02	3.24E-02
		1063.62		74.90	1.22E-01		-2.99E-02	5.56E-02
+	TL-208	583.14	*	30.22	3.44E-01	2.89E-01	1.39E+00	1.64E-01
		860.37		4.48	2.24E+00		1.08E+00	1.05E+00
		2614.66	*	35.85	2.89E-01		9.88E-01	1.26E-01
	BI-210M	262.00		45.00	1.19E-01	1.19E-01	-3.86E-04	5.65E-02
		300.00		23.00	3.07E-01		1.62E-01	1.47E-01
+	PB-210	46.50	*	4.25	2.37E+00	2.37E+00	2.14E+00	1.15E+00

Analysis Report for 1707085-16

HTC-A02-S003-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PB-211	404.84		2.90	1.99E+00	1.99E+00	3.15E-01	9.32E-01
		831.96		2.90	3.09E+00		1.74E-01	1.44E+00
+	BI-212	727.17	*	11.80	1.21E+00	1.21E+00	9.50E-01	5.81E-01
		1620.62		2.75	3.05E+00		6.80E-01	1.33E+00
+	PB-212	238.63	*	44.60	2.90E-01	2.90E-01	1.25E+00	1.42E-01
		300.09	*	3.41	2.04E+00		2.12E+00	9.78E-01
+	BI-214	609.31	*	46.30	3.27E-01	3.27E-01	9.95E-01	1.58E-01
		1120.29	*	15.10	1.21E+00		1.54E+00	5.78E-01
		1764.49	*	15.80	5.52E-01		1.15E+00	2.41E-01
		2204.22	*	4.98	1.32E+00		8.44E-01	5.34E-01
+	PB-214	295.21	*	19.19	4.57E-01	2.79E-01	8.07E-01	2.21E-01
		351.92	*	37.19	2.79E-01		1.21E+00	1.35E-01
+	RN-219	401.80	*	6.50	8.99E-01	8.99E-01	5.45E-01	4.22E-01
	RA-223	323.87		3.88	1.57E+00	1.57E+00	-7.27E-02	7.47E-01
	RA-224	240.98		3.95	3.12E+00	3.12E+00	1.01E+01	1.53E+00
+	RA-225	40.00	*	31.00	5.02E+01	5.02E+01	2.52E+01	2.45E+01
+	RA-226	186.21	*	3.28	2.75E+00	2.75E+00	1.72E+00	1.34E+00
	TH-227	50.10		8.40	6.77E-01	6.77E-01	-1.73E-01	3.24E-01
		236.00		11.50	7.48E-01		-5.75E+00	3.63E-01
		256.20		6.30	8.54E-01		-1.05E-01	4.06E-01
+	AC-228	338.32	*	11.40	8.95E-01	5.02E-01	1.56E+00	4.34E-01
		911.07	*	27.70	5.02E-01		1.36E+00	2.39E-01
		969.11	*	16.60	1.08E+00		1.29E+00	5.20E-01
	TH-230	48.44		16.90	3.69E-01	3.69E-01	-2.84E-01	1.77E-01
		62.85		4.60	1.33E+00		1.41E+00	6.45E-01
		67.67		0.37	1.41E+01		4.59E+00	6.82E+00
	PA-231	283.67		1.60	3.41E+00	2.64E+00	-2.17E-01	1.62E+00
		302.67		2.30	2.64E+00		-2.14E+00	1.26E+00
	TH-231	25.64		14.70	1.62E-01	1.62E-01	0.00E+00	0.00E+00
		84.21		6.40	7.56E-01		5.70E-01	3.66E-01
	PA-233	311.98		38.60	1.94E+00	1.94E+00	1.36E+00	9.20E-01
	PA-234	131.20		20.40	2.06E-01	2.06E-01	-3.97E-02	9.87E-02
		733.99		8.80	9.76E-01		4.36E-01	4.55E-01
		946.00		12.00	7.01E-01		2.59E-01	3.22E-01
	PA-234M	1001.03		0.92	1.06E+01	1.06E+01	2.45E+00	4.90E+00
	TH-234	63.29		3.80	1.61E+00	1.61E+00	1.40E+00	7.83E-01
	U-235	143.76		10.50	5.17E-01	5.17E-01	2.98E-01	2.50E-01
		163.35		4.70	1.13E+00		1.85E-01	5.42E-01
		205.31		4.70	1.26E+00		4.34E-01	6.05E-01
+	NP-237	86.50	*	12.60	4.36E-01	4.36E-01	3.18E-01	2.12E-01
	NP-239	106.10		22.70	6.16E+11	6.16E+11	2.08E+11	2.96E+11
		228.18		10.70	1.96E+12		7.43E+10	9.39E+11
		277.60		14.10	1.61E+12		6.81E+11	7.70E+11
	AM-241	59.54		35.90	1.50E-01	1.50E-01	-1.40E-04	7.26E-02
	AM-243	74.67		66.00	1.08E-01	1.08E-01	-9.24E-02	5.30E-02
+	CM-243	209.75	*	3.29	2.39E+00	5.58E-01	1.59E+00	1.16E+00
		228.14		10.60	5.58E-01		2.12E-02	2.68E-01
		277.60	*	14.00	6.76E-01		3.41E-01	3.28E-01

Analysis Report for 1707085-16

HTC-A02-S003-3036-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A02-S003-3036-01

Elapsed Live time: 3600
Elapsed Real Time: 3601

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	26	100	153	147
33:	153	706	113	102	101	71	110	108
41:	107	69	50	55	63	86	128	78
49:	59	61	64	75	83	88	66	78
57:	89	63	94	97	71	98	117	159
65:	105	101	84	116	101	86	90	100
73:	99	113	335	186	332	326	75	93
81:	77	83	76	118	103	80	133	182
89:	70	137	100	95	201	143	71	66
97:	71	62	67	62	69	52	60	68
105:	64	77	48	50	53	62	65	47
113:	56	58	56	62	38	54	49	42
121:	55	64	54	60	50	64	59	54
129:	94	67	67	52	54	49	62	56
137:	63	59	61	76	57	58	56	67
145:	51	58	43	60	46	46	57	38
153:	52	68	54	50	37	44	59	47
161:	44	47	37	50	49	55	46	52
169:	45	47	49	55	47	46	43	44
177:	48	43	52	38	47	51	54	55
185:	56	123	72	42	45	52	38	36
193:	41	29	48	56	43	45	48	51
201:	55	39	50	43	49	40	41	40
209:	74	73	38	46	34	39	41	45
217:	38	50	41	31	34	39	41	30
225:	33	30	43	43	34	41	41	38
233:	30	46	42	47	61	204	486	99
241:	73	101	51	45	26	31	31	28
249:	24	29	31	25	34	37	29	18
257:	27	23	25	34	25	22	24	23
265:	26	31	20	19	32	45	42	27
273:	24	30	25	29	35	45	34	27
281:	31	24	26	14	27	28	25	35
289:	29	36	32	24	9	31	130	113
297:	30	31	33	56	43	25	31	17
305:	19	27	19	27	11	26	21	28
313:	22	29	22	26	20	20	24	22
321:	23	23	22	24	26	28	29	48
329:	14	28	18	16	24	20	24	18
337:	27	96	71	23	25	25	14	19
345:	20	18	19	31	15	15	78	272
353:	82	17	21	17	20	10	17	20
361:	16	17	20	18	19	9	17	15

369:	16	13	24	13	27	13	14	25

Sample Title: HTC-A02-S003-3036-01

Channel								
377:	13	18	13	16	17	11	20	20
385:	18	20	23	13	25	21	19	15
393:	22	20	17	22	16	11	16	21
401:	24	26	12	18	12	21	14	16
409:	28	28	15	15	13	19	23	19
417:	25	20	14	17	19	18	24	11
425:	11	14	16	17	15	14	11	8
433:	19	9	16	11	11	17	15	16
441:	17	14	14	18	22	16	16	16
449:	15	12	10	14	18	13	17	15
457:	17	8	11	14	14	20	37	32
465:	11	9	16	9	8	12	12	12
473:	13	16	13	11	16	5	15	13
481:	10	11	12	16	10	11	8	23
489:	16	9	12	12	11	7	13	12
497:	7	9	14	11	14	11	13	11
505:	11	18	15	14	16	57	58	46
513:	22	15	11	15	12	9	10	11
521:	7	7	9	14	11	13	15	9
529:	12	7	9	11	15	13	6	13
537:	10	11	16	12	12	8	7	11
545:	1	18	12	6	12	11	13	7
553:	13	11	16	8	11	12	9	7
561:	13	15	18	14	14	17	11	8
569:	13	18	12	9	21	9	10	10
577:	6	14	14	10	13	44	136	60
585:	17	12	7	6	10	9	13	9
593:	11	13	4	16	7	9	19	10
601:	15	12	12	10	5	15	16	42
609:	126	97	16	8	10	10	10	11
617:	18	8	6	13	8	7	13	13
625:	9	14	7	13	5	6	4	4
633:	12	6	4	15	9	9	12	11
641:	11	7	9	12	5	9	12	14
649:	12	10	12	7	9	10	10	13
657:	12	13	14	13	14	7	14	18
665:	13	9	2	10	12	15	8	10
673:	9	8	14	6	15	5	10	8
681:	5	13	8	4	14	6	16	5
689:	9	11	7	14	10	8	7	9
697:	16	11	8	6	12	10	13	7
705:	11	5	15	11	7	10	13	14
713:	9	3	12	9	6	10	9	11
721:	6	8	13	11	11	19	29	27
729:	6	7	9	8	7	12	12	9
737:	10	4	7	6	5	8	11	10
745:	7	6	8	8	6	12	4	10
753:	6	6	13	19	10	4	7	5
761:	4	10	8	5	5	6	12	17
769:	8	9	7	3	6	9	7	9
777:	8	3	3	4	10	7	7	9
785:	11	15	8	6	11	4	6	6
793:	4	6	21	9	7	4	8	9

801:	4	7	14	4	6	10	8	6

Sample Title: HTC-A02-S003-3036-01

Channel								
809:	7	7	6	5	5	3	5	17
817:	13	4	5	9	10	3	8	2
825:	7	6	8	6	9	11	9	6
833:	8	10	6	12	5	6	10	13
841:	9	6	7	5	4	11	6	12
849:	8	4	6	5	7	8	9	6
857:	4	4	12	14	18	12	7	4
865:	10	13	4	6	8	6	10	7
873:	7	8	8	7	4	8	2	8
881:	9	5	5	6	9	6	5	8
889:	5	4	4	9	10	9	3	4
897:	7	4	7	5	8	5	4	10
905:	2	6	6	8	10	34	74	47
913:	11	8	6	3	6	4	5	2
921:	10	7	11	7	8	8	8	7
929:	6	5	8	8	10	21	14	8
937:	4	11	5	9	3	8	8	5
945:	9	4	3	4	7	14	8	10
953:	9	4	3	9	5	7	8	5
961:	7	4	15	14	12	4	8	23
969:	49	12	4	5	5	6	7	6
977:	8	3	8	10	6	9	7	6
985:	9	3	8	5	5	3	4	8
993:	5	4	3	7	8	8	4	4
1001:	9	11	7	5	9	6	9	9
1009:	3	4	2	10	9	3	11	3
1017:	4	5	4	7	6	8	10	5
1025:	4	4	6	5	6	10	10	10
1033:	2	3	4	3	8	6	5	1
1041:	11	3	6	7	7	6	3	2
1049:	10	10	4	5	5	2	4	7
1057:	1	4	3	7	8	5	6	5
1065:	5	3	8	9	6	8	15	5
1073:	2	8	5	3	7	7	10	10
1081:	5	7	9	2	8	12	7	2
1089:	7	7	8	9	15	7	9	5
1097:	8	7	7	9	5	4	6	13
1105:	3	8	5	5	10	7	10	12
1113:	4	3	5	5	8	11	24	38
1121:	28	6	12	8	9	7	11	8
1129:	2	6	12	4	12	12	9	8
1137:	10	10	7	4	5	4	10	4
1145:	8	6	7	9	6	4	8	6
1153:	4	7	10	4	7	2	7	10
1161:	6	7	6	6	3	4	3	9
1169:	10	14	8	10	3	7	4	12
1177:	8	7	6	7	6	6	5	7
1185:	4	7	5	10	10	4	10	9
1193:	8	11	14	13	4	7	4	11
1201:	3	5	13	10	7	5	9	12
1209:	6	4	8	10	6	10	9	9
1217:	10	8	6	5	7	7	8	5
1225:	7	6	9	11	12	2	11	8

1233:	11	11	12	7	15	12	11	13

Sample Title: HTC-A02-S003-3036-01

Channel								
1241:	14	7	9	8	10	12	9	10
1249:	10	4	5	5	7	4	4	9
1257:	10	4	4	10	6	6	6	7
1265:	4	5	5	9	6	1	6	7
1273:	5	4	6	11	4	5	7	7
1281:	6	4	4	7	5	4	7	6
1289:	10	5	9	7	5	4	4	4
1297:	6	5	4	9	4	4	4	4
1305:	2	4	5	4	9	5	6	4
1313:	4	3	8	2	7	3	3	3
1321:	5	5	7	5	6	6	2	7
1329:	0	2	6	6	1	1	4	3
1337:	4	4	6	2	2	2	2	4
1345:	2	3	4	2	3	3	3	2
1353:	1	1	3	3	3	2	1	4
1361:	3	6	5	5	2	0	1	1
1369:	6	1	3	3	1	6	3	5
1377:	11	11	2	3	1	1	2	5
1385:	2	2	1	3	4	0	2	0
1393:	2	0	3	0	1	1	0	3
1401:	6	4	2	2	3	4	3	10
1409:	1	1	2	3	2	3	2	4
1417:	2	4	3	3	2	2	2	2
1425:	4	0	2	5	2	2	2	7
1433:	1	1	2	1	4	3	4	3
1441:	0	2	2	3	4	1	2	1
1449:	2	3	3	1	6	4	2	2
1457:	11	35	101	278	253	87	10	2
1465:	2	1	3	1	1	4	4	3
1473:	2	0	4	1	3	0	0	0
1481:	2	0	1	3	1	2	1	1
1489:	1	1	2	2	1	3	2	2
1497:	3	2	2	3	4	3	2	4
1505:	1	1	2	3	7	5	0	5
1513:	0	0	1	2	4	1	0	1
1521:	3	2	0	0	0	0	1	0
1529:	1	2	0	1	0	1	0	1
1537:	2	0	1	2	4	2	0	4
1545:	1	0	0	0	2	1	0	0
1553:	0	1	2	2	0	3	1	1
1561:	1	2	1	1	2	3	1	0
1569:	1	1	1	0	3	1	1	2
1577:	1	0	1	5	2	2	3	1
1585:	2	2	3	5	3	4	9	5
1593:	2	0	1	1	0	1	1	0
1601:	2	2	2	1	1	1	0	2
1609:	0	1	1	3	2	1	1	2
1617:	1	1	2	4	1	1	3	1
1625:	1	2	0	2	3	2	4	2
1633:	1	4	3	2	1	3	3	1
1641:	1	2	1	0	0	2	0	0
1649:	3	3	2	1	2	0	2	1
1657:	3	3	0	1	2	1	2	0

1665:	1	0	1	1	0	1	0	2

Sample Title: HTC-A02-S003-3036-01

Channel								
1673:	3	0	1	2	0	0	0	2
1681:	1	1	1	0	1	2	0	4
1689:	1	1	0	1	1	0	0	2
1697:	1	1	0	2	1	2	2	1
1705:	1	1	0	0	0	0	2	1
1713:	1	0	2	2	0	0	1	1
1721:	0	0	1	4	3	1	4	7
1729:	5	5	2	0	1	0	0	3
1737:	1	1	1	0	0	2	2	0
1745:	1	1	1	0	1	0	3	0
1753:	1	0	3	2	0	1	1	0
1761:	1	5	12	21	8	4	1	2
1769:	1	1	1	0	1	0	2	1
1777:	3	2	0	0	2	2	0	1
1785:	0	2	0	1	0	2	0	1
1793:	3	1	1	2	2	0	0	1
1801:	0	2	2	0	0	0	1	2
1809:	0	1	2	2	0	0	1	2
1817:	2	0	2	0	0	1	0	2
1825:	0	1	1	3	1	2	0	0
1833:	0	1	2	1	2	0	2	4
1841:	2	1	0	0	2	3	0	2
1849:	1	1	0	1	1	0	0	0
1857:	0	1	0	0	1	1	1	1
1865:	2	0	1	1	2	0	1	0
1873:	0	1	1	1	2	1	2	2
1881:	1	0	1	2	2	0	0	1
1889:	1	3	0	2	0	0	0	0
1897:	1	0	1	1	3	3	0	3
1905:	1	1	0	1	1	0	2	0
1913:	0	0	0	1	1	2	1	1
1921:	0	1	0	1	1	1	1	0
1929:	2	0	1	0	1	2	1	1
1937:	0	0	0	0	1	0	1	0
1945:	0	2	2	0	2	0	1	1
1953:	1	0	0	1	1	0	3	1
1961:	1	0	1	1	0	0	0	1
1969:	0	0	1	2	2	0	2	0
1977:	1	0	1	1	2	0	0	1
1985:	1	0	3	0	0	1	1	0
1993:	0	2	1	0	3	1	0	1
2001:	2	3	0	1	0	0	1	0
2009:	0	2	2	0	0	1	3	0
2017:	0	2	2	1	3	0	1	0
2025:	1	3	0	0	0	0	1	1
2033:	2	1	0	0	0	0	0	2
2041:	0	1	1	1	1	1	2	2
2049:	0	0	3	0	1	0	0	0
2057:	0	0	0	0	1	0	0	0
2065:	0	1	0	1	1	0	1	0
2073:	1	0	0	0	0	2	0	3
2081:	1	1	0	0	1	1	1	1
2089:	0	1	3	0	1	0	0	0

2097:	3	1	0	1	0	1	5	4

Sample Title: HTC-A02-S003-3036-01

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

2529:	0	1	0	0	0	0	0	0

Sample Title: HTC-A02-S003-3036-01

Channel								
2537:	0	1	0	0	1	0	0	0
2545:	0	1	0	0	1	1	0	0
2553:	1	0	1	0	0	0	0	0
2561:	1	0	0	1	0	1	2	1
2569:	2	0	0	0	0	0	1	0
2577:	0	0	0	0	0	0	0	1
2585:	0	0	1	0	1	1	0	0
2593:	0	0	0	0	0	1	0	1
2601:	0	1	0	0	0	0	3	0
2609:	1	4	9	16	15	25	10	5
2617:	0	0	2	0	0	0	0	0
2625:	1	0	0	0	0	0	0	1
2633:	1	0	1	0	1	0	0	0
2641:	0	0	1	0	0	0	1	0
2649:	0	0	1	0	0	0	0	0
2657:	0	0	0	0	0	0	0	1
2665:	0	0	1	0	0	1	0	0
2673:	0	0	0	0	1	0	0	0
2681:	0	2	0	0	0	0	0	0
2689:	0	0	0	2	1	0	0	0
2697:	0	0	0	2	0	0	0	1
2705:	0	1	0	1	0	0	1	0
2713:	0	0	0	1	0	2	0	0
2721:	0	0	0	0	1	1	0	0
2729:	0	0	1	0	0	0	0	0
2737:	0	0	0	1	0	1	0	1
2745:	0	0	0	0	0	0	1	0
2753:	1	0	0	0	0	0	0	0
2761:	0	2	0	0	0	1	0	0
2769:	1	0	0	0	1	0	0	0
2777:	0	0	0	0	0	0	0	0
2785:	0	0	1	0	1	0	1	0
2793:	0	1	0	0	0	0	1	0
2801:	0	0	0	0	0	0	0	0
2809:	0	0	0	0	0	0	0	0
2817:	0	0	0	0	0	1	0	0
2825:	0	0	0	0	0	0	1	0
2833:	0	1	0	0	0	0	2	0
2841:	0	0	1	0	0	0	1	0
2849:	1	0	0	0	0	0	0	0
2857:	1	0	0	0	0	0	0	0
2865:	0	0	1	0	0	0	0	0
2873:	0	0	0	1	0	1	0	0
2881:	0	0	0	0	0	0	0	0
2889:	0	0	0	0	0	0	0	0
2897:	1	1	0	0	0	1	0	0
2905:	0	0	0	1	1	0	1	1
2913:	1	0	0	0	0	0	1	0
2921:	0	0	0	0	0	1	0	0
2929:	0	0	1	0	0	0	1	0
2937:	0	0	0	1	0	0	0	0
2945:	0	0	1	0	1	0	0	0
2953:	0	0	0	0	0	0	0	0

2961:	0	0	0	0	0	0	1	0

Sample Title: HTC-A02-S003-3036-01

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

3393:	1	0	0	0	0	0	0	0

Sample Title: HTC-A02-S003-3036-01

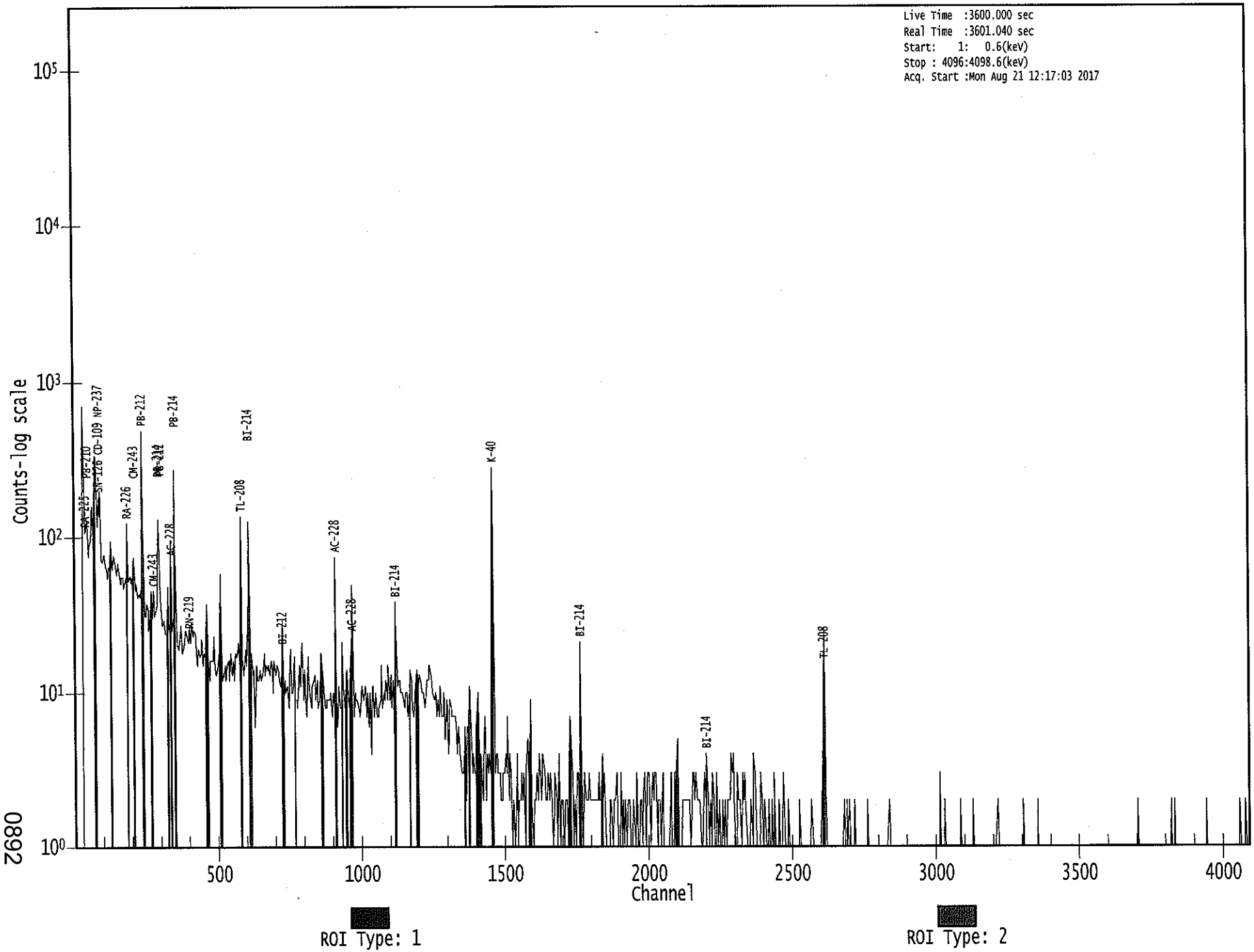
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	1	0	0	0	1	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	1	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	1	0	1	0	0	0	0	0
3473:	1	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	1	0	0	0	0	0
3497:	1	0	0	0	1	0	0	0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

3825:	0	0	0	0	0	0	0	2

Sample Title: HTC-A02-S003-3036-01

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

0000055639.CNF



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Apex-Gamma

Analysis Report for 1707085-17
HTC-A02-S003-3642-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707085-17
Sample Description	: HTC-A02-S003-3642-01
Sample Type	: SOIL
Sample Size	: 4.482E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 8:13:43AM
Acquisition Started	: 8/21/2017 1:23:22PM
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)	: 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	: 55646

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/22/17

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 2:23:26PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	63.30	63.90	0.0000	0.00
2	74.56	75.15	0.0000	0.00
3	77.26	77.85	0.0000	0.00
4	86.59	87.17	0.0000	0.00
5	91.35	91.93	0.0000	0.00
6	109.23	109.79	0.0000	0.00
7	185.73	186.21	0.0000	0.00
8	209.60	210.06	0.0000	0.00
9	238.61	239.03	0.0000	0.00
10	242.00	242.42	0.0000	0.00
11	270.08	270.47	0.0000	0.00
12	277.18	277.57	0.0000	0.00
13	295.26	295.63	0.0000	0.00
14	300.27	300.63	0.0000	0.00
15	327.92	328.26	0.0000	0.00
16	338.54	338.86	0.0000	0.00
17	348.32	348.64	0.0000	0.00
18	351.99	352.30	0.0000	0.00
19	409.56	409.82	0.0000	0.00
20	437.59	437.82	0.0000	0.00
21	453.06	453.26	0.0000	0.00
22	463.35	463.55	0.0000	0.00
23	511.01	511.16	0.0000	0.00
24	583.30	583.38	0.0000	0.00
25	609.50	609.55	0.0000	0.00
26	636.57	636.60	0.0000	0.00
27	664.11	664.10	0.0000	0.00
28	727.09	727.03	0.0000	0.00
29	768.37	768.26	0.0000	0.00
30	792.39	792.26	0.0000	0.00
31	795.16	795.02	0.0000	0.00
32	805.62	805.47	0.0000	0.00
33	860.75	860.55	0.0000	0.00
34	911.39	911.13	0.0000	0.00
35	969.31	969.00	0.0000	0.00
36	1114.89	1114.43	0.0000	0.00
37	1120.84	1120.38	0.0000	0.00
38	1132.19	1131.72	0.0000	0.00
39	1239.53	1238.95	0.0000	0.00
40	1378.27	1377.56	0.0000	0.00
41	1409.10	1408.35	0.0000	0.00
42	1461.43	1460.64	0.0000	0.00

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1498.05	1497.22	0.0000	0.00
44	1587.27	1586.35	0.0000	0.00
45	1600.33	1599.40	0.0000	0.00
46	1623.11	1622.16	0.0000	0.00
47	1631.04	1630.08	0.0000	0.00
48	1695.07	1694.04	0.0000	0.00
49	1730.08	1729.02	0.0000	0.00
50	1765.24	1764.15	0.0000	0.00
51	1791.92	1790.80	0.0000	0.00
52	1824.58	1823.43	0.0000	0.00
53	1848.47	1847.29	0.0000	0.00
54	1956.75	1955.47	0.0000	0.00
55	1967.93	1966.64	0.0000	0.00
56	1993.42	1992.10	0.0000	0.00
57	2105.29	2103.86	0.0000	0.00
58	2155.72	2154.25	0.0000	0.00
59	2204.30	2202.78	0.0000	0.00
60	2363.16	2361.49	0.0000	0.00
61	2431.61	2429.88	0.0000	0.00
62	2447.90	2446.15	0.0000	0.00
63	2615.18	2613.27	0.0000	0.00
64	2945.42	2943.20	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 2:23:26PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	63.30	60 -	67	63.90	2.31E+02	117.23	2.15E+03	1.26
M	2	74.56	71 -	82	75.15	4.79E+02	98.47	1.35E+03	1.65
m	3	77.26	71 -	82	77.85	8.11E+02	108.03	1.36E+03	1.65
M	4	86.59	83 -	97	87.17	4.87E+02	113.44	1.99E+03	3.92
m	5	91.35	83 -	97	91.93	4.33E+02	108.25	1.54E+03	2.44
	6	109.23	108 -	112	109.79	5.08E+01	61.58	8.00E+02	2.30
	7	185.73	182 -	189	186.21	2.79E+02	86.02	1.05E+03	1.87
	8	209.60	206 -	213	210.06	9.04E+01	76.45	9.01E+02	1.93
M	9	238.61	233 -	248	239.03	9.04E+02	77.54	4.90E+02	1.93
m	10	242.00	233 -	248	242.42	3.01E+02	83.76	4.78E+02	2.21
	11	270.08	266 -	274	270.47	1.23E+02	64.43	5.64E+02	2.75
	12	277.18	275 -	281	277.57	5.99E+01	51.14	4.28E+02	1.46
M	13	295.26	292 -	305	295.63	4.79E+02	57.10	3.04E+02	1.66
m	14	300.27	292 -	305	300.63	8.50E+01	48.07	3.77E+02	2.12
	15	327.92	325 -	331	328.26	4.44E+01	50.79	4.35E+02	2.68
	16	338.54	335 -	343	338.86	1.44E+02	66.09	5.79E+02	1.57
M	17	348.32	346 -	359	348.64	3.90E+01	42.77	2.69E+02	2.02
m	18	351.99	346 -	359	352.30	7.93E+02	64.41	2.22E+02	1.73
	19	409.56	405 -	414	409.82	4.64E+01	56.96	4.29E+02	5.41
	20	437.59	434 -	441	437.82	4.50E+01	38.42	2.16E+02	4.38
	21	453.06	450 -	457	453.26	3.53E+01	39.09	2.29E+02	4.50
	22	463.35	458 -	470	463.55	9.04E+01	59.75	3.79E+02	2.30
	23	511.01	505 -	516	511.16	2.27E+02	58.75	3.17E+02	2.63
	24	583.30	580 -	588	583.38	2.95E+02	53.08	2.52E+02	2.06
	25	609.50	605 -	615	609.55	5.94E+02	69.84	3.28E+02	2.09
	26	636.57	633 -	640	636.60	2.72E+01	28.43	1.18E+02	3.66
	27	664.11	660 -	667	664.10	3.23E+01	30.72	1.35E+02	5.47
	28	727.09	722 -	734	727.03	9.49E+01	48.15	2.30E+02	3.00
	29	768.37	764 -	770	768.26	3.78E+01	33.23	1.70E+02	1.83
M	30	792.39	791 -	800	792.26	1.61E+01	13.38	4.20E+01	2.36
m	31	795.16	791 -	800	795.02	4.46E+01	27.11	9.80E+01	2.36
	32	805.62	801 -	810	805.47	2.72E+01	33.54	1.46E+02	4.45
	33	860.75	856 -	868	860.55	5.81E+01	42.96	1.94E+02	2.88
	34	911.39	907 -	915	911.13	1.52E+02	42.92	1.91E+02	1.62
	35	969.31	966 -	973	969.00	8.38E+01	41.67	2.20E+02	1.93
M	36	1114.89	1113 -	1128	1114.43	2.08E+01	15.10	5.07E+01	2.51
m	37	1120.84	1113 -	1128	1120.38	1.24E+02	33.35	8.65E+01	2.51
	38	1132.19	1129 -	1135	1131.72	1.94E+01	22.93	8.32E+01	3.39
	39	1239.53	1232 -	1245	1238.95	7.44E+01	47.96	2.17E+02	2.72
	40	1378.27	1374 -	1382	1377.56	4.93E+01	25.29	6.94E+01	1.70

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1409.10	1405 -	1413	1408.35	3.61E+01	19.34	3.39E+01	3.23
42	1461.43	1455 -	1467	1460.64	1.09E+03	70.27	6.82E+01	2.22
43	1498.05	1490 -	1504	1497.22	2.35E+01	22.84	4.50E+01	3.61
44	1587.27	1581 -	1590	1586.35	1.93E+01	20.64	4.95E+01	1.60
45	1600.33	1597 -	1602	1599.40	9.00E+00	11.22	1.80E+01	3.11
46	1623.11	1617 -	1627	1622.16	1.85E+01	17.48	2.50E+01	1.28
47	1631.04	1628 -	1633	1630.08	8.10E+00	7.00	3.80E+00	2.92
48	1695.07	1690 -	1698	1694.04	1.17E+01	14.88	2.66E+01	1.50
49	1730.08	1725 -	1733	1729.02	2.25E+01	16.29	2.70E+01	2.56
50	1765.24	1759 -	1770	1764.15	1.08E+02	22.98	1.20E+01	2.91
51	1791.92	1787 -	1793	1790.80	8.38E+00	9.42	9.23E+00	1.53
52	1824.58	1819 -	1826	1823.43	1.01E+01	10.58	1.18E+01	1.17
53	1848.47	1842 -	1852	1847.29	2.35E+01	13.29	1.10E+01	1.29
54	1956.75	1951 -	1959	1955.47	1.70E+01	8.25	0.00E+00	6.69
55	1967.93	1962 -	1971	1966.64	1.14E+01	9.00	5.14E+00	2.57
56	1993.42	1989 -	1995	1992.10	7.11E+00	6.95	3.78E+00	2.24
57	2105.29	2101 -	2108	2103.86	1.11E+01	11.66	1.38E+01	4.40
58	2155.72	2152 -	2157	2154.25	8.00E+00	5.66	0.00E+00	2.75
59	2204.30	2198 -	2207	2202.78	3.75E+01	15.97	1.51E+01	3.17
60	2363.16	2359 -	2364	2361.49	5.29E+00	6.08	3.43E+00	0.96
61	2431.61	2426 -	2433	2429.88	8.00E+00	5.66	0.00E+00	1.92
62	2447.90	2442 -	2449	2446.15	1.30E+01	7.21	0.00E+00	2.32
63	2615.18	2609 -	2618	2613.27	9.62E+01	20.52	5.67E+00	2.00
64	2945.42	2939 -	2945	2943.20	5.00E+00	4.47	0.00E+00	2.75

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 2:23:26PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	63.30	60 -	67	2.31E+02	117.23	2.15E+03	9.31E+01
M	2	74.56	71 -	82	4.79E+02	98.47	1.35E+03	6.04E+01
m	3	77.26	71 -	82	8.11E+02	108.03	1.36E+03	6.06E+01
M	4	86.59	83 -	97	4.87E+02	113.44	1.99E+03	7.33E+01

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	5	91.35	83 -	97	4.33E+02	108.25	1.54E+03	6.44E+01
	6	109.23	108 -	112	5.08E+01	61.58	8.00E+02	4.92E+01
	7	185.73	182 -	189	2.79E+02	86.02	1.05E+03	6.52E+01
	8	209.60	206 -	213	9.04E+01	76.45	9.01E+02	6.09E+01
M	9	238.61	233 -	248	9.04E+02	77.54	4.90E+02	3.64E+01
m	10	242.00	233 -	248	3.01E+02	83.76	4.78E+02	3.60E+01
	11	270.08	266 -	274	1.23E+02	64.43	5.64E+02	4.97E+01
	12	277.18	275 -	281	5.99E+01	51.14	4.28E+02	4.01E+01
M	13	295.26	292 -	305	4.79E+02	57.10	3.04E+02	2.86E+01
m	14	300.27	292 -	305	8.50E+01	48.07	3.77E+02	3.19E+01
	15	327.92	325 -	331	4.44E+01	50.79	4.35E+02	4.03E+01
	16	338.54	335 -	343	1.44E+02	66.09	5.79E+02	5.06E+01
M	17	348.32	346 -	359	3.90E+01	42.77	2.69E+02	2.70E+01
m	18	351.99	346 -	359	7.93E+02	64.41	2.22E+02	2.45E+01
	19	409.56	405 -	414	4.64E+01	56.96	4.29E+02	4.55E+01
	20	437.59	434 -	441	4.50E+01	38.42	2.16E+02	2.96E+01
	21	453.06	450 -	457	3.53E+01	39.09	2.29E+02	3.06E+01
	22	463.35	458 -	470	9.04E+01	59.75	3.79E+02	4.66E+01
	23	511.01	505 -	516	2.27E+02	58.75	3.17E+02	4.15E+01
	24	583.30	580 -	588	2.95E+02	53.08	2.52E+02	3.33E+01
	25	609.50	605 -	615	5.94E+02	69.84	3.28E+02	4.11E+01
	26	636.57	633 -	640	2.72E+01	28.43	1.18E+02	2.17E+01
	27	664.11	660 -	667	3.23E+01	30.72	1.35E+02	2.35E+01
	28	727.09	722 -	734	9.49E+01	48.15	2.30E+02	3.62E+01
	29	768.37	764 -	770	3.78E+01	33.23	1.70E+02	2.54E+01
M	30	792.39	791 -	800	1.61E+01	13.38	4.20E+01	1.07E+01
m	31	795.16	791 -	800	4.46E+01	27.11	9.80E+01	1.63E+01
	32	805.62	801 -	810	2.72E+01	33.54	1.46E+02	2.62E+01
	33	860.75	856 -	868	5.81E+01	42.96	1.94E+02	3.30E+01
	34	911.39	907 -	915	1.52E+02	42.92	1.91E+02	9.96E+00
	35	969.31	966 -	973	8.38E+01	41.67	2.20E+02	3.08E+01
M	36	1114.89	1113 -	1128	2.08E+01	15.10	5.07E+01	1.17E+01
m	37	1120.84	1113 -	1128	1.24E+02	33.35	8.65E+01	1.53E+01
	38	1132.19	1129 -	1135	1.94E+01	22.93	8.32E+01	1.74E+01
	39	1239.53	1232 -	1245	7.44E+01	47.96	2.17E+02	3.68E+01
	40	1378.27	1374 -	1382	4.93E+01	25.29	6.94E+01	1.73E+01
	41	1409.10	1405 -	1413	3.61E+01	19.34	3.39E+01	1.25E+01
	42	1461.43	1455 -	1467	1.09E+03	70.27	6.82E+01	1.94E+01
	43	1498.05	1490 -	1504	2.35E+01	22.84	4.50E+01	1.70E+01
	44	1587.27	1581 -	1590	1.93E+01	20.64	4.95E+01	1.54E+01
	45	1600.33	1597 -	1602	9.00E+00	11.22	1.80E+01	7.80E+00
	46	1623.11	1617 -	1627	1.85E+01	17.48	2.50E+01	1.25E+01
	47	1631.04	1628 -	1633	8.10E+00	7.00	3.80E+00	3.35E+00
	48	1695.07	1690 -	1698	1.17E+01	14.88	2.66E+01	1.09E+01
	49	1730.08	1725 -	1733	2.25E+01	16.29	2.70E+01	1.09E+01
	50	1765.24	1759 -	1770	1.08E+02	22.98	1.20E+01	8.05E+00
	51	1791.92	1787 -	1793	8.38E+00	9.42	9.23E+00	6.11E+00
	52	1824.58	1819 -	1826	1.01E+01	10.58	1.18E+01	6.96E+00
	53	1848.47	1842 -	1852	2.35E+01	13.29	1.10E+01	7.47E+00
	54	1956.75	1951 -	1959	1.70E+01	8.25	0.00E+00	0.00E+00
	55	1967.93	1962 -	1971	1.14E+01	9.00	5.14E+00	4.88E+00

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
56	1993.42	1989 -	1995	7.11E+00	6.95	3.78E+00	3.66E+00
57	2105.29	2101 -	2108	1.11E+01	11.66	1.38E+01	7.87E+00
58	2155.72	2152 -	2157	8.00E+00	5.66	0.00E+00	0.00E+00
59	2204.30	2198 -	2207	3.75E+01	15.97	1.51E+01	8.43E+00
60	2363.16	2359 -	2364	5.29E+00	6.08	3.43E+00	3.27E+00
61	2431.61	2426 -	2433	8.00E+00	5.66	0.00E+00	0.00E+00
62	2447.90	2442 -	2449	1.30E+01	7.21	0.00E+00	0.00E+00
63	2615.18	2609 -	2618	9.62E+01	20.52	5.67E+00	4.95E+00
64	2945.42	2939 -	2945	5.00E+00	4.47	0.00E+00	0.00E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/21/2017 2:23:26PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	63.30	60 -	67	63.90	2.31E+02	117.23	2.15E+03	TH-234
									TH-230
M	2	74.56	71 -	82	75.15	4.79E+02	98.47	1.35E+03	AM-243
m	3	77.26	71 -	82	77.85	8.11E+02	108.03	1.36E+03	.....
M	4	86.59	83 -	97	87.17	4.87E+02	113.44	1.99E+03	NP-237
									EU-155
									SN-126
m	5	91.35	83 -	97	91.93	4.33E+02	108.25	1.54E+03	ND-147
	6	109.23	108 -	112	109.79	5.08E+01	61.58	8.00E+02	.....
	7	185.73	182 -	189	186.21	2.79E+02	86.02	1.05E+03	RA-226
	8	209.60	206 -	213	210.06	9.04E+01	76.45	9.01E+02	CM-243
									GA-67
M	9	238.61	233 -	248	239.03	9.04E+02	77.54	4.90E+02	PB-212
m	10	242.00	233 -	248	242.42	3.01E+02	83.76	4.78E+02	.....
	11	270.08	266 -	274	270.47	1.23E+02	64.43	5.64E+02	.....
	12	277.18	275 -	281	277.57	5.99E+01	51.14	4.28E+02	CM-243
									NP-239

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	13	295.26	292 -	305	295.63	4.79E+02	57.10	3.04E+02	PB-214
m	14	300.27	292 -	305	300.63	8.50E+01	48.07	3.77E+02	GA-67
									PB-212
									BI-210M
	15	327.92	325 -	331	328.26	4.44E+01	50.79	4.35E+02	LA-140
	16	338.54	335 -	343	338.86	1.44E+02	66.09	5.79E+02	AC-228
M	17	348.32	346 -	359	348.64	3.90E+01	42.77	2.69E+02	.....
m	18	351.99	346 -	359	352.30	7.93E+02	64.41	2.22E+02	PB-214
	19	409.56	405 -	414	409.82	4.64E+01	56.96	4.29E+02	.....
	20	437.59	434 -	441	437.82	4.50E+01	38.42	2.16E+02	BA-140
	21	453.06	450 -	457	453.26	3.53E+01	39.09	2.29E+02	PM-146
	22	463.35	458 -	470	463.55	9.04E+01	59.75	3.79E+02	SB-125
	23	511.01	505 -	516	511.16	2.27E+02	58.75	3.17E+02	.....
	24	583.30	580 -	588	583.38	2.95E+02	53.08	2.52E+02	TL-208
	25	609.50	605 -	615	609.55	5.94E+02	69.84	3.28E+02	BI-214
	26	636.57	633 -	640	636.60	2.72E+01	28.43	1.18E+02	I-131
									SB-125
	27	664.11	660 -	667	664.10	3.23E+01	30.72	1.35E+02	CE-143
	28	727.09	722 -	734	727.03	9.49E+01	48.15	2.30E+02	BI-212
	29	768.37	764 -	770	768.26	3.78E+01	33.23	1.70E+02	.....
M	30	792.39	791 -	800	792.26	1.61E+01	13.38	4.20E+01	.....
m	31	795.16	791 -	800	795.02	4.46E+01	27.11	9.80E+01	CS-134
	32	805.62	801 -	810	805.47	2.72E+01	33.54	1.46E+02	.....
	33	860.75	856 -	868	860.55	5.81E+01	42.96	1.94E+02	TL-208
	34	911.39	907 -	915	911.13	1.52E+02	42.92	1.91E+02	AC-228
									TL-204
	35	969.31	966 -	973	969.00	8.38E+01	41.67	2.20E+02	AC-228
M	36	1114.89	1113 -	1128	1114.43	2.08E+01	15.10	5.07E+01	ZN-65
m	37	1120.84	1113 -	1128	1120.38	1.24E+02	33.35	8.65E+01	SC-46
									TA-182
									BI-214
	38	1132.19	1129 -	1135	1131.72	1.94E+01	22.93	8.32E+01	I-135
	39	1239.53	1232 -	1245	1238.95	7.44E+01	47.96	2.17E+02	.....
	40	1378.27	1374 -	1382	1377.56	4.93E+01	25.29	6.94E+01	.....
	41	1409.10	1405 -	1413	1408.35	3.61E+01	19.34	3.39E+01	.....
	42	1461.43	1455 -	1467	1460.64	1.09E+03	70.27	6.82E+01	K-40
	43	1498.05	1490 -	1504	1497.22	2.35E+01	22.84	4.50E+01	.....
	44	1587.27	1581 -	1590	1586.35	1.93E+01	20.64	4.95E+01	.....
	45	1600.33	1597 -	1602	1599.40	9.00E+00	11.22	1.80E+01	.....
	46	1623.11	1617 -	1627	1622.16	1.85E+01	17.48	2.50E+01	.....
	47	1631.04	1628 -	1633	1630.08	8.10E+00	7.00	3.80E+00	.....
	48	1695.07	1690 -	1698	1694.04	1.17E+01	14.88	2.66E+01	.....
	49	1730.08	1725 -	1733	1729.02	2.25E+01	16.29	2.70E+01	.....
	50	1765.24	1759 -	1770	1764.15	1.08E+02	22.98	1.20E+01	BI-214
	51	1791.92	1787 -	1793	1790.80	8.38E+00	9.42	9.23E+00	.....
	52	1824.58	1819 -	1826	1823.43	1.01E+01	10.58	1.18E+01	.....
	53	1848.47	1842 -	1852	1847.29	2.35E+01	13.29	1.10E+01	.....
	54	1956.75	1951 -	1959	1955.47	1.70E+01	8.25	0.00E+00	.....
	55	1967.93	1962 -	1971	1966.64	1.14E+01	9.00	5.14E+00	.....
	56	1993.42	1989 -	1995	1992.10	7.11E+00	6.95	3.78E+00	.....
	57	2105.29	2101 -	2108	2103.86	1.11E+01	11.66	1.38E+01	.....
	58	2155.72	2152 -	2157	2154.25	8.00E+00	5.66	0.00E+00	.....
	59	2204.30	2198 -	2207	2202.78	3.75E+01	15.97	1.51E+01	BI-214
	60	2363.16	2359 -	2364	2361.49	5.29E+00	6.08	3.43E+00	.....

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
61	2431.61	2426 -	2433	2429.88	8.00E+00	5.66	0.00E+00	.....
62	2447.90	2442 -	2449	2446.15	1.30E+01	7.21	0.00E+00	.....
63	2615.18	2609 -	2618	2613.27	9.62E+01	20.52	5.67E+00	TL-208
64	2945.42	2939 -	2945	2943.20	5.00E+00	4.47	0.00E+00	.....

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/21/2017 2:23:26PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	63.30	2.31E+02	117.23	2.70E-02	2.26E-03
M	2	74.56	4.79E+02	98.47	2.75E-02	2.38E-03
m	3	77.26	8.11E+02	108.03	2.75E-02	2.41E-03
M	4	86.59	4.87E+02	113.44	2.74E-02	2.51E-03
m	5	91.35	4.33E+02	108.25	2.73E-02	2.47E-03
	6	109.23	5.08E+01	61.58	2.65E-02	2.18E-03
	7	185.73	2.79E+02	86.02	2.17E-02	1.68E-03
	8	209.60	9.04E+01	76.45	2.04E-02	1.61E-03
M	9	238.61	9.04E+02	77.54	1.89E-02	1.53E-03
m	10	242.00	3.01E+02	83.76	1.87E-02	1.52E-03
	11	270.08	1.23E+02	64.43	1.74E-02	1.43E-03
	12	277.18	5.99E+01	51.14	1.71E-02	1.41E-03
M	13	295.26	4.79E+02	57.10	1.64E-02	1.37E-03
m	14	300.27	8.50E+01	48.07	1.62E-02	1.36E-03
	15	327.92	4.44E+01	50.79	1.53E-02	1.29E-03
	16	338.54	1.44E+02	66.09	1.49E-02	1.27E-03
M	17	348.32	3.90E+01	42.77	1.46E-02	1.25E-03
m	18	351.99	7.93E+02	64.41	1.45E-02	1.24E-03
	19	409.56	4.64E+01	56.96	1.30E-02	1.13E-03
	20	437.59	4.50E+01	38.42	1.24E-02	1.12E-03
	21	453.06	3.53E+01	39.09	1.21E-02	1.11E-03
	22	463.35	9.04E+01	59.75	1.19E-02	1.10E-03
	23	511.01	2.27E+02	58.75	1.10E-02	1.07E-03
	24	583.30	2.95E+02	53.08	9.96E-03	1.02E-03
	25	609.50	5.94E+02	69.84	9.63E-03	1.01E-03
	26	636.57	2.72E+01	28.43	9.32E-03	9.88E-04

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	27	664.11	3.23E+01	30.72	9.02E-03	9.68E-04
	28	727.09	9.49E+01	48.15	8.41E-03	8.68E-04
	29	768.37	3.78E+01	33.23	8.06E-03	8.02E-04
M	30	792.39	1.61E+01	13.38	7.88E-03	7.64E-04
m	31	795.16	4.46E+01	27.11	7.86E-03	7.60E-04
	32	805.62	2.72E+01	33.54	7.78E-03	7.43E-04
	33	860.75	5.81E+01	42.96	7.40E-03	6.56E-04
	34	911.39	1.52E+02	42.92	7.08E-03	5.91E-04
	35	969.31	8.38E+01	41.67	6.76E-03	5.69E-04
M	36	1114.89	2.08E+01	15.10	6.10E-03	5.13E-04
m	37	1120.84	1.24E+02	33.35	6.07E-03	5.11E-04
	38	1132.19	1.94E+01	22.93	6.03E-03	5.07E-04
	39	1239.53	7.44E+01	47.96	5.64E-03	4.76E-04
	40	1378.27	4.93E+01	25.29	5.22E-03	4.44E-04
	41	1409.10	3.61E+01	19.34	5.14E-03	4.37E-04
	42	1461.43	1.09E+03	70.27	5.00E-03	4.25E-04
	43	1498.05	2.35E+01	22.84	4.92E-03	4.16E-04
	44	1587.27	1.93E+01	20.64	4.72E-03	3.95E-04
	45	1600.33	9.00E+00	11.22	4.69E-03	3.92E-04
	46	1623.11	1.85E+01	17.48	4.64E-03	3.87E-04
	47	1631.04	8.10E+00	7.00	4.63E-03	3.85E-04
	48	1695.07	1.17E+01	14.88	4.50E-03	3.70E-04
	49	1730.08	2.25E+01	16.29	4.44E-03	3.62E-04
	50	1765.24	1.08E+02	22.98	4.37E-03	3.54E-04
	51	1791.92	8.38E+00	9.42	4.33E-03	3.48E-04
	52	1824.58	1.01E+01	10.58	4.27E-03	3.41E-04
	53	1848.47	2.35E+01	13.29	4.23E-03	3.38E-04
	54	1956.75	1.70E+01	8.25	4.07E-03	3.38E-04
	55	1967.93	1.14E+01	9.00	4.05E-03	3.38E-04
	56	1993.42	7.11E+00	6.95	4.01E-03	3.38E-04
	57	2105.29	1.11E+01	11.66	3.86E-03	3.38E-04
	58	2155.72	8.00E+00	5.66	3.80E-03	3.38E-04
	59	2204.30	3.75E+01	15.97	3.74E-03	3.38E-04
	60	2363.16	5.29E+00	6.08	3.56E-03	3.38E-04
	61	2431.61	8.00E+00	5.66	3.48E-03	3.38E-04
	62	2447.90	1.30E+01	7.21	3.47E-03	3.38E-04
	63	2615.18	9.62E+01	20.52	3.31E-03	3.38E-04
	64	2945.42	5.00E+00	4.47	3.03E-03	3.38E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/21/2017 2:23:26PM

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055573.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	63.30	2.31E+02	117.23	8.94E+01	1.41E+01	1.42E+02	1.18E+02
M	2	74.56	4.79E+02	98.47			4.79E+02	9.85E+01
m	3	77.26	8.11E+02	108.03	7.20E+00	1.47E+00	8.04E+02	1.08E+02
M	4	86.59	4.87E+02	113.44			4.87E+02	1.13E+02
m	5	91.35	4.33E+02	108.25			4.33E+02	1.08E+02
	6	109.23	5.08E+01	61.58			5.08E+01	6.16E+01
	7	185.73	2.79E+02	86.02	5.22E+01	7.59E+00	2.26E+02	8.64E+01
	8	209.60	9.04E+01	76.45			9.04E+01	7.64E+01
M	9	238.61	9.04E+02	77.54	2.13E+01	6.33E+00	8.83E+02	7.78E+01
m	10	242.00	3.01E+02	83.76			3.01E+02	8.38E+01
	11	270.08	1.23E+02	64.43	1.23E+00	4.98E+00	1.22E+02	6.46E+01
	12	277.18	5.99E+01	51.14			5.99E+01	5.11E+01
M	13	295.26	4.79E+02	57.10			4.79E+02	5.71E+01
m	14	300.27	8.50E+01	48.07			8.50E+01	4.81E+01
	15	327.92	4.44E+01	50.79			4.44E+01	5.08E+01
	16	338.54	1.44E+02	66.09			1.44E+02	6.61E+01
M	17	348.32	3.90E+01	42.77			3.90E+01	4.28E+01
m	18	351.99	7.93E+02	64.41	5.79E+00	4.49E+00	7.87E+02	6.46E+01
	19	409.56	4.64E+01	56.96			4.64E+01	5.70E+01
	20	437.59	4.50E+01	38.42			4.50E+01	3.84E+01
	21	453.06	3.53E+01	39.09			3.53E+01	3.91E+01
	22	463.35	9.04E+01	59.75			9.04E+01	5.98E+01
	23	511.01	2.27E+02	58.75	7.28E+01	5.30E+00	1.55E+02	5.90E+01
	24	583.30	2.95E+02	53.08	2.72E+00	3.05E+00	2.92E+02	5.32E+01
	25	609.50	5.94E+02	69.84	6.35E+00	4.02E+00	5.88E+02	7.00E+01
	26	636.57	2.72E+01	28.43			2.72E+01	2.84E+01
	27	664.11	3.23E+01	30.72			3.23E+01	3.07E+01
	28	727.09	9.49E+01	48.15			9.49E+01	4.82E+01
	29	768.37	3.78E+01	33.23			3.78E+01	3.32E+01
M	30	792.39	1.61E+01	13.38			1.61E+01	1.34E+01
m	31	795.16	4.46E+01	27.11			4.46E+01	2.71E+01
	32	805.62	2.72E+01	33.54			2.72E+01	3.35E+01
	33	860.75	5.81E+01	42.96			5.81E+01	4.30E+01
	34	911.39	1.52E+02	42.92	5.31E+00	3.00E+00	1.47E+02	4.30E+01
	35	969.31	8.38E+01	41.67			8.38E+01	4.17E+01
M	36	1114.89	2.08E+01	15.10			2.08E+01	1.51E+01
m	37	1120.84	1.24E+02	33.35			1.24E+02	3.33E+01
	38	1132.19	1.94E+01	22.93			1.94E+01	2.29E+01
	39	1239.53	7.44E+01	47.96			7.44E+01	4.80E+01
	40	1378.27	4.93E+01	25.29			4.93E+01	2.53E+01
	41	1409.10	3.61E+01	19.34			3.61E+01	1.93E+01
	42	1461.43	1.09E+03	70.27	8.09E+00	2.23E+00	1.09E+03	7.03E+01
	43	1498.05	2.35E+01	22.84			2.35E+01	2.28E+01
	44	1587.27	1.93E+01	20.64			1.93E+01	2.06E+01
	45	1600.33	9.00E+00	11.22			9.00E+00	1.12E+01
	46	1623.11	1.85E+01	17.48			1.85E+01	1.75E+01
	47	1631.04	8.10E+00	7.00			8.10E+00	7.00E+00
	48	1695.07	1.17E+01	14.88			1.17E+01	1.49E+01
	49	1730.08	2.25E+01	16.29			2.25E+01	1.63E+01

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
50	1765.24	1.08E+02	22.98			1.08E+02	2.30E+01
51	1791.92	8.38E+00	9.42			8.38E+00	9.42E+00
52	1824.58	1.01E+01	10.58			1.01E+01	1.06E+01
53	1848.47	2.35E+01	13.29			2.35E+01	1.33E+01
54	1956.75	1.70E+01	8.25			1.70E+01	8.25E+00
55	1967.93	1.14E+01	9.00			1.14E+01	9.00E+00
56	1993.42	7.11E+00	6.95			7.11E+00	6.95E+00
57	2105.29	1.11E+01	11.66			1.11E+01	1.17E+01
58	2155.72	8.00E+00	5.66			8.00E+00	5.66E+00
59	2204.30	3.75E+01	15.97			3.75E+01	1.60E+01
60	2363.16	5.29E+00	6.08			5.29E+00	6.08E+00
61	2431.61	8.00E+00	5.66			8.00E+00	5.66E+00
62	2447.90	1.30E+01	7.21			1.30E+01	7.21E+00
63	2615.18	9.62E+01	20.52	5.63E+00	1.38E+00	9.05E+01	2.06E+01
64	2945.42	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 : 8/21/2017 2:23:26PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055573.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	63.30	2.31E+02	117.23	8.94E+01	1.41E+01	1.42E+02	1.18E+02
M	2	74.56	4.79E+02	98.47			4.79E+02	9.85E+01
m	3	77.26	8.11E+02	108.03	7.20E+00	1.47E+00	8.04E+02	1.08E+02
M	4	86.59	4.87E+02	113.44			4.87E+02	1.13E+02
m	5	91.35	4.33E+02	108.25			4.33E+02	1.08E+02
	6	109.23	5.08E+01	61.58			5.08E+01	6.16E+01
	7	185.73	2.79E+02	86.02	5.22E+01	7.59E+00	2.26E+02	8.64E+01
	8	209.60	9.04E+01	76.45			9.04E+01	7.64E+01
M	9	238.61	9.04E+02	77.54	2.13E+01	6.33E+00	8.83E+02	7.78E+01
m	10	242.00	3.01E+02	83.76			3.01E+02	8.38E+01
	11	270.08	1.23E+02	64.43	1.23E+00	4.98E+00	1.22E+02	6.46E+01
	12	277.18	5.99E+01	51.14			5.99E+01	5.11E+01
M	13	295.26	4.79E+02	57.10			4.79E+02	5.71E+01

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
m	14	300.27	8.50E+01	48.07			8.50E+01	4.81E+01
	15	327.92	4.44E+01	50.79			4.44E+01	5.08E+01
	16	338.54	1.44E+02	66.09			1.44E+02	6.61E+01
M	17	348.32	3.90E+01	42.77			3.90E+01	4.28E+01
m	18	351.99	7.93E+02	64.41	5.79E+00	4.49E+00	7.87E+02	6.46E+01
	19	409.56	4.64E+01	56.96			4.64E+01	5.70E+01
	20	437.59	4.50E+01	38.42			4.50E+01	3.84E+01
	21	453.06	3.53E+01	39.09			3.53E+01	3.91E+01
	22	463.35	9.04E+01	59.75			9.04E+01	5.98E+01
	23	511.01	2.27E+02	58.75	7.28E+01	5.30E+00	1.55E+02	5.90E+01
	24	583.30	2.95E+02	53.08	2.72E+00	3.05E+00	2.92E+02	5.32E+01
	25	609.50	5.94E+02	69.84	6.35E+00	4.02E+00	5.88E+02	7.00E+01
	26	636.57	2.72E+01	28.43			2.72E+01	2.84E+01
	27	664.11	3.23E+01	30.72			3.23E+01	3.07E+01
	28	727.09	9.49E+01	48.15			9.49E+01	4.82E+01
	29	768.37	3.78E+01	33.23			3.78E+01	3.32E+01
M	30	792.39	1.61E+01	13.38			1.61E+01	1.34E+01
m	31	795.16	4.46E+01	27.11			4.46E+01	2.71E+01
	32	805.62	2.72E+01	33.54			2.72E+01	3.35E+01
	33	860.75	5.81E+01	42.96			5.81E+01	4.30E+01
	34	911.39	1.52E+02	42.92	5.31E+00	3.00E+00	1.47E+02	4.30E+01
	35	969.31	8.38E+01	41.67			8.38E+01	4.17E+01
M	36	1114.89	2.08E+01	15.10			2.08E+01	1.51E+01
m	37	1120.84	1.24E+02	33.35			1.24E+02	3.33E+01
	38	1132.19	1.94E+01	22.93			1.94E+01	2.29E+01
	39	1239.53	7.44E+01	47.96			7.44E+01	4.80E+01
	40	1378.27	4.93E+01	25.29			4.93E+01	2.53E+01
	41	1409.10	3.61E+01	19.34			3.61E+01	1.93E+01
	42	1461.43	1.09E+03	70.27	8.09E+00	2.23E+00	1.09E+03	7.03E+01
	43	1498.05	2.35E+01	22.84			2.35E+01	2.28E+01
	44	1587.27	1.93E+01	20.64			1.93E+01	2.06E+01
	45	1600.33	9.00E+00	11.22			9.00E+00	1.12E+01
	46	1623.11	1.85E+01	17.48			1.85E+01	1.75E+01
	47	1631.04	8.10E+00	7.00			8.10E+00	7.00E+00
	48	1695.07	1.17E+01	14.88			1.17E+01	1.49E+01
	49	1730.08	2.25E+01	16.29			2.25E+01	1.63E+01
	50	1765.24	1.08E+02	22.98			1.08E+02	2.30E+01
	51	1791.92	8.38E+00	9.42			8.38E+00	9.42E+00
	52	1824.58	1.01E+01	10.58			1.01E+01	1.06E+01
	53	1848.47	2.35E+01	13.29			2.35E+01	1.33E+01
	54	1956.75	1.70E+01	8.25			1.70E+01	8.25E+00
	55	1967.93	1.14E+01	9.00			1.14E+01	9.00E+00
	56	1993.42	7.11E+00	6.95			7.11E+00	6.95E+00
	57	2105.29	1.11E+01	11.66			1.11E+01	1.17E+01
	58	2155.72	8.00E+00	5.66			8.00E+00	5.66E+00
	59	2204.30	3.75E+01	15.97			3.75E+01	1.60E+01
	60	2363.16	5.29E+00	6.08			5.29E+00	6.08E+00
	61	2431.61	8.00E+00	5.66			8.00E+00	5.66E+00
	62	2447.90	1.30E+01	7.21			1.30E+01	7.21E+00
	63	2615.18	9.62E+01	20.52	5.63E+00	1.38E+00	9.05E+01	2.06E+01
	64	2945.42	5.00E+00	4.47			5.00E+00	4.47E+00

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.939	1460.81	*	10.67	3.41E+01	3.70E+00
ZN-65	0.937	1115.52	*	50.75	1.49E-01	1.09E-01
SN-126	0.857	87.57	*	37.00	8.04E-01	2.01E-01
PM-146	0.358	453.90	*	39.94	1.27E-01	1.41E-01
		735.90		14.01		
		747.13		13.10		
ND-147	0.429	91.11	*	28.90	4.54E+02	1.21E+02
		531.02		13.10		
EU-155	0.362	86.50	*	30.90	1.00E+00	2.50E-01
		105.30		20.70		
TL-208	0.975	583.14	*	30.22	1.63E+00	3.40E-01
		860.37	*	4.48	2.94E+00	2.19E+00
		2614.66	*	35.85	1.28E+00	3.19E-01
BI-212	0.763	727.17	*	11.80	1.60E+00	8.29E-01
		1620.62		2.75		
PB-212	1.000	238.63	*	44.60	1.76E+00	2.10E-01
		300.09	*	3.41	2.57E+00	1.47E+00
BI-214	0.971	609.31	*	46.30	2.21E+00	3.50E-01
		1120.29	*	15.10	2.26E+00	6.38E-01
		1764.49	*	15.80	2.62E+00	5.96E-01
		2204.22	*	4.98	3.37E+00	1.47E+00
PB-214	0.999	295.21	*	19.19	2.54E+00	3.70E-01
		351.92	*	37.19	2.44E+00	2.88E-01
RA-226	0.963	186.21	*	3.28	5.32E+00	9.95E+00
AC-228	0.989	338.32	*	11.40	1.42E+00	6.61E-01
		911.07	*	27.70	1.26E+00	3.82E-01
		969.11	*	16.60	1.25E+00	6.30E-01
TH-234	1.000	63.29	*	3.80	2.31E+00	1.94E+00
NP-237	0.999	86.50	*	12.60	2.36E+00	5.91E-01
AM-243	0.998	74.67	*	66.00	4.43E-01	9.87E-02
CM-243	0.361	209.75	*	3.29	2.28E+00	1.93E+00
		228.14		10.60		
		277.60	*	14.00	4.21E-01	3.61E-01

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 2:23:26PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	3	77.26	2.23334E-01	6.72		
	6	109.23	1.40989E-02	60.66		
m	10	242.00	8.35353E-02	13.93		
	11	270.08	3.37599E-02	26.59		
	15	327.92	1.23399E-02	57.16	Tol.	LA-140
M	17	348.32	1.08451E-02	54.77		
	19	409.56	1.28789E-02	61.42		
	20	437.59	1.25000E-02	42.69	Sum	
	22	463.35	2.51210E-02	33.04	Sum	
	23	511.01	4.29283E-02	19.09		
	26	636.57	7.54361E-03	52.34	Tol.	I-131
	27	664.11	8.98056E-03	47.52	Tol.	CE-143
	29	768.37	1.05014E-02	43.95	Sum	
M	30	792.39	4.48246E-03	41.46	Sum	
m	31	795.16	1.23765E-02	30.42	Sum	
	32	805.62	7.54583E-03	61.74	Sum	
	38	1132.19	5.39390E-03	59.04	Tol.	I-135
	39	1239.53	2.06785E-02	32.21		
	40	1378.27	1.36954E-02	25.65		
	41	1409.10	1.00183E-02	26.81		
	43	1498.05	6.52778E-03	48.59		
	44	1587.27	5.35354E-03	53.55	Sum	
	45	1600.33	2.50000E-03	62.36		
	46	1623.11	5.14337E-03	47.20		
	47	1631.04	2.25000E-03	43.21		
	48	1695.07	3.25000E-03	63.60		
	49	1730.08	6.25000E-03	36.21	Sum	
	51	1791.92	2.32906E-03	56.18		
	52	1824.58	2.80382E-03	52.42		
	53	1848.47	6.52778E-03	28.27	Sum	
	54	1956.75	4.72222E-03	24.25		
	55	1967.93	3.17460E-03	39.38		
	56	1993.42	1.97531E-03	48.84		

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
57	2105.29	3.08642E-03	52.48		
58	2155.72	2.22222E-03	35.36		
60	2363.16	1.46825E-03	57.54		
61	2431.61	2.22222E-03	35.36	Sum	
62	2447.90	3.61111E-03	27.74		
64	2945.42	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	0.93	1460.81	*	10.67	3.41E+01	3.70E+00
ZN-65	0.93	1115.52	*	50.75	1.49E-01	1.09E-01
SN-126	0.85	87.57	*	37.00	8.04E-01	2.01E-01
PM-146	0.35	453.90	*	39.94	1.27E-01	1.41E-01
		735.90		14.01		
		747.13		13.10		
ND-147	0.42	91.11	*	28.90	4.54E+02	1.21E+02
		531.02		13.10		
EU-155	0.36	86.50	*	30.90	1.00E+00	2.50E-01
		105.30		20.70		
TL-208	0.97	583.14	*	30.22	1.63E+00	3.40E-01
		860.37	*	4.48	2.94E+00	2.19E+00
		2614.66	*	35.85	1.28E+00	3.19E-01
BI-212	0.76	727.17	*	11.80	1.60E+00	8.29E-01
		1620.62		2.75		
PB-212	1.00	238.63	*	44.60	1.76E+00	2.10E-01
		300.09	*	3.41	2.57E+00	1.47E+00
BI-214	0.97	609.31	*	46.30	2.21E+00	3.50E-01
		1120.29	*	15.10	2.26E+00	6.38E-01
		1764.49	*	15.80	2.62E+00	5.96E-01
		2204.22	*	4.98	3.37E+00	1.47E+00
PB-214	0.99	295.21	*	19.19	2.54E+00	3.70E-01

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PB-214	0.99	351.92	*	37.19	2.44E+00	2.88E-01
RA-226	0.96	186.21	*	3.28	5.32E+00	9.95E+00
AC-228	0.98	338.32	*	11.40	1.42E+00	6.61E-01
		911.07	*	27.70	1.26E+00	3.82E-01
		969.11	*	16.60	1.25E+00	6.30E-01
TH-234	1.00	63.29	*	3.80	2.31E+00	1.94E+00
NP-237	0.99	86.50	*	12.60	2.36E+00	5.91E-01
AM-243	0.99	74.67	*	66.00	4.43E-01	9.87E-02
CM-243	0.36	209.75	*	3.29	2.28E+00	1.93E+00
		228.14		10.60		
		277.60	*	14.00	4.21E-01	3.61E-01

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.939	3.41E+01	3.70E+00	
	ZN-65	0.937	1.49E-01	1.09E-01	
?	SN-126	0.857	8.04E-01	2.01E-01	
	PM-146	0.358	1.27E-01	1.41E-01	
	ND-147	0.429	4.54E+02	1.21E+02	
?	EU-155	0.362	1.00E+00	2.50E-01	
	TL-208	0.975	1.46E+00	2.31E-01	
	BI-212	0.763	1.60E+00	8.29E-01	
	PB-212	1.000	1.77E+00	2.08E-01	
	BI-214	0.971	2.34E+00	2.68E-01	
	PB-214	0.999	2.48E+00	2.27E-01	
	RA-226	0.963	5.32E+00	9.95E+00	
	AC-228	0.989	1.29E+00	2.93E-01	
	TH-234	1.000	2.31E+00	1.94E+00	
?	NP-237	0.999	2.36E+00	5.91E-01	
	AM-243	0.998	4.43E-01	9.87E-02	

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
CM-243	0.361	4.83E-01	3.55E-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 1707085-17

HTC-A02-S003-3642-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 2:23:26PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	3	77.26	2.23334E-01	6.72		
	6	109.23	1.40989E-02	60.66		
m	10	242.00	8.35353E-02	13.93		
	11	270.08	3.37599E-02	26.59		
	15	327.92	1.23399E-02	57.16	Tol.	LA-140
M	17	348.32	1.08451E-02	54.77		
	19	409.56	1.28789E-02	61.42		
	20	437.59	1.25000E-02	42.69	Sum	
	22	463.35	2.51210E-02	33.04	Sum	
	23	511.01	4.29283E-02	19.09		
	26	636.57	7.54361E-03	52.34	Tol.	I-131
	27	664.11	8.98056E-03	47.52	Tol.	CE-143
	29	768.37	1.05014E-02	43.95	Sum	
M	30	792.39	4.48246E-03	41.46	Sum	
m	31	795.16	1.23765E-02	30.42	Sum	
	32	805.62	7.54583E-03	61.74	Sum	
	38	1132.19	5.39390E-03	59.04	Tol.	I-135
	39	1239.53	2.06785E-02	32.21		
	40	1378.27	1.36954E-02	25.65		
	41	1409.10	1.00183E-02	26.81		
	43	1498.05	6.52778E-03	48.59		
	44	1587.27	5.35354E-03	53.55	Sum	
	45	1600.33	2.50000E-03	62.36		
	46	1623.11	5.14337E-03	47.20		
	47	1631.04	2.25000E-03	43.21		
	48	1695.07	3.25000E-03	63.60		
	49	1730.08	6.25000E-03	36.21	Sum	
	51	1791.92	2.32906E-03	56.18		
	52	1824.58	2.80382E-03	52.42		
	53	1848.47	6.52778E-03	28.27	Sum	
	54	1956.75	4.72222E-03	24.25		
	55	1967.93	3.17460E-03	39.38		
	56	1993.42	1.97531E-03	48.84		
	57	2105.29	3.08642E-03	52.48		

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
58	2155.72	2.22222E-03	35.36		
60	2363.16	1.46825E-03	57.54		
61	2431.61	2.22222E-03	35.36	Sum	
62	2447.90	3.61111E-03	27.74		
64	2945.42	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 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	8.55E-01	2.66E+00	2.66E+00
+	NA-22	1274.54		99.94	2.98E-02	1.19E-01	1.19E-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	4.88E-03	6.20E-02	6.20E-02
+	K-40	1460.81	*	10.67	3.41E+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	2.46E-02	8.35E-02	8.35E-02
		78.34		96.00	3.38E-01		1.19E-01
+	SC-46	889.25		99.98	-4.05E-02	2.03E-01	2.03E-01
		1120.51		99.99	6.71E-01		3.99E-01
+	V-48	983.52		99.98	-2.20E+00	6.10E+00	6.10E+00
		1312.10		97.50	-3.02E-01		7.00E+00
+	CR-51	320.08		9.83	-5.41E+00	8.38E+00	8.38E+00
+	MN-54	834.83		99.97	-3.89E-02	1.21E-01	1.21E-01
+	CO-56	846.75		99.96	-1.23E-01	2.24E-01	2.24E-01
		1037.75		14.03	-3.57E-01		1.54E+00
		1238.25		67.00	2.78E-01		5.37E-01
		1771.40		15.51	0.00E+00		9.79E-01
		2598.48		16.90	-1.77E-01		6.58E-01
+	CO-57	122.06		85.51	1.21E-02	9.50E-02	9.50E-02
		136.48		10.60	-9.26E-03		7.74E-01
+	CO-58	810.76		99.40	7.56E-02	2.08E-01	2.08E-01
+	FE-59	1099.22		56.50	7.64E-02	8.64E-01	8.64E-01

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	FE-59	1291.56		43.20	5.31E-01	8.64E-01	1.15E+00
+	CO-60	1173.22		100.00	4.04E-02	9.14E-02	1.27E-01
		1332.49		100.00	-1.95E-02		9.14E-02
+	ZN-65	1115.52	*	50.75	1.49E-01	4.77E-01	4.77E-01
+	GA-67	93.31		35.70	6.00E+08	2.93E+08	2.93E+08
		208.95		2.24	2.64E+09		3.92E+09
		300.22		16.00	-2.63E+09		6.35E+08
+	SE-75	121.11		16.70	1.99E-01	1.90E-01	6.70E-01
		136.00		59.20	-2.27E-03		1.90E-01
		264.65		59.80	-1.72E-02		2.09E-01
		279.53		25.20	7.67E-02		5.48E-01
		400.65		11.40	-8.87E-01		1.21E+00
+	RB-82	776.52		13.00	7.14E-01	1.01E+01	1.01E+01
+	RB-83	520.41		46.00	2.91E-01	4.04E-01	4.04E-01
		529.64		30.30	5.23E-02		5.51E-01
		552.65		16.40	1.80E-01		1.09E+00
+	KR-85	513.99		0.43	3.29E+01	2.72E+01	2.72E+01
+	SR-85	513.99		99.27	4.04E-01	3.34E-01	3.34E-01
+	Y-88	898.02		93.40	-8.06E-02	1.64E-01	1.87E-01
		1836.01		99.38	7.70E-02		1.64E-01
+	MO-93	263.06		56.72	-3.10E-02	7.38E-02	1.26E-01
		684.67		99.68	-1.20E-02		8.40E-02
		1477.11		99.08	-5.39E-02		7.38E-02
+	NB-93M	16.57		9.43	-1.00E+00	7.15E-01	7.15E-01
+	NB-94	702.63		100.00	2.20E-02	8.70E-02	8.70E-02
		871.10		100.00	-1.88E-02		9.06E-02
+	NB-95	765.79		99.81	1.08E+00	8.25E-01	8.25E-01
+	NB-95M	235.69		25.00	-3.40E+08	5.31E+07	5.31E+07
+	ZR-95	724.18		43.70	-1.85E-01	4.65E-01	6.81E-01
		756.72		55.30	1.46E-01		4.65E-01
+	MO-99	181.06		6.20	2.52E+09	4.02E+10	6.11E+10
		739.58		12.80	-1.25E+09		4.02E+10
		778.00		4.50	-5.39E+10		1.11E+11
+	RU-103	497.08		89.00	-1.06E-01	4.73E-01	4.73E-01
+	RU-106	621.84		9.80	-7.68E-01	9.50E-01	9.50E-01
+	AG-108M	433.93		89.90	8.04E-03	8.31E-02	8.31E-02
		614.37		90.40	1.02E-02		1.19E-01
		722.95		90.50	-1.43E-02		1.05E-01
+	CD-109	88.03		3.72	-3.16E-01	2.85E+00	2.85E+00
+	AG-110M	657.75		93.14	1.46E-03	1.21E-01	1.21E-01
		677.61		10.53	-3.14E-02		1.04E+00
		706.67		16.46	-1.20E-01		6.85E-01
		763.93		21.98	8.05E-02		5.88E-01
		884.67		71.63	-2.66E-02		1.59E-01
		1384.27		23.94	4.98E-02		5.05E-01
+	CD-113M	263.70		0.02	-4.14E+01	3.15E+02	3.15E+02
+	SN-113	255.12		1.93	-1.65E+00	2.23E-01	5.84E+00
		391.69		64.90	-1.07E-01		2.23E-01

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TE123M	159.00		84.10	-9.86E-03	1.41E-01	1.41E-01
+	SB-124	602.71		97.87	5.46E-02	2.70E-01	2.70E-01
		645.85		7.26	-6.08E-01		3.58E+00
		722.78		11.10	-3.60E-01		2.66E+00
		1691.02		49.00	-1.17E-02		4.42E-01
+	I-125	35.49		6.49	-2.44E+00	3.36E+00	3.36E+00
+	SB-125	176.33		6.89	-4.50E-01	2.95E-01	9.52E-01
		427.89		29.33	1.32E-01		2.95E-01
		463.38		10.35	1.14E+00		9.72E-01
		600.56		17.80	-5.18E-02		5.11E-01
		635.90		11.32	3.52E-01		7.61E-01
+	SB-126	414.70		83.30	-3.62E+00	2.00E+01	2.29E+01
		666.33		99.60	-5.24E+00		2.00E+01
		695.00		99.60	-9.45E-01		2.11E+01
		720.50		53.80	-5.30E+00		3.76E+01
+	SN-126	87.57	*	37.00	8.04E-01	4.73E-01	4.73E-01
+	SB-127	473.00		25.00	3.60E+06	1.11E+07	1.40E+07
		685.20		35.70	-1.58E+06		1.11E+07
		783.80		14.70	1.72E+07		3.22E+07
+	I-129	29.78		57.00	5.72E-02	1.48E-01	1.48E-01
		33.60		13.20	-1.41E-01		5.61E-01
		39.58		7.52	-2.78E-01		9.32E-01
+	I-131	284.30		6.05	3.87E+03	4.54E+02	6.13E+03
		364.48		81.20	3.69E+01		4.54E+02
		636.97		7.26	3.73E+02		5.33E+03
		722.89		1.80	-3.41E+03		2.52E+04
+	TE-132	49.72		13.10	-1.11E+09	9.01E+07	6.37E+08
		228.16		88.00	6.12E+06		9.01E+07
+	BA-133	81.00		33.00	-1.18E+00	2.04E-01	2.39E-01
		302.84		17.80	5.33E-01		5.03E-01
		356.01		60.00	4.13E-02		2.04E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-4.40E+05	8.91E+04	8.91E+04
+	CS-134	563.23		8.38	5.54E-01	1.23E-01	1.18E+00
		569.32		15.43	3.06E-01		6.18E-01
		604.70		97.60	2.55E-02		1.23E-01
		795.84		85.40	1.09E-01		1.33E-01
		801.93		8.73	-5.53E-01		1.08E+00
+	CS-135	268.24		16.00	5.59E-01	5.25E-01	5.25E-01
+	@ I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41		28.60	1.00E+26		1.00E+26
	@	1678.03		9.54	1.00E+26		1.00E+26
+	CS-136	153.22		7.46	-1.51E+00	1.46E+01	1.56E+02
		163.89		4.61	8.76E+01		2.61E+02
		176.55		13.56	-3.78E+01		8.00E+01
		273.65		12.66	-5.29E+01		1.16E+02
		340.57		48.50	8.15E+01		3.79E+01
		818.50		99.70	-3.69E+00		1.46E+01
		1048.07		79.60	-4.30E-01		2.27E+01

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		CS-136	1235.34		19.70	5.88E+00	1.46E+01	1.30E+02
+		CS-137	661.65		85.12	-2.44E-02	9.82E-02	9.82E-02
+		LA-138	788.74		34.00	-2.78E-02	1.18E-01	2.63E-01
			1435.80		66.00	1.75E-02		1.18E-01
+		CE-139	165.85		80.35	5.91E-02	1.40E-01	1.40E-01
+		BA-140	162.64		6.70	4.99E+01	6.44E+01	2.08E+02
			304.84		4.50	2.61E+01		3.60E+02
			423.70		3.20	-2.18E+02		4.97E+02
			437.55		2.00	4.76E+02		7.98E+02
			537.32		25.00	-5.97E+00		6.44E+01
+		LA-140	328.77		20.50	2.77E+01	1.88E+01	8.59E+01
			487.03		45.50	6.27E+00		3.25E+01
			815.85		23.50	-1.53E+01		7.00E+01
			1596.49		95.49	6.48E-01		1.88E+01
+		CE-141	145.44		48.40	8.69E-01	1.17E+00	1.17E+00
+	@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26
	@		293.26		42.00	1.00E+26		1.00E+26
	@		664.55		5.20	1.00E+26		1.00E+26
+		CE-144	133.54		10.80	-2.41E-01	7.38E-01	7.38E-01
+		PM-144	476.78		42.00	5.81E-02	1.04E-01	2.23E-01
			618.01		98.60	8.37E-03		1.04E-01
			696.49		99.49	-1.82E-02		1.04E-01
+		PM-145	36.85		21.70	-2.73E-03	1.79E-01	3.30E-01
			37.36		39.70	-5.36E-02		1.79E-01
			42.30		15.10	-2.80E-01		4.77E-01
			72.40		2.31	-6.34E+00		4.14E+00
+		PM-146	453.90	*	39.94	1.27E-01	2.30E-01	2.30E-01
			735.90		14.01	-1.19E-01		6.42E-01
			747.13		13.10	4.87E-01		7.16E-01
+		ND-147	91.11	*	28.90	4.54E+02	2.89E+02	2.96E+02
			531.02		13.10	-3.21E+01		2.89E+02
+		PM-149	285.90		3.10	4.08E+13	5.95E+13	5.95E+13
+		EU-152	121.78		20.50	9.33E-02	3.14E-01	3.14E-01
			244.69		5.40	1.23E+00		1.54E+00
			344.27		19.13	3.09E-02		4.11E-01
			778.89		9.20	-5.97E-02		1.00E+00
			964.01		10.40	3.81E-01		1.22E+00
			1085.78		7.22	-2.62E-01		1.38E+00
			1112.02		9.60	-3.52E-01		1.09E+00
			1407.95		14.94	1.96E-01		7.80E-01
+		GD-153	97.43		31.30	1.28E-01	2.81E-01	2.81E-01
			103.18		22.20	6.53E-02		3.81E-01
+		EU-154	123.07		40.50	-1.16E-02	1.60E-01	1.60E-01
			723.30		19.70	-6.68E-02		4.94E-01
			873.19		11.50	4.07E-02		8.18E-01
			996.32		10.30	-3.10E-01		8.93E-01
			1004.76		17.90	1.98E-01		5.67E-01
			1274.45		35.50	7.97E-02		3.19E-01
+		EU-155	86.50	*	30.90	1.00E+00	3.14E-01	5.88E-01

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-155	105.30		20.70	1.38E-02	3.14E-01	3.14E-01
+	EU-156	811.77		10.40	5.17E+00	6.31E+01	6.31E+01
		1153.47		7.20	1.17E+02		1.54E+02
		1230.71		8.90	-6.28E+01		1.25E+02
+	HO-166M	184.41		72.60	3.10E-01	1.25E-01	1.25E-01
		280.45		29.60	-4.08E-02		2.57E-01
		410.94		11.10	3.14E-01		7.73E-01
		711.69		54.10	5.43E-03		1.56E-01
+	TM-171	66.72		0.14	2.28E+01	6.34E+01	6.34E+01
+	HF-172	67.35		5.31	4.82E-01	6.35E-01	1.64E+00
		125.81		11.30	-2.11E-01		6.35E-01
+	LU-172	181.53		20.60	3.50E+02	4.32E+03	8.49E+03
		900.72		29.81	1.86E+03		8.43E+03
		1093.66		62.50	2.05E+02		4.32E+03
+	LU-173	100.72		5.24	6.32E-01	4.64E-01	1.44E+00
		272.11		21.20	1.16E-01		4.64E-01
+	HF-175	343.40		84.00	1.83E-02	2.44E-01	2.44E-01
+	LU-176	88.34		13.30	-7.64E-02	7.85E-02	6.89E-01
		201.83		86.00	-1.61E-02		7.85E-02
		306.78		94.00	-1.07E-02		8.24E-02
+	HF-181	133.02		41.70	-2.45E-01	4.64E-01	7.49E-01
		345.85		17.20	1.70E-01		2.27E+00
		482.03		82.80	1.49E-01		4.64E-01
+	TA-182	67.75		41.20	1.02E-01	3.46E-01	3.46E-01
		1121.30		34.90	1.99E+00		9.51E-01
		1189.05		16.23	3.84E-01		1.34E+00
		1221.41		26.98	-4.12E-01		8.11E-01
		1231.02		11.44	-1.00E+00		1.99E+00
+	IR-192	308.46		29.68	-1.39E-01	4.09E-01	6.35E-01
		468.07		48.10	-2.88E-01		4.09E-01
+	HG-203	279.19		77.30	6.10E-02	4.36E-01	4.36E-01
+	TL-204	374.74		94.11	1.08E-02	8.76E-02	8.76E-02
		899.15		99.16	-4.32E-02		9.75E-02
		911.74		91.10	4.29E-01		2.01E-01
+	BI-207	569.67		97.72	2.62E-02	8.68E-02	8.68E-02
		1063.62		74.90	-2.07E-02		1.36E-01
+	TL-208	583.14	*	30.22	1.63E+00	2.20E-01	3.88E-01
		860.37	*	4.48	2.94E+00		3.48E+00
		2614.66	*	35.85	1.28E+00		2.20E-01
+	BI-210M	262.00		45.00	1.22E-02	1.64E-01	1.64E-01
		300.00		23.00	-2.26E+00		3.91E-01
+	PB-210	46.50		4.25	2.58E+00	1.86E+00	1.86E+00
+	PB-211	404.84		2.90	-1.15E-01	2.90E+00	2.90E+00
		831.96		2.90	5.23E-01		3.39E+00
+	BI-212	727.17	*	11.80	1.60E+00	1.27E+00	1.27E+00
		1620.62		2.75	9.17E-01		3.34E+00
+	PB-212	238.63	*	44.60	1.76E+00	3.50E-01	3.50E-01
		300.09	*	3.41	2.57E+00		4.18E+00

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BI-214	609.31	*	46.30	2.21E+00	3.22E-01	3.22E-01
		1120.29	*	15.10	2.26E+00		1.24E+00
		1764.49	*	15.80	2.62E+00		4.56E-01
		2204.22	*	4.98	3.37E+00		1.76E+00
+	PB-214	295.21	*	19.19	2.54E+00	3.63E-01	7.26E-01
		351.92	*	37.19	2.44E+00		3.63E-01
+	RN-219	401.80		6.50	-3.98E-01	1.24E+00	1.24E+00
+	RA-223	323.87		3.88	3.13E-01	2.02E+00	2.02E+00
+	RA-224	240.98		3.95	1.78E+01	3.65E+00	3.65E+00
+	RA-225	40.00		31.00	1.23E+01	2.32E+01	2.32E+01
+	RA-226	186.21	*	3.28	5.32E+00	3.19E+00	3.19E+00
+	TH-227	50.10		8.40	-9.03E-01	7.43E-01	8.38E-01
		236.00		11.50	-4.76E+00		7.43E-01
		256.20		6.30	-5.27E-02		1.19E+00
+	AC-228	338.32	*	11.40	1.42E+00	5.22E-01	1.02E+00
		911.07	*	27.70	1.26E+00		5.22E-01
		969.11	*	16.60	1.25E+00		9.59E-01
+	TH-230	48.44		16.90	4.98E-01	4.52E-01	4.52E-01
		62.85		4.60	2.41E+00		1.91E+00
		67.67		0.37	6.25E+00		2.12E+01
+	PA-231	283.67		1.60	2.10E+00	3.82E+00	4.75E+00
		302.67		2.30	4.05E+00		3.82E+00
+	TH-231	25.64		14.70	-4.01E+00	7.30E-01	7.30E-01
		84.21		6.40	-1.40E+00		1.26E+00
+	PA-233	311.98		38.60	2.76E-01	2.38E+00	2.38E+00
+	PA-234	131.20		20.40	-7.01E-02	3.14E-01	3.14E-01
		733.99		8.80	-1.71E-01		9.43E-01
		946.00		12.00	-1.53E-01		8.66E-01
+	PA-234M	1001.03		0.92	3.15E+00	1.11E+01	1.11E+01
+	TH-234	63.29	*	3.80	2.31E+00	3.15E+00	3.15E+00
+	U-235	143.76		10.50	2.39E-01	6.55E-01	6.55E-01
		163.35		4.70	4.86E-01		1.45E+00
		205.31		4.70	-3.49E-03		1.46E+00
+	NP-237	86.50	*	12.60	2.36E+00	1.39E+00	1.39E+00
+	NP-239	106.10		22.70	3.45E+11	1.04E+12	1.04E+12
		228.18		10.70	1.53E+11		2.24E+12
		277.60		14.10	4.09E+11		1.99E+12
+	AM-241	59.54		35.90	-2.66E-02	2.10E-01	2.10E-01
+	AM-243	74.67	*	66.00	4.43E-01	2.29E-01	2.29E-01
+	CM-243	209.75	*	3.29	2.28E+00	5.82E-01	3.13E+00
		228.14		10.60	4.30E-02		6.32E-01
		277.60	*	14.00	4.21E-01		5.82E-01

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated
@ = Half-life too short to be able to perform the decay correction
? = 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	2.66E+00	2.66E+00	8.55E-01	1.26E+00
	NA-22	1274.54		99.94	1.19E-01	1.19E-01	2.98E-02	5.52E-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	6.20E-02	6.20E-02	4.88E-03	2.57E-02
+	K-40	1460.81	*	10.67	1.34E+00	1.34E+00	3.41E+01	6.30E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	8.35E-02	8.35E-02	2.46E-02	4.09E-02
		78.34		96.00	1.19E-01		3.38E-01	5.87E-02
	SC-46	889.25		99.98	2.03E-01	2.03E-01	-4.05E-02	9.42E-02
		1120.51		99.99	3.99E-01		6.71E-01	1.91E-01
	V-48	983.52		99.98	6.10E+00	6.10E+00	-2.20E+00	2.81E+00
		1312.10		97.50	7.00E+00		-3.02E-01	3.19E+00
	CR-51	320.08		9.83	8.38E+00	8.38E+00	-5.41E+00	4.02E+00
	MN-54	834.83		99.97	1.21E-01	1.21E-01	-3.89E-02	5.65E-02
	CO-56	846.75		99.96	2.24E-01	2.24E-01	-1.23E-01	1.05E-01
		1037.75		14.03	1.54E+00		-3.57E-01	7.11E-01
		1238.25		67.00	5.37E-01		2.78E-01	2.54E-01
		1771.40		15.51	9.79E-01		0.00E+00	4.10E-01
		2598.48		16.90	6.58E-01		-1.77E-01	2.33E-01
	CO-57	122.06		85.51	9.50E-02	9.50E-02	1.21E-02	4.62E-02
		136.48		10.60	7.74E-01		-9.26E-03	3.76E-01
	CO-58	810.76		99.40	2.08E-01	2.08E-01	7.56E-02	9.65E-02
	FE-59	1099.22		56.50	8.64E-01	8.64E-01	7.64E-02	4.02E-01
		1291.56		43.20	1.15E+00		5.31E-01	5.31E-01
	CO-60	1173.22		100.00	1.27E-01	9.14E-02	4.04E-02	5.96E-02
		1332.49		100.00	9.14E-02		-1.95E-02	4.13E-02
+	ZN-65	1115.52	*	50.75	4.77E-01	4.77E-01	1.49E-01	2.29E-01
	GA-67	93.31		35.70	2.93E+08	2.93E+08	6.00E+08	1.44E+08

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
GA-67	208.95	2.24	3.92E+09	2.93E+08	2.64E+09	1.90E+09
	300.22	16.00	6.35E+08		-2.63E+09	3.07E+08
SE-75	121.11	16.70	6.70E-01	1.90E-01	1.99E-01	3.26E-01
	136.00	59.20	1.90E-01		-2.27E-03	9.23E-02
	264.65	59.80	2.09E-01		-1.72E-02	1.01E-01
	279.53	25.20	5.48E-01		7.67E-02	2.65E-01
	400.65	11.40	1.21E+00		-8.87E-01	5.79E-01
RB-82	776.52	13.00	1.01E+01	1.01E+01	7.14E-01	4.76E+00
RB-83	520.41	46.00	4.04E-01	4.04E-01	2.91E-01	1.92E-01
	529.64	30.30	5.51E-01		5.23E-02	2.60E-01
	552.65	16.40	1.09E+00		1.80E-01	5.14E-01
KR-85	513.99	0.43	2.72E+01	2.72E+01	3.29E+01	1.31E+01
SR-85	513.99	99.27	3.34E-01	3.34E-01	4.04E-01	1.61E-01
Y-88	898.02	93.40	1.87E-01	1.64E-01	-8.06E-02	8.69E-02
	1836.01	99.38	1.64E-01		7.70E-02	7.20E-02
MO-93	263.06	56.72	1.26E-01	7.38E-02	-3.10E-02	6.06E-02
	684.67	99.68	8.40E-02		-1.20E-02	3.94E-02
	1477.11	99.08	7.38E-02		-5.39E-02	3.22E-02
NB-93M	16.57	9.43	7.15E-01	7.15E-01	-1.00E+00	3.35E-01
NB-94	702.63	100.00	8.70E-02	8.70E-02	2.20E-02	4.09E-02
	871.10	100.00	9.06E-02		-1.88E-02	4.22E-02
NB-95	765.79	99.81	8.25E-01	8.25E-01	1.08E+00	3.93E-01
NB-95M	235.69	25.00	5.31E+07	5.31E+07	-3.40E+08	2.58E+07
ZR-95	724.18	43.70	6.81E-01	4.65E-01	-1.85E-01	3.23E-01
	756.72	55.30	4.65E-01		1.46E-01	2.18E-01
MO-99	181.06	6.20	6.11E+10	4.02E+10	2.52E+09	2.96E+10
	739.58	12.80	4.02E+10		-1.25E+09	1.89E+10
	778.00	4.50	1.11E+11		-5.39E+10	5.17E+10
RU-103	497.08	89.00	4.73E-01	4.73E-01	-1.06E-01	2.24E-01
RU-106	621.84	9.80	9.50E-01	9.50E-01	-7.68E-01	4.45E-01
AG-108M	433.93	89.90	8.31E-02	8.31E-02	8.04E-03	3.95E-02
	614.37	90.40	1.19E-01		1.02E-02	5.70E-02
	722.95	90.50	1.05E-01		-1.43E-02	4.97E-02
CD-109	88.03	3.72	2.85E+00	2.85E+00	-3.16E-01	1.40E+00
AG-110M	657.75	93.14	1.21E-01	1.21E-01	1.46E-03	5.71E-02
	677.61	10.53	1.04E+00		-3.14E-02	4.87E-01
	706.67	16.46	6.85E-01		-1.20E-01	3.21E-01
	763.93	21.98	5.88E-01		8.05E-02	2.77E-01
	884.67	71.63	1.59E-01		-2.66E-02	7.38E-02
	1384.27	23.94	5.05E-01		4.98E-02	2.29E-01
CD-113M	263.70	0.02	3.15E+02	3.15E+02	-4.14E+01	1.52E+02
SN-113	255.12	1.93	5.84E+00	2.23E-01	-1.65E+00	2.80E+00
	391.69	64.90	2.23E-01		-1.07E-01	1.07E-01
TE123M	159.00	84.10	1.41E-01	1.41E-01	-9.86E-03	6.84E-02
SB-124	602.71	97.87	2.70E-01	2.70E-01	5.46E-02	1.28E-01
	645.85	7.26	3.58E+00		-6.08E-01	1.68E+00
	722.78	11.10	2.66E+00		-3.60E-01	1.25E+00
	1691.02	49.00	4.42E-01		-1.17E-02	1.89E-01
I-125	35.49	6.49	3.36E+00	3.36E+00	-2.44E+00	1.63E+00
SB-125	176.33	6.89	9.52E-01	2.95E-01	-4.50E-01	4.60E-01
	427.89	29.33	2.95E-01		1.32E-01	1.41E-01
	463.38	10.35	9.72E-01		1.14E+00	4.66E-01
	600.56	17.80	5.11E-01		-5.18E-02	2.42E-01

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	SB-125	635.90		11.32	7.61E-01	2.95E-01	3.52E-01	3.58E-01
	SB-126	414.70		83.30	2.29E+01	2.00E+01	-3.62E+00	1.09E+01
		666.33		99.60	2.00E+01		-5.24E+00	9.38E+00
		695.00		99.60	2.11E+01		-9.45E-01	9.93E+00
		720.50		53.80	3.76E+01		-5.30E+00	1.76E+01
+	SN-126	87.57	*	37.00	4.73E-01	4.73E-01	8.04E-01	2.34E-01
	SB-127	473.00		25.00	1.40E+07	1.11E+07	3.60E+06	6.65E+06
		685.20		35.70	1.11E+07		-1.58E+06	5.19E+06
		783.80		14.70	3.22E+07		1.72E+07	1.52E+07
	I-129	29.78		57.00	1.48E-01	1.48E-01	5.72E-02	7.21E-02
		33.60		13.20	5.61E-01		-1.41E-01	2.72E-01
		39.58		7.52	9.32E-01		-2.78E-01	4.53E-01
	I-131	284.30		6.05	6.13E+03	4.54E+02	3.87E+03	2.96E+03
		364.48		81.20	4.54E+02		3.69E+01	2.18E+02
		636.97		7.26	5.33E+03		3.73E+02	2.50E+03
		722.89		1.80	2.52E+04		-3.41E+03	1.19E+04
	TE-132	49.72		13.10	6.37E+08	9.01E+07	-1.11E+09	3.10E+08
		228.16		88.00	9.01E+07		6.12E+06	4.34E+07
	BA-133	81.00		33.00	2.39E-01	2.04E-01	-1.18E+00	1.17E-01
		302.84		17.80	5.03E-01		5.33E-01	2.43E-01
		356.01		60.00	2.04E-01		4.13E-02	9.95E-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	8.91E+04	8.91E+04	-4.40E+05	4.36E+04
	CS-134	563.23		8.38	1.18E+00	1.23E-01	5.54E-01	5.63E-01
		569.32		15.43	6.18E-01		3.06E-01	2.93E-01
		604.70		97.60	1.23E-01		2.55E-02	5.88E-02
		795.84		85.40	1.33E-01		1.09E-01	6.27E-02
		801.93		8.73	1.08E+00		-5.53E-01	5.05E-01
	CS-135	268.24		16.00	5.25E-01	5.25E-01	5.59E-01	2.54E-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	1.56E+02	1.46E+01	-1.51E+00	7.59E+01
		163.89		4.61	2.61E+02		8.76E+01	1.27E+02
		176.55		13.56	8.00E+01		-3.78E+01	3.87E+01
		273.65		12.66	1.16E+02		-5.29E+01	5.60E+01
		340.57		48.50	3.79E+01		8.15E+01	1.84E+01
		818.50		99.70	1.46E+01		-3.69E+00	6.78E+00
		1048.07		79.60	2.27E+01		-4.30E-01	1.06E+01
		1235.34		19.70	1.30E+02		5.88E+00	6.12E+01
	CS-137	661.65		85.12	9.82E-02	9.82E-02	-2.44E-02	4.61E-02
	LA-138	788.74		34.00	2.63E-01	1.18E-01	-2.78E-02	1.23E-01
		1435.80		66.00	1.18E-01		1.75E-02	5.21E-02
	CE-139	165.85		80.35	1.40E-01	1.40E-01	5.91E-02	6.78E-02
	BA-140	162.64		6.70	2.08E+02	6.44E+01	4.99E+01	1.01E+02
		304.84		4.50	3.60E+02		2.61E+01	1.74E+02
		423.70		3.20	4.97E+02		-2.18E+02	2.37E+02
		437.55		2.00	7.98E+02		4.76E+02	3.80E+02
		537.32		25.00	6.44E+01		-5.97E+00	3.05E+01
	LA-140	328.77		20.50	8.59E+01	1.88E+01	2.77E+01	4.14E+01
		487.03		45.50	3.25E+01		6.27E+00	1.54E+01
		815.85		23.50	7.00E+01		-1.53E+01	3.25E+01
		1596.49		95.49	1.88E+01		6.48E-01	8.36E+00

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CE-141	145.44		48.40	1.17E+00	1.17E+00	8.69E-01	5.67E-01
@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		293.26		42.00	1.00E+26		1.00E+26	1.00E+20
@		664.55		5.20	1.00E+26		1.00E+26	1.00E+20
	CE-144	133.54		10.80	7.38E-01	7.38E-01	-2.41E-01	3.59E-01
	PM-144	476.78		42.00	2.23E-01	1.04E-01	5.81E-02	1.06E-01
		618.01		98.60	1.04E-01		8.37E-03	4.90E-02
		696.49		99.49	1.04E-01		-1.82E-02	4.86E-02
	PM-145	36.85		21.70	3.30E-01	1.79E-01	-2.73E-03	1.60E-01
		37.36		39.70	1.79E-01		-5.36E-02	8.70E-02
		42.30		15.10	4.77E-01		-2.80E-01	2.32E-01
		72.40		2.31	4.14E+00		-6.34E+00	2.03E+00
+	PM-146	453.90	*	39.94	2.30E-01	2.30E-01	1.27E-01	1.10E-01
		735.90		14.01	6.42E-01		-1.19E-01	3.01E-01
		747.13		13.10	7.16E-01		4.87E-01	3.36E-01
+	ND-147	91.11	*	28.90	2.96E+02	2.89E+02	4.54E+02	1.46E+02
		531.02		13.10	2.89E+02		-3.21E+01	1.36E+02
	PM-149	285.90		3.10	5.95E+13	5.95E+13	4.08E+13	2.87E+13
	EU-152	121.78		20.50	3.14E-01	3.14E-01	9.33E-02	1.52E-01
		244.69		5.40	1.54E+00		1.23E+00	7.47E-01
		344.27		19.13	4.11E-01		3.09E-02	1.97E-01
		778.89		9.20	1.00E+00		-5.97E-02	4.69E-01
		964.01		10.40	1.22E+00		3.81E-01	5.79E-01
		1085.78		7.22	1.38E+00		-2.62E-01	6.41E-01
		1112.02		9.60	1.09E+00		-3.52E-01	5.04E-01
		1407.95		14.94	7.80E-01		1.96E-01	3.60E-01
	GD-153	97.43		31.30	2.81E-01	2.81E-01	1.28E-01	1.37E-01
		103.18		22.20	3.81E-01		6.53E-02	1.86E-01
	EU-154	123.07		40.50	1.60E-01	1.60E-01	-1.16E-02	7.75E-02
		723.30		19.70	4.94E-01		-6.68E-02	2.33E-01
		873.19		11.50	8.18E-01		4.07E-02	3.81E-01
		996.32		10.30	8.93E-01		-3.10E-01	4.12E-01
		1004.76		17.90	5.67E-01		1.98E-01	2.64E-01
		1274.45		35.50	3.19E-01		7.97E-02	1.48E-01
+	EU-155	86.50	*	30.90	5.88E-01	3.14E-01	1.00E+00	2.91E-01
		105.30		20.70	3.14E-01		1.38E-02	1.53E-01
	EU-156	811.77		10.40	6.31E+01	6.31E+01	5.17E+00	2.91E+01
		1153.47		7.20	1.54E+02		1.17E+02	7.25E+01
		1230.71		8.90	1.25E+02		-6.28E+01	5.84E+01
	HO-166M	184.41		72.60	1.25E-01	1.25E-01	3.10E-01	6.11E-02
		280.45		29.60	2.57E-01		-4.08E-02	1.24E-01
		410.94		11.10	7.73E-01		3.14E-01	3.71E-01
		711.69		54.10	1.56E-01		5.43E-03	7.30E-02
	TM-171	66.72		0.14	6.34E+01	6.34E+01	2.28E+01	3.11E+01
	HF-172	67.35		5.31	1.64E+00	6.35E-01	4.82E-01	8.01E-01
		125.81		11.30	6.35E-01		-2.11E-01	3.09E-01
	LU-172	181.53		20.60	8.49E+03	4.32E+03	3.50E+02	4.11E+03
		900.72		29.81	8.43E+03		1.86E+03	3.94E+03
		1093.66		62.50	4.32E+03		2.05E+02	2.01E+03
	LU-173	100.72		5.24	1.44E+00	4.64E-01	6.32E-01	7.03E-01
		272.11		21.20	4.64E-01		1.16E-01	2.25E-01
	HF-175	343.40		84.00	2.44E-01	2.44E-01	1.83E-02	1.17E-01
	LU-176	88.34		13.30	6.89E-01	7.85E-02	-7.64E-02	3.38E-01

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	LU-176	201.83		86.00	7.85E-02	7.85E-02	-1.61E-02	3.80E-02
		306.78		94.00	8.24E-02		-1.07E-02	3.97E-02
	HF-181	133.02		41.70	7.49E-01	4.64E-01	-2.45E-01	3.64E-01
		345.85		17.20	2.27E+00		1.70E-01	1.09E+00
		482.03		82.80	4.64E-01		1.49E-01	2.20E-01
	TA-182	67.75		41.20	3.46E-01	3.46E-01	1.02E-01	1.69E-01
		1121.30		34.90	9.51E-01		1.99E+00	4.56E-01
		1189.05		16.23	1.34E+00		3.84E-01	6.27E-01
		1221.41		26.98	8.11E-01		-4.12E-01	3.79E-01
		1231.02		11.44	1.99E+00		-1.00E+00	9.31E-01
	IR-192	308.46		29.68	6.35E-01	4.09E-01	-1.39E-01	3.06E-01
		468.07		48.10	4.09E-01		-2.88E-01	1.94E-01
	HG-203	279.19		77.30	4.36E-01	4.36E-01	6.10E-02	2.10E-01
	TL-204	374.74		94.11	8.76E-02	8.76E-02	1.08E-02	4.20E-02
		899.15		99.16	9.75E-02		-4.32E-02	4.54E-02
		911.74		91.10	2.01E-01		4.29E-01	9.66E-02
	BI-207	569.67		97.72	8.68E-02	8.68E-02	2.62E-02	4.11E-02
		1063.62		74.90	1.36E-01		-2.07E-02	6.31E-02
+	TL-208	583.14	*	30.22	3.88E-01	2.20E-01	1.63E+00	1.86E-01
		860.37	*	4.48	3.48E+00		2.94E+00	1.67E+00
		2614.66	*	35.85	2.20E-01		1.28E+00	9.06E-02
	BI-210M	262.00		45.00	1.64E-01	1.64E-01	1.22E-02	7.90E-02
		300.00		23.00	3.91E-01		-2.26E+00	1.90E-01
	PB-210	46.50		4.25	1.86E+00	1.86E+00	2.58E+00	9.08E-01
	PB-211	404.84		2.90	2.90E+00	2.90E+00	-1.15E-01	1.39E+00
		831.96		2.90	3.39E+00		5.23E-01	1.59E+00
+	BI-212	727.17	*	11.80	1.27E+00	1.27E+00	1.60E+00	6.11E-01
		1620.62		2.75	3.34E+00		9.17E-01	1.49E+00
+	PB-212	238.63	*	44.60	3.50E-01	3.50E-01	1.76E+00	1.72E-01
		300.09	*	3.41	4.18E+00		2.57E+00	2.05E+00
+	BI-214	609.31	*	46.30	3.22E-01	3.22E-01	2.21E+00	1.56E-01
		1120.29	*	15.10	1.24E+00		2.26E+00	5.98E-01
		1764.49	*	15.80	4.56E-01		2.62E+00	1.95E-01
		2204.22	*	4.98	1.76E+00		3.37E+00	7.59E-01
+	PB-214	295.21	*	19.19	7.26E-01	3.63E-01	2.54E+00	3.56E-01
		351.92	*	37.19	3.63E-01		2.44E+00	1.77E-01
	RN-219	401.80		6.50	1.24E+00	1.24E+00	-3.98E-01	5.92E-01
	RA-223	323.87		3.88	2.02E+00	2.02E+00	3.13E-01	9.70E-01
	RA-224	240.98		3.95	3.65E+00	3.65E+00	1.78E+01	1.79E+00
	RA-225	40.00		31.00	2.32E+01	2.32E+01	1.23E+01	1.13E+01
+	RA-226	186.21	*	3.28	3.19E+00	3.19E+00	5.32E+00	1.56E+00
	TH-227	50.10		8.40	8.38E-01	7.43E-01	-9.03E-01	4.08E-01
		236.00		11.50	7.43E-01		-4.76E+00	3.61E-01
		256.20		6.30	1.19E+00		-5.27E-02	5.73E-01
+	AC-228	338.32	*	11.40	1.02E+00	5.22E-01	1.42E+00	4.98E-01
		911.07	*	27.70	5.22E-01		1.26E+00	2.49E-01
		969.11	*	16.60	9.59E-01		1.25E+00	4.59E-01
	TH-230	48.44		16.90	4.52E-01	4.52E-01	4.98E-01	2.20E-01
		62.85		4.60	1.91E+00		2.41E+00	9.38E-01
		67.67		0.37	2.12E+01		6.25E+00	1.04E+01
	PA-231	283.67		1.60	4.75E+00	3.82E+00	2.10E+00	2.29E+00
		302.67		2.30	3.82E+00		4.05E+00	1.85E+00
	TH-231	25.64		14.70	7.30E-01	7.30E-01	-4.01E+00	3.56E-01

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TH-231	84.21		6.40	1.26E+00	7.30E-01	-1.40E+00	6.19E-01
	PA-233	311.98		38.60	2.38E+00	2.38E+00	2.76E-01	1.15E+00
	PA-234	131.20		20.40	3.14E-01	3.14E-01	-7.01E-02	1.52E-01
		733.99		8.80	9.43E-01		-1.71E-01	4.40E-01
		946.00		12.00	8.66E-01		-1.53E-01	4.06E-01
	PA-234M	1001.03		0.92	1.11E+01	1.11E+01	3.15E+00	5.17E+00
+	TH-234	63.29	*	3.80	3.15E+00	3.15E+00	2.31E+00	1.55E+00
	U-235	143.76		10.50	6.55E-01	6.55E-01	2.39E-01	3.18E-01
		163.35		4.70	1.45E+00		4.86E-01	7.04E-01
		205.31		4.70	1.46E+00		-3.49E-03	7.05E-01
+	NP-237	86.50	*	12.60	1.39E+00	1.39E+00	2.36E+00	6.88E-01
	NP-239	106.10		22.70	1.04E+12	1.04E+12	3.45E+11	5.04E+11
		228.18		10.70	2.24E+12		1.53E+11	1.08E+12
		277.60		14.10	1.99E+12		4.09E+11	9.63E+11
	AM-241	59.54		35.90	2.10E-01	2.10E-01	-2.66E-02	1.03E-01
+	AM-243	74.67	*	66.00	2.29E-01	2.29E-01	4.43E-01	1.13E-01
+	CM-243	209.75	*	3.29	3.13E+00	5.82E-01	2.28E+00	1.53E+00
		228.14		10.60	6.32E-01		4.30E-02	3.05E-01
		277.60	*	14.00	5.82E-01		4.21E-01	2.82E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

Analysis Report for 1707085-17

HTC-A02-S003-3642-01

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

Sample Title: HTC-A02-S003-3642-01

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	4	70	127	97	166	534	201
25:	78	67	65	95	77	73	79	75
33:	77	62	84	65	76	63	87	84
41:	78	86	92	83	103	112	159	114
49:	99	87	115	77	121	129	88	91
57:	117	123	117	131	132	133	167	292
65:	167	152	130	155	155	132	137	157
73:	178	188	408	394	409	649	211	148
81:	156	153	120	140	210	126	185	242
89:	176	182	214	158	295	257	140	90
97:	87	99	112	117	90	101	74	72
105:	103	108	80	74	108	104	96	69
113:	95	96	96	83	89	74	80	82
121:	79	82	73	101	78	78	81	91
129:	101	103	76	74	81	71	80	78
137:	84	73	76	81	79	76	80	99
145:	102	81	86	75	72	70	76	72
153:	77	83	73	77	76	82	77	74
161:	68	81	62	95	78	69	71	70
169:	63	71	63	72	56	64	58	55
177:	51	65	59	66	72	61	77	64
185:	86	212	177	65	60	69	61	56
193:	70	55	57	51	68	66	57	68
201:	56	57	65	58	66	66	59	58
209:	83	96	67	63	49	49	59	63
217:	53	49	71	50	53	61	49	59
225:	50	56	50	58	47	54	46	53
233:	43	53	54	59	67	177	526	239
241:	84	166	145	63	53	45	54	29
249:	31	50	45	47	36	40	38	33
257:	47	35	53	33	42	37	30	36
265:	32	27	41	36	34	69	71	57
273:	39	31	35	42	42	62	39	30
281:	24	34	42	26	43	43	40	36
289:	37	30	33	26	23	46	215	266
297:	73	26	34	58	71	39	30	49
305:	28	36	29	36	30	27	29	32
313:	25	35	30	33	18	30	23	25
321:	24	26	36	34	31	28	43	50
329:	48	34	28	32	32	38	32	26
337:	35	82	124	38	32	37	28	32
345:	24	21	26	31	41	25	113	425
353:	293	42	26	31	35	21	23	21
361:	22	27	26	31	22	21	27	28

369:	26	30	22	27	28	28	19	23

Sample Title: HTC-A02-S003-3642-01

Channel								
377:	24	31	27	20	21	21	17	24
385:	22	27	30	28	26	21	32	22
393:	25	21	29	28	32	18	15	27
401:	21	35	20	25	27	31	15	31
409:	28	35	30	18	31	15	21	25
417:	24	20	22	30	16	18	23	20
425:	21	19	28	20	26	18	24	19
433:	13	14	16	20	23	24	24	20
441:	12	15	17	22	16	16	19	17
449:	18	13	22	21	23	23	25	12
457:	11	16	14	11	22	26	44	37
465:	22	18	20	19	17	14	17	14
473:	11	21	15	16	8	16	29	16
481:	20	15	12	15	10	15	16	18
489:	15	11	12	13	16	13	13	18
497:	11	19	19	11	19	17	13	14
505:	14	15	15	15	25	69	93	61
513:	31	19	19	10	15	14	16	18
521:	16	21	23	17	13	11	16	17
529:	13	12	14	13	12	18	10	22
537:	15	15	10	12	18	16	14	17
545:	18	14	17	14	9	18	8	11
553:	20	9	21	17	13	18	14	16
561:	17	17	28	17	12	21	8	19
569:	13	19	16	20	13	10	11	15
577:	15	16	17	11	16	49	152	122
585:	33	10	16	12	16	11	11	15
593:	18	13	14	17	18	11	15	12
601:	12	14	16	21	14	12	27	66
609:	264	247	55	18	20	21	14	12
617:	20	13	10	13	14	12	8	10
625:	11	11	21	10	9	5	9	9
633:	3	10	11	17	14	14	13	4
641:	13	17	17	11	9	15	7	15
649:	13	10	15	15	13	13	13	16
657:	11	14	10	8	17	14	4	9
665:	20	22	6	10	8	16	14	6
673:	15	14	8	12	13	9	13	12
681:	12	6	12	10	12	8	13	15
689:	13	10	16	12	13	9	9	18
697:	12	10	9	14	9	16	11	10
705:	14	8	10	11	15	11	14	9
713:	9	7	10	7	14	9	9	8
721:	8	8	16	15	16	24	24	37
729:	20	10	9	11	7	13	6	13
737:	10	18	9	15	15	8	9	14
745:	14	9	19	10	9	6	5	8
753:	8	12	9	16	14	8	9	8
761:	8	11	19	15	9	13	18	36
769:	26	6	10	12	15	12	7	15
777:	5	14	10	8	13	11	15	10
785:	17	15	9	6	13	9	5	15
793:	9	15	29	16	9	13	6	7

801:	7	9	9	13	14	12	15	11

Sample Title: HTC-A02-S003-3642-01

Channel								
809:	6	4	11	4	9	8	4	5
817:	10	7	11	12	8	11	10	6
825:	8	14	9	11	16	10	10	11
833:	12	10	12	12	10	11	18	13
841:	11	15	16	6	13	9	7	13
849:	17	7	7	17	10	7	3	8
857:	9	11	16	18	23	10	12	11
865:	9	7	11	10	8	8	15	4
873:	9	9	12	8	13	5	8	5
881:	10	8	8	10	6	5	9	10
889:	11	8	11	6	14	8	9	7
897:	9	9	9	16	3	9	14	13
905:	5	11	7	16	6	23	104	61
913:	15	7	9	15	9	4	5	5
921:	5	6	7	15	6	7	15	14
929:	9	11	9	5	20	12	15	7
937:	10	11	15	8	11	3	12	11
945:	18	6	10	10	7	16	13	5
953:	14	11	9	4	11	10	9	9
961:	4	12	14	21	25	15	16	42
969:	59	30	11	13	8	12	8	8
977:	6	6	7	3	6	3	11	12
985:	6	5	11	9	6	5	4	7
993:	8	6	5	10	7	7	7	11
1001:	12	15	4	9	8	6	7	5
1009:	6	3	8	6	10	15	6	12
1017:	5	5	7	7	7	8	11	15
1025:	11	12	12	10	5	7	5	9
1033:	8	1	5	11	5	10	5	11
1041:	10	5	6	8	12	6	9	11
1049:	11	5	7	13	7	6	10	4
1057:	7	11	10	6	11	7	6	13
1065:	4	11	6	10	10	8	12	7
1073:	7	3	5	5	6	14	10	7
1081:	9	4	8	11	8	8	7	7
1089:	11	7	8	8	13	4	9	10
1097:	8	7	8	11	10	7	9	10
1105:	13	8	12	12	6	8	6	10
1113:	3	16	7	9	3	14	26	62
1121:	38	16	16	15	7	8	10	5
1129:	4	9	13	11	11	9	4	10
1137:	9	7	7	9	8	7	11	18
1145:	5	13	8	8	6	12	10	6
1153:	10	13	18	12	4	9	6	11
1161:	7	8	15	6	13	9	14	5
1169:	7	16	6	10	15	12	12	4
1177:	10	11	14	12	6	8	16	8
1185:	8	7	14	12	10	11	6	10
1193:	5	12	7	7	6	7	13	8
1201:	13	9	10	15	9	15	18	13
1209:	4	10	6	5	14	12	6	10
1217:	12	4	8	6	13	12	11	14
1225:	14	15	6	8	9	16	8	13

1233:	13	7	8	5	27	25	23	8

Sample Title: HTC-A02-S003-3642-01

Channel								
1241:	12	16	10	12	4	7	14	8
1249:	11	8	9	6	5	6	9	8
1257:	7	9	8	5	12	7	16	9
1265:	5	9	7	8	8	11	6	6
1273:	5	11	10	8	7	1	6	12
1281:	6	6	8	2	4	8	3	6
1289:	7	3	13	5	8	7	3	5
1297:	2	10	2	2	10	5	7	4
1305:	8	3	4	3	5	2	9	3
1313:	7	8	6	9	7	4	1	3
1321:	3	7	4	4	4	8	5	9
1329:	7	4	4	4	3	4	4	3
1337:	5	8	5	8	4	5	2	6
1345:	3	5	4	6	5	6	6	5
1353:	3	4	3	7	4	1	1	5
1361:	6	7	3	5	3	2	7	5
1369:	3	3	4	6	3	3	7	5
1377:	26	17	8	9	4	5	4	5
1385:	10	0	3	2	5	1	6	2
1393:	1	2	1	1	2	1	4	5
1401:	4	8	6	5	0	7	13	10
1409:	8	6	6	3	0	3	7	3
1417:	3	3	2	4	7	7	3	4
1425:	3	2	4	4	4	5	1	4
1433:	3	1	7	2	2	1	2	2
1441:	5	4	4	1	3	4	4	1
1449:	4	1	2	3	4	3	0	4
1457:	6	20	92	407	414	118	22	19
1465:	12	9	6	1	2	1	3	2
1473:	3	3	4	2	1	2	1	4
1481:	7	2	1	2	1	4	2	0
1489:	3	0	2	2	0	8	3	7
1497:	5	4	1	1	3	4	4	2
1505:	1	1	6	13	11	5	1	3
1513:	1	2	2	5	2	1	2	3
1521:	5	3	4	2	3	2	4	2
1529:	1	1	2	2	3	3	2	5
1537:	5	3	4	3	4	2	7	4
1545:	2	3	3	3	2	3	1	1
1553:	4	3	3	2	3	2	1	2
1561:	0	2	3	1	1	0	3	1
1569:	0	0	2	1	1	1	2	1
1577:	4	0	2	5	1	6	4	3
1585:	3	3	13	8	3	0	4	5
1593:	6	2	3	2	1	4	4	5
1601:	3	1	2	1	1	1	3	2
1609:	3	1	0	1	0	1	3	3
1617:	3	2	2	9	4	1	3	2
1625:	2	3	0	0	3	3	3	1
1633:	0	1	0	0	0	4	0	5
1641:	0	3	1	2	1	1	2	2
1649:	0	1	3	0	3	3	2	1
1657:	0	1	3	2	5	1	2	5

1665:	3	2	2	0	0	2	0	0

Sample Title: HTC-A02-S003-3642-01

Channel								
1673:	4	3	2	1	1	2	0	3
1681:	0	3	3	0	2	0	4	0
1689:	0	1	2	2	3	2	6	4
1697:	2	3	2	0	4	2	2	2
1705:	2	0	3	0	0	0	0	2
1713:	3	3	0	3	1	2	1	1
1721:	2	0	1	3	0	0	5	7
1729:	8	12	2	2	0	3	1	0
1737:	3	2	1	1	1	2	1	0
1745:	1	0	1	2	3	2	1	2
1753:	0	1	0	1	1	1	0	1
1761:	1	5	31	36	26	8	1	3
1769:	2	0	1	0	2	0	2	0
1777:	1	1	0	1	1	3	1	2
1785:	0	2	1	2	1	2	5	2
1793:	0	0	2	0	1	2	1	0
1801:	0	1	0	0	1	4	0	0
1809:	0	2	1	1	2	2	2	2
1817:	0	1	1	2	1	2	1	7
1825:	2	0	1	3	0	1	2	2
1833:	2	2	3	3	2	3	1	0
1841:	0	1	0	1	2	4	12	2
1849:	2	2	2	1	0	1	5	1
1857:	0	1	1	1	1	1	1	1
1865:	3	0	1	2	4	2	1	3
1873:	1	2	1	0	0	0	1	2
1881:	2	2	1	1	0	2	1	0
1889:	1	2	2	0	1	2	0	1
1897:	1	0	1	2	1	2	0	1
1905:	0	1	2	2	1	3	0	1
1913:	0	1	2	3	3	2	3	1
1921:	0	1	0	2	0	2	1	0
1929:	0	0	1	0	3	0	1	3
1937:	2	1	1	2	2	2	2	2
1945:	2	1	3	3	1	0	0	3
1953:	1	3	0	2	4	4	0	0
1961:	0	0	0	1	2	3	4	1
1969:	2	1	0	1	2	1	2	0
1977:	1	0	1	2	0	0	1	2
1985:	1	0	0	0	0	1	1	3
1993:	3	1	0	1	1	1	0	2
2001:	0	1	0	1	0	0	0	0
2009:	0	1	1	0	2	2	0	2
2017:	0	1	1	0	1	2	3	3
2025:	0	1	2	1	0	1	1	2
2033:	1	0	1	1	0	2	0	0
2041:	0	0	0	0	1	2	0	0
2049:	1	1	0	1	1	0	0	0
2057:	3	1	1	0	1	0	1	0
2065:	1	1	1	0	0	0	0	0
2073:	0	1	1	1	2	2	0	0
2081:	1	0	0	1	3	2	0	2
2089:	2	0	0	2	0	0	1	0

2097:	1	5	1	3	0	4	5	3

Sample Title: HTC-A02-S003-3642-01

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

2529:	0	1	0	0	0	1	0	0

Sample Title: HTC-A02-S003-3642-01

Channel								
2537:	0	0	0	0	0	1	1	0
2545:	0	0	0	0	0	0	1	0
2553:	0	0	0	0	0	1	0	1
2561:	1	0	1	0	1	0	0	0
2569:	0	1	0	0	0	1	0	0
2577:	1	1	0	0	1	0	0	0
2585:	1	0	0	1	0	2	1	0
2593:	0	0	1	0	0	0	0	0
2601:	1	0	1	1	1	0	0	0
2609:	0	1	3	20	39	19	11	4
2617:	1	1	0	0	0	0	0	0
2625:	0	1	0	0	0	0	0	0
2633:	0	0	0	1	2	1	0	0
2641:	0	0	1	0	1	0	0	0
2649:	0	0	1	0	0	0	0	2
2657:	0	1	1	0	0	0	0	0
2665:	0	0	0	0	0	0	0	0
2673:	0	0	0	0	0	0	0	1
2681:	0	0	0	0	0	1	1	1
2689:	0	0	1	0	0	0	0	0
2697:	0	0	0	0	1	1	0	0
2705:	1	0	0	0	0	0	1	0
2713:	0	0	0	0	1	0	0	0
2721:	1	0	0	0	0	0	0	1
2729:	0	0	1	0	1	0	0	0
2737:	0	0	0	0	1	0	0	0
2745:	1	0	1	1	0	0	0	0
2753:	0	0	0	1	0	0	1	0
2761:	0	1	0	0	2	1	0	0
2769:	0	0	0	0	0	0	0	0
2777:	0	0	0	1	1	2	0	0
2785:	0	0	2	0	0	0	1	0
2793:	1	1	0	1	1	0	0	1
2801:	0	1	0	0	0	0	2	1
2809:	0	0	0	0	0	0	0	0
2817:	2	0	0	2	0	0	0	1
2825:	0	0	1	1	0	0	0	3
2833:	1	0	0	0	0	0	0	0
2841:	0	0	0	0	0	0	0	1
2849:	1	0	0	0	0	0	0	0
2857:	0	0	0	0	0	0	0	0
2865:	0	0	1	2	1	1	0	0
2873:	1	0	0	0	0	0	2	1
2881:	0	0	1	1	1	0	0	0
2889:	0	0	1	0	0	0	1	0
2897:	0	0	0	0	0	0	0	0
2905:	0	1	1	0	1	0	0	0
2913:	0	0	1	0	0	1	0	0
2921:	0	0	0	1	2	0	1	0
2929:	0	0	0	0	0	1	0	1
2937:	0	0	0	0	0	2	0	3
2945:	0	0	0	1	0	0	0	0
2953:	0	0	0	1	0	0	0	0

2961:	0	1	2	0	0	0	0	0

Sample Title: HTC-A02-S003-3642-01

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

3393:	1	2	0	2	0	0	0	0

Sample Title: HTC-A02-S003-3642-01

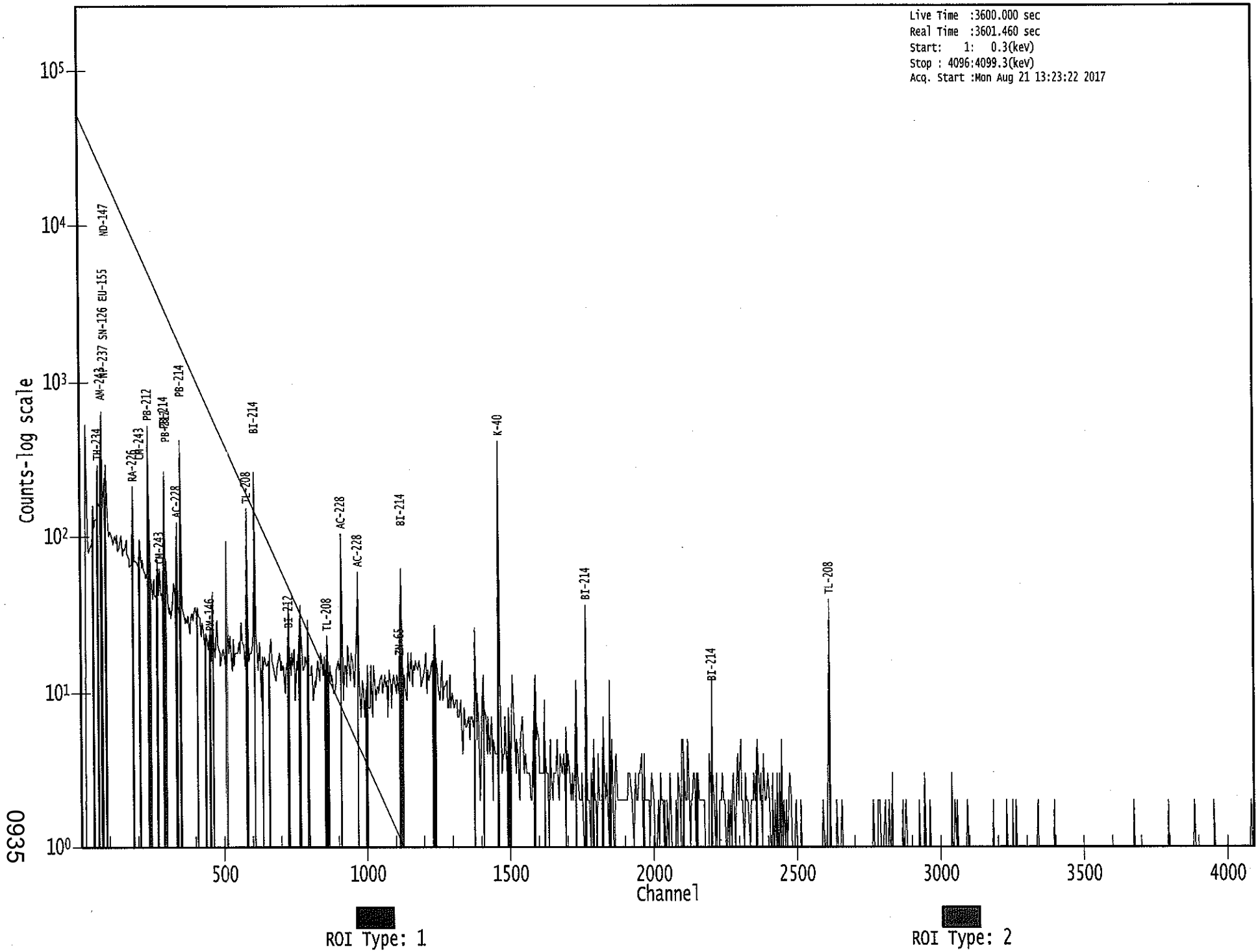
Channel								
3401:	0	0	1	1	0	0	0	0
3409:	1	0	0	0	0	1	1	0
3417:	1	0	0	0	1	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	1	0	0	0	1	1	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	1	0	0	0	0	1	0	1
3481:	0	0	1	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	1	0	0	0	0	0	0	1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

3825:	0	0	0	1	0	0	0	0

Sample Title: HTC-A02-S003-3642-01

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

0000055646.CNF



0935

KB 8/21/17

Apex-Gamma

Analysis Report for 1707085-18
HTC-A02-S003-4248-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707085-18
Sample Description	: HTC-A02-S003-4248-01
Sample Type	: SOIL
Sample Size	: 4.597E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 8:14:15AM
Acquisition Started	: 8/21/2017 1:19:29PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE2
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3601.0 seconds
Dead Time	: 0.03 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 29 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 8/19/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55644

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/22/17

Analysis Report for 1707085-18

HTC-A02-S003-4248-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 2:19:33PM
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	76.55	76.87	0.0000	0.00
2	93.12	93.41	0.0000	0.00
3	100.49	100.77	0.0000	0.00
4	105.57	105.85	0.0000	0.00
5	116.08	116.35	0.0000	0.00
6	129.04	129.30	0.0000	0.00
7	185.94	186.14	0.0000	0.00
8	209.41	209.58	0.0000	0.00
9	229.97	230.12	0.0000	0.00
10	238.80	238.94	0.0000	0.00
11	241.75	241.88	0.0000	0.00
12	270.26	270.36	0.0000	0.00
13	276.84	276.93	0.0000	0.00
14	295.16	295.24	0.0000	0.00
15	327.81	327.85	0.0000	0.00
16	338.51	338.54	0.0000	0.00
17	348.11	348.14	0.0000	0.00
18	352.00	352.02	0.0000	0.00
19	463.06	462.96	0.0000	0.00
20	510.96	510.82	0.0000	0.00
21	524.54	524.38	0.0000	0.00
22	562.95	562.75	0.0000	0.00
23	583.41	583.19	0.0000	0.00
24	609.57	609.33	0.0000	0.00
25	719.38	719.03	0.0000	0.00
26	724.73	724.37	0.0000	0.00
27	727.74	727.38	0.0000	0.00
28	767.91	767.51	0.0000	0.00
29	795.81	795.38	0.0000	0.00
30	861.52	861.03	0.0000	0.00
31	874.85	874.35	0.0000	0.00
32	911.46	910.92	0.0000	0.00
33	933.09	932.53	0.0000	0.00
34	950.99	950.41	0.0000	0.00
35	969.69	969.09	0.0000	0.00
36	1053.27	1052.60	0.0000	0.00
37	1120.89	1120.16	0.0000	0.00
38	1199.25	1198.45	0.0000	0.00
39	1288.25	1287.37	0.0000	0.00
40	1371.86	1370.91	0.0000	0.00
41	1378.60	1377.65	0.0000	0.00
42	1387.20	1386.23	0.0000	0.00

Analysis Report for 1707085-18

HTC-A02-S003-4248-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1428.01	1427.02	0.0000	0.00
44	1461.25	1460.23	0.0000	0.00
45	1509.73	1508.66	0.0000	0.00
46	1533.66	1532.57	0.0000	0.00
47	1554.94	1553.83	0.0000	0.00
48	1567.05	1565.94	0.0000	0.00
49	1584.32	1583.19	0.0000	0.00
50	1678.83	1677.63	0.0000	0.00
51	1765.30	1764.03	0.0000	0.00
52	1794.92	1793.63	0.0000	0.00
53	1848.49	1847.15	0.0000	0.00
54	1961.37	1959.95	0.0000	0.00
55	1967.83	1966.40	0.0000	0.00
56	2095.38	2093.86	0.0000	0.00
57	2104.83	2103.31	0.0000	0.00
58	2186.01	2184.43	0.0000	0.00
59	2336.66	2334.98	0.0000	0.00
60	2614.87	2613.00	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707085-18

HTC-A02-S003-4248-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 2:19:33PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	76.55	73 -	82	76.87	7.77E+02	126.42	1.77E+03	3.78
	2	93.12	92 -	96	93.41	2.15E+02	65.08	7.16E+02	1.67
	3	100.49	99 -	103	100.77	4.30E+01	53.08	5.76E+02	2.06
	4	105.57	104 -	108	105.85	4.93E+01	51.36	5.45E+02	2.05
	5	116.08	112 -	119	116.35	7.05E+01	73.51	8.49E+02	4.00
	6	129.04	127 -	132	129.30	6.39E+01	57.10	6.02E+02	1.50
	7	185.94	183 -	189	186.14	1.45E+02	61.82	5.91E+02	1.43
	8	209.41	206 -	213	209.58	9.49E+01	59.70	5.28E+02	1.87
M	9	229.97	227 -	244	230.12	4.34E+01	33.41	2.57E+02	1.30
m	10	238.80	227 -	244	238.94	6.69E+02	61.61	2.20E+02	1.32
m	11	241.75	227 -	244	241.88	1.25E+02	41.71	1.94E+02	1.33
	12	270.26	267 -	273	270.36	6.61E+01	45.56	3.30E+02	1.93
	13	276.84	274 -	280	276.93	5.25E+01	43.75	3.07E+02	1.37
	14	295.16	292 -	299	295.24	2.30E+02	57.38	4.01E+02	1.59
	15	327.81	323 -	332	327.85	7.06E+01	53.61	3.71E+02	1.45
	16	338.51	335 -	342	338.54	1.48E+02	49.40	3.08E+02	1.98
M	17	348.11	347 -	356	348.14	2.03E+01	18.46	7.92E+01	1.50
m	18	352.00	347 -	356	352.02	3.93E+02	47.72	1.51E+02	1.51
	19	463.06	460 -	466	462.96	3.51E+01	33.17	1.74E+02	1.33
	20	510.96	506 -	515	510.82	1.73E+02	50.77	2.68E+02	1.74
	21	524.54	520 -	528	524.38	3.78E+01	35.80	1.70E+02	1.61
	22	562.95	559 -	566	562.75	2.65E+01	31.94	1.53E+02	2.10
	23	583.41	579 -	586	583.19	2.39E+02	41.81	1.32E+02	1.82
	24	609.57	607 -	612	609.33	2.61E+02	39.96	1.10E+02	1.99
	25	719.38	716 -	722	719.03	2.62E+01	23.45	8.16E+01	2.38
M	26	724.73	723 -	732	724.37	1.86E+01	17.09	5.36E+01	1.92
m	27	727.74	723 -	732	727.38	4.84E+01	28.27	9.86E+01	2.18
	28	767.91	763 -	772	767.51	2.95E+01	32.54	1.33E+02	3.96
	29	795.81	791 -	801	795.38	2.73E+01	34.33	1.41E+02	2.01
	30	861.52	858 -	865	861.03	2.77E+01	25.85	9.45E+01	1.63
	31	874.85	871 -	877	874.35	2.20E+01	22.21	7.40E+01	1.23
	32	911.46	906 -	914	910.92	1.32E+02	36.48	1.29E+02	2.01
	33	933.09	928 -	937	932.53	3.17E+01	29.34	1.05E+02	1.72
	34	950.99	944 -	957	950.41	3.50E+01	33.76	1.08E+02	3.05
	35	969.69	965 -	973	969.09	6.95E+01	37.98	1.67E+02	1.67
	36	1053.27	1049 -	1056	1052.60	1.76E+01	22.80	7.29E+01	4.73
	37	1120.89	1117 -	1124	1120.16	6.08E+01	30.20	1.10E+02	1.98
	38	1199.25	1194 -	1202	1198.45	2.77E+01	26.40	9.06E+01	4.05
	39	1288.25	1284 -	1290	1287.37	1.50E+01	18.10	4.81E+01	1.94
	40	1371.86	1368 -	1373	1370.91	9.00E+00	9.80	1.20E+01	2.79

Analysis Report for 1707085-18

HTC-A02-S003-4248-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1378.60	1374 -	1383	1377.65	2.28E+01	17.49	3.24E+01	2.65
42	1387.20	1383 -	1391	1386.23	1.67E+01	12.52	1.45E+01	4.31
43	1428.01	1421 -	1434	1427.02	2.05E+01	18.33	2.91E+01	7.31
44	1461.25	1453 -	1465	1460.23	7.94E+02	59.66	4.48E+01	2.47
45	1509.73	1504 -	1513	1508.66	1.97E+01	13.53	1.45E+01	5.28
46	1533.66	1530 -	1536	1532.57	5.50E+00	7.78	7.00E+00	1.18
47	1554.94	1549 -	1558	1553.83	1.55E+01	9.85	5.06E+00	7.31
48	1567.05	1562 -	1568	1565.94	6.36E+00	8.99	9.27E+00	2.91
49	1584.32	1579 -	1588	1583.19	1.56E+01	14.28	2.08E+01	6.87
50	1678.83	1675 -	1680	1677.63	8.00E+00	5.66	0.00E+00	2.98
51	1765.30	1757 -	1770	1764.03	6.40E+01	16.00	0.00E+00	2.87
52	1794.92	1790 -	1796	1793.63	8.00E+00	5.66	0.00E+00	3.48
53	1848.49	1840 -	1852	1847.15	1.46E+01	12.98	1.28E+01	4.50
54	1961.37	1956 -	1963	1959.95	7.17E+00	7.21	3.67E+00	5.65
55	1967.83	1964 -	1969	1966.40	5.21E+00	6.08	3.57E+00	1.67
56	2095.38	2089 -	2096	2093.86	7.00E+00	5.29	0.00E+00	1.92
57	2104.83	2099 -	2109	2103.31	1.29E+01	11.68	1.22E+01	1.25
58	2186.01	2179 -	2187	2184.43	8.50E+00	9.62	9.00E+00	1.49
59	2336.66	2331 -	2339	2334.98	1.06E+01	8.50	4.85E+00	1.24
60	2614.87	2608 -	2617	2613.00	6.45E+01	17.12	4.94E+00	2.65

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 2:19:33PM

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
1	76.55	73 -	82	7.77E+02	126.42	1.77E+03	9.33E+01
2	93.12	92 -	96	2.15E+02	65.08	7.16E+02	4.78E+01
3	100.49	99 -	103	4.30E+01	53.08	5.76E+02	4.23E+01
4	105.57	104 -	108	4.93E+01	51.36	5.45E+02	4.06E+01
5	116.08	112 -	119	7.05E+01	73.51	8.49E+02	5.88E+01
6	129.04	127 -	132	6.39E+01	57.10	6.02E+02	4.51E+01
7	185.94	183 -	189	1.45E+02	61.82	5.91E+02	4.68E+01
8	209.41	206 -	213	9.49E+01	59.70	5.28E+02	4.64E+01

Analysis Report for 1707085-18

HTC-A02-S003-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	9	229.97	227 -	244	4.34E+01	33.41	2.57E+02	2.64E+01
m	10	238.80	227 -	244	6.69E+02	61.61	2.20E+02	2.44E+01
m	11	241.75	227 -	244	1.25E+02	41.71	1.94E+02	2.29E+01
	12	270.26	267 -	273	6.61E+01	45.56	3.30E+02	3.50E+01
	13	276.84	274 -	280	5.25E+01	43.75	3.07E+02	3.39E+01
	14	295.16	292 -	299	2.30E+02	57.38	4.01E+02	4.00E+01
	15	327.81	323 -	332	7.06E+01	53.61	3.71E+02	4.18E+01
	16	338.51	335 -	342	1.48E+02	49.40	3.08E+02	3.53E+01
M	17	348.11	347 -	356	2.03E+01	18.46	7.92E+01	1.46E+01
m	18	352.00	347 -	356	3.93E+02	47.72	1.51E+02	2.02E+01
	19	463.06	460 -	466	3.51E+01	33.17	1.74E+02	2.55E+01
	20	510.96	506 -	515	1.73E+02	50.77	2.68E+02	3.57E+01
	21	524.54	520 -	528	3.78E+01	35.80	1.70E+02	2.76E+01
	22	562.95	559 -	566	2.65E+01	31.94	1.53E+02	2.48E+01
	23	583.41	579 -	586	2.39E+02	41.81	1.32E+02	2.31E+01
	24	609.57	607 -	612	2.61E+02	39.96	1.10E+02	1.93E+01
	25	719.38	716 -	722	2.62E+01	23.45	8.16E+01	1.73E+01
M	26	724.73	723 -	732	1.86E+01	17.09	5.36E+01	1.20E+01
m	27	727.74	723 -	732	4.84E+01	28.27	9.86E+01	1.63E+01
	28	767.91	763 -	772	2.95E+01	32.54	1.33E+02	2.52E+01
	29	795.81	791 -	801	2.73E+01	34.33	1.41E+02	1.58E+01
	30	861.52	858 -	865	2.77E+01	25.85	9.45E+01	1.94E+01
	31	874.85	871 -	877	2.20E+01	22.21	7.40E+01	1.65E+01
	32	911.46	906 -	914	1.32E+02	36.48	1.29E+02	3.05E+01
	33	933.09	928 -	937	3.17E+01	29.34	1.05E+02	2.23E+01
	34	950.99	944 -	957	3.50E+01	33.76	1.08E+02	2.60E+01
	35	969.69	965 -	973	6.95E+01	37.98	1.67E+02	2.80E+01
	36	1053.27	1049 -	1056	1.76E+01	22.80	7.29E+01	1.74E+01
	37	1120.89	1117 -	1124	6.08E+01	30.20	1.10E+02	2.13E+01
	38	1199.25	1194 -	1202	2.77E+01	26.40	9.06E+01	1.99E+01
	39	1288.25	1284 -	1290	1.50E+01	18.10	4.81E+01	1.34E+01
	40	1371.86	1368 -	1373	9.00E+00	9.80	1.20E+01	6.37E+00
	41	1378.60	1374 -	1383	2.28E+01	17.49	3.24E+01	1.20E+01
	42	1387.20	1383 -	1391	1.67E+01	12.52	1.45E+01	7.79E+00
	43	1428.01	1421 -	1434	2.05E+01	18.33	2.91E+01	1.31E+01
	44	1461.25	1453 -	1465	7.94E+02	59.66	4.48E+01	1.61E+01
	45	1509.73	1504 -	1513	1.97E+01	13.53	1.45E+01	8.38E+00
	46	1533.66	1530 -	1536	5.50E+00	7.78	7.00E+00	5.10E+00
	47	1554.94	1549 -	1558	1.55E+01	9.85	5.06E+00	4.87E+00
	48	1567.05	1562 -	1568	6.36E+00	8.99	9.27E+00	6.11E+00
	49	1584.32	1579 -	1588	1.56E+01	14.28	2.08E+01	9.78E+00
	50	1678.83	1675 -	1680	8.00E+00	5.66	0.00E+00	0.00E+00
	51	1765.30	1757 -	1770	6.40E+01	16.00	0.00E+00	0.00E+00
	52	1794.92	1790 -	1796	8.00E+00	5.66	0.00E+00	0.00E+00
	53	1848.49	1840 -	1852	1.46E+01	12.98	1.28E+01	8.62E+00
	54	1961.37	1956 -	1963	7.17E+00	7.21	3.67E+00	3.97E+00
	55	1967.83	1964 -	1969	5.21E+00	6.08	3.57E+00	3.30E+00
	56	2095.38	2089 -	2096	7.00E+00	5.29	0.00E+00	0.00E+00
	57	2104.83	2099 -	2109	1.29E+01	11.68	1.22E+01	7.58E+00
	58	2186.01	2179 -	2187	8.50E+00	9.62	9.00E+00	6.29E+00
	59	2336.66	2331 -	2339	1.06E+01	8.50	4.85E+00	4.50E+00

Analysis Report for 1707085-18

HTC-A02-S003-4248-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
60	2614.87	2608 -	2617	6.45E+01	17.12	4.94E+00	4.85E+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 : 8/21/2017 2:19:33PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	76.55	73 -	82	76.87	7.77E+02	126.42	1.77E+03	.....
	2	93.12	92 -	96	93.41	2.15E+02	65.08	7.16E+02	GA-67
	3	100.49	99 -	103	100.77	4.30E+01	53.08	5.76E+02	LU-173
	4	105.57	104 -	108	105.85	4.93E+01	51.36	5.45E+02	EU-155
									NP-239
	5	116.08	112 -	119	116.35	7.05E+01	73.51	8.49E+02	.....
	6	129.04	127 -	132	129.30	6.39E+01	57.10	6.02E+02	.....
	7	185.94	183 -	189	186.14	1.45E+02	61.82	5.91E+02	RA-226
	8	209.41	206 -	213	209.58	9.49E+01	59.70	5.28E+02	CM-243
									GA-67
M	9	229.97	227 -	244	230.12	4.34E+01	33.41	2.57E+02	.....
m	10	238.80	227 -	244	238.94	6.69E+02	61.61	2.20E+02	PB-212
m	11	241.75	227 -	244	241.88	1.25E+02	41.71	1.94E+02	RA-224
	12	270.26	267 -	273	270.36	6.61E+01	45.56	3.30E+02	.....
	13	276.84	274 -	280	276.93	5.25E+01	43.75	3.07E+02	CM-243
									NP-239
	14	295.16	292 -	299	295.24	2.30E+02	57.38	4.01E+02	PB-214
	15	327.81	323 -	332	327.85	7.06E+01	53.61	3.71E+02	LA-140
	16	338.51	335 -	342	338.54	1.48E+02	49.40	3.08E+02	AC-228
M	17	348.11	347 -	356	348.14	2.03E+01	18.46	7.92E+01	.....
m	18	352.00	347 -	356	352.02	3.93E+02	47.72	1.51E+02	PB-214
	19	463.06	460 -	466	462.96	3.51E+01	33.17	1.74E+02	SB-125
	20	510.96	506 -	515	510.82	1.73E+02	50.77	2.68E+02	.....
	21	524.54	520 -	528	524.38	3.78E+01	35.80	1.70E+02	.....
	22	562.95	559 -	566	562.75	2.65E+01	31.94	1.53E+02	CS-134

Analysis Report for 1707085-18

HTC-A02-S003-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	23	583.41	579 -	586	583.19	2.39E+02	41.81	1.32E+02	TL-208
	24	609.57	607 -	612	609.33	2.61E+02	39.96	1.10E+02	BI-214
	25	719.38	716 -	722	719.03	2.62E+01	23.45	8.16E+01	.....
M	26	724.73	723 -	732	724.37	1.86E+01	17.09	5.36E+01	ZR-95
m	27	727.74	723 -	732	727.38	4.84E+01	28.27	9.86E+01	BI-212
	28	767.91	763 -	772	767.51	2.95E+01	32.54	1.33E+02	.....
	29	795.81	791 -	801	795.38	2.73E+01	34.33	1.41E+02	CS-134
	30	861.52	858 -	865	861.03	2.77E+01	25.85	9.45E+01	.....
	31	874.85	871 -	877	874.35	2.20E+01	22.21	7.40E+01	.....
	32	911.46	906 -	914	910.92	1.32E+02	36.48	1.29E+02	TL-204 AC-228
	33	933.09	928 -	937	932.53	3.17E+01	29.34	1.05E+02	.....
	34	950.99	944 -	957	950.41	3.50E+01	33.76	1.08E+02	.....
	35	969.69	965 -	973	969.09	6.95E+01	37.98	1.67E+02	AC-228
	36	1053.27	1049 -	1056	1052.60	1.76E+01	22.80	7.29E+01	.....
	37	1120.89	1117 -	1124	1120.16	6.08E+01	30.20	1.10E+02	SC-46 TA-182 BI-214
	38	1199.25	1194 -	1202	1198.45	2.77E+01	26.40	9.06E+01	.....
	39	1288.25	1284 -	1290	1287.37	1.50E+01	18.10	4.81E+01	.....
	40	1371.86	1368 -	1373	1370.91	9.00E+00	9.80	1.20E+01	.....
	41	1378.60	1374 -	1383	1377.65	2.28E+01	17.49	3.24E+01	.....
	42	1387.20	1383 -	1391	1386.23	1.67E+01	12.52	1.45E+01	.....
	43	1428.01	1421 -	1434	1427.02	2.05E+01	18.33	2.91E+01	.....
	44	1461.25	1453 -	1465	1460.23	7.94E+02	59.66	4.48E+01	K-40
	45	1509.73	1504 -	1513	1508.66	1.97E+01	13.53	1.45E+01	.....
	46	1533.66	1530 -	1536	1532.57	5.50E+00	7.78	7.00E+00	.....
	47	1554.94	1549 -	1558	1553.83	1.55E+01	9.85	5.06E+00	.....
	48	1567.05	1562 -	1568	1565.94	6.36E+00	8.99	9.27E+00	.....
	49	1584.32	1579 -	1588	1583.19	1.56E+01	14.28	2.08E+01	.....
	50	1678.83	1675 -	1680	1677.63	8.00E+00	5.66	0.00E+00	I-135
	51	1765.30	1757 -	1770	1764.03	6.40E+01	16.00	0.00E+00	BI-214
	52	1794.92	1790 -	1796	1793.63	8.00E+00	5.66	0.00E+00	.....
	53	1848.49	1840 -	1852	1847.15	1.46E+01	12.98	1.28E+01	.....
	54	1961.37	1956 -	1963	1959.95	7.17E+00	7.21	3.67E+00	.....
	55	1967.83	1964 -	1969	1966.40	5.21E+00	6.08	3.57E+00	.....
	56	2095.38	2089 -	2096	2093.86	7.00E+00	5.29	0.00E+00	.....
	57	2104.83	2099 -	2109	2103.31	1.29E+01	11.68	1.22E+01	.....
	58	2186.01	2179 -	2187	2184.43	8.50E+00	9.62	9.00E+00	.....
	59	2336.66	2331 -	2339	2334.98	1.06E+01	8.50	4.85E+00	.....
	60	2614.87	2608 -	2617	2613.00	6.45E+01	17.12	4.94E+00	TL-208

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

Analysis Report for 1707085-18

HTC-A02-S003-4248-01

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/21/2017 2:19:33PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	76.55	7.77E+02	126.42	2.64E-02	2.12E-03
	2	93.12	2.15E+02	65.08	2.70E-02	2.33E-03
	3	100.49	4.30E+01	53.08	2.67E-02	2.19E-03
	4	105.57	4.93E+01	51.36	2.65E-02	2.09E-03
	5	116.08	7.05E+01	73.51	2.58E-02	1.89E-03
	6	129.04	6.39E+01	57.10	2.48E-02	1.75E-03
	7	185.94	1.45E+02	61.82	2.03E-02	1.53E-03
	8	209.41	9.49E+01	59.70	1.88E-02	1.43E-03
M	9	229.97	4.34E+01	33.41	1.77E-02	1.34E-03
m	10	238.80	6.69E+02	61.61	1.72E-02	1.30E-03
m	11	241.75	1.25E+02	41.71	1.71E-02	1.28E-03
	12	270.26	6.61E+01	45.56	1.58E-02	1.16E-03
	13	276.84	5.25E+01	43.75	1.55E-02	1.13E-03
	14	295.16	2.30E+02	57.38	1.48E-02	1.10E-03
	15	327.81	7.06E+01	53.61	1.38E-02	1.05E-03
	16	338.51	1.48E+02	49.40	1.34E-02	1.04E-03
M	17	348.11	2.03E+01	18.46	1.32E-02	1.03E-03
m	18	352.00	3.93E+02	47.72	1.31E-02	1.02E-03
	19	463.06	3.51E+01	33.17	1.06E-02	9.07E-04
	20	510.96	1.73E+02	50.77	9.87E-03	8.65E-04
	21	524.54	3.78E+01	35.80	9.67E-03	8.53E-04
	22	562.95	2.65E+01	31.94	9.15E-03	8.20E-04
	23	583.41	2.39E+02	41.81	8.90E-03	8.02E-04
	24	609.57	2.61E+02	39.96	8.60E-03	7.79E-04
	25	719.38	2.62E+01	23.45	7.53E-03	6.78E-04
M	26	724.73	1.86E+01	17.09	7.49E-03	6.73E-04
m	27	727.74	4.84E+01	28.27	7.46E-03	6.70E-04
	28	767.91	2.95E+01	32.54	7.14E-03	6.32E-04
	29	795.81	2.73E+01	34.33	6.94E-03	6.05E-04
	30	861.52	2.77E+01	25.85	6.50E-03	5.41E-04
	31	874.85	2.20E+01	22.21	6.42E-03	5.29E-04
	32	911.46	1.32E+02	36.48	6.21E-03	5.01E-04
	33	933.09	3.17E+01	29.34	6.09E-03	4.94E-04
	34	950.99	3.50E+01	33.76	6.00E-03	4.88E-04
	35	969.69	6.95E+01	37.98	5.90E-03	4.81E-04
	36	1053.27	1.76E+01	22.80	5.51E-03	4.52E-04
	37	1120.89	6.08E+01	30.20	5.24E-03	4.28E-04
	38	1199.25	2.77E+01	26.40	4.96E-03	4.13E-04
	39	1288.25	1.50E+01	18.10	4.69E-03	4.21E-04
	40	1371.86	9.00E+00	9.80	4.47E-03	4.13E-04
	41	1378.60	2.28E+01	17.49	4.45E-03	4.11E-04
	42	1387.20	1.67E+01	12.52	4.43E-03	4.09E-04
	43	1428.01	2.05E+01	18.33	4.34E-03	3.97E-04
	44	1461.25	7.94E+02	59.66	4.26E-03	3.87E-04
	45	1509.73	1.97E+01	13.53	4.16E-03	3.73E-04

Analysis Report for 1707085-18

HTC-A02-S003-4248-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
46	1533.66	5.50E+00	7.78	4.12E-03	3.67E-04
47	1554.94	1.55E+01	9.85	4.08E-03	3.60E-04
48	1567.05	6.36E+00	8.99	4.05E-03	3.57E-04
49	1584.32	1.56E+01	14.28	4.02E-03	3.52E-04
50	1678.83	8.00E+00	5.66	3.87E-03	3.25E-04
51	1765.30	6.40E+01	16.00	3.75E-03	3.00E-04
52	1794.92	8.00E+00	5.66	3.71E-03	2.91E-04
53	1848.49	1.46E+01	12.98	3.64E-03	2.79E-04
54	1961.37	7.17E+00	7.21	3.52E-03	2.79E-04
55	1967.83	5.21E+00	6.08	3.52E-03	2.79E-04
56	2095.38	7.00E+00	5.29	3.41E-03	2.79E-04
57	2104.83	1.29E+01	11.68	3.41E-03	2.79E-04
58	2186.01	8.50E+00	9.62	3.35E-03	2.79E-04
59	2336.66	1.06E+01	8.50	3.27E-03	2.79E-04
60	2614.87	6.45E+01	17.12	3.20E-03	2.79E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/21/2017 2:19:33PM

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

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	76.55	7.77E+02	126.42			7.77E+02	1.26E+02
	2	93.12	2.15E+02	65.08	4.88E+01	1.30E+00	1.66E+02	6.51E+01
	3	100.49	4.30E+01	53.08			4.30E+01	5.31E+01
	4	105.57	4.93E+01	51.36			4.93E+01	5.14E+01
	5	116.08	7.05E+01	73.51			7.05E+01	7.35E+01
	6	129.04	6.39E+01	57.10			6.39E+01	5.71E+01
	7	185.94	1.45E+02	61.82	3.48E+01	7.32E+00	1.11E+02	6.23E+01
	8	209.41	9.49E+01	59.70			9.49E+01	5.97E+01
M	9	229.97	4.34E+01	33.41			4.34E+01	3.34E+01
m	10	238.80	6.69E+02	61.61	7.09E+00	6.85E+00	6.62E+02	6.20E+01
m	11	241.75	1.25E+02	41.71			1.25E+02	4.17E+01
	12	270.26	6.61E+01	45.56			6.61E+01	4.56E+01
	13	276.84	5.25E+01	43.75			5.25E+01	4.38E+01
	14	295.16	2.30E+02	57.38			2.30E+02	5.74E+01
	15	327.81	7.06E+01	53.61			7.06E+01	5.36E+01

Analysis Report for 1707085-18

HTC-A02-S003-4248-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	16	338.51	1.48E+02	49.40			1.48E+02	4.94E+01
M	17	348.11	2.03E+01	18.46			2.03E+01	1.85E+01
m	18	352.00	3.93E+02	47.72	1.04E+01	5.08E+00	3.83E+02	4.80E+01
	19	463.06	3.51E+01	33.17			3.51E+01	3.32E+01
	20	510.96	1.73E+02	50.77	7.08E+01	4.94E+00	1.02E+02	5.10E+01
	21	524.54	3.78E+01	35.80			3.78E+01	3.58E+01
	22	562.95	2.65E+01	31.94			2.65E+01	3.19E+01
	23	583.41	2.39E+02	41.81	5.65E+00	3.57E+00	2.33E+02	4.20E+01
	24	609.57	2.61E+02	39.96	1.07E+01	3.96E+00	2.50E+02	4.02E+01
	25	719.38	2.62E+01	23.45			2.62E+01	2.34E+01
M	26	724.73	1.86E+01	17.09			1.86E+01	1.71E+01
m	27	727.74	4.84E+01	28.27			4.84E+01	2.83E+01
	28	767.91	2.95E+01	32.54			2.95E+01	3.25E+01
	29	795.81	2.73E+01	34.33			2.73E+01	3.43E+01
	30	861.52	2.77E+01	25.85			2.77E+01	2.58E+01
	31	874.85	2.20E+01	22.21			2.20E+01	2.22E+01
	32	911.46	1.32E+02	36.48	2.63E+00	2.49E+00	1.29E+02	3.66E+01
	33	933.09	3.17E+01	29.34			3.17E+01	2.93E+01
	34	950.99	3.50E+01	33.76			3.50E+01	3.38E+01
	35	969.69	6.95E+01	37.98			6.95E+01	3.80E+01
	36	1053.27	1.76E+01	22.80			1.76E+01	2.28E+01
	37	1120.89	6.08E+01	30.20	2.45E+00	2.38E+00	5.84E+01	3.03E+01
	38	1199.25	2.77E+01	26.40			2.77E+01	2.64E+01
	39	1288.25	1.50E+01	18.10			1.50E+01	1.81E+01
	40	1371.86	9.00E+00	9.80			9.00E+00	9.80E+00
	41	1378.60	2.28E+01	17.49			2.28E+01	1.75E+01
	42	1387.20	1.67E+01	12.52			1.67E+01	1.25E+01
	43	1428.01	2.05E+01	18.33			2.05E+01	1.83E+01
	44	1461.25	7.94E+02	59.66	5.90E+00	2.63E+00	7.88E+02	5.97E+01
	45	1509.73	1.97E+01	13.53			1.97E+01	1.35E+01
	46	1533.66	5.50E+00	7.78			5.50E+00	7.78E+00
	47	1554.94	1.55E+01	9.85			1.55E+01	9.85E+00
	48	1567.05	6.36E+00	8.99			6.36E+00	8.99E+00
	49	1584.32	1.56E+01	14.28			1.56E+01	1.43E+01
	50	1678.83	8.00E+00	5.66			8.00E+00	5.66E+00
	51	1765.30	6.40E+01	16.00	3.33E+00	1.73E+00	6.07E+01	1.61E+01
	52	1794.92	8.00E+00	5.66			8.00E+00	5.66E+00
	53	1848.49	1.46E+01	12.98			1.46E+01	1.30E+01
	54	1961.37	7.17E+00	7.21			7.17E+00	7.21E+00
	55	1967.83	5.21E+00	6.08			5.21E+00	6.08E+00
	56	2095.38	7.00E+00	5.29			7.00E+00	5.29E+00
	57	2104.83	1.29E+01	11.68			1.29E+01	1.17E+01
	58	2186.01	8.50E+00	9.62			8.50E+00	9.62E+00
	59	2336.66	1.06E+01	8.50			1.06E+01	8.50E+00
	60	2614.87	6.45E+01	17.12	4.77E+00	1.52E+00	5.98E+01	1.72E+01

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

Analysis Report for 1707085-18

HTC-A02-S003-4248-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/21/2017 2:19:33PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055574.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	76.55	7.77E+02	126.42			7.77E+02	1.26E+02
	2	93.12	2.15E+02	65.08	4.88E+01	1.30E+00	1.66E+02	6.51E+01
	3	100.49	4.30E+01	53.08			4.30E+01	5.31E+01
	4	105.57	4.93E+01	51.36			4.93E+01	5.14E+01
	5	116.08	7.05E+01	73.51			7.05E+01	7.35E+01
	6	129.04	6.39E+01	57.10			6.39E+01	5.71E+01
	7	185.94	1.45E+02	61.82	3.48E+01	7.32E+00	1.11E+02	6.23E+01
	8	209.41	9.49E+01	59.70			9.49E+01	5.97E+01
M	9	229.97	4.34E+01	33.41			4.34E+01	3.34E+01
m	10	238.80	6.69E+02	61.61	7.09E+00	6.85E+00	6.62E+02	6.20E+01
m	11	241.75	1.25E+02	41.71			1.25E+02	4.17E+01
	12	270.26	6.61E+01	45.56			6.61E+01	4.56E+01
	13	276.84	5.25E+01	43.75			5.25E+01	4.38E+01
	14	295.16	2.30E+02	57.38			2.30E+02	5.74E+01
	15	327.81	7.06E+01	53.61			7.06E+01	5.36E+01
	16	338.51	1.48E+02	49.40			1.48E+02	4.94E+01
M	17	348.11	2.03E+01	18.46			2.03E+01	1.85E+01
m	18	352.00	3.93E+02	47.72	1.04E+01	5.08E+00	3.83E+02	4.80E+01
	19	463.06	3.51E+01	33.17			3.51E+01	3.32E+01
	20	510.96	1.73E+02	50.77	7.08E+01	4.94E+00	1.02E+02	5.10E+01
	21	524.54	3.78E+01	35.80			3.78E+01	3.58E+01
	22	562.95	2.65E+01	31.94			2.65E+01	3.19E+01
	23	583.41	2.39E+02	41.81	5.65E+00	3.57E+00	2.33E+02	4.20E+01
	24	609.57	2.61E+02	39.96	1.07E+01	3.96E+00	2.50E+02	4.02E+01
	25	719.38	2.62E+01	23.45			2.62E+01	2.34E+01
M	26	724.73	1.86E+01	17.09			1.86E+01	1.71E+01
m	27	727.74	4.84E+01	28.27			4.84E+01	2.83E+01
	28	767.91	2.95E+01	32.54			2.95E+01	3.25E+01
	29	795.81	2.73E+01	34.33			2.73E+01	3.43E+01
	30	861.52	2.77E+01	25.85			2.77E+01	2.58E+01
	31	874.85	2.20E+01	22.21			2.20E+01	2.22E+01
	32	911.46	1.32E+02	36.48	2.63E+00	2.49E+00	1.29E+02	3.66E+01
	33	933.09	3.17E+01	29.34			3.17E+01	2.93E+01
	34	950.99	3.50E+01	33.76			3.50E+01	3.38E+01
	35	969.69	6.95E+01	37.98			6.95E+01	3.80E+01
	36	1053.27	1.76E+01	22.80			1.76E+01	2.28E+01
	37	1120.89	6.08E+01	30.20	2.45E+00	2.38E+00	5.84E+01	3.03E+01
	38	1199.25	2.77E+01	26.40			2.77E+01	2.64E+01
	39	1288.25	1.50E+01	18.10			1.50E+01	1.81E+01

Analysis Report for 1707085-18

HTC-A02-S003-4248-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
40	1371.86	9.00E+00	9.80			9.00E+00	9.80E+00
41	1378.60	2.28E+01	17.49			2.28E+01	1.75E+01
42	1387.20	1.67E+01	12.52			1.67E+01	1.25E+01
43	1428.01	2.05E+01	18.33			2.05E+01	1.83E+01
44	1461.25	7.94E+02	59.66	5.90E+00	2.63E+00	7.88E+02	5.97E+01
45	1509.73	1.97E+01	13.53			1.97E+01	1.35E+01
46	1533.66	5.50E+00	7.78			5.50E+00	7.78E+00
47	1554.94	1.55E+01	9.85			1.55E+01	9.85E+00
48	1567.05	6.36E+00	8.99			6.36E+00	8.99E+00
49	1584.32	1.56E+01	14.28			1.56E+01	1.43E+01
50	1678.83	8.00E+00	5.66			8.00E+00	5.66E+00
51	1765.30	6.40E+01	16.00	3.33E+00	1.73E+00	6.07E+01	1.61E+01
52	1794.92	8.00E+00	5.66			8.00E+00	5.66E+00
53	1848.49	1.46E+01	12.98			1.46E+01	1.30E+01
54	1961.37	7.17E+00	7.21			7.17E+00	7.21E+00
55	1967.83	5.21E+00	6.08			5.21E+00	6.08E+00
56	2095.38	7.00E+00	5.29			7.00E+00	5.29E+00
57	2104.83	1.29E+01	11.68			1.29E+01	1.17E+01
58	2186.01	8.50E+00	9.62			8.50E+00	9.62E+00
59	2336.66	1.06E+01	8.50			1.06E+01	8.50E+00
60	2614.87	6.45E+01	17.12	4.77E+00	1.52E+00	5.98E+01	1.72E+01

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

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	0.969	1460.81	*	10.67	2.83E+01	3.40E+00
TL-208	0.881	583.14	*	30.22	1.42E+00	2.85E-01
		860.37		4.48		
		2614.66	*	35.85	8.52E-01	2.56E-01
BI-212	0.727	727.17	*	11.80	8.98E-01	5.30E-01
		1620.62		2.75		
PB-212	0.890	238.63	*	44.60	1.41E+00	1.69E-01
		300.09		3.41		
BI-214	0.895	609.31	*	46.30	1.03E+00	1.89E-01
		1120.29	*	15.10	1.20E+00	6.33E-01

Analysis Report for 1707085-18

HTC-A02-S003-4248-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.895	1764.49	*	15.80	1.67E+00	4.64E-01
		2204.22		4.98		
PB-214	0.999	295.21	*	19.19	1.32E+00	3.43E-01
		351.92	*	37.19	1.29E+00	1.90E-01
RA-224	0.911	240.98	*	3.95	3.03E+00	1.03E+00
RA-226	0.989	186.21	*	3.28	2.71E+00	5.19E+00
AC-228	0.971	338.32	*	11.40	1.58E+00	5.40E-01
		911.07	*	27.70	1.23E+00	3.61E-01
		969.11	*	16.60	1.16E+00	6.40E-01
CM-243	0.326	209.75	*	3.29	2.52E+00	1.60E+00
		228.14		10.60		
		277.60	*	14.00	3.97E-01	3.32E-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 2:19:33PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	76.55	2.15830E-01	8.13		
	2	93.12	4.62058E-02	19.57		
	3	100.49	1.19562E-02	61.66	Tol.	LU-173
	4	105.57	1.36853E-02	52.13	Tol.	EU-155
						NP-239
	5	116.08	1.95808E-02	52.14		
	6	129.04	1.77618E-02	44.65		
M	9	229.97	1.20613E-02	38.47		
	12	270.26	1.83646E-02	34.45		
	15	327.81	1.96115E-02	37.97		
M	17	348.11	5.64900E-03	45.39		
	19	463.06	9.74954E-03	47.26	Sum	
	20	510.96	2.83289E-02	25.01		
	21	524.54	1.04878E-02	47.41	Sum	
	22	562.95	7.37055E-03	60.18	Tol.	CS-134
	25	719.38	7.27197E-03	44.78		
M	26	724.73	5.16278E-03	45.97	Tol.	ZR-95

Analysis Report for 1707085-18

HTC-A02-S003-4248-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
28	767.91	8.20312E-03	55.10		
29	795.81	7.57653E-03	62.93	Sum	
30	861.52	7.70370E-03	46.60		
31	874.85	6.11346E-03	50.46		
33	933.09	8.81448E-03	46.24		
34	950.99	9.72846E-03	48.20	S-Esc	
36	1053.27	4.88169E-03	64.88		
38	1199.25	7.69026E-03	47.68		
39	1288.25	4.15954E-03	60.43		
40	1371.86	2.50000E-03	54.43		
41	1378.60	6.33903E-03	38.33		
42	1387.20	4.65278E-03	37.37		
43	1428.01	5.68254E-03	44.80		
45	1509.73	5.48354E-03	34.26		
46	1533.66	1.52778E-03	70.71		
47	1554.94	4.29784E-03	31.83		
48	1567.05	1.76768E-03	70.61		
49	1584.32	4.32692E-03	45.85		
50	1678.83	2.22222E-03	35.36	Tol.	I-135
52	1794.92	2.22222E-03	35.36		
53	1848.49	4.06085E-03	44.40	Sum	
54	1961.37	1.99074E-03	50.31		
55	1967.83	1.44841E-03	58.33		
56	2095.38	1.94444E-03	37.80		
57	2104.83	3.58187E-03	45.30	S-Esc	
58	2186.01	2.36111E-03	56.57		
59	2336.66	2.93803E-03	40.18		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.96	1460.81	*	10.67	2.83E+01	3.40E+00

Analysis Report for 1707085-18

HTC-A02-S003-4248-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
TL-208	0.88	583.14	*	30.22	1.42E+00	2.85E-01
		860.37		4.48		
		2614.66	*	35.85	8.52E-01	2.56E-01
BI-212	0.72	727.17	*	11.80	8.98E-01	5.30E-01
		1620.62		2.75		
PB-212	0.89	238.63	*	44.60	1.41E+00	1.69E-01
		300.09		3.41		
BI-214	0.89	609.31	*	46.30	1.03E+00	1.89E-01
		1120.29	*	15.10	1.20E+00	6.33E-01
		1764.49	*	15.80	1.67E+00	4.64E-01
		2204.22		4.98		
PB-214	0.99	295.21	*	19.19	1.32E+00	3.43E-01
		351.92	*	37.19	1.29E+00	1.90E-01
RA-224	0.91	240.98	*	3.95	3.03E+00	1.03E+00
RA-226	0.98	186.21	*	3.28	2.71E+00	5.19E+00
AC-228	0.97	338.32	*	11.40	1.58E+00	5.40E-01
		911.07	*	27.70	1.23E+00	3.61E-01
		969.11	*	16.60	1.16E+00	6.40E-01
CM-243	0.32	209.75	*	3.29	2.52E+00	1.60E+00
		228.14		10.60		
		277.60	*	14.00	3.97E-01	3.32E-01

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

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.969	2.83E+01	3.40E+00	
TL-208	0.881	1.10E+00	1.90E-01	
BI-212	0.727	8.98E-01	5.30E-01	
PB-212	0.890	1.41E+00	1.69E-01	
BI-214	0.895	1.12E+00	1.69E-01	
PB-214	0.999	1.29E+00	1.66E-01	

Analysis Report for 1707085-18

HTC-A02-S003-4248-01

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
RA-224	0.911	3.03E+00	1.03E+00	
RA-226	0.989	2.71E+00	5.19E+00	
AC-228	0.971	1.30E+00	2.72E-01	
CM-243	0.326	4.85E-01	3.25E-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 1707085-18

HTC-A02-S003-4248-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 2:19:33PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	76.55	2.15830E-01	8.13		
	2	93.12	4.62058E-02	19.57		
	3	100.49	1.19562E-02	61.66	Tol.	LU-173
	4	105.57	1.36853E-02	52.13	Tol.	EU-155
						NP-239
	5	116.08	1.95808E-02	52.14		
	6	129.04	1.77618E-02	44.65		
M	9	229.97	1.20613E-02	38.47		
	12	270.26	1.83646E-02	34.45		
	15	327.81	1.96115E-02	37.97		
M	17	348.11	5.64900E-03	45.39		
	19	463.06	9.74954E-03	47.26	Sum	
	20	510.96	2.83289E-02	25.01		
	21	524.54	1.04878E-02	47.41	Sum	
	22	562.95	7.37055E-03	60.18	Tol.	CS-134
	25	719.38	7.27197E-03	44.78		
M	26	724.73	5.16278E-03	45.97	Tol.	ZR-95
	28	767.91	8.20312E-03	55.10		
	29	795.81	7.57653E-03	62.93	Sum	
	30	861.52	7.70370E-03	46.60		
	31	874.85	6.11346E-03	50.46		
	33	933.09	8.81448E-03	46.24		
	34	950.99	9.72846E-03	48.20	S-Esc	
	36	1053.27	4.88169E-03	64.88		
	38	1199.25	7.69026E-03	47.68		
	39	1288.25	4.15954E-03	60.43		
	40	1371.86	2.50000E-03	54.43		
	41	1378.60	6.33903E-03	38.33		
	42	1387.20	4.65278E-03	37.37		
	43	1428.01	5.68254E-03	44.80		
	45	1509.73	5.48354E-03	34.26		
	46	1533.66	1.52778E-03	70.71		
	47	1554.94	4.29784E-03	31.83		
	48	1567.05	1.76768E-03	70.61		
	49	1584.32	4.32692E-03	45.85		

Analysis Report for 1707085-18

HTC-A02-S003-4248-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
50	1678.83	2.22222E-03	35.36	Tol.	I-135
52	1794.92	2.22222E-03	35.36		
53	1848.49	4.06085E-03	44.40	Sum	
54	1961.37	1.99074E-03	50.31		
55	1967.83	1.44841E-03	58.33		
56	2095.38	1.94444E-03	37.80		
57	2104.83	3.58187E-03	45.30	S-Esc	
58	2186.01	2.36111E-03	56.57		
59	2336.66	2.93803E-03	40.18		

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	1.18E+00	2.29E+00	2.29E+00
+	NA-22	1274.54		99.94	-3.71E-04	1.12E-01	1.12E-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-03	8.05E-02	8.05E-02
+	K-40	1460.81	*	10.67	2.83E+01	1.30E+00	1.30E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	8.27E-03	5.80E-02	5.80E-02
		78.34		96.00	1.09E-01		7.04E-02
+	SC-46	889.25		99.98	-1.70E-02	1.97E-01	1.97E-01
		1120.51		99.99	4.63E-01		3.66E-01
+	V-48	983.52		99.98	-1.01E+00	5.94E+00	5.94E+00
		1312.10		97.50	-6.60E-01		6.56E+00
+	CR-51	320.08		9.83	-2.29E+00	6.72E+00	6.72E+00
+	MN-54	834.83		99.97	5.92E-03	1.12E-01	1.12E-01
+	CO-56	846.75		99.96	-1.76E-01	1.80E-01	1.80E-01
		1037.75		14.03	2.33E-01		1.66E+00
		1238.25		67.00	1.96E-01		4.94E-01
		1771.40		15.51	4.90E-02		1.43E+00

Analysis Report for 1707085-18

HTC-A02-S003-4248-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CO-56	2598.48	16.90	1.43E-01	1.80E-01	6.66E-01
+	CO-57	122.06	85.51	1.81E-02	5.92E-02	5.92E-02
		136.48	10.60	-3.62E-02		6.75E-01
+	CO-58	810.76	99.40	-5.67E-02	1.97E-01	1.97E-01
+	FE-59	1099.22	56.50	-1.46E-01	8.38E-01	8.38E-01
		1291.56	43.20	2.89E-02		1.09E+00
+	CO-60	1173.22	100.00	3.68E-02	9.44E-02	1.15E-01
		1332.49	100.00	-2.04E-02		9.44E-02
+	ZN-65	1115.52	50.75	1.20E-01	2.93E-01	2.93E-01
+	GA-67	93.31	35.70	5.12E+08	1.97E+08	1.97E+08
		208.95	2.24	3.59E+09		3.50E+09
		300.22	16.00	2.21E+08		4.78E+08
+	SE-75	121.11	16.70	-1.51E-01	1.63E-01	4.02E-01
		136.00	59.20	-6.70E-02		1.64E-01
		264.65	59.80	-1.50E-02		1.63E-01
		279.53	25.20	1.08E-01		4.45E-01
		400.65	11.40	3.91E-01		9.61E-01
+	RB-82	776.52	13.00	4.74E+00	9.95E+00	9.95E+00
+	RB-83	520.41	46.00	5.99E-02	3.30E-01	3.30E-01
		529.64	30.30	8.66E-02		4.48E-01
		552.65	16.40	-1.65E-02		8.41E-01
+	KR-85	513.99	0.43	-1.26E+01	1.95E+01	1.95E+01
+	SR-85	513.99	99.27	-1.55E-01	2.39E-01	2.39E-01
+	Y-88	898.02	93.40	-2.46E-03	1.02E-01	1.77E-01
		1836.01	99.38	1.56E-02		1.02E-01
+	MO-93	263.06	56.72	5.10E-02	8.22E-02	1.02E-01
		684.67	99.68	1.74E-02		8.55E-02
		1477.11	99.08	3.54E-02		8.22E-02
+	NB-93M	16.57	9.43	0.00E+00	9.55E+00	9.55E+00
+	NB-94	702.63	100.00	-4.59E-02	8.56E-02	8.56E-02
		871.10	100.00	1.04E-02		8.94E-02
+	NB-95	765.79	99.81	-4.76E-02	6.59E-01	6.59E-01
+	NB-95M	235.69	25.00	-5.34E+08	5.06E+07	5.06E+07
+	ZR-95	724.18	43.70	-1.42E-01	4.69E-01	6.91E-01
		756.72	55.30	-5.47E-02		4.69E-01
+	MO-99	181.06	6.20	1.26E+10	3.86E+10	5.16E+10
		739.58	12.80	2.16E+08		3.86E+10
		778.00	4.50	-2.61E+10		1.08E+11
+	RU-103	497.08	89.00	2.43E-02	4.04E-01	4.04E-01
+	RU-106	621.84	9.80	-2.92E-01	8.66E-01	8.66E-01
+	AG-108M	433.93	89.90	-2.24E-02	6.35E-02	6.35E-02
		614.37	90.40	1.97E-02		9.16E-02
		722.95	90.50	-1.84E-01		1.02E-01
+	CD-109	88.03	3.72	-2.77E-02	1.76E+00	1.76E+00
+	AG-110M	657.75	93.14	-8.47E-02	1.03E-01	1.03E-01
		677.61	10.53	-7.42E-02		9.83E-01
		706.67	16.46	1.42E-01		7.47E-01
		763.93	21.98	-5.78E-02		5.39E-01

Analysis Report for 1707085-18

HTC-A02-S003-4248-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	AG-110M	884.67	71.63	5.58E-02	1.03E-01	1.60E-01
		1384.27	23.94	-4.55E-01		4.64E-01
+	CD-113M	263.70	0.02	-9.84E+01	2.40E+02	2.40E+02
+	SN-113	255.12	1.93	-1.84E+00	1.70E-01	5.37E+00
		391.69	64.90	-2.86E-03		1.70E-01
+	TE123M	159.00	84.10	-3.82E-02	1.18E-01	1.18E-01
+	SB-124	602.71	97.87	-6.19E-02	2.59E-01	2.59E-01
		645.85	7.26	-1.27E+00		3.24E+00
		722.78	11.10	-2.46E+00		2.65E+00
		1691.02	49.00	2.98E-02		4.47E-01
+	I-125	35.49	6.49	-4.72E+01	8.98E+00	8.98E+00
+	SB-125	176.33	6.89	-6.57E-01	2.22E-01	8.85E-01
		427.89	29.33	-7.73E-02		2.22E-01
		463.38	10.35	5.71E-01		7.74E-01
		600.56	17.80	-1.06E-01		4.94E-01
		635.90	11.32	-1.36E-01		7.62E-01
+	SB-126	414.70	83.30	-7.73E+00	1.68E+01	1.68E+01
		666.33	99.60	-8.87E+00		2.07E+01
		695.00	99.60	3.85E+00		2.11E+01
		720.50	53.80	-5.66E+00		4.02E+01
+	SN-126	87.57	37.00	-2.40E-03	1.53E-01	1.53E-01
+	SB-127	473.00	25.00	-3.22E+06	1.10E+07	1.11E+07
		685.20	35.70	-1.70E+06		1.10E+07
		783.80	14.70	1.85E+06		2.94E+07
+	I-129	29.78	57.00	2.21E-01	5.27E-01	5.27E-01
		33.60	13.20	1.33E+01		2.87E+00
		39.58	7.52	8.24E-01		1.62E+00
+	I-131	284.30	6.05	4.73E+03	3.37E+02	5.15E+03
		364.48	81.20	-6.98E+01		3.37E+02
		636.97	7.26	-7.89E+02		5.23E+03
		722.89	1.80	-4.40E+04		2.45E+04
+	TE-132	49.72	13.10	-2.33E+08	8.43E+07	5.56E+08
		228.16	88.00	4.29E+07		8.43E+07
+	BA-133	81.00	33.00	1.01E-02	1.01E-01	1.41E-01
		302.84	17.80	7.44E-02		3.68E-01
		356.01	60.00	2.90E-02		1.01E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	3.76E+03	5.24E+04	5.24E+04
+	CS-134	563.23	8.38	7.12E-01	9.38E-02	1.02E+00
		569.32	15.43	1.49E-01		4.98E-01
		604.70	97.60	-5.82E-02		9.38E-02
		795.84	85.40	2.01E-02		1.25E-01
		801.93	8.73	-4.31E-02		1.05E+00
+	CS-135	268.24	16.00	-3.95E-01	3.82E-01	3.82E-01
+	@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41	28.60	1.00E+26		1.00E+26
	@	1678.03	9.54	0.00E+00		1.00E+26
+	CS-136	153.22	7.46	-2.80E+01	1.42E+01	1.34E+02
		163.89	4.61	-1.08E+02		2.16E+02

Analysis Report for 1707085-18

HTC-A02-S003-4248-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CS-136	176.55	13.56	-5.52E+01	1.42E+01	7.43E+01
		273.65	12.66	-8.31E+01		8.37E+01
		340.57	48.50	-4.92E+00		2.84E+01
		818.50	99.70	-4.05E+00		1.42E+01
		1048.07	79.60	5.21E+00		2.41E+01
		1235.34	19.70	7.40E+00		1.19E+02
+	CS-137	661.65	85.12	-3.07E-02	9.14E-02	9.14E-02
+	LA-138	788.74	34.00	1.24E-01	1.25E-01	2.62E-01
		1435.80	66.00	-1.53E-02		1.25E-01
+	CE-139	165.85	80.35	-1.22E-02	1.15E-01	1.15E-01
+	BA-140	162.64	6.70	1.41E+02	5.30E+01	1.78E+02
		304.84	4.50	7.70E+01		2.64E+02
		423.70	3.20	-1.56E+02		4.03E+02
		437.55	2.00	-2.41E+02		5.93E+02
		537.32	25.00	-3.53E+00		5.30E+01
+	LA-140	328.77	20.50	7.57E+01	2.28E+01	7.24E+01
		487.03	45.50	-7.02E+00		2.74E+01
		815.85	23.50	4.91E+00		7.04E+01
		1596.49	95.49	3.68E+00		2.28E+01
+	CE-141	145.44	48.40	-9.31E-02	9.32E-01	9.32E-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	2.46E-01	5.17E-01	5.17E-01
+	PM-144	476.78	42.00	9.88E-02	9.38E-02	1.91E-01
		618.01	98.60	-1.59E-02		9.38E-02
		696.49	99.49	-7.55E-03		1.03E-01
+	PM-145	36.85	21.70	-4.76E-01	3.77E-01	7.11E-01
		37.36	39.70	1.45E-01		3.77E-01
		42.30	15.10	8.65E-02		5.90E-01
		72.40	2.31	-1.01E+01		2.45E+00
+	PM-146	453.90	39.94	-8.00E-02	1.53E-01	1.53E-01
		735.90	14.01	-5.98E-02		6.27E-01
		747.13	13.10	-2.12E-01		6.68E-01
+	ND-147	91.11	28.90	7.02E+01	9.06E+01	9.06E+01
		531.02	13.10	-5.06E+00		2.33E+02
+	PM-149	285.90	3.10	7.03E+10	4.69E+13	4.69E+13
+	EU-152	121.78	20.50	5.93E-02	1.94E-01	1.94E-01
		244.69	5.40	2.75E-01		1.06E+00
		344.27	19.13	1.44E-01		3.12E-01
		778.89	9.20	-2.31E-01		9.56E-01
		964.01	10.40	2.48E-01		1.11E+00
		1085.78	7.22	-1.74E-01		1.42E+00
		1112.02	9.60	3.27E-02		1.16E+00
		1407.95	14.94	3.03E-01		6.91E-01
+	GD-153	97.43	31.30	5.39E-02	1.80E-01	1.80E-01
		103.18	22.20	-1.93E-01		2.28E-01
+	EU-154	123.07	40.50	-8.25E-03	9.77E-02	9.77E-02
		723.30	19.70	-8.62E-01		4.79E-01

Analysis Report for 1707085-18

HTC-A02-S003-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-154	873.19		11.50	1.79E-01	9.77E-02	8.67E-01
		996.32		10.30	-4.74E-01		8.81E-01
		1004.76		17.90	3.41E-01		5.74E-01
		1274.45		35.50	-9.93E-04		3.00E-01
+	EU-155	86.50		30.90	2.49E-01	1.92E-01	1.92E-01
		105.30		20.70	2.10E-01		2.21E-01
+	EU-156	811.77		10.40	-1.25E+01	6.46E+01	6.46E+01
		1153.47		7.20	5.45E+01		1.45E+02
		1230.71		8.90	-7.81E+00		1.22E+02
+	HO-166M	184.41		72.60	1.74E-01	9.96E-02	9.96E-02
		280.45		29.60	7.74E-02		2.05E-01
		410.94		11.10	2.66E-01		5.98E-01
		711.69		54.10	4.10E-02		1.60E-01
+	TM-171	66.72		0.14	8.76E+00	4.34E+01	4.34E+01
+	HF-172	67.35		5.31	1.63E-01	3.82E-01	1.14E+00
		125.81		11.30	1.05E-01		3.82E-01
+	LU-172	181.53		20.60	8.29E+02	4.25E+03	7.04E+03
		900.72		29.81	-2.78E+03		7.36E+03
		1093.66		62.50	1.30E+01		4.25E+03
+	LU-173	100.72		5.24	7.79E-01	3.69E-01	9.54E-01
		272.11		21.20	1.55E-01		3.69E-01
+	HF-175	343.40		84.00	4.99E-02	1.98E-01	1.98E-01
+	LU-176	88.34		13.30	2.34E-01	6.03E-02	4.28E-01
		201.83		86.00	-1.91E-02		6.50E-02
		306.78		94.00	-7.02E-02		6.03E-02
+	HF-181	133.02		41.70	2.45E-02	4.02E-01	5.01E-01
		345.85		17.20	5.24E-01		1.69E+00
		482.03		82.80	8.75E-02		4.02E-01
+	TA-182	67.75		41.20	3.43E-02	2.41E-01	2.41E-01
		1121.30		34.90	7.81E-01		8.34E-01
		1189.05		16.23	5.09E-01		1.40E+00
		1221.41		26.98	6.24E-02		8.35E-01
		1231.02		11.44	-1.25E-01		1.95E+00
+	IR-192	308.46		29.68	1.11E-01	3.34E-01	4.96E-01
		468.07		48.10	1.55E-01		3.34E-01
+	HG-203	279.19		77.30	-2.71E-01	3.41E-01	3.41E-01
+	TL-204	374.74		94.11	-1.08E-02	6.81E-02	6.81E-02
		899.15		99.16	-2.24E-04		9.15E-02
		911.74		91.10	3.62E-01		1.97E-01
+	BI-207	569.67		97.72	2.16E-02	7.23E-02	7.23E-02
		1063.62		74.90	1.30E-02		1.47E-01
+	TL-208	583.14	*	30.22	1.42E+00	2.14E-01	3.04E-01
		860.37		4.48	1.01E+00		2.28E+00
		2614.66	*	35.85	8.52E-01		2.14E-01
+	BI-210M	262.00		45.00	-5.46E-02	1.22E-01	1.22E-01
		300.00		23.00	1.31E-01		2.84E-01
+	PB-210	46.50		4.25	1.90E+00	1.87E+00	1.87E+00
+	PB-211	404.84		2.90	3.37E-01	2.38E+00	2.38E+00
		831.96		2.90	3.90E-02		3.11E+00

Analysis Report for 1707085-18

HTC-A02-S003-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BI-212	727.17	*	11.80	8.98E-01	9.64E-01	9.64E-01
		1620.62		2.75	5.45E-02		2.72E+00
+	PB-212	238.63	*	44.60	1.41E+00	3.50E-01	3.50E-01
		300.09		3.41	8.86E-01		1.92E+00
+	BI-214	609.31	*	46.30	1.03E+00	1.78E-01	1.78E-01
		1120.29	*	15.10	1.20E+00		9.44E-01
		1764.49	*	15.80	1.67E+00		2.58E-01
		2204.22		4.98	1.15E+00		2.20E+00
+	PB-214	295.21	*	19.19	1.32E+00	2.47E-01	4.75E-01
		351.92	*	37.19	1.29E+00		2.47E-01
+	RN-219	401.80		6.50	-5.62E-01	9.29E-01	9.29E-01
+	RA-223	323.87		3.88	-7.11E-01	1.49E+00	1.49E+00
+	RA-224	240.98	*	3.95	3.03E+00	3.95E+00	3.95E+00
+	RA-225	40.00		31.00	1.93E+01	3.80E+01	3.80E+01
+	RA-226	186.21	*	3.28	2.71E+00	2.43E+00	2.43E+00
+	TH-227	50.10		8.40	-3.01E-01	7.08E-01	7.19E-01
		236.00		11.50	-7.48E+00		7.08E-01
		256.20		6.30	2.19E-01		9.28E-01
+	AC-228	338.32	*	11.40	1.58E+00	6.09E-01	7.82E-01
		911.07	*	27.70	1.23E+00		6.09E-01
		969.11	*	16.60	1.16E+00		9.81E-01
+	TH-230	48.44		16.90	-1.96E-01	3.92E-01	3.92E-01
		62.85		4.60	1.33E+00		1.32E+00
		67.67		0.37	2.11E+00		1.48E+01
+	PA-231	283.67		1.60	3.75E+00	2.79E+00	4.08E+00
		302.67		2.30	5.65E-01		2.79E+00
+	TH-231	25.64		14.70	0.00E+00	1.70E-01	1.70E-01
		84.21		6.40	-5.35E-01		7.87E-01
+	PA-233	311.98		38.60	-7.26E-02	1.95E+00	1.95E+00
+	PA-234	131.20		20.40	-9.17E-02	2.07E-01	2.07E-01
		733.99		8.80	-9.89E-02		9.32E-01
		946.00		12.00	-2.26E-02		7.34E-01
+	PA-234M	1001.03		0.92	3.62E+00	1.09E+01	1.09E+01
+	TH-234	63.29		3.80	7.64E-01	1.58E+00	1.58E+00
+	U-235	143.76		10.50	8.80E-02	5.32E-01	5.32E-01
		163.35		4.70	-5.98E-01		1.20E+00
		205.31		4.70	-6.07E-02		1.18E+00
+	NP-237	86.50		12.60	5.88E-01	4.53E-01	4.53E-01
+	NP-239	106.10		22.70	6.67E+11	7.01E+11	7.01E+11
		228.18		10.70	1.07E+12		2.10E+12
		277.60		14.10	2.15E+11		1.59E+12
+	AM-241	59.54		35.90	-7.15E-02	1.47E-01	1.47E-01
+	AM-243	74.67		66.00	-9.59E-02	1.09E-01	1.09E-01
+	CM-243	209.75	*	3.29	2.52E+00	5.34E-01	2.54E+00
		228.14		10.60	3.01E-01		5.92E-01
		277.60	*	14.00	3.97E-01		5.34E-01

Analysis Report for 1707085-18

HTC-A02-S003-4248-01

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	2.29E+00	2.29E+00	1.18E+00	1.07E+00
	NA-22	1274.54		99.94	1.12E-01	1.12E-01	-3.71E-04	5.11E-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	8.05E-02	8.05E-02	2.55E-03	3.42E-02
+	K-40	1460.81	*	10.67	1.30E+00	1.30E+00	2.83E+01	6.02E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	5.80E-02	5.80E-02	8.27E-03	2.81E-02
		78.34		96.00	7.04E-02		1.09E-01	3.43E-02
	SC-46	889.25		99.98	1.97E-01	1.97E-01	-1.70E-02	9.06E-02
		1120.51		99.99	3.66E-01		4.63E-01	1.74E-01
	V-48	983.52		99.98	5.94E+00	5.94E+00	-1.01E+00	2.70E+00
		1312.10		97.50	6.56E+00		-6.60E-01	2.93E+00
	CR-51	320.08		9.83	6.72E+00	6.72E+00	-2.29E+00	3.17E+00
	MN-54	834.83		99.97	1.12E-01	1.12E-01	5.92E-03	5.20E-02
	CO-56	846.75		99.96	1.80E-01	1.80E-01	-1.76E-01	8.21E-02
		1037.75		14.03	1.66E+00		2.33E-01	7.64E-01
		1238.25		67.00	4.94E-01		1.96E-01	2.31E-01
		1771.40		15.51	1.43E+00		4.90E-02	6.22E-01
		2598.48		16.90	6.66E-01		1.43E-01	2.36E-01
	CO-57	122.06		85.51	5.92E-02	5.92E-02	1.81E-02	2.83E-02
		136.48		10.60	6.75E-01		-3.62E-02	3.26E-01
	CO-58	810.76		99.40	1.97E-01	1.97E-01	-5.67E-02	9.02E-02
	FE-59	1099.22		56.50	8.38E-01	8.38E-01	-1.46E-01	3.85E-01
		1291.56		43.20	1.09E+00		2.89E-02	4.96E-01
	CO-60	1173.22		100.00	1.15E-01	9.44E-02	3.68E-02	5.28E-02
		1332.49		100.00	9.44E-02		-2.04E-02	4.22E-02
	ZN-65	1115.52		50.75	2.93E-01	2.93E-01	1.20E-01	1.36E-01
	GA-67	93.31		35.70	1.97E+08	1.97E+08	5.12E+08	9.61E+07

Analysis Report for 1707085-18

HTC-A02-S003-4248-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
GA-67	208.95	2.24	3.50E+09	1.97E+08	3.59E+09	1.69E+09
	300.22	16.00	4.78E+08		2.21E+08	2.28E+08
SE-75	121.11	16.70	4.02E-01	1.63E-01	-1.51E-01	1.92E-01
	136.00	59.20	1.64E-01		-6.70E-02	7.94E-02
	264.65	59.80	1.63E-01		-1.50E-02	7.72E-02
	279.53	25.20	4.45E-01		1.08E-01	2.13E-01
	400.65	11.40	9.61E-01		3.91E-01	4.52E-01
RB-82	776.52	13.00	9.95E+00	9.95E+00	4.74E+00	4.63E+00
RB-83	520.41	46.00	3.30E-01	3.30E-01	5.99E-02	1.54E-01
	529.64	30.30	4.48E-01		8.66E-02	2.07E-01
	552.65	16.40	8.41E-01		-1.65E-02	3.89E-01
KR-85	513.99	0.43	1.95E+01	1.95E+01	-1.26E+01	9.20E+00
SR-85	513.99	99.27	2.39E-01	2.39E-01	-1.55E-01	1.13E-01
Y-88	898.02	93.40	1.77E-01	1.02E-01	-2.46E-03	8.13E-02
	1836.01	99.38	1.02E-01		1.56E-02	3.96E-02
MO-93	263.06	56.72	1.02E-01	8.22E-02	5.10E-02	4.86E-02
	684.67	99.68	8.55E-02		1.74E-02	3.99E-02
	1477.11	99.08	8.22E-02		3.54E-02	3.57E-02
NB-93M	16.57	9.43	9.55E+00	9.55E+00	0.00E+00	0.00E+00
NB-94	702.63	100.00	8.56E-02	8.56E-02	-4.59E-02	3.99E-02
	871.10	100.00	8.94E-02		1.04E-02	4.13E-02
NB-95	765.79	99.81	6.59E-01	6.59E-01	-4.76E-02	3.08E-01
NB-95M	235.69	25.00	5.06E+07	5.06E+07	-5.34E+08	2.45E+07
ZR-95	724.18	43.70	6.91E-01	4.69E-01	-1.42E-01	3.26E-01
	756.72	55.30	4.69E-01		-5.47E-02	2.18E-01
MO-99	181.06	6.20	5.16E+10	3.86E+10	1.26E+10	2.48E+10
	739.58	12.80	3.86E+10		2.16E+08	1.80E+10
	778.00	4.50	1.08E+11		-2.61E+10	5.02E+10
RU-103	497.08	89.00	4.04E-01	4.04E-01	2.43E-02	1.88E-01
RU-106	621.84	9.80	8.66E-01	8.66E-01	-2.92E-01	4.01E-01
AG-108M	433.93	89.90	6.35E-02	6.35E-02	-2.24E-02	2.96E-02
	614.37	90.40	9.16E-02		1.97E-02	4.29E-02
	722.95	90.50	1.02E-01		-1.84E-01	4.79E-02
CD-109	88.03	3.72	1.76E+00	1.76E+00	-2.77E-02	8.53E-01
AG-110M	657.75	93.14	1.03E-01	1.03E-01	-8.47E-02	4.77E-02
	677.61	10.53	9.83E-01		-7.42E-02	4.57E-01
	706.67	16.46	7.47E-01		1.42E-01	3.50E-01
	763.93	21.98	5.39E-01		-5.78E-02	2.51E-01
	884.67	71.63	1.60E-01		5.58E-02	7.34E-02
	1384.27	23.94	4.64E-01		-4.55E-01	2.05E-01
CD-113M	263.70	0.02	2.40E+02	2.40E+02	-9.84E+01	1.14E+02
SN-113	255.12	1.93	5.37E+00	1.70E-01	-1.84E+00	2.56E+00
	391.69	64.90	1.70E-01		-2.86E-03	7.98E-02
TE123M	159.00	84.10	1.18E-01	1.18E-01	-3.82E-02	5.70E-02
SB-124	602.71	97.87	2.59E-01	2.59E-01	-6.19E-02	1.22E-01
	645.85	7.26	3.24E+00		-1.27E+00	1.50E+00
	722.78	11.10	2.65E+00		-2.46E+00	1.24E+00
	1691.02	49.00	4.47E-01		2.98E-02	1.87E-01
I-125	35.49	6.49	8.98E+00	8.98E+00	-4.72E+01	4.36E+00
SB-125	176.33	6.89	8.85E-01	2.22E-01	-6.57E-01	4.26E-01
	427.89	29.33	2.22E-01		-7.73E-02	1.04E-01
	463.38	10.35	7.74E-01		5.71E-01	3.65E-01
	600.56	17.80	4.94E-01		-1.06E-01	2.32E-01

Analysis Report for 1707085-18

HTC-A02-S003-4248-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
SB-125	635.90	11.32	7.62E-01	2.22E-01	-1.36E-01	3.56E-01
SB-126	414.70	83.30	1.68E+01	1.68E+01	-7.73E+00	7.83E+00
	666.33	99.60	2.07E+01		-8.87E+00	9.66E+00
	695.00	99.60	2.11E+01		3.85E+00	9.85E+00
	720.50	53.80	4.02E+01		-5.66E+00	1.88E+01
SN-126	87.57	37.00	1.53E-01	1.53E-01	-2.40E-03	7.41E-02
SB-127	473.00	25.00	1.11E+07	1.10E+07	-3.22E+06	5.16E+06
	685.20	35.70	1.10E+07		-1.70E+06	5.13E+06
	783.80	14.70	2.94E+07		1.85E+06	1.37E+07
I-129	29.78	57.00	5.27E-01	5.27E-01	2.21E-01	2.53E-01
	33.60	13.20	2.87E+00		1.33E+01	1.41E+00
	39.58	7.52	1.62E+00		8.24E-01	7.82E-01
I-131	284.30	6.05	5.15E+03	3.37E+02	4.73E+03	2.46E+03
	364.48	81.20	3.37E+02		-6.98E+01	1.58E+02
	636.97	7.26	5.23E+03		-7.89E+02	2.44E+03
	722.89	1.80	2.45E+04		-4.40E+04	1.15E+04
TE-132	49.72	13.10	5.56E+08	8.43E+07	-2.33E+08	2.67E+08
	228.16	88.00	8.43E+07		4.29E+07	4.05E+07
BA-133	81.00	33.00	1.41E-01	1.01E-01	1.01E-02	6.78E-02
	302.84	17.80	3.68E-01		7.44E-02	1.75E-01
	356.01	60.00	1.01E-01		2.90E-02	4.75E-02
@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
XE-133	81.00	38.00	5.24E+04	5.24E+04	3.76E+03	2.52E+04
CS-134	563.23	8.38	1.02E+00	9.38E-02	7.12E-01	4.79E-01
	569.32	15.43	4.98E-01		1.49E-01	2.32E-01
	604.70	97.60	9.38E-02		-5.82E-02	4.40E-02
	795.84	85.40	1.25E-01		2.01E-02	5.83E-02
	801.93	8.73	1.05E+00		-4.31E-02	4.84E-01
CS-135	268.24	16.00	3.82E-01	3.82E-01	-3.95E-01	1.82E-01
@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41	28.60	1.00E+26		1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		0.00E+00	1.00E+20
CS-136	153.22	7.46	1.34E+02	1.42E+01	-2.80E+01	6.49E+01
	163.89	4.61	2.16E+02		-1.08E+02	1.04E+02
	176.55	13.56	7.43E+01		-5.52E+01	3.58E+01
	273.65	12.66	8.37E+01		-8.31E+01	3.99E+01
	340.57	48.50	2.84E+01		-4.92E+00	1.36E+01
	818.50	99.70	1.42E+01		-4.05E+00	6.51E+00
	1048.07	79.60	2.41E+01		5.21E+00	1.12E+01
	1235.34	19.70	1.19E+02		7.40E+00	5.53E+01
CS-137	661.65	85.12	9.14E-02	9.14E-02	-3.07E-02	4.25E-02
LA-138	788.74	34.00	2.62E-01	1.25E-01	1.24E-01	1.22E-01
	1435.80	66.00	1.25E-01		-1.53E-02	5.50E-02
CE-139	165.85	80.35	1.15E-01	1.15E-01	-1.22E-02	5.53E-02
BA-140	162.64	6.70	1.78E+02	5.30E+01	1.41E+02	8.57E+01
	304.84	4.50	2.64E+02		7.70E+01	1.25E+02
	423.70	3.20	4.03E+02		-1.56E+02	1.89E+02
	437.55	2.00	5.93E+02		-2.41E+02	2.76E+02
	537.32	25.00	5.30E+01		-3.53E+00	2.46E+01
LA-140	328.77	20.50	7.24E+01	2.28E+01	7.57E+01	3.46E+01
	487.03	45.50	2.74E+01		-7.02E+00	1.27E+01
	815.85	23.50	7.04E+01		4.91E+00	3.24E+01
	1596.49	95.49	2.28E+01		3.68E+00	1.02E+01

Analysis Report for 1707085-18

HTC-A02-S003-4248-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CE-141	145.44	48.40	9.32E-01	9.32E-01	-9.31E-02	4.50E-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	5.17E-01	5.17E-01	2.46E-01	2.48E-01
PM-144	476.78	42.00	1.91E-01	9.38E-02	9.88E-02	8.96E-02
	618.01	98.60	9.38E-02		-1.59E-02	4.37E-02
	696.49	99.49	1.03E-01		-7.55E-03	4.80E-02
PM-145	36.85	21.70	7.11E-01	3.77E-01	-4.76E-01	3.44E-01
	37.36	39.70	3.77E-01		1.45E-01	1.83E-01
	42.30	15.10	5.90E-01		8.65E-02	2.83E-01
	72.40	2.31	2.45E+00		-1.01E+01	1.19E+00
PM-146	453.90	39.94	1.53E-01	1.53E-01	-8.00E-02	7.11E-02
	735.90	14.01	6.27E-01		-5.98E-02	2.91E-01
	747.13	13.10	6.68E-01		-2.12E-01	3.10E-01
ND-147	91.11	28.90	9.06E+01	9.06E+01	7.02E+01	4.39E+01
	531.02	13.10	2.33E+02		-5.06E+00	1.08E+02
PM-149	285.90	3.10	4.69E+13	4.69E+13	7.03E+10	2.23E+13
EU-152	121.78	20.50	1.94E-01	1.94E-01	5.93E-02	9.29E-02
	244.69	5.40	1.06E+00		2.75E-01	5.04E-01
	344.27	19.13	3.12E-01		1.44E-01	1.47E-01
	778.89	9.20	9.56E-01		-2.31E-01	4.44E-01
	964.01	10.40	1.11E+00		2.48E-01	5.19E-01
	1085.78	7.22	1.42E+00		-1.74E-01	6.50E-01
	1112.02	9.60	1.16E+00		3.27E-02	5.38E-01
	1407.95	14.94	6.91E-01		3.03E-01	3.11E-01
GD-153	97.43	31.30	1.80E-01	1.80E-01	5.39E-02	8.64E-02
	103.18	22.20	2.28E-01		-1.93E-01	1.09E-01
EU-154	123.07	40.50	9.77E-02	9.77E-02	-8.25E-03	4.66E-02
	723.30	19.70	4.79E-01		-8.62E-01	2.24E-01
	873.19	11.50	8.67E-01		1.79E-01	4.03E-01
	996.32	10.30	8.81E-01		-4.74E-01	4.02E-01
	1004.76	17.90	5.74E-01		3.41E-01	2.65E-01
	1274.45	35.50	3.00E-01		-9.93E-04	1.37E-01
EU-155	86.50	30.90	1.92E-01	1.92E-01	2.49E-01	9.32E-02
	105.30	20.70	2.21E-01		2.10E-01	1.06E-01
EU-156	811.77	10.40	6.46E+01	6.46E+01	-1.25E+01	2.96E+01
	1153.47	7.20	1.45E+02		5.45E+01	6.70E+01
	1230.71	8.90	1.22E+02		-7.81E+00	5.65E+01
HO-166M	184.41	72.60	9.96E-02	9.96E-02	1.74E-01	4.83E-02
	280.45	29.60	2.05E-01		7.74E-02	9.76E-02
	410.94	11.10	5.98E-01		2.66E-01	2.82E-01
	711.69	54.10	1.60E-01		4.10E-02	7.45E-02
TM-171	66.72	0.14	4.34E+01	4.34E+01	8.76E+00	2.10E+01
HF-172	67.35	5.31	1.14E+00	3.82E-01	1.63E-01	5.53E-01
	125.81	11.30	3.82E-01		1.05E-01	1.82E-01
LU-172	181.53	20.60	7.04E+03	4.25E+03	8.29E+02	3.38E+03
	900.72	29.81	7.36E+03		-2.78E+03	3.37E+03
	1093.66	62.50	4.25E+03		1.30E+01	1.95E+03
LU-173	100.72	5.24	9.54E-01	3.69E-01	7.79E-01	4.59E-01
	272.11	21.20	3.69E-01		1.55E-01	1.77E-01
HF-175	343.40	84.00	1.98E-01	1.98E-01	4.99E-02	9.39E-02
LU-176	88.34	13.30	4.28E-01	6.03E-02	2.34E-01	2.08E-01

Analysis Report for 1707085-18

HTC-A02-S003-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	LU-176	201.83		86.00	6.50E-02	6.03E-02	-1.91E-02	3.12E-02
		306.78		94.00	6.03E-02		-7.02E-02	2.85E-02
	HF-181	133.02		41.70	5.01E-01	4.02E-01	2.45E-02	2.39E-01
		345.85		17.20	1.69E+00		5.24E-01	7.98E-01
		482.03		82.80	4.02E-01		8.75E-02	1.88E-01
	TA-182	67.75		41.20	2.41E-01	2.41E-01	3.43E-02	1.16E-01
		1121.30		34.90	8.34E-01		7.81E-01	3.95E-01
		1189.05		16.23	1.40E+00		5.09E-01	6.52E-01
		1221.41		26.98	8.35E-01		6.24E-02	3.87E-01
		1231.02		11.44	1.95E+00		-1.25E-01	9.02E-01
	IR-192	308.46		29.68	4.96E-01	3.34E-01	1.11E-01	2.35E-01
		468.07		48.10	3.34E-01		1.55E-01	1.56E-01
	HG-203	279.19		77.30	3.41E-01	3.41E-01	-2.71E-01	1.62E-01
	TL-204	374.74		94.11	6.81E-02	6.81E-02	-1.08E-02	3.21E-02
		899.15		99.16	9.15E-02		-2.24E-04	4.20E-02
		911.74		91.10	1.97E-01		3.62E-01	9.42E-02
	BI-207	569.67		97.72	7.23E-02	7.23E-02	2.16E-02	3.37E-02
		1063.62		74.90	1.47E-01		1.30E-02	6.79E-02
+	TL-208	583.14	*	30.22	3.04E-01	2.14E-01	1.42E+00	1.44E-01
		860.37		4.48	2.28E+00		1.01E+00	1.07E+00
		2614.66	*	35.85	2.14E-01		8.52E-01	8.79E-02
	BI-210M	262.00		45.00	1.22E-01	1.22E-01	-5.46E-02	5.80E-02
		300.00		23.00	2.84E-01		1.31E-01	1.36E-01
	PB-210	46.50		4.25	1.87E+00	1.87E+00	1.90E+00	9.00E-01
	PB-211	404.84		2.90	2.38E+00	2.38E+00	3.37E-01	1.12E+00
		831.96		2.90	3.11E+00		3.90E-02	1.44E+00
+	BI-212	727.17	*	11.80	9.64E-01	9.64E-01	8.98E-01	4.57E-01
		1620.62		2.75	2.72E+00		5.45E-02	1.16E+00
+	PB-212	238.63	*	44.60	3.50E-01	3.50E-01	1.41E+00	1.72E-01
		300.09		3.41	1.92E+00		8.86E-01	9.15E-01
+	BI-214	609.31	*	46.30	1.78E-01	1.78E-01	1.03E+00	8.35E-02
		1120.29	*	15.10	9.44E-01		1.20E+00	4.44E-01
		1764.49	*	15.80	2.58E-01		1.67E+00	9.17E-02
		2204.22		4.98	2.20E+00		1.15E+00	9.69E-01
+	PB-214	295.21	*	19.19	4.75E-01	2.47E-01	1.32E+00	2.30E-01
		351.92	*	37.19	2.47E-01		1.29E+00	1.19E-01
	RN-219	401.80		6.50	9.29E-01	9.29E-01	-5.62E-01	4.36E-01
	RA-223	323.87		3.88	1.49E+00	1.49E+00	-7.11E-01	7.05E-01
+	RA-224	240.98	*	3.95	3.95E+00	3.95E+00	3.03E+00	1.94E+00
	RA-225	40.00		31.00	3.80E+01	3.80E+01	1.93E+01	1.84E+01
+	RA-226	186.21	*	3.28	2.43E+00	2.43E+00	2.71E+00	1.18E+00
	TH-227	50.10		8.40	7.19E-01	7.08E-01	-3.01E-01	3.45E-01
		236.00		11.50	7.08E-01		-7.48E+00	3.43E-01
		256.20		6.30	9.28E-01		2.19E-01	4.43E-01
+	AC-228	338.32	*	11.40	7.82E-01	6.09E-01	1.58E+00	3.77E-01
		911.07	*	27.70	6.09E-01		1.23E+00	2.92E-01
		969.11	*	16.60	9.81E-01		1.16E+00	4.68E-01
	TH-230	48.44		16.90	3.92E-01	3.92E-01	-1.96E-01	1.88E-01
		62.85		4.60	1.32E+00		1.33E+00	6.38E-01
		67.67		0.37	1.48E+01		2.11E+00	7.16E+00
	PA-231	283.67		1.60	4.08E+00	2.79E+00	3.75E+00	1.95E+00
		302.67		2.30	2.79E+00		5.65E-01	1.33E+00
	TH-231	25.64		14.70	1.70E-01	1.70E-01	0.00E+00	0.00E+00

Analysis Report for 1707085-18

HTC-A02-S003-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TH-231	84.21		6.40	7.87E-01	1.70E-01	-5.35E-01	3.80E-01
	PA-233	311.98		38.60	1.95E+00	1.95E+00	-7.26E-02	9.25E-01
	PA-234	131.20		20.40	2.07E-01	2.07E-01	-9.17E-02	9.91E-02
		733.99		8.80	9.32E-01		-9.89E-02	4.32E-01
		946.00		12.00	7.34E-01		-2.26E-02	3.37E-01
	PA-234M	1001.03		0.92	1.09E+01	1.09E+01	3.62E+00	5.03E+00
	TH-234	63.29		3.80	1.58E+00	1.58E+00	7.64E-01	7.63E-01
	U-235	143.76		10.50	5.32E-01	5.32E-01	8.80E-02	2.57E-01
		163.35		4.70	1.20E+00		-5.98E-01	5.77E-01
		205.31		4.70	1.18E+00		-6.07E-02	5.66E-01
	NP-237	86.50		12.60	4.53E-01	4.53E-01	5.88E-01	2.20E-01
	NP-239	106.10		22.70	7.01E+11	7.01E+11	6.67E+11	3.37E+11
		228.18		10.70	2.10E+12		1.07E+12	1.01E+12
		277.60		14.10	1.59E+12		2.15E+11	7.56E+11
	AM-241	59.54		35.90	1.47E-01	1.47E-01	-7.15E-02	7.09E-02
	AM-243	74.67		66.00	1.09E-01	1.09E-01	-9.59E-02	5.31E-02
+	CM-243	209.75	*	3.29	2.54E+00	5.34E-01	2.52E+00	1.23E+00
		228.14		10.60	5.92E-01		3.01E-01	2.84E-01
		277.60	*	14.00	5.34E-01		3.97E-01	2.57E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

Analysis Report for 1707085-18

HTC-A02-S003-4248-01

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

Sample Title: HTC-A02-S003-4248-01

Elapsed Live time: 3600
Elapsed Real Time: 3601

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	40	79	98	108
33:	129	706	149	92	109	93	100	89
41:	95	75	58	74	51	56	120	74
49:	61	69	60	72	73	80	72	68
57:	66	81	82	73	73	91	120	123
65:	87	98	84	119	99	96	92	129
73:	102	108	300	174	302	348	91	87
81:	82	70	72	106	109	82	138	167
89:	74	144	99	91	212	152	69	49
97:	72	71	65	78	79	61	48	55
105:	69	82	68	48	65	50	61	54
113:	54	61	70	72	63	72	49	50
121:	50	47	60	44	53	53	45	57
129:	92	69	56	46	56	64	63	53
137:	51	56	69	56	57	62	55	56
145:	50	57	51	59	57	53	52	66
153:	44	64	44	60	55	51	51	39
161:	58	53	51	47	54	41	56	43
169:	49	46	53	55	52	52	43	52
177:	53	38	44	60	38	38	42	35
185:	57	139	82	41	45	43	52	45
193:	40	41	50	45	48	46	48	36
201:	34	43	32	40	36	34	36	38
209:	72	79	33	37	30	33	46	37
217:	44	31	42	47	36	37	28	46
225:	28	33	33	30	39	61	36	51
233:	43	39	35	36	33	182	525	96
241:	72	118	36	19	28	30	30	27
249:	38	29	30	35	25	31	28	35
257:	21	30	27	22	32	24	23	22
265:	31	20	26	22	25	56	53	27
273:	22	26	34	30	29	44	26	17
281:	24	41	29	28	36	23	18	34
289:	27	18	22	19	33	29	165	104
297:	33	24	24	33	45	19	23	23
305:	28	21	15	19	21	38	18	19
313:	16	25	25	25	27	22	18	18
321:	23	16	20	17	24	23	26	53
329:	32	21	24	16	22	27	12	14
337:	32	91	85	20	30	18	20	19
345:	22	15	11	25	16	23	72	270
353:	95	17	23	14	19	18	11	23
361:	21	13	13	13	26	17	16	16

369:	16	17	18	14	22	12	15	18

Sample Title: HTC-A02-S003-4248-01

Channel								
377:	22	23	21	10	22	22	15	12
385:	15	17	10	14	18	21	13	17
393:	19	13	16	21	18	7	22	13
401:	10	16	22	17	20	24	19	21
409:	30	21	11	16	14	11	13	13
417:	16	18	16	18	19	15	16	17
425:	14	16	19	19	9	9	19	19
433:	11	14	8	9	13	18	14	17
441:	17	9	15	10	11	14	13	16
449:	11	14	16	7	13	6	17	18
457:	16	19	12	14	14	17	35	19
465:	13	10	14	16	13	16	11	7
473:	10	8	19	11	13	14	16	11
481:	11	14	18	18	11	10	13	14
489:	10	8	13	10	10	11	12	14
497:	6	13	17	13	13	12	12	14
505:	10	19	13	17	27	50	89	40
513:	27	11	14	11	8	16	15	9
521:	16	12	15	14	24	15	10	8
529:	7	18	9	10	8	13	10	12
537:	12	12	10	18	7	11	7	9
545:	8	11	15	12	11	6	8	14
553:	10	12	10	8	14	12	5	11
561:	9	20	22	14	13	9	12	13
569:	9	7	20	7	11	12	18	9
577:	11	12	7	14	17	33	129	81
585:	20	4	10	12	11	12	12	10
593:	8	8	9	8	14	17	7	9
601:	11	11	9	12	18	10	9	37
609:	136	112	14	8	10	12	9	11
617:	12	9	6	6	11	8	11	7
625:	4	10	7	7	10	2	13	5
633:	14	8	7	14	4	9	12	12
641:	12	10	7	11	8	11	6	5
649:	10	9	11	15	13	7	8	6
657:	11	7	6	7	12	8	9	9
665:	8	15	10	12	7	15	14	9
673:	12	10	7	11	10	6	5	9
681:	11	4	13	7	11	8	11	8
689:	10	9	10	10	10	9	10	6
697:	16	7	7	9	10	15	8	10
705:	6	13	13	13	15	7	8	9
713:	7	6	5	5	9	10	15	12
721:	9	7	6	18	10	11	33	24
729:	9	9	11	4	11	6	8	11
737:	4	12	7	10	10	9	9	12
745:	7	5	7	8	8	10	9	12
753:	8	9	10	6	11	11	8	11
761:	7	7	8	10	8	10	13	13
769:	13	10	6	5	7	11	6	9
777:	11	8	9	7	6	16	3	9
785:	9	10	8	8	9	10	4	8
793:	10	17	18	6	6	4	12	8

801:	5	7	5	8	5	10	5	5

Sample Title: HTC-A02-S003-4248-01

Channel								
809:	2	8	5	4	9	6	6	5
817:	4	10	5	6	7	6	9	4
825:	3	7	4	7	7	9	7	4
833:	7	13	11	8	4	5	9	16
841:	8	13	6	3	3	5	7	8
849:	4	12	5	9	5	6	8	6
857:	6	3	7	12	21	11	7	9
865:	5	9	5	8	9	6	3	9
873:	6	8	19	8	6	6	5	5
881:	8	4	5	5	5	9	9	5
889:	4	7	4	7	10	6	5	9
897:	8	10	4	2	4	6	7	6
905:	10	8	10	8	13	39	70	38
913:	7	3	6	10	9	3	5	3
921:	5	6	6	9	4	8	9	2
929:	8	12	8	6	14	19	6	6
937:	3	7	5	5	6	5	5	5
945:	6	6	8	6	7	12	9	9
953:	4	6	5	4	2	4	6	6
961:	7	8	11	16	15	6	13	30
969:	48	19	8	8	6	4	4	6
977:	6	5	4	4	4	2	6	9
985:	7	2	7	6	3	6	7	12
993:	7	4	2	6	7	7	5	3
1001:	10	7	10	8	5	2	7	1
1009:	7	6	8	5	8	7	3	4
1017:	6	5	5	6	5	7	11	11
1025:	7	8	3	7	7	7	10	6
1033:	7	6	10	7	4	3	6	8
1041:	5	5	3	9	9	6	9	6
1049:	6	9	2	10	9	9	5	4
1057:	3	4	9	11	6	7	8	10
1065:	5	6	6	9	11	4	7	5
1073:	6	6	8	6	4	5	5	11
1081:	6	7	6	3	13	3	6	5
1089:	7	4	7	5	6	10	6	6
1097:	4	9	9	6	5	5	5	8
1105:	7	8	6	6	4	4	8	5
1113:	8	15	5	9	6	4	25	39
1121:	21	14	4	3	10	9	4	9
1129:	4	7	6	4	9	5	9	4
1137:	7	3	13	4	5	5	6	6
1145:	12	6	6	5	7	7	6	10
1153:	5	8	9	9	7	4	2	7
1161:	4	9	7	1	10	7	8	2
1169:	10	5	8	3	9	7	4	8
1177:	2	8	8	7	9	5	10	6
1185:	7	7	5	12	7	9	12	6
1193:	4	4	5	6	11	10	12	13
1201:	7	5	7	5	10	6	6	5
1209:	8	9	8	3	7	7	8	8
1217:	8	8	7	7	7	7	7	12
1225:	6	8	7	6	13	10	6	5

1233:	6	9	8	13	12	9	9	9

Sample Title: HTC-A02-S003-4248-01

Channel								
1241:	9	9	11	5	1	6	6	7
1249:	6	3	9	6	2	4	4	4
1257:	5	6	7	8	3	7	6	1
1265:	8	3	3	1	8	6	5	3
1273:	5	6	8	5	3	4	3	5
1281:	10	4	4	4	4	6	10	7
1289:	4	4	2	7	6	3	4	5
1297:	10	5	9	5	5	3	0	2
1305:	6	2	5	2	4	4	5	5
1313:	2	2	4	4	3	2	6	4
1321:	5	2	1	3	1	0	5	5
1329:	0	4	3	4	8	4	1	4
1337:	3	1	2	4	3	0	2	4
1345:	3	4	2	0	3	1	2	4
1353:	3	4	1	2	3	2	4	3
1361:	3	5	3	1	1	4	2	0
1369:	1	6	3	5	0	2	2	4
1377:	9	10	6	1	4	1	0	4
1385:	4	5	4	3	2	2	0	2
1393:	2	2	1	3	2	1	3	3
1401:	1	2	7	1	2	3	2	3
1409:	2	3	5	2	2	3	4	4
1417:	2	2	1	0	1	1	1	4
1425:	2	4	5	6	2	1	4	2
1433:	2	0	3	0	3	3	0	5
1441:	1	0	3	3	2	4	1	2
1449:	2	1	4	2	1	5	3	7
1457:	17	39	113	255	277	94	4	1
1465:	0	4	2	0	0	1	1	1
1473:	4	1	4	0	3	0	2	0
1481:	0	1	1	2	1	1	1	0
1489:	3	0	2	0	1	1	4	0
1497:	1	1	1	1	0	3	2	0
1505:	2	5	1	3	6	6	3	1
1513:	0	1	1	1	1	3	1	2
1521:	0	3	0	3	0	2	1	1
1529:	1	0	0	5	2	1	1	0
1537:	1	3	1	2	1	5	1	2
1545:	1	2	1	0	0	2	2	3
1553:	0	2	2	4	3	0	1	1
1561:	2	1	1	1	4	1	3	0
1569:	0	0	1	1	0	1	0	2
1577:	1	0	1	2	4	2	5	2
1585:	3	2	4	1	2	6	6	4
1593:	2	4	2	2	1	3	1	1
1601:	2	2	1	0	2	2	2	1
1609:	1	4	2	3	0	2	0	0
1617:	1	0	2	1	3	2	2	1
1625:	2	3	1	3	1	1	4	2
1633:	1	1	3	2	1	0	2	2
1641:	0	0	0	1	0	0	3	0
1649:	0	1	1	0	1	1	2	1
1657:	1	2	2	0	2	3	1	2

1665:	1	1	0	0	0	1	1	1

Sample Title: HTC-A02-S003-4248-01

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

2097:	0	0	0	1	2	1	6	2

Sample Title: HTC-A02-S003-4248-01

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

2529:	0	0	0	0	0	1	1	1

Sample Title: HTC-A02-S003-4248-01

Channel								
2537:	0	0	0	0	0	1	1	0
2545:	0	0	0	0	1	0	0	0
2553:	0	0	0	1	0	0	1	0
2561:	0	0	0	1	1	0	0	2
2569:	0	1	0	0	1	0	2	0
2577:	1	1	2	0	0	0	1	0
2585:	0	0	0	1	0	0	0	0
2593:	0	0	1	1	0	0	0	0
2601:	0	0	0	0	0	2	1	0
2609:	3	6	1	11	17	21	6	2
2617:	0	0	1	1	0	1	0	0
2625:	0	0	0	0	0	1	1	0
2633:	1	0	0	0	0	0	0	0
2641:	1	0	0	0	0	1	0	1
2649:	1	0	0	0	0	0	0	0
2657:	1	0	0	0	1	2	0	1
2665:	0	0	0	0	1	1	0	1
2673:	0	0	0	1	0	0	0	0
2681:	0	1	0	0	1	1	1	0
2689:	0	0	0	0	0	1	0	0
2697:	0	0	0	0	1	1	0	0
2705:	1	0	0	0	0	0	0	0
2713:	0	0	0	0	0	2	0	0
2721:	0	0	0	0	0	2	0	1
2729:	1	1	0	0	1	0	0	0
2737:	0	0	1	0	0	0	0	0
2745:	0	1	1	0	1	0	0	0
2753:	0	0	0	0	0	0	0	1
2761:	0	0	0	0	0	0	0	0
2769:	0	0	0	1	0	0	0	1
2777:	0	1	0	0	0	0	0	0
2785:	0	0	0	0	0	0	1	1
2793:	0	0	0	0	0	0	0	0
2801:	0	0	1	0	0	0	0	1
2809:	0	0	1	0	1	0	0	0
2817:	0	1	1	1	1	1	1	0
2825:	0	0	1	0	0	0	0	1
2833:	0	0	0	0	0	0	0	0
2841:	1	0	2	0	0	0	0	0
2849:	0	0	1	1	0	0	0	0
2857:	0	0	0	0	0	0	0	0
2865:	0	2	0	0	0	0	0	1
2873:	0	1	1	1	0	0	0	0
2881:	0	0	0	0	1	0	0	0
2889:	0	0	0	0	0	1	0	0
2897:	0	0	0	0	0	0	1	1
2905:	0	0	0	0	0	0	0	0
2913:	0	0	0	0	0	0	0	0
2921:	0	1	0	0	0	1	0	0
2929:	0	0	0	0	2	0	0	0
2937:	0	0	1	0	0	0	1	0
2945:	0	2	0	0	0	1	0	0
2953:	0	0	0	1	0	0	0	0

2961:	0	0	0	1	1	0	1	0

Sample Title: HTC-A02-S003-4248-01

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

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A02-S003-4248-01

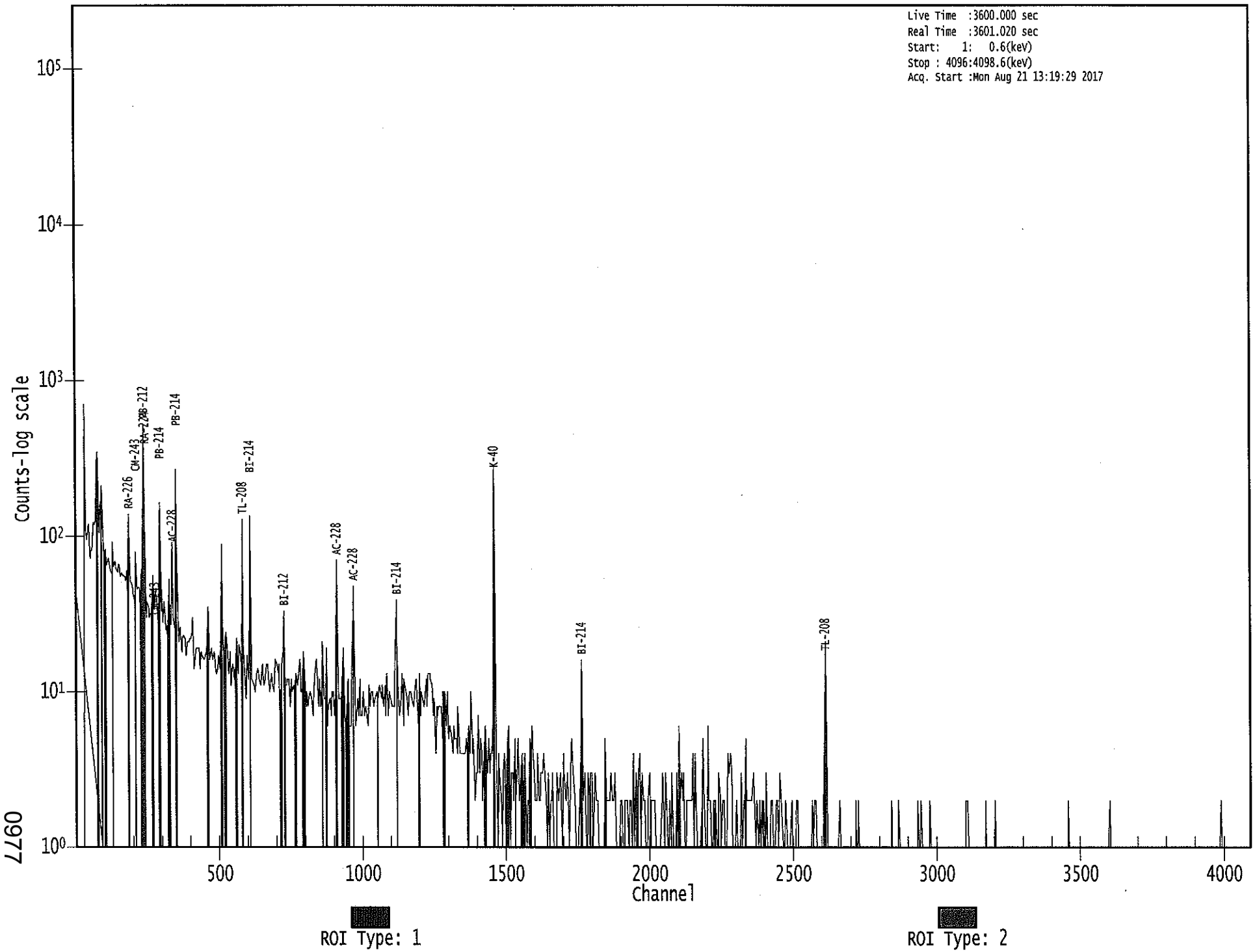
Channel								
3401:	0	1	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	1	0	0
3425:	0	0	0	0	0	1	0	0
3433:	0	0	0	0	1	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	1	0	0	0	0	0	0
3457:	0	2	0	0	0	0	0	0
3465:	0	1	0	0	0	0	0	0
3473:	0	0	0	0	1	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	1
3497:	1	0	0	0	0	1	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A02-S003-4248-01

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

0000055644.CNF



0977

Apex-Gamma

Analysis Report for 1707085-19

HTC-A02-S004-0006-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707085-19
Sample Description	: HTC-A02-S004-0006-01
Sample Type	: SOIL
Sample Size	: 4.300E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 8:14:44AM
Acquisition Started	: 8/21/2017 1:23:28PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3608.7 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	: 55647

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/22/17

Analysis Report for 1707085-19

HTC-A02-S004-0006-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 2:24:02PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	46.77	47.08	0.0000	0.00
2	76.64	76.94	0.0000	0.00
3	85.63	85.93	0.0000	0.00
4	88.41	88.71	0.0000	0.00
5	92.99	93.29	0.0000	0.00
6	186.16	186.43	0.0000	0.00
7	189.56	189.83	0.0000	0.00
8	209.65	209.91	0.0000	0.00
9	239.46	239.71	0.0000	0.00
10	271.00	271.23	0.0000	0.00
11	278.20	278.43	0.0000	0.00
12	295.48	295.71	0.0000	0.00
13	300.30	300.53	0.0000	0.00
14	328.27	328.48	0.0000	0.00
15	338.81	339.02	0.0000	0.00
16	352.37	352.58	0.0000	0.00
17	376.65	376.85	0.0000	0.00
18	415.77	415.95	0.0000	0.00
19	463.50	463.68	0.0000	0.00
20	468.83	469.00	0.0000	0.00
21	511.18	511.34	0.0000	0.00
22	583.22	583.35	0.0000	0.00
23	609.52	609.64	0.0000	0.00
24	654.89	655.00	0.0000	0.00
25	662.25	662.35	0.0000	0.00
26	727.22	727.30	0.0000	0.00
27	734.91	734.99	0.0000	0.00
28	769.54	769.61	0.0000	0.00
29	795.02	795.08	0.0000	0.00
30	860.85	860.89	0.0000	0.00
31	911.33	911.35	0.0000	0.00
32	969.21	969.21	0.0000	0.00
33	1120.30	1120.25	0.0000	0.00
34	1208.55	1208.47	0.0000	0.00
35	1240.01	1239.92	0.0000	0.00
36	1365.57	1365.44	0.0000	0.00
37	1377.81	1377.68	0.0000	0.00
38	1405.24	1405.09	0.0000	0.00
39	1460.45	1460.28	0.0000	0.00
40	1568.83	1568.63	0.0000	0.00
41	1592.30	1592.09	0.0000	0.00
42	1621.40	1621.18	0.0000	0.00

Analysis Report for 1707085-19

HTC-A02-S004-0006-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1630.07	1629.85	0.0000	0.00
44	1721.73	1721.47	0.0000	0.00
45	1744.56	1744.30	0.0000	0.00
46	1752.01	1751.75	0.0000	0.00
47	1763.79	1763.52	0.0000	0.00
48	1783.49	1783.22	0.0000	0.00
49	1789.50	1789.22	0.0000	0.00
50	1846.44	1846.14	0.0000	0.00
51	1852.30	1852.00	0.0000	0.00
52	2036.39	2036.03	0.0000	0.00
53	2051.86	2051.49	0.0000	0.00
54	2102.00	2101.62	0.0000	0.00
55	2203.17	2202.75	0.0000	0.00
56	2347.71	2347.25	0.0000	0.00
57	2613.77	2613.22	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707085-19

HTC-A02-S004-0006-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 2:24:02PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	46.77	44 -	49	47.08	1.51E+02	85.60	1.35E+03	1.77
	2	76.64	71 -	81	76.94	1.91E+03	187.72	3.67E+03	3.42
M	3	85.63	83 -	98	85.93	2.01E+02	81.10	1.42E+03	2.46
m	4	88.41	83 -	98	88.71	3.38E+02	110.42	1.81E+03	2.24
m	5	92.99	83 -	98	93.29	3.72E+02	109.20	1.49E+03	2.25
M	6	186.16	183 -	193	186.43	2.16E+02	73.39	8.11E+02	2.42
m	7	189.56	183 -	193	189.83	5.34E+01	73.31	8.04E+02	2.42
	8	209.65	206 -	214	209.91	1.54E+02	89.96	1.15E+03	1.44
	9	239.46	236 -	245	239.71	1.70E+03	115.30	9.26E+02	2.15
	10	271.00	268 -	275	271.23	1.12E+02	62.32	5.74E+02	2.16
	11	278.20	276 -	282	278.43	5.76E+01	54.77	5.03E+02	1.65
M	12	295.48	291 -	306	295.71	2.80E+02	54.83	3.78E+02	1.98
m	13	300.30	291 -	306	300.53	7.36E+01	53.74	4.41E+02	2.27
	14	328.27	325 -	332	328.48	5.65E+01	57.86	5.21E+02	1.57
	15	338.81	334 -	343	339.02	2.41E+02	72.03	6.00E+02	1.58
	16	352.37	349 -	358	352.58	5.01E+02	70.58	4.26E+02	2.19
	17	376.65	374 -	380	376.85	3.95E+01	39.63	2.59E+02	1.96
	18	415.77	414 -	419	415.95	2.92E+01	35.74	2.34E+02	2.55
M	19	463.50	459 -	474	463.68	8.67E+01	39.38	2.12E+02	2.26
m	20	468.83	459 -	474	469.00	2.57E+01	31.73	1.70E+02	1.87
	21	511.18	505 -	517	511.34	2.31E+02	56.43	2.64E+02	2.88
	22	583.22	577 -	586	583.35	3.95E+02	57.96	2.52E+02	2.28
	23	609.52	607 -	615	609.64	3.03E+02	51.89	2.34E+02	2.01
M	24	654.89	652 -	667	655.00	2.44E+01	25.10	1.02E+02	1.99
m	25	662.25	652 -	667	662.35	6.85E+01	33.41	1.12E+02	2.65
	26	727.22	721 -	731	727.30	8.55E+01	43.21	2.03E+02	1.85
	27	734.91	733 -	737	734.99	1.96E+01	20.03	7.07E+01	2.52
	28	769.54	764 -	774	769.61	4.72E+01	39.27	1.78E+02	6.34
	29	795.02	792 -	798	795.08	3.53E+01	25.98	9.54E+01	1.53
	30	860.85	856 -	867	860.89	3.83E+01	36.66	1.45E+02	3.07
	31	911.33	906 -	917	911.35	2.14E+02	46.82	1.64E+02	2.43
	32	969.21	965 -	974	969.21	8.95E+01	45.01	2.09E+02	2.61
	33	1120.30	1115 -	1126	1120.25	5.09E+01	40.30	1.70E+02	2.52
	34	1208.55	1206 -	1211	1208.47	1.52E+01	19.77	6.16E+01	2.62
	35	1240.01	1233 -	1250	1239.92	7.30E+01	45.54	1.62E+02	11.19
	36	1365.57	1362 -	1369	1365.44	1.60E+01	16.00	3.20E+01	4.63
	37	1377.81	1373 -	1383	1377.68	3.79E+01	21.77	4.03E+01	2.11
	38	1405.24	1398 -	1411	1405.09	2.78E+01	27.17	6.83E+01	8.76
	39	1460.45	1455 -	1467	1460.28	4.26E+02	43.92	2.83E+01	2.83
	40	1568.83	1565 -	1572	1568.63	1.10E+01	9.59	8.00E+00	2.99

Analysis Report for 1707085-19

HTC-A02-S004-0006-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1592.30	1590 -	1595	1592.09	1.06E+01	11.79	1.68E+01	1.14
42	1621.40	1619 -	1626	1621.18	1.04E+01	11.49	1.32E+01	1.11
43	1630.07	1626 -	1632	1629.85	1.17E+01	12.71	2.05E+01	3.53
44	1721.73	1719 -	1723	1721.47	4.86E+00	6.36	4.29E+00	1.74
45	1744.56	1741 -	1747	1744.30	1.00E+01	6.32	0.00E+00	3.75
46	1752.01	1749 -	1755	1751.75	7.50E+00	8.03	5.00E+00	1.45
47	1763.79	1756 -	1770	1763.52	6.68E+01	20.21	1.44E+01	2.85
48	1783.49	1779 -	1785	1783.22	6.75E+00	9.21	1.05E+01	1.65
49	1789.50	1787 -	1791	1789.22	6.63E+00	6.18	2.75E+00	1.86
50	1846.44	1841 -	1849	1846.14	1.41E+01	9.18	3.81E+00	3.76
51	1852.30	1850 -	1855	1852.00	9.00E+00	8.12	6.00E+00	2.81
52	2036.39	2033 -	2039	2036.03	6.00E+00	7.78	6.00E+00	0.99
53	2051.86	2049 -	2053	2051.49	4.75E+00	5.50	2.50E+00	1.08
54	2102.00	2098 -	2106	2101.62	1.19E+01	15.02	2.82E+01	1.56
55	2203.17	2197 -	2206	2202.75	2.34E+01	14.11	1.52E+01	3.53
56	2347.71	2344 -	2350	2347.25	9.50E+00	8.75	7.00E+00	4.42
57	2613.77	2608 -	2617	2613.22	1.23E+02	22.18	0.00E+00	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 : 8/21/2017 2:24:02PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	46.77	44 -	49	1.51E+02	85.60	1.35E+03	6.74E+01
	2	76.64	71 -	81	1.91E+03	187.72	3.67E+03	1.37E+02
M	3	85.63	83 -	98	2.01E+02	81.10	1.42E+03	6.19E+01
m	4	88.41	83 -	98	3.38E+02	110.42	1.81E+03	6.99E+01
m	5	92.99	83 -	98	3.72E+02	109.20	1.49E+03	6.35E+01
M	6	186.16	183 -	193	2.16E+02	73.39	8.11E+02	4.68E+01
m	7	189.56	183 -	193	5.34E+01	73.31	8.04E+02	4.66E+01
	8	209.65	206 -	214	1.54E+02	89.96	1.15E+03	7.11E+01
	9	239.46	236 -	245	1.70E+03	115.30	9.26E+02	6.63E+01
	10	271.00	268 -	275	1.12E+02	62.32	5.74E+02	4.82E+01
	11	278.20	276 -	282	5.76E+01	54.77	5.03E+02	4.33E+01

Analysis Report for 1707085-19

HTC-A02-S004-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	12	295.48	291 -	306	2.80E+02	54.83	3.78E+02	3.20E+01
m	13	300.30	291 -	306	7.36E+01	53.74	4.41E+02	3.45E+01
	14	328.27	325 -	332	5.65E+01	57.86	5.21E+02	4.59E+01
	15	338.81	334 -	343	2.41E+02	72.03	6.00E+02	5.34E+01
	16	352.37	349 -	358	5.01E+02	70.58	4.26E+02	4.49E+01
	17	376.65	374 -	380	3.95E+01	39.63	2.59E+02	3.09E+01
	18	415.77	414 -	419	2.92E+01	35.74	2.34E+02	2.80E+01
M	19	463.50	459 -	474	8.67E+01	39.38	2.12E+02	2.40E+01
m	20	468.83	459 -	474	2.57E+01	31.73	1.70E+02	2.14E+01
	21	511.18	505 -	517	2.31E+02	56.43	2.64E+02	3.91E+01
	22	583.22	577 -	586	3.95E+02	57.96	2.52E+02	3.47E+01
	23	609.52	607 -	615	3.03E+02	51.89	2.34E+02	3.16E+01
M	24	654.89	652 -	667	2.44E+01	25.10	1.02E+02	1.66E+01
m	25	662.25	652 -	667	6.85E+01	33.41	1.12E+02	1.74E+01
	26	727.22	721 -	731	8.55E+01	43.21	2.03E+02	1.67E+01
	27	734.91	733 -	737	1.96E+01	20.03	7.07E+01	1.48E+01
	28	769.54	764 -	774	4.72E+01	39.27	1.78E+02	3.02E+01
	29	795.02	792 -	798	3.53E+01	25.98	9.54E+01	1.90E+01
	30	860.85	856 -	867	3.83E+01	36.66	1.45E+02	2.84E+01
	31	911.33	906 -	917	2.14E+02	46.82	1.64E+02	3.00E+01
	32	969.21	965 -	974	8.95E+01	45.01	2.09E+02	3.36E+01
	33	1120.30	1115 -	1126	5.09E+01	40.30	1.70E+02	3.10E+01
	34	1208.55	1206 -	1211	1.52E+01	19.77	6.16E+01	1.49E+01
	35	1240.01	1233 -	1250	7.30E+01	45.54	1.62E+02	3.47E+01
	36	1365.57	1362 -	1369	1.60E+01	16.00	3.20E+01	1.14E+01
	37	1377.81	1373 -	1383	3.79E+01	21.77	4.03E+01	1.48E+01
	38	1405.24	1398 -	1411	2.78E+01	27.17	6.83E+01	2.06E+01
	39	1460.45	1455 -	1467	4.26E+02	43.92	2.83E+01	1.23E+01
	40	1568.83	1565 -	1572	1.10E+01	9.59	8.00E+00	5.70E+00
	41	1592.30	1590 -	1595	1.06E+01	11.79	1.68E+01	8.08E+00
	42	1621.40	1619 -	1626	1.04E+01	11.49	1.32E+01	7.81E+00
	43	1630.07	1626 -	1632	1.17E+01	12.71	2.05E+01	8.80E+00
	44	1721.73	1719 -	1723	4.86E+00	6.36	4.29E+00	3.77E+00
	45	1744.56	1741 -	1747	1.00E+01	6.32	0.00E+00	0.00E+00
	46	1752.01	1749 -	1755	7.50E+00	8.03	5.00E+00	4.83E+00
	47	1763.79	1756 -	1770	6.68E+01	20.21	1.44E+01	9.77E+00
	48	1783.49	1779 -	1785	6.75E+00	9.21	1.05E+01	6.25E+00
	49	1789.50	1787 -	1791	6.63E+00	6.18	2.75E+00	2.82E+00
	50	1846.44	1841 -	1849	1.41E+01	9.18	3.81E+00	4.34E+00
	51	1852.30	1850 -	1855	9.00E+00	8.12	6.00E+00	4.50E+00
	52	2036.39	2033 -	2039	6.00E+00	7.78	6.00E+00	4.97E+00
	53	2051.86	2049 -	2053	4.75E+00	5.50	2.50E+00	2.76E+00
	54	2102.00	2098 -	2106	1.19E+01	15.02	2.82E+01	1.10E+01
	55	2203.17	2197 -	2206	2.34E+01	14.11	1.52E+01	8.44E+00
	56	2347.71	2344 -	2350	9.50E+00	8.75	7.00E+00	5.10E+00
	57	2613.77	2608 -	2617	1.23E+02	22.18	0.00E+00	0.00E+00

Analysis Report for 1707085-19

HTC-A02-S004-0006-01

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/21/2017 2:24:02PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	46.77	44 -	49	47.08	1.51E+02	85.60	1.35E+03	PB-210
	2	76.64	71 -	81	76.94	1.91E+03	187.72	3.67E+03	.....
M	3	85.63	83 -	98	85.93	2.01E+02	81.10	1.42E+03	EU-155
									NP-237
m	4	88.41	83 -	98	88.71	3.38E+02	110.42	1.81E+03	LU-176
									CD-109
									SN-126
m	5	92.99	83 -	98	93.29	3.72E+02	109.20	1.49E+03	GA-67
M	6	186.16	183 -	193	186.43	2.16E+02	73.39	8.11E+02	RA-226
m	7	189.56	183 -	193	189.83	5.34E+01	73.31	8.04E+02	.....
	8	209.65	206 -	214	209.91	1.54E+02	89.96	1.15E+03	CM-243
									GA-67
	9	239.46	236 -	245	239.71	1.70E+03	115.30	9.26E+02	PB-212
	10	271.00	268 -	275	271.23	1.12E+02	62.32	5.74E+02	.....
	11	278.20	276 -	282	278.43	5.76E+01	54.77	5.03E+02	CM-243
									NP-239
									HG-203
M	12	295.48	291 -	306	295.71	2.80E+02	54.83	3.78E+02	PB-214
m	13	300.30	291 -	306	300.53	7.36E+01	53.74	4.41E+02	GA-67
									PB-212
									BI-210M
	14	328.27	325 -	332	328.48	5.65E+01	57.86	5.21E+02	LA-140
	15	338.81	334 -	343	339.02	2.41E+02	72.03	6.00E+02	AC-228
	16	352.37	349 -	358	352.58	5.01E+02	70.58	4.26E+02	PB-214
	17	376.65	374 -	380	376.85	3.95E+01	39.63	2.59E+02	.....
	18	415.77	414 -	419	415.95	2.92E+01	35.74	2.34E+02	.....
M	19	463.50	459 -	474	463.68	8.67E+01	39.38	2.12E+02	SB-125
m	20	468.83	459 -	474	469.00	2.57E+01	31.73	1.70E+02	IR-192
	21	511.18	505 -	517	511.34	2.31E+02	56.43	2.64E+02	.....
	22	583.22	577 -	586	583.35	3.95E+02	57.96	2.52E+02	TL-208

Analysis Report for 1707085-19

HTC-A02-S004-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	23	609.52	607 -	615	609.64	3.03E+02	51.89	2.34E+02	BI-214
M	24	654.89	652 -	667	655.00	2.44E+01	25.10	1.02E+02	.....
m	25	662.25	652 -	667	662.35	6.85E+01	33.41	1.12E+02	CS-137
	26	727.22	721 -	731	727.30	8.55E+01	43.21	2.03E+02	BI-212
	27	734.91	733 -	737	734.99	1.96E+01	20.03	7.07E+01	PA-234
									PM-146
	28	769.54	764 -	774	769.61	4.72E+01	39.27	1.78E+02	.....
	29	795.02	792 -	798	795.08	3.53E+01	25.98	9.54E+01	CS-134
	30	860.85	856 -	867	860.89	3.83E+01	36.66	1.45E+02	TL-208
	31	911.33	906 -	917	911.35	2.14E+02	46.82	1.64E+02	AC-228
									TL-204
	32	969.21	965 -	974	969.21	8.95E+01	45.01	2.09E+02	AC-228
	33	1120.30	1115 -	1126	1120.25	5.09E+01	40.30	1.70E+02	BI-214
									SC-46
									TA-182
	34	1208.55	1206 -	1211	1208.47	1.52E+01	19.77	6.16E+01	.....
	35	1240.01	1233 -	1250	1239.92	7.30E+01	45.54	1.62E+02	.....
	36	1365.57	1362 -	1369	1365.44	1.60E+01	16.00	3.20E+01	.....
	37	1377.81	1373 -	1383	1377.68	3.79E+01	21.77	4.03E+01	.....
	38	1405.24	1398 -	1411	1405.09	2.78E+01	27.17	6.83E+01	.....
	39	1460.45	1455 -	1467	1460.28	4.26E+02	43.92	2.83E+01	K-40
	40	1568.83	1565 -	1572	1568.63	1.10E+01	9.59	8.00E+00	.....
	41	1592.30	1590 -	1595	1592.09	1.06E+01	11.79	1.68E+01	.....
	42	1621.40	1619 -	1626	1621.18	1.04E+01	11.49	1.32E+01	BI-212
	43	1630.07	1626 -	1632	1629.85	1.17E+01	12.71	2.05E+01	.....
	44	1721.73	1719 -	1723	1721.47	4.86E+00	6.36	4.29E+00	.....
	45	1744.56	1741 -	1747	1744.30	1.00E+01	6.32	0.00E+00	.....
	46	1752.01	1749 -	1755	1751.75	7.50E+00	8.03	5.00E+00	.....
	47	1763.79	1756 -	1770	1763.52	6.68E+01	20.21	1.44E+01	BI-214
	48	1783.49	1779 -	1785	1783.22	6.75E+00	9.21	1.05E+01	.....
	49	1789.50	1787 -	1791	1789.22	6.63E+00	6.18	2.75E+00	.....
	50	1846.44	1841 -	1849	1846.14	1.41E+01	9.18	3.81E+00	.....
	51	1852.30	1850 -	1855	1852.00	9.00E+00	8.12	6.00E+00	.....
	52	2036.39	2033 -	2039	2036.03	6.00E+00	7.78	6.00E+00	.....
	53	2051.86	2049 -	2053	2051.49	4.75E+00	5.50	2.50E+00	.....
	54	2102.00	2098 -	2106	2101.62	1.19E+01	15.02	2.82E+01	.....
	55	2203.17	2197 -	2206	2202.75	2.34E+01	14.11	1.52E+01	.....
	56	2347.71	2344 -	2350	2347.25	9.50E+00	8.75	7.00E+00	.....
	57	2613.77	2608 -	2617	2613.22	1.23E+02	22.18	0.00E+00	TL-208

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

Analysis Report for 1707085-19

HTC-A02-S004-0006-01

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/21/2017 2:24:02PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.77	1.51E+02	85.60	1.74E-02	1.73E-03
	2	76.64	1.91E+03	187.72	2.67E-02	2.05E-03
M	3	85.63	2.01E+02	81.10	2.71E-02	2.21E-03
m	4	88.41	3.38E+02	110.42	2.72E-02	2.26E-03
m	5	92.99	3.72E+02	109.20	2.71E-02	2.24E-03
M	6	186.16	2.16E+02	73.39	1.96E-02	1.55E-03
m	7	189.56	5.34E+01	73.31	1.93E-02	1.53E-03
	8	209.65	1.54E+02	89.96	1.79E-02	1.45E-03
	9	239.46	1.70E+03	115.30	1.61E-02	1.34E-03
	10	271.00	1.12E+02	62.32	1.45E-02	1.21E-03
	11	278.20	5.76E+01	54.77	1.42E-02	1.18E-03
M	12	295.48	2.80E+02	54.83	1.35E-02	1.15E-03
m	13	300.30	7.36E+01	53.74	1.33E-02	1.14E-03
	14	328.27	5.65E+01	57.86	1.23E-02	1.08E-03
	15	338.81	2.41E+02	72.03	1.19E-02	1.06E-03
	16	352.37	5.01E+02	70.58	1.15E-02	1.03E-03
	17	376.65	3.95E+01	39.63	1.09E-02	9.83E-04
	18	415.77	2.92E+01	35.74	9.94E-03	9.21E-04
M	19	463.50	8.67E+01	39.38	9.01E-03	8.57E-04
m	20	468.83	2.57E+01	31.73	8.92E-03	8.50E-04
	21	511.18	2.31E+02	56.43	8.25E-03	7.94E-04
	22	583.22	3.95E+02	57.96	7.33E-03	6.99E-04
	23	609.52	3.03E+02	51.89	7.04E-03	6.64E-04
M	24	654.89	2.44E+01	25.10	6.60E-03	6.04E-04
m	25	662.25	6.85E+01	33.41	6.53E-03	5.94E-04
	26	727.22	8.55E+01	43.21	6.01E-03	5.37E-04
	27	734.91	1.96E+01	20.03	5.95E-03	5.30E-04
	28	769.54	4.72E+01	39.27	5.71E-03	4.99E-04
	29	795.02	3.53E+01	25.98	5.55E-03	4.77E-04
	30	860.85	3.83E+01	36.66	5.17E-03	4.19E-04
	31	911.33	2.14E+02	46.82	4.92E-03	3.84E-04
	32	969.21	8.95E+01	45.01	4.66E-03	3.74E-04
	33	1120.30	5.09E+01	40.30	4.12E-03	3.50E-04
	34	1208.55	1.52E+01	19.77	3.86E-03	3.31E-04
	35	1240.01	7.30E+01	45.54	3.78E-03	3.22E-04
	36	1365.57	1.60E+01	16.00	3.49E-03	2.90E-04
	37	1377.81	3.79E+01	21.77	3.47E-03	2.88E-04
	38	1405.24	2.78E+01	27.17	3.41E-03	2.84E-04
	39	1460.45	4.26E+02	43.92	3.31E-03	2.75E-04
	40	1568.83	1.10E+01	9.59	3.13E-03	2.58E-04
	41	1592.30	1.06E+01	11.79	3.09E-03	2.54E-04
	42	1621.40	1.04E+01	11.49	3.05E-03	2.49E-04
	43	1630.07	1.17E+01	12.71	3.04E-03	2.48E-04
	44	1721.73	4.86E+00	6.36	2.92E-03	2.33E-04
	45	1744.56	1.00E+01	6.32	2.89E-03	2.30E-04

Analysis Report for 1707085-19

HTC-A02-S004-0006-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
46	1752.01	7.50E+00	8.03	2.88E-03	2.28E-04
47	1763.79	6.68E+01	20.21	2.87E-03	2.27E-04
48	1783.49	6.75E+00	9.21	2.84E-03	2.23E-04
49	1789.50	6.63E+00	6.18	2.84E-03	2.22E-04
50	1846.44	1.41E+01	9.18	2.77E-03	2.15E-04
51	1852.30	9.00E+00	8.12	2.77E-03	2.15E-04
52	2036.39	6.00E+00	7.78	2.59E-03	2.15E-04
53	2051.86	4.75E+00	5.50	2.58E-03	2.15E-04
54	2102.00	1.19E+01	15.02	2.54E-03	2.15E-04
55	2203.17	2.34E+01	14.11	2.46E-03	2.15E-04
56	2347.71	9.50E+00	8.75	2.37E-03	2.15E-04
57	2613.77	1.23E+02	22.18	2.24E-03	2.15E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/21/2017 2:24:02PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055575.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.77	1.51E+02	85.60	4.47E+01	1.09E+01	1.06E+02	8.63E+01
	2	76.64	1.91E+03	187.72			1.91E+03	1.88E+02
M	3	85.63	2.01E+02	81.10	5.71E+00	6.69E+00	1.96E+02	8.14E+01
m	4	88.41	3.38E+02	110.42			3.38E+02	1.10E+02
m	5	92.99	3.72E+02	109.20	7.98E+01	7.31E+00	2.92E+02	1.09E+02
M	6	186.16	2.16E+02	73.39	3.06E+01	5.82E+00	1.85E+02	7.36E+01
m	7	189.56	5.34E+01	73.31			5.34E+01	7.33E+01
	8	209.65	1.54E+02	89.96			1.54E+02	9.00E+01
	9	239.46	1.70E+03	115.30	1.40E+01	2.71E+00	1.68E+03	1.15E+02
	10	271.00	1.12E+02	62.32			1.12E+02	6.23E+01
	11	278.20	5.76E+01	54.77			5.76E+01	5.48E+01
M	12	295.48	2.80E+02	54.83			2.80E+02	5.48E+01
m	13	300.30	7.36E+01	53.74			7.36E+01	5.37E+01
	14	328.27	5.65E+01	57.86			5.65E+01	5.79E+01
	15	338.81	2.41E+02	72.03			2.41E+02	7.20E+01
	16	352.37	5.01E+02	70.58	6.53E+00	4.43E+00	4.94E+02	7.07E+01
	17	376.65	3.95E+01	39.63			3.95E+01	3.96E+01
	18	415.77	2.92E+01	35.74			2.92E+01	3.57E+01

Analysis Report for 1707085-19

HTC-A02-S004-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	19	463.50	8.67E+01	39.38			8.67E+01	3.94E+01
m	20	468.83	2.57E+01	31.73			2.57E+01	3.17E+01
	21	511.18	2.31E+02	56.43	5.21E+01	4.74E+00	1.79E+02	5.66E+01
	22	583.22	3.95E+02	57.96			3.95E+02	5.80E+01
	23	609.52	3.03E+02	51.89	3.25E+00	2.97E+00	3.00E+02	5.20E+01
M	24	654.89	2.44E+01	25.10			2.44E+01	2.51E+01
m	25	662.25	6.85E+01	33.41			6.85E+01	3.34E+01
	26	727.22	8.55E+01	43.21			8.55E+01	4.32E+01
	27	734.91	1.96E+01	20.03			1.96E+01	2.00E+01
	28	769.54	4.72E+01	39.27			4.72E+01	3.93E+01
	29	795.02	3.53E+01	25.98	0.00E+00	0.00E+00	3.53E+01	2.60E+01
	30	860.85	3.83E+01	36.66			3.83E+01	3.67E+01
	31	911.33	2.14E+02	46.82	2.85E+00	2.76E+00	2.11E+02	4.69E+01
	32	969.21	8.95E+01	45.01			8.95E+01	4.50E+01
	33	1120.30	5.09E+01	40.30			5.09E+01	4.03E+01
	34	1208.55	1.52E+01	19.77			1.52E+01	1.98E+01
	35	1240.01	7.30E+01	45.54			7.30E+01	4.55E+01
	36	1365.57	1.60E+01	16.00			1.60E+01	1.60E+01
	37	1377.81	3.79E+01	21.77			3.79E+01	2.18E+01
	38	1405.24	2.78E+01	27.17			2.78E+01	2.72E+01
	39	1460.45	4.26E+02	43.92	1.00E+00	1.77E+00	4.25E+02	4.40E+01
	40	1568.83	1.10E+01	9.59			1.10E+01	9.59E+00
	41	1592.30	1.06E+01	11.79			1.06E+01	1.18E+01
	42	1621.40	1.04E+01	11.49			1.04E+01	1.15E+01
	43	1630.07	1.17E+01	12.71			1.17E+01	1.27E+01
	44	1721.73	4.86E+00	6.36			4.86E+00	6.36E+00
	45	1744.56	1.00E+01	6.32			1.00E+01	6.32E+00
	46	1752.01	7.50E+00	8.03			7.50E+00	8.03E+00
	47	1763.79	6.68E+01	20.21			6.68E+01	2.02E+01
	48	1783.49	6.75E+00	9.21			6.75E+00	9.21E+00
	49	1789.50	6.63E+00	6.18			6.63E+00	6.18E+00
	50	1846.44	1.41E+01	9.18			1.41E+01	9.18E+00
	51	1852.30	9.00E+00	8.12			9.00E+00	8.12E+00
	52	2036.39	6.00E+00	7.78			6.00E+00	7.78E+00
	53	2051.86	4.75E+00	5.50			4.75E+00	5.50E+00
	54	2102.00	1.19E+01	15.02			1.19E+01	1.50E+01
	55	2203.17	2.34E+01	14.11			2.34E+01	1.41E+01
	56	2347.71	9.50E+00	8.75			9.50E+00	8.75E+00
	57	2613.77	1.23E+02	22.18	1.86E+00	1.12E+00	1.21E+02	2.22E+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 1707085-19

HTC-A02-S004-0006-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/21/2017 2:24:02PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055575.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	46.77	1.51E+02	85.60	4.47E+01	1.09E+01	1.06E+02	8.63E+01
	2	76.64	1.91E+03	187.72			1.91E+03	1.88E+02
M	3	85.63	2.01E+02	81.10	5.71E+00	6.69E+00	1.96E+02	8.14E+01
m	4	88.41	3.38E+02	110.42			3.38E+02	1.10E+02
m	5	92.99	3.72E+02	109.20	7.98E+01	7.31E+00	2.92E+02	1.09E+02
M	6	186.16	2.16E+02	73.39	3.06E+01	5.82E+00	1.85E+02	7.36E+01
m	7	189.56	5.34E+01	73.31			5.34E+01	7.33E+01
	8	209.65	1.54E+02	89.96			1.54E+02	9.00E+01
	9	239.46	1.70E+03	115.30	1.40E+01	2.71E+00	1.68E+03	1.15E+02
	10	271.00	1.12E+02	62.32			1.12E+02	6.23E+01
	11	278.20	5.76E+01	54.77			5.76E+01	5.48E+01
M	12	295.48	2.80E+02	54.83			2.80E+02	5.48E+01
m	13	300.30	7.36E+01	53.74			7.36E+01	5.37E+01
	14	328.27	5.65E+01	57.86			5.65E+01	5.79E+01
	15	338.81	2.41E+02	72.03			2.41E+02	7.20E+01
	16	352.37	5.01E+02	70.58	6.53E+00	4.43E+00	4.94E+02	7.07E+01
	17	376.65	3.95E+01	39.63			3.95E+01	3.96E+01
	18	415.77	2.92E+01	35.74			2.92E+01	3.57E+01
M	19	463.50	8.67E+01	39.38			8.67E+01	3.94E+01
m	20	468.83	2.57E+01	31.73			2.57E+01	3.17E+01
	21	511.18	2.31E+02	56.43	5.21E+01	4.74E+00	1.79E+02	5.66E+01
	22	583.22	3.95E+02	57.96			3.95E+02	5.80E+01
	23	609.52	3.03E+02	51.89	3.25E+00	2.97E+00	3.00E+02	5.20E+01
M	24	654.89	2.44E+01	25.10			2.44E+01	2.51E+01
m	25	662.25	6.85E+01	33.41			6.85E+01	3.34E+01
	26	727.22	8.55E+01	43.21			8.55E+01	4.32E+01
	27	734.91	1.96E+01	20.03			1.96E+01	2.00E+01
	28	769.54	4.72E+01	39.27			4.72E+01	3.93E+01
	29	795.02	3.53E+01	25.98	0.00E+00	0.00E+00	3.53E+01	2.60E+01
	30	860.85	3.83E+01	36.66			3.83E+01	3.67E+01
	31	911.33	2.14E+02	46.82	2.85E+00	2.76E+00	2.11E+02	4.69E+01
	32	969.21	8.95E+01	45.01			8.95E+01	4.50E+01
	33	1120.30	5.09E+01	40.30			5.09E+01	4.03E+01
	34	1208.55	1.52E+01	19.77			1.52E+01	1.98E+01
	35	1240.01	7.30E+01	45.54			7.30E+01	4.55E+01
	36	1365.57	1.60E+01	16.00			1.60E+01	1.60E+01
	37	1377.81	3.79E+01	21.77			3.79E+01	2.18E+01
	38	1405.24	2.78E+01	27.17			2.78E+01	2.72E+01
	39	1460.45	4.26E+02	43.92	1.00E+00	1.77E+00	4.25E+02	4.40E+01
	40	1568.83	1.10E+01	9.59			1.10E+01	9.59E+00
	41	1592.30	1.06E+01	11.79			1.06E+01	1.18E+01

Analysis Report for 1707085-19

HTC-A02-S004-0006-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
42	1621.40	1.04E+01	11.49			1.04E+01	1.15E+01
43	1630.07	1.17E+01	12.71			1.17E+01	1.27E+01
44	1721.73	4.86E+00	6.36			4.86E+00	6.36E+00
45	1744.56	1.00E+01	6.32			1.00E+01	6.32E+00
46	1752.01	7.50E+00	8.03			7.50E+00	8.03E+00
47	1763.79	6.68E+01	20.21			6.68E+01	2.02E+01
48	1783.49	6.75E+00	9.21			6.75E+00	9.21E+00
49	1789.50	6.63E+00	6.18			6.63E+00	6.18E+00
50	1846.44	1.41E+01	9.18			1.41E+01	9.18E+00
51	1852.30	9.00E+00	8.12			9.00E+00	8.12E+00
52	2036.39	6.00E+00	7.78			6.00E+00	7.78E+00
53	2051.86	4.75E+00	5.50			4.75E+00	5.50E+00
54	2102.00	1.19E+01	15.02			1.19E+01	1.50E+01
55	2203.17	2.34E+01	14.11			2.34E+01	1.41E+01
56	2347.71	9.50E+00	8.75			9.50E+00	8.75E+00
57	2613.77	1.23E+02	22.18	1.86E+00	1.12E+00	1.21E+02	2.22E+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	0.979	1460.81	*	10.67	2.10E+01	2.82E+00
CD-109	0.977	88.03	*	3.72	6.76E+00	2.32E+00
SN-126	0.893	87.57	*	37.00	5.87E-01	1.98E-01
CS-137	0.944	661.65	*	85.12	2.16E-01	1.07E-01
TL-208	0.936	583.14	*	30.22	3.11E+00	5.45E-01
		860.37	*	4.48	2.89E+00	2.77E+00
		2614.66	*	35.85	2.64E+00	5.45E-01
PB-210	0.989	46.50	*	4.25	2.52E+00	2.07E+00
BI-212	0.981	727.17	*	11.80	2.11E+00	1.08E+00
		1620.62	*	2.75	2.17E+00	2.40E+00
PB-212	0.903	238.63	*	44.60	4.10E+00	4.41E-01
		300.09	*	3.41	2.84E+00	2.09E+00
BI-214	0.914	609.31	*	46.30	1.61E+00	3.17E-01
		1120.29	*	15.10	1.43E+00	1.14E+00
		1764.49	*	15.80	2.58E+00	8.06E-01

Analysis Report for 1707085-19

HTC-A02-S004-0006-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.914	2204.22		4.98		
PB-214	0.975	295.21	*	19.19	1.90E+00	4.04E-01
		351.92	*	37.19	2.01E+00	3.40E-01
RA-226	1.000	186.21	*	3.28	5.04E+00	9.44E+00
AC-228	0.986	338.32	*	11.40	3.09E+00	9.64E-01
		911.07	*	27.70	2.71E+00	6.37E-01
		969.11	*	16.60	2.02E+00	1.03E+00
NP-237	0.886	86.50	*	12.60	9.99E-01	4.24E-01
CM-243	0.341	209.75	*	3.29	4.58E+00	2.71E+00
		228.14		10.60		
		277.60	*	14.00	5.10E-01	4.87E-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 2:24:02PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	76.64	5.31721E-01	4.90		
m	5	92.99	8.11913E-02	18.72	Sum	
m	7	189.56	1.48196E-02	68.70		
	10	271.00	3.11623E-02	27.78	Sum	
	14	328.27	1.56984E-02	51.19	Sum	
	17	376.65	1.09722E-02	50.16		
	18	415.77	8.10597E-03	61.23		
M	19	463.50	2.40706E-02	22.72	Sum	
m	20	468.83	7.14016E-03	61.73	Tol.	IR-192
	21	511.18	4.96490E-02	15.84		
M	24	654.89	6.77573E-03	51.45		
	27	734.91	5.45454E-03	51.01	Tol.	PM-146 PA-234
	28	769.54	1.31056E-02	41.62	Sum	
	29	795.02	9.80254E-03	36.81	Sum	
	34	1208.55	4.22705E-03	64.97	Sum	
	35	1240.01	2.02778E-02	31.19		
	36	1365.57	4.44444E-03	50.00		

Analysis Report for 1707085-19

HTC-A02-S004-0006-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
37	1377.81	1.05172E-02	28.75		
38	1405.24	7.73297E-03	48.79		
40	1568.83	3.05556E-03	43.60		
41	1592.30	2.94591E-03	55.58	D-Esc	
43	1630.07	3.25758E-03	54.18		
44	1721.73	1.34921E-03	65.51	Sum	
45	1744.56	2.77778E-03	31.62		
46	1752.01	2.08333E-03	53.54		
48	1783.49	1.87500E-03	68.19	Sum	
49	1789.50	1.84028E-03	46.68		
50	1846.44	3.91493E-03	32.56		
51	1852.30	2.50000E-03	45.13	Sum	
52	2036.39	1.66667E-03	64.82		
53	2051.86	1.31944E-03	57.89		
54	2102.00	3.31197E-03	62.97	S-Esc	
55	2203.17	6.49642E-03	30.16		
56	2347.71	2.63889E-03	46.03	Sum	

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.97	1460.81	*	10.67	2.10E+01	2.82E+00
CD-109	0.97	88.03	*	3.72	6.76E+00	2.32E+00
SN-126	0.89	87.57	*	37.00	5.87E-01	1.98E-01
CS-137	0.94	661.65	*	85.12	2.16E-01	1.07E-01
TL-208	0.93	583.14	*	30.22	3.11E+00	5.45E-01
		860.37	*	4.48	2.89E+00	2.77E+00
		2614.66	*	35.85	2.64E+00	5.45E-01
PB-210	0.98	46.50	*	4.25	2.52E+00	2.07E+00
BI-212	0.98	727.17	*	11.80	2.11E+00	1.08E+00
		1620.62	*	2.75	2.17E+00	2.40E+00
PB-212	0.90	238.63	*	44.60	4.10E+00	4.41E-01

Analysis Report for 1707085-19

HTC-A02-S004-0006-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PB-212	0.90	300.09	*	3.41	2.84E+00	2.09E+00
BI-214	0.91	609.31	*	46.30	1.61E+00	3.17E-01
		1120.29	*	15.10	1.43E+00	1.14E+00
		1764.49	*	15.80	2.58E+00	8.06E-01
		2204.22		4.98		
PB-214	0.97	295.21	*	19.19	1.90E+00	4.04E-01
		351.92	*	37.19	2.01E+00	3.40E-01
RA-226	1.00	186.21	*	3.28	5.04E+00	9.44E+00
AC-228	0.98	338.32	*	11.40	3.09E+00	9.64E-01
		911.07	*	27.70	2.71E+00	6.37E-01
		969.11	*	16.60	2.02E+00	1.03E+00
NP-237	0.88	86.50	*	12.60	9.99E-01	4.24E-01
CM-243	0.34	209.75	*	3.29	4.58E+00	2.71E+00
		228.14		10.60		
		277.60	*	14.00	5.10E-01	4.87E-01

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.979	2.10E+01	2.82E+00	
?	CD-109	0.977	6.76E+00	2.32E+00	
?	SN-126	0.893	5.87E-01	1.98E-01	
	CS-137	0.944	2.16E-01	1.07E-01	
X	HG-203	0.835			
	TL-208	0.936	2.88E+00	3.82E-01	
	PB-210	0.989	2.52E+00	2.07E+00	
	BI-212	0.981	2.12E+00	9.85E-01	
	PB-212	0.903	4.05E+00	4.32E-01	
	BI-214	0.914	1.72E+00	2.86E-01	
	PB-214	0.975	1.96E+00	2.60E-01	
	RA-226	1.000	5.04E+00	9.44E+00	

Analysis Report for 1707085-19

HTC-A02-S004-0006-01

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
AC-228	0.986	2.65E+00	4.72E-01	
NP-237	0.886	9.99E-01	4.24E-01	
CM-243	0.341	6.37E-01	4.79E-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 1707085-19

HTC-A02-S004-0006-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 2:24:02PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	76.64	5.31721E-01	4.90		
m	5	92.99	8.11913E-02	18.72	Sum	
m	7	189.56	1.48196E-02	68.70		
	10	271.00	3.11623E-02	27.78	Sum	
	14	328.27	1.56984E-02	51.19	Sum	
	17	376.65	1.09722E-02	50.16		
	18	415.77	8.10597E-03	61.23		
M	19	463.50	2.40706E-02	22.72	Sum	
m	20	468.83	7.14016E-03	61.73	Tol.	IR-192
	21	511.18	4.96490E-02	15.84		
M	24	654.89	6.77573E-03	51.45		
	27	734.91	5.45454E-03	51.01	Tol.	PM-146 PA-234
	28	769.54	1.31056E-02	41.62	Sum	
	29	795.02	9.80254E-03	36.81	Sum	
	34	1208.55	4.22705E-03	64.97	Sum	
	35	1240.01	2.02778E-02	31.19		
	36	1365.57	4.44444E-03	50.00		
	37	1377.81	1.05172E-02	28.75		
	38	1405.24	7.73297E-03	48.79		
	40	1568.83	3.05556E-03	43.60		
	41	1592.30	2.94591E-03	55.58	D-Esc	
	43	1630.07	3.25758E-03	54.18		
	44	1721.73	1.34921E-03	65.51	Sum	
	45	1744.56	2.77778E-03	31.62		
	46	1752.01	2.08333E-03	53.54		
	48	1783.49	1.87500E-03	68.19	Sum	
	49	1789.50	1.84028E-03	46.68		
	50	1846.44	3.91493E-03	32.56		
	51	1852.30	2.50000E-03	45.13	Sum	
	52	2036.39	1.66667E-03	64.82		
	53	2051.86	1.31944E-03	57.89		
	54	2102.00	3.31197E-03	62.97	S-Esc	
	55	2203.17	6.49642E-03	30.16		
	56	2347.71	2.63889E-03	46.03	Sum	

Analysis Report for 1707085-19

HTC-A02-S004-0006-01

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

NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	3.06E-01	3.69E+00	3.69E+00
+		NA-22	1274.54		99.94	1.35E-02	1.43E-01	1.43E-01
+	@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@		2754.09		99.86	1.00E+26		1.00E+26
+		AL-26	1808.65		99.76	1.77E-02	1.08E-01	1.08E-01
+		K-40	1460.81	*	10.67	2.10E+01	1.37E+00	1.37E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	-3.56E-02	1.02E-01	1.02E-01
			78.34		96.00	5.18E-01		1.42E-01
+		SC-46	889.25		99.98	-2.78E-01	2.37E-01	2.37E-01
			1120.51		99.99	4.85E-01		4.75E-01
+		V-48	983.52		99.98	2.42E+00	8.66E+00	8.66E+00
			1312.10		97.50	5.40E-01		1.01E+01
+		CR-51	320.08		9.83	2.32E+00	1.17E+01	1.17E+01
+		MN-54	834.83		99.97	3.88E-02	1.86E-01	1.86E-01
+		CO-56	846.75		99.96	1.34E-01	3.18E-01	3.18E-01
			1037.75		14.03	6.70E-01		2.23E+00
			1238.25		67.00	6.41E-01		7.24E-01
			1771.40		15.51	-2.34E-01		1.70E+00
			2598.48		16.90	3.28E-01		1.54E+00
+		CO-57	122.06		85.51	1.41E-02	1.05E-01	1.05E-01
			136.48		10.60	-5.45E-02		8.62E-01
+		CO-58	810.76		99.40	6.12E-02	3.29E-01	3.29E-01
+		FE-59	1099.22		56.50	3.86E-01	1.08E+00	1.08E+00
			1291.56		43.20	8.90E-01		1.76E+00
+		CO-60	1173.22		100.00	4.99E-02	1.32E-01	1.55E-01
			1332.49		100.00	-1.53E-02		1.32E-01
+		ZN-65	1115.52		50.75	2.33E-02	4.16E-01	4.16E-01
+		GA-67	93.31		35.70	6.39E+08	3.21E+08	3.21E+08
			208.95		2.24	6.45E+09		5.94E+09
			300.22		16.00	-2.03E+09		8.47E+08
+		SE-75	121.11		16.70	7.88E-02	2.15E-01	7.49E-01

Analysis Report for 1707085-19

HTC-A02-S004-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00		59.20	-7.11E-02	2.15E-01	2.15E-01
		264.65		59.80	-5.68E-02		2.65E-01
		279.53		25.20	4.20E-01		7.26E-01
		400.65		11.40	-1.06E+00		1.63E+00
+	RB-82	776.52		13.00	-3.68E+00	1.22E+01	1.22E+01
+	RB-83	520.41		46.00	3.29E-02	5.07E-01	5.07E-01
		529.64		30.30	2.38E-02		7.78E-01
		552.65		16.40	-3.36E-02		1.50E+00
+	KR-85	513.99		0.43	5.35E+01	3.65E+01	3.65E+01
+	SR-85	513.99		99.27	6.57E-01	4.49E-01	4.49E-01
+	Y-88	898.02		93.40	-9.39E-02	2.33E-01	2.33E-01
		1836.01		99.38	7.53E-02		2.48E-01
+	MO-93	263.06		56.72	3.07E-02	1.06E-01	1.65E-01
		684.67		99.68	5.48E-02		1.37E-01
		1477.11		99.08	2.19E-02		1.06E-01
+	NB-93M	16.57		9.43	-1.04E+01	1.07E+02	1.07E+02
+	NB-94	702.63		100.00	-2.32E-02	1.02E-01	1.28E-01
		871.10		100.00	-2.37E-02		1.02E-01
+	NB-95	765.79		99.81	2.80E-01	1.01E+00	1.01E+00
+	NB-95M	235.69		25.00	2.74E+06	1.10E+08	1.10E+08
+	ZR-95	724.18		43.70	-9.56E-01	7.07E-01	9.62E-01
		756.72		55.30	-3.15E-02		7.07E-01
+	MO-99	181.06		6.20	-2.97E+10	5.43E+10	6.48E+10
		739.58		12.80	-1.73E+09		5.43E+10
		778.00		4.50	-6.71E+10		1.40E+11
+	RU-103	497.08		89.00	-9.44E-02	6.88E-01	6.88E-01
+	RU-106	621.84		9.80	4.77E-01	1.54E+00	1.54E+00
+	AG-108M	433.93		89.90	2.58E-02	1.19E-01	1.19E-01
		614.37		90.40	2.62E-02		1.55E-01
		722.95		90.50	-2.84E-01		1.46E-01
+	CD-109	88.03	*	3.72	6.76E+00	6.19E+00	6.19E+00
+	AG-110M	657.75		93.14	-1.43E-01	2.06E-01	2.06E-01
		677.61		10.53	-3.75E-01		1.50E+00
		706.67		16.46	2.81E-01		1.06E+00
		763.93		21.98	8.06E-02		7.95E-01
		884.67		71.63	1.74E-02		2.21E-01
		1384.27		23.94	-5.24E-02		5.91E-01
+	CD-113M	263.70		0.02	-1.01E+02	3.99E+02	3.99E+02
+	SN-113	255.12		1.93	-1.55E+00	2.87E-01	8.75E+00
		391.69		64.90	-1.61E-01		2.87E-01
+	TE123M	159.00		84.10	1.91E-02	1.61E-01	1.61E-01
+	SB-124	602.71		97.87	-2.80E-01	3.60E-01	3.60E-01
		645.85		7.26	5.58E-02		4.97E+00
		722.78		11.10	-7.17E+00		3.68E+00
		1691.02		49.00	-9.34E-02		8.78E-01
+	I-125	35.49		6.49	1.31E+00	9.37E+00	9.37E+00
+	SB-125	176.33		6.89	7.55E-01	4.06E-01	1.21E+00
		427.89		29.33	1.66E-01		4.06E-01

Analysis Report for 1707085-19

HTC-A02-S004-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-125	463.38		10.35	1.58E+00	4.06E-01	1.41E+00
		600.56		17.80	-4.43E-01		6.36E-01
		635.90		11.32	-1.74E-01		9.93E-01
+	SB-126	414.70		83.30	-1.09E+00	3.13E+01	3.25E+01
		666.33		99.60	4.58E-01		3.13E+01
		695.00		99.60	1.29E-01		3.13E+01
		720.50		53.80	-1.61E+01		5.76E+01
+	SN-126	87.57	*	37.00	5.87E-01	5.37E-01	5.37E-01
+	SB-127	473.00		25.00	-3.32E+06	1.81E+07	1.97E+07
		685.20		35.70	7.22E+06		1.81E+07
		783.80		14.70	1.62E+07		4.33E+07
+	I-129	29.78		57.00	-1.73E-01	5.95E-01	5.95E-01
		33.60		13.20	3.55E-01		1.78E+00
		39.58		7.52	-5.03E-01		1.98E+00
+	I-131	284.30		6.05	1.31E+03	5.92E+02	7.57E+03
		364.48		81.20	2.96E+02		5.92E+02
		636.97		7.26	-1.47E+03		6.91E+03
		722.89		1.80	-6.80E+04		3.49E+04
+	TE-132	49.72		13.10	6.77E+07	1.28E+08	1.02E+09
		228.16		88.00	-1.42E+07		1.28E+08
+	BA-133	81.00		33.00	-1.21E+00	2.48E-01	2.96E-01
		302.84		17.80	3.32E-01		6.25E-01
		356.01		60.00	2.40E-01		2.48E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-4.51E+05	1.10E+05	1.10E+05
+	CS-134	563.23		8.38	4.47E-01	1.45E-01	1.52E+00
		569.32		15.43	-1.52E-01		7.91E-01
		604.70		97.60	-9.56E-02		1.45E-01
		795.84		85.40	5.48E-02		1.82E-01
		801.93		8.73	3.83E-01		1.68E+00
+	CS-135	268.24		16.00	1.42E-01	6.59E-01	6.59E-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	5.36E+01	2.13E+01	1.85E+02
		163.89		4.61	-7.36E+00		2.86E+02
		176.55		13.56	6.34E+01		1.02E+02
		273.65		12.66	-7.87E+01		1.51E+02
		340.57		48.50	1.14E+02		5.33E+01
		818.50		99.70	3.64E-01		2.13E+01
		1048.07		79.60	-7.43E+00		2.95E+01
		1235.34		19.70	-7.34E+01		1.66E+02
+	CS-137	661.65	*	85.12	2.16E-01	2.49E-01	2.49E-01
+	LA-138	788.74		34.00	1.68E-02	1.93E-01	3.93E-01
		1435.80		66.00	5.23E-02		1.93E-01
+	CE-139	165.85		80.35	4.16E-02	1.54E-01	1.54E-01
+	BA-140	162.64		6.70	-7.47E+01	9.40E+01	2.25E+02
		304.84		4.50	2.89E+01		4.63E+02
		423.70		3.20	-5.48E+01		7.14E+02

Analysis Report for 1707085-19

HTC-A02-S004-0006-01

		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		BA-140	437.55	2.00	3.92E+02	9.40E+01	1.06E+03
			537.32	25.00	1.93E+01		9.40E+01
+		LA-140	328.77	20.50	7.54E+01	2.79E+01	1.15E+02
			487.03	45.50	-6.67E+00		4.72E+01
			815.85	23.50	-2.47E+01		9.82E+01
			1596.49	95.49	-3.34E+00		2.79E+01
+		CE-141	145.44	48.40	7.42E-01	1.27E+00	1.27E+00
+	@	CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26
	@		293.26	42.00	1.00E+26		1.00E+26
	@		664.55	5.20	1.00E+26		1.00E+26
+		CE-144	133.54	10.80	1.57E-02	8.75E-01	8.75E-01
+		PM-144	476.78	42.00	-1.33E-02	1.44E-01	3.01E-01
			618.01	98.60	-3.45E-02		1.44E-01
			696.49	99.49	-1.52E-02		1.53E-01
+		PM-145	36.85	21.70	-6.97E-01	4.36E-01	8.14E-01
			37.36	39.70	-1.32E-01		4.36E-01
			42.30	15.10	1.61E-02		8.94E-01
			72.40	2.31	-1.71E+01		4.84E+00
+		PM-146	453.90	39.94	7.59E-02	2.87E-01	2.87E-01
			735.90	14.01	-4.77E-02		9.32E-01
			747.13	13.10	6.74E-02		1.07E+00
+		ND-147	91.11	28.90	-1.04E+02	1.74E+02	1.74E+02
			531.02	13.10	1.47E+01		4.08E+02
+		PM-149	285.90	3.10	2.59E+11	7.14E+13	7.14E+13
+		EU-152	121.78	20.50	4.63E-02	3.46E-01	3.46E-01
			244.69	5.40	2.52E-01		2.23E+00
			344.27	19.13	1.75E-01		5.55E-01
			778.89	9.20	1.19E-01		1.27E+00
			964.01	10.40	-5.32E-02		1.71E+00
			1085.78	7.22	7.06E-01		1.88E+00
			1112.02	9.60	3.46E-01		1.68E+00
			1407.95	14.94	4.89E-01		1.01E+00
+		GD-153	97.43	31.30	2.75E-02	3.02E-01	3.02E-01
			103.18	22.20	-3.22E-01		4.19E-01
+		EU-154	123.07	40.50	1.10E-01	1.80E-01	1.80E-01
			723.30	19.70	-1.33E+00		6.84E-01
			873.19	11.50	-3.41E-01		9.29E-01
			996.32	10.30	1.54E-01		1.37E+00
			1004.76	17.90	7.54E-02		8.27E-01
			1274.45	35.50	3.62E-02		3.83E-01
+		EU-155	86.50	30.90	2.36E-01	3.39E-01	3.39E-01
			105.30	20.70	2.04E-01		3.70E-01
+		EU-156	811.77	10.40	-2.29E+01	1.01E+02	1.01E+02
			1153.47	7.20	1.27E+02		2.02E+02
			1230.71	8.90	-2.50E+01		1.61E+02
+		HO-166M	184.41	72.60	1.85E-01	1.28E-01	1.28E-01
			280.45	29.60	1.22E-02		3.48E-01
			410.94	11.10	1.69E-01		1.02E+00
			711.69	54.10	-1.84E-01		2.36E-01

Analysis Report for 1707085-19

HTC-A02-S004-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TM-171	66.72		0.14	-1.30E+02	7.69E+01	7.69E+01
+	HF-172	67.35		5.31	-6.99E-01	6.70E-01	2.01E+00
		125.81		11.30	-9.63E-01		6.70E-01
+	LU-172	181.53		20.60	-2.71E+03	5.41E+03	9.28E+03
		900.72		29.81	-7.33E+03		9.47E+03
		1093.66		62.50	1.34E+03		5.41E+03
+	LU-173	100.72		5.24	-3.23E-02	5.98E-01	1.54E+00
		272.11		21.20	6.32E-01		5.98E-01
+	HF-175	343.40		84.00	1.04E-01	3.29E-01	3.29E-01
+	LU-176	88.34		13.30	7.79E-01	9.65E-02	7.92E-01
		201.83		86.00	-1.90E-02		9.65E-02
		306.78		94.00	-1.16E-03		1.07E-01
+	HF-181	133.02		41.70	-1.98E-01	6.20E-01	8.97E-01
		345.85		17.20	3.09E-01		2.83E+00
		482.03		82.80	-2.30E-01		6.20E-01
+	TA-182	67.75		41.20	-1.47E-01	4.24E-01	4.24E-01
		1121.30		34.90	1.34E+00		1.09E+00
		1189.05		16.23	-3.39E-01		1.71E+00
		1221.41		26.98	-3.71E-01		1.05E+00
		1231.02		11.44	-3.99E-01		2.57E+00
+	IR-192	308.46		29.68	3.29E-01	6.05E-01	8.38E-01
		468.07		48.10	-6.86E-01		6.05E-01
+	HG-203	279.19	*	77.30	3.96E-01	6.13E-01	6.13E-01
+	TL-204	374.74		94.11	5.03E-03	1.13E-01	1.13E-01
		899.15		99.16	-3.78E-02		1.21E-01
		911.74		91.10	9.18E-01		3.21E-01
+	BI-207	569.67		97.72	3.00E-03	1.17E-01	1.17E-01
		1063.62		74.90	8.70E-02		2.08E-01
+	TL-208	583.14	*	30.22	3.11E+00	1.64E-01	5.69E-01
		860.37	*	4.48	2.89E+00		4.48E+00
		2614.66	*	35.85	2.64E+00		1.64E-01
+	BI-210M	262.00		45.00	4.86E-02	2.05E-01	2.05E-01
		300.00		23.00	-1.20E+00		5.03E-01
+	PB-210	46.50	*	4.25	2.52E+00	3.35E+00	3.35E+00
+	PB-211	404.84		2.90	-1.13E-01	4.01E+00	4.01E+00
		831.96		2.90	-1.80E+00		4.61E+00
+	BI-212	727.17	*	11.80	2.11E+00	1.65E+00	1.65E+00
		1620.62	*	2.75	2.17E+00		3.82E+00
+	PB-212	238.63	*	44.60	4.10E+00	3.31E-01	3.31E-01
		300.09	*	3.41	2.84E+00		6.11E+00
+	BI-214	609.31	*	46.30	1.61E+00	3.56E-01	3.56E-01
		1120.29	*	15.10	1.43E+00		1.82E+00
		1764.49	*	15.80	2.58E+00		8.58E-01
		2204.22		4.98	-1.19E-01		3.95E+00
+	PB-214	295.21	*	19.19	1.90E+00	3.79E-01	1.06E+00
		351.92	*	37.19	2.01E+00		3.79E-01
+	RN-219	401.80		6.50	2.84E-01	1.75E+00	1.75E+00
+	RA-223	323.87		3.88	9.08E-02	2.62E+00	2.62E+00

Analysis Report for 1707085-19

HTC-A02-S004-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98		3.95	4.65E+01	5.84E+00	5.84E+00
+	RA-225	40.00		31.00	-1.19E+01	4.68E+01	4.68E+01
+	RA-226	186.21	*	3.28	5.04E+00	4.26E+00	4.26E+00
+	TH-227	50.10		8.40	8.77E-02	1.32E+00	1.32E+00
		236.00		11.50	3.83E-02		1.54E+00
		256.20		6.30	-6.38E-01		1.47E+00
+	AC-228	338.32	*	11.40	3.09E+00	8.10E-01	1.41E+00
		911.07	*	27.70	2.71E+00		8.10E-01
		969.11	*	16.60	2.02E+00		1.58E+00
+	TH-230	48.44		16.90	2.56E-01	7.30E-01	7.30E-01
		62.85		4.60	1.88E+00		2.34E+00
		67.67		0.37	-9.06E+00		2.61E+01
+	PA-231	283.67		1.60	2.86E-01	4.75E+00	5.99E+00
		302.67		2.30	2.53E+00		4.75E+00
+	TH-231	25.64		14.70	1.80E+00	1.42E+00	4.42E+00
		84.21		6.40	-1.61E+00		1.42E+00
+	PA-233	311.98		38.60	8.70E-01	3.09E+00	3.09E+00
+	PA-234	131.20		20.40	2.55E-01	3.86E-01	3.86E-01
		733.99		8.80	-5.86E-01		1.39E+00
		946.00		12.00	-1.33E-01		1.00E+00
+	PA-234M	1001.03		0.92	7.19E-01	1.56E+01	1.56E+01
+	TH-234	63.29		3.80	2.95E+00	2.81E+00	2.81E+00
+	U-235	143.76		10.50	-4.97E-02	6.98E-01	6.98E-01
		163.35		4.70	-4.08E-02		1.58E+00
		205.31		4.70	1.05E-01		2.18E+00
+	NP-237	86.50	*	12.60	9.99E-01	1.56E+00	1.56E+00
+	NP-239	106.10		22.70	6.46E+11	1.17E+12	1.17E+12
		228.18		10.70	-3.54E+11		3.20E+12
		277.60		14.10	1.00E+12		2.64E+12
+	AM-241	59.54		35.90	-2.62E-01	2.81E-01	2.81E-01
+	AM-243	74.67		66.00	1.07E-01	2.09E-01	2.09E-01
+	CM-243	209.75	*	3.29	4.58E+00	7.90E-01	4.33E+00
		228.14		10.60	-9.98E-02		9.00E-01
		277.60	*	14.00	5.10E-01		7.90E-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 1707085-19

HTC-A02-S004-0006-01

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	3.69E+00	3.69E+00	3.06E-01	1.75E+00
	NA-22	1274.54		99.94	1.43E-01	1.43E-01	1.35E-02	6.47E-02
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	1.08E-01	1.08E-01	1.77E-02	4.57E-02
+	K-40	1460.81	*	10.67	1.37E+00	1.37E+00	2.10E+01	6.20E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	1.02E-01	1.02E-01	-3.56E-02	5.02E-02
		78.34		96.00	1.42E-01		5.18E-01	7.01E-02
	SC-46	889.25		99.98	2.37E-01	2.37E-01	-2.78E-01	1.08E-01
		1120.51		99.99	4.75E-01		4.85E-01	2.25E-01
	V-48	983.52		99.98	8.66E+00	8.66E+00	2.42E+00	3.97E+00
		1312.10		97.50	1.01E+01		5.40E-01	4.57E+00
	CR-51	320.08		9.83	1.17E+01	1.17E+01	2.32E+00	5.61E+00
	MN-54	834.83		99.97	1.86E-01	1.86E-01	3.88E-02	8.76E-02
	CO-56	846.75		99.96	3.18E-01	3.18E-01	1.34E-01	1.48E-01
		1037.75		14.03	2.23E+00		6.70E-01	1.03E+00
		1238.25		67.00	7.24E-01		6.41E-01	3.40E-01
		1771.40		15.51	1.70E+00		-2.34E-01	7.22E-01
		2598.48		16.90	1.54E+00		3.28E-01	6.22E-01
	CO-57	122.06		85.51	1.05E-01	1.05E-01	1.41E-02	5.12E-02
		136.48		10.60	8.62E-01		-5.45E-02	4.19E-01
	CO-58	810.76		99.40	3.29E-01	3.29E-01	6.12E-02	1.53E-01
	FE-59	1099.22		56.50	1.08E+00	1.08E+00	3.86E-01	4.93E-01
		1291.56		43.20	1.76E+00		8.90E-01	8.11E-01
	CO-60	1173.22		100.00	1.55E-01	1.32E-01	4.99E-02	7.13E-02
		1332.49		100.00	1.32E-01		-1.53E-02	5.90E-02
	ZN-65	1115.52		50.75	4.16E-01	4.16E-01	2.33E-02	1.93E-01
	GA-67	93.31		35.70	3.21E+08	3.21E+08	6.39E+08	1.58E+08
		208.95		2.24	5.94E+09		6.45E+09	2.90E+09
		300.22		16.00	8.47E+08		-2.03E+09	4.10E+08
	SE-75	121.11		16.70	7.49E-01	2.15E-01	7.88E-02	3.65E-01
		136.00		59.20	2.15E-01		-7.11E-02	1.04E-01
		264.65		59.80	2.65E-01		-5.68E-02	1.28E-01
		279.53		25.20	7.26E-01		4.20E-01	3.51E-01
		400.65		11.40	1.63E+00		-1.06E+00	7.81E-01
	RB-82	776.52		13.00	1.22E+01	1.22E+01	-3.68E+00	5.66E+00
	RB-83	520.41		46.00	5.07E-01	5.07E-01	3.29E-02	2.40E-01
		529.64		30.30	7.78E-01		2.38E-02	3.68E-01
		552.65		16.40	1.50E+00		-3.36E-02	7.10E-01
	KR-85	513.99		0.43	3.65E+01	3.65E+01	5.35E+01	1.76E+01
	SR-85	513.99		99.27	4.49E-01	4.49E-01	6.57E-01	2.16E-01

Analysis Report for 1707085-19

HTC-A02-S004-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	Y-88	898.02		93.40	2.33E-01	2.33E-01	-9.39E-02	1.07E-01
		1836.01		99.38	2.48E-01		7.53E-02	1.08E-01
	MO-93	263.06		56.72	1.65E-01	1.06E-01	3.07E-02	7.96E-02
		684.67		99.68	1.37E-01		5.48E-02	6.47E-02
		1477.11		99.08	1.06E-01		2.19E-02	4.58E-02
	NB-93M	16.57		9.43	1.07E+02	1.07E+02	-1.04E+01	5.22E+01
	NB-94	702.63		100.00	1.28E-01	1.02E-01	-2.32E-02	6.01E-02
		871.10		100.00	1.02E-01		-2.37E-02	4.63E-02
	NB-95	765.79		99.81	1.01E+00	1.01E+00	2.80E-01	4.74E-01
	NB-95M	235.69		25.00	1.10E+08	1.10E+08	2.74E+06	5.42E+07
	ZR-95	724.18		43.70	9.62E-01	7.07E-01	-9.56E-01	4.55E-01
		756.72		55.30	7.07E-01		-3.15E-02	3.32E-01
	MO-99	181.06		6.20	6.48E+10	5.43E+10	-2.97E+10	3.14E+10
		739.58		12.80	5.43E+10		-1.73E+09	2.54E+10
		778.00		4.50	1.40E+11		-6.71E+10	6.47E+10
	RU-103	497.08		89.00	6.88E-01	6.88E-01	-9.44E-02	3.26E-01
	RU-106	621.84		9.80	1.54E+00	1.54E+00	4.77E-01	7.28E-01
	AG-108M	433.93		89.90	1.19E-01	1.19E-01	2.58E-02	5.68E-02
		614.37		90.40	1.55E-01		2.62E-02	7.40E-02
		722.95		90.50	1.46E-01		-2.84E-01	6.86E-02
+	CD-109	88.03	*	3.72	6.19E+00	6.19E+00	6.76E+00	3.07E+00
	AG-110M	657.75		93.14	2.06E-01	2.06E-01	-1.43E-01	9.78E-02
		677.61		10.53	1.50E+00		-3.75E-01	7.03E-01
		706.67		16.46	1.06E+00		2.81E-01	4.99E-01
		763.93		21.98	7.95E-01		8.06E-02	3.73E-01
		884.67		71.63	2.21E-01		1.74E-02	1.02E-01
		1384.27		23.94	5.91E-01		-5.24E-02	2.58E-01
	CD-113M	263.70		0.02	3.99E+02	3.99E+02	-1.01E+02	1.93E+02
	SN-113	255.12		1.93	8.75E+00	2.87E-01	-1.55E+00	4.23E+00
		391.69		64.90	2.87E-01		-1.61E-01	1.37E-01
	TE123M	159.00		84.10	1.61E-01	1.61E-01	1.91E-02	7.83E-02
	SB-124	602.71		97.87	3.60E-01	3.60E-01	-2.80E-01	1.70E-01
		645.85		7.26	4.97E+00		5.58E-02	2.34E+00
		722.78		11.10	3.68E+00		-7.17E+00	1.73E+00
		1691.02		49.00	8.78E-01		-9.34E-02	3.89E-01
	I-125	35.49		6.49	9.37E+00	9.37E+00	1.31E+00	4.57E+00
	SB-125	176.33		6.89	1.21E+00	4.06E-01	7.55E-01	5.89E-01
		427.89		29.33	4.06E-01		1.66E-01	1.94E-01
		463.38		10.35	1.41E+00		1.58E+00	6.76E-01
		600.56		17.80	6.36E-01		-4.43E-01	2.98E-01
		635.90		11.32	9.93E-01		-1.74E-01	4.64E-01
	SB-126	414.70		83.30	3.25E+01	3.13E+01	-1.09E+00	1.56E+01
		666.33		99.60	3.13E+01		4.58E-01	1.48E+01
		695.00		99.60	3.13E+01		1.29E-01	1.47E+01
		720.50		53.80	5.76E+01		-1.61E+01	2.70E+01
+	SN-126	87.57	*	37.00	5.37E-01	5.37E-01	5.87E-01	2.66E-01
	SB-127	473.00		25.00	1.97E+07	1.81E+07	-3.32E+06	9.32E+06
		685.20		35.70	1.81E+07		7.22E+06	8.53E+06
		783.80		14.70	4.33E+07		1.62E+07	2.03E+07
	I-129	29.78		57.00	5.95E-01	5.95E-01	-1.73E-01	2.90E-01
		33.60		13.20	1.78E+00		3.55E-01	8.67E-01
		39.58		7.52	1.98E+00		-5.03E-01	9.67E-01
	I-131	284.30		6.05	7.57E+03	5.92E+02	1.31E+03	3.65E+03

Analysis Report for 1707085-19

HTC-A02-S004-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	I-131	364.48		81.20	5.92E+02	5.92E+02	2.96E+02	2.83E+02
		636.97		7.26	6.91E+03		-1.47E+03	3.23E+03
		722.89		1.80	3.49E+04		-6.80E+04	1.64E+04
	TE-132	49.72		13.10	1.02E+09	1.28E+08	6.77E+07	4.96E+08
		228.16		88.00	1.28E+08		-1.42E+07	6.22E+07
	BA-133	81.00		33.00	2.96E-01	2.48E-01	-1.21E+00	1.46E-01
		302.84		17.80	6.25E-01		3.32E-01	3.02E-01
		356.01		60.00	2.48E-01		2.40E-01	1.21E-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	1.10E+05	1.10E+05	-4.51E+05	5.42E+04
	CS-134	563.23		8.38	1.52E+00	1.45E-01	4.47E-01	7.19E-01
		569.32		15.43	7.91E-01		-1.52E-01	3.73E-01
		604.70		97.60	1.45E-01		-9.56E-02	6.89E-02
		795.84		85.40	1.82E-01		5.48E-02	8.55E-02
		801.93		8.73	1.68E+00		3.83E-01	7.85E-01
	CS-135	268.24		16.00	6.59E-01	6.59E-01	1.42E-01	3.20E-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	1.85E+02	2.13E+01	5.36E+01	9.02E+01
		163.89		4.61	2.86E+02		-7.36E+00	1.39E+02
		176.55		13.56	1.02E+02		6.34E+01	4.95E+01
		273.65		12.66	1.51E+02		-7.87E+01	7.30E+01
		340.57		48.50	5.33E+01		1.14E+02	2.59E+01
		818.50		99.70	2.13E+01		3.64E-01	9.87E+00
		1048.07		79.60	2.95E+01		-7.43E+00	1.36E+01
		1235.34		19.70	1.66E+02		-7.34E+01	7.74E+01
+	CS-137	661.65	*	85.12	2.49E-01	2.49E-01	2.16E-01	1.20E-01
	LA-138	788.74		34.00	3.93E-01	1.93E-01	1.68E-02	1.84E-01
		1435.80		66.00	1.93E-01		5.23E-02	8.60E-02
	CE-139	165.85		80.35	1.54E-01	1.54E-01	4.16E-02	7.48E-02
	BA-140	162.64		6.70	2.25E+02	9.40E+01	-7.47E+01	1.09E+02
		304.84		4.50	4.63E+02		2.89E+01	2.23E+02
		423.70		3.20	7.14E+02		-5.48E+01	3.41E+02
		437.55		2.00	1.06E+03		3.92E+02	5.04E+02
		537.32		25.00	9.40E+01		1.93E+01	4.45E+01
	LA-140	328.77		20.50	1.15E+02	2.79E+01	7.54E+01	5.58E+01
		487.03		45.50	4.72E+01		-6.67E+00	2.24E+01
		815.85		23.50	9.82E+01		-2.47E+01	4.53E+01
		1596.49		95.49	2.79E+01		-3.34E+00	1.23E+01
	CE-141	145.44		48.40	1.27E+00	1.27E+00	7.42E-01	6.17E-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	8.75E-01	8.75E-01	1.57E-02	4.26E-01
	PM-144	476.78		42.00	3.01E-01	1.44E-01	-1.33E-02	1.43E-01
		618.01		98.60	1.44E-01		-3.45E-02	6.78E-02
		696.49		99.49	1.53E-01		-1.52E-02	7.18E-02
	PM-145	36.85		21.70	8.14E-01	4.36E-01	-6.97E-01	3.97E-01
		37.36		39.70	4.36E-01		-1.32E-01	2.13E-01
		42.30		15.10	8.94E-01		1.61E-02	4.36E-01
		72.40		2.31	4.84E+00		-1.71E+01	2.38E+00
	PM-146	453.90		39.94	2.87E-01	2.87E-01	7.59E-02	1.37E-01

Analysis Report for 1707085-19

HTC-A02-S004-0006-01

Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
PM-146	735.90		14.01	9.32E-01	2.87E-01	-4.77E-02	4.37E-01
	747.13		13.10	1.07E+00		6.74E-02	5.01E-01
ND-147	91.11		28.90	1.74E+02	1.74E+02	-1.04E+02	8.57E+01
	531.02		13.10	4.08E+02		1.47E+01	1.93E+02
PM-149	285.90		3.10	7.14E+13	7.14E+13	2.59E+11	3.44E+13
EU-152	121.78		20.50	3.46E-01	3.46E-01	4.63E-02	1.68E-01
	244.69		5.40	2.23E+00		2.52E-01	1.09E+00
	344.27		19.13	5.55E-01		1.75E-01	2.67E-01
	778.89		9.20	1.27E+00		1.19E-01	5.87E-01
	964.01		10.40	1.71E+00		-5.32E-02	8.06E-01
	1085.78		7.22	1.88E+00		7.06E-01	8.64E-01
	1112.02		9.60	1.68E+00		3.46E-01	7.82E-01
	1407.95		14.94	1.01E+00		4.89E-01	4.58E-01
GD-153	97.43		31.30	3.02E-01	3.02E-01	2.75E-02	1.47E-01
	103.18		22.20	4.19E-01		-3.22E-01	2.04E-01
EU-154	123.07		40.50	1.80E-01	1.80E-01	1.10E-01	8.75E-02
	723.30		19.70	6.84E-01		-1.33E+00	3.22E-01
	873.19		11.50	9.29E-01		-3.41E-01	4.24E-01
	996.32		10.30	1.37E+00		1.54E-01	6.32E-01
	1004.76		17.90	8.27E-01		7.54E-02	3.84E-01
	1274.45		35.50	3.83E-01		3.62E-02	1.73E-01
EU-155	86.50		30.90	3.39E-01	3.39E-01	2.36E-01	1.66E-01
	105.30		20.70	3.70E-01		2.04E-01	1.80E-01
EU-156	811.77		10.40	1.01E+02	1.01E+02	-2.29E+01	4.66E+01
	1153.47		7.20	2.02E+02		1.27E+02	9.38E+01
	1230.71		8.90	1.61E+02		-2.50E+01	7.43E+01
HO-166M	184.41		72.60	1.28E-01	1.28E-01	1.85E-01	6.26E-02
	280.45		29.60	3.48E-01		1.22E-02	1.69E-01
	410.94		11.10	1.02E+00		1.69E-01	4.87E-01
	711.69		54.10	2.36E-01		-1.84E-01	1.11E-01
TM-171	66.72		0.14	7.69E+01	7.69E+01	-1.30E+02	3.77E+01
HF-172	67.35		5.31	2.01E+00	6.70E-01	-6.99E-01	9.87E-01
	125.81		11.30	6.70E-01		-9.63E-01	3.26E-01
LU-172	181.53		20.60	9.28E+03	5.41E+03	-2.71E+03	4.49E+03
	900.72		29.81	9.47E+03		-7.33E+03	4.32E+03
	1093.66		62.50	5.41E+03		1.34E+03	2.47E+03
LU-173	100.72		5.24	1.54E+00	5.98E-01	-3.23E-02	7.49E-01
	272.11		21.20	5.98E-01		6.32E-01	2.90E-01
HF-175	343.40		84.00	3.29E-01	3.29E-01	1.04E-01	1.58E-01
LU-176	88.34		13.30	7.92E-01	9.65E-02	7.79E-01	3.89E-01
	201.83		86.00	9.65E-02		-1.90E-02	4.68E-02
	306.78		94.00	1.07E-01		-1.16E-03	5.17E-02
HF-181	133.02		41.70	8.97E-01	6.20E-01	-1.98E-01	4.37E-01
	345.85		17.20	2.83E+00		3.09E-01	1.35E+00
	482.03		82.80	6.20E-01		-2.30E-01	2.93E-01
TA-182	67.75		41.20	4.24E-01	4.24E-01	-1.47E-01	2.08E-01
	1121.30		34.90	1.09E+00		1.34E+00	5.15E-01
	1189.05		16.23	1.71E+00		-3.39E-01	7.86E-01
	1221.41		26.98	1.05E+00		-3.71E-01	4.84E-01
	1231.02		11.44	2.57E+00		-3.99E-01	1.18E+00
IR-192	308.46		29.68	8.38E-01	6.05E-01	3.29E-01	4.03E-01
	468.07		48.10	6.05E-01		-6.86E-01	2.89E-01
HG-203	279.19	*	77.30	6.13E-01	6.13E-01	3.96E-01	2.97E-01

Analysis Report for 1707085-19

HTC-A02-S004-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TL-204	374.74		94.11	1.13E-01	1.13E-01	5.03E-03	5.42E-02
		899.15		99.16	1.21E-01		-3.78E-02	5.53E-02
		911.74		91.10	3.21E-01		9.18E-01	1.55E-01
	BI-207	569.67		97.72	1.17E-01	1.17E-01	3.00E-03	5.50E-02
		1063.62		74.90	2.08E-01		8.70E-02	9.65E-02
+	TL-208	583.14	*	30.22	5.69E-01	1.64E-01	3.11E+00	2.74E-01
		860.37	*	4.48	4.48E+00		2.89E+00	2.14E+00
		2614.66	*	35.85	1.64E-01		2.64E+00	5.27E-02
	BI-210M	262.00		45.00	2.05E-01	2.05E-01	4.86E-02	9.92E-02
		300.00		23.00	5.03E-01		-1.20E+00	2.44E-01
+	PB-210	46.50	*	4.25	3.35E+00	3.35E+00	2.52E+00	1.64E+00
	PB-211	404.84		2.90	4.01E+00	4.01E+00	-1.13E-01	1.93E+00
		831.96		2.90	4.61E+00		-1.80E+00	2.15E+00
+	BI-212	727.17	*	11.80	1.65E+00	1.65E+00	2.11E+00	7.91E-01
		1620.62	*	2.75	3.82E+00		2.17E+00	1.63E+00
+	PB-212	238.63	*	44.60	3.31E-01	3.31E-01	4.10E+00	1.62E-01
		300.09	*	3.41	6.11E+00		2.84E+00	3.00E+00
+	BI-214	609.31	*	46.30	3.56E-01	3.56E-01	1.61E+00	1.71E-01
		1120.29	*	15.10	1.82E+00		1.43E+00	8.71E-01
		1764.49	*	15.80	8.58E-01		2.58E+00	3.77E-01
		2204.22		4.98	3.95E+00		-1.19E-01	1.78E+00
+	PB-214	295.21	*	19.19	1.06E+00	3.79E-01	1.90E+00	5.22E-01
		351.92	*	37.19	3.79E-01		2.01E+00	1.84E-01
	RN-219	401.80		6.50	1.75E+00	1.75E+00	2.84E-01	8.38E-01
	RA-223	323.87		3.88	2.62E+00	2.62E+00	9.08E-02	1.26E+00
	RA-224	240.98		3.95	5.84E+00	5.84E+00	4.65E+01	2.88E+00
	RA-225	40.00		31.00	4.68E+01	4.68E+01	-1.19E+01	2.28E+01
+	RA-226	186.21	*	3.28	4.26E+00	4.26E+00	5.04E+00	2.09E+00
	TH-227	50.10		8.40	1.32E+00	1.32E+00	8.77E-02	6.43E-01
		236.00		11.50	1.54E+00		3.83E-02	7.58E-01
		256.20		6.30	1.47E+00		-6.38E-01	7.10E-01
+	AC-228	338.32	*	11.40	1.41E+00	8.10E-01	3.09E+00	6.86E-01
		911.07	*	27.70	8.10E-01		2.71E+00	3.88E-01
		969.11	*	16.60	1.58E+00		2.02E+00	7.58E-01
	TH-230	48.44		16.90	7.30E-01	7.30E-01	2.56E-01	3.57E-01
		62.85		4.60	2.34E+00		1.88E+00	1.15E+00
		67.67		0.37	2.61E+01		-9.06E+00	1.28E+01
	PA-231	283.67		1.60	5.99E+00	4.75E+00	2.86E-01	2.89E+00
		302.67		2.30	4.75E+00		2.53E+00	2.30E+00
	TH-231	25.64		14.70	4.42E+00	1.42E+00	1.80E+00	2.16E+00
		84.21		6.40	1.42E+00		-1.61E+00	6.97E-01
	PA-233	311.98		38.60	3.09E+00	3.09E+00	8.70E-01	1.49E+00
	PA-234	131.20		20.40	3.86E-01	3.86E-01	2.55E-01	1.88E-01
		733.99		8.80	1.39E+00		-5.86E-01	6.48E-01
		946.00		12.00	1.00E+00		-1.33E-01	4.61E-01
	PA-234M	1001.03		0.92	1.56E+01	1.56E+01	7.19E-01	7.22E+00
	TH-234	63.29		3.80	2.81E+00	2.81E+00	2.95E+00	1.38E+00
	U-235	143.76		10.50	6.98E-01	6.98E-01	-4.97E-02	3.39E-01
		163.35		4.70	1.58E+00		-4.08E-02	7.68E-01
		205.31		4.70	2.18E+00		1.05E-01	1.06E+00
+	NP-237	86.50	*	12.60	1.56E+00	1.56E+00	9.99E-01	7.75E-01
	NP-239	106.10		22.70	1.17E+12	1.17E+12	6.46E+11	5.72E+11
		228.18		10.70	3.20E+12		-3.54E+11	1.55E+12

Analysis Report for 1707085-19

HTC-A02-S004-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	NP-239	277.60		14.10	2.64E+12	1.17E+12	1.00E+12	1.28E+12
	AM-241	59.54		35.90	2.81E-01	2.81E-01	-2.62E-01	1.38E-01
	AM-243	74.67		66.00	2.09E-01	2.09E-01	1.07E-01	1.03E-01
+	CM-243	209.75	*	3.29	4.33E+00	7.90E-01	4.58E+00	2.12E+00
		228.14		10.60	9.00E-01		-9.98E-02	4.37E-01
		277.60	*	14.00	7.90E-01		5.10E-01	3.83E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A02-S004-0006-01

Elapsed Live time: 3600
Elapsed Real Time: 3609

Channel								
1:	0	0	0	0	0	0	0	0
9:	5	190	207	174	154	143	108	122
17:	122	112	107	99	83	103	117	103
25:	111	112	106	105	86	100	102	106
33:	106	110	106	107	103	85	95	122
41:	111	98	111	98	126	120	197	175
49:	110	128	136	109	127	132	138	120
57:	147	148	148	192	168	147	212	259
65:	213	163	167	170	173	204	165	179
73:	200	254	433	554	523	763	373	170
81:	136	164	139	162	190	171	223	303
89:	208	231	234	200	250	289	171	118
97:	108	87	96	122	106	107	79	100
105:	111	148	97	95	96	106	103	84
113:	98	102	101	103	90	96	89	88
121:	97	89	98	75	101	65	82	93
129:	104	143	95	98	92	96	93	85
137:	82	69	84	95	60	73	85	97
145:	87	73	104	74	68	78	84	80
153:	85	90	100	94	83	87	72	85
161:	75	68	64	73	75	83	69	67
169:	80	60	79	65	75	66	66	85
177:	72	77	62	62	48	66	51	80
185:	80	133	142	89	64	89	60	59
193:	57	57	67	66	72	74	77	69
201:	71	63	61	69	79	54	83	71
209:	84	140	90	80	64	61	62	60
217:	62	60	55	73	60	53	40	55
225:	52	39	49	58	42	62	57	53
233:	61	45	56	39	64	251	706	544
241:	189	148	114	61	45	46	56	36
249:	36	38	46	51	44	39	40	46
257:	38	30	43	45	40	33	33	28
265:	47	38	36	34	37	66	81	56
273:	44	44	37	36	45	66	50	36
281:	36	40	31	40	33	32	40	36
289:	28	31	32	31	29	53	117	161
297:	76	32	42	55	60	42	29	42
305:	38	28	35	35	33	32	36	33
313:	30	23	25	23	22	32	32	28
321:	36	35	28	30	34	31	29	68
329:	54	32	38	31	35	32	34	30
337:	45	82	155	69	34	39	21	33
345:	31	27	28	24	18	33	69	215
353:	205	66	34	20	32	22	21	18
361:	21	29	25	22	24	27	30	20

369:	22	21	30	28	16	17	22	34

Sample Title: HTC-A02-S004-0006-01

Channel								
377:	27	26	26	17	23	25	31	23
385:	25	25	27	35	18	29	26	26
393:	19	23	21	21	31	9	27	39
401:	17	26	22	23	35	28	31	31
409:	26	31	29	26	21	15	31	31
417:	29	19	21	20	31	28	22	19
425:	17	22	25	26	27	18	26	24
433:	13	17	17	23	24	19	13	22
441:	14	19	14	19	8	18	9	17
449:	20	23	19	26	18	20	27	23
457:	10	21	11	18	18	24	47	50
465:	29	21	22	17	27	14	18	12
473:	27	11	16	14	16	23	15	21
481:	17	17	13	11	15	18	17	16
489:	15	19	18	19	23	14	22	18
497:	14	21	10	16	16	14	16	11
505:	12	17	16	17	18	53	75	66
513:	27	21	15	20	6	12	12	15
521:	19	11	16	15	17	12	11	13
529:	17	19	12	17	10	13	14	18
537:	21	16	11	18	13	17	14	15
545:	16	12	15	20	20	13	15	11
553:	17	13	15	16	9	11	13	10
561:	17	20	19	15	15	9	15	12
569:	9	15	18	16	12	17	13	10
577:	14	11	17	16	14	65	151	170
585:	54	9	18	11	12	13	9	16
593:	11	16	12	14	19	11	5	15
601:	9	9	12	15	17	11	11	40
609:	112	155	46	13	17	15	11	17
617:	13	6	13	16	14	14	19	14
625:	12	17	12	18	10	14	9	10
633:	10	5	12	8	11	10	11	10
641:	13	10	14	11	11	10	6	15
649:	14	11	12	6	12	15	20	12
657:	25	20	9	18	22	34	28	14
665:	14	12	6	6	14	12	8	20
673:	8	5	15	18	4	10	9	12
681:	11	14	20	13	7	12	11	21
689:	7	15	8	12	18	14	10	10
697:	11	12	9	17	7	14	11	15
705:	10	10	15	15	13	12	10	10
713:	14	10	13	20	16	8	12	10
721:	12	12	9	17	7	18	29	46
729:	21	10	6	9	7	14	16	13
737:	5	8	12	9	15	9	13	11
745:	15	17	8	11	8	14	13	11
753:	13	12	14	19	7	11	9	10
761:	14	10	10	10	10	8	16	18
769:	20	11	10	12	15	6	7	8
777:	8	8	10	4	7	10	9	7
785:	15	15	11	6	13	13	8	8
793:	13	10	23	14	11	4	8	6

801:	16	13	11	9	9	9	11	11

Sample Title: HTC-A02-S004-0006-01

Channel								
809:	5	15	5	7	7	11	4	8
817:	7	4	7	11	8	10	8	8
825:	8	8	5	7	9	5	15	12
833:	5	9	12	25	8	14	7	16
841:	10	11	5	11	6	9	13	6
849:	12	8	5	7	4	6	11	4
857:	11	5	10	18	17	19	7	3
865:	7	6	4	6	5	3	5	4
873:	5	6	4	9	9	7	5	9
881:	9	11	3	11	8	7	2	6
889:	5	5	4	6	10	11	5	11
897:	7	10	1	5	3	4	9	5
905:	9	8	10	1	20	39	85	74
913:	30	12	5	6	6	5	4	3
921:	5	3	6	4	5	4	6	7
929:	9	9	7	6	12	10	23	4
937:	5	5	5	6	5	6	8	3
945:	5	7	6	7	6	8	7	8
953:	6	8	4	7	5	10	7	4
961:	4	11	7	21	19	15	14	35
969:	47	39	12	5	5	3	7	11
977:	5	8	4	6	8	4	6	3
985:	5	8	6	6	2	8	5	10
993:	4	7	10	6	7	7	10	7
1001:	5	6	12	8	9	8	10	3
1009:	8	9	6	4	4	7	11	5
1017:	6	6	5	5	3	3	7	10
1025:	6	7	7	3	7	2	7	6
1033:	4	6	7	6	4	7	6	5
1041:	8	4	5	8	8	6	4	3
1049:	7	8	7	10	6	5	5	10
1057:	4	5	5	2	10	7	5	8
1065:	10	9	9	8	8	7	7	6
1073:	5	9	3	2	7	8	9	8
1081:	6	4	7	4	8	5	5	9
1089:	3	2	5	9	5	6	3	4
1097:	6	3	8	7	8	3	2	5
1105:	7	5	3	3	8	8	4	8
1113:	9	9	11	7	7	6	22	24
1121:	31	5	7	6	6	4	6	4
1129:	6	7	6	6	6	4	4	13
1137:	4	6	8	4	5	4	4	6
1145:	4	6	12	9	1	8	6	4
1153:	7	10	13	9	6	3	9	5
1161:	6	8	5	8	4	8	3	6
1169:	2	1	13	7	6	7	6	5
1177:	7	4	5	9	5	6	5	8
1185:	5	7	6	2	9	3	9	10
1193:	7	10	3	5	6	6	9	8
1201:	16	5	10	4	9	7	9	11
1209:	10	6	3	4	3	7	7	9
1217:	7	8	9	4	8	6	4	7
1225:	6	11	9	5	7	14	7	2

1233:	7	7	9	11	12	17	13	14

Sample Title: HTC-A02-S004-0006-01

Channel								
1241:	4	4	6	5	7	10	11	7
1249:	6	4	5	5	6	6	8	6
1257:	1	5	6	7	4	4	6	11
1265:	2	3	5	3	5	4	7	4
1273:	2	5	4	2	6	5	2	6
1281:	4	8	9	6	3	5	4	7
1289:	7	6	9	4	5	9	4	4
1297:	8	2	5	4	6	3	6	2
1305:	5	6	4	5	2	4	9	5
1313:	5	2	4	1	7	1	8	3
1321:	0	4	5	5	6	1	4	2
1329:	9	3	2	3	2	2	4	4
1337:	5	3	7	7	4	6	4	7
1345:	5	1	0	4	5	1	5	5
1353:	3	5	3	2	1	1	3	6
1361:	2	2	5	3	6	6	5	2
1369:	3	1	4	4	2	6	0	8
1377:	16	12	1	6	2	3	2	0
1385:	2	3	4	4	2	0	6	3
1393:	3	3	2	1	5	2	1	5
1401:	9	6	4	3	4	4	7	8
1409:	5	2	2	1	3	4	4	5
1417:	3	4	0	5	3	2	3	1
1425:	1	1	6	2	2	6	2	3
1433:	2	8	0	3	4	3	2	2
1441:	2	2	2	1	0	2	4	5
1449:	1	1	4	1	2	1	0	5
1457:	5	19	81	127	139	47	7	4
1465:	2	1	3	0	1	5	0	2
1473:	2	2	1	1	1	0	1	4
1481:	1	1	1	1	4	1	2	3
1489:	1	5	2	3	6	4	4	1
1497:	3	5	1	3	1	3	3	2
1505:	1	3	4	4	4	4	1	3
1513:	2	5	2	2	3	2	0	1
1521:	2	4	2	0	4	3	5	2
1529:	5	2	4	4	1	4	2	4
1537:	6	5	1	3	2	2	1	2
1545:	4	1	1	4	0	2	1	1
1553:	2	1	0	7	0	1	0	4
1561:	1	1	2	1	0	0	4	3
1569:	4	1	2	1	0	4	0	4
1577:	1	1	0	1	2	1	4	3
1585:	0	3	5	9	6	0	8	4
1593:	4	2	1	0	5	1	1	1
1601:	3	2	1	1	2	0	3	1
1609:	1	1	0	2	3	0	3	4
1617:	1	3	0	8	3	1	1	2
1625:	1	1	0	5	2	5	8	1
1633:	3	3	3	3	3	0	0	0
1641:	5	1	2	1	4	1	0	1
1649:	3	1	1	1	0	1	0	1
1657:	1	0	4	2	2	2	1	3

1665:	1	1	0	0	3	1	2	1

Sample Title: HTC-A02-S004-0006-01

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

2097:	2	0	2	2	5	10	4	1

Sample Title: HTC-A02-S004-0006-01

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

2529:	1	2	1	0	0	0	0	0

Sample Title: HTC-A02-S004-0006-01

Channel								
2537:	1	0	0	0	1	0	0	0
2545:	1	0	1	0	0	0	0	2
2553:	1	1	0	0	1	1	1	2
2561:	1	0	0	0	0	2	0	0
2569:	0	0	1	0	1	1	0	0
2577:	0	0	0	0	0	0	0	1
2585:	0	0	0	0	1	2	0	0
2593:	1	0	0	1	1	0	1	0
2601:	2	1	1	0	0	1	0	0
2609:	1	2	10	19	44	24	17	6
2617:	0	0	0	0	0	0	1	1
2625:	0	0	1	1	0	0	1	0
2633:	0	0	0	0	0	1	0	0
2641:	0	0	0	0	0	0	1	1
2649:	0	1	2	0	0	0	0	0
2657:	0	0	0	0	1	0	1	0
2665:	0	1	0	0	0	0	0	2
2673:	1	3	0	2	0	0	0	0
2681:	0	0	0	0	0	0	1	1
2689:	0	1	0	0	0	1	0	0
2697:	0	0	2	0	0	0	0	1
2705:	0	1	1	0	0	0	1	1
2713:	0	0	1	0	0	0	1	0
2721:	0	0	0	0	0	1	1	0
2729:	1	0	0	1	1	0	0	0
2737:	1	0	1	0	0	0	0	0
2745:	1	0	0	2	1	1	0	0
2753:	1	0	0	0	0	0	0	0
2761:	0	0	0	0	0	0	0	0
2769:	0	0	0	0	0	0	2	0
2777:	0	0	0	3	0	1	0	0
2785:	0	0	0	0	0	0	0	0
2793:	0	1	0	2	1	0	0	0
2801:	1	0	0	0	1	0	1	0
2809:	0	0	1	0	0	1	0	0
2817:	1	0	1	1	0	0	0	1
2825:	0	1	0	0	0	0	0	0
2833:	1	0	1	0	0	0	0	0
2841:	0	0	0	1	0	1	1	1
2849:	0	1	0	0	0	0	1	0
2857:	0	0	1	0	1	0	0	0
2865:	0	0	0	0	0	0	1	1
2873:	0	2	0	0	0	0	0	0
2881:	0	0	1	0	0	0	0	1
2889:	1	2	0	0	0	0	0	1
2897:	1	0	1	0	0	0	0	0
2905:	0	0	0	0	0	0	1	0
2913:	1	0	0	0	0	1	0	0
2921:	1	2	0	1	0	1	1	0
2929:	0	1	0	0	0	0	0	0
2937:	0	0	0	0	0	0	0	0
2945:	0	0	0	0	0	0	0	1
2953:	0	0	1	1	0	0	0	0

2961:	0	1	0	0	0	0	1	0

Sample Title: HTC-A02-S004-0006-01

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

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A02-S004-0006-01

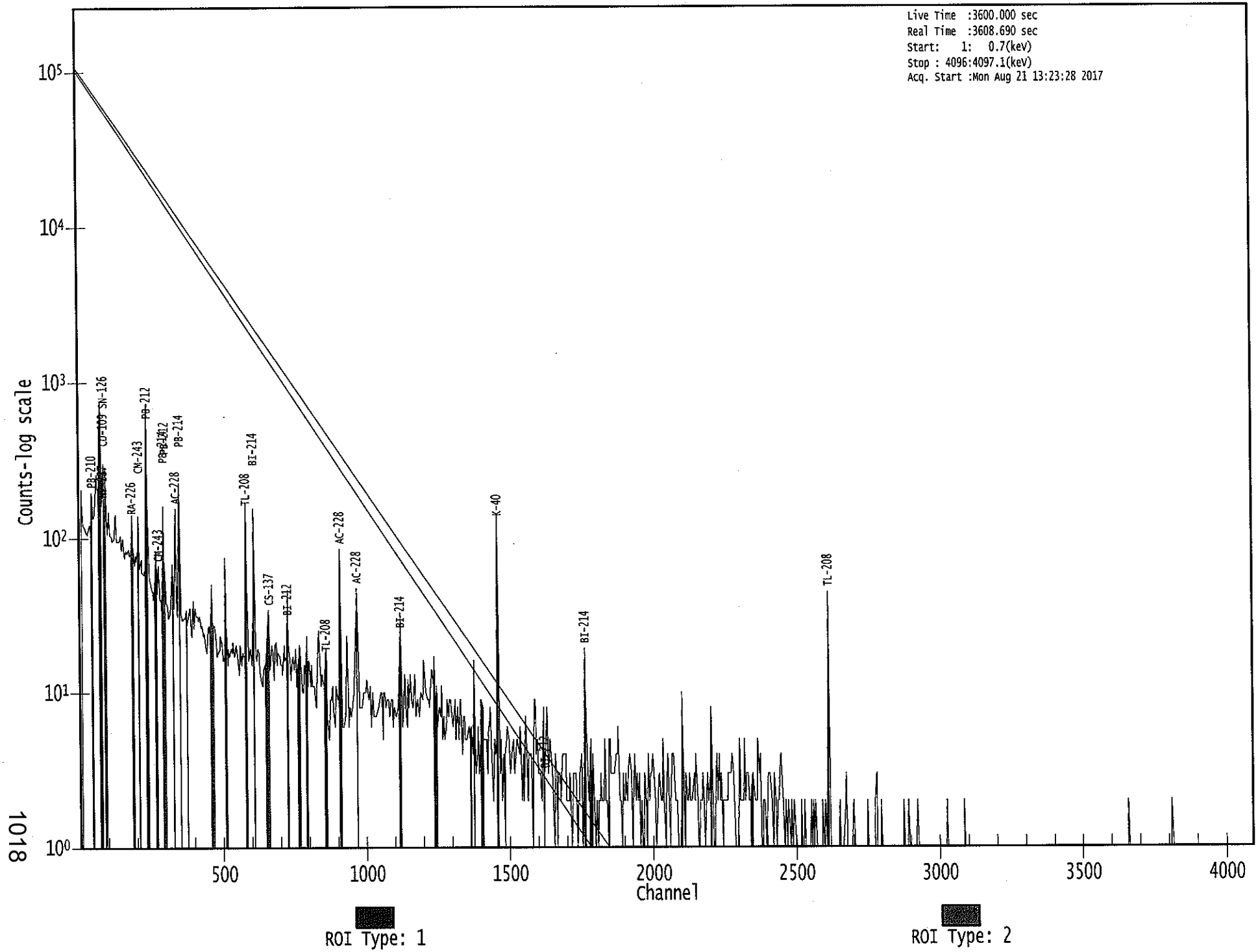
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	1
3417:	0	0	1	0	0	1	0	0
3425:	0	0	1	1	1	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	1	0	0
3449:	0	1	0	0	0	0	0	1
3457:	0	0	1	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	1	0	0	1	0	0	0
3481:	0	0	0	0	0	1	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	1	0	0	0	0

Sample Title: HTC-A02-S004-0006-01

Channel								
3833:	0	0	0	0	0	0	1	0
3841:	0	0	0	0	0	0	0	1
3849:	0	0	0	0	0	0	1	0
3857:	0	0	0	0	0	0	0	1
3865:	0	0	0	1	0	0	0	0
3873:	0	0	0	0	0	0	0	1
3881:	0	0	0	0	1	0	0	0
3889:	0	1	0	1	0	0	0	0
3897:	0	0	0	1	0	0	1	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:	0	0	1	0	0	0	0	0
3937:	1	1	1	0	0	0	1	1
3945:	0	1	0	0	0	0	0	0
3953:	0	0	0	0	0	0	0	0
3961:	0	0	0	0	0	0	0	0
3969:	1	0	0	0	0	0	0	0
3977:	0	0	0	0	0	0	0	1
3985:	1	0	0	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	1	0	0
4017:	0	1	0	0	1	1	1	0
4025:	0	0	0	1	0	1	0	0
4033:	0	0	0	0	0	0	0	0
4041:	0	0	0	0	0	0	0	0
4049:	0	0	0	1	0	1	0	0
4057:	0	0	0	0	0	0	0	0
4065:	0	1	0	1	0	0	0	0
4073:	0	0	0	0	0	0	1	0
4081:	0	0	0	0	0	0	0	0
4089:	0	1	0	0	0	0	0	0

0000055647.CNF



Apex-Gamma

Analysis Report for 1707085-20
HTC-A02-S004-0612-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707085-20
Sample Description	: HTC-A02-S004-0612-01
Sample Type	: SOIL
Sample Size	: 8.167E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 8:15:16AM
Acquisition Started	: 8/21/2017 1:46:53PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3658.5 seconds
Dead Time	: 1.60 %
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	: 55648

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/22/17

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 2:47:52PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	24.43	23.47	0.0000	0.00
2	32.15	31.19	0.0000	0.00
3	35.76	34.81	0.0000	0.00
4	46.61	45.65	0.0000	0.00
5	57.23	56.28	0.0000	0.00
6	63.55	62.60	0.0000	0.00
7	76.11	75.17	0.0000	0.00
8	84.54	83.60	0.0000	0.00
9	87.18	86.24	0.0000	0.00
10	89.89	88.95	0.0000	0.00
11	93.16	92.22	0.0000	0.00
12	99.42	98.48	0.0000	0.00
13	105.37	104.44	0.0000	0.00
14	115.09	114.16	0.0000	0.00
15	129.33	128.40	0.0000	0.00
16	143.96	143.04	0.0000	0.00
17	153.91	152.99	0.0000	0.00
18	164.58	163.66	0.0000	0.00
19	186.00	185.09	0.0000	0.00
20	205.49	204.59	0.0000	0.00
21	209.29	208.39	0.0000	0.00
22	217.30	216.40	0.0000	0.00
23	238.70	237.80	0.0000	0.00
24	241.72	240.83	0.0000	0.00
25	257.90	257.02	0.0000	0.00
26	270.19	269.31	0.0000	0.00
27	277.33	276.45	0.0000	0.00
28	288.54	287.67	0.0000	0.00
29	295.25	294.38	0.0000	0.00
30	300.04	299.17	0.0000	0.00
31	313.92	313.06	0.0000	0.00
32	327.99	327.12	0.0000	0.00
33	338.45	337.60	0.0000	0.00
34	351.90	351.05	0.0000	0.00
35	407.99	407.16	0.0000	0.00
36	441.95	441.13	0.0000	0.00
37	453.23	452.41	0.0000	0.00
38	462.85	462.03	0.0000	0.00
39	479.94	479.13	0.0000	0.00
40	510.59	509.80	0.0000	0.00
41	562.29	561.51	0.0000	0.00
42	573.27	572.50	0.0000	0.00

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	583.05	582.28	0.0000	0.00
44	609.20	608.44	0.0000	0.00
45	664.84	664.11	0.0000	0.00
46	702.95	702.23	0.0000	0.00
47	727.18	726.47	0.0000	0.00
48	745.12	744.42	0.0000	0.00
49	754.63	753.93	0.0000	0.00
50	768.20	767.50	0.0000	0.00
51	772.28	771.58	0.0000	0.00
52	781.93	781.24	0.0000	0.00
53	785.52	784.83	0.0000	0.00
54	794.74	794.06	0.0000	0.00
55	805.99	805.31	0.0000	0.00
56	835.52	834.86	0.0000	0.00
57	839.73	839.06	0.0000	0.00
58	849.84	849.18	0.0000	0.00
59	855.72	855.06	0.0000	0.00
60	860.29	859.64	0.0000	0.00
61	892.28	891.64	0.0000	0.00
62	904.01	903.37	0.0000	0.00
63	910.97	910.34	0.0000	0.00
64	933.56	932.93	0.0000	0.00
65	964.42	963.80	0.0000	0.00
66	968.68	968.07	0.0000	0.00
67	999.35	998.75	0.0000	0.00
68	1077.78	1077.22	0.0000	0.00
69	1094.40	1093.85	0.0000	0.00
70	1120.05	1119.51	0.0000	0.00
71	1154.43	1153.90	0.0000	0.00
72	1237.68	1237.20	0.0000	0.00
73	1246.47	1245.99	0.0000	0.00
74	1280.55	1280.08	0.0000	0.00
75	1376.76	1376.34	0.0000	0.00
76	1384.91	1384.50	0.0000	0.00
77	1393.68	1393.27	0.0000	0.00
78	1401.00	1400.60	0.0000	0.00
79	1407.65	1407.25	0.0000	0.00
80	1459.24	1458.87	0.0000	0.00
81	1495.00	1494.64	0.0000	0.00
82	1501.21	1500.86	0.0000	0.00
83	1508.88	1508.53	0.0000	0.00
84	1537.31	1536.97	0.0000	0.00
85	1580.87	1580.55	0.0000	0.00
86	1587.71	1587.39	0.0000	0.00
87	1591.93	1591.62	0.0000	0.00
88	1620.28	1619.99	0.0000	0.00
89	1630.27	1629.99	0.0000	0.00
90	1638.01	1637.73	0.0000	0.00
91	1660.15	1659.88	0.0000	0.00
92	1682.93	1682.67	0.0000	0.00
93	1728.96	1728.73	0.0000	0.00
94	1763.80	1763.58	0.0000	0.00
95	1846.38	1846.21	0.0000	0.00
96	2102.84	2102.83	0.0000	0.00
97	2117.80	2117.79	0.0000	0.00

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
98	2181.01	2181.04	0.0000	0.00
99	2203.31	2203.35	0.0000	0.00
100	2367.53	2367.68	0.0000	0.00
101	2447.31	2447.52	0.0000	0.00
102	2482.91	2483.14	0.0000	0.00
103	2520.58	2520.84	0.0000	0.00
104	2601.30	2601.60	0.0000	0.00
105	2613.60	2613.92	0.0000	0.00
106	2726.24	2726.64	0.0000	0.00
107	3196.92	3197.66	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 2:47:52PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	24.43	21 -	26	23.47	5.51E+02	415.28	3.39E+04	5.59
M	2	32.15	29 -	37	31.19	5.99E+02	302.14	2.22E+04	2.03
m	3	35.76	29 -	37	34.81	3.94E+02	414.58	3.42E+04	2.10
	4	46.61	44 -	48	45.65	1.19E+03	388.59	3.27E+04	1.89
	5	57.23	54 -	59	56.28	2.41E+03	540.46	5.70E+04	2.14
	6	63.55	60 -	67	62.60	4.93E+03	749.81	9.10E+04	2.39
	7	76.11	69 -	80	75.17	6.26E+04	1159.48	1.36E+05	4.08
M	8	84.54	81 -	96	83.60	4.04E+03	416.25	4.16E+04	2.15
m	9	87.18	81 -	96	86.24	1.14E+04	603.12	5.93E+04	2.04
m	10	89.89	81 -	96	88.95	1.04E+04	828.09	8.34E+04	2.90
m	11	93.16	81 -	96	92.22	1.28E+04	658.19	6.13E+04	2.31
	12	99.42	96 -	101	98.48	1.99E+03	494.30	4.71E+04	2.48
	13	105.37	102 -	107	104.44	1.81E+03	498.58	4.85E+04	2.33
	14	115.09	112 -	117	114.16	1.10E+03	485.54	4.61E+04	3.05
	15	129.33	125 -	132	128.40	3.86E+03	626.82	6.28E+04	2.35
	16	143.96	141 -	146	143.04	9.61E+02	474.10	4.41E+04	2.46
	17	153.91	150 -	156	152.99	1.43E+03	523.25	4.86E+04	2.64
	18	164.58	161 -	167	163.66	5.16E+02	492.05	4.36E+04	2.96
	19	186.00	181 -	189	185.09	7.46E+03	601.35	5.10E+04	2.48
M	20	205.49	204 -	212	204.59	2.93E+02	177.91	1.04E+04	1.99
m	21	209.29	204 -	212	208.39	4.47E+03	410.84	3.00E+04	2.11
	22	217.30	214 -	219	216.40	4.00E+02	369.81	2.69E+04	1.47
M	23	238.70	231 -	244	237.80	5.00E+04	597.07	2.61E+04	2.27
m	24	241.72	231 -	244	240.83	9.62E+03	600.65	2.38E+04	2.34
	25	257.90	255 -	260	257.02	5.96E+02	297.60	1.72E+04	3.84
M	26	270.19	264 -	280	269.31	4.20E+03	379.51	2.13E+04	2.59
m	27	277.33	264 -	280	276.45	2.00E+03	367.46	2.08E+04	2.59
M	28	288.54	285 -	302	287.67	2.56E+02	237.16	1.27E+04	2.35
m	29	295.25	285 -	302	294.38	1.19E+04	375.63	1.69E+04	2.19
m	30	300.04	285 -	302	299.17	2.54E+03	382.87	1.85E+04	2.61
	31	313.92	311 -	316	313.06	2.40E+02	252.32	1.25E+04	3.74
	32	327.99	323 -	331	327.12	1.93E+03	368.24	1.97E+04	2.36
	33	338.45	333 -	342	337.60	8.83E+03	415.59	1.95E+04	2.34
	34	351.90	346 -	356	351.05	1.98E+04	474.75	1.94E+04	2.41
	35	407.99	400 -	412	407.16	1.48E+03	423.11	2.03E+04	2.26
	36	441.95	439 -	444	441.13	2.40E+02	189.42	6.97E+03	4.54
	37	453.23	449 -	455	452.41	2.76E+02	216.75	8.34E+03	1.81
	38	462.85	458 -	466	462.03	2.40E+03	271.72	9.85E+03	2.23
	39	479.94	477 -	482	479.13	1.71E+02	182.56	6.51E+03	3.15
	40	510.59	505 -	513	509.80	4.29E+03	273.55	8.87E+03	2.51

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	562.29	558 -	565	561.51	4.43E+02	207.98	6.93E+03	1.91
	42	573.27	570 -	575	572.50	1.74E+02	163.35	5.17E+03	5.73
	43	583.05	576 -	586	582.28	1.29E+04	345.11	9.01E+03	2.41
	44	609.20	603 -	614	608.44	1.32E+04	355.49	9.18E+03	2.45
	45	664.84	660 -	668	664.11	4.84E+02	203.70	6.11E+03	2.18
	46	702.95	699 -	705	702.23	1.67E+02	166.19	4.91E+03	4.03
	47	727.18	722 -	731	726.47	2.59E+03	227.18	5.87E+03	2.61
	48	745.12	742 -	747	744.42	1.15E+02	131.89	3.37E+03	3.63
	49	754.63	750 -	758	753.93	3.36E+02	186.78	5.18E+03	3.62
M	50	768.20	760 -	775	767.50	1.28E+03	176.65	4.15E+03	2.58
m	51	772.28	760 -	775	771.58	4.20E+02	169.36	3.93E+03	2.56
M	52	781.93	778 -	789	781.24	1.74E+02	121.32	2.88E+03	2.62
m	53	785.52	778 -	789	784.83	6.29E+02	159.08	3.71E+03	2.63
	54	794.74	790 -	800	794.06	1.41E+03	200.58	4.58E+03	2.22
	55	805.99	801 -	809	805.31	3.32E+02	155.35	3.51E+03	2.42
M	56	835.52	826 -	843	834.86	5.39E+02	157.01	3.31E+03	2.91
m	57	839.73	826 -	843	839.06	4.72E+02	143.76	2.87E+03	2.71
	58	849.84	845 -	853	849.18	1.30E+02	138.10	2.85E+03	6.65
M	59	855.72	854 -	865	855.06	7.87E+01	28.72	3.08E+02	1.76
m	60	860.29	854 -	865	859.64	1.47E+03	144.72	2.51E+03	2.60
	61	892.28	888 -	895	891.64	1.54E+02	126.10	2.55E+03	3.81
M	62	904.01	899 -	916	903.37	2.81E+02	126.70	2.56E+03	2.76
m	63	910.97	899 -	916	910.34	7.79E+03	207.48	2.14E+03	2.48
	64	933.56	927 -	938	932.93	6.79E+02	166.05	3.10E+03	2.77
M	65	964.42	954 -	972	963.80	1.41E+03	126.24	1.70E+03	2.45
m	66	968.68	954 -	972	968.07	4.50E+03	181.34	1.90E+03	2.51
	67	999.35	993 -	1004	998.75	2.96E+02	144.82	2.48E+03	2.90
	68	1077.78	1074 -	1081	1077.22	1.55E+02	98.71	1.52E+03	2.24
	69	1094.40	1089 -	1098	1093.85	1.38E+02	117.89	1.90E+03	4.26
	70	1120.05	1116 -	1125	1119.51	2.57E+03	150.39	1.75E+03	2.69
	71	1154.43	1149 -	1159	1153.90	3.57E+02	125.65	1.92E+03	3.44
	72	1237.68	1233 -	1242	1237.20	9.44E+02	118.53	1.47E+03	3.02
	73	1246.47	1243 -	1249	1245.99	9.81E+01	81.76	1.15E+03	1.30
	74	1280.55	1276 -	1284	1280.08	1.84E+02	104.92	1.58E+03	2.73
	75	1376.76	1370 -	1380	1376.34	6.84E+02	123.58	1.67E+03	2.85
M	76	1384.91	1382 -	1397	1384.50	1.11E+02	71.07	9.55E+02	2.51
m	77	1393.68	1382 -	1397	1393.27	7.45E+01	94.19	1.29E+03	3.13
M	78	1401.00	1397 -	1413	1400.60	2.26E+02	77.45	9.27E+02	2.98
m	79	1407.65	1397 -	1413	1407.25	3.97E+02	89.62	1.07E+03	2.77
	80	1459.24	1453 -	1465	1458.87	3.35E+02	122.69	1.62E+03	3.33
	81	1495.00	1492 -	1497	1494.64	1.40E+02	66.10	7.67E+02	2.53
	82	1501.21	1498 -	1504	1500.86	1.14E+02	73.10	8.82E+02	2.12
	83	1508.88	1504 -	1513	1508.53	3.03E+02	105.37	1.42E+03	3.13
	84	1537.31	1533 -	1541	1536.97	1.08E+02	86.28	1.08E+03	4.61
M	85	1580.87	1577 -	1596	1580.55	1.49E+02	76.63	8.56E+02	3.19
m	86	1587.71	1577 -	1596	1587.39	5.57E+02	101.60	9.86E+02	3.11
m	87	1591.93	1577 -	1596	1591.62	9.38E+02	109.54	1.01E+03	2.89
	88	1620.28	1615 -	1625	1619.99	3.28E+02	96.12	1.06E+03	2.29
	89	1630.27	1626 -	1634	1629.99	2.66E+02	81.48	8.55E+02	3.00
	90	1638.01	1635 -	1641	1637.73	6.03E+01	59.15	5.87E+02	1.76
	91	1660.15	1656 -	1664	1659.88	1.14E+02	72.00	7.33E+02	2.15
	92	1682.93	1680 -	1685	1682.67	6.28E+01	47.42	4.00E+02	2.88
	93	1728.96	1723 -	1734	1728.73	4.35E+02	88.50	7.59E+02	3.01

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	94	1763.80	1756 -	1769	1763.58	1.94E+03	126.58	9.20E+02	2.75
	95	1846.38	1840 -	1851	1846.21	2.76E+02	88.45	8.39E+02	3.00
	96	2102.84	2097 -	2109	2102.83	6.51E+02	98.96	8.48E+02	3.45
	97	2117.80	2112 -	2123	2117.79	1.20E+02	85.14	8.47E+02	2.62
	98	2181.01	2177 -	2185	2181.04	5.85E+01	62.38	5.63E+02	4.82
	99	2203.31	2198 -	2207	2203.35	5.09E+02	83.70	7.10E+02	2.87
	100	2367.53	2365 -	2371	2367.68	6.18E+01	61.33	6.36E+02	2.58
	101	2447.31	2441 -	2452	2447.52	1.16E+02	77.33	6.88E+02	3.25
	102	2482.91	2477 -	2491	2483.14	8.34E+01	67.13	4.27E+02	12.61
	103	2520.58	2514 -	2525	2520.84	4.15E+01	38.78	1.65E+02	6.20
M	104	2601.30	2589 -	2622	2601.60	2.69E+01	27.60	8.05E+01	3.48
m	105	2613.60	2589 -	2622	2613.92	3.81E+03	126.09	9.05E+01	3.26
	106	2726.24	2723 -	2729	2726.64	8.89E+00	12.23	2.02E+01	1.28
	107	3196.92	3193 -	3201	3197.66	2.89E+01	12.01	4.29E+00	3.64

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 2:47:52PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	24.43	21 -	26	5.51E+02	415.28	3.39E+04	3.39E+02
M	2	32.15	29 -	37	5.99E+02	302.14	2.22E+04	2.45E+02
m	3	35.76	29 -	37	3.94E+02	414.58	3.42E+04	3.04E+02
	4	46.61	44 -	48	1.19E+03	388.59	3.27E+04	3.14E+02
	5	57.23	54 -	59	2.41E+03	540.46	5.70E+04	4.37E+02
	6	63.55	60 -	67	4.93E+03	749.81	9.10E+04	6.05E+02
	7	76.11	69 -	80	6.26E+04	1159.48	1.36E+05	8.60E+02
M	8	84.54	81 -	96	4.04E+03	416.25	4.16E+04	3.35E+02
m	9	87.18	81 -	96	1.14E+04	603.12	5.93E+04	4.00E+02
m	10	89.89	81 -	96	1.04E+04	828.09	8.34E+04	4.75E+02
m	11	93.16	81 -	96	1.28E+04	658.19	6.13E+04	4.07E+02
	12	99.42	96 -	101	1.99E+03	494.30	4.71E+04	4.00E+02
	13	105.37	102 -	107	1.81E+03	498.58	4.85E+04	4.04E+02
	14	115.09	112 -	117	1.10E+03	485.54	4.61E+04	3.95E+02

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	15	129.33	125 -	132	3.86E+03	626.82	6.28E+04	5.05E+02
	16	143.96	141 -	146	9.61E+02	474.10	4.41E+04	3.86E+02
	17	153.91	150 -	156	1.43E+03	523.25	4.86E+04	4.26E+02
	18	164.58	161 -	167	5.16E+02	492.05	4.36E+04	4.03E+02
	19	186.00	181 -	189	7.46E+03	601.35	5.10E+04	4.73E+02
M	20	205.49	204 -	212	2.93E+02	177.91	1.04E+04	1.68E+02
m	21	209.29	204 -	212	4.47E+03	410.84	3.00E+04	2.85E+02
	22	217.30	214 -	219	4.00E+02	369.81	2.69E+04	3.02E+02
M	23	238.70	231 -	244	5.00E+04	597.07	2.61E+04	2.66E+02
m	24	241.72	231 -	244	9.62E+03	600.65	2.38E+04	2.54E+02
	25	257.90	255 -	260	5.96E+02	297.60	1.72E+04	2.41E+02
M	26	270.19	264 -	280	4.20E+03	379.51	2.13E+04	2.40E+02
m	27	277.33	264 -	280	2.00E+03	367.46	2.08E+04	2.37E+02
M	28	288.54	285 -	302	2.56E+02	237.16	1.27E+04	1.85E+02
m	29	295.25	285 -	302	1.19E+04	375.63	1.69E+04	2.14E+02
m	30	300.04	285 -	302	2.54E+03	382.87	1.85E+04	2.24E+02
	31	313.92	311 -	316	2.40E+02	252.32	1.25E+04	2.06E+02
	32	327.99	323 -	331	1.93E+03	368.24	1.97E+04	2.94E+02
	33	338.45	333 -	342	8.83E+03	415.59	1.95E+04	3.05E+02
	34	351.90	346 -	356	1.98E+04	474.75	1.94E+04	3.14E+02
	35	407.99	400 -	412	1.48E+03	423.11	2.03E+04	3.42E+02
	36	441.95	439 -	444	2.40E+02	189.42	6.97E+03	1.54E+02
	37	453.23	449 -	455	2.76E+02	216.75	8.34E+03	1.76E+02
	38	462.85	458 -	466	2.40E+03	271.72	9.85E+03	2.08E+02
	39	479.94	477 -	482	1.71E+02	182.56	6.51E+03	1.49E+02
	40	510.59	505 -	513	4.29E+03	273.55	8.87E+03	1.97E+02
	41	562.29	558 -	565	4.43E+02	207.98	6.93E+03	1.67E+02
	42	573.27	570 -	575	1.74E+02	163.35	5.17E+03	1.33E+02
	43	583.05	576 -	586	1.29E+04	345.11	9.01E+03	2.14E+02
	44	609.20	603 -	614	1.32E+04	355.49	9.18E+03	2.23E+02
	45	664.84	660 -	668	4.84E+02	203.70	6.11E+03	1.63E+02
	46	702.95	699 -	705	1.67E+02	166.19	4.91E+03	1.35E+02
	47	727.18	722 -	731	2.59E+03	227.18	5.87E+03	1.67E+02
	48	745.12	742 -	747	1.15E+02	131.89	3.37E+03	1.07E+02
	49	754.63	750 -	758	3.36E+02	186.78	5.18E+03	1.51E+02
M	50	768.20	760 -	775	1.28E+03	176.65	4.15E+03	1.06E+02
m	51	772.28	760 -	775	4.20E+02	169.36	3.93E+03	1.03E+02
M	52	781.93	778 -	789	1.74E+02	121.32	2.88E+03	8.82E+01
m	53	785.52	778 -	789	6.29E+02	159.08	3.71E+03	1.00E+02
	54	794.74	790 -	800	1.41E+03	200.58	4.58E+03	1.53E+02
	55	805.99	801 -	809	3.32E+02	155.35	3.51E+03	1.24E+02
M	56	835.52	826 -	843	5.39E+02	157.01	3.31E+03	9.47E+01
m	57	839.73	826 -	843	4.72E+02	143.76	2.87E+03	8.81E+01
	58	849.84	845 -	853	1.30E+02	138.10	2.85E+03	1.12E+02
M	59	855.72	854 -	865	7.87E+01	28.72	3.08E+02	2.88E+01
m	60	860.29	854 -	865	1.47E+03	144.72	2.51E+03	8.24E+01
	61	892.28	888 -	895	1.54E+02	126.10	2.55E+03	1.02E+02
M	62	904.01	899 -	916	2.81E+02	126.70	2.56E+03	8.32E+01
m	63	910.97	899 -	916	7.79E+03	207.48	2.14E+03	7.61E+01
	64	933.56	927 -	938	6.79E+02	166.05	3.10E+03	1.30E+02
M	65	964.42	954 -	972	1.41E+03	126.24	1.70E+03	6.77E+01

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	66	968.68	954 -	972	4.50E+03	181.34	1.90E+03	7.17E+01
	67	999.35	993 -	1004	2.96E+02	144.82	2.48E+03	1.16E+02
	68	1077.78	1074 -	1081	1.55E+02	98.71	1.52E+03	7.85E+01
	69	1094.40	1089 -	1098	1.38E+02	117.89	1.90E+03	9.50E+01
	70	1120.05	1116 -	1125	2.57E+03	150.39	1.75E+03	9.12E+01
	71	1154.43	1149 -	1159	3.57E+02	125.65	1.92E+03	9.85E+01
	72	1237.68	1233 -	1242	9.44E+02	118.53	1.47E+03	8.33E+01
	73	1246.47	1243 -	1249	9.81E+01	81.76	1.15E+03	6.52E+01
	74	1280.55	1276 -	1284	1.84E+02	104.92	1.58E+03	8.33E+01
	75	1376.76	1370 -	1380	6.84E+02	123.58	1.67E+03	9.20E+01
M	76	1384.91	1382 -	1397	1.11E+02	71.07	9.55E+02	5.08E+01
m	77	1393.68	1382 -	1397	7.45E+01	94.19	1.29E+03	5.89E+01
M	78	1401.00	1397 -	1413	2.26E+02	77.45	9.27E+02	5.01E+01
m	79	1407.65	1397 -	1413	3.97E+02	89.62	1.07E+03	5.37E+01
	80	1459.24	1453 -	1465	3.35E+02	122.69	1.62E+03	9.63E+01
	81	1495.00	1492 -	1497	1.40E+02	66.10	7.67E+02	5.07E+01
	82	1501.21	1498 -	1504	1.14E+02	73.10	8.82E+02	5.75E+01
	83	1508.88	1504 -	1513	3.03E+02	105.37	1.42E+03	8.18E+01
	84	1537.31	1533 -	1541	1.08E+02	86.28	1.08E+03	6.88E+01
M	85	1580.87	1577 -	1596	1.49E+02	76.63	8.56E+02	4.81E+01
m	86	1587.71	1577 -	1596	5.57E+02	101.60	9.86E+02	5.16E+01
m	87	1591.93	1577 -	1596	9.38E+02	109.54	1.01E+03	5.23E+01
	88	1620.28	1615 -	1625	3.28E+02	96.12	1.06E+03	7.32E+01
	89	1630.27	1626 -	1634	2.66E+02	81.48	8.55E+02	6.14E+01
	90	1638.01	1635 -	1641	6.03E+01	59.15	5.87E+02	4.69E+01
	91	1660.15	1656 -	1664	1.14E+02	72.00	7.33E+02	5.65E+01
	92	1682.93	1680 -	1685	6.28E+01	47.42	4.00E+02	3.67E+01
	93	1728.96	1723 -	1734	4.35E+02	88.50	7.59E+02	6.41E+01
	94	1763.80	1756 -	1769	1.94E+03	126.58	9.20E+02	7.47E+01
	95	1846.38	1840 -	1851	2.76E+02	88.45	8.39E+02	6.74E+01
	96	2102.84	2097 -	2109	6.51E+02	98.96	8.48E+02	6.97E+01
	97	2117.80	2112 -	2123	1.20E+02	85.14	8.47E+02	6.76E+01
	98	2181.01	2177 -	2185	5.85E+01	62.38	5.63E+02	4.97E+01
	99	2203.31	2198 -	2207	5.09E+02	83.70	7.10E+02	5.80E+01
	100	2367.53	2365 -	2371	6.18E+01	61.33	6.36E+02	4.87E+01
	101	2447.31	2441 -	2452	1.16E+02	77.33	6.88E+02	6.10E+01
	102	2482.91	2477 -	2491	8.34E+01	67.13	4.27E+02	5.31E+01
	103	2520.58	2514 -	2525	4.15E+01	38.78	1.65E+02	3.01E+01
M	104	2601.30	2589 -	2622	2.69E+01	27.60	8.05E+01	1.47E+01
m	105	2613.60	2589 -	2622	3.81E+03	126.09	9.05E+01	1.56E+01
	106	2726.24	2723 -	2729	8.89E+00	12.23	2.02E+01	8.77E+00
	107	3196.92	3193 -	3201	2.89E+01	12.01	4.29E+00	4.41E+00

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

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/21/2017 2:47:52PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	24.43	21 -	26	23.47	5.51E+02	415.28	3.39E+04	.....
M	2	32.15	29 -	37	31.19	5.99E+02	302.14	2.22E+04	.....
m	3	35.76	29 -	37	34.81	3.94E+02	414.58	3.42E+04	I-125
	4	46.61	44 -	48	45.65	1.19E+03	388.59	3.27E+04	PB-210
	5	57.23	54 -	59	56.28	2.41E+03	540.46	5.70E+04	CE-143
	6	63.55	60 -	67	62.60	4.93E+03	749.81	9.10E+04	TH-234
									TH-230
	7	76.11	69 -	80	75.17	6.26E+04	1159.48	1.36E+05	.....
M	8	84.54	81 -	96	83.60	4.04E+03	416.25	4.16E+04	TH-231
m	9	87.18	81 -	96	86.24	1.14E+04	603.12	5.93E+04	SN-126
									NP-237
									EU-155
									CD-109
m	10	89.89	81 -	96	88.95	1.04E+04	828.09	8.34E+04	.....
m	11	93.16	81 -	96	92.22	1.28E+04	658.19	6.13E+04	GA-67
	12	99.42	96 -	101	98.48	1.99E+03	494.30	4.71E+04	.....
	13	105.37	102 -	107	104.44	1.81E+03	498.58	4.85E+04	EU-155
									NP-239
	14	115.09	112 -	117	114.16	1.10E+03	485.54	4.61E+04	.....
	15	129.33	125 -	132	128.40	3.86E+03	626.82	6.28E+04	.....
	16	143.96	141 -	146	143.04	9.61E+02	474.10	4.41E+04	U-235
	17	153.91	150 -	156	152.99	1.43E+03	523.25	4.86E+04	CS-136
	18	164.58	161 -	167	163.66	5.16E+02	492.05	4.36E+04	CS-136
	19	186.00	181 -	189	185.09	7.46E+03	601.35	5.10E+04	RA-226
M	20	205.49	204 -	212	204.59	2.93E+02	177.91	1.04E+04	U-235
m	21	209.29	204 -	212	208.39	4.47E+03	410.84	3.00E+04	GA-67
									CM-243
	22	217.30	214 -	219	216.40	4.00E+02	369.81	2.69E+04	.....
M	23	238.70	231 -	244	237.80	5.00E+04	597.07	2.61E+04	PB-212
m	24	241.72	231 -	244	240.83	9.62E+03	600.65	2.38E+04	RA-224
	25	257.90	255 -	260	257.02	5.96E+02	297.60	1.72E+04	.....
M	26	270.19	264 -	280	269.31	4.20E+03	379.51	2.13E+04	.....
m	27	277.33	264 -	280	276.45	2.00E+03	367.46	2.08E+04	CM-243
									NP-239
M	28	288.54	285 -	302	287.67	2.56E+02	237.16	1.27E+04	.....
m	29	295.25	285 -	302	294.38	1.19E+04	375.63	1.69E+04	PB-214
m	30	300.04	285 -	302	299.17	2.54E+03	382.87	1.85E+04	BI-210M
									PB-212

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									GA-67
	31	313.92	311 -	316	313.06	2.40E+02	252.32	1.25E+04	.....
	32	327.99	323 -	331	327.12	1.93E+03	368.24	1.97E+04	LA-140
	33	338.45	333 -	342	337.60	8.83E+03	415.59	1.95E+04	AC-228
	34	351.90	346 -	356	351.05	1.98E+04	474.75	1.94E+04	PB-214
	35	407.99	400 -	412	407.16	1.48E+03	423.11	2.03E+04	.....
	36	441.95	439 -	444	441.13	2.40E+02	189.42	6.97E+03	.....
	37	453.23	449 -	455	452.41	2.76E+02	216.75	8.34E+03	PM-146
	38	462.85	458 -	466	462.03	2.40E+03	271.72	9.85E+03	SB-125
	39	479.94	477 -	482	479.13	1.71E+02	182.56	6.51E+03	.....
	40	510.59	505 -	513	509.80	4.29E+03	273.55	8.87E+03	.....
	41	562.29	558 -	565	561.51	4.43E+02	207.98	6.93E+03	CS-134
	42	573.27	570 -	575	572.50	1.74E+02	163.35	5.17E+03	.....
	43	583.05	576 -	586	582.28	1.29E+04	345.11	9.01E+03	TL-208
	44	609.20	603 -	614	608.44	1.32E+04	355.49	9.18E+03	BI-214
	45	664.84	660 -	668	664.11	4.84E+02	203.70	6.11E+03	CE-143
	46	702.95	699 -	705	702.23	1.67E+02	166.19	4.91E+03	NB-94
	47	727.18	722 -	731	726.47	2.59E+03	227.18	5.87E+03	BI-212
	48	745.12	742 -	747	744.42	1.15E+02	131.89	3.37E+03	.....
	49	754.63	750 -	758	753.93	3.36E+02	186.78	5.18E+03	.....
M	50	768.20	760 -	775	767.50	1.28E+03	176.65	4.15E+03	.....
m	51	772.28	760 -	775	771.58	4.20E+02	169.36	3.93E+03	.....
M	52	781.93	778 -	789	781.24	1.74E+02	121.32	2.88E+03	.....
m	53	785.52	778 -	789	784.83	6.29E+02	159.08	3.71E+03	.....
	54	794.74	790 -	800	794.06	1.41E+03	200.58	4.58E+03	.....
	55	805.99	801 -	809	805.31	3.32E+02	155.35	3.51E+03	.....
M	56	835.52	826 -	843	834.86	5.39E+02	157.01	3.31E+03	MN-54
m	57	839.73	826 -	843	839.06	4.72E+02	143.76	2.87E+03	.....
	58	849.84	845 -	853	849.18	1.30E+02	138.10	2.85E+03	.....
M	59	855.72	854 -	865	855.06	7.87E+01	28.72	3.08E+02	.....
m	60	860.29	854 -	865	859.64	1.47E+03	144.72	2.51E+03	TL-208
	61	892.28	888 -	895	891.64	1.54E+02	126.10	2.55E+03	.....
M	62	904.01	899 -	916	903.37	2.81E+02	126.70	2.56E+03	.....
m	63	910.97	899 -	916	910.34	7.79E+03	207.48	2.14E+03	AC-228
									TL-204
	64	933.56	927 -	938	932.93	6.79E+02	166.05	3.10E+03	.....
M	65	964.42	954 -	972	963.80	1.41E+03	126.24	1.70E+03	EU-152
m	66	968.68	954 -	972	968.07	4.50E+03	181.34	1.90E+03	AC-228
	67	999.35	993 -	1004	998.75	2.96E+02	144.82	2.48E+03	.....
	68	1077.78	1074 -	1081	1077.22	1.55E+02	98.71	1.52E+03	.....
	69	1094.40	1089 -	1098	1093.85	1.38E+02	117.89	1.90E+03	LU-172
	70	1120.05	1116 -	1125	1119.51	2.57E+03	150.39	1.75E+03	BI-214
									SC-46
	71	1154.43	1149 -	1159	1153.90	3.57E+02	125.65	1.92E+03	EU-156
	72	1237.68	1233 -	1242	1237.20	9.44E+02	118.53	1.47E+03	CO-56
	73	1246.47	1243 -	1249	1245.99	9.81E+01	81.76	1.15E+03	.....
	74	1280.55	1276 -	1284	1280.08	1.84E+02	104.92	1.58E+03	.....
	75	1376.76	1370 -	1380	1376.34	6.84E+02	123.58	1.67E+03	.....
M	76	1384.91	1382 -	1397	1384.50	1.11E+02	71.07	9.55E+02	AG-110M
m	77	1393.68	1382 -	1397	1393.27	7.45E+01	94.19	1.29E+03	.....
M	78	1401.00	1397 -	1413	1400.60	2.26E+02	77.45	9.27E+02	.....
m	79	1407.65	1397 -	1413	1407.25	3.97E+02	89.62	1.07E+03	EU-152
	80	1459.24	1453 -	1465	1458.87	3.35E+02	122.69	1.62E+03	.....
	81	1495.00	1492 -	1497	1494.64	1.40E+02	66.10	7.67E+02	.....

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	82	1501.21	1498 -	1504	1500.86	1.14E+02	73.10	8.82E+02	.....
	83	1508.88	1504 -	1513	1508.53	3.03E+02	105.37	1.42E+03	.....
	84	1537.31	1533 -	1541	1536.97	1.08E+02	86.28	1.08E+03	.....
M	85	1580.87	1577 -	1596	1580.55	1.49E+02	76.63	8.56E+02	.....
m	86	1587.71	1577 -	1596	1587.39	5.57E+02	101.60	9.86E+02	.....
m	87	1591.93	1577 -	1596	1591.62	9.38E+02	109.54	1.01E+03	.....
	88	1620.28	1615 -	1625	1619.99	3.28E+02	96.12	1.06E+03	BI-212
	89	1630.27	1626 -	1634	1629.99	2.66E+02	81.48	8.55E+02	.....
	90	1638.01	1635 -	1641	1637.73	6.03E+01	59.15	5.87E+02	.....
	91	1660.15	1656 -	1664	1659.88	1.14E+02	72.00	7.33E+02	.....
	92	1682.93	1680 -	1685	1682.67	6.28E+01	47.42	4.00E+02	.....
	93	1728.96	1723 -	1734	1728.73	4.35E+02	88.50	7.59E+02	.....
	94	1763.80	1756 -	1769	1763.58	1.94E+03	126.58	9.20E+02	BI-214
	95	1846.38	1840 -	1851	1846.21	2.76E+02	88.45	8.39E+02	.....
	96	2102.84	2097 -	2109	2102.83	6.51E+02	98.96	8.48E+02	.....
	97	2117.80	2112 -	2123	2117.79	1.20E+02	85.14	8.47E+02	.....
	98	2181.01	2177 -	2185	2181.04	5.85E+01	62.38	5.63E+02	.....
	99	2203.31	2198 -	2207	2203.35	5.09E+02	83.70	7.10E+02	BI-214
	100	2367.53	2365 -	2371	2367.68	6.18E+01	61.33	6.36E+02	.....
	101	2447.31	2441 -	2452	2447.52	1.16E+02	77.33	6.88E+02	.....
	102	2482.91	2477 -	2491	2483.14	8.34E+01	67.13	4.27E+02	.....
	103	2520.58	2514 -	2525	2520.84	4.15E+01	38.78	1.65E+02	.....
M	104	2601.30	2589 -	2622	2601.60	2.69E+01	27.60	8.05E+01	.....
m	105	2613.60	2589 -	2622	2613.92	3.81E+03	126.09	9.05E+01	.....
	106	2726.24	2723 -	2729	2726.64	8.89E+00	12.23	2.02E+01	.....
	107	3196.92	3193 -	3201	3197.66	2.89E+01	12.01	4.29E+00	.....

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/21/2017 2:47:52PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	24.43	5.51E+02	415.28	4.87E-03	1.56E-03
M	2	32.15	5.99E+02	302.14	9.17E-03	1.56E-03
m	3	35.76	3.94E+02	414.58	1.12E-02	1.56E-03
	4	46.61	1.19E+03	388.59	1.65E-02	1.56E-03

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	5	57.23	2.41E+03	540.46	2.01E-02	1.56E-03
	6	63.55	4.93E+03	749.81	2.16E-02	1.64E-03
	7	76.11	6.26E+04	1159.48	2.32E-02	1.91E-03
M	8	84.54	4.04E+03	416.25	2.36E-02	2.09E-03
m	9	87.18	1.14E+04	603.12	2.37E-02	2.15E-03
m	10	89.89	1.04E+04	828.09	2.37E-02	2.14E-03
m	11	93.16	1.28E+04	658.19	2.36E-02	2.09E-03
	12	99.42	1.99E+03	494.30	2.35E-02	1.99E-03
	13	105.37	1.81E+03	498.58	2.32E-02	1.90E-03
	14	115.09	1.10E+03	485.54	2.26E-02	1.76E-03
	15	129.33	3.86E+03	626.82	2.15E-02	1.63E-03
	16	143.96	9.61E+02	474.10	2.03E-02	1.57E-03
	17	153.91	1.43E+03	523.25	1.95E-02	1.54E-03
	18	164.58	5.16E+02	492.05	1.86E-02	1.50E-03
	19	186.00	7.46E+03	601.35	1.69E-02	1.40E-03
M	20	205.49	2.93E+02	177.91	1.56E-02	1.30E-03
m	21	209.29	4.47E+03	410.84	1.53E-02	1.28E-03
	22	217.30	4.00E+02	369.81	1.48E-02	1.25E-03
M	23	238.70	5.00E+04	597.07	1.36E-02	1.14E-03
m	24	241.72	9.62E+03	600.65	1.34E-02	1.13E-03
	25	257.90	5.96E+02	297.60	1.26E-02	1.05E-03
M	26	270.19	4.20E+03	379.51	1.21E-02	9.90E-04
m	27	277.33	2.00E+03	367.46	1.17E-02	9.56E-04
M	28	288.54	2.56E+02	237.16	1.13E-02	9.27E-04
m	29	295.25	1.19E+04	375.63	1.10E-02	9.13E-04
m	30	300.04	2.54E+03	382.87	1.09E-02	9.03E-04
	31	313.92	2.40E+02	252.32	1.04E-02	8.74E-04
	32	327.99	1.93E+03	368.24	9.91E-03	8.44E-04
	33	338.45	8.83E+03	415.59	9.60E-03	8.22E-04
	34	351.90	1.98E+04	474.75	9.22E-03	7.94E-04
	35	407.99	1.48E+03	423.11	7.91E-03	7.04E-04
	36	441.95	2.40E+02	189.42	7.28E-03	6.90E-04
	37	453.23	2.76E+02	216.75	7.10E-03	6.85E-04
	38	462.85	2.40E+03	271.72	6.95E-03	6.81E-04
	39	479.94	1.71E+02	182.56	6.69E-03	6.74E-04
	40	510.59	4.29E+03	273.55	6.29E-03	6.61E-04
	41	562.29	4.43E+02	207.98	5.71E-03	6.40E-04
	42	573.27	1.74E+02	163.35	5.60E-03	6.35E-04
	43	583.05	1.29E+04	345.11	5.51E-03	6.31E-04
	44	609.20	1.32E+04	355.49	5.27E-03	6.20E-04
	45	664.84	4.84E+02	203.70	4.85E-03	5.95E-04
	46	702.95	1.67E+02	166.19	4.60E-03	5.47E-04
	47	727.18	2.59E+03	227.18	4.45E-03	5.16E-04
	48	745.12	1.15E+02	131.89	4.35E-03	4.94E-04
	49	754.63	3.36E+02	186.78	4.30E-03	4.82E-04
M	50	768.20	1.28E+03	176.65	4.23E-03	4.65E-04
m	51	772.28	4.20E+02	169.36	4.21E-03	4.60E-04
M	52	781.93	1.74E+02	121.32	4.16E-03	4.48E-04
m	53	785.52	6.29E+02	159.08	4.14E-03	4.43E-04
	54	794.74	1.41E+03	200.58	4.10E-03	4.32E-04
	55	805.99	3.32E+02	155.35	4.04E-03	4.17E-04
M	56	835.52	5.39E+02	157.01	3.91E-03	3.80E-04
m	57	839.73	4.72E+02	143.76	3.90E-03	3.75E-04

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	58	849.84	1.30E+02	138.10	3.85E-03	3.62E-04
M	59	855.72	7.87E+01	28.72	3.83E-03	3.55E-04
m	60	860.29	1.47E+03	144.72	3.81E-03	3.49E-04
	61	892.28	1.54E+02	126.10	3.69E-03	3.09E-04
M	62	904.01	2.81E+02	126.70	3.64E-03	3.01E-04
m	63	910.97	7.79E+03	207.48	3.62E-03	2.99E-04
	64	933.56	6.79E+02	166.05	3.54E-03	2.94E-04
M	65	964.42	1.41E+03	126.24	3.44E-03	2.86E-04
m	66	968.68	4.50E+03	181.34	3.43E-03	2.85E-04
	67	999.35	2.96E+02	144.82	3.33E-03	2.78E-04
	68	1077.78	1.55E+02	98.71	3.12E-03	2.60E-04
	69	1094.40	1.38E+02	117.89	3.08E-03	2.56E-04
	70	1120.05	2.57E+03	150.39	3.02E-03	2.50E-04
	71	1154.43	3.57E+02	125.65	2.94E-03	2.42E-04
	72	1237.68	9.44E+02	118.53	2.76E-03	2.33E-04
	73	1246.47	9.81E+01	81.76	2.75E-03	2.33E-04
	74	1280.55	1.84E+02	104.92	2.68E-03	2.31E-04
	75	1376.76	6.84E+02	123.58	2.51E-03	2.20E-04
M	76	1384.91	1.11E+02	71.07	2.50E-03	2.19E-04
m	77	1393.68	7.45E+01	94.19	2.49E-03	2.18E-04
M	78	1401.00	2.26E+02	77.45	2.48E-03	2.17E-04
m	79	1407.65	3.97E+02	89.62	2.47E-03	2.16E-04
	80	1459.24	3.35E+02	122.69	2.39E-03	2.08E-04
	81	1495.00	1.40E+02	66.10	2.34E-03	2.03E-04
	82	1501.21	1.14E+02	73.10	2.33E-03	2.02E-04
	83	1508.88	3.03E+02	105.37	2.32E-03	2.01E-04
	84	1537.31	1.08E+02	86.28	2.28E-03	1.96E-04
M	85	1580.87	1.49E+02	76.63	2.22E-03	1.90E-04
m	86	1587.71	5.57E+02	101.60	2.21E-03	1.89E-04
m	87	1591.93	9.38E+02	109.54	2.20E-03	1.88E-04
	88	1620.28	3.28E+02	96.12	2.17E-03	1.84E-04
	89	1630.27	2.66E+02	81.48	2.16E-03	1.82E-04
	90	1638.01	6.03E+01	59.15	2.15E-03	1.81E-04
	91	1660.15	1.14E+02	72.00	2.12E-03	1.78E-04
	92	1682.93	6.28E+01	47.42	2.09E-03	1.74E-04
	93	1728.96	4.35E+02	88.50	2.04E-03	1.67E-04
	94	1763.80	1.94E+03	126.58	2.00E-03	1.62E-04
	95	1846.38	2.76E+02	88.45	1.91E-03	1.51E-04
	96	2102.84	6.51E+02	98.96	1.67E-03	1.51E-04
	97	2117.80	1.20E+02	85.14	1.65E-03	1.51E-04
	98	2181.01	5.85E+01	62.38	1.60E-03	1.51E-04
	99	2203.31	5.09E+02	83.70	1.58E-03	1.51E-04
	100	2367.53	6.18E+01	61.33	1.45E-03	1.51E-04
	101	2447.31	1.16E+02	77.33	1.39E-03	1.51E-04
	102	2482.91	8.34E+01	67.13	1.37E-03	1.51E-04
	103	2520.58	4.15E+01	38.78	1.34E-03	1.51E-04
M	104	2601.30	2.69E+01	27.60	1.29E-03	1.51E-04
m	105	2613.60	3.81E+03	126.09	1.28E-03	1.51E-04
	106	2726.24	8.89E+00	12.23	1.21E-03	1.51E-04
	107	3196.92	2.89E+01	12.01	9.45E-04	1.51E-04

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

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 : 8/21/2017 2:47:52PM

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

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	24.43	5.51E+02	415.28			5.51E+02	4.15E+02
M	2	32.15	5.99E+02	302.14			5.99E+02	3.02E+02
m	3	35.76	3.94E+02	414.58			3.94E+02	4.15E+02
	4	46.61	1.19E+03	388.59	2.81E+01	8.29E+00	1.16E+03	3.89E+02
	5	57.23	2.41E+03	540.46			2.41E+03	5.40E+02
	6	63.55	4.93E+03	749.81	5.67E+01	8.57E+00	4.88E+03	7.50E+02
	7	76.11	6.26E+04	1159.48	2.66E+01	8.34E+00	6.26E+04	1.16E+03
M	8	84.54	4.04E+03	416.25			4.04E+03	4.16E+02
m	9	87.18	1.14E+04	603.12			1.14E+04	6.03E+02
m	10	89.89	1.04E+04	828.09			1.04E+04	8.28E+02
m	11	93.16	1.28E+04	658.19	5.99E+01	8.61E+00	1.27E+04	6.58E+02
	12	99.42	1.99E+03	494.30			1.99E+03	4.94E+02
	13	105.37	1.81E+03	498.58			1.81E+03	4.99E+02
	14	115.09	1.10E+03	485.54			1.10E+03	4.86E+02
	15	129.33	3.86E+03	626.82			3.86E+03	6.27E+02
	16	143.96	9.61E+02	474.10			9.61E+02	4.74E+02
	17	153.91	1.43E+03	523.25			1.43E+03	5.23E+02
	18	164.58	5.16E+02	492.05			5.16E+02	4.92E+02
	19	186.00	7.46E+03	601.35	2.43E+01	7.50E+00	7.44E+03	6.01E+02
M	20	205.49	2.93E+02	177.91			2.93E+02	1.78E+02
m	21	209.29	4.47E+03	410.84			4.47E+03	4.11E+02
	22	217.30	4.00E+02	369.81			4.00E+02	3.70E+02
M	23	238.70	5.00E+04	597.07	1.06E+01	6.01E+00	5.00E+04	5.97E+02
m	24	241.72	9.62E+03	600.65			9.62E+03	6.01E+02
	25	257.90	5.96E+02	297.60			5.96E+02	2.98E+02
M	26	270.19	4.20E+03	379.51			4.20E+03	3.80E+02
m	27	277.33	2.00E+03	367.46			2.00E+03	3.67E+02
M	28	288.54	2.56E+02	237.16			2.56E+02	2.37E+02
m	29	295.25	1.19E+04	375.63			1.19E+04	3.76E+02
m	30	300.04	2.54E+03	382.87			2.54E+03	3.83E+02
	31	313.92	2.40E+02	252.32			2.40E+02	2.52E+02
	32	327.99	1.93E+03	368.24			1.93E+03	3.68E+02
	33	338.45	8.83E+03	415.59			8.83E+03	4.16E+02
	34	351.90	1.98E+04	474.75			1.98E+04	4.75E+02
	35	407.99	1.48E+03	423.11			1.48E+03	4.23E+02

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	36	441.95	2.40E+02	189.42			2.40E+02	1.89E+02
	37	453.23	2.76E+02	216.75			2.76E+02	2.17E+02
	38	462.85	2.40E+03	271.72			2.40E+03	2.72E+02
	39	479.94	1.71E+02	182.56			1.71E+02	1.83E+02
	40	510.59	4.29E+03	273.55	4.55E+01	4.99E+00	4.25E+03	2.74E+02
	41	562.29	4.43E+02	207.98			4.43E+02	2.08E+02
	42	573.27	1.74E+02	163.35			1.74E+02	1.63E+02
	43	583.05	1.29E+04	345.11			1.29E+04	3.45E+02
	44	609.20	1.32E+04	355.49			1.32E+04	3.55E+02
	45	664.84	4.84E+02	203.70			4.84E+02	2.04E+02
	46	702.95	1.67E+02	166.19			1.67E+02	1.66E+02
	47	727.18	2.59E+03	227.18			2.59E+03	2.27E+02
	48	745.12	1.15E+02	131.89			1.15E+02	1.32E+02
	49	754.63	3.36E+02	186.78			3.36E+02	1.87E+02
M	50	768.20	1.28E+03	176.65			1.28E+03	1.77E+02
m	51	772.28	4.20E+02	169.36			4.20E+02	1.69E+02
M	52	781.93	1.74E+02	121.32			1.74E+02	1.21E+02
m	53	785.52	6.29E+02	159.08			6.29E+02	1.59E+02
	54	794.74	1.41E+03	200.58			1.41E+03	2.01E+02
	55	805.99	3.32E+02	155.35			3.32E+02	1.55E+02
M	56	835.52	5.39E+02	157.01			5.39E+02	1.57E+02
m	57	839.73	4.72E+02	143.76			4.72E+02	1.44E+02
	58	849.84	1.30E+02	138.10			1.30E+02	1.38E+02
M	59	855.72	7.87E+01	28.72			7.87E+01	2.87E+01
m	60	860.29	1.47E+03	144.72			1.47E+03	1.45E+02
	61	892.28	1.54E+02	126.10			1.54E+02	1.26E+02
M	62	904.01	2.81E+02	126.70			2.81E+02	1.27E+02
m	63	910.97	7.79E+03	207.48			7.79E+03	2.07E+02
	64	933.56	6.79E+02	166.05			6.79E+02	1.66E+02
M	65	964.42	1.41E+03	126.24			1.41E+03	1.26E+02
m	66	968.68	4.50E+03	181.34			4.50E+03	1.81E+02
	67	999.35	2.96E+02	144.82			2.96E+02	1.45E+02
	68	1077.78	1.55E+02	98.71			1.55E+02	9.87E+01
	69	1094.40	1.38E+02	117.89			1.38E+02	1.18E+02
	70	1120.05	2.57E+03	150.39			2.57E+03	1.50E+02
	71	1154.43	3.57E+02	125.65			3.57E+02	1.26E+02
	72	1237.68	9.44E+02	118.53			9.44E+02	1.19E+02
	73	1246.47	9.81E+01	81.76			9.81E+01	8.18E+01
	74	1280.55	1.84E+02	104.92			1.84E+02	1.05E+02
	75	1376.76	6.84E+02	123.58			6.84E+02	1.24E+02
M	76	1384.91	1.11E+02	71.07			1.11E+02	7.11E+01
m	77	1393.68	7.45E+01	94.19			7.45E+01	9.42E+01
M	78	1401.00	2.26E+02	77.45			2.26E+02	7.74E+01
m	79	1407.65	3.97E+02	89.62			3.97E+02	8.96E+01
	80	1459.24	3.35E+02	122.69			3.35E+02	1.23E+02
	81	1495.00	1.40E+02	66.10			1.40E+02	6.61E+01
	82	1501.21	1.14E+02	73.10			1.14E+02	7.31E+01
	83	1508.88	3.03E+02	105.37			3.03E+02	1.05E+02
	84	1537.31	1.08E+02	86.28			1.08E+02	8.63E+01
M	85	1580.87	1.49E+02	76.63			1.49E+02	7.66E+01
m	86	1587.71	5.57E+02	101.60			5.57E+02	1.02E+02
m	87	1591.93	9.38E+02	109.54			9.38E+02	1.10E+02
	88	1620.28	3.28E+02	96.12			3.28E+02	9.61E+01
	89	1630.27	2.66E+02	81.48			2.66E+02	8.15E+01

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	90	1638.01	6.03E+01	59.15			6.03E+01	5.91E+01
	91	1660.15	1.14E+02	72.00			1.14E+02	7.20E+01
	92	1682.93	6.28E+01	47.42			6.28E+01	4.74E+01
	93	1728.96	4.35E+02	88.50			4.35E+02	8.85E+01
	94	1763.80	1.94E+03	126.58			1.94E+03	1.27E+02
	95	1846.38	2.76E+02	88.45			2.76E+02	8.85E+01
	96	2102.84	6.51E+02	98.96			6.51E+02	9.90E+01
	97	2117.80	1.20E+02	85.14			1.20E+02	8.51E+01
	98	2181.01	5.85E+01	62.38			5.85E+01	6.24E+01
	99	2203.31	5.09E+02	83.70			5.09E+02	8.37E+01
	100	2367.53	6.18E+01	61.33			6.18E+01	6.13E+01
	101	2447.31	1.16E+02	77.33			1.16E+02	7.73E+01
	102	2482.91	8.34E+01	67.13			8.34E+01	6.71E+01
	103	2520.58	4.15E+01	38.78			4.15E+01	3.88E+01
M	104	2601.30	2.69E+01	27.60			2.69E+01	2.76E+01
m	105	2613.60	3.81E+03	126.09			3.81E+03	1.26E+02
	106	2726.24	8.89E+00	12.23			8.89E+00	1.22E+01
	107	3196.92	2.89E+01	12.01			2.89E+01	1.20E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/21/2017 2:47:52PM

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

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	24.43	5.51E+02	415.28			5.51E+02	4.15E+02
M	2	32.15	5.99E+02	302.14			5.99E+02	3.02E+02
m	3	35.76	3.94E+02	414.58			3.94E+02	4.15E+02
	4	46.61	1.19E+03	388.59	2.81E+01	8.29E+00	1.16E+03	3.89E+02
	5	57.23	2.41E+03	540.46			2.41E+03	5.40E+02
	6	63.55	4.93E+03	749.81	5.67E+01	8.57E+00	4.88E+03	7.50E+02
	7	76.11	6.26E+04	1159.48	2.66E+01	8.34E+00	6.26E+04	1.16E+03
M	8	84.54	4.04E+03	416.25			4.04E+03	4.16E+02
m	9	87.18	1.14E+04	603.12			1.14E+04	6.03E+02
m	10	89.89	1.04E+04	828.09			1.04E+04	8.28E+02

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
m	11	93.16	1.28E+04	658.19	5.99E+01	8.61E+00	1.27E+04	6.58E+02
	12	99.42	1.99E+03	494.30			1.99E+03	4.94E+02
	13	105.37	1.81E+03	498.58			1.81E+03	4.99E+02
	14	115.09	1.10E+03	485.54			1.10E+03	4.86E+02
	15	129.33	3.86E+03	626.82			3.86E+03	6.27E+02
	16	143.96	9.61E+02	474.10			9.61E+02	4.74E+02
	17	153.91	1.43E+03	523.25			1.43E+03	5.23E+02
	18	164.58	5.16E+02	492.05			5.16E+02	4.92E+02
	19	186.00	7.46E+03	601.35	2.43E+01	7.50E+00	7.44E+03	6.01E+02
M	20	205.49	2.93E+02	177.91			2.93E+02	1.78E+02
m	21	209.29	4.47E+03	410.84			4.47E+03	4.11E+02
	22	217.30	4.00E+02	369.81			4.00E+02	3.70E+02
M	23	238.70	5.00E+04	597.07	1.06E+01	6.01E+00	5.00E+04	5.97E+02
m	24	241.72	9.62E+03	600.65			9.62E+03	6.01E+02
	25	257.90	5.96E+02	297.60			5.96E+02	2.98E+02
M	26	270.19	4.20E+03	379.51			4.20E+03	3.80E+02
m	27	277.33	2.00E+03	367.46			2.00E+03	3.67E+02
M	28	288.54	2.56E+02	237.16			2.56E+02	2.37E+02
m	29	295.25	1.19E+04	375.63			1.19E+04	3.76E+02
m	30	300.04	2.54E+03	382.87			2.54E+03	3.83E+02
	31	313.92	2.40E+02	252.32			2.40E+02	2.52E+02
	32	327.99	1.93E+03	368.24			1.93E+03	3.68E+02
	33	338.45	8.83E+03	415.59			8.83E+03	4.16E+02
	34	351.90	1.98E+04	474.75			1.98E+04	4.75E+02
	35	407.99	1.48E+03	423.11			1.48E+03	4.23E+02
	36	441.95	2.40E+02	189.42			2.40E+02	1.89E+02
	37	453.23	2.76E+02	216.75			2.76E+02	2.17E+02
	38	462.85	2.40E+03	271.72			2.40E+03	2.72E+02
	39	479.94	1.71E+02	182.56			1.71E+02	1.83E+02
	40	510.59	4.29E+03	273.55	4.55E+01	4.99E+00	4.25E+03	2.74E+02
	41	562.29	4.43E+02	207.98			4.43E+02	2.08E+02
	42	573.27	1.74E+02	163.35			1.74E+02	1.63E+02
	43	583.05	1.29E+04	345.11			1.29E+04	3.45E+02
	44	609.20	1.32E+04	355.49			1.32E+04	3.55E+02
	45	664.84	4.84E+02	203.70			4.84E+02	2.04E+02
	46	702.95	1.67E+02	166.19			1.67E+02	1.66E+02
	47	727.18	2.59E+03	227.18			2.59E+03	2.27E+02
	48	745.12	1.15E+02	131.89			1.15E+02	1.32E+02
	49	754.63	3.36E+02	186.78			3.36E+02	1.87E+02
M	50	768.20	1.28E+03	176.65			1.28E+03	1.77E+02
m	51	772.28	4.20E+02	169.36			4.20E+02	1.69E+02
M	52	781.93	1.74E+02	121.32			1.74E+02	1.21E+02
m	53	785.52	6.29E+02	159.08			6.29E+02	1.59E+02
	54	794.74	1.41E+03	200.58			1.41E+03	2.01E+02
	55	805.99	3.32E+02	155.35			3.32E+02	1.55E+02
M	56	835.52	5.39E+02	157.01			5.39E+02	1.57E+02
m	57	839.73	4.72E+02	143.76			4.72E+02	1.44E+02
	58	849.84	1.30E+02	138.10			1.30E+02	1.38E+02
M	59	855.72	7.87E+01	28.72			7.87E+01	2.87E+01
m	60	860.29	1.47E+03	144.72			1.47E+03	1.45E+02
	61	892.28	1.54E+02	126.10			1.54E+02	1.26E+02
M	62	904.01	2.81E+02	126.70			2.81E+02	1.27E+02
m	63	910.97	7.79E+03	207.48			7.79E+03	2.07E+02
	64	933.56	6.79E+02	166.05			6.79E+02	1.66E+02

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	65	964.42	1.41E+03	126.24			1.41E+03	1.26E+02
m	66	968.68	4.50E+03	181.34			4.50E+03	1.81E+02
	67	999.35	2.96E+02	144.82			2.96E+02	1.45E+02
	68	1077.78	1.55E+02	98.71			1.55E+02	9.87E+01
	69	1094.40	1.38E+02	117.89			1.38E+02	1.18E+02
	70	1120.05	2.57E+03	150.39			2.57E+03	1.50E+02
	71	1154.43	3.57E+02	125.65			3.57E+02	1.26E+02
	72	1237.68	9.44E+02	118.53			9.44E+02	1.19E+02
	73	1246.47	9.81E+01	81.76			9.81E+01	8.18E+01
	74	1280.55	1.84E+02	104.92			1.84E+02	1.05E+02
	75	1376.76	6.84E+02	123.58			6.84E+02	1.24E+02
M	76	1384.91	1.11E+02	71.07			1.11E+02	7.11E+01
m	77	1393.68	7.45E+01	94.19			7.45E+01	9.42E+01
M	78	1401.00	2.26E+02	77.45			2.26E+02	7.74E+01
m	79	1407.65	3.97E+02	89.62			3.97E+02	8.96E+01
	80	1459.24	3.35E+02	122.69			3.35E+02	1.23E+02
	81	1495.00	1.40E+02	66.10			1.40E+02	6.61E+01
	82	1501.21	1.14E+02	73.10			1.14E+02	7.31E+01
	83	1508.88	3.03E+02	105.37			3.03E+02	1.05E+02
	84	1537.31	1.08E+02	86.28			1.08E+02	8.63E+01
M	85	1580.87	1.49E+02	76.63			1.49E+02	7.66E+01
m	86	1587.71	5.57E+02	101.60			5.57E+02	1.02E+02
m	87	1591.93	9.38E+02	109.54			9.38E+02	1.10E+02
	88	1620.28	3.28E+02	96.12			3.28E+02	9.61E+01
	89	1630.27	2.66E+02	81.48			2.66E+02	8.15E+01
	90	1638.01	6.03E+01	59.15			6.03E+01	5.91E+01
	91	1660.15	1.14E+02	72.00			1.14E+02	7.20E+01
	92	1682.93	6.28E+01	47.42			6.28E+01	4.74E+01
	93	1728.96	4.35E+02	88.50			4.35E+02	8.85E+01
	94	1763.80	1.94E+03	126.58			1.94E+03	1.27E+02
	95	1846.38	2.76E+02	88.45			2.76E+02	8.85E+01
	96	2102.84	6.51E+02	98.96			6.51E+02	9.90E+01
	97	2117.80	1.20E+02	85.14			1.20E+02	8.51E+01
	98	2181.01	5.85E+01	62.38			5.85E+01	6.24E+01
	99	2203.31	5.09E+02	83.70			5.09E+02	8.37E+01
	100	2367.53	6.18E+01	61.33			6.18E+01	6.13E+01
	101	2447.31	1.16E+02	77.33			1.16E+02	7.73E+01
	102	2482.91	8.34E+01	67.13			8.34E+01	6.71E+01
	103	2520.58	4.15E+01	38.78			4.15E+01	3.88E+01
M	104	2601.30	2.69E+01	27.60			2.69E+01	2.76E+01
m	105	2613.60	3.81E+03	126.09			3.81E+03	1.26E+02
	106	2726.24	8.89E+00	12.23			8.89E+00	1.22E+01
	107	3196.92	2.89E+01	12.01			2.89E+01	1.20E+01

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

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
MN-54	0.925	834.83	*	99.97	1.57E+00	4.83E-01
CD-109	0.891	88.03	*	3.72	1.38E+02	1.67E+01
I-125	0.975	35.49	*	6.49	1.55E+01	1.64E+01
PM-146	0.402	453.90	*	39.94	9.25E-01	7.32E-01
		735.90		14.01		
		747.13		13.10		
EU-155	0.956	86.50	*	30.90	1.49E+01	1.57E+00
		105.30	*	20.70	3.60E+00	1.03E+00
TL-208	0.460	583.14	*	30.22	7.12E+01	8.38E+00
		860.37	*	4.48	7.90E+01	1.06E+01
		2614.66		35.85		
PB-210	0.998	46.50	*	4.25	1.53E+01	5.34E+00
BI-212	0.997	727.17	*	11.80	4.53E+01	6.59E+00
		1620.62	*	2.75	5.06E+01	1.54E+01
PB-212	0.999	238.63	*	44.60	7.59E+01	6.44E+00
		300.09	*	3.41	6.32E+01	1.09E+01
BI-214	0.975	609.31	*	46.30	4.96E+01	5.98E+00
		1120.29	*	15.10	5.20E+01	5.27E+00
		1764.49	*	15.80	5.65E+01	5.88E+00
		2204.22	*	4.98	5.94E+01	1.13E+01
PB-214	1.000	295.21	*	19.19	5.16E+01	4.57E+00
		351.92	*	37.19	5.32E+01	4.76E+00
RA-224	0.916	240.98	*	3.95	1.67E+02	1.75E+01
RA-226	0.993	186.21	*	3.28	1.23E+02	2.26E+02
AC-228	0.990	338.32	*	11.40	7.42E+01	7.25E+00
		911.07	*	27.70	7.14E+01	6.20E+00
		969.11	*	16.60	7.27E+01	6.72E+00
TH-234	0.989	63.29	*	3.80	5.47E+01	9.38E+00
U-235	0.618	143.76	*	10.50	4.14E+00	2.16E+00
		163.35		4.70		
		205.31	*	4.70	3.69E+00	2.34E+00
CM-243	0.356	209.75	*	3.29	8.21E+01	1.02E+01
		228.14		10.60		
		277.60	*	14.00	1.13E+01	2.26E+00

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 2:47:52PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	24.43	1.53165E-01	37.66		
M	2	32.15	1.66389E-01	25.22		
	5	57.23	6.70540E-01	11.19	Tol.	CE-143
	7	76.11	1.73855E+01	0.93		
M	8	84.54	1.12229E+00	5.15	Tol.	TH-231
m	10	89.89	2.89425E+00	3.97		
m	11	93.16	3.53026E+00	2.59	Sum	
	12	99.42	5.51517E-01	12.45	Sum	
	14	115.09	3.06680E-01	21.99		
	15	129.33	1.07287E+00	8.11		
	17	153.91	3.97562E-01	18.28	Tol.	CS-136
	18	164.58	1.43348E-01	47.67	Tol.	CS-136
	22	217.30	1.11148E-01	46.21		
	25	257.90	1.65626E-01	24.96		
M	26	270.19	1.16795E+00	4.51		
M	28	288.54	7.11575E-02	46.29	Sum	
	31	313.92	6.65574E-02	52.65	Sum	
	32	327.99	5.36323E-01	9.54	Sum	
	35	407.99	4.10798E-01	14.31		
	36	441.95	6.67013E-02	39.44		
	38	462.85	6.67140E-01	5.66	Sum	
	39	479.94	4.73964E-02	53.50	Sum	
	40	510.59	1.18016E+00	3.22		
	41	562.29	1.23055E-01	23.47	Tol.	CS-134
	42	573.27	4.82023E-02	47.07	Sum	
	45	664.84	1.34317E-01	21.06	Tol.	CE-143
	46	702.95	4.64032E-02	49.74	Sum	
	48	745.12	3.18116E-02	57.58		
	49	754.63	9.33804E-02	27.78		
M	50	768.20	3.55891E-01	6.89	Sum	
m	51	772.28	1.16695E-01	20.16		
M	52	781.93	4.82727E-02	34.91		
m	53	785.52	1.74776E-01	12.64		
	54	794.74	3.91729E-01	7.11	Sum	

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	55	805.99	9.21721E-02	23.41	Sum	
m	57	839.73	1.31032E-01	15.24		
	58	849.84	3.60774E-02	53.16		
M	59	855.72	2.18548E-02	18.25		
	61	892.28	4.27384E-02	40.98		
M	62	904.01	7.80293E-02	22.55	Sum	
	64	933.56	1.88585E-01	12.23	Sum	
M	65	964.42	3.92059E-01	4.47	Tol.	EU-152
	67	999.35	8.20865E-02	24.50		
	68	1077.78	4.31790E-02	31.75	Sum	
	69	1094.40	3.83931E-02	42.65	Tol.	LU-172
	71	1154.43	9.91599E-02	17.60	Sum	
	72	1237.68	2.62323E-01	6.28	Tol.	CO-56
	73	1246.47	2.72526E-02	41.67	Sum	
	74	1280.55	5.09922E-02	28.58		
	75	1376.76	1.90077E-01	9.03		
M	76	1384.91	3.09688E-02	31.87	Tol.	AG-110M
m	77	1393.68	2.07056E-02	63.18		
M	78	1401.00	6.28567E-02	17.11		
m	79	1407.65	1.10187E-01	11.30	Tol.	EU-152
	80	1459.24	9.31444E-02	18.30	Sum	
	81	1495.00	3.87712E-02	23.68	Sum	
	82	1501.21	3.16995E-02	32.03		
	83	1508.88	8.40583E-02	17.41		
	84	1537.31	2.98895E-02	40.09		
M	85	1580.87	4.14395E-02	25.68		
m	86	1587.71	1.54795E-01	9.12	Sum	
m	87	1591.93	2.60527E-01	5.84		
	89	1630.27	7.38185E-02	15.33		
	90	1638.01	1.67396E-02	49.08	Sum	
	91	1660.15	3.17822E-02	31.46		
	92	1682.93	1.74472E-02	37.75	Sum	
	93	1728.96	1.20960E-01	10.16	Sum	
	95	1846.38	7.67840E-02	16.00	Sum	
	96	2102.84	1.80772E-01	7.60	Sum	
	97	2117.80	3.31944E-02	35.62		
	98	2181.01	1.62533E-02	53.31		
	100	2367.53	1.71703E-02	49.61		
	101	2447.31	3.22403E-02	33.31		
	102	2482.91	2.31725E-02	40.24		
	103	2520.58	1.15323E-02	46.71		
M	104	2601.30	7.46222E-03	51.38		
m	105	2613.60	1.05771E+00	1.66		
	106	2726.24	2.47076E-03	68.73		
	107	3196.92	8.01523E-03	20.81		

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 1707085-20

HTC-A02-S004-0612-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
MN-54	0.92	834.83	*	99.97	1.57E+00	4.83E-01
CD-109	0.89	88.03	*	3.72	1.38E+02	1.67E+01
I-125	0.97	35.49	*	6.49	1.55E+01	1.64E+01
PM-146	0.40	453.90	*	39.94	9.25E-01	7.32E-01
		735.90		14.01		
		747.13		13.10		
EU-155	0.95	86.50	*	30.90	1.49E+01	1.57E+00
		105.30	*	20.70	3.60E+00	1.03E+00
TL-208	0.46	583.14	*	30.22	7.12E+01	8.38E+00
		860.37	*	4.48	7.90E+01	1.06E+01
		2614.66		35.85		
PB-210	0.99	46.50	*	4.25	1.53E+01	5.34E+00
BI-212	0.99	727.17	*	11.80	4.53E+01	6.59E+00
		1620.62	*	2.75	5.06E+01	1.54E+01
PB-212	0.99	238.63	*	44.60	7.59E+01	6.44E+00
		300.09	*	3.41	6.32E+01	1.09E+01
BI-214	0.97	609.31	*	46.30	4.96E+01	5.98E+00
		1120.29	*	15.10	5.20E+01	5.27E+00
		1764.49	*	15.80	5.65E+01	5.88E+00
		2204.22	*	4.98	5.94E+01	1.13E+01
PB-214	1.00	295.21	*	19.19	5.16E+01	4.57E+00
		351.92	*	37.19	5.32E+01	4.76E+00
RA-224	0.91	240.98	*	3.95	1.67E+02	1.75E+01
RA-226	0.99	186.21	*	3.28	1.23E+02	2.26E+02
AC-228	0.99	338.32	*	11.40	7.42E+01	7.25E+00
		911.07	*	27.70	7.14E+01	6.20E+00
		969.11	*	16.60	7.27E+01	6.72E+00
TH-234	0.98	63.29	*	3.80	5.47E+01	9.38E+00
U-235	0.61	143.76	*	10.50	4.14E+00	2.16E+00
		163.35		4.70		
		205.31	*	4.70	3.69E+00	2.34E+00
CM-243	0.35	209.75	*	3.29	8.21E+01	1.02E+01
		228.14		10.60		
		277.60	*	14.00	1.13E+01	2.26E+00

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	MN-54	0.925	1.57E+00	4.83E-01	
	CD-109	0.891	1.05E+02	1.74E+01	
	I-125	0.975	1.55E+01	1.64E+01	
X	SN-126	0.976			
	PM-146	0.402	9.25E-01	7.32E-01	
	EU-155	0.956	3.60E+00	1.03E+00	
	TL-208	0.460	7.42E+01	6.58E+00	
	PB-210	0.998	1.53E+01	5.34E+00	
	BI-212	0.997	4.61E+01	6.06E+00	
	PB-212	0.999	7.26E+01	5.54E+00	
	BI-214	0.975	5.32E+01	3.15E+00	
	PB-214	1.000	5.24E+01	3.30E+00	
	RA-224	0.916	1.67E+02	1.75E+01	
	RA-226	0.993	1.23E+02	2.26E+02	
	AC-228	0.990	7.26E+01	3.86E+00	
	TH-234	0.989	5.47E+01	9.38E+00	
	U-235	0.618	3.93E+00	1.59E+00	
X	NP-237	0.928			
	CM-243	0.356	1.46E+01	2.21E+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 1707085-20

HTC-A02-S004-0612-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 2:47:52PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	24.43	1.53165E-01	37.66		
M	2	32.15	1.66389E-01	25.22		
	5	57.23	6.70540E-01	11.19	Tol.	CE-143
	7	76.11	1.73855E+01	0.93		
M	8	84.54	1.12229E+00	5.15	Tol.	TH-231
m	10	89.89	2.89425E+00	3.97		
m	11	93.16	3.53026E+00	2.59	Sum	
	12	99.42	5.51517E-01	12.45	Sum	
	14	115.09	3.06680E-01	21.99		
	15	129.33	1.07287E+00	8.11		
	17	153.91	3.97562E-01	18.28	Tol.	CS-136
	18	164.58	1.43348E-01	47.67	Tol.	CS-136
	22	217.30	1.11148E-01	46.21		
	25	257.90	1.65626E-01	24.96		
M	26	270.19	1.16795E+00	4.51		
M	28	288.54	7.11575E-02	46.29	Sum	
	31	313.92	6.65574E-02	52.65	Sum	
	32	327.99	5.36323E-01	9.54	Sum	
	35	407.99	4.10798E-01	14.31		
	36	441.95	6.67013E-02	39.44		
	38	462.85	6.67140E-01	5.66	Sum	
	39	479.94	4.73964E-02	53.50	Sum	
	40	510.59	1.18016E+00	3.22		
	41	562.29	1.23055E-01	23.47	Tol.	CS-134
	42	573.27	4.82023E-02	47.07	Sum	
	45	664.84	1.34317E-01	21.06	Tol.	CE-143
	46	702.95	4.64032E-02	49.74	Sum	
	48	745.12	3.18116E-02	57.58		
	49	754.63	9.33804E-02	27.78		
M	50	768.20	3.55891E-01	6.89	Sum	
m	51	772.28	1.16695E-01	20.16		
M	52	781.93	4.82727E-02	34.91		
m	53	785.52	1.74776E-01	12.64		
	54	794.74	3.91729E-01	7.11	Sum	
	55	805.99	9.21721E-02	23.41	Sum	

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	57	839.73	1.31032E-01	15.24		
	58	849.84	3.60774E-02	53.16		
M	59	855.72	2.18548E-02	18.25		
	61	892.28	4.27384E-02	40.98		
M	62	904.01	7.80293E-02	22.55	Sum	
	64	933.56	1.88585E-01	12.23	Sum	
M	65	964.42	3.92059E-01	4.47	Tol.	EU-152
	67	999.35	8.20865E-02	24.50		
	68	1077.78	4.31790E-02	31.75	Sum	
	69	1094.40	3.83931E-02	42.65	Tol.	LU-172
	71	1154.43	9.91599E-02	17.60	Sum	
	72	1237.68	2.62323E-01	6.28	Tol.	CO-56
	73	1246.47	2.72526E-02	41.67	Sum	
	74	1280.55	5.09922E-02	28.58		
	75	1376.76	1.90077E-01	9.03		
M	76	1384.91	3.09688E-02	31.87	Tol.	AG-110M
m	77	1393.68	2.07056E-02	63.18		
M	78	1401.00	6.28567E-02	17.11		
m	79	1407.65	1.10187E-01	11.30	Tol.	EU-152
	80	1459.24	9.31444E-02	18.30	Sum	
	81	1495.00	3.87712E-02	23.68	Sum	
	82	1501.21	3.16995E-02	32.03		
	83	1508.88	8.40583E-02	17.41		
	84	1537.31	2.98895E-02	40.09		
M	85	1580.87	4.14395E-02	25.68		
m	86	1587.71	1.54795E-01	9.12	Sum	
m	87	1591.93	2.60527E-01	5.84		
	89	1630.27	7.38185E-02	15.33		
	90	1638.01	1.67396E-02	49.08	Sum	
	91	1660.15	3.17822E-02	31.46		
	92	1682.93	1.74472E-02	37.75	Sum	
	93	1728.96	1.20960E-01	10.16	Sum	
	95	1846.38	7.67840E-02	16.00	Sum	
	96	2102.84	1.80772E-01	7.60	Sum	
	97	2117.80	3.31944E-02	35.62		
	98	2181.01	1.62533E-02	53.31		
	100	2367.53	1.71703E-02	49.61		
	101	2447.31	3.22403E-02	33.31		
	102	2482.91	2.31725E-02	40.24		
	103	2520.58	1.15323E-02	46.71		
M	104	2601.30	7.46222E-03	51.38		
m	105	2613.60	1.05771E+00	1.66		
	106	2726.24	2.47076E-03	68.73		
	107	3196.92	8.01523E-03	20.81		

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

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

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		-1.74E+00	1.40E+01	1.40E+01
+	NA-22	1274.54	99.94		3.41E-02	4.89E-01	4.89E-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		2.17E-01	4.24E-01	4.24E-01
+	K-40	1460.81	10.67		1.04E+01	5.06E+00	5.06E+00
+	@ AR-41	1293.64	99.16		1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40		-3.57E+00	4.23E-01	4.23E-01
		78.34	96.00		1.74E+01		5.78E-01
+	SC-46	889.25	99.98		6.20E-02	1.05E+00	1.05E+00
		1120.51	99.99		1.76E+01		1.87E+00
+	V-48	983.52	99.98		8.70E+00	3.01E+01	3.01E+01
		1312.10	97.50		3.11E+00		3.29E+01
+	CR-51	320.08	9.83		1.34E+01	4.37E+01	4.37E+01
+	MN-54	834.83	99.97	*	1.57E+00	1.24E+00	1.24E+00
+	CO-56	846.75	99.96		-2.53E+00	1.05E+00	1.05E+00
		1037.75	14.03		1.37E+00		7.07E+00
		1238.25	67.00		1.03E+01		2.24E+00
		1771.40	15.51		1.48E+00		6.14E+00
		2598.48	16.90		-3.02E+00		4.03E+00
+	CO-57	122.06	85.51		-4.72E-01	4.78E-01	4.78E-01
		136.48	10.60		-2.34E+00		4.05E+00
+	CO-58	810.76	99.40		4.49E-02	1.23E+00	1.23E+00
+	FE-59	1099.22	56.50		-9.62E-01	3.41E+00	3.41E+00
		1291.56	43.20		-9.00E-01		4.67E+00
+	CO-60	1173.22	100.00		8.34E-02	4.52E-01	4.52E-01
		1332.49	100.00		1.82E-01		4.70E-01
+	ZN-65	1115.52	50.75		-3.65E+00	1.74E+00	1.74E+00
+	GA-67	93.31	35.70		1.20E+10	1.34E+09	1.34E+09
		208.95	2.24		1.47E+11		2.18E+10
		300.22	16.00		-5.00E+10		3.19E+09
+	SE-75	121.11	16.70		-2.80E+00	9.97E-01	3.33E+00

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00		59.20	-1.97E-01	9.97E-01	9.97E-01
		264.65		59.80	-3.10E-03		1.02E+00
		279.53		25.20	-6.43E-01		2.69E+00
		400.65		11.40	-3.00E+00		6.41E+00
+	RB-82	776.52		13.00	1.46E+00	5.59E+01	5.59E+01
+	RB-83	520.41		46.00	-1.02E-01	1.96E+00	1.96E+00
		529.64		30.30	-2.48E-01		3.02E+00
		552.65		16.40	7.47E-01		5.61E+00
+	KR-85	513.99		0.43	-1.38E+01	1.28E+02	1.28E+02
+	SR-85	513.99		99.27	-1.70E-01	1.57E+00	1.57E+00
+	Y-88	898.02		93.40	-8.06E-02	8.01E-01	9.33E-01
		1836.01		99.38	1.31E-01		8.01E-01
+	MO-93	263.06		56.72	-1.87E-03	4.79E-01	6.16E-01
		684.67		99.68	3.23E-01		5.30E-01
		1477.11		99.08	9.69E-02		4.79E-01
+	NB-93M	16.57		9.43	3.75E+02	3.57E+01	3.57E+01
+	NB-94	702.63		100.00	3.15E-01	4.49E-01	5.44E-01
		871.10		100.00	1.85E-01		4.49E-01
+	NB-95	765.79		99.81	1.42E+01	4.42E+00	4.42E+00
+	NB-95M	235.69		25.00	9.55E+09	4.47E+08	4.47E+08
+	ZR-95	724.18		43.70	6.30E-01	2.88E+00	4.52E+00
		756.72		55.30	3.55E+00		2.88E+00
+	MO-99	181.06		6.20	3.62E+10	2.25E+11	3.27E+11
		739.58		12.80	-4.03E+10		2.25E+11
		778.00		4.50	1.66E+10		6.24E+11
+	RU-103	497.08		89.00	-1.72E-01	2.51E+00	2.51E+00
+	RU-106	621.84		9.80	-3.15E+00	5.14E+00	5.14E+00
+	AG-108M	433.93		89.90	-3.70E-02	4.29E-01	4.29E-01
		614.37		90.40	-1.75E-02		4.79E-01
		722.95		90.50	1.47E-01		6.88E-01
+	CD-109	88.03	*	3.72	1.38E+02	2.30E+01	2.30E+01
+	AG-110M	657.75		93.14	-1.34E-01	6.90E-01	6.90E-01
		677.61		10.53	2.73E+00		6.38E+00
		706.67		16.46	-1.69E-01		4.34E+00
		763.93		21.98	-4.99E+00		3.52E+00
		884.67		71.63	4.26E-02		8.17E-01
		1384.27		23.94	-7.90E+00		2.74E+00
+	CD-113M	263.70		0.02	-4.61E+00	1.51E+03	1.51E+03
+	SN-113	255.12		1.93	-4.29E+00	1.12E+00	3.29E+01
		391.69		64.90	-3.03E-01		1.12E+00
+	TE123M	159.00		84.10	6.01E-02	7.20E-01	7.20E-01
+	SB-124	602.71		97.87	-1.48E-01	1.35E+00	1.35E+00
		645.85		7.26	9.10E-01		1.87E+01
		722.78		11.10	3.71E+00		1.74E+01
		1691.02		49.00	1.48E+00		2.63E+00
+	I-125	35.49	*	6.49	1.55E+01	3.53E+01	3.53E+01
+	SB-125	176.33		6.89	3.94E-01	1.47E+00	5.46E+00
		427.89		29.33	7.94E-01		1.47E+00

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-125	463.38		10.35	3.07E+01	1.47E+00	5.04E+00
		600.56		17.80	-2.33E-01		2.54E+00
		635.90		11.32	-1.55E+00		4.02E+00
+	SB-126	414.70		83.30	-2.75E+01	1.16E+02	1.16E+02
		666.33		99.60	1.62E+01		1.30E+02
		695.00		99.60	3.46E+01		1.27E+02
		720.50		53.80	1.03E+02		2.33E+02
+	SN-126	87.57	*	37.00	1.20E+01	2.00E+00	2.00E+00
+	SB-127	473.00		25.00	-1.95E+06	7.00E+07	7.61E+07
		685.20		35.70	4.27E+07		7.00E+07
		783.80		14.70	5.69E+08		1.82E+08
+	I-129	29.78		57.00	-3.70E-01	1.36E+00	1.36E+00
		33.60		13.20	5.92E+00		4.68E+00
		39.58		7.52	-3.80E-01		6.19E+00
+	I-131	284.30		6.05	-7.64E+02	2.18E+03	2.82E+04
		364.48		81.20	3.50E+02		2.18E+03
		636.97		7.26	-9.53E+03		2.79E+04
		722.89		1.80	3.53E+04		1.65E+05
+	TE-132	49.72		13.10	-2.04E+09	5.00E+08	3.55E+09
		228.16		88.00	-1.18E+07		5.00E+08
+	BA-133	81.00		33.00	-3.21E+01	8.88E-01	1.29E+00
		302.84		17.80	2.94E-01		2.29E+00
		356.01		60.00	5.83E-02		8.88E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-1.20E+07	4.82E+05	4.82E+05
+	CS-134	563.23		8.38	7.99E+00	6.35E-01	5.82E+00
		569.32		15.43	-1.25E+00		3.07E+00
		604.70		97.60	-6.67E-02		6.35E-01
		795.84		85.40	4.00E+00		7.72E-01
		801.93		8.73	-2.37E+01		6.01E+00
+	CS-135	268.24		16.00	1.34E+01	2.53E+00	2.53E+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	1.87E+03	8.03E+01	8.40E+02
		163.89		4.61	6.85E+02		1.32E+03
		176.55		13.56	1.48E+02		4.58E+02
		273.65		12.66	-2.47E+03		5.55E+02
		340.57		48.50	2.24E+03		1.96E+02
		818.50		99.70	1.86E+01		8.03E+01
		1048.07		79.60	4.90E+00		9.37E+01
		1235.34		19.70	6.84E+00		5.66E+02
+	CS-137	661.65		85.12	5.27E-02	6.18E-01	6.18E-01
+	LA-138	788.74		34.00	-1.22E+01	7.17E-01	1.60E+00
		1435.80		66.00	4.11E-01		7.17E-01
+	CE-139	165.85		80.35	4.73E-01	7.07E-01	7.07E-01
+	BA-140	162.64		6.70	4.66E+01	3.40E+02	1.06E+03
		304.84		4.50	-1.55E+03		1.63E+03
		423.70		3.20	6.52E+02		2.60E+03

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		BA-140	437.55		2.00	-2.51E+03	3.40E+02	3.94E+03
			537.32		25.00	-1.96E+01		3.40E+02
+		LA-140	328.77		20.50	1.95E+03	1.40E+02	4.27E+02
			487.03		45.50	-2.15E+01		1.79E+02
			815.85		23.50	5.81E+01		3.96E+02
			1596.49		95.49	5.39E+00		1.40E+02
+		CE-141	145.44		48.40	2.01E-02	5.81E+00	5.81E+00
+	@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26
	@		293.26		42.00	1.00E+26		1.00E+26
	@		664.55		5.20	1.00E+26		1.00E+26
+		CE-144	133.54		10.80	-7.37E-01	3.95E+00	3.95E+00
+		PM-144	476.78		42.00	-2.51E-01	5.12E-01	1.16E+00
			618.01		98.60	-3.47E-02		5.12E-01
			696.49		99.49	3.03E-01		6.35E-01
+		PM-145	36.85		21.70	7.47E-01	1.30E+00	2.44E+00
			37.36		39.70	3.99E-01		1.30E+00
			42.30		15.10	-5.96E+00		2.85E+00
			72.40		2.31	-4.22E+02		2.05E+01
+		PM-146	453.90	*	39.94	9.25E-01	1.19E+00	1.19E+00
			735.90		14.01	1.37E+00		3.74E+00
			747.13		13.10	1.53E-01		4.02E+00
+		ND-147	91.11		28.90	8.15E+03	7.44E+02	7.44E+02
			531.02		13.10	-6.21E+01		1.57E+03
+		PM-149	285.90		3.10	3.38E+13	2.76E+14	2.76E+14
+		EU-152	121.78		20.50	-1.55E+00	1.57E+00	1.57E+00
			244.69		5.40	-2.96E+00		7.99E+00
			344.27		19.13	-2.63E-02		2.00E+00
			778.89		9.20	1.46E-01		5.47E+00
			964.01		10.40	-6.25E+01		7.56E+00
			1085.78		7.22	3.00E+00		5.94E+00
			1112.02		9.60	-2.39E+01		4.63E+00
			1407.95		14.94	6.27E+00		3.80E+00
+		GD-153	97.43		31.30	-7.95E+00	1.45E+00	1.45E+00
			103.18		22.20	-2.71E-01		1.91E+00
+		EU-154	123.07		40.50	-3.83E-01	8.09E-01	8.09E-01
			723.30		19.70	4.92E-01		3.53E+00
			873.19		11.50	9.33E-01		3.99E+00
			996.32		10.30	-2.03E+00		4.35E+00
			1004.76		17.90	4.26E-01		2.50E+00
			1274.45		35.50	9.12E-02		1.31E+00
+		EU-155	86.50	*	30.90	1.49E+01	1.61E+00	2.48E+00
			105.30	*	20.70	3.60E+00		1.61E+00
+		EU-156	811.77		10.40	-1.24E+00	3.88E+02	3.88E+02
			1153.47		7.20	1.22E+03		6.11E+02
			1230.71		8.90	8.64E+01		4.33E+02
+		HO-166M	184.41		72.60	5.26E+00	5.73E-01	5.73E-01
			280.45		29.60	-4.78E-03		1.26E+00
			410.94		11.10	1.00E+01		3.94E+00
			711.69		54.10	-7.18E-02		9.63E-01

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TM-171	66.72		0.14	-5.97E+02	3.19E+02	3.19E+02
+	HF-172	67.35		5.31	-1.57E+01	3.32E+00	8.41E+00
		125.81		11.30	-4.21E-01		3.32E+00
+	LU-172	181.53		20.60	1.12E+04	1.86E+04	4.69E+04
		900.72		29.81	-3.47E+03		4.23E+04
		1093.66		62.50	1.93E+04		1.86E+04
+	LU-173	100.72		5.24	-1.42E+01	2.24E+00	6.90E+00
		272.11		21.20	7.16E+00		2.24E+00
+	HF-175	343.40		84.00	-1.56E-02	1.18E+00	1.18E+00
+	LU-176	88.34		13.30	1.20E+01	3.74E-01	3.25E+00
		201.83		86.00	2.65E-02		4.34E-01
		306.78		94.00	-4.67E-01		3.74E-01
+	HF-181	133.02		41.70	2.02E-01	2.43E+00	4.10E+00
		345.85		17.20	-1.44E-01		1.08E+01
		482.03		82.80	-5.10E-01		2.43E+00
+	TA-182	67.75		41.20	-1.48E+01	1.75E+00	1.75E+00
		1121.30		34.90	4.00E+01		4.32E+00
		1189.05		16.23	-4.27E-01		4.89E+00
		1221.41		26.98	-1.40E+00		2.88E+00
		1231.02		11.44	8.55E-01		6.98E+00
+	IR-192	308.46		29.68	-3.15E+00	2.05E+00	2.97E+00
		468.07		48.10	4.12E-01		2.05E+00
+	HG-203	279.19		77.30	7.46E+00	2.17E+00	2.17E+00
+	TL-204	374.74		94.11	-5.20E-03	4.26E-01	4.26E-01
		899.15		99.16	-4.21E-02		5.05E-01
		911.74		91.10	2.27E+01		1.31E+00
+	BI-207	569.67		97.72	-1.81E-01	4.46E-01	4.46E-01
		1063.62		74.90	-9.08E-03		5.69E-01
+	TL-208	583.14	*	30.22	7.12E+01	2.38E+00	2.38E+00
		860.37	*	4.48	7.90E+01		1.49E+01
		2614.66		35.85	7.49E+01		5.82E+00
+	BI-210M	262.00		45.00	-2.31E-03	7.70E-01	7.70E-01
		300.00		23.00	-2.96E+01		1.89E+00
+	PB-210	46.50	*	4.25	1.53E+01	8.36E+00	8.36E+00
+	PB-211	404.84		2.90	-4.73E+01	1.45E+01	1.45E+01
		831.96		2.90	1.51E+01		1.79E+01
+	BI-212	727.17	*	11.80	4.53E+01	5.90E+00	5.90E+00
		1620.62	*	2.75	5.06E+01		2.30E+01
+	PB-212	238.63	*	44.60	7.59E+01	1.61E+00	1.61E+00
		300.09	*	3.41	6.32E+01		2.69E+01
+	BI-214	609.31	*	46.30	4.96E+01	1.69E+00	1.69E+00
		1120.29	*	15.10	5.20E+01		3.74E+00
		1764.49	*	15.80	5.65E+01		4.43E+00
		2204.22	*	4.98	5.94E+01		1.38E+01
+	PB-214	295.21	*	19.19	5.16E+01	1.69E+00	4.68E+00
		351.92	*	37.19	5.32E+01		1.69E+00
+	RN-219	401.80		6.50	-1.91E+00	6.39E+00	6.39E+00
+	RA-223	323.87		3.88	2.38E+00	9.98E+00	9.98E+00

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98	*	3.95	1.67E+02	1.82E+01	1.82E+01
+	RA-225	40.00		31.00	-9.04E+00	1.47E+02	1.47E+02
+	RA-226	186.21	*	3.28	1.23E+02	1.57E+01	1.57E+01
+	TH-227	50.10		8.40	-2.64E+00	4.59E+00	4.59E+00
		236.00		11.50	1.33E+02		6.24E+00
		256.20		6.30	-2.69E+00		5.59E+00
+	AC-228	338.32	*	11.40	7.42E+01	3.54E+00	5.15E+00
		911.07	*	27.70	7.14E+01		3.54E+00
		969.11	*	16.60	7.27E+01		5.81E+00
+	TH-230	48.44		16.90	-1.91E+00	2.31E+00	2.31E+00
		62.85		4.60	2.54E+01		9.04E+00
		67.67		0.37	-9.09E+02		1.08E+02
+	PA-231	283.67		1.60	-6.04E-01	1.74E+01	2.23E+01
		302.67		2.30	2.24E+00		1.74E+01
+	TH-231	25.64		14.70	-2.04E+00	6.18E+00	7.49E+00
		84.21		6.40	-3.40E+01		6.18E+00
+	PA-233	311.98		38.60	-7.47E-01	1.16E+01	1.16E+01
+	PA-234	131.20		20.40	7.55E+00	1.73E+00	1.73E+00
		733.99		8.80	1.46E-01		5.78E+00
		946.00		12.00	2.87E+00		3.69E+00
+	PA-234M	1001.03		0.92	4.92E+01	4.94E+01	4.94E+01
+	TH-234	63.29	*	3.80	5.47E+01	1.36E+01	1.36E+01
+	U-235	143.76	*	10.50	4.14E+00	3.35E+00	3.35E+00
		163.35		4.70	3.24E-01		7.36E+00
		205.31	*	4.70	3.69E+00		9.80E+00
+	NP-237	86.50	*	12.60	3.53E+01	5.86E+00	5.86E+00
+	NP-239	106.10		22.70	1.54E+13	5.15E+12	5.15E+12
		228.18		10.70	-2.95E+11		1.25E+13
		277.60		14.10	4.02E+13		9.98E+12
+	AM-241	59.54		35.90	-2.70E-01	1.16E+00	1.16E+00
+	AM-243	74.67		66.00	3.36E+01	8.88E-01	8.88E-01
+	CM-243	209.75	*	3.29	8.21E+01	3.50E+00	1.55E+01
		228.14		10.60	-8.26E-02		3.50E+00
		277.60	*	14.00	1.13E+01		6.04E+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 1707085-20

HTC-A02-S004-0612-01

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	1.40E+01	1.40E+01	-1.74E+00	6.91E+00
	NA-22	1274.54		99.94	4.89E-01	4.89E-01	3.41E-02	2.39E-01
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	4.24E-01	4.24E-01	2.17E-01	2.06E-01
	K-40	1460.81		10.67	5.06E+00	5.06E+00	1.04E+01	2.48E+00
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	4.23E-01	4.23E-01	-3.57E+00	2.11E-01
		78.34		96.00	5.78E-01		1.74E+01	2.89E-01
	SC-46	889.25		99.98	1.05E+00	1.05E+00	6.20E-02	5.15E-01
		1120.51		99.99	1.87E+00		1.76E+01	9.27E-01
	V-48	983.52		99.98	3.01E+01	3.01E+01	8.70E+00	1.48E+01
		1312.10		97.50	3.29E+01		3.11E+00	1.61E+01
	CR-51	320.08		9.83	4.37E+01	4.37E+01	1.34E+01	2.17E+01
+	MN-54	834.83	*	99.97	1.24E+00	1.24E+00	1.57E+00	6.18E-01
	CO-56	846.75		99.96	1.05E+00	1.05E+00	-2.53E+00	5.18E-01
		1037.75		14.03	7.07E+00		1.37E+00	3.47E+00
		1238.25		67.00	2.24E+00		1.03E+01	1.10E+00
		1771.40		15.51	6.14E+00		1.48E+00	2.97E+00
		2598.48		16.90	4.03E+00		-3.02E+00	1.88E+00
	CO-57	122.06		85.51	4.78E-01	4.78E-01	-4.72E-01	2.38E-01
		136.48		10.60	4.05E+00		-2.34E+00	2.02E+00
	CO-58	810.76		99.40	1.23E+00	1.23E+00	4.49E-02	6.07E-01
	FE-59	1099.22		56.50	3.41E+00	3.41E+00	-9.62E-01	1.67E+00
		1291.56		43.20	4.67E+00		-9.00E-01	2.28E+00
	CO-60	1173.22		100.00	4.52E-01	4.52E-01	8.34E-02	2.22E-01
		1332.49		100.00	4.70E-01		1.82E-01	2.30E-01
	ZN-65	1115.52		50.75	1.74E+00	1.74E+00	-3.65E+00	8.58E-01
	GA-67	93.31		35.70	1.34E+09	1.34E+09	1.20E+10	6.67E+08
		208.95		2.24	2.18E+10		1.47E+11	1.09E+10
		300.22		16.00	3.19E+09		-5.00E+10	1.59E+09
	SE-75	121.11		16.70	3.33E+00	9.97E-01	-2.80E+00	1.66E+00
		136.00		59.20	9.97E-01		-1.97E-01	4.97E-01
		264.65		59.80	1.02E+00		-3.10E-03	5.08E-01
		279.53		25.20	2.69E+00		-6.43E-01	1.34E+00
		400.65		11.40	6.41E+00		-3.00E+00	3.18E+00
	RB-82	776.52		13.00	5.59E+01	5.59E+01	1.46E+00	2.76E+01
	RB-83	520.41		46.00	1.96E+00	1.96E+00	-1.02E-01	9.69E-01
		529.64		30.30	3.02E+00		-2.48E-01	1.49E+00
		552.65		16.40	5.61E+00		7.47E-01	2.78E+00
	KR-85	513.99		0.43	1.28E+02	1.28E+02	-1.38E+01	6.33E+01
	SR-85	513.99		99.27	1.57E+00	1.57E+00	-1.70E-01	7.77E-01

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	Y-88	898.02		93.40	9.33E-01	8.01E-01	-8.06E-02	4.60E-01
		1836.01		99.38	8.01E-01		1.31E-01	3.88E-01
	MO-93	263.06		56.72	6.16E-01	4.79E-01	-1.87E-03	3.06E-01
		684.67		99.68	5.30E-01		3.23E-01	2.62E-01
		1477.11		99.08	4.79E-01		9.69E-02	2.34E-01
	NB-93M	16.57		9.43	3.57E+01	3.57E+01	3.75E+02	1.78E+01
	NB-94	702.63		100.00	5.44E-01	4.49E-01	3.15E-01	2.69E-01
		871.10		100.00	4.49E-01		1.85E-01	2.21E-01
	NB-95	765.79		99.81	4.42E+00	4.42E+00	1.42E+01	2.19E+00
	NB-95M	235.69		25.00	4.47E+08	4.47E+08	9.55E+09	2.23E+08
	ZR-95	724.18		43.70	4.52E+00	2.88E+00	6.30E-01	2.24E+00
		756.72		55.30	2.88E+00		3.55E+00	1.42E+00
	MO-99	181.06		6.20	3.27E+11	2.25E+11	3.62E+10	1.63E+11
		739.58		12.80	2.25E+11		-4.03E+10	1.11E+11
		778.00		4.50	6.24E+11		1.66E+10	3.08E+11
	RU-103	497.08		89.00	2.51E+00	2.51E+00	-1.72E-01	1.24E+00
	RU-106	621.84		9.80	5.14E+00	5.14E+00	-3.15E+00	2.54E+00
	AG-108M	433.93		89.90	4.29E-01	4.29E-01	-3.70E-02	2.13E-01
		614.37		90.40	4.79E-01		-1.75E-02	2.37E-01
		722.95		90.50	6.88E-01		1.47E-01	3.41E-01
+	CD-109	88.03	*	3.72	2.30E+01	2.30E+01	1.38E+02	1.15E+01
	AG-110M	657.75		93.14	6.90E-01	6.90E-01	-1.34E-01	3.41E-01
		677.61		10.53	6.38E+00		2.73E+00	3.16E+00
		706.67		16.46	4.34E+00		-1.69E-01	2.15E+00
		763.93		21.98	3.52E+00		-4.99E+00	1.74E+00
		884.67		71.63	8.17E-01		4.26E-02	4.02E-01
		1384.27		23.94	2.74E+00		-7.90E+00	1.34E+00
	CD-113M	263.70		0.02	1.51E+03	1.51E+03	-4.61E+00	7.52E+02
	SN-113	255.12		1.93	3.29E+01	1.12E+00	-4.29E+00	1.64E+01
		391.69		64.90	1.12E+00		-3.03E-01	5.54E-01
	TE123M	159.00		84.10	7.20E-01	7.20E-01	6.01E-02	3.59E-01
	SB-124	602.71		97.87	1.35E+00	1.35E+00	-1.48E-01	6.67E-01
		645.85		7.26	1.87E+01		9.10E-01	9.27E+00
		722.78		11.10	1.74E+01		3.71E+00	8.60E+00
		1691.02		49.00	2.63E+00		1.48E+00	1.28E+00
+	I-125	35.49	*	6.49	3.53E+01	3.53E+01	1.55E+01	1.76E+01
	SB-125	176.33		6.89	5.46E+00	1.47E+00	3.94E-01	2.72E+00
		427.89		29.33	1.47E+00		7.94E-01	7.28E-01
		463.38		10.35	5.04E+00		3.07E+01	2.50E+00
		600.56		17.80	2.54E+00		-2.33E-01	1.26E+00
		635.90		11.32	4.02E+00		-1.55E+00	1.99E+00
	SB-126	414.70		83.30	1.16E+02	1.16E+02	-2.75E+01	5.77E+01
		666.33		99.60	1.30E+02		1.62E+01	6.42E+01
		695.00		99.60	1.27E+02		3.46E+01	6.30E+01
		720.50		53.80	2.33E+02		1.03E+02	1.15E+02
	SN-126	87.57	*	37.00	2.00E+00	2.00E+00	1.20E+01	9.96E-01
	SB-127	473.00		25.00	7.61E+07	7.00E+07	-1.95E+06	3.77E+07
		685.20		35.70	7.00E+07		4.27E+07	3.47E+07
		783.80		14.70	1.82E+08		5.69E+08	8.99E+07
	I-129	29.78		57.00	1.36E+00	1.36E+00	-3.70E-01	6.75E-01
		33.60		13.20	4.68E+00		5.92E+00	2.33E+00
		39.58		7.52	6.19E+00		-3.80E-01	3.08E+00
	I-131	284.30		6.05	2.82E+04	2.18E+03	-7.64E+02	1.40E+04

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	I-131	364.48		81.20	2.18E+03	2.18E+03	3.50E+02	1.08E+03
		636.97		7.26	2.79E+04		-9.53E+03	1.38E+04
		722.89		1.80	1.65E+05		3.53E+04	8.17E+04
	TE-132	49.72		13.10	3.55E+09	5.00E+08	-2.04E+09	1.77E+09
		228.16		88.00	5.00E+08		-1.18E+07	2.49E+08
	BA-133	81.00		33.00	1.29E+00	8.88E-01	-3.21E+01	6.44E-01
		302.84		17.80	2.29E+00		2.94E-01	1.14E+00
		356.01		60.00	8.88E-01		5.83E-02	4.42E-01
@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	XE-133	81.00		38.00	4.82E+05	4.82E+05	-1.20E+07	2.40E+05
	CS-134	563.23		8.38	5.82E+00	6.35E-01	7.99E+00	2.88E+00
		569.32		15.43	3.07E+00		-1.25E+00	1.52E+00
		604.70		97.60	6.35E-01		-6.67E-02	3.15E-01
		795.84		85.40	7.72E-01		4.00E+00	3.82E-01
		801.93		8.73	6.01E+00		-2.37E+01	2.97E+00
	CS-135	268.24		16.00	2.53E+00	2.53E+00	1.34E+01	1.26E+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	8.40E+02	8.03E+01	1.87E+03	4.19E+02
		163.89		4.61	1.32E+03		6.85E+02	6.59E+02
		176.55		13.56	4.58E+02		1.48E+02	2.28E+02
		273.65		12.66	5.55E+02		-2.47E+03	2.76E+02
		340.57		48.50	1.96E+02		2.24E+03	9.76E+01
		818.50		99.70	8.03E+01		1.86E+01	3.96E+01
		1048.07		79.60	9.37E+01		4.90E+00	4.60E+01
		1235.34		19.70	5.66E+02		6.84E+00	2.79E+02
	CS-137	661.65		85.12	6.18E-01	6.18E-01	5.27E-02	3.06E-01
	LA-138	788.74		34.00	1.60E+00	7.17E-01	-1.22E+01	7.91E-01
		1435.80		66.00	7.17E-01		4.11E-01	3.51E-01
	CE-139	165.85		80.35	7.07E-01	7.07E-01	4.73E-01	3.52E-01
	BA-140	162.64		6.70	1.06E+03	3.40E+02	4.66E+01	5.27E+02
		304.84		4.50	1.63E+03		-1.55E+03	8.10E+02
		423.70		3.20	2.60E+03		6.52E+02	1.29E+03
		437.55		2.00	3.94E+03		-2.51E+03	1.95E+03
		537.32		25.00	3.40E+02		-1.96E+01	1.69E+02
	LA-140	328.77		20.50	4.27E+02	1.40E+02	1.95E+03	2.12E+02
		487.03		45.50	1.79E+02		-2.15E+01	8.88E+01
		815.85		23.50	3.96E+02		5.81E+01	1.95E+02
		1596.49		95.49	1.40E+02		5.39E+00	6.86E+01
	CE-141	145.44		48.40	5.81E+00	5.81E+00	2.01E-02	2.90E+00
@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		293.26		42.00	1.00E+26		1.00E+26	1.00E+20
@		664.55		5.20	1.00E+26		1.00E+26	1.00E+20
	CE-144	133.54		10.80	3.95E+00	3.95E+00	-7.37E-01	1.97E+00
	PM-144	476.78		42.00	1.16E+00	5.12E-01	-2.51E-01	5.75E-01
		618.01		98.60	5.12E-01		-3.47E-02	2.53E-01
		696.49		99.49	6.35E-01		3.03E-01	3.14E-01
	PM-145	36.85		21.70	2.44E+00	1.30E+00	7.47E-01	1.22E+00
		37.36		39.70	1.30E+00		3.99E-01	6.49E-01
		42.30		15.10	2.85E+00		-5.96E+00	1.42E+00
		72.40		2.31	2.05E+01		-4.22E+02	1.02E+01
+	PM-146	453.90	*	39.94	1.19E+00	1.19E+00	9.25E-01	5.91E-01

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PM-146	735.90		14.01	3.74E+00	1.19E+00	1.37E+00	1.85E+00
		747.13		13.10	4.02E+00		1.53E-01	1.99E+00
	ND-147	91.11		28.90	7.44E+02	7.44E+02	8.15E+03	3.71E+02
		531.02		13.10	1.57E+03		-6.21E+01	7.77E+02
	PM-149	285.90		3.10	2.76E+14	2.76E+14	3.38E+13	1.37E+14
	EU-152	121.78		20.50	1.57E+00	1.57E+00	-1.55E+00	7.83E-01
		244.69		5.40	7.99E+00		-2.96E+00	3.98E+00
		344.27		19.13	2.00E+00		-2.63E-02	9.91E-01
		778.89		9.20	5.47E+00		1.46E-01	2.70E+00
		964.01		10.40	7.56E+00		-6.25E+01	3.75E+00
		1085.78		7.22	5.94E+00		3.00E+00	2.91E+00
		1112.02		9.60	4.63E+00		-2.39E+01	2.27E+00
		1407.95		14.94	3.80E+00		6.27E+00	1.86E+00
	GD-153	97.43		31.30	1.45E+00	1.45E+00	-7.95E+00	7.23E-01
		103.18		22.20	1.91E+00		-2.71E-01	9.53E-01
	EU-154	123.07		40.50	8.09E-01	8.09E-01	-3.83E-01	4.03E-01
		723.30		19.70	3.53E+00		4.92E-01	1.75E+00
		873.19		11.50	3.99E+00		9.33E-01	1.97E+00
		996.32		10.30	4.35E+00		-2.03E+00	2.14E+00
		1004.76		17.90	2.50E+00		4.26E-01	1.23E+00
		1274.45		35.50	1.31E+00		9.12E-02	6.41E-01
+	EU-155	86.50	*	30.90	2.48E+00	1.61E+00	1.49E+01	1.24E+00
		105.30	*	20.70	1.61E+00		3.60E+00	8.03E-01
	EU-156	811.77		10.40	3.88E+02	3.88E+02	-1.24E+00	1.92E+02
		1153.47		7.20	6.11E+02		1.22E+03	3.01E+02
		1230.71		8.90	4.33E+02		8.64E+01	2.12E+02
	HO-166M	184.41		72.60	5.73E-01	5.73E-01	5.26E+00	2.86E-01
		280.45		29.60	1.26E+00		-4.78E-03	6.27E-01
		410.94		11.10	3.94E+00		1.00E+01	1.95E+00
		711.69		54.10	9.63E-01		-7.18E-02	4.76E-01
	TM-171	66.72		0.14	3.19E+02	3.19E+02	-5.97E+02	1.59E+02
	HF-172	67.35		5.31	8.41E+00	3.32E+00	-1.57E+01	4.19E+00
		125.81		11.30	3.32E+00		-4.21E-01	1.66E+00
	LU-172	181.53		20.60	4.69E+04	1.86E+04	1.12E+04	2.34E+04
		900.72		29.81	4.23E+04		-3.47E+03	2.08E+04
		1093.66		62.50	1.86E+04		1.93E+04	9.15E+03
	LU-173	100.72		5.24	6.90E+00	2.24E+00	-1.42E+01	3.44E+00
		272.11		21.20	2.24E+00		7.16E+00	1.12E+00
	HF-175	343.40		84.00	1.18E+00	1.18E+00	-1.56E-02	5.88E-01
	LU-176	88.34		13.30	3.25E+00	3.74E-01	1.20E+01	1.62E+00
		201.83		86.00	4.34E-01		2.65E-02	2.16E-01
		306.78		94.00	3.74E-01		-4.67E-01	1.86E-01
	HF-181	133.02		41.70	4.10E+00	2.43E+00	2.02E-01	2.04E+00
		345.85		17.20	1.08E+01		-1.44E-01	5.38E+00
		482.03		82.80	2.43E+00		-5.10E-01	1.20E+00
	TA-182	67.75		41.20	1.75E+00	1.75E+00	-1.48E+01	8.74E-01
		1121.30		34.90	4.32E+00		4.00E+01	2.14E+00
		1189.05		16.23	4.89E+00		-4.27E-01	2.40E+00
		1221.41		26.98	2.88E+00		-1.40E+00	1.41E+00
		1231.02		11.44	6.98E+00		8.55E-01	3.42E+00
	IR-192	308.46		29.68	2.97E+00	2.05E+00	-3.15E+00	1.47E+00
		468.07		48.10	2.05E+00		4.12E-01	1.02E+00
	HG-203	279.19		77.30	2.17E+00	2.17E+00	7.46E+00	1.08E+00

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TL-204	374.74		94.11	4.26E-01	4.26E-01	-5.20E-03	2.11E-01
		899.15		99.16	5.05E-01		-4.21E-02	2.49E-01
		911.74		91.10	1.31E+00		2.27E+01	6.53E-01
	BI-207	569.67		97.72	4.46E-01	4.46E-01	-1.81E-01	2.21E-01
		1063.62		74.90	5.69E-01		-9.08E-03	2.79E-01
+	TL-208	583.14	*	30.22	2.38E+00	2.38E+00	7.12E+01	1.18E+00
		860.37	*	4.48	1.49E+01		7.90E+01	7.36E+00
		2614.66		35.85	5.82E+00		7.49E+01	2.88E+00
	BI-210M	262.00		45.00	7.70E-01	7.70E-01	-2.31E-03	3.83E-01
		300.00		23.00	1.89E+00		-2.96E+01	9.39E-01
+	PB-210	46.50	*	4.25	8.36E+00	8.36E+00	1.53E+01	4.16E+00
	PB-211	404.84		2.90	1.45E+01	1.45E+01	-4.73E+01	7.17E+00
		831.96		2.90	1.79E+01		1.51E+01	8.86E+00
+	BI-212	727.17	*	11.80	5.90E+00	5.90E+00	4.53E+01	2.92E+00
		1620.62	*	2.75	2.30E+01		5.06E+01	1.13E+01
+	PB-212	238.63	*	44.60	1.61E+00	1.61E+00	7.59E+01	8.01E-01
		300.09	*	3.41	2.69E+01		6.32E+01	1.34E+01
+	BI-214	609.31	*	46.30	1.69E+00	1.69E+00	4.96E+01	8.41E-01
		1120.29	*	15.10	3.74E+00		5.20E+01	1.84E+00
		1764.49	*	15.80	4.43E+00		5.65E+01	2.18E+00
		2204.22	*	4.98	1.38E+01		5.94E+01	6.77E+00
+	PB-214	295.21	*	19.19	4.68E+00	1.69E+00	5.16E+01	2.33E+00
		351.92	*	37.19	1.69E+00		5.32E+01	8.43E-01
	RN-219	401.80		6.50	6.39E+00	6.39E+00	-1.91E+00	3.17E+00
	RA-223	323.87		3.88	9.98E+00	9.98E+00	2.38E+00	4.96E+00
+	RA-224	240.98	*	3.95	1.82E+01	1.82E+01	1.67E+02	9.10E+00
	RA-225	40.00		31.00	1.47E+02	1.47E+02	-9.04E+00	7.34E+01
+	RA-226	186.21	*	3.28	1.57E+01	1.57E+01	1.23E+02	7.85E+00
	TH-227	50.10		8.40	4.59E+00	4.59E+00	-2.64E+00	2.29E+00
		236.00		11.50	6.24E+00		1.33E+02	3.11E+00
		256.20		6.30	5.59E+00		-2.69E+00	2.78E+00
+	AC-228	338.32	*	11.40	5.15E+00	3.54E+00	7.42E+01	2.56E+00
		911.07	*	27.70	3.54E+00		7.14E+01	1.76E+00
		969.11	*	16.60	5.81E+00		7.27E+01	2.88E+00
	TH-230	48.44		16.90	2.31E+00	2.31E+00	-1.91E+00	1.15E+00
		62.85		4.60	9.04E+00		2.54E+01	4.51E+00
		67.67		0.37	1.08E+02		-9.09E+02	5.37E+01
	PA-231	283.67		1.60	2.23E+01	1.74E+01	-6.04E-01	1.11E+01
		302.67		2.30	1.74E+01		2.24E+00	8.63E+00
	TH-231	25.64		14.70	7.49E+00	6.18E+00	-2.04E+00	3.73E+00
		84.21		6.40	6.18E+00		-3.40E+01	3.08E+00
	PA-233	311.98		38.60	1.16E+01	1.16E+01	-7.47E-01	5.78E+00
	PA-234	131.20		20.40	1.73E+00	1.73E+00	7.55E+00	8.64E-01
		733.99		8.80	5.78E+00		1.46E-01	2.86E+00
		946.00		12.00	3.69E+00		2.87E+00	1.82E+00
	PA-234M	1001.03		0.92	4.94E+01	4.94E+01	4.92E+01	2.43E+01
+	TH-234	63.29	*	3.80	1.36E+01	1.36E+01	5.47E+01	6.79E+00
+	U-235	143.76	*	10.50	3.35E+00	3.35E+00	4.14E+00	1.67E+00
		163.35		4.70	7.36E+00		3.24E-01	3.67E+00
		205.31	*	4.70	9.80E+00		3.69E+00	4.89E+00
	NP-237	86.50	*	12.60	5.86E+00	5.86E+00	3.53E+01	2.93E+00
	NP-239	106.10		22.70	5.15E+12	5.15E+12	1.54E+13	2.57E+12
		228.18		10.70	1.25E+13		-2.95E+11	6.21E+12

Analysis Report for 1707085-20

HTC-A02-S004-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	NP-239	277.60		14.10	9.98E+12	5.15E+12	4.02E+13	4.96E+12
	AM-241	59.54		35.90	1.16E+00	1.16E+00	-2.70E-01	5.78E-01
	AM-243	74.67		66.00	8.88E-01	8.88E-01	3.36E+01	4.43E-01
+	CM-243	209.75	*	3.29	1.55E+01	3.50E+00	8.21E+01	7.74E+00
		228.14		10.60	3.50E+00		-8.26E-02	1.74E+00
		277.60	*	14.00	6.04E+00		1.13E+01	3.01E+00

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A02-S004-0612-01

Elapsed Live time: 3600
Elapsed Real Time: 3658

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	2	580	3277
17:	3244	3169	3104	2911	2945	2982	2987	2933
25:	2835	2841	2677	2720	2743	2800	3039	2981
33:	2998	2883	3022	2911	2841	2955	3066	2946
41:	2891	2942	2926	3132	3690	3953	3467	3307
49:	3564	3516	3855	4131	4161	4215	4939	5870
57:	5674	5208	5004	5338	6010	7293	7243	6338
65:	6058	6091	6072	6114	5986	6261	6636	8002
73:	12685	16865	17782	21524	16563	7600	5484	5464
81:	5241	5614	6737	6763	7430	10210	9470	7668
89:	8234	7181	7592	9581	8082	5370	4200	3938
97:	4317	4672	4706	4141	3774	3881	4204	4742
105:	4794	4323	4105	4283	4023	3993	4011	4032
113:	4177	4192	4159	3868	3707	3718	3760	3679
121:	3875	3827	3963	3990	4010	4099	4548	5362
129:	5043	4254	4059	3896	3843	3783	3869	3757
137:	3721	3824	3716	3716	3796	3921	4063	3922
145:	3672	3635	3601	3645	3637	3585	3634	3855
153:	4012	3797	3489	3344	3387	3281	3281	3195
161:	3161	3211	3369	3199	3273	3049	3038	3089
169:	3079	3038	2984	3089	2912	3008	3030	2924
177:	2915	3021	3036	2873	2885	2959	3189	4451
185:	5704	4714	3393	2811	2850	2740	2846	2650
193:	2745	2686	2737	2617	2723	2783	2749	2708
201:	2708	2628	2607	2673	2737	2620	3145	4286
209:	4037	2846	2396	2370	2362	2319	2358	2443
217:	2273	2274	2196	2157	2204	2197	2180	2064
225:	2202	2117	2157	2041	2091	2088	2042	2063
233:	2086	2099	2426	5472	16638	22085	12015	5899
241:	5486	3626	1957	1577	1636	1499	1501	1600
249:	1503	1524	1646	1535	1572	1391	1544	1603
257:	1553	1607	1498	1390	1429	1385	1349	1357
265:	1365	1431	1488	2005	2842	2601	1763	1368
273:	1394	1394	1559	2001	2003	1605	1357	1299
281:	1281	1264	1360	1303	1275	1307	1286	1394
289:	1223	1194	1257	1382	2924	5944	5246	2365
297:	1307	1684	2246	1908	1385	1110	1161	1096
305:	1067	1018	1005	1141	1031	1061	1085	1160
313:	1085	1073	1092	998	1044	1067	1073	1120
321:	1071	1139	1079	1080	1140	1524	1941	1731
329:	1140	1049	1073	1083	1052	1030	1081	2073
337:	4172	4166	1933	1129	1045	898	903	987
345:	952	888	987	1024	1748	5399	8886	5974
353:	1944	915	914	867	837	844	765	837
361:	826	792	833	850	810	847	871	843

369:	842	823	821	843	800	849	855	842

Sample Title: HTC-A02-S004-0612-01

Channel								
377:	839	863	815	810	897	843	868	861
385:	828	876	888	863	894	817	828	813
393:	833	847	838	836	809	827	811	864
401:	916	879	879	824	849	818	853	1170
409:	1168	887	798	717	745	705	751	688
417:	786	754	739	752	738	736	716	743
425:	715	710	726	668	702	674	633	660
433:	619	592	603	617	630	558	629	649
441:	625	628	592	602	542	637	572	612
449:	588	618	652	702	631	620	633	551
457:	567	576	580	675	1047	1560	1193	642
465:	535	518	538	565	573	539	571	522
473:	551	547	574	557	558	621	567	592
481:	563	526	539	474	546	524	534	502
489:	563	503	538	491	497	472	497	508
497:	508	522	487	489	494	481	511	518
505:	466	514	601	885	1557	2103	1378	743
513:	482	505	533	469	487	451	500	494
521:	512	492	467	501	456	477	507	485
529:	454	480	488	496	477	510	489	457
537:	424	451	454	496	475	444	440	442
545:	496	469	469	487	482	453	421	453
553:	456	452	432	448	393	451	404	510
561:	528	616	469	492	436	447	458	422
569:	445	462	485	469	451	452	441	390
577:	428	463	507	789	2503	5263	4468	1643
585:	554	388	418	380	390	394	420	403
593:	370	352	366	378	382	384	410	381
601:	377	396	408	405	375	671	2237	5186
609:	4853	1987	541	364	364	370	363	371
617:	360	362	374	333	331	390	356	360
625:	399	378	389	387	371	361	376	377
633:	381	353	350	317	346	353	355	376
641:	327	364	363	374	371	333	394	359
649:	356	390	355	342	316	333	361	315
657:	358	389	307	323	369	355	388	467
665:	518	394	352	373	347	354	346	300
673:	357	333	379	366	385	334	336	368
681:	314	375	331	356	360	388	359	356
689:	334	348	318	323	378	363	342	369
697:	344	362	315	363	398	413	364	420
705:	350	371	355	354	328	366	334	343
713:	310	294	310	305	326	320	326	329
721:	318	304	300	347	729	1185	1159	590
729:	331	306	271	288	301	300	289	282
737:	324	294	310	268	305	281	326	310
745:	305	303	277	269	286	256	278	354
753:	325	387	416	304	297	308	295	279
761:	309	319	350	324	324	483	678	683
769:	393	344	384	384	310	253	232	241
777:	253	238	251	232	296	292	260	409
785:	462	354	284	218	207	240	246	276
793:	530	769	503	285	227	224	196	202

801:	192	207	210	252	311	285	215	212

Sample Title: HTC-A02-S004-0612-01

Channel								
809:	201	185	202	189	189	202	193	171
817:	197	203	205	186	194	183	182	191
825:	189	194	177	197	236	244	247	207
833:	248	296	375	289	234	302	331	295
841:	238	163	177	175	153	195	188	165
849:	148	190	190	184	140	167	197	173
857:	168	342	596	674	398	201	176	159
865:	156	164	151	167	176	188	174	161
873:	173	164	172	153	154	162	172	172
881:	166	154	174	154	176	153	167	138
889:	183	179	190	203	174	183	181	150
897:	164	166	156	157	180	206	257	237
905:	186	170	181	413	1488	2955	2580	1015
913:	243	144	142	147	147	132	162	134
921:	142	137	134	135	132	134	130	141
929:	123	172	163	274	351	302	171	144
937:	134	126	128	119	130	143	131	143
945:	139	134	138	162	152	132	127	149
953:	116	129	121	133	156	166	163	118
961:	130	231	546	634	437	421	1144	1798
969:	1276	451	144	108	126	106	116	109
977:	120	111	132	122	111	126	99	102
985:	126	130	129	119	109	121	121	102
993:	95	117	115	134	121	131	154	167
1001:	184	111	103	103	112	120	101	116
1009:	102	112	128	100	112	107	139	116
1017:	108	122	107	94	135	111	121	97
1025:	111	123	106	83	117	99	107	126
1033:	121	124	108	91	79	99	115	113
1041:	105	93	92	100	111	101	84	102
1049:	107	126	135	109	114	106	112	105
1057:	101	91	92	92	89	109	107	106
1065:	130	103	115	112	114	113	106	103
1073:	93	96	108	114	156	139	115	96
1081:	92	99	97	114	115	96	87	114
1089:	89	95	103	128	129	134	121	110
1097:	97	81	98	88	96	94	83	106
1105:	107	105	101	93	116	110	119	104
1113:	88	106	94	89	178	480	916	905
1121:	431	172	100	93	84	86	86	102
1129:	83	94	91	106	106	100	89	85
1137:	95	119	91	89	91	94	103	109
1145:	84	100	92	72	100	86	94	121
1153:	164	181	172	121	89	100	87	89
1161:	102	89	73	85	83	94	81	92
1169:	97	95	100	104	96	81	95	83
1177:	89	86	82	107	99	96	106	78
1185:	90	90	123	89	82	84	95	76
1193:	94	98	93	86	86	96	86	96
1201:	77	88	92	79	101	99	121	90
1209:	86	86	79	84	85	86	98	81
1217:	82	80	79	87	94	81	83	81
1225:	83	89	86	101	76	89	95	80

1233:	60	91	106	283	374	361	170	95

Sample Title: HTC-A02-S004-0612-01

Channel								
1241:	72	69	84	87	88	133	99	90
1249:	92	81	106	102	85	89	99	91
1257:	73	88	67	73	72	83	69	82
1265:	69	93	80	72	93	104	75	88
1273:	92	82	81	91	87	86	139	156
1281:	140	96	96	84	95	93	90	90
1289:	78	69	82	67	75	96	66	67
1297:	80	79	89	81	80	78	87	86
1305:	87	73	91	63	70	86	79	76
1313:	82	98	85	93	77	81	72	70
1321:	85	88	78	82	87	69	73	85
1329:	79	83	75	81	75	88	83	74
1337:	68	67	86	87	90	76	80	83
1345:	70	58	68	85	77	68	67	84
1353:	63	82	64	76	81	82	97	79
1361:	81	91	75	70	70	78	89	74
1369:	61	83	84	84	103	103	132	232
1377:	286	216	118	78	82	85	89	124
1385:	120	77	86	78	75	77	76	74
1393:	99	81	70	76	56	80	95	134
1401:	126	109	85	69	91	140	216	146
1409:	112	85	68	76	68	66	69	70
1417:	74	67	80	62	67	74	84	73
1425:	73	80	66	73	67	60	86	70
1433:	74	68	57	90	97	74	72	78
1441:	65	67	68	61	80	61	57	59
1449:	69	63	82	61	57	74	75	85
1457:	85	118	137	126	92	80	77	70
1465:	68	62	56	84	66	81	62	64
1473:	63	67	70	67	67	71	63	84
1481:	82	65	77	58	66	71	61	72
1489:	67	73	56	61	77	105	120	94
1497:	66	70	81	85	109	89	68	53
1505:	66	66	154	141	159	101	100	90
1513:	83	78	64	53	61	66	64	56
1521:	76	57	52	49	59	63	48	65
1529:	59	68	68	65	58	63	84	78
1537:	86	84	74	63	56	61	82	71
1545:	55	54	65	56	48	51	57	39
1553:	58	62	55	60	59	68	53	54
1561:	57	56	47	52	54	54	52	69
1569:	50	57	53	51	60	54	62	59
1577:	47	53	87	95	79	78	73	72
1585:	68	137	236	201	151	206	318	353
1593:	219	116	81	49	66	74	64	53
1601:	55	46	56	46	53	50	52	41
1609:	50	52	46	48	60	52	40	44
1617:	60	93	110	161	101	77	58	64
1625:	50	50	53	74	113	132	115	54
1633:	49	53	38	59	51	74	59	40
1641:	33	46	48	50	43	40	44	47
1649:	58	45	41	37	46	41	37	28
1657:	43	52	58	83	69	48	56	44

1665:	52	44	44	37	56	34	42	34

Sample Title: HTC-A02-S004-0612-01

Channel								
1673:	29	28	44	42	40	33	33	32
1681:	40	57	53	50	31	37	40	36
1689:	49	49	44	48	44	45	32	35
1697:	32	39	35	34	45	32	38	25
1705:	41	47	47	33	38	39	31	37
1713:	31	29	45	42	34	37	35	47
1721:	30	39	28	40	45	44	76	147
1729:	158	109	65	39	36	28	32	48
1737:	36	45	35	36	28	42	27	45
1745:	43	35	30	31	46	40	43	34
1753:	42	33	32	38	45	43	49	39
1761:	93	250	581	661	370	126	44	29
1769:	33	28	29	43	40	37	44	30
1777:	36	29	38	35	37	34	42	32
1785:	30	37	37	35	33	41	32	31
1793:	34	37	35	33	30	33	36	43
1801:	31	24	36	34	43	35	40	41
1809:	39	32	41	45	35	38	37	36
1817:	49	40	30	47	37	38	29	30
1825:	43	36	30	39	31	28	38	33
1833:	34	26	42	38	38	52	46	26
1841:	50	47	37	44	71	103	121	87
1849:	49	30	31	37	40	34	42	34
1857:	28	44	41	27	41	57	36	47
1865:	29	37	37	38	39	34	49	36
1873:	49	45	24	29	34	29	36	36
1881:	38	41	38	37	36	55	36	47
1889:	37	47	34	43	40	42	38	34
1897:	38	45	32	30	58	36	36	29
1905:	25	41	45	39	30	47	42	27
1913:	44	39	28	54	30	42	37	43
1921:	41	40	31	34	37	42	37	47
1929:	39	34	46	44	48	38	44	42
1937:	43	44	29	34	42	40	33	40
1945:	36	32	40	47	32	29	25	31
1953:	35	40	32	33	41	37	35	23
1961:	35	47	43	37	42	39	46	30
1969:	45	33	35	33	28	38	38	39
1977:	36	35	33	32	35	39	35	30
1985:	32	40	25	34	28	30	30	32
1993:	28	31	31	32	27	32	25	30
2001:	30	30	36	30	33	35	29	34
2009:	33	30	41	29	32	39	37	39
2017:	40	43	30	29	25	30	32	33
2025:	34	41	32	35	35	41	25	24
2033:	33	40	40	32	47	30	32	33
2041:	33	32	28	39	28	34	34	42
2049:	42	40	37	29	41	26	27	30
2057:	34	30	35	37	31	47	43	33
2065:	29	26	36	24	28	32	42	39
2073:	33	43	33	44	24	37	32	19
2081:	36	36	29	35	32	38	36	37
2089:	43	37	44	36	19	42	41	33

2097:	29	42	38	68	123	173	199	132

Sample Title: HTC-A02-S004-0612-01

Channel								
2105:	87	68	39	48	29	39	32	37
2113:	34	26	47	46	62	74	57	43
2121:	38	42	37	35	32	34	22	35
2129:	27	36	34	31	29	28	36	26
2137:	36	38	33	34	35	33	43	31
2145:	38	35	26	44	43	36	34	30
2153:	48	25	34	29	40	35	40	33
2161:	32	37	42	32	38	26	30	37
2169:	40	31	32	41	34	35	32	33
2177:	29	38	35	44	45	44	37	38
2185:	30	33	40	54	40	37	44	40
2193:	30	36	31	32	35	35	37	34
2201:	66	124	199	183	103	56	27	45
2209:	49	42	48	34	44	38	41	36
2217:	29	42	37	36	45	25	41	39
2225:	39	41	26	37	35	45	29	38
2233:	34	41	37	45	41	40	32	24
2241:	31	41	43	33	37	47	43	39
2249:	37	37	41	46	50	44	28	38
2257:	48	39	37	41	37	48	47	36
2265:	43	40	34	47	42	40	44	65
2273:	43	51	29	48	47	51	34	51
2281:	38	53	44	35	41	51	53	46
2289:	42	39	48	63	52	57	42	45
2297:	60	43	39	53	49	34	40	36
2305:	45	55	53	53	50	41	51	46
2313:	36	47	46	54	43	48	49	47
2321:	42	47	31	55	43	55	42	48
2329:	44	51	48	68	62	60	40	48
2337:	44	40	46	53	55	54	53	58
2345:	48	50	52	47	50	54	53	60
2353:	55	50	51	48	45	47	45	49
2361:	53	56	53	53	42	59	63	72
2369:	55	49	40	48	63	45	59	53
2377:	51	45	54	53	49	54	37	32
2385:	40	47	37	36	33	29	27	35
2393:	34	44	29	36	27	34	37	32
2401:	30	36	29	45	25	32	22	31
2409:	39	33	43	31	34	35	34	30
2417:	30	37	20	43	33	28	21	27
2425:	25	36	19	30	27	33	29	35
2433:	34	32	21	33	27	31	23	31
2441:	30	27	29	31	37	46	65	56
2449:	55	28	26	30	24	29	25	26
2457:	24	23	39	20	25	23	29	21
2465:	26	29	23	30	25	31	24	30
2473:	22	26	33	18	18	28	27	18
2481:	29	12	28	19	26	16	14	13
2489:	18	21	10	13	17	18	11	9
2497:	14	23	18	13	13	18	17	6
2505:	15	13	15	24	9	14	8	16
2513:	9	9	6	11	8	13	15	14
2521:	8	7	12	17	4	6	7	12

2529:	11	9	9	7	7	7	8	6

Sample Title: HTC-A02-S004-0612-01

Channel								
2537:	8	12	13	12	9	10	9	15
2545:	7	11	10	7	7	9	9	7
2553:	7	11	11	4	7	5	10	6
2561:	9	3	12	8	9	12	10	9
2569:	12	6	12	11	8	10	6	8
2577:	5	14	9	7	7	3	11	9
2585:	7	8	5	6	2	10	7	9
2593:	3	15	8	7	6	5	2	8
2601:	13	10	6	7	14	15	10	11
2609:	9	38	127	389	876	1112	863	346
2617:	86	16	8	2	7	4	6	4
2625:	4	5	3	5	5	8	1	3
2633:	4	6	6	3	6	3	4	5
2641:	4	5	3	1	3	2	3	4
2649:	5	2	4	5	8	2	3	4
2657:	5	4	0	4	5	5	3	4
2665:	3	5	3	1	6	2	4	3
2673:	3	4	5	6	6	2	3	3
2681:	2	5	3	5	3	3	8	3
2689:	4	8	7	4	3	0	2	4
2697:	3	3	1	4	5	4	4	5
2705:	2	3	4	3	4	4	2	7
2713:	6	3	3	1	3	3	0	3
2721:	3	0	4	2	0	2	4	7
2729:	0	2	3	0	4	1	3	3
2737:	2	3	2	5	4	2	1	4
2745:	1	4	0	4	1	3	5	4
2753:	3	0	1	4	1	2	2	1
2761:	2	3	3	3	2	2	4	4
2769:	2	4	1	2	4	3	2	6
2777:	3	2	4	2	2	4	0	2
2785:	2	0	5	3	4	1	3	3
2793:	0	1	2	2	2	2	1	1
2801:	1	1	1	5	2	1	5	1
2809:	2	3	5	3	4	2	2	2
2817:	2	6	1	3	2	3	2	2
2825:	3	3	0	3	1	0	2	2
2833:	3	2	5	1	2	3	2	2
2841:	3	4	1	3	2	0	5	2
2849:	3	3	5	2	0	1	3	2
2857:	3	1	1	2	3	2	2	3
2865:	3	2	4	3	2	5	4	1
2873:	4	2	2	2	3	3	3	2
2881:	4	1	1	0	1	1	3	1
2889:	2	1	2	2	4	2	6	1
2897:	1	3	1	3	2	3	3	0
2905:	3	1	2	0	2	4	0	0
2913:	3	1	2	0	1	4	3	4
2921:	0	1	2	0	1	1	0	2
2929:	3	2	0	0	3	1	0	1
2937:	3	1	3	2	1	2	2	1
2945:	2	2	0	4	1	0	0	3
2953:	1	0	0	2	3	0	0	5

2961:	2	2	0	1	3	1	0	1

Sample Title: HTC-A02-S004-0612-01

Channel								
2969:	3	0	0	0	1	1	1	1
2977:	0	2	1	1	2	1	0	1
2985:	1	1	2	1	0	0	2	1
2993:	1	2	1	0	1	0	1	2
3001:	0	0	1	1	1	1	0	4
3009:	0	1	1	1	1	1	0	1
3017:	1	1	4	0	3	1	1	0
3025:	1	2	0	2	0	1	2	0
3033:	3	2	3	0	1	0	2	0
3041:	0	1	1	0	0	1	2	0
3049:	1	0	2	0	2	0	0	2
3057:	2	1	0	2	1	0	1	3
3065:	0	3	1	0	0	0	1	0
3073:	1	1	0	2	1	2	1	1
3081:	2	0	1	0	1	0	1	1
3089:	0	0	0	2	1	0	0	0
3097:	0	0	1	0	0	3	1	0
3105:	0	0	1	1	0	1	0	0
3113:	0	1	0	0	0	1	1	1
3121:	0	2	2	0	4	3	0	3
3129:	1	0	1	0	0	1	0	1
3137:	0	0	0	1	0	3	0	0
3145:	0	0	0	1	1	0	0	1
3153:	0	1	0	1	1	1	0	0
3161:	0	0	0	0	1	0	1	0
3169:	0	0	0	0	0	1	0	1
3177:	0	3	2	0	0	0	0	0
3185:	0	0	0	1	0	0	2	0
3193:	0	0	0	6	9	7	6	3
3201:	0	1	1	0	1	0	1	0
3209:	0	0	0	0	0	0	0	1
3217:	0	0	0	0	1	0	1	1
3225:	0	0	0	2	0	0	0	0
3233:	0	1	0	0	0	0	0	0
3241:	1	0	0	1	0	1	1	0
3249:	1	1	0	0	1	0	0	1
3257:	0	1	0	0	2	0	0	0
3265:	0	0	1	0	0	0	1	1
3273:	0	0	0	0	1	0	1	1
3281:	0	0	0	1	0	0	0	0
3289:	0	0	0	1	0	0	1	0
3297:	0	1	0	0	0	0	0	1
3305:	0	0	1	1	0	0	0	1
3313:	0	0	0	0	0	0	0	1
3321:	0	1	0	1	0	0	0	0
3329:	0	0	0	0	0	1	0	1
3337:	0	0	0	1	0	0	0	0
3345:	0	0	0	0	0	0	1	0
3353:	0	0	0	0	0	0	0	0
3361:	1	1	0	1	1	0	0	0
3369:	0	1	0	0	0	0	0	1
3377:	1	0	0	1	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-A02-S004-0612-01

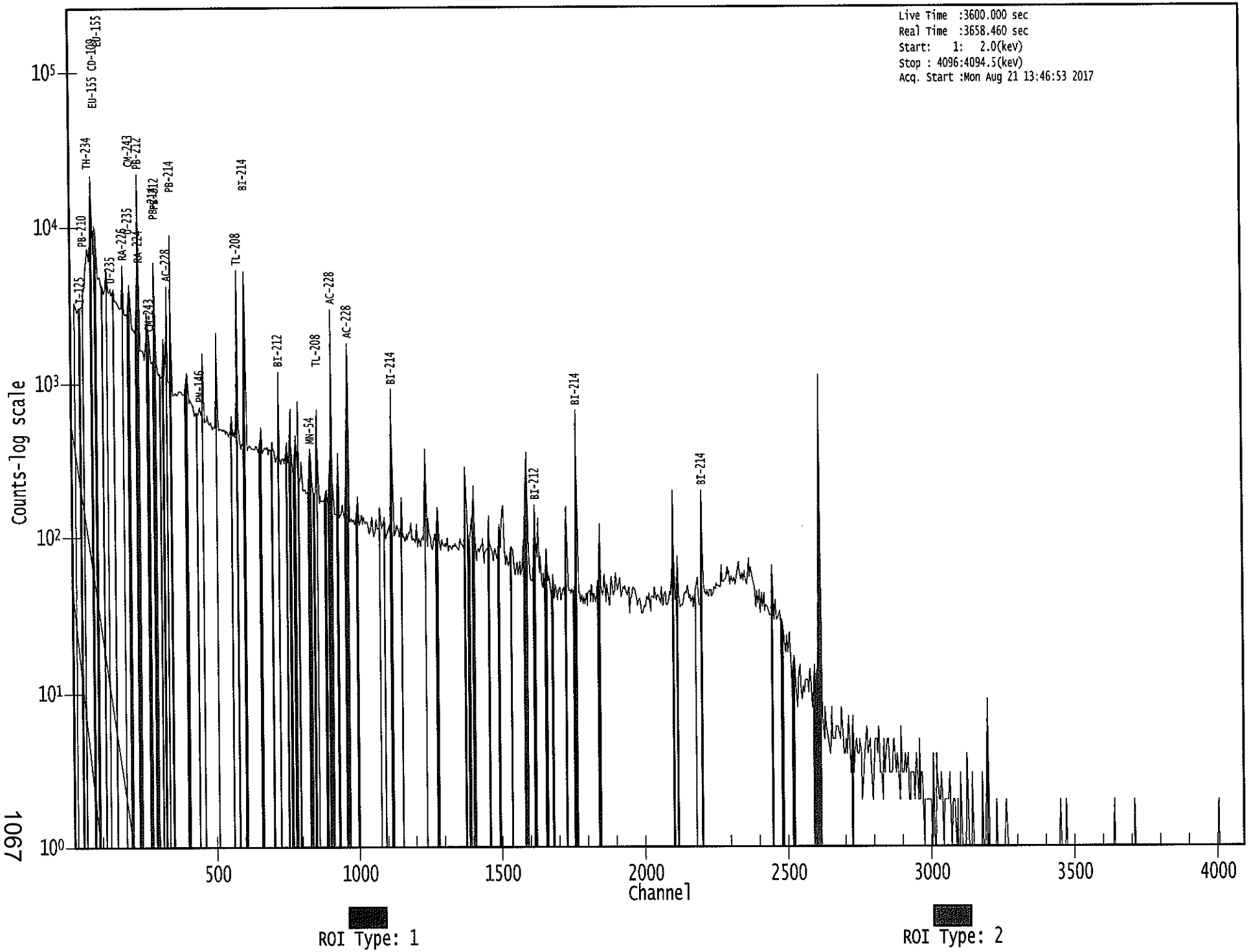
Channel								
3401:	0	1	0	0	0	0	0	0
3409:	1	1	0	0	0	0	0	0
3417:	0	0	0	1	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	1	0	0	0	1	0
3441:	0	0	0	0	0	0	1	0
3449:	0	0	2	0	0	0	1	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	1	0	0	0	2
3473:	0	1	1	0	0	1	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	1	0	0	0	0	0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

3825:	1	0	0	0	1	0	0	0

Sample Title: HTC-A02-S004-0612-01

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

0000055648.CNF



8/21

```
*************************************************************************
*****          G E N I E   Q U A L I T Y   A S S U R A N C E          *****
*************************************************************************
```

Last Results Report
8/21/17 6:01:40 AM

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000004B.QCK

Detector: GE4
Geometry: <None>
Certificate: <None>
Sample ID: QA Background Ch
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 8/21/17 5:46:21 AM
Measurement Date: 8/21/17 5:46:23 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 900.2 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE4 [SD: 7.1421E+000+/-131.25]	1.5444E+000	-4.2647E-002 < : : : >

Trend Test: The last 9 samples exhibit a bias trend.

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

8/21

```
*************************************************************************
*****          G E N I E   Q U A L I T Y   A S S U R A N C E          *****
*************************************************************************
```

Last Results Report
8/21/17 6:01:30 AM

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000003B.QCK

Detector: GE3
Geometry: <None>
Certificate: <None>
Sample ID: QA Background Ch
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 8/21/17 5:46:13 AM
Measurement Date: 8/21/17 5:46:15 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 901.8 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE3 [SD: 2.1804E+003+/-1175.4]	1.7780E+003	-3.4234E-001 < : : : >

Trend Test: The last 9 samples exhibit a bias trend.

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

8/21

****
***** G E N I E Q U A L I T Y A S S U R A N C E *****
****

Last Results Report
8/21/17 6:01:12 AM

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000001B.QCK

Detector: GE1
Geometry: <None>
Certificate: <None>
Sample ID: QA Background Ch
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 8/21/17 5:45:57 AM
Measurement Date: 8/21/17 5:45:58 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 900.1 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE1 [SD: 2.2764E+000+/- 1.246]	2.3589E+000	6.6252E-002 < : : : >

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

c
8/21

```
*****************************************************************************
*****        G E N I E   Q U A L I T Y   A S S U R A N C E          *****
*****************************************************************************
```

Last Results Report
8/21/17 5:33:24 AM

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000004GAW-16C.QCK

Detector: GE4
Geometry: <None>
Certificate: GAW-16
Sample ID: QA Calibration C
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 10/1/16 12:00:00 PM
Measurement Date: 8/21/17 5:17:03 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 967.4 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	5.8253E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Peak centroid 661.65 kev	6.6064E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1332.49 ke	1.3317E+003	
Boundary Limits: [1.331E+003, 1.335E+003]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1836.01 ke	1.8355E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Am-241	2.6698E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Cs-137	2.5307E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Co-60	2.6906E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	3.0951E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		<Ab [illegible] : : >
Decay corrected activity	1.3620E+005	
Boundary Limits: [1.196E-001, 1.793E-001]		< : : : >
Decay corrected activity	6.1126E+004	
Boundary Limits: [4.890E-002, 7.335E-002]		< : : : >

Decay corrected activity 8.9431E+004
Boundary Limits: [7.743E-002, 1.161E-001] < : : : >
Trend Test: The last 9 samples exhibit a bias trend.

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Decay corrected activity	1.9106E+005	
Boundary Limits: [1.609E-001, 2.414E-001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

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*************************************************************************
*****          G E N I E   Q U A L I T Y   A S S U R A N C E          *****
*************************************************************************
```

Last Results Report
8/21/17 5:32:45 AM

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000003GAS-1602C.QC

Detector: GE3
Geometry: <None>
Certificate: GAS-1602
Sample ID: QA Calibration C
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 10/1/16 12:00:00 PM
Measurement Date: 8/21/17 5:16:55 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 932.9 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	5.9863E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 661.65 kev	6.6189E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Peak centroid 1332.49 ke	1.3326E+003	
Boundary Limits: [1.330E+003, 1.334E+003]		< : : : >
Peak centroid 1836.01 ke	1.8360E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Peak FWHM Am-241	2.0408E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Cs-137	2.2727E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Co-60	2.7236E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	2.7299E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Decay corrected activity	1.5262E+005	
Boundary Limits: [1.189E-001, 1.784E-001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Decay corrected activity	5.9615E+004	
Boundary Limits: [4.862E-002, 7.293E-002]		< : : : >

Trend Test: The last 9 samples exhibit a bias trend.

Decay corrected activity 9.1372E+004
Boundary Limits: [7.700E-002, 1.155E-001] < : : : >
Trend Test: The last 9 samples exhibit a bias trend.

Decay corrected activity 1.9098E+005
Boundary Limits: [1.600E-001, 2.400E-001] < : : : >
Trend Test: The last 9 samples exhibit a bias trend.

Flags Key:
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SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

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*************************************************************************
*****          G E N I E   Q U A L I T Y   A S S U R A N C E          *****
*************************************************************************
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Last Results Report
8/21/17 5:32:23 AM

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000001GAF-16C.QCK

Detector: GE1
Geometry: <None>
Certificate: GAF-16
Sample ID: QA Calibration C
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 10/1/16 12:00:00 PM
Measurement Date: 8/21/17 5:16:40 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 927.7 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	6.0008E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 661.65 kev	6.6181E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1332.49 ke	1.3324E+003	
Boundary Limits: [1.331E+003, 1.334E+003]		< : : : >
Peak centroid 1836.01 ke	1.8356E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Am-241	1.4439E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Cs-137	1.8526E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Co-60	2.2604E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	2.4866E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Decay corrected activity	1.4718E+004	
Boundary Limits: [1.254E-002, 1.881E-002]		< : : : >
Decay corrected activity	6.4888E+003	
Boundary Limits: [5.134E-003, 7.700E-003]		< : : : >

Decay corrected activity 1.0680E+004
Boundary Limits: [8.130E-003, 1.220E-002] < : : : >

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Decay corrected activity Boundary Limits: [1.690E-002, 2.534E-002]	1.8499E+004	< : : : >

Flags Key:
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UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

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*************************************************************************
*****          G E N I E   Q U A L I T Y   A S S U R A N C E          *****
*************************************************************************
```

Last Results Report
8/21/17 8:51:32 AM

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000002GAS-1601C.QC

Detector: GE2
Geometry: <None>
Certificate: GAS-1601
Sample ID: QA Calibration C
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 10/1/16 12:00:00 PM
Measurement Date: 8/21/17 8:35:53 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 924.6 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	6.0000E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Peak centroid 661.65 kev	6.6135E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1332.49 ke	1.3318E+003	
Boundary Limits: [1.331E+003, 1.334E+003]		< : : : >
Peak centroid 1836.01 ke	1.8350E+003	
Boundary Limits: [1.833E+003, 1.838E+003]		< : : : >
Peak FWHM Am-241	1.3131E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Cs-137	2.0044E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Co-60	2.1212E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Y-88	2.7474E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Decay corrected activity	1.4584E+005	
Boundary Limits: [1.190E-001, 1.785E-001]		< : : : >
Decay corrected activity	7.2575E+004	

Boundary Limits: [5.718E-002, 8.577E-002] < : : : >

Decay corrected activity 1.0471E+005
Boundary Limits: [7.706E-002, 1.156E-001] < : : : >

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Decay corrected activity	2.0454E+005	
Boundary Limits: [1.602E-001, 2.403E-001]		< : : : >

Trend Test: The last 9 samples exhibit a bias trend.

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BS = Measurement Bias Test (In = Investigate, Ac = Action)

8/21

****
***** G E N I E Q U A L I T Y A S S U R A N C E *****
****

Last Results Report
8/21/17 9:08:25 AM

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000002B.QCK

Detector: GE2
Geometry: <None>
Certificate: <None>
Sample ID: QA Background Ch
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 8/21/17 8:53:11 AM
Measurement Date: 8/21/17 8:53:12 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 900.1 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE2 [SD:-1.7117E+035+/-******]	2.3078E+000	3.1718E-002 < : : : >

Trend Test: The last 9 samples exhibit a bias trend.

Flags Key:
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SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)