WESTON SOLUTIONS, INC.

PO# 0094759

STANDARD LEVEL IV
REPORT OF ANALYSIS

WORK ORDER #17-07089-OR

September 22, 2017

EBERLINE ANALYTICAL/OAK RIDGE LABORATORY
OAK RIDGE, TN

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Eberline Services – Oak Ridge Laboratory

LABORATORY DATA SUPPORT CHECKLIST

MP-001-3

Eberline Services Work Order # 17-07089

The checklist items listed below are to be initialed by appropriate staff upon completion/verification.

Date for Partial	Initials	Date	Initials	Checklist Items
		7-18-17	JGB	Sample Log-In
		8/31/17	[illegible]	Data Compilation
		9/1/17	[illegible]	First Technical Data Review
		9/4/17	[illegible]	Second Technical Data Review
		9/13/17	[illegible]	Data Entry/Electronic Deliverable
		9/13/17	[illegible]	Case Narrative
		9/15/17	RBS	Electronic Deliverable Proof
		9/18/17	[illegible]	Samples Analyzed within Holding Time Yes? [✓] No? [ ]
		9/18/17	[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] 9/21/17

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

17-07089
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-A03-S004-3642-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	15:33	1	16 oz Poly Jar	N	Weight N/A
	HTC-A03-S004-4248-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	15:30	1	16 oz Poly Jar	Y	Weight N/A
	HTC-A03-S004-4248-02	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	15:30	1	16 oz Poly Jar	N	Weight N/A
	HTC-A04-S001-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	10:11	1	16 oz Poly Jar	N	Weight N/A
	HTC-A04-S001-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	10:08	1	16 oz Poly Jar	N	Weight N/A
	HTC-A04-S001-1218-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	10:05	1	16 oz Poly Jar	N	Weight N/A
	HTC-A04-S001-1824-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	10:02	1	16 oz Poly Jar	N	Weight N/A
4	HTC-A04-S001-2430-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	09:59	1	16 oz Poly Jar	N	Weight N/A
5	HTC-A04-S001-3036-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	09:56	1	16 oz Poly Jar	N	Weight N/A
6	HTC-A04-S001-3642-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	09:53	1	16 oz Poly Jar	N	Weight N/A
7	HTC-A04-S001-4248-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	09:50	1	16 oz Poly Jar	N	Weight N/A
8	HTC-A04-S002-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/16/2017	08:04	1	16 oz Poly Jar	N	Weight N/A
9	HTC-A04-S002-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/16/2017	08:02	1	16 oz Poly Jar	N	Weight N/A
10	HTC-A04-S002-1218-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/16/2017	08:00	1	16 oz Poly Jar	N	Weight N/A
11	HTC-A04-S002-1824-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/16/2017	07:58	1	16 oz Poly Jar	N	Weight N/A
12	HTC-A04-S002-2430-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/16/2017	07:56	1	16 oz Poly Jar	N	Weight N/A
13	HTC-A04-S002-3036-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/16/2017	07:54	1	16 oz Poly Jar	N	Weight N/A
14	HTC-A04-S002-3642-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/16/2017	07:52	1	16 oz Poly Jar	N	Weight N/A
15	HTC-A04-S002-4248-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/16/2017	07:50	1	16 oz Poly Jar	N	Weight N/A
16	HTC-A06-S001-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/16/2017	14:28	1	16 oz Poly Jar	N	Weight N/A
17	HTC-A06-S001-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/16/2017	14:26	1	16 oz Poly Jar	N	Weight N/A
	HTC-A06-S001-1218-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/16/2017	14:24	1	16 oz Poly Jar	N	Weight N/A

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

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

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

0005

USEPA

DateShipped: 7/17/2017

CarrierName: FedEx

AirbillNo:

CHAIN OF CUSTODY RECORD

Case #: 445

Contact Name: Patrick Buster

Contact Phone: 903-348-3917

17-07089

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-A08-BKGD01-4248-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	16:20	1	16 oz Poly Jar	N	Weight N/A
	HTC-A08-BKGD02-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	15:56	1	16 oz Poly Jar	N	Weight N/A
	HTC-A08-BKGD02-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	15:53	1	16 oz Poly Jar	N	Weight N/A
	HTC-A08-BKGD02-1218-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	15:50	1	16 oz Poly Jar	N	Weight N/A
	HTC-A08-BKGD02-1824-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	15:47	1	16 oz Poly Jar	N	Weight N/A
	HTC-A08-BKGD02-2430-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	15:44	1	16 oz Poly Jar	N	Weight N/A
	HTC-A08-BKGD02-3036-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	15:41	1	16 oz Poly Jar	N	Weight N/A
	HTC-A08-BKGD02-3642-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	15:38	1	16 oz Poly Jar	N	Weight N/A
	HTC-A08-BKGD02-4248-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	15:35	1	16 oz Poly Jar	N	Weight N/A
	HTC-A08-S001-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/16/2017	15:01	1	16 oz Poly Jar	N	Weight N/A
181930	HTC-A08-S001-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/16/2017	14:58	1	16 oz Poly Jar	Y	Weight N/A
	HTC-A08-S001-0612-02	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/16/2017	14:58	1	16 oz Poly Jar	N	Weight N/A
	HTC-A08-S001-1218-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	14:55	1	16 oz Poly Jar	N	Weight N/A
	HTC-A08-S001-1824-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	14:52	1	16 oz Poly Jar	N	Weight N/A
	HTC-A08-S001-2430-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	14:49	1	16 oz Poly Jar	N	Weight N/A
	HTC-A08-S001-3036-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	14:46	1	16 oz Poly Jar	N	Weight N/A
	HTC-A08-S001-3642-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	14:43	1	16 oz Poly Jar	N	Weight N/A
	HTC-A08-S001-4248-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	14:40	1	16 oz Poly Jar	N	Weight N/A
JFB ~~181930~~	HTC-A09-S001-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/16/2017	12:50	1	16 oz Poly Jar	Y	Weight N/A
	HTC-A09-S001-0006-02	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/16/2017	12:50	1	16 oz Poly Jar	N	Weight N/A
	HTC-A09-S001-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/16/2017	12:48	1	16 oz Poly Jar	N	Weight N/A
	HTC-A09-S001-1218-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/16/2017	12:46	1	16 oz Poly Jar	N	Weight N/A

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 #	17-07089
		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	47	L1.5
	05	44	L1.5
	06	30	L1.5
	07	50	L1.5
	08	61	L1.5
	09	82	L1.5
	10	87	L1.5
	11	51	L1.5
	12	69	L1.5
Fraction 19 is MS of fraction 18. Fraction 20 is MSD of fraction 18.	13	110	L1.5
	14	50	L1.5
	15	67	L1.5
	16	67	L1.5
	17	76	L1.5
	18	42	L1.5
	19	39	L1.5
	20	39	L1.5

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1205	[illegible]	8-1-17
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1130	[illegible]	8-2-17
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 140	[illegible]	8/2/17 1130
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8/2/17 1130
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8-4-17 1130
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8-29-17 0845
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	[illegible]
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	[illegible]
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 #	17-07089
		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	47	L1.5
	05	44	L1.5
	06	30	L1.5
	07	50	L1.5
	08	61	L1.5
	09	82	L1.5
	10	87	L1.5
	11	51	L1.5
	12	69	L1.5
Fraction 19 is MS of fraction 18. Fraction 20 is MSD of fraction 18.	13	110	L1.5
	14	50	L1.5
	15	67	L1.5
	16	67	L1.5
	17	76	L1.5
	18	42	L1.5
	19	39	L1.5
	20	39	L1.5

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1200	Key Sai	8-1-17
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1130	Key Sai	8-2-17
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1400	[illegible]	8/2/17 1130
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8/2/17 1130
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8-14-17 1130
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8-30-17 0946
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	0946
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KB	8/30/17 1735
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 #	17-07089
		Lab Deadline	See Comments
		Analysis	Gamma - Level 4
		Sample Matrix	SO

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
Re-Analysis: 2Fractions 04-18 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	47	L1.5
	05	44	L1.5
	06	30	L1.5
	07	50	L1.5
	08	61	L1.5
	09	82	L1.5
	10	87	L1.5
	11	51	L1.5
	12	69	L1.5
~~Original Lab Deadline: 08/15/17~~ EyT 07/18/19	13	110	L1.5
~~Rerun Lab Deadline: 08/15/17 Fractions 04-18 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.~~	14	50	L1.5
	15	67	L1.5
	16	67	L1.5
	17	76	L1.5
	18	42	L1.5

	Location (circle one)					Technician Initials	
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1200	Kysaj	8-1-17
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1200	Kysaj	8-2-17
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KB 8/2/17	1200
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KB 8/23/17	1225
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	17-07089
Project Name	**Client WO**	**Sample Disp**	**Lab Deadline**	**Internal Deadline**	**Client Deadline**
94759	Case #445	H	08/10/2017	08/14/2017	08/15/2017

Internal ID	Client ID	Sample Date	Matrix	Storage	Gamma	ThISO	UUISO																					Ttl
01	LCS	07/19/17	SO	L1.5	X	X	X																					3
02	BLANK	07/19/17	SO	L1.5	X	X	X																					3
03	DUP	07/19/17	SO	L1.5	X	X	X																					3
04	HTC-A04-S001-2430-01	05/15/17 09:59	SO	L1.5	X	X	X																					3
05	HTC-A04-S001-3036-01	05/15/17 09:56	SO	L1.5	X	X	X																					3
06	HTC-A04-S001-3642-01	05/15/17 09:53	SO	L1.5	X	X	X																					3
07	HTC-A04-S001-4248-01	05/15/17 09:50	SO	L1.5	X	X	X																					3
08	HTC-A04-S002-0006-01	05/16/17 08:04	SO	L1.5	X	X	X																					3
09	HTC-A04-S002-0612-01	05/16/17 08:02	SO	L1.5	X	X	X																					3
10	HTC-A04-S002-1218-01	05/16/17 08:00	SO	L1.5	X	X	X																					3
11	HTC-A04-S002-1824-01	05/16/17 07:58	SO	L1.5	X	X	X																					3
12	HTC-A04-S002-2430-01	05/16/17 07:56	SO	L1.5	X	X	X																					3
13	HTC-A04-S002-3036-01	05/16/17 07:54	SO	L1.5	X	X	X																					3
14	HTC-A04-S002-3642-01	05/16/17 07:52	SO	L1.5	X	X	X																					3
15	HTC-A04-S002-4248-01	05/16/17 07:50	SO	L1.5	X	X	X																					3
16	HTC-A06-S001-0006-01	05/16/17 14:28	SO	L1.5	X	X	X																					3
17	HTC-A06-S001-0612-01	05/16/17 14:26	SO	L1.5	X	X	X																					3
18	HTC-A08-S001-0612-01	05/16/17 14:58	SO	L1.5	X	X	X																					3
19	HTC-A08-S001-0612-01 MS	05/16/17 14:58	SO	L1.5		X	X																					2
20	HTC-A08-S001-0612-01 MSD	05/16/17 14:58	SO	L1.5		X	X																					2
				Totals Per Analysis (non QA samples)	15	17	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

EBERLINE SERVICES

Sample Log In Report

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

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

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

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

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

0011

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Eberline Services – Oak Ridge Laboratory

SAMPLE RECEIPT CHECKLIST
MP-001-2

WORK ORDER # 17-07089

SAMPLE MATRIX/MATRICES: (CIRCLE ONE OR BOTH)

AQUEOUS NON-AQUEOUS

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

WERE SAMPLES:

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

WERE CHAIN OF CUSTODY SEALS:

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

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

REMARKS: _____

SIGNATURE: James E. Bailey DATE: 7-18-17

SECTION III

CASE NARRATIVE

EBERLINE SERVICES

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

EBS-OR-42689

September 22, 2017

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

CASE NARRATIVE
Work Order # 17-07089-OR

SAMPLE RECEIPT

This work order contains fifteen soil 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-A04-S001-2430-01	17-07089-04	HTC-A04-S002-3036-01	17-07089-13
HTC-A04-S001-3036-01	17-07089-05	HTC-A04-S002-3642-01	17-07089-14
HTC-A04-S001-3642-01	17-07089-06	HTC-A04-S002-4248-01	17-07089-15
HTC-A04-S001-4248-01	17-07089-07	HTC-A06-S001-0006-01	17-07089-16
HTC-A04-S002-0006-01	17-07089-08	HTC-A06-S001-0612-01	17-07089-17
HTC-A04-S002-0612-01	17-07089-09	HTC-A08-S001-0612-01	17-07089-18
HTC-A04-S002-1218-01	17-07089-10	HTC-A08-S001-0612-01 MS	17-07089-19
HTC-A04-S002-1824-01	17-07089-11	HTC-A08-S001-0612-01 MSD	17-07089-20
HTC-A04-S002-2430-01	17-07089-12		

ANALYTICAL METHODS

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

ANALYTICAL RESULTS

Combined Standard Uncertainty is reported at 2-sigma value.

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

SPECIAL CIRCUMSTANCES

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

ANALYTICAL RESULTS CONTINUED

ISOTOPIC URANIUM

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

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

ISOTOPIC THORIUM

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

Samples demonstrated acceptable results for all Thorium determinations. The Thorium-228, Thorium-230 and Thorium-232 method blank demonstrated acceptable results. Chemical recovery was acceptable for all samples. Results for the Thorium-228 duplicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Thorium-230 and Thorium-232 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. Results for the Actinium-228 replicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Radium-226 and Potassium-40 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: 9/22/2017

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:	**17-07089**
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											
17-07089-01	LCS	KNOWN	07/19/17 00:00	7/18/2017	8/23/2017	17-07089	Cobalt-60	EPA 901.1 Modified	1.35E+02	5.27E+00			pCi/g
17-07089-01	LCS	KNOWN	07/19/17 00:00	7/18/2017	8/23/2017	17-07089	Cesium-137	EPA 901.1 Modified	8.44E+01	3.38E+00			pCi/g
17-07089-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/23/2017	17-07089	Cobalt-60	EPA 901.1 Modified	1.28E+02	7.63E+00	1.01E+01	1.10E+00	pCi/g
17-07089-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/23/2017	17-07089	Cesium-137	EPA 901.1 Modified	8.27E+01	7.50E+00	8.62E+00	1.28E+00	pCi/g
17-07089-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/23/2017	17-07089	Actinium-228	EPA 901.1 Modified	6.41E-02	5.05E-02	5.06E-02	1.15E-01	pCi/g
17-07089-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/23/2017	17-07089	Bismuth-212	EPA 901.1 Modified	-1.05E-01	1.70E-01	1.70E-01	2.19E-01	pCi/g
17-07089-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/23/2017	17-07089	Cesium-137	EPA 901.1 Modified	6.59E-03	2.03E-02	2.03E-02	3.36E-02	pCi/g
17-07089-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/23/2017	17-07089	Potassium-40	EPA 901.1 Modified	-1.29E-01	2.59E-01	2.59E-01	2.76E-01	pCi/g
17-07089-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/23/2017	17-07089	Protactinium-234m	EPA 901.1 Modified	-1.88E-01	2.21E+00	2.21E+00	3.53E+00	pCi/g
17-07089-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/23/2017	17-07089	Lead-212	EPA 901.1 Modified	3.12E-02	3.20E-02	3.20E-02	4.87E-02	pCi/g
17-07089-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/23/2017	17-07089	Radium-224	EPA 901.1 Modified	5.62E-02	4.29E-01	4.29E-01	5.66E-01	pCi/g
17-07089-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/23/2017	17-07089	Radium-226	EPA 901.1 Modified	3.39E-02	4.34E-02	4.35E-02	7.64E-02	pCi/g
17-07089-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/23/2017	17-07089	Radium-228	EPA 901.1 Modified	6.41E-02	5.05E-02	5.06E-02	1.15E-01	pCi/g
17-07089-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/23/2017	17-07089	Thorium-234	EPA 901.1 Modified	3.63E-01	2.85E-01	2.86E-01	4.81E-01	pCi/g
17-07089-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/23/2017	17-07089	Thallium-208	EPA 901.1 Modified	1.55E-02	4.78E-02	4.78E-02	8.91E-02	pCi/g
17-07089-03	DUP	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/23/2017	17-07089	Actinium-228	EPA 901.1 Modified	1.07E+00	2.13E-01	2.20E-01	3.43E-01	pCi/g
17-07089-03	DUP	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/23/2017	17-07089	Bismuth-212	EPA 901.1 Modified	7.16E-01	4.51E-01	4.53E-01	7.15E-01	pCi/g
17-07089-03	DUP	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/23/2017	17-07089	Cesium-137	EPA 901.1 Modified	-1.43E-02	5.26E-02	5.26E-02	7.73E-02	pCi/g
17-07089-03	DUP	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/23/2017	17-07089	Potassium-40	EPA 901.1 Modified	2.78E+01	3.11E+00	3.42E+00	1.30E+00	pCi/g
17-07089-03	DUP	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/23/2017	17-07089	Protactinium-234m	EPA 901.1 Modified	2.55E+00	5.04E+00	5.04E+00	8.13E+00	pCi/g
17-07089-03	DUP	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/23/2017	17-07089	Lead-212	EPA 901.1 Modified	1.28E+00	1.39E-01	1.54E-01	2.05E-01	pCi/g
17-07089-03	DUP	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/23/2017	17-07089	Radium-224	EPA 901.1 Modified	2.41E+00	8.17E-01	8.26E-01	2.31E+00	pCi/g
17-07089-03	DUP	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/23/2017	17-07089	Radium-226	EPA 901.1 Modified	1.02E+00	1.54E-01	1.63E-01	2.17E-01	pCi/g
17-07089-03	DUP	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/23/2017	17-07089	Radium-228	EPA 901.1 Modified	1.07E+00	2.13E-01	2.20E-01	3.43E-01	pCi/g
17-07089-03	DUP	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/23/2017	17-07089	Thorium-234	EPA 901.1 Modified	1.31E+00	1.42E+00	1.42E+00	2.37E+00	pCi/g
17-07089-03	DUP	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/23/2017	17-07089	Thallium-208	EPA 901.1 Modified	1.18E+00	1.70E-01	1.81E-01	1.62E-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:	**17-07089**
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
17-07089-04	DO	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/23/2017	17-07089	Actinium-228	EPA 901.1 Modified	1.44E+00	2.27E-01	2.39E-01	4.01E-01	pCi/g
17-07089-04	DO	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/23/2017	17-07089	Bismuth-212	EPA 901.1 Modified	8.93E-01	4.00E-01	4.02E-01	1.42E+00	pCi/g
17-07089-04	DO	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/23/2017	17-07089	Cesium-137	EPA 901.1 Modified	-1.34E-02	5.68E-02	5.68E-02	8.33E-02	pCi/g
17-07089-04	DO	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/23/2017	17-07089	Potassium-40	EPA 901.1 Modified	3.01E+01	3.26E+00	3.60E+00	7.20E-01	pCi/g
17-07089-04	DO	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/23/2017	17-07089	Protactinium-234m	EPA 901.1 Modified	1.56E+00	5.09E+00	5.09E+00	8.13E+00	pCi/g
17-07089-04	DO	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/23/2017	17-07089	Lead-212	EPA 901.1 Modified	1.13E+00	1.30E-01	1.42E-01	2.09E-01	pCi/g
17-07089-04	DO	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/23/2017	17-07089	Radium-224	EPA 901.1 Modified	2.46E+00	8.13E-01	8.23E-01	2.35E+00	pCi/g
17-07089-04	DO	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/23/2017	17-07089	Radium-226	EPA 901.1 Modified	1.09E+00	1.59E-01	1.68E-01	1.92E-01	pCi/g
17-07089-04	DO	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/23/2017	17-07089	Radium-228	EPA 901.1 Modified	1.44E+00	2.27E-01	2.39E-01	4.01E-01	pCi/g
17-07089-04	DO	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/23/2017	17-07089	Thorium-234	EPA 901.1 Modified	1.17E+00	1.27E+00	1.27E+00	2.12E+00	pCi/g
17-07089-04	DO	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/23/2017	17-07089	Thallium-208	EPA 901.1 Modified	1.15E+00	1.68E-01	1.78E-01	1.02E-01	pCi/g
17-07089-05	TRG	HTC-A04-S001-3036-01	05/15/17 09:56	7/18/2017	8/23/2017	17-07089	Actinium-228	EPA 901.1 Modified	1.19E+00	2.43E-01	2.50E-01	3.69E-01	pCi/g
17-07089-05	TRG	HTC-A04-S001-3036-01	05/15/17 09:56	7/18/2017	8/23/2017	17-07089	Bismuth-212	EPA 901.1 Modified	9.12E-01	5.95E-01	5.97E-01	9.52E-01	pCi/g
17-07089-05	TRG	HTC-A04-S001-3036-01	05/15/17 09:56	7/18/2017	8/23/2017	17-07089	Cesium-137	EPA 901.1 Modified	-2.12E-03	6.36E-02	6.36E-02	9.52E-02	pCi/g
17-07089-05	TRG	HTC-A04-S001-3036-01	05/15/17 09:56	7/18/2017	8/23/2017	17-07089	Potassium-40	EPA 901.1 Modified	2.60E+01	2.83E+00	3.13E+00	6.75E-01	pCi/g
17-07089-05	TRG	HTC-A04-S001-3036-01	05/15/17 09:56	7/18/2017	8/23/2017	17-07089	Protactinium-234m	EPA 901.1 Modified	2.76E+00	6.53E+00	6.54E+00	1.05E+01	pCi/g
17-07089-05	TRG	HTC-A04-S001-3036-01	05/15/17 09:56	7/18/2017	8/23/2017	17-07089	Lead-212	EPA 901.1 Modified	1.32E+00	1.61E-01	1.74E-01	2.58E-01	pCi/g
17-07089-05	TRG	HTC-A04-S001-3036-01	05/15/17 09:56	7/18/2017	8/23/2017	17-07089	Radium-224	EPA 901.1 Modified	3.02E+00	1.39E+00	1.40E+00	2.92E+00	pCi/g
17-07089-05	TRG	HTC-A04-S001-3036-01	05/15/17 09:56	7/18/2017	8/23/2017	17-07089	Radium-226	EPA 901.1 Modified	9.95E-01	1.68E-01	1.76E-01	2.21E-01	pCi/g
17-07089-05	TRG	HTC-A04-S001-3036-01	05/15/17 09:56	7/18/2017	8/23/2017	17-07089	Radium-228	EPA 901.1 Modified	1.19E+00	2.43E-01	2.50E-01	3.69E-01	pCi/g
17-07089-05	TRG	HTC-A04-S001-3036-01	05/15/17 09:56	7/18/2017	8/23/2017	17-07089	Thorium-234	EPA 901.1 Modified	1.59E+00	1.64E+00	1.64E+00	2.75E+00	pCi/g
17-07089-05	TRG	HTC-A04-S001-3036-01	05/15/17 09:56	7/18/2017	8/23/2017	17-07089	Thallium-208	EPA 901.1 Modified	1.08E+00	1.68E-01	1.77E-01	1.75E-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:	**17-07089**
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
17-07089-06	TRG	HTC-A04-S001-3642-01	05/15/17 09:53	7/18/2017	8/23/2017	17-07089	Actinium-228	EPA 901.1 Modified	1.06E+00	3.12E-01	3.16E-01	5.08E-01	pCi/g
17-07089-06	TRG	HTC-A04-S001-3642-01	05/15/17 09:53	7/18/2017	8/23/2017	17-07089	Bismuth-212	EPA 901.1 Modified	7.47E-01	7.03E-01	7.04E-01	1.15E+00	pCi/g
17-07089-06	TRG	HTC-A04-S001-3642-01	05/15/17 09:53	7/18/2017	8/23/2017	17-07089	Cesium-137	EPA 901.1 Modified	-4.89E-03	9.42E-02	9.42E-02	1.30E-01	pCi/g
17-07089-06	TRG	HTC-A04-S001-3642-01	05/15/17 09:53	7/18/2017	8/23/2017	17-07089	Potassium-40	EPA 901.1 Modified	2.54E+01	3.06E+00	3.33E+00	8.57E-01	pCi/g
17-07089-06	TRG	HTC-A04-S001-3642-01	05/15/17 09:53	7/18/2017	8/23/2017	17-07089	Protactinium-234m	EPA 901.1 Modified	6.99E+00	8.43E+00	8.44E+00	1.55E+01	pCi/g
17-07089-06	TRG	HTC-A04-S001-3642-01	05/15/17 09:53	7/18/2017	8/23/2017	17-07089	Lead-212	EPA 901.1 Modified	1.50E+00	2.30E-01	2.43E-01	2.82E-01	pCi/g
17-07089-06	TRG	HTC-A04-S001-3642-01	05/15/17 09:53	7/18/2017	8/23/2017	17-07089	Radium-224	EPA 901.1 Modified	1.52E+01	2.07E+00	2.21E+00	3.16E+00	pCi/g
17-07089-06	TRG	HTC-A04-S001-3642-01	05/15/17 09:53	7/18/2017	8/23/2017	17-07089	Radium-226	EPA 901.1 Modified	9.97E-01	1.79E-01	1.86E-01	3.78E-01	pCi/g
17-07089-06	TRG	HTC-A04-S001-3642-01	05/15/17 09:53	7/18/2017	8/23/2017	17-07089	Radium-228	EPA 901.1 Modified	1.06E+00	3.12E-01	3.16E-01	5.08E-01	pCi/g
17-07089-06	TRG	HTC-A04-S001-3642-01	05/15/17 09:53	7/18/2017	8/23/2017	17-07089	Thorium-234	EPA 901.1 Modified	6.35E-01	1.31E+00	1.31E+00	1.92E+00	pCi/g
17-07089-06	TRG	HTC-A04-S001-3642-01	05/15/17 09:53	7/18/2017	8/23/2017	17-07089	Thallium-208	EPA 901.1 Modified	1.13E+00	2.58E-01	2.64E-01	2.73E-01	pCi/g
17-07089-07	TRG	HTC-A04-S001-4248-01	05/15/17 09:50	7/18/2017	8/23/2017	17-07089	Actinium-228	EPA 901.1 Modified	1.30E+00	1.83E-01	1.95E-01	3.98E-01	pCi/g
17-07089-07	TRG	HTC-A04-S001-4248-01	05/15/17 09:50	7/18/2017	8/23/2017	17-07089	Bismuth-212	EPA 901.1 Modified	8.42E-01	4.77E-01	4.79E-01	7.49E-01	pCi/g
17-07089-07	TRG	HTC-A04-S001-4248-01	05/15/17 09:50	7/18/2017	8/23/2017	17-07089	Cesium-137	EPA 901.1 Modified	-2.54E-02	4.98E-02	4.98E-02	7.08E-02	pCi/g
17-07089-07	TRG	HTC-A04-S001-4248-01	05/15/17 09:50	7/18/2017	8/23/2017	17-07089	Potassium-40	EPA 901.1 Modified	2.55E+01	2.64E+00	2.94E+00	1.48E+00	pCi/g
17-07089-07	TRG	HTC-A04-S001-4248-01	05/15/17 09:50	7/18/2017	8/23/2017	17-07089	Protactinium-234m	EPA 901.1 Modified	2.16E+00	4.76E+00	4.76E+00	7.66E+00	pCi/g
17-07089-07	TRG	HTC-A04-S001-4248-01	05/15/17 09:50	7/18/2017	8/23/2017	17-07089	Lead-212	EPA 901.1 Modified	1.21E+00	1.37E-01	1.50E-01	2.80E-01	pCi/g
17-07089-07	TRG	HTC-A04-S001-4248-01	05/15/17 09:50	7/18/2017	8/23/2017	17-07089	Radium-224	EPA 901.1 Modified	4.45E+00	1.56E+00	1.58E+00	3.24E+00	pCi/g
17-07089-07	TRG	HTC-A04-S001-4248-01	05/15/17 09:50	7/18/2017	8/23/2017	17-07089	Radium-226	EPA 901.1 Modified	1.08E+00	1.57E-01	1.66E-01	2.17E-01	pCi/g
17-07089-07	TRG	HTC-A04-S001-4248-01	05/15/17 09:50	7/18/2017	8/23/2017	17-07089	Radium-228	EPA 901.1 Modified	1.30E+00	1.83E-01	1.95E-01	3.98E-01	pCi/g
17-07089-07	TRG	HTC-A04-S001-4248-01	05/15/17 09:50	7/18/2017	8/23/2017	17-07089	Thorium-234	EPA 901.1 Modified	2.35E+00	1.13E+00	1.13E+00	1.55E+00	pCi/g
17-07089-07	TRG	HTC-A04-S001-4248-01	05/15/17 09:50	7/18/2017	8/23/2017	17-07089	Thallium-208	EPA 901.1 Modified	1.20E+00	1.78E-01	1.88E-01	1.94E-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:	**17-07089**
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
17-07089-08	TRG	HTC-A04-S002-0006-01	05/16/17 08:04	7/18/2017	8/23/2017	17-07089	Actinium-228	EPA 901.1 Modified	4.26E-01	5.45E-01	5.45E-01	8.25E-01	pCi/g
17-07089-08	TRG	HTC-A04-S002-0006-01	05/16/17 08:04	7/18/2017	8/23/2017	17-07089	Bismuth-212	EPA 901.1 Modified	2.51E-01	9.24E-01	9.24E-01	1.55E+00	pCi/g
17-07089-08	TRG	HTC-A04-S002-0006-01	05/16/17 08:04	7/18/2017	8/23/2017	17-07089	Cesium-137	EPA 901.1 Modified	-2.56E-01	1.75E-01	1.75E-01	2.32E-01	pCi/g
17-07089-08	TRG	HTC-A04-S002-0006-01	05/16/17 08:04	7/18/2017	8/23/2017	17-07089	Potassium-40	EPA 901.1 Modified	5.64E+00	2.41E+00	2.43E+00	3.81E+00	pCi/g
17-07089-08	TRG	HTC-A04-S002-0006-01	05/16/17 08:04	7/18/2017	8/23/2017	17-07089	Protactinium-234m	EPA 901.1 Modified	3.58E+01	1.79E+01	1.80E+01	2.87E+01	pCi/g
17-07089-08	TRG	HTC-A04-S002-0006-01	05/16/17 08:04	7/18/2017	8/23/2017	17-07089	Lead-212	EPA 901.1 Modified	4.81E-01	2.69E-01	2.70E-01	7.97E-01	pCi/g
17-07089-08	TRG	HTC-A04-S002-0006-01	05/16/17 08:04	7/18/2017	8/23/2017	17-07089	Radium-224	EPA 901.1 Modified	6.81E+01	6.87E+00	7.71E+00	7.02E+00	pCi/g
17-07089-08	TRG	HTC-A04-S002-0006-01	05/16/17 08:04	7/18/2017	8/23/2017	17-07089	Radium-226	EPA 901.1 Modified	3.65E+01	1.88E+00	2.65E+00	7.83E-01	pCi/g
17-07089-08	TRG	HTC-A04-S002-0006-01	05/16/17 08:04	7/18/2017	8/23/2017	17-07089	Radium-228	EPA 901.1 Modified	4.26E-01	5.45E-01	5.45E-01	8.25E-01	pCi/g
17-07089-08	TRG	HTC-A04-S002-0006-01	05/16/17 08:04	7/18/2017	8/23/2017	17-07089	Thorium-234	EPA 901.1 Modified	2.83E+01	3.99E+00	4.25E+00	5.49E+00	pCi/g
17-07089-08	TRG	HTC-A04-S002-0006-01	05/16/17 08:04	7/18/2017	8/23/2017	17-07089	Thallium-208	EPA 901.1 Modified	9.93E-01	4.37E-01	4.40E-01	3.49E-01	pCi/g
17-07089-09	TRG	HTC-A04-S002-0612-01	05/16/17 08:02	7/18/2017	8/23/2017	17-07089	Actinium-228	EPA 901.1 Modified	1.83E-01	7.24E-01	7.24E-01	9.77E-01	pCi/g
17-07089-09	TRG	HTC-A04-S002-0612-01	05/16/17 08:02	7/18/2017	8/23/2017	17-07089	Bismuth-212	EPA 901.1 Modified	-1.10E+00	1.46E+00	1.46E+00	1.87E+00	pCi/g
17-07089-09	TRG	HTC-A04-S002-0612-01	05/16/17 08:02	7/18/2017	8/23/2017	17-07089	Cesium-137	EPA 901.1 Modified	-1.13E-02	6.08E-02	6.08E-02	2.82E-01	pCi/g
17-07089-09	TRG	HTC-A04-S002-0612-01	05/16/17 08:02	7/18/2017	8/23/2017	17-07089	Potassium-40	EPA 901.1 Modified	3.72E+00	2.28E+00	2.28E+00	3.68E+00	pCi/g
17-07089-09	TRG	HTC-A04-S002-0612-01	05/16/17 08:02	7/18/2017	8/23/2017	17-07089	Protactinium-234m	EPA 901.1 Modified	2.25E+01	1.95E+01	1.96E+01	3.23E+01	pCi/g
17-07089-09	TRG	HTC-A04-S002-0612-01	05/16/17 08:02	7/18/2017	8/23/2017	17-07089	Lead-212	EPA 901.1 Modified	1.02E-01	1.28E-01	1.28E-01	5.48E-01	pCi/g
17-07089-09	TRG	HTC-A04-S002-0612-01	05/16/17 08:02	7/18/2017	8/23/2017	17-07089	Radium-224	EPA 901.1 Modified	5.82E+01	6.14E+00	6.83E+00	6.69E+00	pCi/g
17-07089-09	TRG	HTC-A04-S002-0612-01	05/16/17 08:02	7/18/2017	8/23/2017	17-07089	Radium-226	EPA 901.1 Modified	3.00E+01	1.80E+00	2.37E+00	6.11E-01	pCi/g
17-07089-09	TRG	HTC-A04-S002-0612-01	05/16/17 08:02	7/18/2017	8/23/2017	17-07089	Radium-228	EPA 901.1 Modified	1.83E-01	7.24E-01	7.24E-01	9.77E-01	pCi/g
17-07089-09	TRG	HTC-A04-S002-0612-01	05/16/17 08:02	7/18/2017	8/23/2017	17-07089	Thorium-234	EPA 901.1 Modified	1.74E+01	3.91E+00	4.01E+00	6.05E+00	pCi/g
17-07089-09	TRG	HTC-A04-S002-0612-01	05/16/17 08:02	7/18/2017	8/23/2017	17-07089	Thallium-208	EPA 901.1 Modified	5.87E-01	4.75E-01	4.76E-01	5.61E-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:	**17-07089**
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
17-07089-10	TRG	HTC-A04-S002-1218-01	05/16/17 08:00	7/18/2017	8/23/2017	17-07089	Actinium-228	EPA 901.1 Modified	2.40E-01	3.71E-01	3.71E-01	5.57E-01	pCi/g
17-07089-10	TRG	HTC-A04-S002-1218-01	05/16/17 08:00	7/18/2017	8/23/2017	17-07089	Bismuth-212	EPA 901.1 Modified	1.23E-01	6.86E-01	6.86E-01	1.12E+00	pCi/g
17-07089-10	TRG	HTC-A04-S002-1218-01	05/16/17 08:00	7/18/2017	8/23/2017	17-07089	Cesium-137	EPA 901.1 Modified	5.09E-02	4.31E-02	4.32E-02	1.74E-01	pCi/g
17-07089-10	TRG	HTC-A04-S002-1218-01	05/16/17 08:00	7/18/2017	8/23/2017	17-07089	Potassium-40	EPA 901.1 Modified	4.36E+00	1.40E+00	1.42E+00	2.11E+00	pCi/g
17-07089-10	TRG	HTC-A04-S002-1218-01	05/16/17 08:00	7/18/2017	8/23/2017	17-07089	Protactinium-234m	EPA 901.1 Modified	4.76E+01	1.50E+01	1.52E+01	2.30E+01	pCi/g
17-07089-10	TRG	HTC-A04-S002-1218-01	05/16/17 08:00	7/18/2017	8/23/2017	17-07089	Lead-212	EPA 901.1 Modified	4.38E-01	1.94E-01	1.95E-01	6.72E-01	pCi/g
17-07089-10	TRG	HTC-A04-S002-1218-01	05/16/17 08:00	7/18/2017	8/23/2017	17-07089	Radium-224	EPA 901.1 Modified	6.48E+01	5.83E+00	6.71E+00	7.63E+00	pCi/g
17-07089-10	TRG	HTC-A04-S002-1218-01	05/16/17 08:00	7/18/2017	8/23/2017	17-07089	Radium-226	EPA 901.1 Modified	3.29E+01	1.64E+00	2.36E+00	6.24E-01	pCi/g
17-07089-10	TRG	HTC-A04-S002-1218-01	05/16/17 08:00	7/18/2017	8/23/2017	17-07089	Radium-228	EPA 901.1 Modified	2.40E-01	3.71E-01	3.71E-01	5.57E-01	pCi/g
17-07089-10	TRG	HTC-A04-S002-1218-01	05/16/17 08:00	7/18/2017	8/23/2017	17-07089	Thorium-234	EPA 901.1 Modified	2.67E+01	3.63E+00	3.88E+00	4.58E+00	pCi/g
17-07089-10	TRG	HTC-A04-S002-1218-01	05/16/17 08:00	7/18/2017	8/23/2017	17-07089	Thallium-208	EPA 901.1 Modified	3.58E-01	1.14E-01	1.15E-01	8.97E-02	pCi/g
17-07089-11	TRG	HTC-A04-S002-1824-01	05/16/17 07:58	7/18/2017	8/23/2017	17-07089	Actinium-228	EPA 901.1 Modified	6.70E-01	3.30E-01	3.32E-01	7.16E-01	pCi/g
17-07089-11	TRG	HTC-A04-S002-1824-01	05/16/17 07:58	7/18/2017	8/23/2017	17-07089	Bismuth-212	EPA 901.1 Modified	7.62E-01	8.17E-01	8.18E-01	1.36E+00	pCi/g
17-07089-11	TRG	HTC-A04-S002-1824-01	05/16/17 07:58	7/18/2017	8/23/2017	17-07089	Cesium-137	EPA 901.1 Modified	2.08E-02	4.04E-02	4.04E-02	1.54E-01	pCi/g
17-07089-11	TRG	HTC-A04-S002-1824-01	05/16/17 07:58	7/18/2017	8/23/2017	17-07089	Potassium-40	EPA 901.1 Modified	6.59E+00	1.64E+00	1.68E+00	2.31E+00	pCi/g
17-07089-11	TRG	HTC-A04-S002-1824-01	05/16/17 07:58	7/18/2017	8/23/2017	17-07089	Protactinium-234m	EPA 901.1 Modified	3.71E+01	1.29E+01	1.30E+01	1.97E+01	pCi/g
17-07089-11	TRG	HTC-A04-S002-1824-01	05/16/17 07:58	7/18/2017	8/23/2017	17-07089	Lead-212	EPA 901.1 Modified	3.50E-01	1.03E-01	1.04E-01	4.47E-01	pCi/g
17-07089-11	TRG	HTC-A04-S002-1824-01	05/16/17 07:58	7/18/2017	8/23/2017	17-07089	Radium-224	EPA 901.1 Modified	5.20E+01	4.89E+00	5.57E+00	5.16E+00	pCi/g
17-07089-11	TRG	HTC-A04-S002-1824-01	05/16/17 07:58	7/18/2017	8/23/2017	17-07089	Radium-226	EPA 901.1 Modified	2.66E+01	1.33E+00	1.91E+00	3.87E-01	pCi/g
17-07089-11	TRG	HTC-A04-S002-1824-01	05/16/17 07:58	7/18/2017	8/23/2017	17-07089	Radium-228	EPA 901.1 Modified	6.70E-01	3.30E-01	3.32E-01	7.16E-01	pCi/g
17-07089-11	TRG	HTC-A04-S002-1824-01	05/16/17 07:58	7/18/2017	8/23/2017	17-07089	Thorium-234	EPA 901.1 Modified	1.67E+01	3.41E+00	3.52E+00	5.20E+00	pCi/g
17-07089-11	TRG	HTC-A04-S002-1824-01	05/16/17 07:58	7/18/2017	8/23/2017	17-07089	Thallium-208	EPA 901.1 Modified	4.90E-01	1.18E-01	1.20E-01	8.71E-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

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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:	**17-07089**
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
17-07089-12	TRG	HTC-A04-S002-2430-01	05/16/17 07:56	7/18/2017	8/23/2017	17-07089	Actinium-228	EPA 901.1 Modified	6.70E-02	2.19E-01	2.19E-01	7.83E-01	pCi/g
17-07089-12	TRG	HTC-A04-S002-2430-01	05/16/17 07:56	7/18/2017	8/23/2017	17-07089	Bismuth-212	EPA 901.1 Modified	-3.32E-01	9.11E-01	9.11E-01	1.48E+00	pCi/g
17-07089-12	TRG	HTC-A04-S002-2430-01	05/16/17 07:56	7/18/2017	8/23/2017	17-07089	Cesium-137	EPA 901.1 Modified	-1.61E-01	1.71E-01	1.71E-01	2.36E-01	pCi/g
17-07089-12	TRG	HTC-A04-S002-2430-01	05/16/17 07:56	7/18/2017	8/23/2017	17-07089	Potassium-40	EPA 901.1 Modified	5.69E+00	2.25E+00	2.27E+00	3.52E+00	pCi/g
17-07089-12	TRG	HTC-A04-S002-2430-01	05/16/17 07:56	7/18/2017	8/23/2017	17-07089	Protactinium-234m	EPA 901.1 Modified	3.49E+01	1.67E+01	1.68E+01	3.43E+01	pCi/g
17-07089-12	TRG	HTC-A04-S002-2430-01	05/16/17 07:56	7/18/2017	8/23/2017	17-07089	Lead-212	EPA 901.1 Modified	4.60E-01	2.66E-01	2.67E-01	8.34E-01	pCi/g
17-07089-12	TRG	HTC-A04-S002-2430-01	05/16/17 07:56	7/18/2017	8/23/2017	17-07089	Radium-224	EPA 901.1 Modified	6.58E+01	6.68E+00	7.48E+00	6.88E+00	pCi/g
17-07089-12	TRG	HTC-A04-S002-2430-01	05/16/17 07:56	7/18/2017	8/23/2017	17-07089	Radium-226	EPA 901.1 Modified	3.56E+01	1.84E+00	2.59E+00	5.91E-01	pCi/g
17-07089-12	TRG	HTC-A04-S002-2430-01	05/16/17 07:56	7/18/2017	8/23/2017	17-07089	Radium-228	EPA 901.1 Modified	6.70E-02	2.19E-01	2.19E-01	7.83E-01	pCi/g
17-07089-12	TRG	HTC-A04-S002-2430-01	05/16/17 07:56	7/18/2017	8/23/2017	17-07089	Thorium-234	EPA 901.1 Modified	3.22E+01	4.10E+00	4.42E+00	5.36E+00	pCi/g
17-07089-12	TRG	HTC-A04-S002-2430-01	05/16/17 07:56	7/18/2017	8/23/2017	17-07089	Thallium-208	EPA 901.1 Modified	1.34E-01	4.30E-01	4.30E-01	3.18E-01	pCi/g
17-07089-13	TRG	HTC-A04-S002-3036-01	05/16/17 07:54	7/18/2017	8/23/2017	17-07089	Actinium-228	EPA 901.1 Modified	6.01E-01	7.62E-01	7.63E-01	1.07E+00	pCi/g
17-07089-13	TRG	HTC-A04-S002-3036-01	05/16/17 07:54	7/18/2017	8/23/2017	17-07089	Bismuth-212	EPA 901.1 Modified	2.77E-01	1.55E+00	1.55E+00	2.10E+00	pCi/g
17-07089-13	TRG	HTC-A04-S002-3036-01	05/16/17 07:54	7/18/2017	8/23/2017	17-07089	Cesium-137	EPA 901.1 Modified	3.05E-01	2.24E-01	2.25E-01	3.16E-01	pCi/g
17-07089-13	TRG	HTC-A04-S002-3036-01	05/16/17 07:54	7/18/2017	8/23/2017	17-07089	Potassium-40	EPA 901.1 Modified	7.41E+00	3.26E+00	3.28E+00	5.16E+00	pCi/g
17-07089-13	TRG	HTC-A04-S002-3036-01	05/16/17 07:54	7/18/2017	8/23/2017	17-07089	Protactinium-234m	EPA 901.1 Modified	4.95E+01	2.68E+01	2.69E+01	4.33E+01	pCi/g
17-07089-13	TRG	HTC-A04-S002-3036-01	05/16/17 07:54	7/18/2017	8/23/2017	17-07089	Lead-212	EPA 901.1 Modified	1.37E+00	4.04E-01	4.10E-01	5.84E-01	pCi/g
17-07089-13	TRG	HTC-A04-S002-3036-01	05/16/17 07:54	7/18/2017	8/23/2017	17-07089	Radium-224	EPA 901.1 Modified	6.40E+01	7.60E+00	8.28E+00	8.50E+00	pCi/g
17-07089-13	TRG	HTC-A04-S002-3036-01	05/16/17 07:54	7/18/2017	8/23/2017	17-07089	Radium-226	EPA 901.1 Modified	3.31E+01	1.98E+00	2.61E+00	7.88E-01	pCi/g
17-07089-13	TRG	HTC-A04-S002-3036-01	05/16/17 07:54	7/18/2017	8/23/2017	17-07089	Radium-228	EPA 901.1 Modified	6.01E-01	7.62E-01	7.63E-01	1.07E+00	pCi/g
17-07089-13	TRG	HTC-A04-S002-3036-01	05/16/17 07:54	7/18/2017	8/23/2017	17-07089	Thorium-234	EPA 901.1 Modified	2.48E+01	4.33E+00	4.51E+00	6.35E+00	pCi/g
17-07089-13	TRG	HTC-A04-S002-3036-01	05/16/17 07:54	7/18/2017	8/23/2017	17-07089	Thallium-208	EPA 901.1 Modified	5.03E-01	5.08E-01	5.09E-01	5.98E-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:	**17-07089**
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
17-07089-14	TRG	HTC-A04-S002-3642-01	05/16/17 07:52	7/18/2017	8/23/2017	17-07089	Actinium-228	EPA 901.1 Modified	3.48E-01	2.71E-01	2.71E-01	4.57E-01	pCi/g
17-07089-14	TRG	HTC-A04-S002-3642-01	05/16/17 07:52	7/18/2017	8/23/2017	17-07089	Bismuth-212	EPA 901.1 Modified	2.20E-01	6.10E-01	6.10E-01	9.11E-01	pCi/g
17-07089-14	TRG	HTC-A04-S002-3642-01	05/16/17 07:52	7/18/2017	8/23/2017	17-07089	Cesium-137	EPA 901.1 Modified	-1.47E-01	1.04E-01	1.04E-01	1.39E-01	pCi/g
17-07089-14	TRG	HTC-A04-S002-3642-01	05/16/17 07:52	7/18/2017	8/23/2017	17-07089	Potassium-40	EPA 901.1 Modified	6.43E+00	1.57E+00	1.61E+00	2.27E+00	pCi/g
17-07089-14	TRG	HTC-A04-S002-3642-01	05/16/17 07:52	7/18/2017	8/23/2017	17-07089	Protactinium-234m	EPA 901.1 Modified	2.04E+01	1.19E+01	1.19E+01	1.92E+01	pCi/g
17-07089-14	TRG	HTC-A04-S002-3642-01	05/16/17 07:52	7/18/2017	8/23/2017	17-07089	Lead-212	EPA 901.1 Modified	4.36E-01	9.26E-02	9.53E-02	3.24E-01	pCi/g
17-07089-14	TRG	HTC-A04-S002-3642-01	05/16/17 07:52	7/18/2017	8/23/2017	17-07089	Radium-224	EPA 901.1 Modified	4.01E+01	3.87E+00	4.39E+00	3.95E+00	pCi/g
17-07089-14	TRG	HTC-A04-S002-3642-01	05/16/17 07:52	7/18/2017	8/23/2017	17-07089	Radium-226	EPA 901.1 Modified	2.24E+01	1.18E+00	1.65E+00	4.77E-01	pCi/g
17-07089-14	TRG	HTC-A04-S002-3642-01	05/16/17 07:52	7/18/2017	8/23/2017	17-07089	Radium-228	EPA 901.1 Modified	3.48E-01	2.71E-01	2.71E-01	4.57E-01	pCi/g
17-07089-14	TRG	HTC-A04-S002-3642-01	05/16/17 07:52	7/18/2017	8/23/2017	17-07089	Thorium-234	EPA 901.1 Modified	1.47E+01	2.67E+00	2.78E+00	3.85E+00	pCi/g
17-07089-14	TRG	HTC-A04-S002-3642-01	05/16/17 07:52	7/18/2017	8/23/2017	17-07089	Thallium-208	EPA 901.1 Modified	5.41E-01	1.33E-01	1.36E-01	1.17E-01	pCi/g
17-07089-15	TRG	HTC-A04-S002-4248-01	05/16/17 07:50	7/18/2017	8/23/2017	17-07089	Actinium-228	EPA 901.1 Modified	7.73E-01	3.04E-01	3.06E-01	6.77E-01	pCi/g
17-07089-15	TRG	HTC-A04-S002-4248-01	05/16/17 07:50	7/18/2017	8/23/2017	17-07089	Bismuth-212	EPA 901.1 Modified	7.26E-01	6.47E-01	6.48E-01	1.07E+00	pCi/g
17-07089-15	TRG	HTC-A04-S002-4248-01	05/16/17 07:50	7/18/2017	8/23/2017	17-07089	Cesium-137	EPA 901.1 Modified	-1.41E-02	3.70E-02	3.70E-02	1.37E-01	pCi/g
17-07089-15	TRG	HTC-A04-S002-4248-01	05/16/17 07:50	7/18/2017	8/23/2017	17-07089	Potassium-40	EPA 901.1 Modified	1.23E+01	1.73E+00	1.84E+00	2.58E+00	pCi/g
17-07089-15	TRG	HTC-A04-S002-4248-01	05/16/17 07:50	7/18/2017	8/23/2017	17-07089	Protactinium-234m	EPA 901.1 Modified	1.89E+01	1.09E+01	1.09E+01	2.15E+01	pCi/g
17-07089-15	TRG	HTC-A04-S002-4248-01	05/16/17 07:50	7/18/2017	8/23/2017	17-07089	Lead-212	EPA 901.1 Modified	5.34E-01	1.06E-01	1.10E-01	3.72E-01	pCi/g
17-07089-15	TRG	HTC-A04-S002-4248-01	05/16/17 07:50	7/18/2017	8/23/2017	17-07089	Radium-224	EPA 901.1 Modified	3.75E+01	3.89E+00	4.34E+00	4.71E+00	pCi/g
17-07089-15	TRG	HTC-A04-S002-4248-01	05/16/17 07:50	7/18/2017	8/23/2017	17-07089	Radium-226	EPA 901.1 Modified	1.77E+01	9.85E-01	1.34E+00	4.66E-01	pCi/g
17-07089-15	TRG	HTC-A04-S002-4248-01	05/16/17 07:50	7/18/2017	8/23/2017	17-07089	Radium-228	EPA 901.1 Modified	7.73E-01	3.04E-01	3.06E-01	6.77E-01	pCi/g
17-07089-15	TRG	HTC-A04-S002-4248-01	05/16/17 07:50	7/18/2017	8/23/2017	17-07089	Thorium-234	EPA 901.1 Modified	1.27E+01	3.30E+00	3.36E+00	5.18E+00	pCi/g
17-07089-15	TRG	HTC-A04-S002-4248-01	05/16/17 07:50	7/18/2017	8/23/2017	17-07089	Thallium-208	EPA 901.1 Modified	5.00E-01	1.54E-01	1.56E-01	1.93E-01	pCi/g

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

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Final Report of Analysis

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

Work Order Details:

SDG:	**17-07089**
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
17-07089-16	TRG	HTC-A06-S001-0006-01	05/16/17 14:28	7/18/2017	8/23/2017	17-07089	Actinium-228	EPA 901.1 Modified	4.60E-01	5.66E-01	5.66E-01	8.47E-01	pCi/g
17-07089-16	TRG	HTC-A06-S001-0006-01	05/16/17 14:28	7/18/2017	8/23/2017	17-07089	Bismuth-212	EPA 901.1 Modified	1.23E+00	1.15E+00	1.15E+00	1.74E+00	pCi/g
17-07089-16	TRG	HTC-A06-S001-0006-01	05/16/17 14:28	7/18/2017	8/23/2017	17-07089	Cesium-137	EPA 901.1 Modified	-5.38E-03	7.89E-02	7.89E-02	2.43E-01	pCi/g
17-07089-16	TRG	HTC-A06-S001-0006-01	05/16/17 14:28	7/18/2017	8/23/2017	17-07089	Potassium-40	EPA 901.1 Modified	3.87E+00	1.74E+00	1.75E+00	2.72E+00	pCi/g
17-07089-16	TRG	HTC-A06-S001-0006-01	05/16/17 14:28	7/18/2017	8/23/2017	17-07089	Protactinium-234m	EPA 901.1 Modified	2.83E+01	2.16E+01	2.17E+01	3.57E+01	pCi/g
17-07089-16	TRG	HTC-A06-S001-0006-01	05/16/17 14:28	7/18/2017	8/23/2017	17-07089	Lead-212	EPA 901.1 Modified	7.84E-01	2.94E-01	2.97E-01	1.02E+00	pCi/g
17-07089-16	TRG	HTC-A06-S001-0006-01	05/16/17 14:28	7/18/2017	8/23/2017	17-07089	Radium-224	EPA 901.1 Modified	8.30E+01	8.04E+00	9.10E+00	7.61E+00	pCi/g
17-07089-16	TRG	HTC-A06-S001-0006-01	05/16/17 14:28	7/18/2017	8/23/2017	17-07089	Radium-226	EPA 901.1 Modified	4.26E+01	2.16E+00	3.08E+00	7.52E-01	pCi/g
17-07089-16	TRG	HTC-A06-S001-0006-01	05/16/17 14:28	7/18/2017	8/23/2017	17-07089	Radium-228	EPA 901.1 Modified	4.60E-01	5.66E-01	5.66E-01	8.47E-01	pCi/g
17-07089-16	TRG	HTC-A06-S001-0006-01	05/16/17 14:28	7/18/2017	8/23/2017	17-07089	Thorium-234	EPA 901.1 Modified	2.94E+01	4.27E+00	4.52E+00	5.95E+00	pCi/g
17-07089-16	TRG	HTC-A06-S001-0006-01	05/16/17 14:28	7/18/2017	8/23/2017	17-07089	Thallium-208	EPA 901.1 Modified	9.07E-01	4.68E-01	4.70E-01	4.43E-01	pCi/g
17-07089-17	TRG	HTC-A06-S001-0612-01	05/16/17 14:26	7/18/2017	8/23/2017	17-07089	Actinium-228	EPA 901.1 Modified	8.31E-01	9.55E-01	9.56E-01	1.34E+00	pCi/g
17-07089-17	TRG	HTC-A06-S001-0612-01	05/16/17 14:26	7/18/2017	8/23/2017	17-07089	Bismuth-212	EPA 901.1 Modified	-4.79E-01	1.66E+00	1.66E+00	2.39E+00	pCi/g
17-07089-17	TRG	HTC-A06-S001-0612-01	05/16/17 14:26	7/18/2017	8/23/2017	17-07089	Cesium-137	EPA 901.1 Modified	1.70E-02	1.27E-01	1.27E-01	3.59E-01	pCi/g
17-07089-17	TRG	HTC-A06-S001-0612-01	05/16/17 14:26	7/18/2017	8/23/2017	17-07089	Potassium-40	EPA 901.1 Modified	6.21E+00	2.73E+00	2.75E+00	4.25E+00	pCi/g
17-07089-17	TRG	HTC-A06-S001-0612-01	05/16/17 14:26	7/18/2017	8/23/2017	17-07089	Protactinium-234m	EPA 901.1 Modified	2.59E+01	2.51E+01	2.51E+01	4.16E+01	pCi/g
17-07089-17	TRG	HTC-A06-S001-0612-01	05/16/17 14:26	7/18/2017	8/23/2017	17-07089	Lead-212	EPA 901.1 Modified	1.02E+00	3.73E-01	3.77E-01	1.02E+00	pCi/g
17-07089-17	TRG	HTC-A06-S001-0612-01	05/16/17 14:26	7/18/2017	8/23/2017	17-07089	Radium-224	EPA 901.1 Modified	7.31E+01	7.67E+00	8.54E+00	8.33E+00	pCi/g
17-07089-17	TRG	HTC-A06-S001-0612-01	05/16/17 14:26	7/18/2017	8/23/2017	17-07089	Radium-226	EPA 901.1 Modified	3.83E+01	2.29E+00	3.02E+00	9.60E-01	pCi/g
17-07089-17	TRG	HTC-A06-S001-0612-01	05/16/17 14:26	7/18/2017	8/23/2017	17-07089	Radium-228	EPA 901.1 Modified	8.31E-01	9.55E-01	9.56E-01	1.34E+00	pCi/g
17-07089-17	TRG	HTC-A06-S001-0612-01	05/16/17 14:26	7/18/2017	8/23/2017	17-07089	Thorium-234	EPA 901.1 Modified	2.90E+01	5.07E+00	5.29E+00	7.44E+00	pCi/g
17-07089-17	TRG	HTC-A06-S001-0612-01	05/16/17 14:26	7/18/2017	8/23/2017	17-07089	Thallium-208	EPA 901.1 Modified	6.48E-01	5.86E-01	5.87E-01	7.45E-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
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1090 King Georges Post Rd Suite 201
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Work Order Details:

SDG:	**17-07089**
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
17-07089-18	TRG	HTC-A08-S001-0612-01	05/16/17 14:58	7/18/2017	8/23/2017	17-07089	Actinium-228	EPA 901.1 Modified	1.27E+00	2.15E-01	2.25E-01	3.45E-01	pCi/g
17-07089-18	TRG	HTC-A08-S001-0612-01	05/16/17 14:58	7/18/2017	8/23/2017	17-07089	Bismuth-212	EPA 901.1 Modified	1.00E+00	3.94E-01	3.98E-01	1.15E+00	pCi/g
17-07089-18	TRG	HTC-A08-S001-0612-01	05/16/17 14:58	7/18/2017	8/23/2017	17-07089	Cesium-137	EPA 901.1 Modified	1.16E-01	7.78E-02	7.80E-02	1.25E-01	pCi/g
17-07089-18	TRG	HTC-A08-S001-0612-01	05/16/17 14:58	7/18/2017	8/23/2017	17-07089	Potassium-40	EPA 901.1 Modified	2.36E+01	2.53E+00	2.80E+00	1.25E+00	pCi/g
17-07089-18	TRG	HTC-A08-S001-0612-01	05/16/17 14:58	7/18/2017	8/23/2017	17-07089	Protactinium-234m	EPA 901.1 Modified	1.02E+01	5.25E+00	5.28E+00	9.62E+00	pCi/g
17-07089-18	TRG	HTC-A08-S001-0612-01	05/16/17 14:58	7/18/2017	8/23/2017	17-07089	Lead-212	EPA 901.1 Modified	1.49E+00	1.61E-01	1.78E-01	3.11E-01	pCi/g
17-07089-18	TRG	HTC-A08-S001-0612-01	05/16/17 14:58	7/18/2017	8/23/2017	17-07089	Radium-224	EPA 901.1 Modified	5.44E+00	1.52E+00	1.54E+00	3.54E+00	pCi/g
17-07089-18	TRG	HTC-A08-S001-0612-01	05/16/17 14:58	7/18/2017	8/23/2017	17-07089	Radium-226	EPA 901.1 Modified	1.14E+00	1.56E-01	1.67E-01	2.03E-01	pCi/g
17-07089-18	TRG	HTC-A08-S001-0612-01	05/16/17 14:58	7/18/2017	8/23/2017	17-07089	Radium-228	EPA 901.1 Modified	1.27E+00	2.15E-01	2.25E-01	3.45E-01	pCi/g
17-07089-18	TRG	HTC-A08-S001-0612-01	05/16/17 14:58	7/18/2017	8/23/2017	17-07089	Thorium-234	EPA 901.1 Modified	1.58E+00	1.26E+00	1.26E+00	1.70E+00	pCi/g
17-07089-18	TRG	HTC-A08-S001-0612-01	05/16/17 14:58	7/18/2017	8/23/2017	17-07089	Thallium-208	EPA 901.1 Modified	1.21E+00	1.88E-01	1.98E-01	2.58E-01	pCi/g
17-07089-01	LCS	KNOWN	07/19/17 00:00	7/18/2017	8/30/2017	17-07089	Thorium-228	EPA 907.0 Modified	4.87E+00	1.75E-01			pCi/g
17-07089-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/30/2017	17-07089	Thorium-228	EPA 907.0 Modified	5.96E+00	9.28E-01	1.08E+00	5.90E-02	pCi/g
17-07089-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/30/2017	17-07089	Thorium-228	EPA 907.0 Modified	3.69E-02	5.66E-02	5.67E-02	9.58E-02	pCi/g
17-07089-03	DUP	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/30/2017	17-07089	Thorium-228	EPA 907.0 Modified	7.50E-01	2.46E-01	2.56E-01	1.08E-01	pCi/g
17-07089-04	DO	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/30/2017	17-07089	Thorium-228	EPA 907.0 Modified	8.02E-01	2.36E-01	2.48E-01	8.15E-02	pCi/g
17-07089-05	TRG	HTC-A04-S001-3036-01	05/15/17 09:56	7/18/2017	8/30/2017	17-07089	Thorium-228	EPA 907.0 Modified	1.33E+00	3.55E-01	3.76E-01	8.33E-02	pCi/g
17-07089-06	TRG	HTC-A04-S001-3642-01	05/15/17 09:53	7/18/2017	8/30/2017	17-07089	Thorium-228	EPA 907.0 Modified	1.12E+00	3.56E-01	3.71E-01	1.10E-01	pCi/g
17-07089-07	TRG	HTC-A04-S001-4248-01	05/15/17 09:50	7/18/2017	8/30/2017	17-07089	Thorium-228	EPA 907.0 Modified	1.27E+00	4.88E-01	5.03E-01	2.64E-01	pCi/g
17-07089-08	TRG	HTC-A04-S002-0006-01	05/16/17 08:04	7/18/2017	8/30/2017	17-07089	Thorium-228	EPA 907.0 Modified	4.42E-01	1.74E-01	1.79E-01	9.16E-02	pCi/g
17-07089-09	TRG	HTC-A04-S002-0612-01	05/16/17 08:02	7/18/2017	8/30/2017	17-07089	Thorium-228	EPA 907.0 Modified	4.86E-01	2.24E-01	2.29E-01	1.26E-01	pCi/g
17-07089-10	TRG	HTC-A04-S002-1218-01	05/16/17 08:00	7/18/2017	8/30/2017	17-07089	Thorium-228	EPA 907.0 Modified	6.86E-01	2.63E-01	2.70E-01	1.62E-01	pCi/g
17-07089-11	TRG	HTC-A04-S002-1824-01	05/16/17 07:58	7/18/2017	8/30/2017	17-07089	Thorium-228	EPA 907.0 Modified	6.60E-01	2.49E-01	2.57E-01	1.12E-01	pCi/g
17-07089-12	TRG	HTC-A04-S002-2430-01	05/16/17 07:56	7/18/2017	8/30/2017	17-07089	Thorium-228	EPA 907.0 Modified	3.67E-01	2.00E-01	2.03E-01	1.71E-01	pCi/g
17-07089-13	TRG	HTC-A04-S002-3036-01	05/16/17 07:54	7/18/2017	8/30/2017	17-07089	Thorium-228	EPA 907.0 Modified	6.63E-01	2.92E-01	2.99E-01	1.31E-01	pCi/g
17-07089-14	TRG	HTC-A04-S002-3642-01	05/16/17 07:52	7/18/2017	8/30/2017	17-07089	Thorium-228	EPA 907.0 Modified	6.66E-01	2.80E-01	2.87E-01	1.54E-01	pCi/g
17-07089-15	TRG	HTC-A04-S002-4248-01	05/16/17 07:50	7/18/2017	8/30/2017	17-07089	Thorium-228	EPA 907.0 Modified	6.78E-01	2.87E-01	2.94E-01	1.63E-01	pCi/g
17-07089-16	TRG	HTC-A06-S001-0006-01	05/16/17 14:28	7/18/2017	8/30/2017	17-07089	Thorium-228	EPA 907.0 Modified	7.51E-01	3.32E-01	3.40E-01	1.69E-01	pCi/g
17-07089-17	TRG	HTC-A06-S001-0612-01	05/16/17 14:26	7/18/2017	8/30/2017	17-07089	Thorium-228	EPA 907.0 Modified	6.16E-01	2.56E-01	2.63E-01	1.19E-01	pCi/g
17-07089-18	MSO	HTC-A08-S001-0612-01	05/16/17 14:58	7/18/2017	8/30/2017	17-07089	Thorium-228	EPA 907.0 Modified	6.79E-01	2.54E-01	2.62E-01	1.16E-01	pCi/g
17-07089-19	MS	HTC-A08-S001-0612-01 MS	05/16/17 14:58	7/18/2017	8/30/2017	17-07089	Thorium-228	EPA 907.0 Modified	8.84E+00	1.79E+00	1.97E+00	1.59E-01	pCi/g
17-07089-20	MSD	HTC-A08-S001-0612-01 MSD	05/16/17 14:58	7/18/2017	8/30/2017	17-07089	Thorium-228	EPA 907.0 Modified	9.14E+00	1.81E+00	2.00E+00	1.18E-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:	**17-07089**
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
17-07089-01	LCS	KNOWN	07/19/17 00:00	7/18/2017	8/30/2017	17-07089	Thorium-230	EPA 907.0 Modified	5.42E+00	1.46E-01			pCi/g
17-07089-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/30/2017	17-07089	Thorium-230	EPA 907.0 Modified	6.44E+00	9.89E-01	1.27E+00	7.98E-02	pCi/g
17-07089-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/30/2017	17-07089	Thorium-230	EPA 907.0 Modified	1.44E-01	9.43E-02	9.60E-02	7.89E-02	pCi/g
17-07089-03	DUP	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/30/2017	17-07089	Thorium-230	EPA 907.0 Modified	4.59E-01	1.76E-01	1.85E-01	9.36E-02	pCi/g
17-07089-04	DO	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/30/2017	17-07089	Thorium-230	EPA 907.0 Modified	6.33E-01	1.95E-01	2.10E-01	6.57E-02	pCi/g
17-07089-05	TRG	HTC-A04-S001-3036-01	05/15/17 09:56	7/18/2017	8/30/2017	17-07089	Thorium-230	EPA 907.0 Modified	9.57E-01	2.74E-01	2.98E-01	7.97E-02	pCi/g
17-07089-06	TRG	HTC-A04-S001-3642-01	05/15/17 09:53	7/18/2017	8/30/2017	17-07089	Thorium-230	EPA 907.0 Modified	1.02E+00	3.23E-01	3.47E-01	1.08E-01	pCi/g
17-07089-07	TRG	HTC-A04-S001-4248-01	05/15/17 09:50	7/18/2017	8/30/2017	17-07089	Thorium-230	EPA 907.0 Modified	1.26E+00	4.67E-01	4.92E-01	2.33E-01	pCi/g
17-07089-08	TRG	HTC-A04-S002-0006-01	05/16/17 08:04	7/18/2017	8/30/2017	17-07089	Thorium-230	EPA 907.0 Modified	3.01E+01	5.19E+00	6.38E+00	5.23E-02	pCi/g
17-07089-09	TRG	HTC-A04-S002-0612-01	05/16/17 08:02	7/18/2017	8/30/2017	17-07089	Thorium-230	EPA 907.0 Modified	3.35E+01	6.86E+00	8.01E+00	9.04E-02	pCi/g
17-07089-10	TRG	HTC-A04-S002-1218-01	05/16/17 08:00	7/18/2017	8/30/2017	17-07089	Thorium-230	EPA 907.0 Modified	2.97E+01	5.62E+00	6.71E+00	1.10E-01	pCi/g
17-07089-11	TRG	HTC-A04-S002-1824-01	05/16/17 07:58	7/18/2017	8/30/2017	17-07089	Thorium-230	EPA 907.0 Modified	2.56E+01	4.97E+00	5.89E+00	8.43E-02	pCi/g
17-07089-12	TRG	HTC-A04-S002-2430-01	05/16/17 07:56	7/18/2017	8/30/2017	17-07089	Thorium-230	EPA 907.0 Modified	3.62E+01	7.68E+00	8.89E+00	1.34E-01	pCi/g
17-07089-13	TRG	HTC-A04-S002-3036-01	05/16/17 07:54	7/18/2017	8/30/2017	17-07089	Thorium-230	EPA 907.0 Modified	4.43E+01	9.70E+00	1.11E+01	1.35E-01	pCi/g
17-07089-14	TRG	HTC-A04-S002-3642-01	05/16/17 07:52	7/18/2017	8/30/2017	17-07089	Thorium-230	EPA 907.0 Modified	2.61E+01	5.44E+00	6.32E+00	1.14E-01	pCi/g
17-07089-15	TRG	HTC-A04-S002-4248-01	05/16/17 07:50	7/18/2017	8/30/2017	17-07089	Thorium-230	EPA 907.0 Modified	2.62E+01	5.49E+00	6.38E+00	1.42E-01	pCi/g
17-07089-16	TRG	HTC-A06-S001-0006-01	05/16/17 14:28	7/18/2017	8/30/2017	17-07089	Thorium-230	EPA 907.0 Modified	4.68E+01	1.10E+01	1.24E+01	1.36E-01	pCi/g
17-07089-17	TRG	HTC-A06-S001-0612-01	05/16/17 14:26	7/18/2017	8/30/2017	17-07089	Thorium-230	EPA 907.0 Modified	3.65E+01	7.33E+00	8.61E+00	1.14E-01	pCi/g
17-07089-18	MSO	HTC-A08-S001-0612-01	05/16/17 14:58	7/18/2017	8/30/2017	17-07089	Thorium-230	EPA 907.0 Modified	7.38E-01	2.57E-01	2.73E-01	1.13E-01	pCi/g
17-07089-19	MS	HTC-A08-S001-0612-01 MS	05/16/17 14:58	7/18/2017	8/30/2017	17-07089	Thorium-230	EPA 907.0 Modified	6.43E+00	1.33E+00	1.55E+00	1.40E-01	pCi/g
17-07089-20	MSD	HTC-A08-S001-0612-01 MSD	05/16/17 14:58	7/18/2017	8/30/2017	17-07089	Thorium-230	EPA 907.0 Modified	7.27E+00	1.46E+00	1.71E+00	9.13E-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
Edison, NJ 08837

Work Order Details:

SDG:	**17-07089**
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
17-07089-01	LCS	KNOWN	07/19/17 00:00	7/18/2017	8/30/2017	17-07089	Thorium-232	EPA 907.0 Modified	4.87E+00	1.75E-01			pCi/g
17-07089-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/30/2017	17-07089	Thorium-232	EPA 907.0 Modified	5.81E+00	9.09E-01	1.04E+00	5.89E-02	pCi/g
17-07089-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/30/2017	17-07089	Thorium-232	EPA 907.0 Modified	-4.03E-02	3.40E-02	3.42E-02	1.22E-01	pCi/g
17-07089-03	DUP	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/30/2017	17-07089	Thorium-232	EPA 907.0 Modified	3.70E-01	1.57E-01	1.60E-01	1.03E-01	pCi/g
17-07089-04	DO	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/30/2017	17-07089	Thorium-232	EPA 907.0 Modified	5.54E-01	1.81E-01	1.87E-01	7.97E-02	pCi/g
17-07089-05	TRG	HTC-A04-S001-3036-01	05/15/17 09:56	7/18/2017	8/30/2017	17-07089	Thorium-232	EPA 907.0 Modified	1.03E+00	2.87E-01	3.01E-01	5.54E-02	pCi/g
17-07089-06	TRG	HTC-A04-S001-3642-01	05/15/17 09:53	7/18/2017	8/30/2017	17-07089	Thorium-232	EPA 907.0 Modified	1.07E+00	3.31E-01	3.44E-01	6.58E-02	pCi/g
17-07089-07	TRG	HTC-A04-S001-4248-01	05/15/17 09:50	7/18/2017	8/30/2017	17-07089	Thorium-232	EPA 907.0 Modified	1.64E+00	5.56E-01	5.74E-01	1.86E-01	pCi/g
17-07089-08	TRG	HTC-A04-S002-0006-01	05/16/17 08:04	7/18/2017	8/30/2017	17-07089	Thorium-232	EPA 907.0 Modified	6.34E-01	2.05E-01	2.12E-01	5.98E-02	pCi/g
17-07089-09	TRG	HTC-A04-S002-0612-01	05/16/17 08:02	7/18/2017	8/30/2017	17-07089	Thorium-232	EPA 907.0 Modified	3.24E-01	1.70E-01	1.73E-01	1.13E-01	pCi/g
17-07089-10	TRG	HTC-A04-S002-1218-01	05/16/17 08:00	7/18/2017	8/30/2017	17-07089	Thorium-232	EPA 907.0 Modified	4.01E-01	1.79E-01	1.83E-01	9.95E-02	pCi/g
17-07089-11	TRG	HTC-A04-S002-1824-01	05/16/17 07:58	7/18/2017	8/30/2017	17-07089	Thorium-232	EPA 907.0 Modified	4.89E-01	1.98E-01	2.03E-01	8.42E-02	pCi/g
17-07089-12	TRG	HTC-A04-S002-2430-01	05/16/17 07:56	7/18/2017	8/30/2017	17-07089	Thorium-232	EPA 907.0 Modified	5.81E-01	2.41E-01	2.46E-01	1.18E-01	pCi/g
17-07089-13	TRG	HTC-A04-S002-3036-01	05/16/17 07:54	7/18/2017	8/30/2017	17-07089	Thorium-232	EPA 907.0 Modified	5.36E-01	2.45E-01	2.49E-01	9.39E-02	pCi/g
17-07089-14	TRG	HTC-A04-S002-3642-01	05/16/17 07:52	7/18/2017	8/30/2017	17-07089	Thorium-232	EPA 907.0 Modified	4.47E-01	2.19E-01	2.23E-01	1.77E-01	pCi/g
17-07089-15	TRG	HTC-A04-S002-4248-01	05/16/17 07:50	7/18/2017	8/30/2017	17-07089	Thorium-232	EPA 907.0 Modified	1.02E+00	3.55E-01	3.67E-01	1.57E-01	pCi/g
17-07089-16	TRG	HTC-A06-S001-0006-01	05/16/17 14:28	7/18/2017	8/30/2017	17-07089	Thorium-232	EPA 907.0 Modified	9.08E-01	3.62E-01	3.71E-01	1.65E-01	pCi/g
17-07089-17	TRG	HTC-A06-S001-0612-01	05/16/17 14:26	7/18/2017	8/30/2017	17-07089	Thorium-232	EPA 907.0 Modified	8.85E-01	3.08E-01	3.17E-01	7.89E-02	pCi/g
17-07089-18	MSO	HTC-A08-S001-0612-01	05/16/17 14:58	7/18/2017	8/30/2017	17-07089	Thorium-232	EPA 907.0 Modified	5.42E-01	2.10E-01	2.15E-01	6.89E-02	pCi/g
17-07089-19	MS	HTC-A08-S001-0612-01 MS	05/16/17 14:58	7/18/2017	8/30/2017	17-07089	Thorium-232	EPA 907.0 Modified	7.72E+00	1.56E+00	1.71E+00	1.12E-01	pCi/g
17-07089-20	MSD	HTC-A08-S001-0612-01 MSD	05/16/17 14:58	7/18/2017	8/30/2017	17-07089	Thorium-232	EPA 907.0 Modified	8.05E+00	1.60E+00	1.75E+00	7.72E-02	pCi/g

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Final Report of Analysis

Report To:

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

SDG:	**17-07089**
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
17-07089-01	LCS	KNOWN	07/19/17 00:00	7/18/2017	8/29/2017	17-07089	Uranium-233/234	EPA 908.0 Modified	7.56E+00	2.72E-01			pCi/g
17-07089-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/29/2017	17-07089	Uranium-233/234	EPA 908.0 Modified	5.75E+00	7.68E-01	8.71E-01	8.34E-02	pCi/g
17-07089-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/29/2017	17-07089	Uranium-233/234	EPA 908.0 Modified	4.10E-02	4.93E-02	4.94E-02	6.96E-02	pCi/g
17-07089-03	DUP	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/29/2017	17-07089	Uranium-233/234	EPA 908.0 Modified	8.31E-01	2.14E-01	2.22E-01	6.57E-02	pCi/g
17-07089-04	DO	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/29/2017	17-07089	Uranium-233/234	EPA 908.0 Modified	1.22E+00	2.64E-01	2.78E-01	7.56E-02	pCi/g
17-07089-05	TRG	HTC-A04-S001-3036-01	05/15/17 09:56	7/18/2017	8/29/2017	17-07089	Uranium-233/234	EPA 908.0 Modified	8.29E-01	2.26E-01	2.33E-01	6.32E-02	pCi/g
17-07089-06	TRG	HTC-A04-S001-3642-01	05/15/17 09:53	7/18/2017	8/29/2017	17-07089	Uranium-233/234	EPA 908.0 Modified	9.65E-01	2.29E-01	2.39E-01	6.65E-02	pCi/g
17-07089-07	TRG	HTC-A04-S001-4248-01	05/15/17 09:50	7/18/2017	8/29/2017	17-07089	Uranium-233/234	EPA 908.0 Modified	9.85E-01	2.64E-01	2.73E-01	9.57E-02	pCi/g
17-07089-08	TRG	HTC-A04-S002-0006-01	05/16/17 08:04	7/18/2017	8/29/2017	17-07089	Uranium-233/234	EPA 908.0 Modified	3.38E+01	4.14E+00	4.79E+00	6.41E-02	pCi/g
17-07089-09	TRG	HTC-A04-S002-0612-01	05/16/17 08:02	7/18/2017	8/29/2017	17-07089	Uranium-233/234	EPA 908.0 Modified	2.68E+01	3.33E+00	3.84E+00	7.22E-02	pCi/g
17-07089-10	TRG	HTC-A04-S002-1218-01	05/16/17 08:00	7/18/2017	8/29/2017	17-07089	Uranium-233/234	EPA 908.0 Modified	3.61E+01	4.83E+00	5.48E+00	1.03E-01	pCi/g
17-07089-11	TRG	HTC-A04-S002-1824-01	05/16/17 07:58	7/18/2017	8/29/2017	17-07089	Uranium-233/234	EPA 908.0 Modified	2.68E+01	3.21E+00	3.73E+00	5.45E-02	pCi/g
17-07089-12	TRG	HTC-A04-S002-2430-01	05/16/17 07:56	7/18/2017	8/29/2017	17-07089	Uranium-233/234	EPA 908.0 Modified	4.06E+01	4.90E+00	5.69E+00	1.05E-01	pCi/g
17-07089-13	TRG	HTC-A04-S002-3036-01	05/16/17 07:54	7/18/2017	8/29/2017	17-07089	Uranium-233/234	EPA 908.0 Modified	3.18E+01	3.96E+00	4.57E+00	6.71E-02	pCi/g
17-07089-14	TRG	HTC-A04-S002-3642-01	05/16/17 07:52	7/18/2017	8/29/2017	17-07089	Uranium-233/234	EPA 908.0 Modified	2.62E+01	3.13E+00	3.65E+00	6.14E-02	pCi/g
17-07089-15	TRG	HTC-A04-S002-4248-01	05/16/17 07:50	7/18/2017	8/29/2017	17-07089	Uranium-233/234	EPA 908.0 Modified	1.89E+01	2.34E+00	2.70E+00	7.97E-02	pCi/g
17-07089-16	TRG	HTC-A06-S001-0006-01	05/16/17 14:28	7/18/2017	8/29/2017	17-07089	Uranium-233/234	EPA 908.0 Modified	3.68E+01	4.91E+00	5.57E+00	6.11E-02	pCi/g
17-07089-17	TRG	HTC-A06-S001-0612-01	05/16/17 14:26	7/18/2017	8/29/2017	17-07089	Uranium-233/234	EPA 908.0 Modified	3.71E+01	4.92E+00	5.59E+00	9.97E-02	pCi/g
17-07089-18	MSO	HTC-A08-S001-0612-01	05/16/17 14:58	7/18/2017	8/29/2017	17-07089	Uranium-233/234	EPA 908.0 Modified	6.77E-01	2.17E-01	2.22E-01	9.95E-02	pCi/g
17-07089-19	MS	HTC-A08-S001-0612-01 MS	05/16/17 14:58	7/18/2017	8/29/2017	17-07089	Uranium-233/234	EPA 908.0 Modified	6.13E+00	8.49E-01	9.55E-01	8.21E-02	pCi/g
17-07089-20	MSD	HTC-A08-S001-0612-01 MSD	05/16/17 14:58	7/18/2017	8/29/2017	17-07089	Uranium-233/234	EPA 908.0 Modified	6.62E+00	9.16E-01	1.03E+00	6.03E-02	pCi/g

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Work Order Details:

SDG:	**17-07089**
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
17-07089-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/29/2017	17-07089	Uranium-235/236	EPA 908.0 Modified	4.34E-01	1.60E-01	1.63E-01	8.56E-02	pCi/g
17-07089-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/29/2017	17-07089	Uranium-235/236	EPA 908.0 Modified	2.79E-02	4.26E-02	4.27E-02	6.36E-02	pCi/g
17-07089-03	DUP	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/29/2017	17-07089	Uranium-235/236	EPA 908.0 Modified	1.41E-01	9.06E-02	9.11E-02	6.00E-02	pCi/g
17-07089-04	DO	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/29/2017	17-07089	Uranium-235/236	EPA 908.0 Modified	1.11E-01	8.15E-02	8.19E-02	8.14E-02	pCi/g
17-07089-05	TRG	HTC-A04-S001-3036-01	05/15/17 09:56	7/18/2017	8/29/2017	17-07089	Uranium-235/236	EPA 908.0 Modified	3.78E-02	5.66E-02	5.67E-02	9.20E-02	pCi/g
17-07089-06	TRG	HTC-A04-S001-3642-01	05/15/17 09:53	7/18/2017	8/29/2017	17-07089	Uranium-235/236	EPA 908.0 Modified	5.01E-02	5.43E-02	5.44E-02	6.55E-02	pCi/g
17-07089-07	TRG	HTC-A04-S001-4248-01	05/15/17 09:50	7/18/2017	8/29/2017	17-07089	Uranium-235/236	EPA 908.0 Modified	1.19E-01	9.44E-02	9.48E-02	8.57E-02	pCi/g
17-07089-08	TRG	HTC-A04-S002-0006-01	05/16/17 08:04	7/18/2017	8/29/2017	17-07089	Uranium-235/236	EPA 908.0 Modified	2.35E+00	4.42E-01	4.73E-01	7.90E-02	pCi/g
17-07089-09	TRG	HTC-A04-S002-0612-01	05/16/17 08:02	7/18/2017	8/29/2017	17-07089	Uranium-235/236	EPA 908.0 Modified	2.04E+00	4.11E-01	4.36E-01	8.48E-02	pCi/g
17-07089-10	TRG	HTC-A04-S002-1218-01	05/16/17 08:00	7/18/2017	8/29/2017	17-07089	Uranium-235/236	EPA 908.0 Modified	2.75E+00	5.74E-01	6.07E-01	1.16E-01	pCi/g
17-07089-11	TRG	HTC-A04-S002-1824-01	05/16/17 07:58	7/18/2017	8/29/2017	17-07089	Uranium-235/236	EPA 908.0 Modified	2.03E+00	3.92E-01	4.18E-01	7.23E-02	pCi/g
17-07089-12	TRG	HTC-A04-S002-2430-01	05/16/17 07:56	7/18/2017	8/29/2017	17-07089	Uranium-235/236	EPA 908.0 Modified	3.62E+00	6.42E-01	6.92E-01	1.08E-01	pCi/g
17-07089-13	TRG	HTC-A04-S002-3036-01	05/16/17 07:54	7/18/2017	8/29/2017	17-07089	Uranium-235/236	EPA 908.0 Modified	2.60E+00	4.92E-01	5.25E-01	6.13E-02	pCi/g
17-07089-14	TRG	HTC-A04-S002-3642-01	05/16/17 07:52	7/18/2017	8/29/2017	17-07089	Uranium-235/236	EPA 908.0 Modified	1.69E+00	3.52E-01	3.72E-01	5.61E-02	pCi/g
17-07089-15	TRG	HTC-A04-S002-4248-01	05/16/17 07:50	7/18/2017	8/29/2017	17-07089	Uranium-235/236	EPA 908.0 Modified	1.21E+00	2.94E-01	3.06E-01	8.59E-02	pCi/g
17-07089-16	TRG	HTC-A06-S001-0006-01	05/16/17 14:28	7/18/2017	8/29/2017	17-07089	Uranium-235/236	EPA 908.0 Modified	3.38E+00	6.27E-01	6.72E-01	8.89E-02	pCi/g
17-07089-17	TRG	HTC-A06-S001-0612-01	05/16/17 14:26	7/18/2017	8/29/2017	17-07089	Uranium-235/236	EPA 908.0 Modified	2.66E+00	5.68E-01	5.99E-01	9.81E-02	pCi/g
17-07089-18	MSO	HTC-A08-S001-0612-01	05/16/17 14:58	7/18/2017	8/29/2017	17-07089	Uranium-235/236	EPA 908.0 Modified	6.82E-02	7.40E-02	7.42E-02	8.91E-02	pCi/g
17-07089-19	MS	HTC-A08-S001-0612-01 MS	05/16/17 14:58	7/18/2017	8/29/2017	17-07089	Uranium-235/236	EPA 908.0 Modified	4.16E-01	1.63E-01	1.65E-01	8.85E-02	pCi/g
17-07089-20	MSD	HTC-A08-S001-0612-01 MSD	05/16/17 14:58	7/18/2017	8/29/2017	17-07089	Uranium-235/236	EPA 908.0 Modified	6.74E-01	2.15E-01	2.21E-01	8.77E-02	pCi/g

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

0030

EBERLINE SERVICES

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

Eberline Analytical
Final Report of Analysis

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

Work Order Details:	
SDG:	17-07089
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
17-07089-01	LCS	KNOWN	07/19/17 00:00	7/18/2017	8/29/2017	17-07089	Uranium-238	EPA 908.0 Modified	7.32E+00	2.64E-01			pCi/g
17-07089-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/29/2017	17-07089	Uranium-238	EPA 908.0 Modified	6.61E+00	8.58E-01	9.79E-01	5.24E-02	pCi/g
17-07089-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/29/2017	17-07089	Uranium-238	EPA 908.0 Modified	1.83E-02	3.49E-02	3.49E-02	6.45E-02	pCi/g
17-07089-03	DUP	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/29/2017	17-07089	Uranium-238	EPA 908.0 Modified	8.37E-01	2.15E-01	2.23E-01	6.95E-02	pCi/g
17-07089-04	DO	HTC-A04-S001-2430-01	05/15/17 09:59	7/18/2017	8/29/2017	17-07089	Uranium-238	EPA 908.0 Modified	9.22E-01	2.22E-01	2.31E-01	6.92E-02	pCi/g
17-07089-05	TRG	HTC-A04-S001-3036-01	05/15/17 09:56	7/18/2017	8/29/2017	17-07089	Uranium-238	EPA 908.0 Modified	8.58E-01	2.31E-01	2.39E-01	7.88E-02	pCi/g
17-07089-06	TRG	HTC-A04-S001-3642-01	05/15/17 09:53	7/18/2017	8/29/2017	17-07089	Uranium-238	EPA 908.0 Modified	7.35E-01	1.94E-01	2.01E-01	5.80E-02	pCi/g
17-07089-07	TRG	HTC-A04-S001-4248-01	05/15/17 09:50	7/18/2017	8/29/2017	17-07089	Uranium-238	EPA 908.0 Modified	9.76E-01	2.61E-01	2.70E-01	7.59E-02	pCi/g
17-07089-08	TRG	HTC-A04-S002-0006-01	05/16/17 08:04	7/18/2017	8/29/2017	17-07089	Uranium-238	EPA 908.0 Modified	3.39E+01	4.15E+00	4.81E+00	4.44E-02	pCi/g
17-07089-09	TRG	HTC-A04-S002-0612-01	05/16/17 08:02	7/18/2017	8/29/2017	17-07089	Uranium-238	EPA 908.0 Modified	2.67E+01	3.32E+00	3.83E+00	5.99E-02	pCi/g
17-07089-10	TRG	HTC-A04-S002-1218-01	05/16/17 08:00	7/18/2017	8/29/2017	17-07089	Uranium-238	EPA 908.0 Modified	3.68E+01	4.92E+00	5.58E+00	6.52E-02	pCi/g
17-07089-11	TRG	HTC-A04-S002-1824-01	05/16/17 07:58	7/18/2017	8/29/2017	17-07089	Uranium-238	EPA 908.0 Modified	2.64E+01	3.16E+00	3.68E+00	6.20E-02	pCi/g
17-07089-12	TRG	HTC-A04-S002-2430-01	05/16/17 07:56	7/18/2017	8/29/2017	17-07089	Uranium-238	EPA 908.0 Modified	3.98E+01	4.80E+00	5.58E+00	6.59E-02	pCi/g
17-07089-13	TRG	HTC-A04-S002-3036-01	05/16/17 07:54	7/18/2017	8/29/2017	17-07089	Uranium-238	EPA 908.0 Modified	3.17E+01	3.95E+00	4.55E+00	6.22E-02	pCi/g
17-07089-14	TRG	HTC-A04-S002-3642-01	05/16/17 07:52	7/18/2017	8/29/2017	17-07089	Uranium-238	EPA 908.0 Modified	2.48E+01	2.98E+00	3.47E+00	6.49E-02	pCi/g
17-07089-15	TRG	HTC-A04-S002-4248-01	05/16/17 07:50	7/18/2017	8/29/2017	17-07089	Uranium-238	EPA 908.0 Modified	1.85E+01	2.30E+00	2.65E+00	7.30E-02	pCi/g
17-07089-16	TRG	HTC-A06-S001-0006-01	05/16/17 14:28	7/18/2017	8/29/2017	17-07089	Uranium-238	EPA 908.0 Modified	3.77E+01	5.03E+00	5.71E+00	7.62E-02	pCi/g
17-07089-17	TRG	HTC-A06-S001-0612-01	05/16/17 14:26	7/18/2017	8/29/2017	17-07089	Uranium-238	EPA 908.0 Modified	3.69E+01	4.90E+00	5.56E+00	8.69E-02	pCi/g
17-07089-18	MSO	HTC-A08-S001-0612-01	05/16/17 14:58	7/18/2017	8/29/2017	17-07089	Uranium-238	EPA 908.0 Modified	4.44E-01	1.70E-01	1.73E-01	7.89E-02	pCi/g
17-07089-19	MS	HTC-A08-S001-0612-01 MS	05/16/17 14:58	7/18/2017	8/29/2017	17-07089	Uranium-238	EPA 908.0 Modified	6.32E+00	8.69E-01	9.79E-01	7.52E-02	pCi/g
17-07089-20	MSD	HTC-A08-S001-0612-01 MSD	05/16/17 14:58	7/18/2017	8/29/2017	17-07089	Uranium-238	EPA 908.0 Modified	6.88E+00	9.45E-01	1.07E+00	7.52E-02	pCi/g

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

EBERLINE SERVICES

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

SECTION V

ANALYTICAL STANDARD

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

U-8

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

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

Description of Solution

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

b. Chemical form: Uranyl Nitrate in H2O

c. Carrier content: None

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

Radioimpurities: Refer to attached technical data sheet

Radioactive Daughters: Refer to attached technical data sheet

Radionuclide Concentration

(Total U) 0.1228 μCi/g.

Method of Calibration

Activity calculations are based upon known specific activity and mass.

Uncertainty of Measurement

a. Systematic uncertainty in instrument calibration: ±3.0%

b. Random uncertainty in assay: ±0.0%

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

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

NIST Traceability

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

Leak Test(s)

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

Notes

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

ERIC ALLAS
QUALITY CONTROL

29 DECEMBER 1994
Date Signed

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

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

CURRENT DATE: 7/12/2017 0:00

SOLUTION REFERENCE #: IPL 479-50

SOLUTION #: U-8

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

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

Reference Date: 1/1/1995 0:00

Certified Activity: 8.016E+00 µCi

Certified Concentration: µCi per gram

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

Chemical Composition of Standard Solution

Uranyl nitrate in dilute HNO_3

Dilution Instructions:

Dilution Solvent Used: 1M HNO_3

Dilute to a volume of 1000.00 milliliters

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

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

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

Expiration Date: June 28, 2018

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

QC Approval _____ Date: 7/25/17

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

MP-009
Solution Reference # IPL 479-50

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

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

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

Reference Date 1/1/1995 0:00

Chemical Composition of Standard Solution
Uranly Nitrate in 1M HNO_3

Dilution Instructions:

Dilution Solvent Used 1M HNO_3

SECONDARY VOLUMETRIC DILUTION

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

Final Activity Concentration: 7.1182E+01 dpm/ml

NOTES:

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

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

Isotopic ratios from manufacturer's data sheet

Expiration Date: June 28, 2018

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

QC Approval _____ Date: 7/25/17

RECORD COPY

Tracer Solution for Environmental Analysis & Disequilibrium Studies

Product Description & Measurement Certificate

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

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

Method of measurement (see reverse of this certificate)

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

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

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

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

Not measured

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

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

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

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

Approved Signatory

Roger Wiltshire

Project Ref. AE2315

Roger Wiltshire

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

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

CURRENT DATE: 11/7/2016 0:00

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

SOLUTION #: U-10

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

Radionuclide: ^{232}U

Reference Date: 3/1/2000 0:00

Certified Activity: 9.760E-01 µCi

Certified Concentration: µCi per gram

Ampoule /Solution Gross: Weight, Grams

Empty Ampoule: Weight, Grams

Solution Net: Weight, Grams

Total Activity in Ampoule: 0.9760 µCi

Chemical Composition of Standard Solution

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

Dilution Instructions:

Dilution Solvent Used: 2M HNO_3

Dilute to a volume of 1000.00 milliliters

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

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

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

Expiration Date: October 7, 2017

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

QC Approval _____ Date: 11/10/16

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

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

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

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

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

Reference Date 3/1/2000 0:00

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

Dilution Instructions:

Dilution Solvent Used 2M HNO_3

SECONDARY VOLUMETRIC DILUTION

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

Final Activity Concentration: 2.1670E+01 dpm/ml

NOTES:

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

Expiration Date: October 7, 2017

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

QC Approval _____ Date: 11/10/16

Th-18

Isotope Products Laboratories
An Eckert & Ziegler Company

24937 Avenue Tibbitts
Valencia, California 91355

Tel 661•309•1010
Fax 661•257•8303

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

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

Physical Description:

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

Radioimpurities:

None detected (daughters in equilibrium)

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

Method of Calibration:

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

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

Uncertainty of Measurement:

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

Notes:

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

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

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

CURRENT DATE: 8/16/2017 0:00

SOLUTION REFERENCE #: IPL 867-54 SOLUTION #: Th-18

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

Radionuclide: ^{229}Th
Reference Date: 1/15/2002 0:00
Certified Activity: 1.013E+00 µCi
Certified Concentration: µCi per gram

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

Chemical Composition of Standard Solution
$^{229}Th(NO_3)_4$ in 0.1M HNO_3

Dilution Instructions:

Dilution Solvent Used: 0.1 M HNO_3

Dilute to a volume of 1000.00 milliliters

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

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

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

Expiration Date: August 11, 2018

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

QC Approval _____ Date: 8/16/17

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

MP-009
Solution Reference # IPL 867-54

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

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

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

Reference Date 1/15/2002 0:00

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

Dilution Instructions:

Dilution Solvent Used 0.1M HNO_3

SECONDARY VOLUMETRIC DILUTION

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

Final Activity Concentration: 2.2490E+01 dpm/ml

NOTES:

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

Expiration Date: August 11, 2018

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

QC Approval _____ Date: 8/16/17

QA/QC REVIEWED
Date 10/14/91 Initials

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.

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

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

CURRENT DATE: 8/16/2017 0:00

SOLUTION REFERENCE #: IPL 867-54

SOLUTION #: Th-18

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

Radionuclide: ^{229}Th

Reference Date: 1/15/2002 0:00

Certified Activity: 1.013E+00 µCi

Certified Concentration: µCi per gram

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

Chemical Composition of Standard Solution

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

Dilution Instructions:

Dilution Solvent Used: 0.1 M HNO_3

Dilute to a volume of 1000.00 milliliters

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

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

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

Expiration Date: August 11, 2018

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

QC Approval _____ Date: 8/16/17

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

MP-009
Solution Reference # IPL 867-54

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

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

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

Reference Date 1/15/2002 0:00

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

Dilution Instructions:

Dilution Solvent Used 0.1M HNO_3

SECONDARY VOLUMETRIC DILUTION

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

Final Activity Concentration: 2.2490E+01 dpm/ml

NOTES:

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

Expiration Date: August 11, 2018

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

QC Approval _____ Date: 8/16/17

Eckert & Ziegler
Analytics

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

CERTIFICATE OF CALIBRATION

Standard Reference Source

GAS - 1602

SRS Number: 104852
Source Description: Sand in 16 Ounce PP Omega Jar Filled to Capacity
Product Code: 8401-EG-SAN
Customer: Eberline Analytical Corporation
P.O. Number: OR-1610009, Item 4

This standard radionuclide source was prepared from an aliquot measured gravimetrically from a master radionuclide solution calibrated with a germanium gamma-ray spectrometer system. Additional radionuclides were added gravimetrically from solutions calibrated by gamma-ray spectrometry, ionization chamber, or liquid scintillation counting. Calibration and purity were checked using germanium gamma-ray spectrometry. At the time of calibration no interfering gamma-ray emitting impurities were detected. The gamma-ray emission rates for the most intense gamma-ray lines are given. Eckert & Ziegler Analytics (EZA) maintains traceability to the National Institute of Standards and Technology (NIST) through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 2, July 2007, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST."

Reference Date: 01-October-2016 12:00 PM EST

MGS Mixture

Isotope	Gamma-Ray Energy, keV	Half-Life, d	Activity, Bq	Flux, s^{-1}	Uncertainty u_A, %	u_B, %	U, %*	Calibration Method**
Am-241	59.5	1.580E+05	5.500E+03	1.976E+03	0.1	1.8	3.6	4π LS
Cd-109	88.0	4.614E+02	7.668E+04	2.837E+03	0.5	2.0	4.1	HPGe
Co-57	122.1	2.717E+02	2.240E+03	1.917E+03	0.4	1.7	3.4	HPGe
Ce-139	165.9	1.376E+02	2.655E+03	2.124E+03	0.4	1.7	3.6	HPGe
Hg-203	279.2	4.659E+01	6.063E+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+05	1.914E+03	0.7	1.9	4.1	HPGe
Y-88	898.0	1.066E+02	7.415E+03	6.948E+03	0.7	1.7	3.7	HPGe
Y-88	1836.1			7.356E+03	0.7	1.7	3.7	
Co-60	1173.2	1.925E+03	3.562E+03	3.557E+03	0.7	1.8	3.9	HPGe
Co-60	1332.5			3.561E+03	0.7	1.8	3.9	

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

(Certificate continued on reverse side)

Corporate Office
24937 Avenue Tibbitts Valencia, California 91355

Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia 30318

SECTION VI

QUALITY CONTROL SAMPLE RESULTS SUMMARY

Eberline Analytical
Analysis Control Chart

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07089	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		76.07%	15.15%	100.00%	3.60%	7.56E+00	2.72E-01	5.75E+00	8.71E-01	U-8a	3.20E+01	3.60E+00	5.24E-01
U-238		90.25%	14.82%	100.00%	3.60%	7.32E+00	2.64E-01	6.61E+00	9.79E-01	U-8a	3.10E+01	3.60E+00	5.24E-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	3.57	75.06%	7.27E+00	2.62E-01	6.13E+00	9.55E-01	6.77E-01	2.22E-01	1.04E+00	U-8a	3.20E+01	3.60	5.24E-01
U-238	2.25	83.53%	7.04E+00	2.53E-01	6.32E+00	9.79E-01	4.44E-01	1.73E-01	1.04E+00	U-8a	3.10E+01	3.60	5.24E-01

Duplicate Results / QC Summary

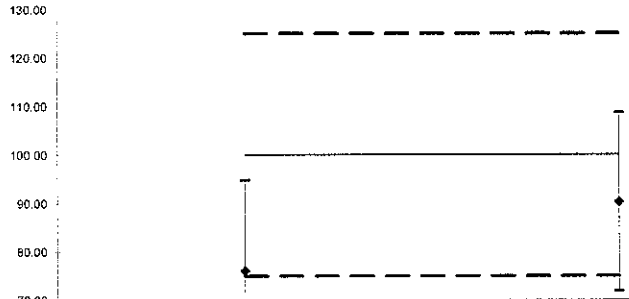
Analyte	Normalized Difference	RPD	Original Result	Original CSU	Duplicate Result	Duplicate CSU	LCS Relative Bias	LCS % R		MS % R	MS ND	Rep RPD	Rep ND
U-234	2.14	37.90	1.22E+00	2.78E-01	8.31E-01	2.22E-01	0.76	OK				INV	OK
U-238	0.52	9.63	9.22E-01	2.31E-01	8.37E-01	2.23E-01	0.90	OK				OK	OK
U-235	0.49	24.17	1.11E-01	8.19E-02	1.41E-01	9.11E-02		OK				OK	OK

0050

Version

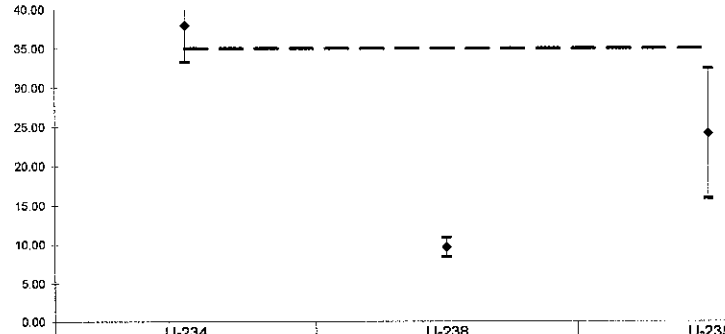
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07089	UUISO Apex	1	pCi	g	Weston Solutions, Inc.

LCS % Recovery



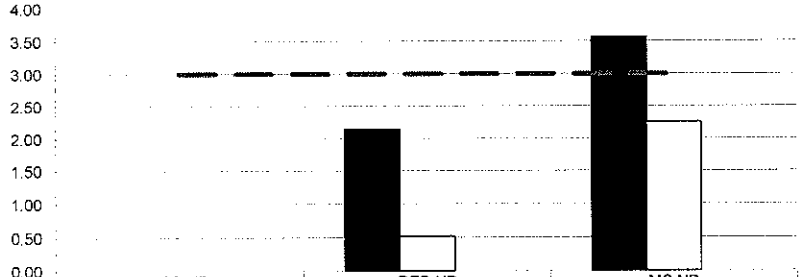
	U-234	U-238
Lower Error	57.32	71.83
Upper Error	94.82	108.66
%R	76.07	90.25
LCL	75	75
Mean	100	100
UCL	125	125

Replicate Sample RPD



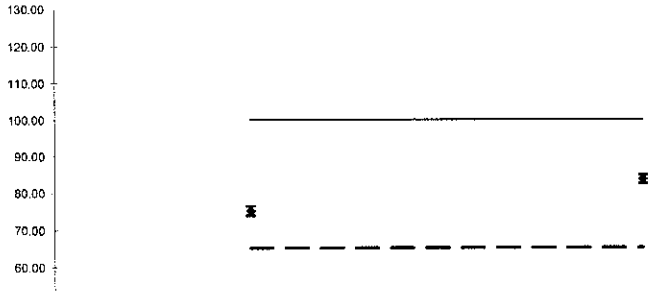
	U-234	U-238	U-235
Lower Error	42.51	10.87	32.46
Upper Error	33.28	8.38	15.88
RPD	37.90	9.63	24.17
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
U-234	0.00	2.14	3.57
U-238	0.00	0.52	2.25
	0.00	0.00	0.00
UCL	3	3	3

Matrix Spike % Recovery



	U-234	U-238
Lower Error	73.84	82.30
Upper Error	76.28	84.77
%R	75.06	83.53
LCL	65	65
Mean	100	100
UCL	135	135

Eberline Analytical
Analysis Control Chart

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07089	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		76.07%	15.15%	100.00%	3.60%	7.56E+00	2.72E-01	5.75E+00	8.71E-01	U-8a	3.20E+01	3.60E+00	5.24E-01
U-238		90.25%	14.82%	100.00%	3.60%	7.32E+00	2.64E-01	6.61E+00	9.79E-01	U-8a	3.10E+01	3.60E+00	5.24E-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	2.47	81.52%	7.28E+00	2.62E-01	6.62E+00	1.03E+00	6.77E-01	2.22E-01	1.01E+00	U-8a	3.20E+01	3.60	5.10E-01
U-238	1.11	91.24%	7.06E+00	2.54E-01	6.88E+00	1.07E+00	4.44E-01	1.73E-01	1.01E+00	U-8a	3.10E+01	3.60	5.10E-01

Duplicate Results / QC Summary

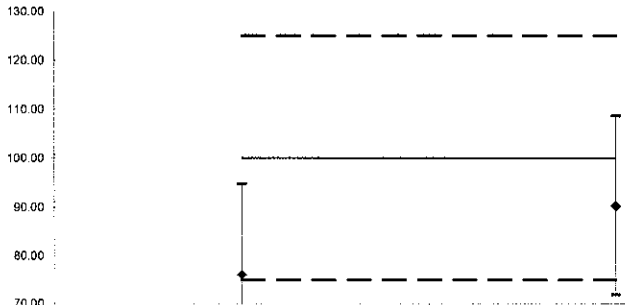
Analyte	Normalized Difference	RPD	Original Result	Original CSU	Duplicate Result	Duplicate CSU	LCS Relative Bias	LCS % R		MS % R	MS ND	Rep RPD	Rep ND
U-234	2.14	37.90	1.22E+00	2.78E-01	8.31E-01	2.22E-01	0.76	OK				INV	OK
U-238	0.52	9.63	9.22E-01	2.31E-01	8.37E-01	2.23E-01	0.90	OK				OK	OK
U-235	0.49	24.17	1.11E-01	8.19E-02	1.41E-01	9.11E-02		OK				OK	OK

0052

Version

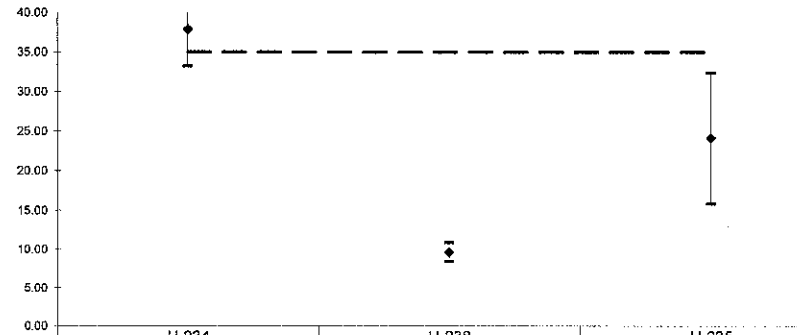
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07089	UUISO Apex	1	pCi	g	Weston Solutions, Inc.

LCS % Recovery



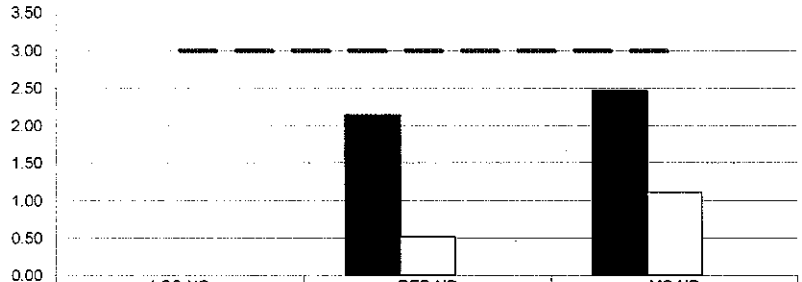
	U-234	U-238
Lower Error	57.32	71.83
Upper Error	94.82	108.66
%R	76.07	90.25
LCL	75	75
Mean	100	100
UCL	125	125

Replicate Sample RPD



	U-234	U-238	U-235
Lower Error	42.51	10.87	32.46
Upper Error	33.28	8.38	15.88
RPD	37.90	9.63	24.17
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
U-234	0.00	2.14	2.47
U-238	0.00	0.52	1.11
	0.00	0.00	0.00
UCL	3	3	3

Matrix Spike % Recovery

	U-234	U-238
Lower Error	80.23	89.92
Upper Error	82.82	92.56
%R	81.52	91.24
LCL	65	65
Mean	100	100
UCL	135	135

0053

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07089	ThISO Apex	1	pCi	g	Weston Solutions, Inc.

Laboratory Control Sample

Analyte		LCS Measured	CSU Measured	LCS Expected	Uncert. Expected	Known	Known Error	Result	CSU	Standard ID	Standard ACT (dpm)	Standard Error	Standard Added (g)
TH-228		122.24%	18.20%	100.00%	3.60%	4.87E+00	1.75E-01	5.96E+00	1.08E+00	Th-8b	1.04E+02	3.60E+00	1.05E-01
TH-230		118.86%	19.72%	100.00%	2.70%	5.42E+00	1.46E-01	6.44E+00	1.27E+00	Th-1b	2.35E+01	2.70E+00	5.11E-01
TH-232		119.25%	17.96%	100.00%	3.60%	4.87E+00	1.75E-01	5.81E+00	1.04E+00	Th-8b	1.04E+02	3.60E+00	1.05E-01

Matrix Spike

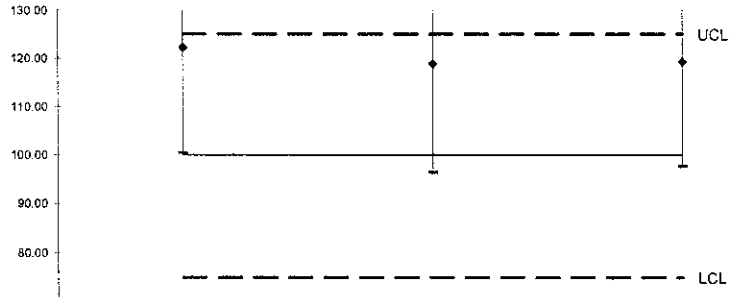
Analyte	Normalized Difference	MS Actual % Rec	Expected MS Result	Expected MS Uncert	Actual MS Result	Actual MS CSU	Sample Result	Sample CSU	Sample Aliquot	Standard ID	Standard ACT (dpm)	Standard Error %	Standard Added (g)
TH-228	0.61	92.97%	8.78E+00	3.16E-01	8.84E+00	1.97E+00	6.79E-01	2.62E-01	1.09E+00	Th-8b	1.04E+02	3.60	2.05E-01
TH-230	0.89	114.46%	4.97E+00	1.34E-01	6.43E+00	1.55E+00	7.38E-01	2.73E-01	1.09E+00	Th-1b	2.35E+01	2.70	5.11E-01
TH-232	1.81	81.81%	8.78E+00	3.16E-01	7.72E+00	1.71E+00	5.42E-01	2.15E-01	1.09E+00	Th-8b	1.04E+02	3.60	2.05E-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	0.28	6.67	8.02E-01	2.48E-01	7.50E-01	2.56E-01	1.22	OK				OK	OK
TH-230	1.21	31.77	6.33E-01	2.10E-01	4.59E-01	1.85E-01	1.19	OK				INV	OK
TH-232	1.46	39.89	5.54E-01	1.87E-01	3.70E-01	1.60E-01	1.19	OK				INV	OK

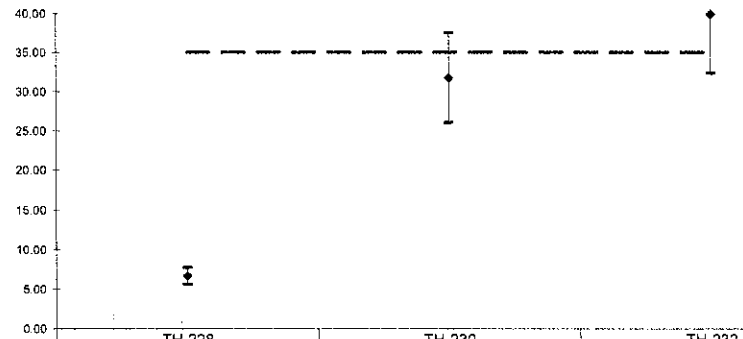
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07089	ThISO Apex	1	pCi	g	Weston Solutions, Inc.

LCS % Recovery



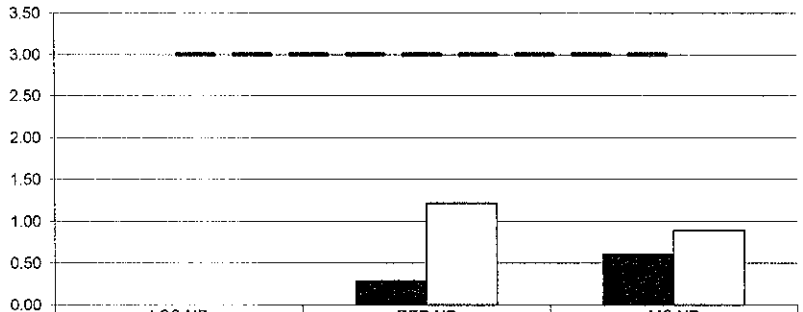
	TH-228	TH-230	TH-232
Lower Error	100.45	96.44	97.70
Upper Error	144.04	141.28	140.81
%R	122.24	118.86	119.25
LCL	75	75	75
Mean	100	100	100
UCL	125	125	125

Replicate Sample RPD



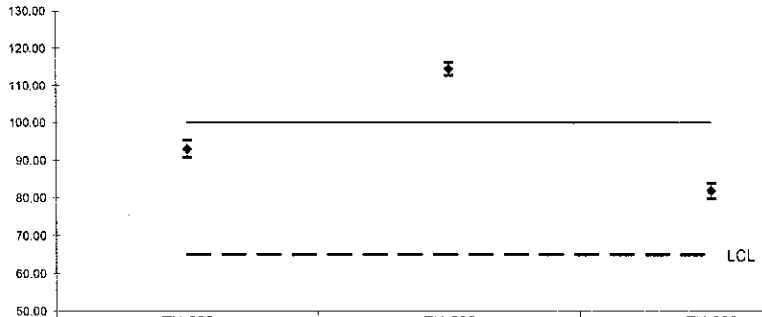
	TH-228	TH-230	TH-232
Lower Error	7.75	37.53	47.40
Upper Error	5.59	26.02	32.38
RPD	6.67	31.77	39.89
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
TH-228	0.00	0.28	0.61
TH-230	0.00	1.21	0.89
UCL	3	3	3

Matrix Spike % Recovery



	TH-228	TH-230	TH-232
Lower Error	90.69	112.78	79.78
Upper Error	95.26	116.14	83.83
%R	92.97	114.46	81.81
LCL	65	65	65
Mean	100	100	100
UCL	135	135	135

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07089	ThISO Apex	1	pCi	g	Weston Solutions, Inc.

Laboratory Control Sample

Analyte		LCS Measured	CSU Measured	LCS Expected	Uncert. Expected	Known	Known Error	Result	CSU	Standard ID	Standard ACT (dpm)	Standard Error	Standard Added (g)
TH-228		122.24%	18.20%	100.00%	3.60%	4.87E+00	1.75E-01	5.96E+00	1.08E+00	Th-8b	1.04E+02	3.60E+00	1.05E-01
TH-230		118.86%	19.72%	100.00%	2.70%	5.42E+00	1.46E-01	6.44E+00	1.27E+00	Th-1b	2.35E+01	2.70E+00	5.11E-01
TH-232		119.25%	17.96%	100.00%	3.60%	4.87E+00	1.75E-01	5.81E+00	1.04E+00	Th-8b	1.04E+02	3.60E+00	1.05E-01

Matrix Spike Duplicate

Analyte	Normalized Difference	MS Actual % Rec	Expected MS Result	Expected MS Uncert	Actual MS Result	Actual MS CSU	Sample Result	Sample CSU	Sample Aliquot	Standard ID	Standard ACT (dpm)	Standard Error %	Standard Added (g)
TH-228	0.34	96.04%	8.81E+00	3.17E-01	9.14E+00	2.00E+00	6.79E-01	2.62E-01	1.09E+00	Th-8b	1.04E+02	3.60	2.06E-01
TH-230	0.67	110.07%	5.93E+00	1.60E-01	7.27E+00	1.71E+00	7.38E-01	2.73E-01	1.09E+00	Th-1b	2.35E+01	2.70	6.11E-01
TH-232	1.43	85.28%	8.81E+00	3.17E-01	8.05E+00	1.75E+00	5.42E-01	2.15E-01	1.09E+00	Th-8b	1.04E+02	3.60	2.06E-01

Duplicate Results / QC Summary

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Duplicate Result	Duplicate CSU	LCS Relative Bias	LCS % R		MS % R	MS ND	Rep RPD	Rep ND
TH-228	0.28	6.67	8.02E-01	2.48E-01	7.50E-01	2.56E-01	1.22	OK				OK	OK
TH-230	1.21	31.77	6.33E-01	2.10E-01	4.59E-01	1.85E-01	1.19	OK				INV	OK
TH-232	1.46	39.89	5.54E-01	1.87E-01	3.70E-01	1.60E-01	1.19	OK				INV	OK

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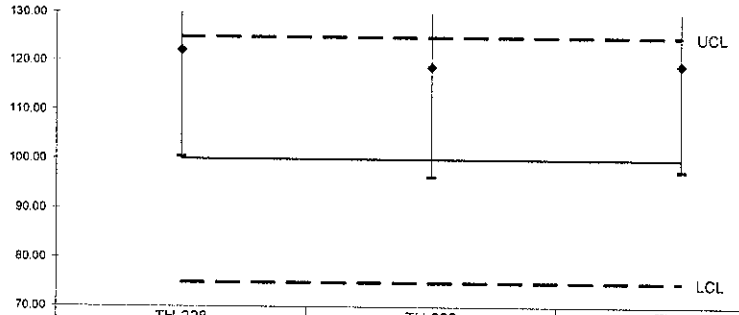
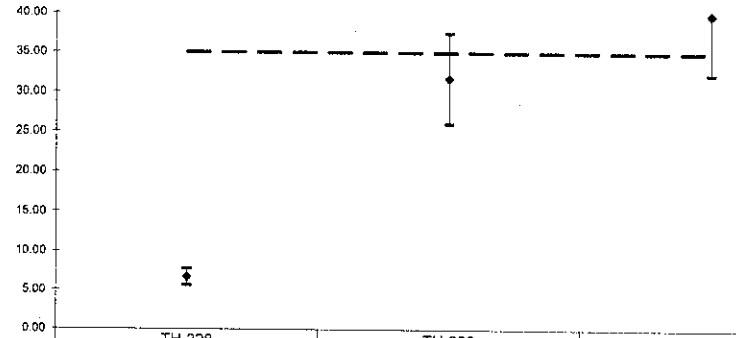
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07089	ThISO Apex	1	pCi	g	Weston Solutions, Inc.

LCS % Recovery



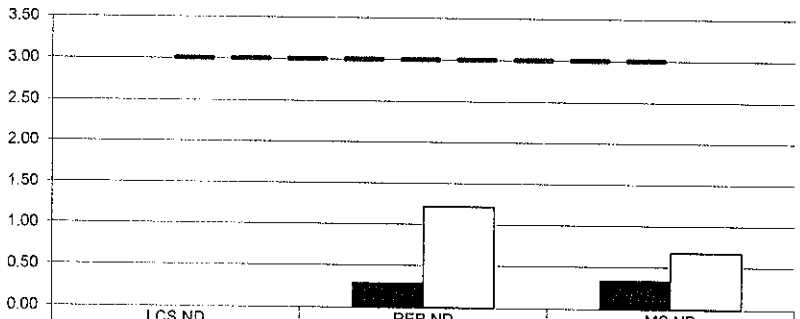
	TH-228	TH-230	TH-232
Lower Error	100.45	96.44	97.70
Upper Error	144.04	141.28	140.81
%R	122.24	118.86	119.25
LCL	75	75	75
Mean	100	100	100
UCL	125	125	125

Replicate Sample RPD



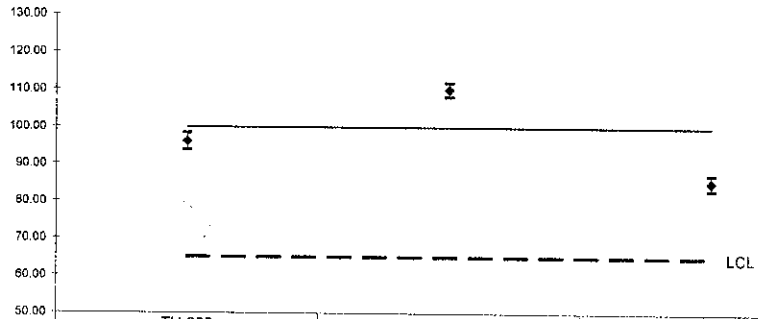
	TH-228	TH-230	TH-232
Lower Error	7.75	37.53	47.40
Upper Error	5.59	26.02	32.38
RPD	6.67	31.77	39.89
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
TH-228	0.00	0.28	0.34
TH-230	0.00	1.21	0.67
UCL	3	3	3

Matrix Spike % Recovery



	TH-228	TH-230	TH-232
Lower Error	93.72	108.20	83.22
Upper Error	98.36	111.94	87.35
%R	96.04	110.07	85.28
LCL	65	65	65
Mean	100	100	100
UCL	135	135	135

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07089	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		94.38%	7.88%	100.00%	3.89%	1.35E+02	5.27E+00	1.28E+02	1.01E+01	GAS-1402	1.35E+02	5.27E+00	7.36E+02
CS-137		97.99%	10.42%	100.00%	4.01%	8.44E+01	3.38E+00	8.27E+01	8.62E+00	GAS-1402	8.44E+01	3.38E+00	7.36E+02

Matrix Spike

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

Replicate Sample

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU
AC-228	2.25	29.72	1.44E+00	2.39E-01	1.07E+00	2.20E-01
K-40	0.89	7.79	3.01E+01	3.60E+00	2.78E+01	3.42E+00
RA-226	0.58	6.55	1.09E+00	1.68E-01	1.02E+00	1.63E-01

QC Summary

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

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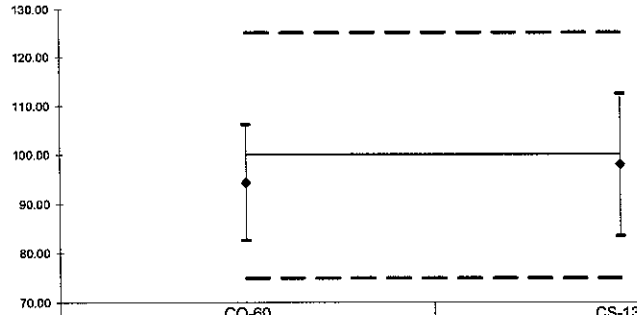
Version

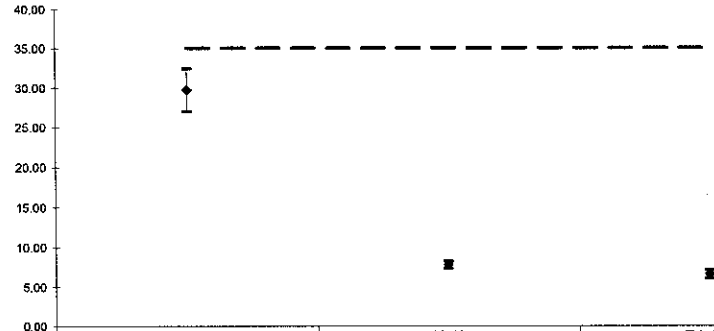
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07089	Gamma	2	pCi	g	Weston Solutions, Inc.

LCS % Recovery



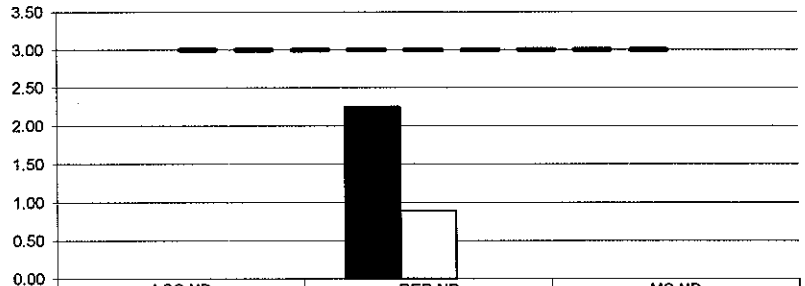
	CO-60	CS-137
Lower Error	82.61	83.56
Upper Error	106.15	112.42
%R	94.38	97.99
LCL	75	75
Mean	100	100
UCL	125	125

Replicate Sample RPD



	AC-228	K-40	RA-226
Lower Error	32.43	8.27	7.07
Upper Error	27.00	7.32	6.04
RPD	29.72	7.79	6.55
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
CO-60	0.00	2.25	0.00
CS-137	0.00	0.89	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	17-07089
		Analysis Code	UUISO
		Run Number	1

#	Date	Dept	User	Notes
1	08/14/17 09:51	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
8/14/17

EBERLINE SERVICES **Work Order Analysis Notes**	**Oak Ridge Laboratory** **601 Scarboro Rd.** **Oak Ridge, TN 37830** **Voice: 865.481.0683** **www.eberlineservices.com**	Internal Work Order	17-07089
		Analysis Code	UUISO
		Run Number	1

#	Date	Dept	User	Notes
1	08/14/17 09:51	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	08/28/17 17:44	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.

8/28/17

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	17-07089
Analysis Code	UUISO
Run Number	1

#	Date	Dept	User	Notes
1	08/14/17 09:51	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	08/28/17 17:44	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	08/29/17 05:17	CHEM	TSMITH	Followed steps 12.1.7 to 12.4.5 in AP-005 . (Precipitated and filtered samples for Uranium)

6/29/17
JM

EBERLINE SERVICES

Reagents Used in an Analysis

Internal Work Order	
17-07089	
Analysis Code	Run
UUISO	1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
019093P	Hydrofluoric Acid	Reagent Grade	JHARVEY	8/14/2017
018971P	Nitric Acid	Reagent Grade	JHARVEY	8/14/2017
019133P	Perchloric Acid	Reagent Grade	JHARVEY	8/14/2017
018550P	Sulfuric Acid	Reagent Grade	JHARVEY	8/14/2017
017344P	Anion Exchange Resin	Reagent Grade	JDEMELAS	8/28/2017
019220S	HCl - HF	6.5N - 0.04N	JDEMELAS	8/28/2017
019134D01	Hydrochloric Acid	0.5N	JDEMELAS	8/28/2017
019202S	Hydrochloric Acid	6.5N	JDEMELAS	8/28/2017
019219S	Hydrochloric Acid	8N	JDEMELAS	8/28/2017
019183P	Hydrochloric Acid	Reagent Grade	JDEMELAS	8/28/2017
019232S	HCl - NH4I	8N - 0.1M	JDEMELAS	8/28/2017
019183D01	Hydrochloric Acid	0.5N	JDEMELAS	8/28/2017
019063P	Ethyl Alcohol	1	TSMITH	8/29/2017
018890S	Neodymium Carrier	1 mg/ml	TSMITH	8/29/2017
019038P	Titanous Chloride	Reagent Grade	TSMITH	8/29/2017
019227P	Hydrofluoric Acid	Reagent Grade	TSMITH	8/29/2017
019196S	Carbon substrate	Solution	TSMITH	8/29/2017

Alpha #3

Date	Sample #	Client	Time	Time	Analyzed	Tech
8/25/17	1707088A(12-20)	Weston	1408	2h50m	Th	KB
8/25/17	1708035A(1-4)	TWPC	1410	2h50m	UU	KB
8/25/17	System Blgd	Lab	1703	16.40 hr	[illegible]	KB
8/26	Daily Pulse	LAB	0945	1	[illegible]	—
8/26	1708043A(1-4)	UCOR	1004	2h5m	UU Iso	C
8/26	1708008A(1-4)	Omega	1004	2h5m	Am 241	C
8/26	1708035A(1-4)	TWPC	1006	2h5m	Am 241	C
8/28	Daily Pulse	LAB	0518	1	[illegible]	—
8/28	1708026A(3,5)	UCOR	0828	2h5m	Am 241	C
8/28	1708026A(1-3,5,12)	UCOR	0828	2h5m	Pu Iso	C
8/28	1708026A(1-3,5)	UCOR	0829	2h5m	Pu 242	C
8/28	1708110A(1-5)	United	0830	2h5m	UU Iso	C
8/28	1708033A(1-6,7,12)	TN Dept	0830	2h5m	UU Iso	C
8/28/17	1708026A(3,5)	UCOR	1128	2h50m	Th	KB
8/28/17	1708026A(1-3,5)	UCOR	1129	2h50m	Th 229	KB
8/28/17	1708026A(1-3,5)	UCOR	1129	2h50m	UU	KB
8/28/17	1708026A(5)	UCOR	1130	2h50m	UUNT	KB
8/28/17	1707088A(1-13)	Weston	1131	2h50m	UU	KB
8/28/17	1707088A(20)	Weston	1432	2h50m	UU	KB
8/28/17	1708052A(1-13)	TBE	1433	2h50m	Ra 4	KB
8/28/17	1708030A(1-8)	MPA	1434	2h50m	Ra 4	KB
8/29	Daily Pulse	LAB	0518	1	[illegible]	—
8/29	1708038A(3,4)	UCOR	0827	2h5m	Am 240	C
8/29	1708038A(1-4,7)	UCOR	0827	2h5m	Pu Iso	C
8/29	1708038A(1-4)	UCOR	0828	2h5m	Pu 242	C
8/29	1708038A(1-3)	UCOR	0828	2h5m	UU Iso	C
8/29	1708038ANT(4)	UCOR	0829	2h5m	UUNT	C
8/29	1708034A(1-9)	TN Dept	0830	26h4m	UU Iso	C
8/29/17	1708038A(1-4)	UCOR	1124	2h50m	Th	KB
8/29/17	1708038A(1-4)	UCOR	1126	2h50m	Th 229	KB
8/29/17	1707089A(1-7)	Weston	1127	2h50m	UU	KB
8/29/17	1708019A(3-6)	AMO	1432	2h50m	Ra 4	KB
8/29/17	1707089A(8-18)	Weston	1434	2h50m	UU	KB

Alphan #3

Date	Sample #	Client	Load Time	C Time	Analyzed	Tech
8/29/17	1708014A(1-11)	Accutest	1729	2h50 -	Rale	KB
8/29/17	1707089A(19-20)	Weston	1730	2h50 -	UU	KB

ISO-TH NOTES

EBERLINE SERVICES

Work Order Analysis Notes

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

Internal Work Order	17-07089
Analysis Code	ThISO
Run Number	1

#	Date	Dept	User	Notes
1	08/14/17 09:51	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
8/14/17

EBERLINE SERVICES Work Order Analysis Notes	Oak Ridge Laboratory 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com	Internal Work Order	17-07089
		Analysis Code	ThISO
		Run Number	1

#	Date	Dept	User	Notes
1	08/14/17 09:51	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	08/29/17 16:36	CHEM	JDEMELAS	Added concentrated HNO3 to sample beakers and heated to dryness; Added 20 ml 8N HNO3 to samples and transferred to new, labeled C-Tubes, adding 8N HNO3 to bring volume to ~35 ml; Preconditioned resin columns with 50 ml 8N HNO3; Centrifuged samples as needed, and passed through columns; Rinsed C-Tubes with 20 ml 8N HNO3; Centrifuged rinsates and loaded onto columns; Rinsed columns with 40 ml 8N HNO3; Eluted Thorium with 50 ml of 8N HCl into clean, labeled 100-ml beakers; Dried-down samples on hotplate; Dissolved samples in ~10 ml of concentrated HCl; Transferred to new, labeled C-Tubes with deiononized water, bringing volume to ~15ml. Set samples aside for later precipitation and filtering.

8/29/17

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	17-07089
Analysis Code	ThISO
Run Number	1

#	Date	Dept	User	Notes
1	08/14/17 09:51	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	08/29/17 16:36	CHEM	JDEMELAS	Added concentrated HNO3 to sample beakers and heated to dryness; Added 20 ml 8N HNO3 to samples and transferred to new, labeled C-Tubes, adding 8N HNO3 to bring volume to ~35 ml; Preconditioned resin columns with 50 ml 8N HNO3; Centrifuged samples as needed, and passed through columns; Rinsed C-Tubes with 20 ml 8N HNO3; Centrifuged rinsates and loaded onto columns; Rinsed columns with 40 ml 8N HNO3; Eluted Thorium with 50 ml of 8N HCl into clean, labeled 100-ml beakers; Dried-down samples on hotplate; Dissolved samples in ~10 ml of concentrated HCl; Transferred to new, labeled C-Tubes with deiononized water, bringing volume to ~15ml. Set samples aside for later precipitation and filtering.
3	08/30/17 05:17	CHEM	TSMITH	Followed steps 12.2.5 to 12.4.5 in AP-005 . (Precipitated and filtered samples for Thorium)

6-30-17
JM

EBERLINE SERVICES

Reagents Used in an Analysis

Internal Work Order	
17-07089	
Analysis Code	Run
ThISO	1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
019093P	Hydrofluoric Acid	Reagent Grade	JHARVEY	8/14/2017
018971P	Nitric Acid	Reagent Grade	JHARVEY	8/14/2017
019133P	Perchloric Acid	Reagent Grade	JHARVEY	8/14/2017
018550P	Sulfuric Acid	Reagent Grade	JHARVEY	8/14/2017
017344P	Anion Exchange Resin	Reagent Grade	JDEMELAS	8/29/2017
019183P	Hydrochloric Acid	Reagent Grade	JDEMELAS	8/29/2017
019074P	Nitric Acid	Reagent Grade	JDEMELAS	8/29/2017
019235S	Hydrochloric Acid	8N	JDEMELAS	8/29/2017
019236S	Nitric Acid	8N	JDEMELAS	8/29/2017
019106S	Cerrium Carrier	0.1mg/ml	TSMITH	8/30/2017
019063P	Ethyl Alcohol	1	TSMITH	8/30/2017
019227P	Hydrofluoric Acid	Reagent Grade	TSMITH	8/30/2017
019196S	Carbon substrate	Solution	TSMITH	8/30/2017

Alpha #3

Date	Sample #	Client	Load Time	C Time	Analyzed	Tech
8/29/17	1708014A(1-11)	Accutest	1729	2h-50	Rob	KB
8/29/17	1707089A(19-20)	Weston	1730	2h-50	UU	KB
8/3	Daily Purge	KB	0520	1	[illegible]	—
8/3	1708116A(1-5)	Smoky Mount	0833	2h-5	Purge	C
8/3	1708116A(1-5)	Smoky Mount	0834	2h-5	UUIso	C
8/3	1707090A(1-6)	Weston	0835	2h-5	UUIso	C
8/3	1708099A(1-8)	Zion	0836	5h-35	PuIso	—
8/30/17	1707090A(12-20)	Weston	1130	2h-50	UU	KB
8/30/17	1707089A(1-7)	Weston	1131	2h-50	Th	KB
8/30/17	1708122A(1-4)	USA	1424	2h-50	Rob	KB
8/30/17	1707089A(8-20)	Weston	1426	2h-50	Th	KB

GAMMA NOTES

GE 4

DATE	Sample #	Client	Load Time	CT. Time	Analysis	Tech
8/22/17	1708002-01	MPA	1454	15 mins	Ben	KB
8/22/17	1708002-05	MPA	1519	15 mins	Ben	KB
8/22/17	1708006-02	UCOR	1536	15 mins	Ben	KB
8/22/17	1708011-02	MPA	1553	15 min	Ben	KB
8/22/17	1708011-05	MPA	1610	15 min	Ben	KB
8/22/17	1707088-10	Weston	1626	1 hr	r	KB
8/22/17	1707088-13	Weston	1727	1 hr	r	KB
8/22/17	1708095-02	Eden Foods	1828	2 hr	r	KB
8/23	GAW16	LAB	0517	15	r	[illegible]
8/23	DWLYR	LAB	0534	15	r	[illegible]
8/23	1707088-19	Weston	0601	[illegible]	r	—
8/23	1707089-06	Weston	0705	[illegible]	r	—
8/23	1707089-09	Weston	0811	[illegible]	r	—
8/23	1707089-13	Weston	0814	[illegible]	r	—
8/23	1707089-17	Weston	1017	[illegible]	r	—

GE 3

DATE	SAmple #	Client	LoadTime	CTiTime	Analysis	Tech
8/22/17	1707088-12	Weston	1727	1hr	✓	KB
8/22/17	1708095-05	Eden Foods	1828	2hr	✓	KB
8/23	~~CAS~~ 1602	LAB	0517	15	✓	{
8/23	Daily	LAB	0541	15	✓	
8/23	1707088-13	Weston	0601	1h	✓	—
8/23	1707089-05	Weston	0705	1h	✓	—
8/23	1707085-08	Weston	0814	1h	✓	—
8/23	1707089-12	Weston	0917	1h	✓	—
8/23	1707089-16	Weston	1017	1h	✓	—
8/23	1707085.01	Weston	1119	1h	✓	—

GE 2

DATE	SAmple #	Client	Load Time	CT Time	Analysis	Tech
8/22/17	1708095-03	Eden Foods	1608	2hr	✓	KB
8/22/17	1708095-04	Eden Foods	1810	2hr	✓	KB
8/23	~~GA~~ 81601	KB	0517	15	✓	C
8/23	[illegible]	KB	0544	15	✓	—
8/23	1707088-17	Weston	[illegible]	[illegible]	✓	—
8/23	1707089-03	Weston	0705	[illegible]	✓	C
8/23	1707089-04	Weston	0811	[illegible]	✓	C
8/23	1707089-11	Weston	0917	[illegible]	✓	—
8/23	1707089-15	Weston	1017	[illegible]	✓	✓
8/23	1707089-02	Weston	1119	[illegible]	✓	—

GE 1

DATE	Sample #	Client	Load Time	CT Time	Analysis	Tech
8/21/17	1707086-07	Weston	1524	1 hr	✓	KB
8/21/17	1707086-10	Weston	1625	1 hr	✓	KB
8/21/17	1707086-14	Weston	1726	1 hr	✓	KB
8/21/17	1708086-03	Indust. + Env.	1827	4 hrs	✓	KB
8/22	GAF16	LAB	0510	15	✓	[illegible]
8/22	Daily QC	LAB	0510	15	✓	[illegible]
8/22	1707086-16	Weston	0510	1 hr	✓	—
8/22	1707086-20	Weston	0614	1 hr	✓	—
8/22	1707164-07	LAB	0455	1 hr	✓	—
8/22	1707087-03	Weston	0801	1 hr	✓	[illegible]
8/22	1707087-04	Weston	1004	1 hr	✓	[illegible]
8/22	1707087-12	Weston	1106	1 hr	✓	—
8/22/17	1707087-16	Weston	1208	1 hr	✓	KB
8/22/17	1707087-20	Weston	1311	1 hr	✓	—
8/22/17	1707088-06	Weston	1413	1 hr	✓	KB
8/22/17	1708002-02	MPA	1519	15 mins	Ben	KB
8/22/17	1708002-06	MPA	1535	15 mins	Ben	KB
8/22/17	1708006-03	Ulon	1552	15 min	Ben	KB
8/22/17	1708011-03	MPA	1609	15 min	Ben	KB
8/22/17	1707088-08	Weston	1626	1 hr	✓	KB
8/22/17	1707088-11	Weston	1727	1 hr	✓	KB
8/22/17	1708086-04	Indust. + Env.	1827	4 hrs	✓	KB
8/23	GAF16	LAB	0517	15	✓	[illegible]
8/23	Daily QC	LAB	0541	15	✓	—
8/23	1707088-16	Weston	0601	1 hr	✓	—
8/23	1707088-20	Weston	0705	1 hr	✓	—
8/23	1707089-04	Weston	0811	1 hr	✓	—
8/23	1707089-10	Weston	0917	1 hr	✓	—
8/23	1707089-14	Weston	1017	1 hr	✓	—
8/23	1707089-18	Weston	1118	1 hr	✓	—

SECTION VIII

ANALYTICAL DATA (ISOTOPIC URANIUM)

Eberline Analytical
Oak Ridge Laboratory
Analysis Sheet

17-07089
UUISO
Run 1

Work Order	17-07089
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-A04-S001-2430-01	47	05/15/17 09:59	1.1000E+00
04	DO	HTC-A04-S001-2430-01	47	05/15/17 09:59	1.1200E+00
05	TRG	HTC-A04-S001-3036-01	44	05/15/17 09:56	1.0400E+00
06	TRG	HTC-A04-S001-3642-01	30	05/15/17 09:53	1.1200E+00
07	TRG	HTC-A04-S001-4248-01	50	05/15/17 09:50	1.0800E+00
08	TRG	HTC-A04-S002-0006-01	61	05/16/17 08:04	1.4400E+00
09	TRG	HTC-A04-S002-0612-01	82	05/16/17 08:02	1.3400E+00
10	TRG	HTC-A04-S002-1218-01	87	05/16/17 08:00	1.1700E+00
11	TRG	HTC-A04-S002-1824-01	51	05/16/17 07:58	1.3600E+00
12	TRG	HTC-A04-S002-2430-01	69	05/16/17 07:56	1.0500E+00
13	TRG	HTC-A04-S002-3036-01	110	05/16/17 07:54	1.3200E+00
14	TRG	HTC-A04-S002-3642-01	50	05/16/17 07:52	1.2800E+00
15	TRG	HTC-A04-S002-4248-01	67	05/16/17 07:50	1.2300E+00
16	TRG	HTC-A06-S001-0006-01	67	05/16/17 14:28	1.4700E+00
17	TRG	HTC-A06-S001-0612-01	76	05/16/17 14:26	1.0800E+00
18	MSO	HTC-A08-S001-0612-01	42	05/16/17 14:58	1.0300E+00
19	MS	HTC-A08-S001-0612-01	39	05/15/17 09:59	1.0400E+00
20	MSD	HTC-A08-S001-0612-01 MSD	39	05/16/17 14:58	1.0100E+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.

0080

Eberline Analytical
Oak Ridge Laboratory
Analysis Sheet

17-07089
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	0.6137	11.2		0.00								
02	MBL	0.6135	11.2		0.00								
03	DUP	0.6147	11.3		0.00								
04	DO	0.6139	11.2		0.00								
05	TRG	0.6131	11.2		0.00								
06	TRG	0.6116	11.2		0.00								
07	TRG	0.6113	11.2		0.00								
08	TRG	0.6117	11.2		0.00								
09	TRG	0.6116	11.2		0.00								
10	TRG	0.6112	11.2		0.00								
11	TRG	0.6112	11.2		0.00								
12	TRG	0.6114	11.2		0.00								
13	TRG	0.6103	11.2		0.00								
14	TRG	0.6107	11.2		0.00								
15	TRG	0.6101	11.2		0.00								
16	TRG	0.6107	11.2		0.00								
17	TRG	0.6101	11.2		0.00								
18	MSO	0.6102	11.2		0.00								
19	MS	0.6104	11.2		0.00								
20	MSD	0.6096	11.2		0.00								

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

17-07089
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			08/14/17 09:55	JHARVEY				
02	MBL			08/14/17 09:55	JHARVEY				
03	DUP			08/14/17 09:55	JHARVEY				
04	DO	08/02/17 06:55	KSALLINGS	08/14/17 09:55	JHARVEY				
05	TRG	08/02/17 06:55	KSALLINGS	08/14/17 09:55	JHARVEY				
06	TRG	08/02/17 06:55	KSALLINGS	08/14/17 09:55	JHARVEY				
07	TRG	08/02/17 06:55	KSALLINGS	08/14/17 09:55	JHARVEY				
08	TRG	08/02/17 06:55	KSALLINGS	08/14/17 09:55	JHARVEY				
09	TRG	08/02/17 06:55	KSALLINGS	08/14/17 09:55	JHARVEY				
10	TRG	08/02/17 06:55	KSALLINGS	08/14/17 09:55	JHARVEY				
11	TRG	08/02/17 06:55	KSALLINGS	08/14/17 09:55	JHARVEY				
12	TRG	08/02/17 06:55	KSALLINGS	08/14/17 09:55	JHARVEY				
13	TRG	08/02/17 06:55	KSALLINGS	08/14/17 09:55	JHARVEY				
14	TRG	08/02/17 06:55	KSALLINGS	08/14/17 09:55	JHARVEY				
15	TRG	08/02/17 06:55	KSALLINGS	08/14/17 09:55	JHARVEY				
16	TRG	08/02/17 06:55	KSALLINGS	08/14/17 09:55	JHARVEY				
17	TRG	08/02/17 06:55	KSALLINGS	08/14/17 09:55	JHARVEY				
18	MSO	08/02/17 06:55	KSALLINGS	08/14/17 09:55	JHARVEY				
19	MS	08/02/17 06:55	KSALLINGS	08/14/17 09:55	JHARVEY				
20	MSD	08/02/17 06:55	KSALLINGS	08/14/17 09:55	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: 17-07089-UUISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07089
Analysis Code: UUISO
Run: 1
0083

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	5.75E+00	7.68E-01	8.34E-02	7.56E+00	76.07	OK		OK	
02	U-234	MBL	BLANK	pCi/g	4.10E-02	4.93E-02	6.96E-02					OK	OK
03	U-234	DUP	HTC-A04-S001-2430-01	pCi/g	8.31E-01	2.14E-01	6.57E-02				INV	OK	
04	U-234	DO	HTC-A04-S001-2430-01	pCi/g	1.22E+00	2.64E-01	7.56E-02					OK	
05	U-234	TRG	HTC-A04-S001-3036-01	pCi/g	8.29E-01	2.26E-01	6.32E-02					OK	
06	U-234	TRG	HTC-A04-S001-3642-01	pCi/g	9.65E-01	2.29E-01	6.65E-02					OK	
07	U-234	TRG	HTC-A04-S001-4248-01	pCi/g	9.85E-01	2.64E-01	9.57E-02					OK	
08	U-234	TRG	HTC-A04-S002-0006-01	pCi/g	3.38E+01	4.14E+00	6.41E-02					OK	
09	U-234	TRG	HTC-A04-S002-0612-01	pCi/g	2.68E+01	3.33E+00	7.22E-02					OK	
10	U-234	TRG	HTC-A04-S002-1218-01	pCi/g	3.61E+01	4.83E+00	1.03E-01					OK	
11	U-234	TRG	HTC-A04-S002-1824-01	pCi/g	2.68E+01	3.21E+00	5.45E-02					OK	
12	U-234	TRG	HTC-A04-S002-2430-01	pCi/g	4.06E+01	4.90E+00	1.05E-01					OK	
13	U-234	TRG	HTC-A04-S002-3036-01	pCi/g	3.18E+01	3.96E+00	6.71E-02					OK	
14	U-234	TRG	HTC-A04-S002-3642-01	pCi/g	2.62E+01	3.13E+00	6.14E-02					OK	
15	U-234	TRG	HTC-A04-S002-4248-01	pCi/g	1.89E+01	2.34E+00	7.97E-02					OK	
16	U-234	TRG	HTC-A06-S001-0006-01	pCi/g	3.68E+01	4.91E+00	6.11E-02					OK	
17	U-234	TRG	HTC-A06-S001-0612-01	pCi/g	3.71E+01	4.92E+00	9.97E-02					OK	
18	U-234	MSO	HTC-A08-S001-0612-01	pCi/g	6.77E-01	2.17E-01	9.95E-02					OK	
19	U-234	MS	HTC-A08-S001-0612-01	pCi/g	6.13E+00	8.49E-01	8.21E-02					OK	
20	U-234	MSD	HTC-A08-S001-0612-01 MSD	pCi/g	6.62E+00	9.16E-01	6.03E-02					OK	

Preliminary Data Report & Analytical Calculations

Work Order: 17-07089-UUISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07089
Analysis Code: UUISO
Run: 1
0084

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	128.66	0.00	0.00			
02	U-234	MBL	07/19/17 00:00	1.00E+00	119.98	0.00	0.00			
03	U-234	DUP	05/15/17 09:59	1.10E+00	122.69	0.00	0.00			
04	U-234	DO	05/15/17 09:59	1.12E+00	125.48	0.00	0.00			
05	U-234	TRG	05/15/17 09:56	1.04E+00	118.95	0.00	0.00			
06	U-234	TRG	05/15/17 09:53	1.12E+00	130.78	0.00	0.00			
07	U-234	TRG	05/15/17 09:50	1.08E+00	97.42	0.00	0.00			
08	U-234	TRG	05/16/17 08:04	1.44E+00	108.72	0.00	0.00			
09	U-234	TRG	05/16/17 08:02	1.34E+00	111.95	0.00	0.00			
10	U-234	TRG	05/16/17 08:00	1.17E+00	78.06	0.00	0.00			
11	U-234	TRG	05/16/17 07:58	1.36E+00	103.57	0.00	0.00			
12	U-234	TRG	05/16/17 07:56	1.05E+00	97.52	0.00	0.00			
13	U-234	TRG	05/16/17 07:54	1.32E+00	94.28	0.00	0.00			
14	U-234	TRG	05/16/17 07:52	1.28E+00	112.82	0.00	0.00			
15	U-234	TRG	05/16/17 07:50	1.23E+00	108.31	0.00	0.00			
16	U-234	TRG	05/16/17 14:28	1.47E+00	87.09	0.00	0.00			
17	U-234	TRG	05/16/17 14:26	1.08E+00	90.50	0.00	0.00			
18	U-234	MSO	05/16/17 14:58	1.03E+00	98.20	0.00	0.00			
19	U-234	MS	05/15/17 09:59	1.04E+00	124.35	0.00	0.00			
20	U-234	MSD	05/16/17 14:58	1.01E+00	128.47	0.00	0.00			

Preliminary Data Report & Analytical Calculations
Work Order: 17-07089-UUISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07089
Analysis Code: UUISO
Run: 1
0085

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff	A to B, Cor
01	U-234	LCS	08/29/17 11:27		A_Spec	Alpha_043	170	5.22 E+02	1.10 E-02	18.7	
02	U-234	MBL	08/29/17 11:27		A_Spec	Alpha_044	170	3.32 E+00	4.00 E-03	17.9	
03	U-234	DUP	08/29/17 11:27		A_Spec	Alpha_045	170	7.13 E+01	4.00 E-03	16.9	
04	U-234	DO	08/29/17 11:27		A_Spec	Alpha_046	170	1.11 E+02	8.00 E-03	17.1	
05	U-234	TRG	08/29/17 11:27		A_Spec	Alpha_047	170	6.27 E+01	2.00 E-03	16.2	
06	U-234	TRG	08/29/17 11:27		A_Spec	Alpha_048	170	8.70 E+01	0.00 E+00	16.3	
07	U-234	TRG	08/29/17 11:28		A_Spec	Alpha_052	170	6.78 E+01	7.00 E-03	17.4	
08	U-234	TRG	08/29/17 14:33		A_Spec	Alpha_037	170	3.16 E+03	0.00 E+00	15.9	
09	U-234	TRG	08/29/17 14:33		A_Spec	Alpha_038	170	2.33 E+03	6.00 E-03	15.4	
10	U-234	TRG	08/29/17 14:33		A_Spec	Alpha_039	170	2.30 E+03	7.00 E-03	18.5	
11	U-234	TRG	08/29/17 14:33		A_Spec	Alpha_040	170	2.57 E+03	3.00 E-03	18.1	
12	U-234	TRG	08/29/17 14:33		A_Spec	Alpha_043	170	2.94 E+03	1.10 E-02	18.7	
13	U-234	TRG	08/29/17 14:33		A_Spec	Alpha_044	170	2.67 E+03	4.00 E-03	17.9	
14	U-234	TRG	08/29/17 14:33		A_Spec	Alpha_045	170	2.40 E+03	4.00 E-03	16.9	
15	U-234	TRG	08/29/17 14:33		A_Spec	Alpha_046	170	1.62 E+03	8.00 E-03	17.1	
16	U-234	TRG	08/29/17 14:33		A_Spec	Alpha_047	170	2.88 E+03	2.00 E-03	16.2	
17	U-234	TRG	08/29/17 14:33		A_Spec	Alpha_048	170	2.23 E+03	0.00 E+00	16.3	
18	U-234	MSO	08/29/17 14:33		A_Spec	Alpha_052	170	4.48 E+01	7.00 E-03	17.4	
19	U-234	MS	08/29/17 17:29		A_Spec	Alpha_046	170	5.12 E+02	8.00 E-03	17.1	
20	U-234	MSD	08/29/17 17:29		A_Spec	Alpha_047	170	5.25 E+02	2.00 E-03	16.2	

Eberline Analytical
Oak Ridge Laboratory

Preliminary Data Report & Analytical Calculations

Work Order: 17-07089-UUISO-1

9800 Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07089
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	6.61E+00	8.58E-01	5.24E-02	7.32E+00	90.25	OK		OK	
02	U-238	MBL	BLANK	pCi/g	1.83E-02	3.49E-02	6.45E-02					OK	OK
03	U-238	DUP	HTC-A04-S001-2430-01	pCi/g	8.37E-01	2.15E-01	6.95E-02				OK	OK	
04	U-238	DO	HTC-A04-S001-2430-01	pCi/g	9.22E-01	2.22E-01	6.92E-02					OK	
05	U-238	TRG	HTC-A04-S001-3036-01	pCi/g	8.58E-01	2.31E-01	7.88E-02					OK	
06	U-238	TRG	HTC-A04-S001-3642-01	pCi/g	7.35E-01	1.94E-01	5.80E-02					OK	
07	U-238	TRG	HTC-A04-S001-4248-01	pCi/g	9.76E-01	2.61E-01	7.59E-02					OK	
08	U-238	TRG	HTC-A04-S002-0006-01	pCi/g	3.39E+01	4.15E+00	4.44E-02					OK	
09	U-238	TRG	HTC-A04-S002-0612-01	pCi/g	2.67E+01	3.32E+00	5.99E-02					OK	
10	U-238	TRG	HTC-A04-S002-1218-01	pCi/g	3.68E+01	4.92E+00	6.52E-02					OK	
11	U-238	TRG	HTC-A04-S002-1824-01	pCi/g	2.64E+01	3.16E+00	6.20E-02					OK	
12	U-238	TRG	HTC-A04-S002-2430-01	pCi/g	3.98E+01	4.80E+00	6.59E-02					OK	
13	U-238	TRG	HTC-A04-S002-3036-01	pCi/g	3.17E+01	3.95E+00	6.22E-02					OK	
14	U-238	TRG	HTC-A04-S002-3642-01	pCi/g	2.48E+01	2.98E+00	6.49E-02					OK	
15	U-238	TRG	HTC-A04-S002-4248-01	pCi/g	1.85E+01	2.30E+00	7.30E-02					OK	
16	U-238	TRG	HTC-A06-S001-0006-01	pCi/g	3.77E+01	5.03E+00	7.62E-02					OK	
17	U-238	TRG	HTC-A06-S001-0612-01	pCi/g	3.69E+01	4.90E+00	8.69E-02					OK	
18	U-238	MSO	HTC-A08-S001-0612-01	pCi/g	4.44E-01	1.70E-01	7.89E-02					OK	
19	U-238	MS	HTC-A08-S001-0612-01	pCi/g	6.32E+00	8.69E-01	7.52E-02					OK	
20	U-238	MSD	HTC-A08-S001-0612-01 MSD	pCi/g	6.88E+00	9.45E-01	7.52E-02					OK	

Preliminary Data Report & Analytical Calculations
Work Order: 17-07089-UUISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07089
Analysis Code: UUISO
Run: 1
0087

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	128.66	0.00	0.00			
02	U-238	MBL	07/19/17 00:00	1.00E+00	119.98	0.00	0.00			
03	U-238	DUP	05/15/17 09:59	1.10E+00	122.69	0.00	0.00			
04	U-238	DO	05/15/17 09:59	1.12E+00	125.48	0.00	0.00			
05	U-238	TRG	05/15/17 09:56	1.04E+00	118.95	0.00	0.00			
06	U-238	TRG	05/15/17 09:53	1.12E+00	130.78	0.00	0.00			
07	U-238	TRG	05/15/17 09:50	1.08E+00	97.42	0.00	0.00			
08	U-238	TRG	05/16/17 08:04	1.44E+00	108.72	0.00	0.00			
09	U-238	TRG	05/16/17 08:02	1.34E+00	111.95	0.00	0.00			
10	U-238	TRG	05/16/17 08:00	1.17E+00	78.06	0.00	0.00			
11	U-238	TRG	05/16/17 07:58	1.36E+00	103.57	0.00	0.00			
12	U-238	TRG	05/16/17 07:56	1.05E+00	97.52	0.00	0.00			
13	U-238	TRG	05/16/17 07:54	1.32E+00	94.28	0.00	0.00			
14	U-238	TRG	05/16/17 07:52	1.28E+00	112.82	0.00	0.00			
15	U-238	TRG	05/16/17 07:50	1.23E+00	108.31	0.00	0.00			
16	U-238	TRG	05/16/17 14:28	1.47E+00	87.09	0.00	0.00			
17	U-238	TRG	05/16/17 14:26	1.08E+00	90.50	0.00	0.00			
18	U-238	MSO	05/16/17 14:58	1.03E+00	98.20	0.00	0.00			
19	U-238	MS	05/15/17 09:59	1.04E+00	124.35	0.00	0.00			
20	U-238	MSD	05/16/17 14:58	1.01E+00	128.47	0.00	0.00			

Preliminary Data Report & Analytical Calculations
Work Order: 17-07089-UUISO-1

Client: 8800 Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07089
Analysis Code: UUISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff	A to B, Cor
01	U-238	LCS	08/29/17 11:27		A_Spec	Alpha_043	170	6.03 E+02	2.00 E-03	18.7	
02	U-238	MBL	08/29/17 11:27		A_Spec	Alpha_044	170	1.49 E+00	3.00 E-03	17.9	
03	U-238	DUP	08/29/17 11:27		A_Spec	Alpha_045	170	7.22 E+01	5.00 E-03	16.9	
04	U-238	DO	08/29/17 11:27		A_Spec	Alpha_046	170	8.40 E+01	6.00 E-03	17.1	
05	U-238	TRG	08/29/17 11:27		A_Spec	Alpha_047	170	6.52 E+01	5.00 E-03	16.2	
06	U-238	TRG	08/29/17 11:27		A_Spec	Alpha_048	170	6.65 E+01	3.00 E-03	16.3	
07	U-238	TRG	08/29/17 11:28		A_Spec	Alpha_052	170	6.75 E+01	3.00 E-03	17.4	
08	U-238	TRG	08/29/17 14:33		A_Spec	Alpha_037	170	3.18 E+03	1.00 E-03	15.9	
09	U-238	TRG	08/29/17 14:33		A_Spec	Alpha_038	170	2.34 E+03	3.00 E-03	15.4	
10	U-238	TRG	08/29/17 14:33		A_Spec	Alpha_039	170	2.35 E+03	1.00 E-03	18.5	
11	U-238	TRG	08/29/17 14:33		A_Spec	Alpha_040	170	2.55 E+03	5.00 E-03	18.1	
12	U-238	TRG	08/29/17 14:33		A_Spec	Alpha_043	170	2.89 E+03	2.00 E-03	18.7	
13	U-238	TRG	08/29/17 14:33		A_Spec	Alpha_044	170	2.67 E+03	3.00 E-03	17.9	
14	U-238	TRG	08/29/17 14:33		A_Spec	Alpha_045	170	2.29 E+03	5.00 E-03	16.9	
15	U-238	TRG	08/29/17 14:33		A_Spec	Alpha_046	170	1.59 E+03	6.00 E-03	17.1	
16	U-238	TRG	08/29/17 14:33		A_Spec	Alpha_047	170	2.97 E+03	5.00 E-03	16.2	
17	U-238	TRG	08/29/17 14:33		A_Spec	Alpha_048	170	2.23 E+03	3.00 E-03	16.3	
18	U-238	MSO	08/29/17 14:33		A_Spec	Alpha_052	170	2.95 E+01	3.00 E-03	17.4	
19	U-238	MS	08/29/17 17:29		A_Spec	Alpha_046	170	5.30 E+02	6.00 E-03	17.1	
20	U-238	MSD	08/29/17 17:29		A_Spec	Alpha_047	170	5.48 E+02	5.00 E-03	16.2	

Preliminary Data Report & Analytical Calculations
Work Order: 17-07089-UUISO-1

Client: Weston Solutions, Inc. 6800
Eberline Analytical Work Order: 17-07089
Analysis Code: UUISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	U-235	LCS	LCS	pCi/g	4.34E-01	1.60E-01	8.56E-02					OK	
02	U-235	MBL	BLANK	pCi/g	2.79E-02	4.26E-02	6.36E-02					OK	OK
03	U-235	DUP	HTC-A04-S001-2430-01	pCi/g	1.41E-01	9.06E-02	6.00E-02				OK	OK	
04	U-235	DO	HTC-A04-S001-2430-01	pCi/g	1.11E-01	8.15E-02	8.14E-02					OK	
05	U-235	TRG	HTC-A04-S001-3036-01	pCi/g	3.78E-02	5.66E-02	9.20E-02					OK	
06	U-235	TRG	HTC-A04-S001-3642-01	pCi/g	5.01E-02	5.43E-02	6.55E-02					OK	
07	U-235	TRG	HTC-A04-S001-4248-01	pCi/g	1.19E-01	9.44E-02	8.57E-02					OK	
08	U-235	TRG	HTC-A04-S002-0006-01	pCi/g	2.35E+00	4.42E-01	7.90E-02					OK	
09	U-235	TRG	HTC-A04-S002-0612-01	pCi/g	2.04E+00	4.11E-01	8.48E-02					OK	
10	U-235	TRG	HTC-A04-S002-1218-01	pCi/g	2.75E+00	5.74E-01	1.16E-01					OK	
11	U-235	TRG	HTC-A04-S002-1824-01	pCi/g	2.03E+00	3.92E-01	7.23E-02					OK	
12	U-235	TRG	HTC-A04-S002-2430-01	pCi/g	3.62E+00	6.42E-01	1.08E-01					OK	
13	U-235	TRG	HTC-A04-S002-3036-01	pCi/g	2.60E+00	4.92E-01	6.13E-02					OK	
14	U-235	TRG	HTC-A04-S002-3642-01	pCi/g	1.69E+00	3.52E-01	5.61E-02					OK	
15	U-235	TRG	HTC-A04-S002-4248-01	pCi/g	1.21E+00	2.94E-01	8.59E-02					OK	
16	U-235	TRG	HTC-A06-S001-0006-01	pCi/g	3.38E+00	6.27E-01	8.89E-02					OK	
17	U-235	TRG	HTC-A06-S001-0612-01	pCi/g	2.66E+00	5.68E-01	9.81E-02					OK	
18	U-235	MSO	HTC-A08-S001-0612-01	pCi/g	6.82E-02	7.40E-02	8.91E-02					OK	
19	U-235	MS	HTC-A08-S001-0612-01	pCi/g	4.16E-01	1.63E-01	8.85E-02					OK	
20	U-235	MSD	HTC-A08-S001-0612-01 MSD	pCi/g	6.74E-01	2.15E-01	8.77E-02					OK	

Preliminary Data Report & Analytical Calculations
Work Order: 17-07089-UUISO-1

Client: 0600 Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07089
Analysis Code: UUISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	U-235	LCS	07/19/17 00:00	1.00E+00	128.66	0.00	0.00			
02	U-235	MBL	07/19/17 00:00	1.00E+00	119.98	0.00	0.00			
03	U-235	DUP	05/15/17 09:59	1.10E+00	122.69	0.00	0.00			
04	U-235	DO	05/15/17 09:59	1.12E+00	125.48	0.00	0.00			
05	U-235	TRG	05/15/17 09:56	1.04E+00	118.95	0.00	0.00			
06	U-235	TRG	05/15/17 09:53	1.12E+00	130.78	0.00	0.00			
07	U-235	TRG	05/15/17 09:50	1.08E+00	97.42	0.00	0.00			
08	U-235	TRG	05/16/17 08:04	1.44E+00	108.72	0.00	0.00			
09	U-235	TRG	05/16/17 08:02	1.34E+00	111.95	0.00	0.00			
10	U-235	TRG	05/16/17 08:00	1.17E+00	78.06	0.00	0.00			
11	U-235	TRG	05/16/17 07:58	1.36E+00	103.57	0.00	0.00			
12	U-235	TRG	05/16/17 07:56	1.05E+00	97.52	0.00	0.00			
13	U-235	TRG	05/16/17 07:54	1.32E+00	94.28	0.00	0.00			
14	U-235	TRG	05/16/17 07:52	1.28E+00	112.82	0.00	0.00			
15	U-235	TRG	05/16/17 07:50	1.23E+00	108.31	0.00	0.00			
16	U-235	TRG	05/16/17 14:28	1.47E+00	87.09	0.00	0.00			
17	U-235	TRG	05/16/17 14:26	1.08E+00	90.50	0.00	0.00			
18	U-235	MSO	05/16/17 14:58	1.03E+00	98.20	0.00	0.00			
19	U-235	MS	05/15/17 09:59	1.04E+00	124.35	0.00	0.00			
20	U-235	MSD	05/16/17 14:58	1.01E+00	128.47	0.00	0.00			

Preliminary Data Report & Analytical Calculations
Work Order: 17-07089-UUISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07089
Analysis Code: UUISO
Run: 1
0091

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff	A to B, Cor
01	U-235	LCS	08/29/17 11:27		A_Spec	Alpha_043	170	3.20 E+01	6.00 E-03	18.7	
02	U-235	MBL	08/29/17 11:27		A_Spec	Alpha_044	170	1.83 E+00	1.00 E-03	17.9	
03	U-235	DUP	08/29/17 11:27		A_Spec	Alpha_045	170	9.83 E+00	1.00 E-03	16.9	
04	U-235	DO	08/29/17 11:27		A_Spec	Alpha_046	170	8.15 E+00	5.00 E-03	17.1	
05	U-235	TRG	08/29/17 11:27		A_Spec	Alpha_047	170	2.32 E+00	4.00 E-03	16.2	
06	U-235	TRG	08/29/17 11:27		A_Spec	Alpha_048	170	3.66 E+00	2.00 E-03	16.3	
07	U-235	TRG	08/29/17 11:28		A_Spec	Alpha_052	170	6.66 E+00	2.00 E-03	17.4	
08	U-235	TRG	08/29/17 14:33		A_Spec	Alpha_037	170	1.78 E+02	0.00 E+00	15.9	
09	U-235	TRG	08/29/17 14:33		A_Spec	Alpha_038	170	1.44 E+02	0.00 E+00	15.4	
10	U-235	TRG	08/29/17 14:33		A_Spec	Alpha_039	170	1.42 E+02	5.00 E-03	18.5	
11	U-235	TRG	08/29/17 14:33		A_Spec	Alpha_040	170	1.58 E+02	4.00 E-03	18.1	
12	U-235	TRG	08/29/17 14:33		A_Spec	Alpha_043	170	2.12 E+02	6.00 E-03	18.7	
13	U-235	TRG	08/29/17 14:33		A_Spec	Alpha_044	170	1.77 E+02	1.00 E-03	17.9	
14	U-235	TRG	08/29/17 14:33		A_Spec	Alpha_045	170	1.26 E+02	1.00 E-03	16.9	
15	U-235	TRG	08/29/17 14:33		A_Spec	Alpha_046	170	8.42 E+01	5.00 E-03	17.1	
16	U-235	TRG	08/29/17 14:33		A_Spec	Alpha_047	170	2.14 E+02	4.00 E-03	16.2	
17	U-235	TRG	08/29/17 14:33		A_Spec	Alpha_048	170	1.30 E+02	2.00 E-03	16.3	
18	U-235	MSO	08/29/17 14:33		A_Spec	Alpha_052	170	3.66 E+00	2.00 E-03	17.4	
19	U-235	MS	08/29/17 17:29		A_Spec	Alpha_046	170	2.81 E+01	5.00 E-03	17.1	
20	U-235	MSD	08/29/17 17:29		A_Spec	Alpha_047	170	4.33 E+01	4.00 E-03	16.2	

Count Room Report
Client: Weston Solutions, Inc.

17-07089-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	0.6137	11.2430		0.00		
02	MBL	BLANK	07/19/17 00:00	1.0000	0.6135	11.2393		0.00		
03	DUP	HTC-A04-S001-2430-01	05/15/17 09:59	1.1000	0.6147	11.2613		0.00		
04	DO	HTC-A04-S001-2430-01	05/15/17 09:59	1.1200	0.6139	11.2466		0.00		
05	TRG	HTC-A04-S001-3036-01	05/15/17 09:56	1.0400	0.6131	11.2320		0.00		
06	TRG	HTC-A04-S001-3642-01	05/15/17 09:53	1.1200	0.6116	11.2045		0.00		
07	TRG	HTC-A04-S001-4248-01	05/15/17 09:50	1.0800	0.6113	11.1990		0.00		
08	TRG	HTC-A04-S002-0006-01	05/16/17 08:04	1.4400	0.6117	11.2063		0.00		
09	TRG	HTC-A04-S002-0612-01	05/16/17 08:02	1.3400	0.6116	11.2045		0.00		
10	TRG	HTC-A04-S002-1218-01	05/16/17 08:00	1.1700	0.6112	11.1972		0.00		
11	TRG	HTC-A04-S002-1824-01	05/16/17 07:58	1.3600	0.6112	11.1972		0.00		
12	TRG	HTC-A04-S002-2430-01	05/16/17 07:56	1.0500	0.6114	11.2008		0.00		
13	TRG	HTC-A04-S002-3036-01	05/16/17 07:54	1.3200	0.6103	11.1807		0.00		
14	TRG	HTC-A04-S002-3642-01	05/16/17 07:52	1.2800	0.6107	11.1880		0.00		
15	TRG	HTC-A04-S002-4248-01	05/16/17 07:50	1.2300	0.6101	11.1770		0.00		
16	TRG	HTC-A06-S001-0006-01	05/16/17 14:28	1.4700	0.6107	11.1880		0.00		
17	TRG	HTC-A06-S001-0612-01	05/16/17 14:26	1.0800	0.6101	11.1770		0.00		
18	MSO	HTC-A08-S001-0612-01	05/16/17 14:58	1.0300	0.6102	11.1789		0.00		
19	MS	HTC-A08-S001-0612-01	05/15/17 09:59	1.0400	0.6104	11.1825		0.00		
20	MSD	HTC-A08-S001-0612-01 MSD	05/16/17 14:58	1.0100	0.6096	11.1679		0.00		

Eberline Analytical
Oak Ridge Laboratory

Spike and Tracer Worksheet

Printed: 8/14/2017 9:55 AM

Internal Work Order	Run	Analysis Code	Date	Technician	Technician Initials	Witness Initials
17-07089	1	UUISO	8/14/2017 9:54	JHARVEY		

LCS & Matrix Spikes					LCS	MS	LCSD	MSD	LCS		MS		LCSD		MSD	
Isotope	*Sol #*	*Activity dpm/g*	*Solution Date*	*Approx Addition*	*Volume Used (g)*	*Volume Used (g)*	*Volume Used (g)*	*Volume Used (g)*	*Known pCi*	*Error Estimate*	*Added pCi*	*Error Estimate*	*Known pCi*	*Error Estimate*	*Added pCi*	*Error Estimate*
U-234	U-8a	32.000	8/14/2017	0.550	0.5242	0.5093		0.5104	7.56	0.272	7.34	0.264	0.00	0.000	7.36	0.265
U-238	U-8a	31.000	8/14/2017	0.550	0.5242	0.5093		0.5104	7.32	0.264	7.11	0.256	0.00	0.000	7.13	0.257

Tracers

fraction	*Isotope*	*Sol #*	*Activity dpm/g*	*Solution Date*	*Volume Used (g)*	*Approx Addition*
01	U-232	U-10a	18.320	8/14/2017	0.6137	0.6600
02	U-232	U-10a	18.320	8/14/2017	0.6135	0.6600
03	U-232	U-10a	18.320	8/14/2017	0.6147	0.6600
04	U-232	U-10a	18.320	8/14/2017	0.6139	0.6600
05	U-232	U-10a	18.320	8/14/2017	0.6131	0.6600
06	U-232	U-10a	18.320	8/14/2017	0.6116	0.6600
07	U-232	U-10a	18.320	8/14/2017	0.6113	0.6600
08	U-232	U-10a	18.320	8/14/2017	0.6117	0.6600
09	U-232	U-10a	18.320	8/14/2017	0.6116	0.6600
10	U-232	U-10a	18.320	8/14/2017	0.6112	0.6600
11	U-232	U-10a	18.320	8/14/2017	0.6112	0.6600
12	U-232	U-10a	18.320	8/14/2017	0.6114	0.6600
13	U-232	U-10a	18.320	8/14/2017	0.6103	0.6600
14	U-232	U-10a	18.320	8/14/2017	0.6107	0.6600
15	U-232	U-10a	18.320	8/14/2017	0.6101	0.6600
16	U-232	U-10a	18.320	8/14/2017	0.6107	0.6600
17	U-232	U-10a	18.320	8/14/2017	0.6101	0.6600
18	U-232	U-10a	18.320	8/14/2017	0.6102	0.6600
19	U-232	U-10a	18.320	8/14/2017	0.6104	0.6600
20	U-232	U-10a	18.320	8/14/2017	0.6096	0.6600

Balance Printer Tapes

Tracer	LCS
0.6137 g 0.6135 g 0.6147 g 0.6139 g 0.6131 g 0.6116 g 0.6113 g 0.6117 g 0.6116 g 0.6112 g 0.6112 g 0.6114 g 0.6103 g 0.6107 g 0.6101 g 0.6107 g 0.6101 g 0.6102 g 0.6104 g 0.6096 g	0.5242 g

Matrix Spike

0.5093 g

0.5104 g

0093

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
17-07089	1	UUISO	grams	8/10/2017	JHARVEY

Lab Fraction	Weston Solutions, Inc. Client ID	Sample Type	Muffle Data	Dilution Data			Aliquot Data		MS Aliquot Data		H-3 Solids Only	
			Ratio Post/Pre	No of Dils	Dil Factor	Ratio	Aliquot	Net Equiv	Aliquot	Net Equiv	Water Added (ml)	H3 Dist Aliq
01	LCS	LCS				1.00E+00	1.0000E+00	1.0000E+00				
02	BLANK	MBL				1.00E+00	1.0000E+00	1.0000E+00				
03	HTC-A04-S001-2430-01	DUP				1.00E+00	1.1000E+00	1.1000E+00				
04	HTC-A04-S001-2430-01	DO				1.00E+00	1.1200E+00	1.1200E+00				
05	HTC-A04-S001-3036-01	TRG				1.00E+00	1.0400E+00	1.0400E+00				
06	HTC-A04-S001-3642-01	TRG				1.00E+00	1.1200E+00	1.1200E+00				
07	HTC-A04-S001-4248-01	TRG				1.00E+00	1.0800E+00	1.0800E+00				
08	HTC-A04-S002-0006-01	TRG				1.00E+00	1.4400E+00	1.4400E+00				
09	HTC-A04-S002-0612-01	TRG				1.00E+00	1.3400E+00	1.3400E+00				
10	HTC-A04-S002-1218-01	TRG				1.00E+00	1.1700E+00	1.1700E+00				
11	HTC-A04-S002-1824-01	TRG				1.00E+00	1.3600E+00	1.3600E+00				
12	HTC-A04-S002-2430-01	TRG				1.00E+00	1.0500E+00	1.0500E+00				
13	HTC-A04-S002-3036-01	TRG				1.00E+00	1.3200E+00	1.3200E+00				
14	HTC-A04-S002-3642-01	TRG				1.00E+00	1.2800E+00	1.2800E+00				
15	HTC-A04-S002-4248-01	TRG				1.00E+00	1.2300E+00	1.2300E+00				
16	HTC-A06-S001-0006-01	TRG				1.00E+00	1.4700E+00	1.4700E+00				
17	HTC-A06-S001-0612-01	TRG				1.00E+00	1.0800E+00	1.0800E+00				
18	HTC-A08-S001-0612-01	MSO				1.00E+00	1.0300E+00	1.0300E+00				
19	HTC-A08-S001-0612-01 MS	MS				1.00E+00	1.0400E+00	1.0400E+00				
20	HTC-A08-S001-0612-01 MSD	MSD				1.00E+00	1.0100E+00	1.0100E+00				

Comments	

0094

Technician: JHarvey Date: 8/14/17

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
17-07089	8/10/2017	8/1/2017	8/2/2017	8/3/2017	KSALLINGS

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

Eberline Fraction	Weston Solutions, Inc. Client ID	Tare (g)	Gross (g)		Net (g)		Percent		Gamma		Special Info
		Pan Wt	Wet Wt.	Dry Wt.	Wet Wt.	Dry Wt.	Liquid	Solid	Dry Wt.	LEPS Wt.	
04	HTC-A04-S001-2430-01	14.5200	966.0000	786.7300	951.4800	772.2100	18.84%	81.16%	0.0000	0.0000	
05	HTC-A04-S001-3036-01	14.5600	953.3800	782.6700	938.8200	768.1100	18.18%	81.82%	0.0000	0.0000	
06	HTC-A04-S001-3642-01	14.5900	918.3200	763.9000	903.7300	749.3100	17.09%	82.91%	0.0000	0.0000	
07	HTC-A04-S001-4248-01	14.6500	892.7200	735.1400	878.0700	720.4900	17.95%	82.05%	0.0000	0.0000	
08	HTC-A04-S002-0006-01	14.5700	844.8800	778.3400	830.3100	763.7700	8.01%	91.99%	0.0000	0.0000	
09	HTC-A04-S002-0612-01	14.5300	942.3800	870.9400	927.8500	856.4100	7.70%	92.30%	0.0000	0.0000	
10	HTC-A04-S002-1218-01	14.5000	927.1400	857.8600	912.6400	843.3600	7.59%	92.41%	0.0000	0.0000	
11	HTC-A04-S002-1824-01	14.4900	1027.3600	920.2800	1012.8700	905.7900	10.57%	89.43%	0.0000	0.0000	
12	HTC-A04-S002-2430-01	14.4600	891.3800	837.2200	876.9200	822.7600	6.18%	93.82%	0.0000	0.0000	
13	HTC-A04-S002-3036-01	14.4000	905.1200	830.1000	890.7200	815.7000	8.42%	91.58%	0.0000	0.0000	
14	HTC-A04-S002-3642-01	14.4400	1001.9600	923.4000	987.5200	908.9600	7.96%	92.04%	0.0000	0.0000	
15	HTC-A04-S002-4248-01	14.4800	871.5600	721.2600	857.0800	706.7800	17.54%	82.46%	0.0000	0.0000	
16	HTC-A06-S001-0006-01	14.5300	854.7400	803.7200	840.2100	789.1900	6.07%	93.93%	0.0000	0.0000	
17	HTC-A06-S001-0612-01	14.5100	778.3300	703.7900	763.8200	689.2800	9.76%	90.24%	0.0000	0.0000	
18	HTC-A08-S001-0612-01	14.5200	859.2000	689.6100	844.6800	675.0900	20.08%	79.92%	0.0000	0.0000	
19	HTC-A08-S001-0612-01 MS	14.4900	892.9800	714.9500	878.4900	700.4600	20.27%	79.73%	0.0000	0.0000	
20	HTC-A08-S001-0612-01 MSD	14.4900	892.9800	714.9500	878.4900	700.4600	20.27%	79.73%	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)**

0095

Technician: Kerry Sag

Date: **Analysis: Rough Prep Logbook**

Analysis: UUISO Page No. 10178

Apex-Alpha™

Sample Description: SPIKE
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001929
Batch Identification: 1707089A-UU
Sample Identification: 01
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_043
Chamber Serial Number: 04026481A
Detector Serial Number: 91088
Env. Background: System Bkgd 194882
Reagent Blank: <not performed>

Sample Size: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 8/29/2017 6:18:29 AM
Acquisition Date/Time: 8/29/2017 11:27:34 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.614 mL
Effective Efficiency: 0.2412 +/- 0.0126
Counting Efficiency: 0.1874 +/- 0.0032 on 11/18/2016 10:08:43 AM
Chem. Recovery Factor: 1.2866 +/- 0.0706

Control Certificate Name: NatU_U-8A
Chem. Recov. of Control: U-238 0.793918 +/- 0.057726
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	457.30	9.19	1.70	0.00E+000	17.0
U-234		4.727	522.13	8.60	1.87	0.00E+000	23.1
U-235		4.404	31.98	35.30	1.02	0.00E+000	6.0
U-238		4.150	602.66	7.99	0.34	0.00E+000	30.9

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.994	5302.50*	5.03E+000 +/- 5.15E-001	8.09E-002 +/- 8.28E-003
U-234	0.992	4761.50*	5.75E+000 +/- 7.68E-001	8.34E-002 +/- 8.53E-003
U-235	0.997	4385.50*	4.34E-001 +/- 1.60E-001	8.56E-002 +/- 8.76E-003
U-238	0.992	4184.40*	6.61E+000 +/- 8.58E-001	5.24E-002 +/- 5.36E-003

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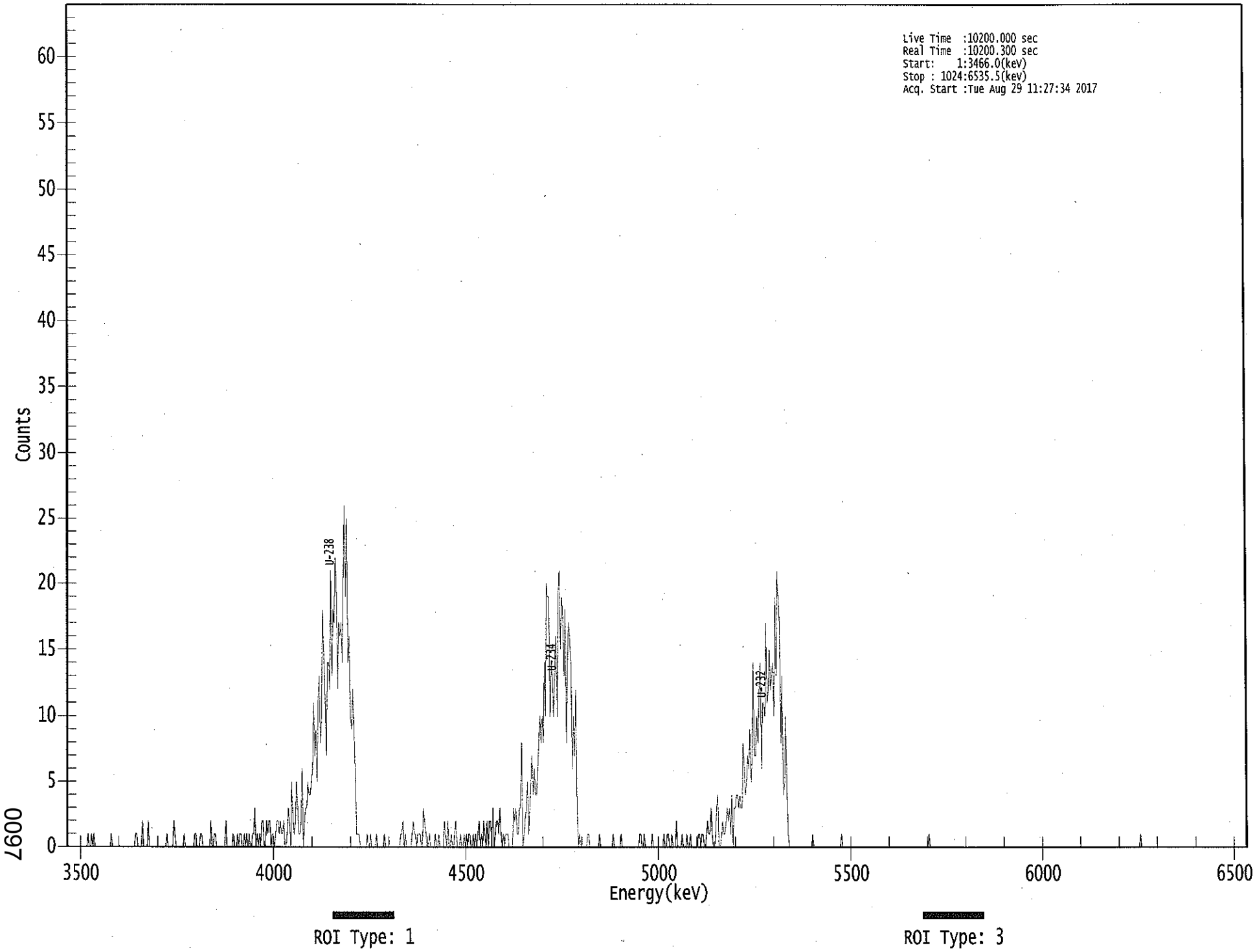

0097

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

369:	3	0	1	2	2	1	3	1

Sample Title: 01

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

801:	0	0	0	0	0	0	0	0

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

Apex-Alpha™

Sample Description: BLANK
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001929
Batch Identification: 1707089A-UU
Sample Identification: 02
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_044
Chamber Serial Number: 04026481B
Detector Serial Number: 84168
Env. Background: System Bkgd 194883
Reagent Blank: <not performed>

Sample Size: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 8/29/2017 6:18:29 AM
Acquisition Date/Time: 8/29/2017 11:27:36 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.613 mL
Effective Efficiency: 0.2151 +/- 0.0118
Counting Efficiency: 0.1793 +/- 0.0030 on 11/18/2016 10:08:42 AM
Chem. Recovery Factor: 1.1998 +/- 0.0686

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.273	407.66	9.71	0.34	0.00E+000	33.4
U-234		4.750	3.32	119.77	0.68	0.00E+000	3.0
U-235		4.416	1.83	152.56	0.17	0.00E+000	3.0
U-238		4.115	1.49	190.02	0.51	0.00E+000	3.0

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.994	5302.50*	5.03E+000 +/- 5.39E-001	5.90E-002 +/- 6.32E-003
U-234	0.999	4761.50*	4.10E-002 +/- 4.93E-002	6.96E-002 +/- 7.46E-003
U-235	0.994	4385.50*	2.79E-002 +/- 4.26E-002	6.36E-002 +/- 6.81E-003
U-238	0.967	4184.40*	1.83E-002 +/- 3.49E-002	6.45E-002 +/- 6.91E-003

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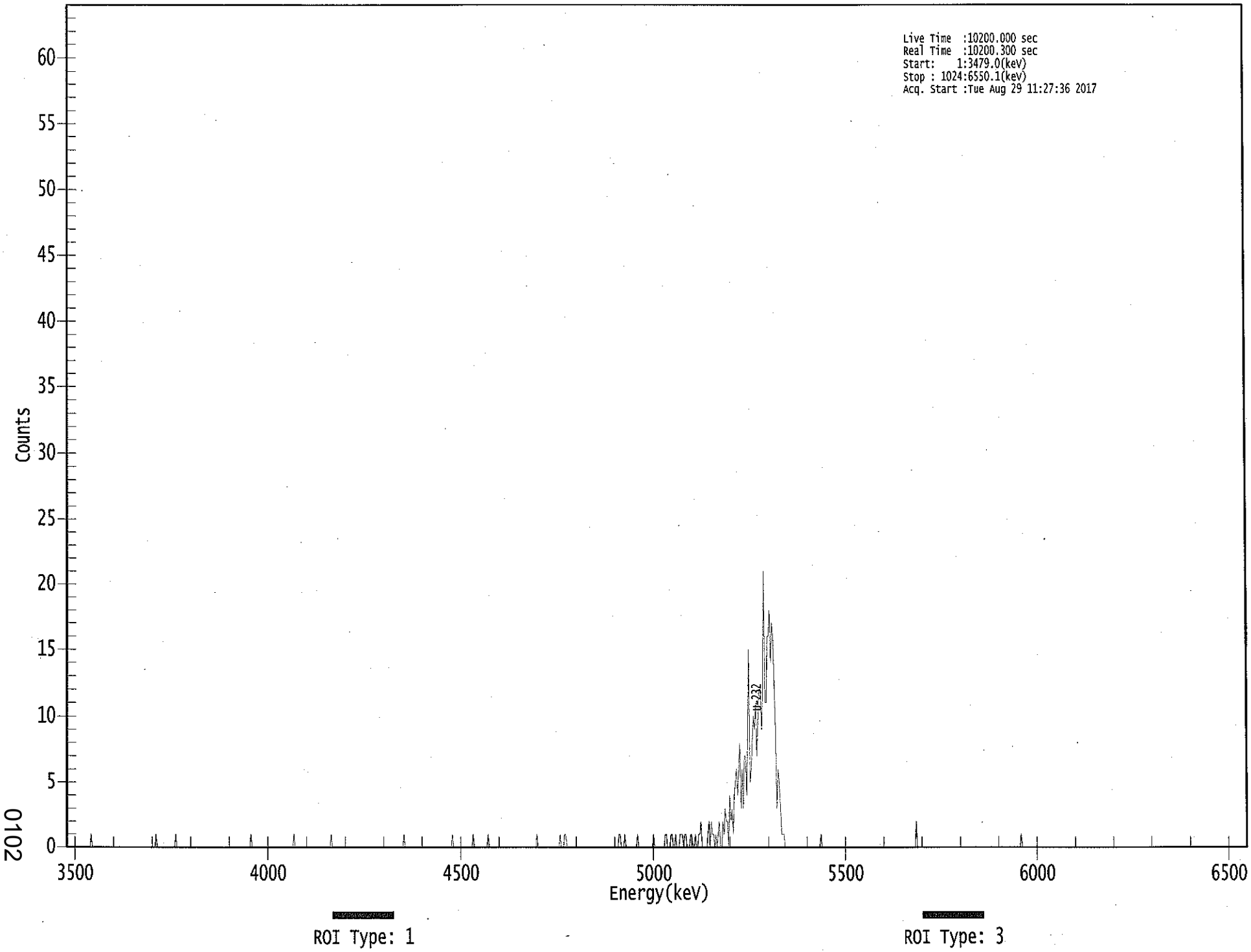


0102

****
***** 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	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	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	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	0	0	0
153:	0	0	0	0	0	0	0	1
161:	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0
177:	0	0	0	0	0	0	0	0
185:	0	0	0	0	0	0	0	0
193:	0	0	0	0	1	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	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	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	1	0	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	1	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	1
353:	0	0	0	0	0	0	0	0
361:	0	0	0	0	1	0	0	0

369:	0	0	0	0	0	0	0	0

Sample Title: 02

Channel								
377:	0	0	0	0	0	0	0	0
385:	0	0	0	0	0	0	0	0
393:	0	0	0	0	0	0	0	0
401:	0	0	0	0	0	0	1	0
409:	0	0	0	0	0	0	0	0
417:	0	0	0	0	0	0	0	0
425:	0	0	1	0	0	0	1	1
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	0
465:	0	0	0	0	0	0	0	0
473:	0	0	0	0	0	1	1	0
481:	0	0	1	0	0	0	0	0
489:	0	0	0	0	0	1	0	0
497:	0	0	0	0	0	0	0	0
505:	0	0	0	1	0	0	0	0
513:	0	0	0	0	0	1	1	0
521:	0	0	1	1	0	0	1	0
529:	0	0	1	1	1	0	1	1
537:	0	0	0	1	1	0	0	1
545:	0	0	1	1	2	0	0	0
553:	0	0	1	2	0	2	1	1
561:	0	1	0	1	2	0	0	2
569:	1	3	2	2	0	4	2	3
577:	1	4	5	6	4	6	8	3
585:	6	3	7	7	4	9	15	5
593:	6	8	10	9	11	7	10	12
601:	12	9	12	21	11	11	16	16
609:	18	14	17	16	13	9	3	6
617:	5	3	1	1	1	0	0	0
625:	0	0	0	0	0	0	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	1	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	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	2
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	1	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

8/20

Sample Description: HTC-A04-S001-2430-01-DUP
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001929
Batch Identification: 1707089A-UU
Sample Identification: 03
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_045
Chamber Serial Number: 04026482A
Detector Serial Number: 91131
Env. Background: System Bkgd 194884
Reagent Blank: <not performed>

Sample Size: 1.100E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:18:29 AM
Acquisition Date/Time: 8/29/2017 11:27:38 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.615 mL
Effective Efficiency: 0.2071 +/- 0.0115
Counting Efficiency: 0.1688 +/- 0.0029 on 11/18/2016 10:08:40 AM
Chem. Recovery Factor: 1.2269 +/- 0.0712

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

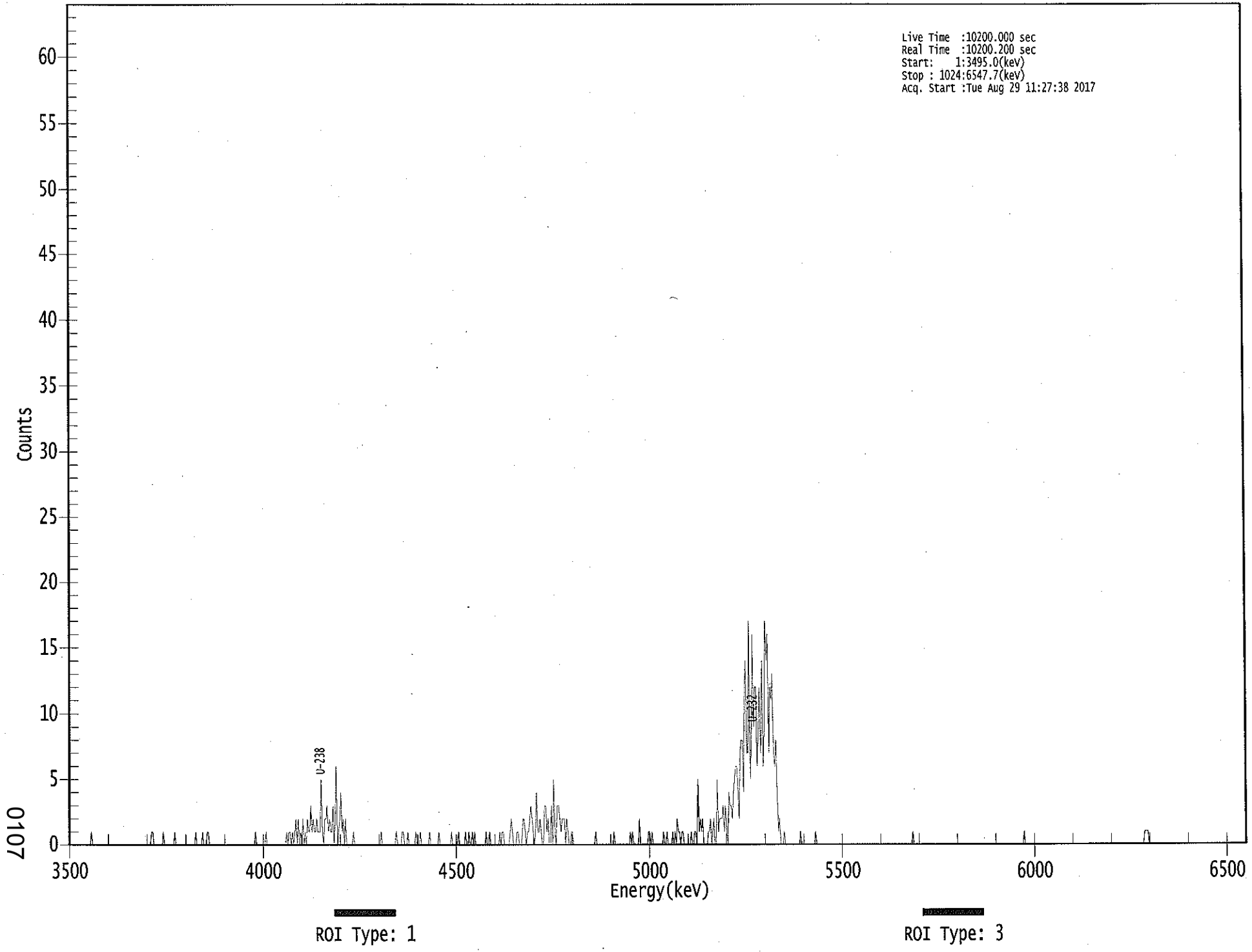
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.267	393.32	9.89	0.68	0.00E+000	4.7
U-234		4.718	71.32	23.34	0.68	0.00E+000	3.4
U-235		4.387	9.83	63.14	0.17	0.00E+000	3.0
U-238		4.145	72.15	23.23	0.85	0.00E+000	3.7

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.991	5302.50*	4.60E+000 +/- 5.00E-001	6.59E-002 +/- 7.17E-003
U-234	0.987	4761.50*	8.31E-001 +/- 2.14E-001	6.57E-002 +/- 7.15E-003
U-235	1.000	4385.50*	1.41E-001 +/- 9.06E-002	6.00E-002 +/- 6.52E-003
U-238	0.989	4184.40*	8.37E-001 +/- 2.15E-001	6.95E-002 +/- 7.55E-003

0000192970.CNF



0107

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

369:	0	0	0	0	0	1	0	1

Sample Title: 03

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

801:	0	0	0	0	0	0	0	0

Sample Title: 03

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

Apex-Alpha™

8030

Sample Description: HTC-A04-S001-2430-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001929
Batch Identification: 1707089A-UU
Sample Identification: 04
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_046
Chamber Serial Number: 04026482B
Detector Serial Number: 58762
Env. Background: System Bkgd 194885
Reagent Blank: <not performed>

Sample Size: 1.120E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:18:29 AM
Acquisition Date/Time: 8/29/2017 11:27:40 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.614 mL
Effective Efficiency: 0.2150 +/- 0.0118
Counting Efficiency: 0.1713 +/- 0.0029 on 11/18/2016 10:08:38 AM
Chem. Recovery Factor: 1.2548 +/- 0.0719

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

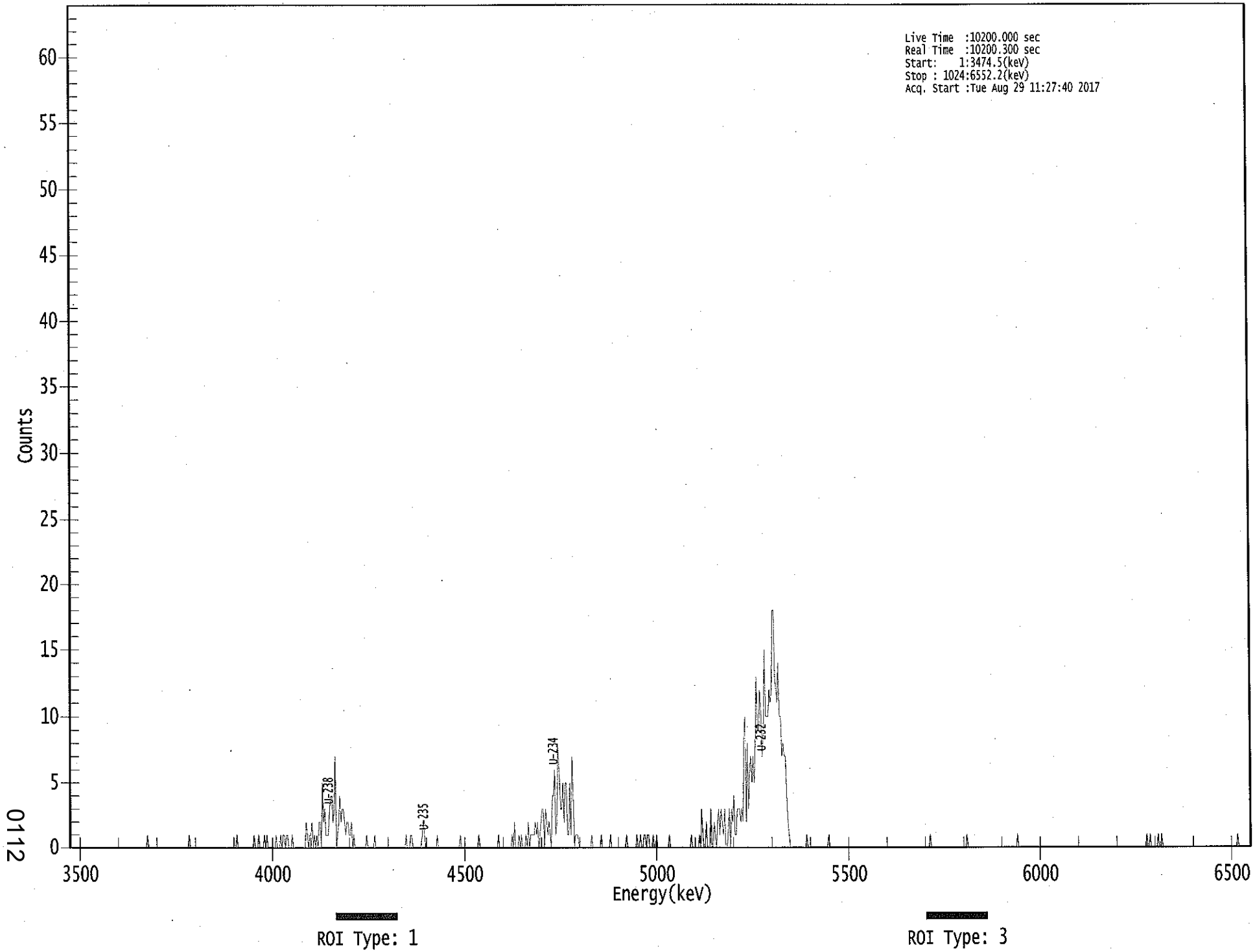
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.277	407.81	9.72	1.19	0.00E+000	46.1
U-234		4.736	110.64	18.77	1.36	0.00E+000	7.0
U-235		4.395	8.15	72.72	0.85	0.00E+000	6.0
U-238		4.147	83.98	21.54	1.02	0.00E+000	4.1

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.995	5302.50*	4.51E+000 +/- 4.83E-001	7.28E-002 +/- 7.81E-003
U-234	0.995	4761.50*	1.22E+000 +/- 2.64E-001	7.56E-002 +/- 8.10E-003
U-235	0.999	4385.50*	1.11E-001 +/- 8.15E-002	8.14E-002 +/- 8.73E-003
U-238	0.990	4184.40*	9.22E-001 +/- 2.22E-001	6.92E-002 +/- 7.41E-003

0000192971.CNF



0112

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

Sample Title: 04

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	0	1	0	0	0	0	0

Sample Title: 04

Channel								
377:	0	0	0	0	0	0	1	0
385:	2	0	0	0	1	0	1	0
393:	0	0	1	0	2	0	1	1
401:	1	1	2	1	2	0	1	2
409:	3	3	0	3	2	1	2	1
417:	0	4	4	6	1	2	8	6
425:	3	3	5	2	5	5	1	1
433:	5	1	7	4	0	1	1	1
441:	0	0	0	0	0	0	0	0
449:	0	0	0	1	0	0	0	0
457:	0	0	0	1	0	0	0	0
465:	0	0	0	1	0	0	0	0
473:	0	0	0	0	0	0	0	0
481:	0	1	0	0	0	0	0	0
489:	0	0	1	0	0	1	0	0
497:	1	1	0	1	1	0	0	0
505:	1	0	0	1	0	0	0	0
513:	0	0	0	0	0	0	1	0
521:	0	0	0	0	0	0	0	0
529:	0	0	0	0	0	0	0	0
537:	0	1	0	0	0	0	0	0
545:	1	0	3	1	0	0	2	0
553:	0	0	3	0	0	2	1	0
561:	2	3	1	3	2	1	3	0
569:	0	1	3	0	3	2	4	1
577:	1	3	3	3	2	3	2	8
585:	10	2	8	3	6	7	5	7
593:	5	8	13	9	9	12	10	7
601:	9	15	10	10	10	12	11	12
609:	18	18	13	12	11	14	10	10
617:	7	8	7	7	4	2	1	0
625:	0	0	0	0	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	0
657:	1	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:	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:	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: 04

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	1	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	1	0	0	1
937:	0	0	0	0	0	0	1	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	1	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

Sample Description: HTC-A04-S001-3036-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001929
Batch Identification: 1707089A-UU
Sample Identification: 05
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_047
Chamber Serial Number: 02030596A
Detector Serial Number: 91086
Env. Background: System Bkgd 194886
Reagent Blank: <not performed>

Sample Size: 1.040E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:18:29 AM
Acquisition Date/Time: 8/29/2017 11:27:42 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.613 mL
Effective Efficiency: 0.1930 +/- 0.0110
Counting Efficiency: 0.1623 +/- 0.0028 on 11/18/2016 10:08:37 AM
Chem. Recovery Factor: 1.1895 +/- 0.0710

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

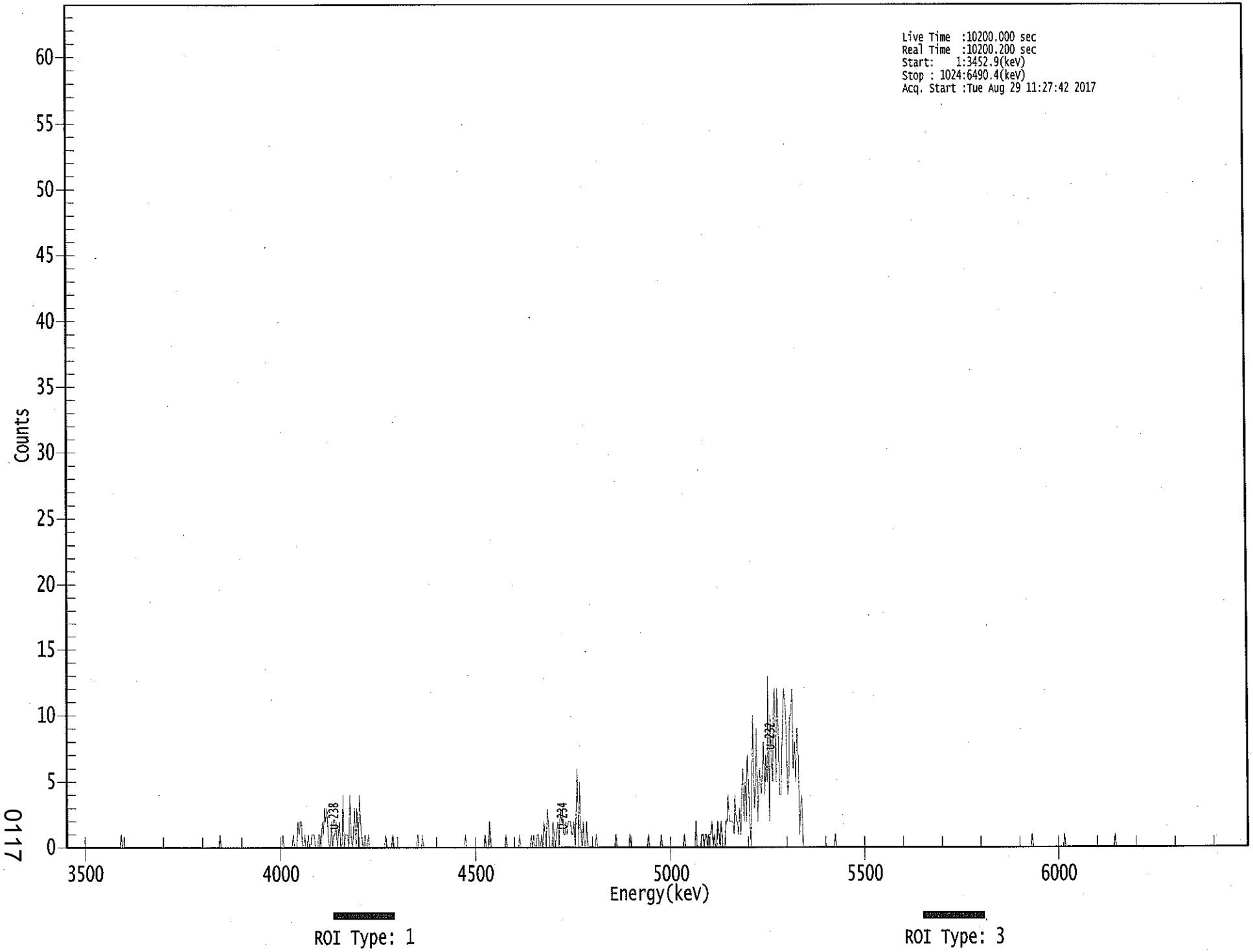
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.261	365.66	10.26	0.34	0.00E+000	4.2
U-234		4.728	62.66	24.84	0.34	0.00E+000	4.5
U-235		4.397	2.32	149.12	0.68	0.00E+000	3.0
U-238		4.138	65.15	24.47	0.85	0.00E+000	3.0

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.988	5302.50*	4.85E+000 +/- 5.43E-001	6.34E-002 +/- 7.11E-003
U-234	0.992	4761.50*	8.29E-001 +/- 2.26E-001	6.32E-002 +/- 7.08E-003
U-235	0.999	4385.50*	3.78E-002 +/- 5.66E-002	9.20E-002 +/- 1.03E-002
U-238	0.985	4184.40*	8.58E-001 +/- 2.31E-001	7.88E-002 +/- 8.83E-003

0000192973.CNF



0117

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

Sample Title: 05

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	0	0	0	0	0	0	0

Sample Title: 05

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

801:	0	0	0	0	0	0	0	0

Sample Title: 05

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

Apex-Alpha™

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Sample Description: HTC-A04-S001-3642-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001929
Batch Identification: 1707089A-UU
Sample Identification: 06
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_048
Chamber Serial Number: 02030596B
Detector Serial Number: 83111
Env. Background: System Bkgd 194887
Reagent Blank: <not performed>

Sample Size: 1.120E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:18:29 AM
Acquisition Date/Time: 8/29/2017 11:27:44 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.612 mL
Effective Efficiency: 0.2136 +/- 0.0117
Counting Efficiency: 0.1633 +/- 0.0028 on 11/18/2016 10:08:35 AM
Chem. Recovery Factor: 1.3078 +/- 0.0752

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

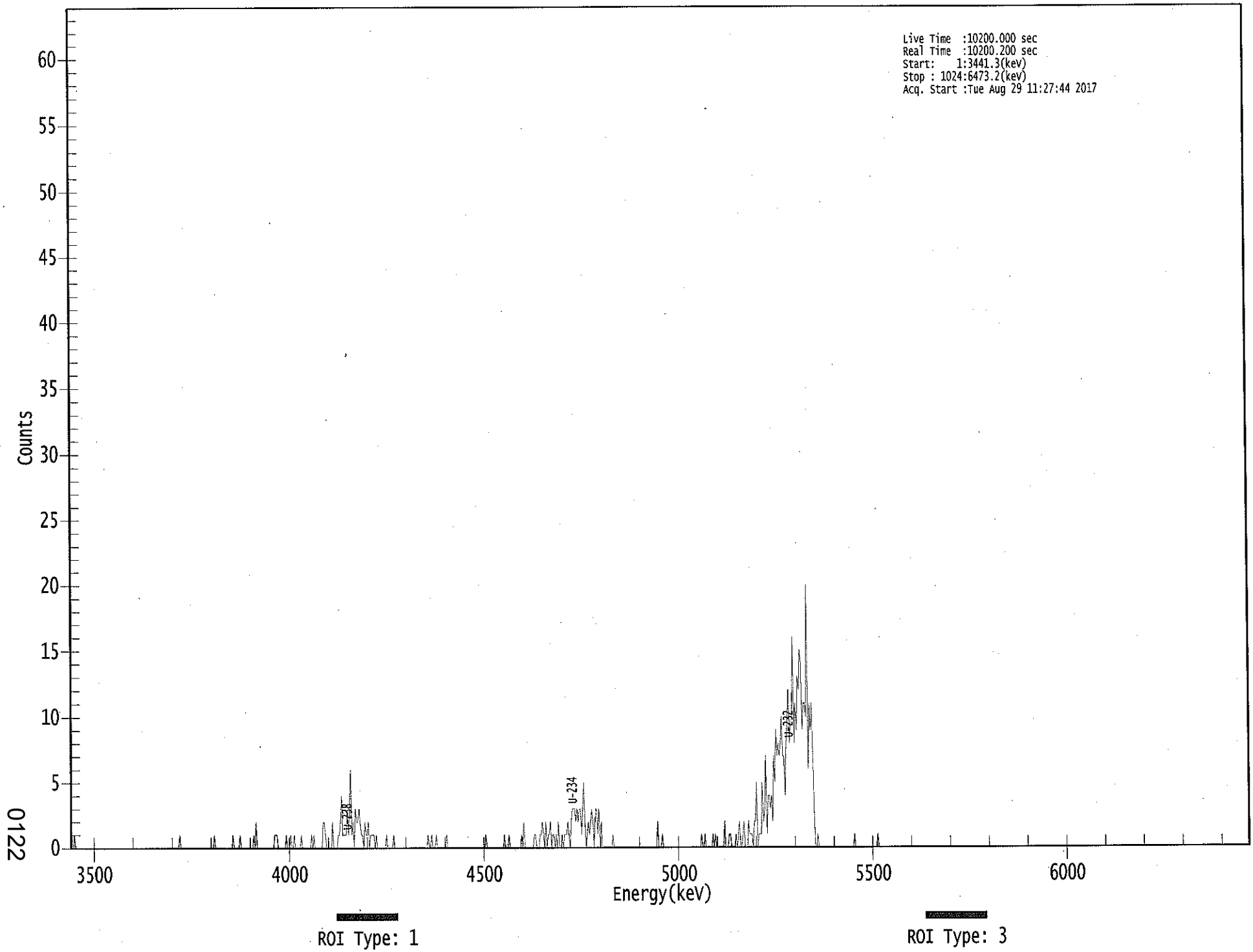
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.289	403.66	9.76	0.34	0.00E+000	5.1
U-234		4.731	87.00	21.13	0.00	0.00E+000	6.2
U-235		4.376	3.66	107.87	0.34	0.00E+000	3.0
U-238		4.153	66.49	24.14	0.51	0.00E+000	4.7

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.999	5302.50*	4.49E+000 +/- 4.83E-001	5.32E-002 +/- 5.72E-003
U-234	0.993	4761.50*	9.65E-001 +/- 2.29E-001	6.65E-002 +/- 7.15E-003
U-235	0.999	4385.50*	5.01E-002 +/- 5.43E-002	6.55E-002 +/- 7.04E-003
U-238	0.993	4184.40*	7.35E-001 +/- 1.94E-001	5.80E-002 +/- 6.23E-003

0000192974.CNF



0122

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

369:	0	0	0	0	0	0	0	1

Sample Title: 06

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

Apex-Alpha™

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Sample Description: HTC-A04-S001-4248-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001929
Batch Identification: 1707089A-UU
Sample Identification: 07
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_052
Chamber Serial Number: 10006123B
Detector Serial Number: 52
Env. Background: System Bkgd 194890
Reagent Blank: <not performed>

Sample Size: 1.080E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:18:29 AM
Acquisition Date/Time: 8/29/2017 11:28:07 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: 0.1693 +/- 0.0102
Counting Efficiency: 0.1737 +/- 0.0030 on 11/18/2016 3:34:15 PM
Chem. Recovery Factor: 0.9742 +/- 0.0612

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

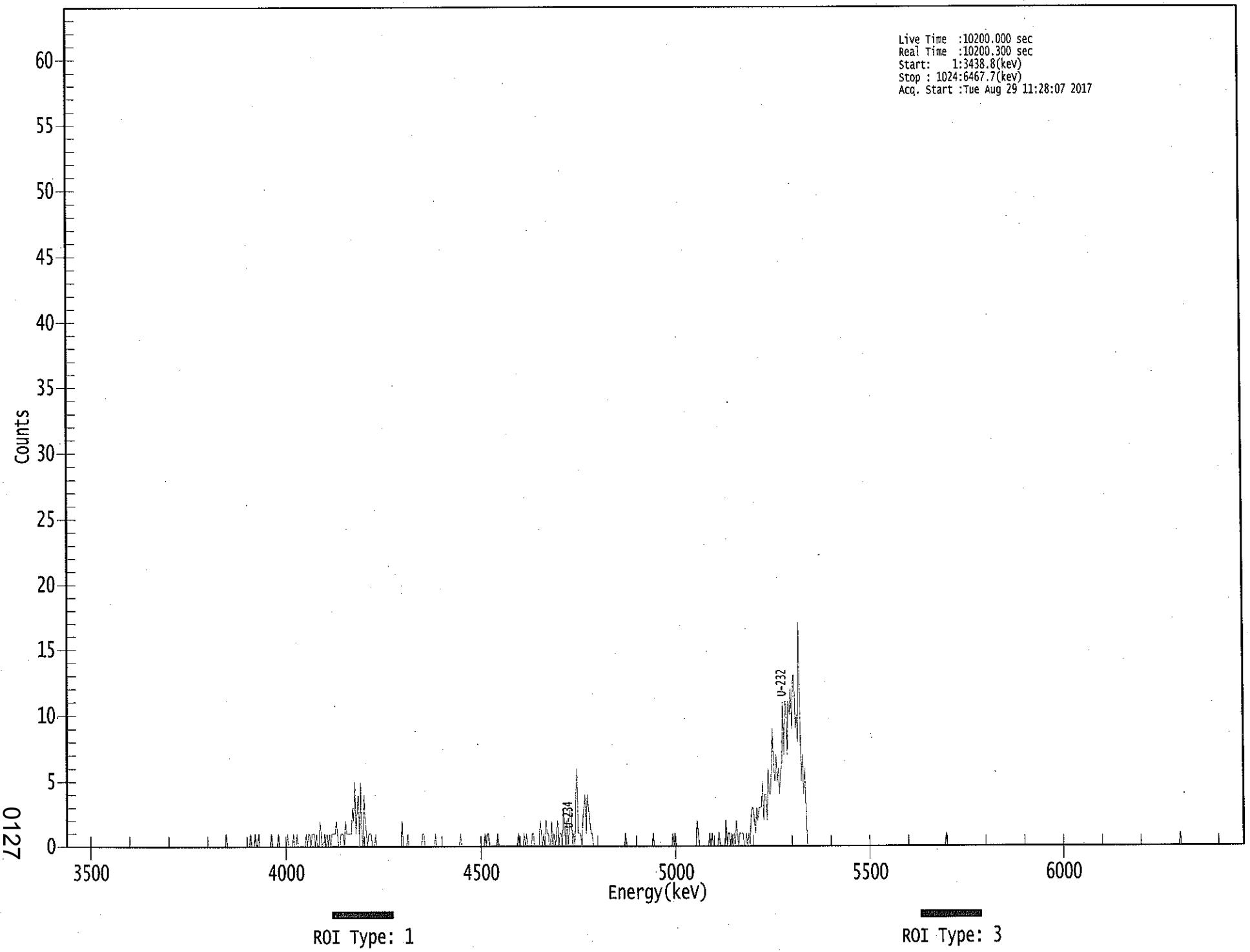
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.278	319.66	10.97	0.34	0.00E+000	6.6
U-234		4.727	67.81	24.04	1.19	0.00E+000	5.5
U-235		4.349	6.66	78.18	0.34	0.00E+000	3.0
U-238		4.149	67.49	23.96	0.51	0.00E+000	4.3

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.996	5302.50*	4.66E+000 +/- 5.52E-001	6.96E-002 +/- 8.26E-003
U-234	0.992	4761.50*	9.85E-001 +/- 2.64E-001	9.57E-002 +/- 1.14E-002
U-235	0.991	4385.50*	1.19E-001 +/- 9.44E-002	8.57E-002 +/- 1.02E-002
U-238	0.991	4184.40*	9.76E-001 +/- 2.61E-001	7.59E-002 +/- 9.00E-003

0000192972.CNF



0127

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

369:	0	0	0	0	0	1	0	0

Sample Title: 07

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

Apex-Alpha™

Sample Description: HTC-A04-S002-0006-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001930
Batch Identification: 1707089A-UU
Sample Identification: 08
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_037
Chamber Serial Number: 04026478A
Detector Serial Number: 91133
Env. Background: System Bkgd 194878
Reagent Blank: <not performed>

Sample Size: 1.440E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/16/2017 6:18:29 AM
Acquisition Date/Time: 8/29/2017 2:33:05 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: 0.1726 +/- 0.0104
Counting Efficiency: 0.1587 +/- 0.0027 on 11/18/2016 10:08:53 AM
Chem. Recovery Factor: 1.0872 +/- 0.0679

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

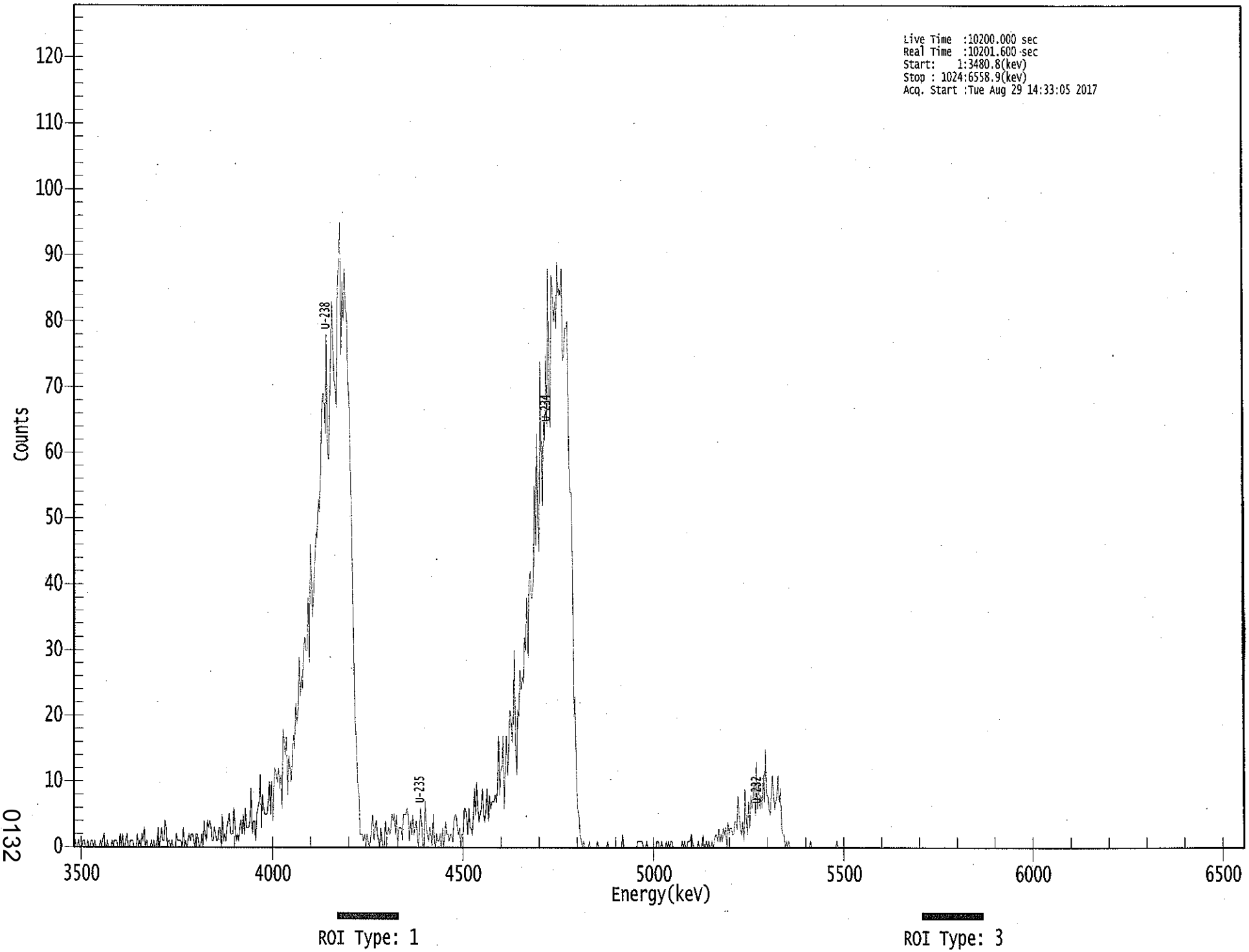
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.273	326.15	10.87	0.85	0.00E+000	9.6
U-234		4.723	3160.00	3.49	0.00	0.00E+000	101.4
U-235		4.389	178.00	14.73	0.00	0.00E+000	4.4
U-238		4.144	3182.83	3.47	0.17	0.00E+000	90.6

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.994	5302.50*	3.49E+000 +/- 4.11E-001	6.41E-002 +/- 7.55E-003
U-234	0.990	4761.50*	3.38E+001 +/- 4.14E+000	6.41E-002 +/- 7.54E-003
U-235	1.000	4385.50*	2.35E+000 +/- 4.42E-001	7.90E-002 +/- 9.30E-003
U-238	0.988	4184.40*	3.39E+001 +/- 4.15E+000	4.44E-002 +/- 5.22E-003

0000193003.CNF



0132

****
***** 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: 10202

Channel								
1:	0	1	0	0	1	0	0	0
9:	1	1	0	0	1	0	0	1
17:	1	0	1	0	0	0	0	1
25:	0	1	2	0	0	1	0	0
33:	0	1	0	1	1	1	0	0
41:	2	0	2	0	0	1	2	0
49:	0	1	1	1	0	0	0	2
57:	0	1	0	2	1	3	0	1
65:	0	0	0	1	0	1	0	0
73:	1	3	0	1	3	1	1	4
81:	3	0	1	1	0	1	0	0
89:	0	2	1	1	1	1	0	3
97:	0	1	0	1	2	1	2	2
105:	1	0	2	2	1	0	0	2
113:	0	4	2	1	4	3	4	3
121:	1	1	3	2	1	1	3	3
129:	0	5	1	2	1	3	4	5
137:	2	2	2	6	3	1	2	1
145:	3	4	2	5	2	6	3	3
153:	3	4	9	2	4	4	1	5
161:	6	7	11	3	8	6	5	5
169:	5	7	10	5	10	4	9	12
177:	11	10	12	9	11	6	18	16
185:	14	17	8	14	12	10	13	17
193:	15	22	19	20	29	23	26	24
201:	30	32	30	30	38	28	46	41
209:	35	39	43	48	47	53	51	57
217:	66	69	69	63	78	60	59	68
225:	75	83	76	71	70	67	85	89
233:	95	75	86	80	88	82	81	71
241:	68	58	50	38	27	19	15	10
249:	8	2	2	2	1	2	0	2
257:	1	0	1	3	5	1	3	4
265:	2	1	0	3	1	0	0	4
273:	2	2	3	2	3	5	4	5
281:	2	5	0	3	3	3	1	5
289:	5	5	6	5	1	4	2	5
297:	2	3	4	2	0	3	6	3
305:	0	1	7	3	2	1	3	2
313:	0	5	1	0	2	1	1	2
321:	0	3	0	2	4	2	2	1
329:	2	2	1	4	5	5	3	2
337:	3	0	2	2	6	6	5	2
345:	6	3	3	2	5	9	5	10
353:	6	4	5	6	9	5	4	6
361:	9	4	8	6	7	7	7	8

369:	7	9	17	8	12	12	17	6

Sample Title: 08

Channel								
377:	13	17	11	14	21	20	16	19
385:	30	16	11	21	20	27	24	26
393:	25	32	30	38	29	40	42	38
401:	38	41	55	46	63	49	45	74
409:	61	52	65	62	75	64	88	69
417:	64	87	85	80	83	79	89	84
425:	85	84	88	74	75	79	79	80
433:	61	54	54	44	20	23	11	6
441:	5	2	1	0	1	0	0	0
449:	0	1	0	0	0	0	0	0
457:	1	0	0	0	0	0	0	0
465:	0	1	0	0	0	0	0	0
473:	0	0	0	0	0	0	2	0
481:	0	0	0	0	0	0	0	0
489:	0	0	0	1	1	1	1	1
497:	0	0	0	1	0	0	0	0
505:	0	0	0	0	1	1	0	0
513:	1	0	0	0	1	0	1	0
521:	1	1	0	0	0	0	0	0
529:	0	0	1	0	1	0	0	1
537:	1	1	2	1	0	0	0	0
545:	1	0	0	0	2	0	0	1
553:	0	1	0	0	1	0	1	2
561:	2	1	3	1	2	1	3	2
569:	3	0	4	2	3	3	2	2
577:	4	4	3	8	5	3	2	4
585:	1	9	4	2	7	3	8	6
593:	8	10	5	13	6	10	6	8
601:	6	11	7	15	8	8	6	5
609:	8	11	8	6	7	8	11	7
617:	9	3	2	2	0	1	0	1
625:	0	0	0	0	0	0	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	1	0	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	1	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801:	0	0	0	0	0	0	0	0

Sample Title: 08

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

Apex-Alpha™

8/26

Sample Description: HTC-A04-S002-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001929
Batch Identification: 1707089A-UU
Sample Identification: 09
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_038
Chamber Serial Number: 04026478B
Detector Serial Number: 91134
Env. Background: System Bkgd 194879
Reagent Blank: <not performed>

Sample Size: 1.340E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/16/2017 6:18:29 AM
Acquisition Date/Time: 8/29/2017 2:33:07 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: 0.1728 +/- 0.0104
Counting Efficiency: 0.1543 +/- 0.0027 on 11/18/2016 10:08:51 AM
Chem. Recovery Factor: 1.1195 +/- 0.0699

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

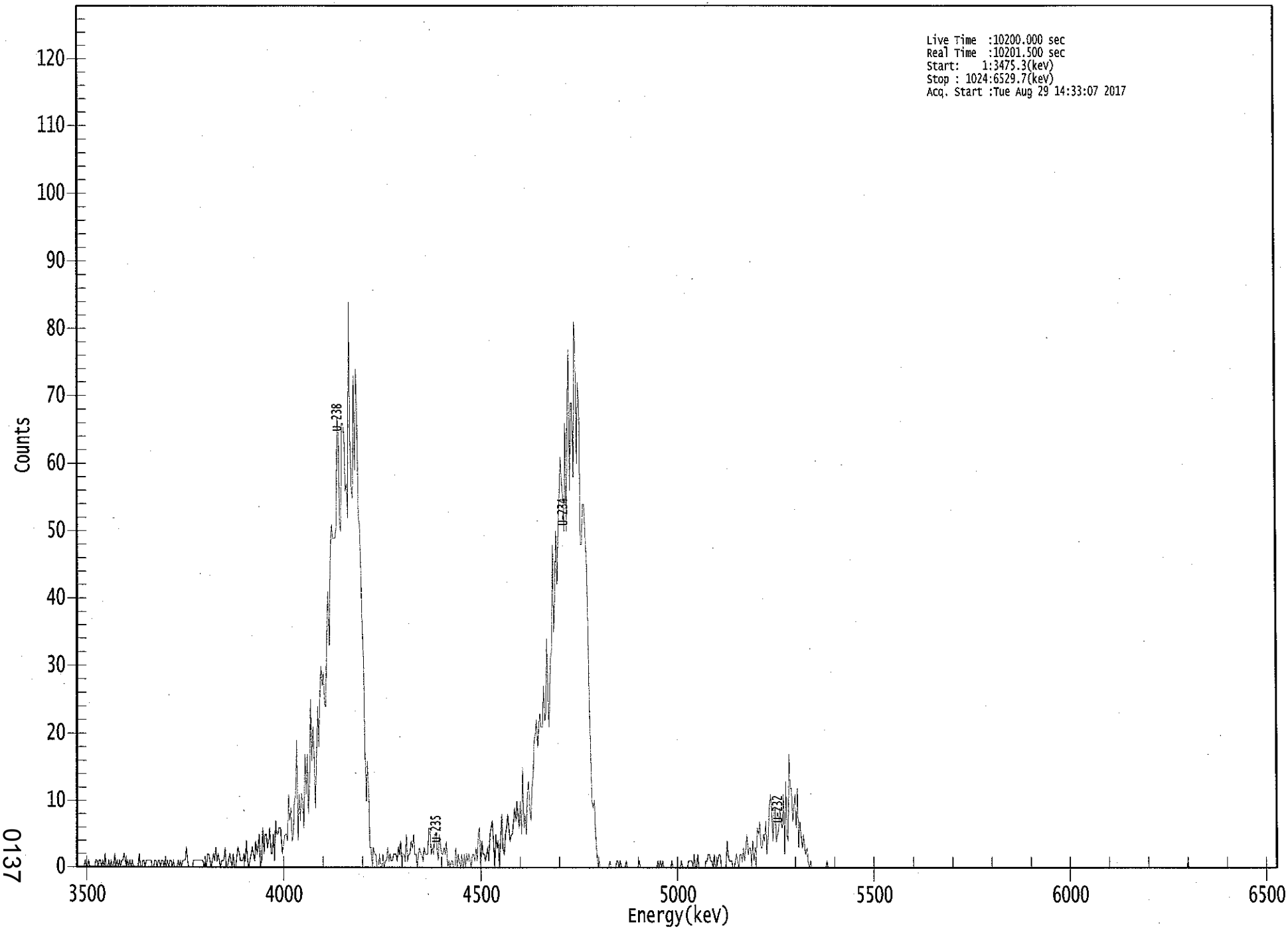
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.257	326.49	10.86	0.51	0.00E+000	10.0
U-234		4.715	2334.98	4.06	1.02	0.00E+000	82.9
U-235		4.390	144.00	16.39	0.00	0.00E+000	7.5
U-238		4.141	2341.49	4.05	0.51	0.00E+000	79.4

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.986	5302.50*	3.75E+000 +/- 4.41E-001	6.03E-002 +/- 7.10E-003
U-234	0.985	4761.50*	2.68E+001 +/- 3.33E+000	7.22E-002 +/- 8.49E-003
U-235	1.000	4385.50*	2.04E+000 +/- 4.11E-001	8.48E-002 +/- 9.97E-003
U-238	0.987	4184.40*	2.67E+001 +/- 3.32E+000	5.99E-002 +/- 7.04E-003

0000192991.CNF



ROI Type: 1

ROI Type: 3

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

Sample Title: 09

Elapsed Live time: 10200
Elapsed Real Time: 10202

Channel								
1:	0	0	0	0	0	0	0	1
9:	0	0	1	0	0	0	0	0
17:	1	1	0	1	1	0	1	0
25:	2	0	0	1	0	1	0	0
33:	2	0	1	0	1	0	1	1
41:	2	1	0	1	0	1	0	1
49:	0	0	0	0	0	2	0	0
57:	1	1	0	1	1	1	1	1
65:	0	0	1	1	0	1	1	0
73:	1	1	0	1	0	1	0	1
81:	1	0	1	0	0	0	1	0
89:	1	0	1	1	1	3	1	0
97:	0	0	0	1	1	1	1	1
105:	1	1	1	1	0	1	0	2
113:	2	1	0	1	2	1	3	1
121:	2	1	0	1	1	1	3	0
129:	0	1	2	1	0	2	0	0
137:	2	3	2	1	1	1	2	1
145:	4	1	0	1	2	3	2	1
153:	4	2	3	5	0	1	6	2
161:	5	5	3	4	6	2	2	5
169:	1	7	5	5	6	6	4	2
177:	4	5	5	4	11	7	9	4
185:	5	10	11	19	4	11	7	11
193:	10	6	17	11	17	8	13	25
201:	16	21	17	9	16	24	18	26
209:	30	27	29	24	24	36	41	33
217:	47	51	49	49	49	51	67	64
225:	51	50	66	66	64	56	57	52
233:	84	64	56	55	73	59	74	67
241:	52	51	44	36	31	18	10	16
249:	11	3	3	0	3	2	2	0
257:	0	2	0	0	2	0	1	1
265:	3	1	2	1	1	2	2	2
273:	1	3	2	4	1	2	2	1
281:	5	1	2	2	4	3	5	2
289:	2	0	2	3	2	2	1	3
297:	2	2	2	6	6	2	3	2
305:	5	5	3	1	5	3	2	2
313:	3	2	4	0	1	0	1	1
321:	0	0	3	0	2	1	0	2
329:	0	2	0	2	1	2	1	0
337:	2	2	1	3	1	5	6	0
345:	4	2	2	1	2	3	1	5
353:	6	7	4	0	5	3	4	0
361:	4	8	3	2	5	6	8	6

369:	4	5	5	7	9	7	10	8

Sample Title: 09

Channel								
377:	6	10	5	15	6	8	5	11
385:	13	9	7	12	14	19	20	22
393:	18	21	23	21	21	27	22	23
401:	34	24	21	31	32	48	35	41
409:	50	42	50	56	61	57	55	50
417:	66	50	67	77	56	69	69	58
425:	81	78	60	72	69	48	48	54
433:	54	50	46	38	24	19	10	9
441:	10	5	2	0	1	0	0	0
449:	0	0	0	0	0	1	0	0
457:	0	0	0	1	1	0	1	0
465:	0	0	0	1	0	0	0	0
473:	0	0	0	0	0	0	1	0
481:	0	0	0	0	0	0	0	0
489:	0	0	0	0	0	0	1	0
497:	1	0	1	0	0	0	0	0
505:	0	0	1	0	0	0	0	0
513:	0	0	1	0	0	0	0	0
521:	1	1	1	1	0	2	0	0
529:	2	0	0	0	0	0	0	1
537:	1	2	2	1	1	0	2	0
545:	0	1	2	2	0	0	0	0
553:	0	4	2	1	1	1	0	0
561:	1	2	1	0	2	2	1	3
569:	1	3	5	2	3	3	0	4
577:	1	3	2	6	5	7	3	3
585:	5	4	7	2	5	9	11	9
593:	4	8	9	4	5	6	9	7
601:	6	11	2	13	5	4	17	12
609:	12	7	9	11	6	12	3	7
617:	5	3	5	3	2	3	1	0
625:	1	0	0	0	0	0	0	0
633:	0	0	0	0	0	0	1	0
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	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: 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	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™

Sample Description: HTC-A04-S002-1218-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001929
Batch Identification: 1707089A-UU
Sample Identification: 10
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_039
Chamber Serial Number: 06027396A
Detector Serial Number: 83109
Env. Background: System Bkgd 194880
Reagent Blank: <not performed>

Sample Size: 1.170E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/16/2017 6:18:29 AM
Acquisition Date/Time: 8/29/2017 2:33:09 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: 0.1445 +/- 0.0094
Counting Efficiency: 0.1852 +/- 0.0031 on 11/18/2016 10:08:50 AM
Chem. Recovery Factor: 0.7806 +/- 0.0524

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

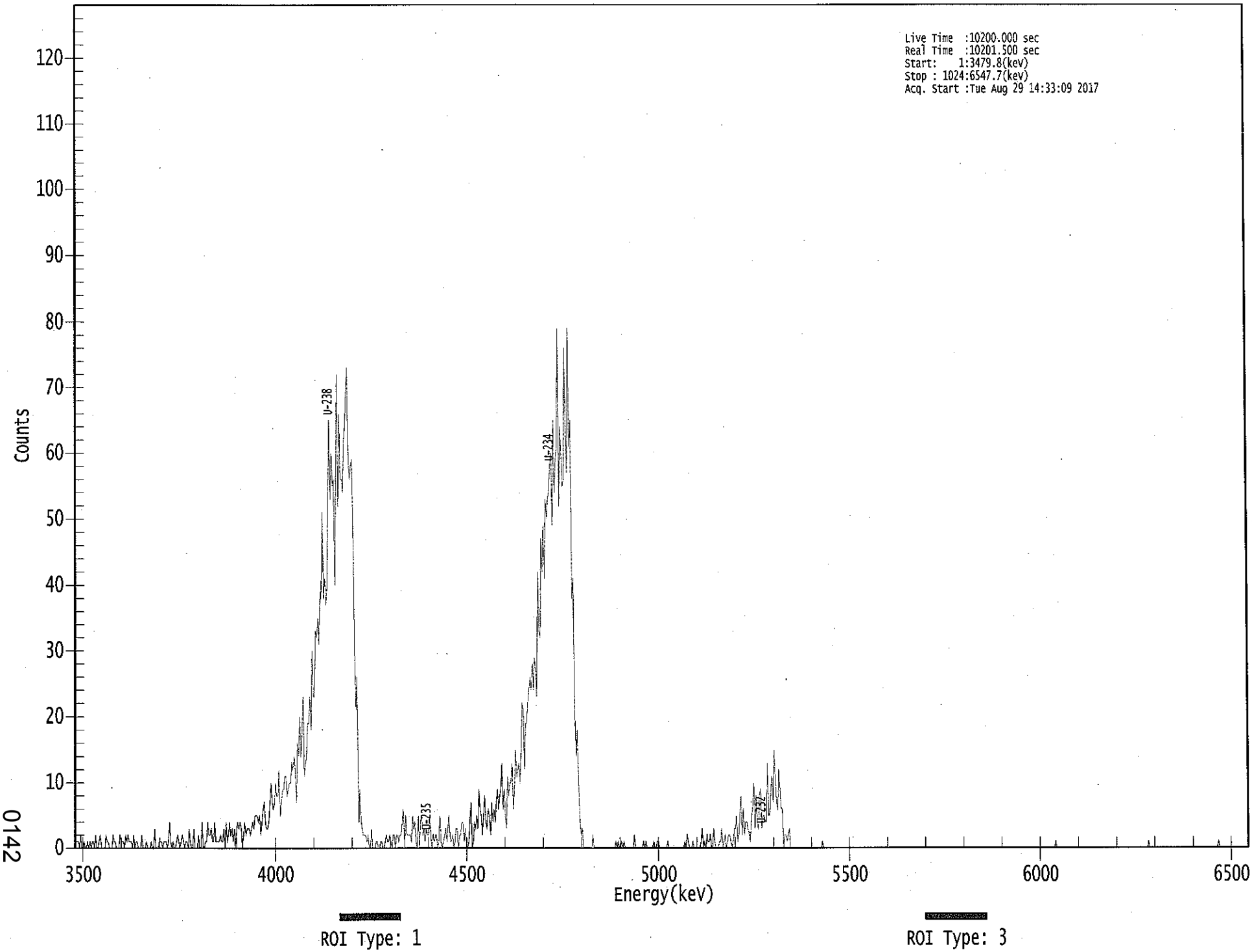
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.270	272.96	11.92	2.04	0.00E+000	8.3
U-234		4.722	2299.81	4.09	1.19	0.00E+000	82.3
U-235		4.397	142.15	16.50	0.85	0.00E+000	6.0
U-238		4.143	2354.83	4.04	0.17	0.00E+000	89.7

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*	4.30E+000 +/- 5.48E-001	1.23E-001 +/- 1.56E-002
U-234	0.989	4761.50*	3.61E+001 +/- 4.83E+000	1.03E-001 +/- 1.32E-002
U-235	0.999	4385.50*	2.75E+000 +/- 5.74E-001	1.16E-001 +/- 1.48E-002
U-238	0.988	4184.40*	3.68E+001 +/- 4.92E+000	6.52E-002 +/- 8.31E-003

0000192996.CNF



0142

****
***** 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: 10202

Channel								
1:	0	1	1	1	0	2	0	0
9:	1	0	0	1	0	1	0	1
17:	1	0	2	0	0	1	2	0
25:	0	0	0	2	1	1	0	0
33:	0	2	1	1	0	0	0	2
41:	1	1	1	0	2	1	2	1
49:	1	1	0	2	0	1	1	0
57:	0	0	2	0	0	0	1	0
65:	0	0	1	0	0	3	0	0
73:	0	1	1	1	0	1	1	1
81:	0	1	4	1	0	1	0	0
89:	1	2	1	0	1	2	1	0
97:	1	1	0	3	1	0	0	3
105:	0	0	0	2	0	0	4	0
113:	0	1	1	4	2	2	3	1
121:	1	4	1	1	1	1	2	1
129:	1	3	0	4	1	2	4	2
137:	3	1	3	0	3	4	3	4
145:	3	0	2	4	2	3	3	3
153:	2	3	4	3	5	5	5	4
161:	5	2	4	6	7	4	3	3
169:	4	7	10	7	6	7	10	8
177:	8	12	5	7	9	9	11	11
185:	8	9	10	10	13	12	14	12
193:	7	16	14	20	14	18	23	11
201:	13	14	19	19	23	18	30	23
209:	23	33	32	35	31	39	38	51
217:	38	41	37	40	53	65	53	60
225:	55	56	40	55	72	52	66	56
233:	56	54	62	64	69	73	59	56
241:	58	59	46	30	21	26	4	9
249:	4	3	2	2	2	1	2	0
257:	0	3	0	0	0	1	1	0
265:	0	1	1	0	0	1	2	1
273:	1	2	1	0	2	2	0	2
281:	2	1	2	2	4	6	0	5
289:	2	2	2	2	1	5	3	4
297:	1	0	5	0	4	5	2	3
305:	1	3	2	2	5	2	0	2
313:	1	2	2	0	1	5	1	0
321:	1	2	3	1	3	5	1	1
329:	2	0	1	3	3	0	2	2
337:	4	4	1	3	0	0	1	4
345:	7	0	1	4	3	5	3	9
353:	6	5	2	5	8	4	3	6
361:	5	2	7	4	6	4	7	9

369:	6	8	9	13	6	9	5	3

Sample Title: 10

Channel								
377:	11	8	10	10	13	6	9	15
385:	11	12	13	10	15	22	21	12
393:	19	19	22	24	26	24	28	24
401:	29	27	23	42	33	32	47	42
409:	49	41	53	50	53	54	58	60
417:	49	65	54	59	61	79	52	64
425:	60	55	56	76	63	57	79	61
433:	65	38	41	21	14	18	9	4
441:	2	3	0	0	0	0	0	0
449:	0	0	2	0	0	0	0	0
457:	0	0	0	0	0	0	0	0
465:	0	0	0	0	0	0	1	0
473:	1	0	0	1	0	1	0	0
481:	0	0	0	0	0	0	2	0
489:	0	0	0	0	0	0	1	0
497:	1	0	0	0	0	0	0	1
505:	0	0	1	1	0	0	0	0
513:	0	0	0	1	0	0	0	0
521:	0	0	0	0	0	0	0	0
529:	0	0	1	0	2	1	0	0
537:	0	1	0	0	0	0	0	0
545:	1	3	0	1	0	2	1	1
553:	2	0	0	3	1	0	0	0
561:	1	1	3	0	1	2	0	1
569:	2	2	1	0	1	3	3	5
577:	1	2	5	8	2	6	2	4
585:	4	3	2	1	5	6	10	3
593:	8	4	3	8	9	3	5	5
601:	4	4	13	5	5	9	11	7
609:	15	10	7	6	12	9	6	6
617:	0	2	2	1	2	3	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	1	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801:	0	0	0	0	0	0	0	0

Sample Title: 10

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

Apex-Alpha™

Sample Description: HTC-A04-S002-1824-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001929
Batch Identification: 1707089A-UU
Sample Identification: 11
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_040
Chamber Serial Number: 06027396B
Detector Serial Number: 91135
Env. Background: System Bkgd 194881
Reagent Blank: <not performed>

Sample Size: 1.360E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/16/2017 6:18:29 AM
Acquisition Date/Time: 8/29/2017 2:33:11 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: 0.1878 +/- 0.0109
Counting Efficiency: 0.1813 +/- 0.0031 on 11/18/2016 10:08:48 AM
Chem. Recovery Factor: 1.0357 +/- 0.0625

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

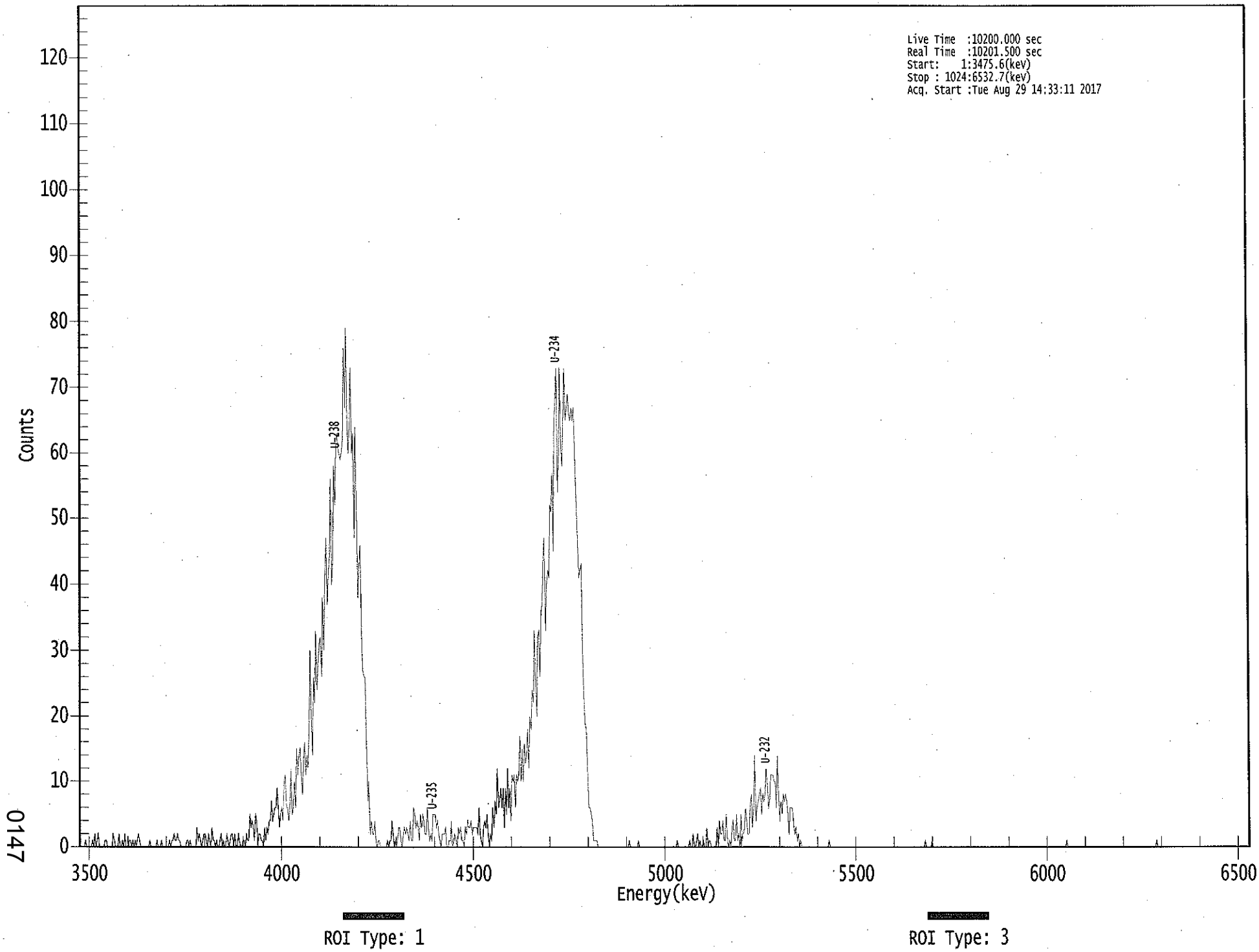
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.266	354.66	10.41	0.34	0.00E+000	4.7
U-234		4.722	2573.49	3.86	0.51	0.00E+000	92.6
U-235		4.395	158.32	15.62	0.68	0.00E+000	7.8
U-238		4.145	2549.15	3.88	0.85	0.00E+000	78.8

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.990	5302.50*	3.70E+000 +/- 4.20E-001	4.98E-002 +/- 5.66E-003
U-234	0.989	4761.50*	2.68E+001 +/- 3.21E+000	5.45E-002 +/- 6.19E-003
U-235	0.999	4385.50*	2.03E+000 +/- 3.92E-001	7.23E-002 +/- 8.21E-003
U-238	0.989	4184.40*	2.64E+001 +/- 3.16E+000	6.20E-002 +/- 7.03E-003

0000192997.CNF



0147

****
***** 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: 10202

Channel								
1:	0	0	0	0	0	1	0	0
9:	0	0	0	1	0	2	0	1
17:	2	0	0	0	0	0	1	1
25:	0	0	0	0	0	2	1	0
33:	0	0	2	0	0	1	0	2
41:	0	0	0	1	1	0	1	0
49:	1	0	1	2	1	0	0	0
57:	0	0	0	0	0	1	0	0
65:	0	0	0	1	0	0	0	1
73:	0	0	0	0	0	0	1	0
81:	1	1	2	1	1	2	1	1
89:	0	0	0	0	0	1	1	0
97:	1	0	0	0	0	0	3	1
105:	2	1	0	1	2	2	1	0
113:	2	1	0	3	1	1	0	1
121:	0	0	1	2	0	1	0	0
129:	2	1	0	1	2	2	0	2
137:	0	0	2	1	0	0	1	1
145:	0	2	1	1	5	3	4	3
153:	1	5	4	0	2	2	1	1
161:	0	3	1	3	2	4	4	7
169:	4	5	6	6	9	5	3	5
177:	6	4	10	11	6	6	4	6
185:	12	5	6	10	6	15	11	14
193:	15	11	8	13	16	11	14	12
201:	18	30	20	14	26	22	33	24
209:	28	31	32	26	38	30	40	47
217:	37	42	43	56	40	44	58	52
225:	60	63	61	60	59	60	62	76
233:	67	79	65	60	64	73	60	63
241:	47	64	51	38	43	46	31	27
249:	26	26	17	7	10	2	4	2
257:	2	4	1	0	1	1	0	0
265:	0	0	0	0	1	0	1	1
273:	4	2	0	1	0	1	3	3
281:	1	0	2	3	2	3	2	1
289:	4	1	1	6	5	3	4	3
297:	1	5	3	5	4	2	2	6
305:	3	1	2	1	5	5	5	3
313:	4	2	1	0	2	2	2	3
321:	0	0	1	1	4	0	1	2
329:	1	0	3	2	3	1	1	0
337:	3	2	4	3	3	4	2	3
345:	3	3	3	2	6	2	1	0
353:	3	4	3	5	2	0	2	1
361:	6	3	7	5	12	6	7	9

369:	6	9	3	9	5	12	6	9

Sample Title: 11

Channel								
377:	4	11	10	11	6	11	10	11
385:	17	10	15	10	16	13	14	18
393:	12	20	18	24	22	33	25	20
401:	32	33	26	36	37	44	47	33
409:	40	42	41	52	51	57	45	65
417:	68	73	54	60	73	61	58	66
425:	73	65	67	69	66	65	67	65
433:	67	61	53	48	41	42	43	30
441:	23	19	18	12	6	6	5	4
449:	1	1	1	1	0	0	0	0
457:	0	0	0	0	0	0	0	0
465:	0	0	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	1
481:	0	0	0	0	0	0	0	1
489:	0	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0
513:	0	0	0	0	0	0	0	0
521:	0	1	0	0	0	0	0	0
529:	0	0	0	0	1	0	0	2
537:	0	0	1	2	0	1	0	0
545:	1	0	0	3	0	1	1	0
553:	0	0	0	0	3	0	4	2
561:	2	4	1	1	5	1	0	1
569:	0	3	4	1	1	5	1	2
577:	0	5	1	2	3	6	4	2
585:	2	6	8	3	6	14	4	6
593:	7	8	9	5	8	7	8	12
601:	10	6	7	11	11	11	10	10
609:	6	14	8	4	7	5	8	7
617:	8	7	5	2	6	6	6	3
625:	2	3	1	2	0	1	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	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	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	1	0	0	0	0	0
745:	1	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801:	0	0	0	0	0	0	0	0

Sample Title: 11

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

Apex-Alpha™

8/20

Sample Description: HTC-A04-S002-2430-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001930
Batch Identification: 1707089A-UU
Sample Identification: 12
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_043
Chamber Serial Number: 04026481A
Detector Serial Number: 91088
Env. Background: System Bkgd 194882
Reagent Blank: <not performed>

Sample Size: 1.050E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/16/2017 6:18:29 AM
Acquisition Date/Time: 8/29/2017 2:33:13 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: 0.1828 +/- 0.0107
Counting Efficiency: 0.1874 +/- 0.0032 on 11/18/2016 10:08:43 AM
Chem. Recovery Factor: 0.9752 +/- 0.0595

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

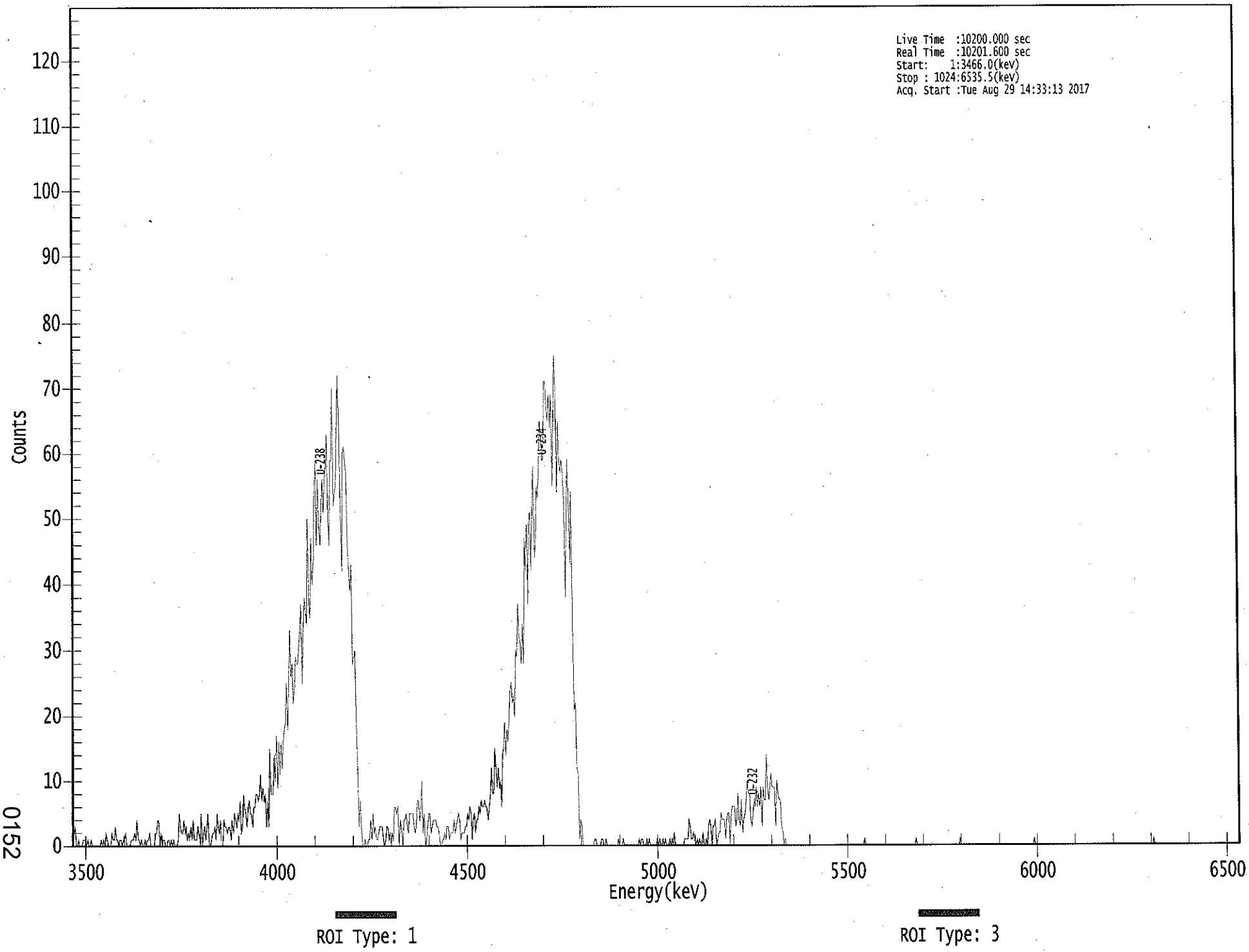
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.255	345.30	10.58	1.70	0.00E+000	9.0
U-234		4.706	2937.13	3.62	1.87	0.00E+000	116.0
U-235		4.390	211.98	13.50	1.02	0.00E+000	4.9
U-238		4.123	2891.66	3.65	0.34	0.00E+000	109.2

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.984	5302.50*	4.79E+000 +/- 5.51E-001	1.02E-001 +/- 1.17E-002
U-234	0.978	4761.50*	4.06E+001 +/- 4.90E+000	1.05E-001 +/- 1.20E-002
U-235	1.000	4385.50*	3.62E+000 +/- 6.42E-001	1.08E-001 +/- 1.24E-002
U-238	0.974	4184.40*	3.98E+001 +/- 4.80E+000	6.59E-002 +/- 7.57E-003

0000193004.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: 10200
Elapsed Real Time: 10202

Channel								
1:	0	2	3	0	0	1	0	0
9:	0	1	1	1	0	1	0	0
17:	1	0	0	0	0	0	0	0
25:	0	1	0	1	0	2	1	0
33:	0	0	2	1	1	3	1	1
41:	0	1	1	0	1	1	2	0
49:	0	0	0	1	1	1	2	1
57:	4	1	1	0	1	0	0	1
65:	0	1	1	2	0	0	0	0
73:	2	2	4	4	0	2	0	1
81:	1	0	0	1	1	0	1	0
89:	1	0	0	0	1	5	3	2
97:	2	4	2	3	1	2	1	3
105:	1	4	1	1	1	3	2	1
113:	5	0	2	3	1	3	5	0
121:	0	1	2	2	3	1	5	3
129:	2	4	0	0	4	3	3	2
137:	3	3	1	4	2	5	4	3
145:	5	4	7	2	3	8	6	5
153:	3	6	7	5	5	3	6	6
161:	8	8	7	8	11	7	9	7
169:	8	3	7	3	15	8	8	8
177:	14	10	17	9	16	11	16	12
185:	16	18	19	25	18	25	33	26
193:	28	22	24	29	28	28	31	33
201:	37	25	33	38	36	34	50	37
209:	35	47	40	44	53	59	46	56
217:	49	46	51	56	51	56	58	63
225:	50	46	59	59	70	52	54	55
233:	65	72	64	52	42	60	61	59
241:	57	46	42	39	43	28	29	30
249:	17	12	3	7	3	0	0	1
257:	0	0	1	1	4	1	5	2
265:	3	1	1	2	3	3	3	1
273:	0	1	3	3	1	2	0	2
281:	1	6	6	5	6	0	4	3
289:	0	4	4	5	3	2	5	5
297:	5	5	3	2	3	7	7	4
305:	5	10	2	5	0	1	3	5
313:	5	2	3	4	4	4	3	3
321:	2	0	0	1	1	2	1	3
329:	3	1	2	2	2	4	2	3
337:	4	5	4	1	2	2	2	3
345:	3	5	4	6	5	1	4	5
353:	2	4	4	6	5	7	6	6
361:	7	6	6	4	6	8	12	8

369:	8	15	12	9	12	9	10	6

Sample Title: 12

Channel								
377:	14	15	19	14	18	16	20	24
385:	25	22	23	20	30	29	37	32
393:	31	28	34	28	47	42	49	37
401:	49	51	42	51	58	44	46	55
409:	53	57	65	63	59	59	71	71
417:	67	65	69	64	69	55	64	75
425:	70	54	65	59	57	59	57	53
433:	38	49	59	53	43	54	31	21
441:	22	12	11	1	4	3	0	0
449:	0	0	0	0	0	0	0	0
457:	1	1	0	0	0	0	1	1
465:	0	0	1	0	0	0	0	0
473:	0	0	0	0	0	1	0	0
481:	0	1	0	0	0	0	0	0
489:	0	0	0	0	0	0	0	1
497:	0	1	1	0	0	0	1	0
505:	1	0	0	0	0	0	0	1
513:	0	1	0	0	1	0	1	0
521:	0	0	1	0	1	0	2	0
529:	0	0	0	0	0	0	0	1
537:	1	1	1	4	3	1	1	2
545:	1	0	1	0	1	0	0	2
553:	0	0	1	0	3	4	3	0
561:	3	3	4	0	1	2	2	5
569:	4	4	4	1	4	5	5	0
577:	5	6	6	6	3	4	8	4
585:	3	7	2	4	5	7	10	8
593:	8	4	3	5	7	6	9	6
601:	8	6	9	3	9	7	7	14
609:	9	7	9	11	9	9	9	3
617:	10	8	7	7	3	2	0	1
625:	0	0	0	0	0	0	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	1	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	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	1	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801:	0	0	0	0	0	0	0	0

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

Apex-Alpha™

8/20

Sample Description: HTC-A04-S002-3036-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001930
Batch Identification: 1707089A-UU
Sample Identification: 13
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_044
Chamber Serial Number: 04026481B
Detector Serial Number: 84168
Env. Background: System Bkgd 194883
Reagent Blank: <not performed>

Sample Size: 1.320E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/16/2017 6:18:29 AM
Acquisition Date/Time: 8/29/2017 2:33:15 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.610 mL
Effective Efficiency: 0.1690 +/- 0.0102
Counting Efficiency: 0.1793 +/- 0.0030 on 11/18/2016 10:08:42 AM
Chem. Recovery Factor: 0.9428 +/- 0.0593

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

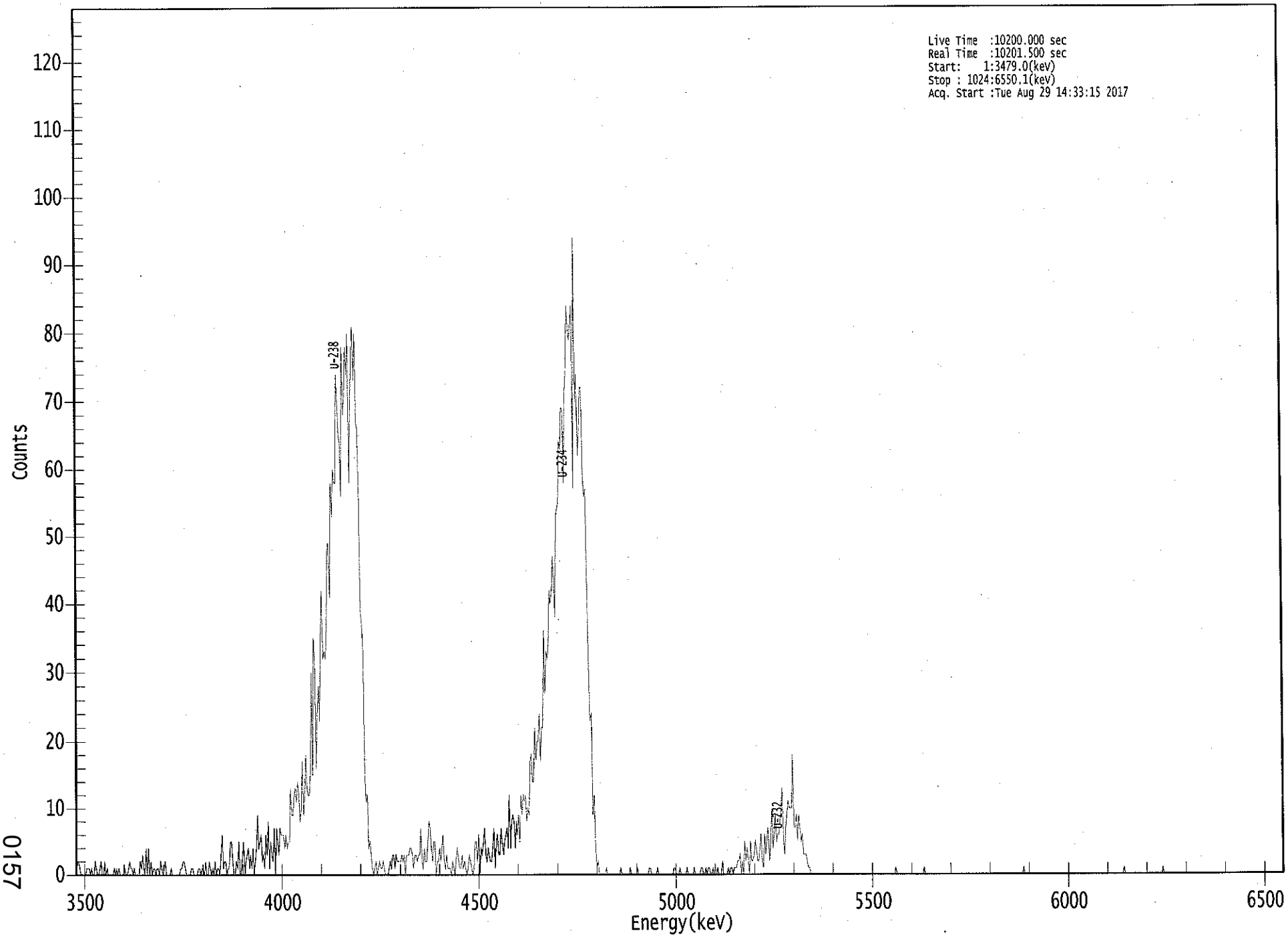
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.263	318.66	10.99	0.34	0.00E+000	17.5
U-234		4.721	2671.32	3.79	0.68	0.00E+000	78.6
U-235		4.392	176.83	14.75	0.17	0.00E+000	10.0
U-238		4.143	2673.49	3.79	0.51	0.00E+000	85.6

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.989	5302.50*	3.80E+000 +/- 4.52E-001	5.71E-002 +/- 6.78E-003
U-234	0.988	4761.50*	3.18E+001 +/- 3.96E+000	6.71E-002 +/- 7.97E-003
U-235	1.000	4385.50*	2.60E+000 +/- 4.92E-001	6.13E-002 +/- 7.28E-003
U-238	0.988	4184.40*	3.17E+001 +/- 3.95E+000	6.22E-002 +/- 7.39E-003

0000193005.CNF



0157

****
***** 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: 10202

Channel								
1:	0	2	2	1	0	0	0	0
9:	0	1	1	1	0	1	0	0
17:	2	1	0	0	1	2	0	0
25:	2	0	1	0	0	0	0	0
33:	1	0	1	0	1	0	0	0
41:	0	1	0	0	1	2	1	1
49:	0	1	0	0	0	0	2	1
57:	3	1	0	4	0	4	0	2
65:	0	1	1	0	1	1	0	2
73:	1	0	1	2	0	0	0	0
81:	1	0	0	0	0	0	0	0
89:	1	1	2	2	1	0	0	0
97:	0	1	1	0	0	0	0	1
105:	1	0	1	1	0	2	0	0
113:	2	1	0	1	0	2	0	1
121:	1	0	3	6	1	2	2	0
129:	1	1	5	5	2	0	0	2
137:	1	5	0	0	3	5	0	2
145:	3	4	1	3	1	4	0	2
153:	4	9	4	5	6	2	3	1
161:	6	3	8	1	5	3	2	7
169:	0	7	5	3	7	6	6	6
177:	4	6	4	5	5	13	9	9
185:	12	13	11	14	12	8	10	17
193:	9	12	18	13	12	12	16	30
201:	15	35	32	16	24	28	23	35
209:	42	32	33	32	35	49	49	41
217:	58	53	60	58	58	74	70	65
225:	64	56	78	68	71	78	74	80
233:	58	68	77	81	73	80	67	66
241:	55	39	37	33	15	11	12	4
249:	5	3	1	0	1	2	0	1
257:	2	1	1	2	1	0	0	0
265:	1	2	1	3	3	1	3	2
273:	2	2	2	3	2	3	0	3
281:	3	3	4	4	3	1	3	3
289:	2	3	3	7	2	1	4	2
297:	2	5	8	7	4	2	5	5
305:	0	2	2	4	2	4	6	2
313:	1	3	1	1	1	0	2	1
321:	0	3	4	2	1	1	3	1
329:	2	1	0	1	3	2	1	0
337:	1	5	5	2	6	0	4	3
345:	5	7	3	2	4	3	2	2
353:	4	7	1	5	6	3	3	7
361:	5	3	5	6	7	4	12	4

369:	8	9	8	4	8	6	9	5

Sample Title: 13

Channel								
377:	12	9	12	11	12	8	10	9
385:	17	18	14	14	22	17	20	20
393:	24	17	22	22	36	27	33	32
401:	33	42	40	42	47	43	38	53
409:	54	55	64	63	69	69	58	71
417:	74	84	81	79	81	84	57	94
425:	70	74	62	66	72	72	59	56
433:	57	44	31	23	24	9	12	4
441:	1	2	0	0	0	0	0	0
449:	1	0	0	0	0	0	0	0
457:	0	0	0	0	1	0	0	0
465:	0	0	0	0	1	0	0	0
473:	0	0	1	0	0	0	0	0
481:	0	0	0	0	1	1	0	0
489:	0	0	0	1	0	0	0	0
497:	0	0	0	0	0	0	0	0
505:	0	1	1	0	0	0	1	0
513:	0	0	0	0	1	0	0	0
521:	0	0	1	0	0	0	0	0
529:	1	1	0	0	1	0	1	1
537:	0	0	1	0	0	0	1	0
545:	0	0	2	0	0	0	0	1
553:	0	1	1	0	1	1	1	2
561:	2	3	0	2	0	5	2	4
569:	2	0	5	2	2	3	5	4
577:	2	2	4	6	2	1	6	3
585:	6	7	2	4	10	4	6	9
593:	5	6	6	8	10	13	5	3
601:	7	9	11	10	10	10	18	7
609:	7	9	5	9	7	5	6	3
617:	3	3	2	1	1	0	0	0
625:	0	0	0	0	0	0	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	1	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	1	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	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	1	0	0	0	0	0

Sample Title: 13

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

Apex-Alpha™

Sample Description: HTC-A04-S002-3642-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001929
Batch Identification: 1707089A-UU
Sample Identification: 14
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_045
Chamber Serial Number: 04026482A
Detector Serial Number: 91131
Env. Background: System Bkgd 194884
Reagent Blank: <not performed>

Sample Size: 1.280E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/16/2017 6:18:29 AM
Acquisition Date/Time: 8/29/2017 2:33:18 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: 0.1904 +/- 0.0110
Counting Efficiency: 0.1688 +/- 0.0029 on 11/18/2016 10:08:40 AM
Chem. Recovery Factor: 1.1282 +/- 0.0678

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

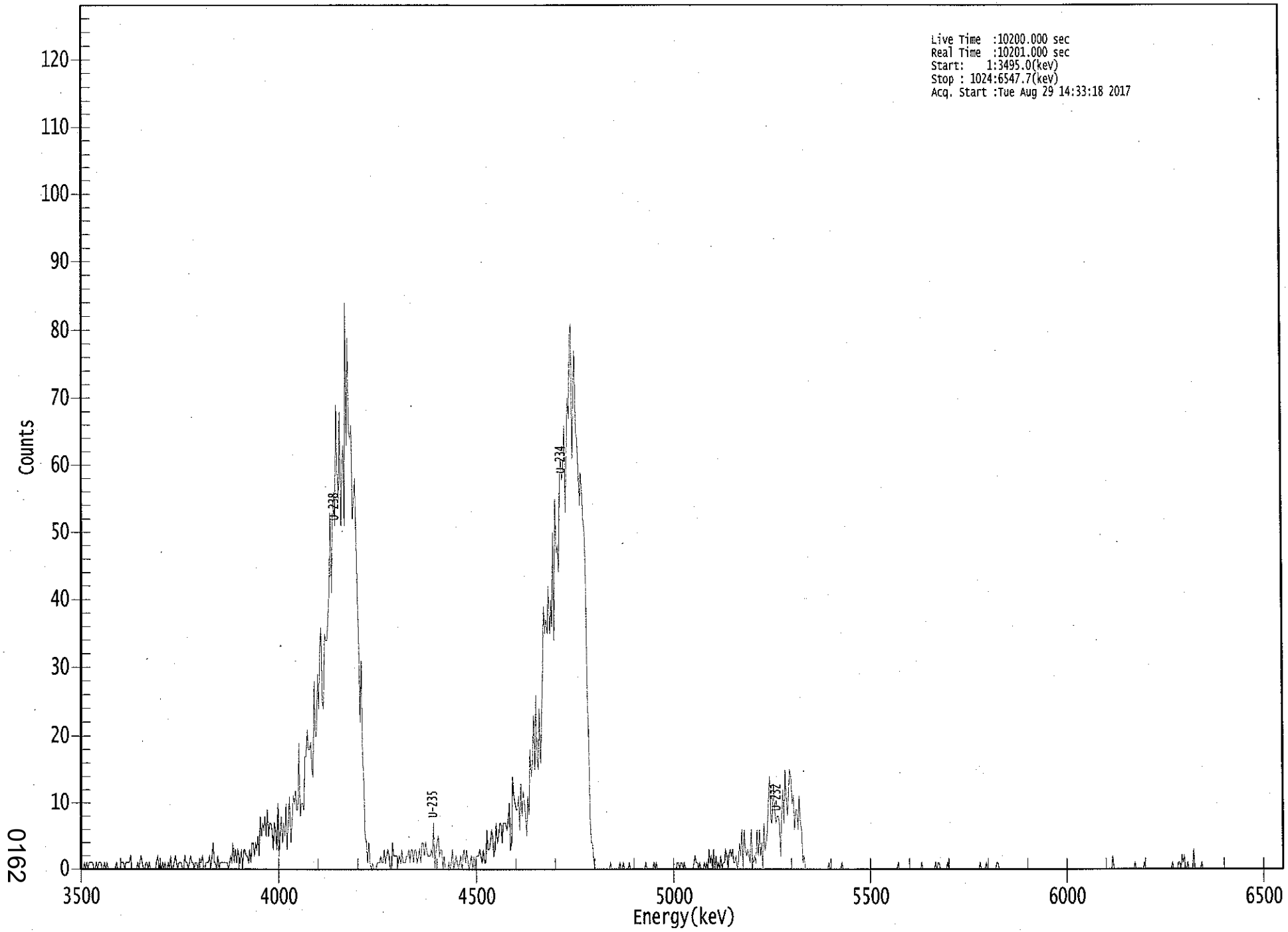
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.260	359.32	10.35	0.68	0.00E+000	25.8
U-234		4.715	2402.32	4.00	0.68	0.00E+000	80.1
U-235		4.387	125.83	17.49	0.17	0.00E+000	3.6
U-238		4.140	2287.15	4.10	0.85	0.00E+000	64.6

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.987	5302.50*	3.93E+000 +/- 4.43E-001	6.16E-002 +/- 6.96E-003
U-234	0.985	4761.50*	2.62E+001 +/- 3.13E+000	6.14E-002 +/- 6.94E-003
U-235	1.000	4385.50*	1.69E+000 +/- 3.52E-001	5.61E-002 +/- 6.33E-003
U-238	0.986	4184.40*	2.48E+001 +/- 2.98E+000	6.49E-002 +/- 7.33E-003

0000192992.CNF



0162

****
***** 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:	2	0	0	1	0	1	0	1
9:	1	1	1	0	0	1	0	1
17:	1	1	0	0	1	0	1	0
25:	0	0	0	0	0	0	1	0
33:	0	0	1	1	1	0	1	1
41:	1	1	2	0	0	0	0	0
49:	1	0	1	2	1	0	0	1
57:	1	0	1	0	0	0	0	0
65:	1	2	0	1	0	1	0	1
73:	0	0	1	0	2	0	0	1
81:	2	1	0	1	1	1	0	0
89:	2	1	1	0	1	2	1	1
97:	0	1	1	0	1	1	1	2
105:	0	0	1	1	1	2	0	2
113:	4	1	1	0	2	0	1	1
121:	1	1	1	1	1	0	1	2
129:	1	4	1	3	1	3	2	1
137:	3	0	3	3	2	2	1	3
145:	1	4	4	2	4	3	5	2
153:	8	5	7	6	8	5	9	5
161:	7	7	6	3	7	6	3	10
169:	2	6	8	4	7	5	10	3
177:	8	11	4	7	11	10	12	9
185:	9	19	8	10	10	9	17	17
193:	21	18	18	19	15	14	28	20
201:	20	29	24	33	36	25	24	35
209:	34	34	37	42	53	41	52	56
217:	51	69	59	55	68	51	60	63
225:	51	84	63	79	65	64	66	52
233:	55	58	48	40	33	22	31	17
241:	13	5	4	1	4	1	0	1
249:	0	0	0	1	1	1	2	1
257:	1	3	1	2	3	2	0	0
265:	4	2	2	2	2	1	2	1
273:	3	1	1	1	2	2	3	1
281:	3	3	1	3	3	1	2	3
289:	1	4	4	2	4	3	2	2
297:	2	3	2	7	0	3	4	5
305:	2	3	3	0	2	0	0	0
313:	1	0	1	3	0	1	2	1
321:	0	1	2	0	2	3	1	3
329:	1	0	1	2	0	2	0	2
337:	2	2	3	2	1	3	1	1
345:	6	3	3	4	6	5	2	3
353:	7	4	5	7	7	4	7	7
361:	7	6	7	10	3	4	14	11

369:	10	9	9	11	6	13	8	12

Sample Title: 14

Channel								
377:	10	8	5	11	8	18	14	16
385:	23	15	26	17	15	24	16	22
393:	30	39	35	37	35	42	35	40
401:	36	50	34	55	47	48	44	57
409:	61	58	59	66	53	62	70	67
417:	79	81	61	71	77	65	64	59
425:	54	59	56	52	50	43	26	21
433:	8	4	4	1	0	0	0	0
441:	0	0	0	0	0	0	0	0
449:	0	1	0	0	0	0	0	0
457:	0	1	0	0	1	0	0	0
465:	0	1	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	1
481:	0	0	0	0	0	0	1	0
489:	1	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	0	0
505:	0	0	1	1	0	1	1	0
513:	1	0	0	0	0	0	0	0
521:	1	2	1	1	0	1	0	0
529:	0	1	0	1	0	3	1	2
537:	0	3	0	2	0	1	0	2
545:	0	1	1	3	2	0	2	3
553:	2	3	1	1	2	0	1	4
561:	2	6	0	6	3	2	3	2
569:	1	6	2	1	2	1	6	2
577:	6	2	4	0	7	3	4	6
585:	12	14	7	7	13	9	7	8
593:	8	7	2	8	12	7	15	11
601:	8	12	15	14	10	11	6	9
609:	9	6	11	7	6	1	2	0
617:	0	0	0	0	0	0	0	0
625:	0	0	0	0	0	0	0	0
633:	0	0	0	1	0	0	0	0
641:	0	0	0	0	0	0	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	1	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	1	0	0	0	0	0
721:	0	0	0	0	0	0	1	0
729:	1	1	0	0	0	0	0	0
737:	1	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	1	0	0	0
769:	0	1	0	0	0	0	0	0
777:	0	0	1	1	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801:	0	0	0	0	0	0	0	0

Sample Title: 14

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

Apex-Alpha™

8/30

Sample Description: HTC-A04-S002-4248-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001929
Batch Identification: 1707089A-UU
Sample Identification: 15
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_046
Chamber Serial Number: 04026482B
Detector Serial Number: 58762
Env. Background: System Bkgd 194885
Reagent Blank: <not performed>

Sample Size: 1.230E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/16/2017 6:18:29 AM
Acquisition Date/Time: 8/29/2017 2:33:20 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.610 mL
Effective Efficiency: 0.1856 +/- 0.0108
Counting Efficiency: 0.1713 +/- 0.0029 on 11/18/2016 10:08:38 AM
Chem. Recovery Factor: 1.0831 +/- 0.0658

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

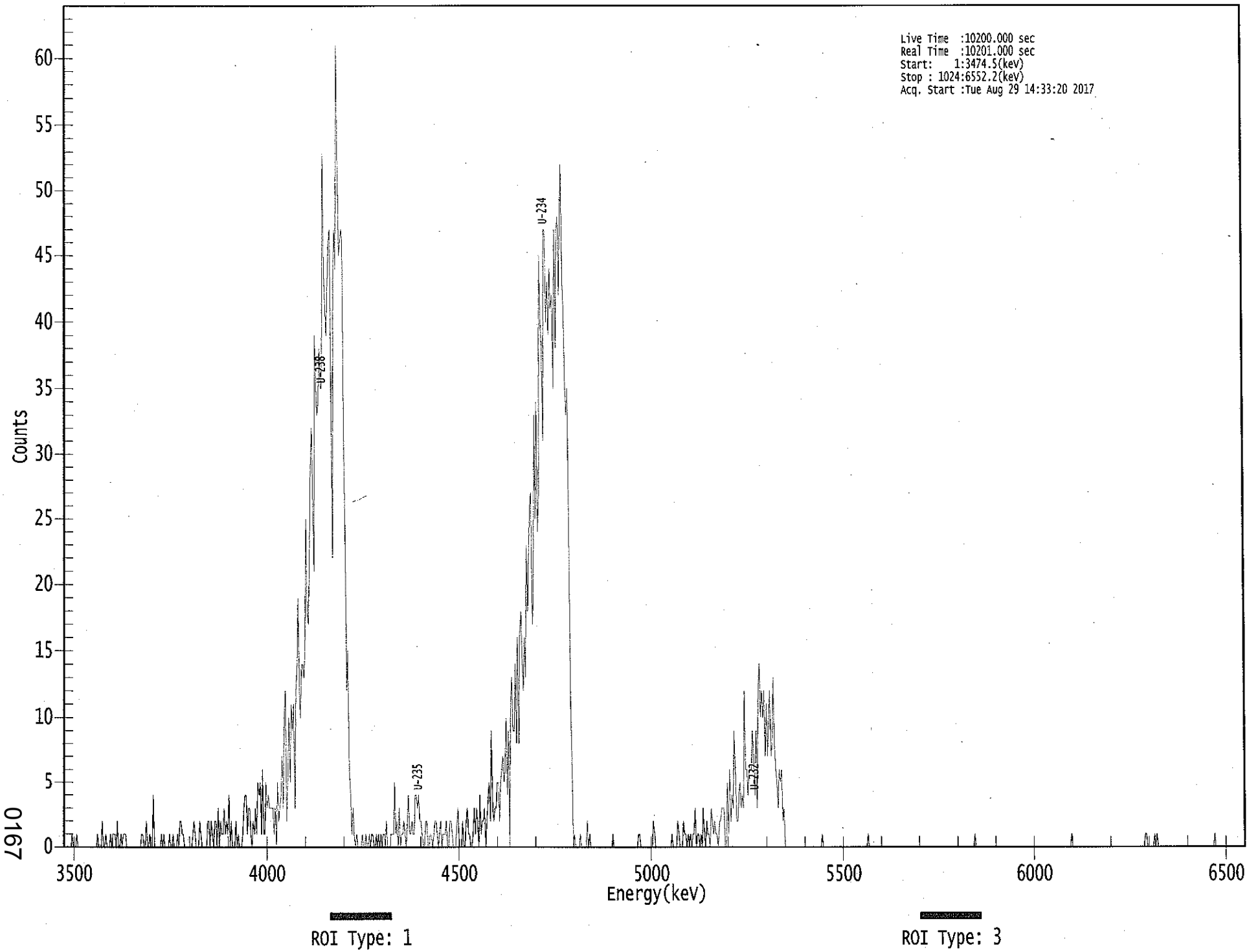
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.271	349.81	10.50	1.19	0.00E+000	19.7
U-234		4.726	1622.64	4.87	1.36	0.00E+000	78.7
U-235		4.396	84.15	21.49	0.85	0.00E+000	3.8
U-238		4.146	1594.98	4.91	1.02	0.00E+000	28.8

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.993	5302.50*	4.08E+000 +/- 4.66E-001	7.69E-002 +/- 8.78E-003
U-234	0.991	4761.50*	1.89E+001 +/- 2.34E+000	7.97E-002 +/- 9.11E-003
U-235	0.999	4385.50*	1.21E+000 +/- 2.94E-001	8.59E-002 +/- 9.82E-003
U-238	0.990	4184.40*	1.85E+001 +/- 2.30E+000	7.30E-002 +/- 8.34E-003

0000192993.CNF



0167

****
***** 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	1
9:	0	0	0	1	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	1	0	0
33:	0	2	0	0	1	0	0	0
41:	1	0	1	1	1	0	2	0
49:	0	1	0	1	1	1	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	1	1	0	0	2
73:	0	0	1	0	0	4	0	0
81:	0	0	0	0	1	0	1	0
89:	0	0	0	1	0	0	1	0
97:	0	0	1	0	2	2	1	1
105:	0	0	0	0	0	0	0	1
113:	2	1	0	0	0	2	1	0
121:	0	0	0	0	2	2	0	2
129:	1	0	2	2	0	3	0	2
137:	1	1	3	1	2	1	4	0
145:	2	0	0	0	2	0	1	0
153:	0	0	1	3	4	4	1	3
161:	3	1	0	2	1	3	1	5
169:	4	5	1	6	1	1	5	3
177:	4	3	3	3	3	1	3	0
185:	5	2	3	4	7	3	10	12
193:	2	6	10	5	11	9	11	3
201:	12	14	19	12	10	14	14	13
209:	15	25	18	17	22	29	32	27
217:	21	39	35	33	34	38	35	35
225:	53	44	41	39	43	46	47	35
233:	22	43	47	44	61	53	45	46
241:	47	46	30	24	12	15	6	4
249:	1	3	1	0	1	0	0	0
257:	0	1	0	0	1	0	0	1
265:	0	1	1	0	0	1	0	1
273:	0	1	0	1	1	0	2	0
281:	0	0	1	1	1	5	1	2
289:	0	3	0	1	1	2	1	0
297:	2	4	1	1	2	1	1	4
305:	4	3	4	2	2	1	0	0
313:	2	2	0	0	1	1	0	1
321:	2	2	1	0	1	2	0	1
329:	1	1	2	0	0	2	2	1
337:	0	0	0	2	3	0	0	0
345:	2	0	0	2	3	1	1	0
353:	0	1	3	1	3	2	0	4
361:	1	2	2	3	0	2	4	5

369:	2	9	3	2	3	3	5	5

Sample Title: 15

Channel								
377:	2	5	6	7	5	6	10	4
385:	9	0	11	13	9	9	14	8
393:	16	8	16	18	15	12	16	13
401:	23	18	22	26	27	17	19	33
409:	25	34	24	27	45	40	38	31
417:	47	47	40	43	39	44	41	42
425:	35	47	38	47	48	42	48	52
433:	43	41	35	33	35	24	11	7
441:	0	1	0	0	0	0	1	0
449:	0	0	0	0	2	0	1	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	0	0	0	0	0
489:	0	0	0	0	0	0	0	0
497:	1	1	0	0	0	0	0	0
505:	0	0	0	0	0	2	1	0
513:	0	0	0	0	0	0	0	0
521:	0	0	0	0	0	1	0	0
529:	0	0	2	1	0	0	0	2
537:	1	1	0	1	0	1	0	1
545:	1	3	0	1	1	0	1	0
553:	3	1	0	2	1	1	0	3
561:	2	1	2	1	1	0	2	2
569:	3	3	3	0	0	5	1	6
577:	2	4	3	9	6	2	2	4
585:	5	3	4	3	12	6	6	4
593:	6	6	6	9	7	4	9	3
601:	12	14	10	12	10	12	7	11
609:	7	10	12	7	8	13	8	6
617:	5	3	6	5	6	2	3	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	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	1
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	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	1	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:	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	0	0
937:	1	1	0	0	0	0	0	0
945:	1	0	1	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	1	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

8/20

Sample Description: HTC-A06-S001-0006-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001929
Batch Identification: 1707089A-UU
Sample Identification: 16
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_047
Chamber Serial Number: 02030596A
Detector Serial Number: 91086
Env. Background: System Bkgd 194886
Reagent Blank: <not performed>

Sample Size: 1.470E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/16/2017 6:18:29 AM
Acquisition Date/Time: 8/29/2017 2:33:23 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: 0.1413 +/- 0.0093
Counting Efficiency: 0.1623 +/- 0.0028 on 11/18/2016 10:08:37 AM
Chem. Recovery Factor: 0.8709 +/- 0.0589

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

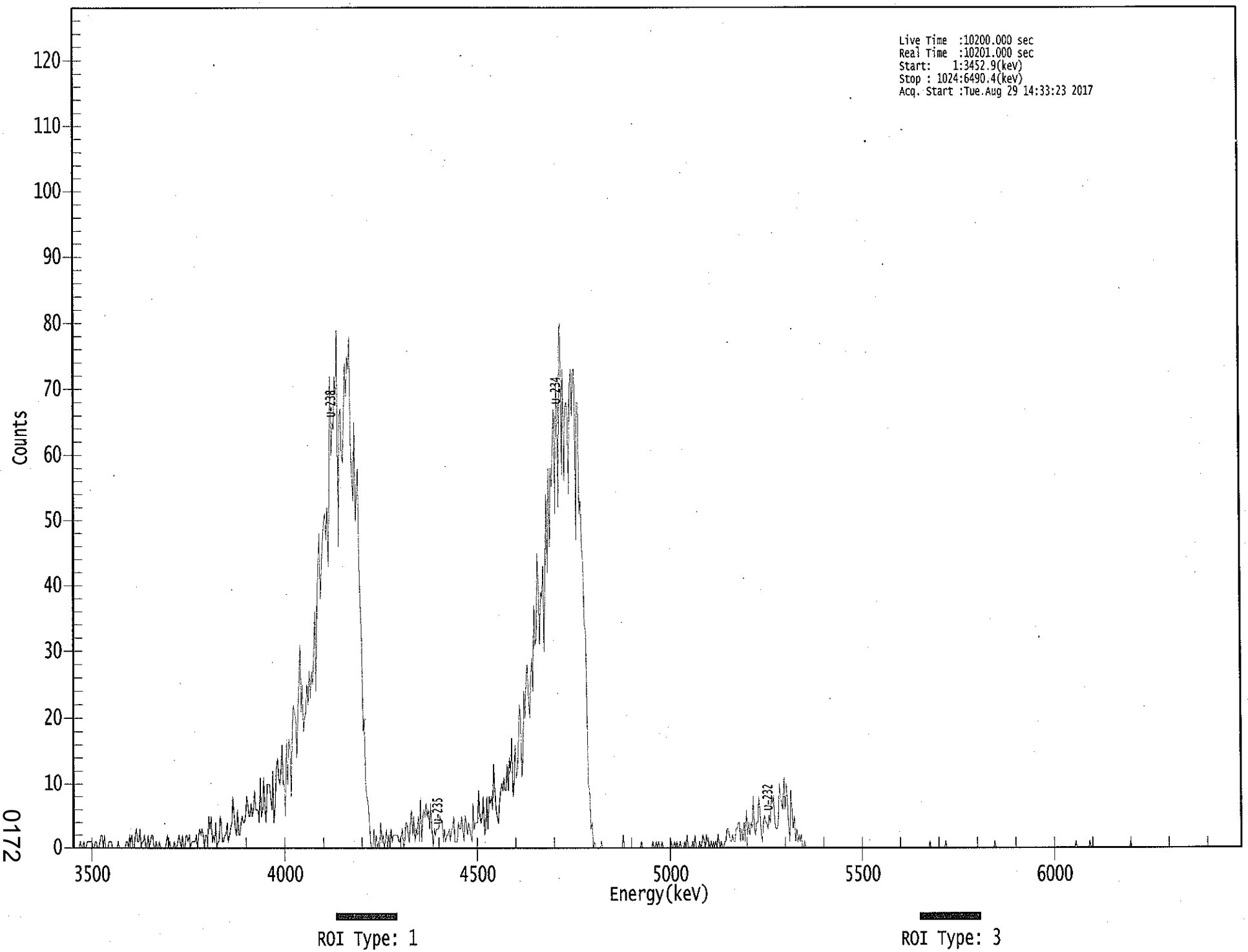
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.257	266.66	12.01	0.34	0.00E+000	24.5
U-234		4.711	2881.66	3.65	0.34	0.00E+000	99.5
U-235		4.399	214.32	13.41	0.68	0.00E+000	3.4
U-238		4.127	2966.15	3.60	0.85	0.00E+000	101.7

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.985	5302.50*	3.42E+000 +/- 4.39E-001	6.13E-002 +/- 7.86E-003
U-234	0.982	4761.50*	3.68E+001 +/- 4.91E+000	6.11E-002 +/- 7.84E-003
U-235	0.999	4385.50*	3.38E+000 +/- 6.27E-001	8.89E-002 +/- 1.14E-002
U-238	0.977	4184.40*	3.77E+001 +/- 5.03E+000	7.62E-002 +/- 9.78E-003

0000192998.CNF



0172

****
***** 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	1	0
9:	0	1	0	0	1	1	1	1
17:	1	0	0	1	1	0	0	1
25:	2	2	0	2	0	0	0	1
33:	1	1	0	0	0	0	0	1
41:	0	0	0	0	0	0	1	1
49:	0	2	1	2	0	0	2	3
57:	1	1	3	0	1	1	2	0
65:	0	2	0	1	2	2	0	0
73:	1	0	0	1	0	0	0	0
81:	0	1	2	0	1	0	0	0
89:	1	0	0	1	2	1	0	2
97:	0	0	2	2	1	2	0	1
105:	1	1	1	2	0	2	3	2
113:	3	2	0	2	2	1	5	3
121:	5	1	2	1	4	0	1	1
129:	5	4	1	1	2	2	4	1
137:	2	3	4	8	5	3	2	6
145:	2	2	4	5	4	4	5	8
153:	7	5	5	7	5	6	9	6
161:	6	6	4	11	5	6	11	6
169:	4	10	10	10	8	6	12	4
177:	7	12	14	11	10	12	16	10
185:	10	5	17	10	17	16	8	18
193:	22	21	20	14	21	25	31	21
201:	25	18	20	21	25	22	27	23
209:	27	25	29	36	24	38	42	48
217:	38	43	47	50	51	47	52	43
225:	56	72	60	65	64	72	69	79
233:	46	66	67	60	59	66	74	69
241:	75	73	78	62	56	53	65	50
249:	55	58	44	36	33	18	20	10
257:	8	7	5	1	0	0	3	0
265:	2	0	1	0	4	1	2	0
273:	1	3	0	2	0	3	1	2
281:	2	2	2	2	1	1	2	3
289:	0	1	4	4	2	1	4	6
297:	2	5	1	3	2	5	1	8
305:	1	5	6	5	7	5	6	3
313:	7	3	0	3	2	3	3	3
321:	5	4	4	1	3	1	2	2
329:	3	1	3	3	5	1	1	1
337:	4	3	3	5	3	1	5	4
345:	2	4	3	2	1	7	3	4
353:	4	4	9	5	4	5	8	2
361:	3	8	3	8	7	8	6	13

369:	9	6	5	4	7	9	10	9

Sample Title: 16

Channel								
377:	11	9	9	13	9	14	12	17
385:	8	10	16	11	12	16	22	20
393:	11	14	24	20	27	28	22	20
401:	26	29	24	37	31	32	45	40
409:	31	39	38	43	30	42	54	42
417:	58	46	58	55	62	67	51	71
425:	67	52	79	80	57	73	56	67
433:	68	67	54	70	73	66	73	73
441:	47	68	68	51	53	46	43	34
449:	33	22	10	9	3	4	0	1
457:	0	0	0	0	0	1	0	0
465:	0	0	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	0
481:	2	0	0	0	0	0	0	0
489:	0	0	0	0	0	0	0	0
497:	1	0	0	0	0	0	0	0
505:	0	0	1	0	0	1	0	1
513:	0	0	1	0	0	0	0	0
521:	0	0	1	0	0	1	0	1
529:	0	0	1	0	0	0	1	0
537:	2	0	0	0	0	1	0	2
545:	0	0	0	1	0	1	2	1
553:	0	2	1	1	0	1	0	1
561:	0	1	0	2	1	0	1	0
569:	0	1	1	3	3	2	1	1
577:	2	1	1	3	3	4	4	1
585:	3	1	4	1	6	2	4	2
593:	4	3	8	3	2	4	4	8
601:	6	2	1	4	5	4	4	3
609:	5	4	8	7	8	4	3	3
617:	4	10	8	7	6	11	6	10
625:	7	4	1	9	6	3	5	1
633:	3	1	2	1	2	0	0	1
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	1	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	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	1	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	1	0	0
881:	0	0	0	0	0	0	0	0
889:	0	1	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	1	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

8/30

Sample Description: HTC-A06-S001-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001929
Batch Identification: 1707089A-UU
Sample Identification: 17
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_048
Chamber Serial Number: 02030596B
Detector Serial Number: 83111
Env. Background: System Bkgd 194887
Reagent Blank: <not performed>

Sample Size: 1.080E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/16/2017 6:18:29 AM
Acquisition Date/Time: 8/29/2017 2:33:26 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.610 mL
Effective Efficiency: 0.1478 +/- 0.0095
Counting Efficiency: 0.1633 +/- 0.0028 on 11/18/2016 10:08:35 AM
Chem. Recovery Factor: 0.9050 +/- 0.0602

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

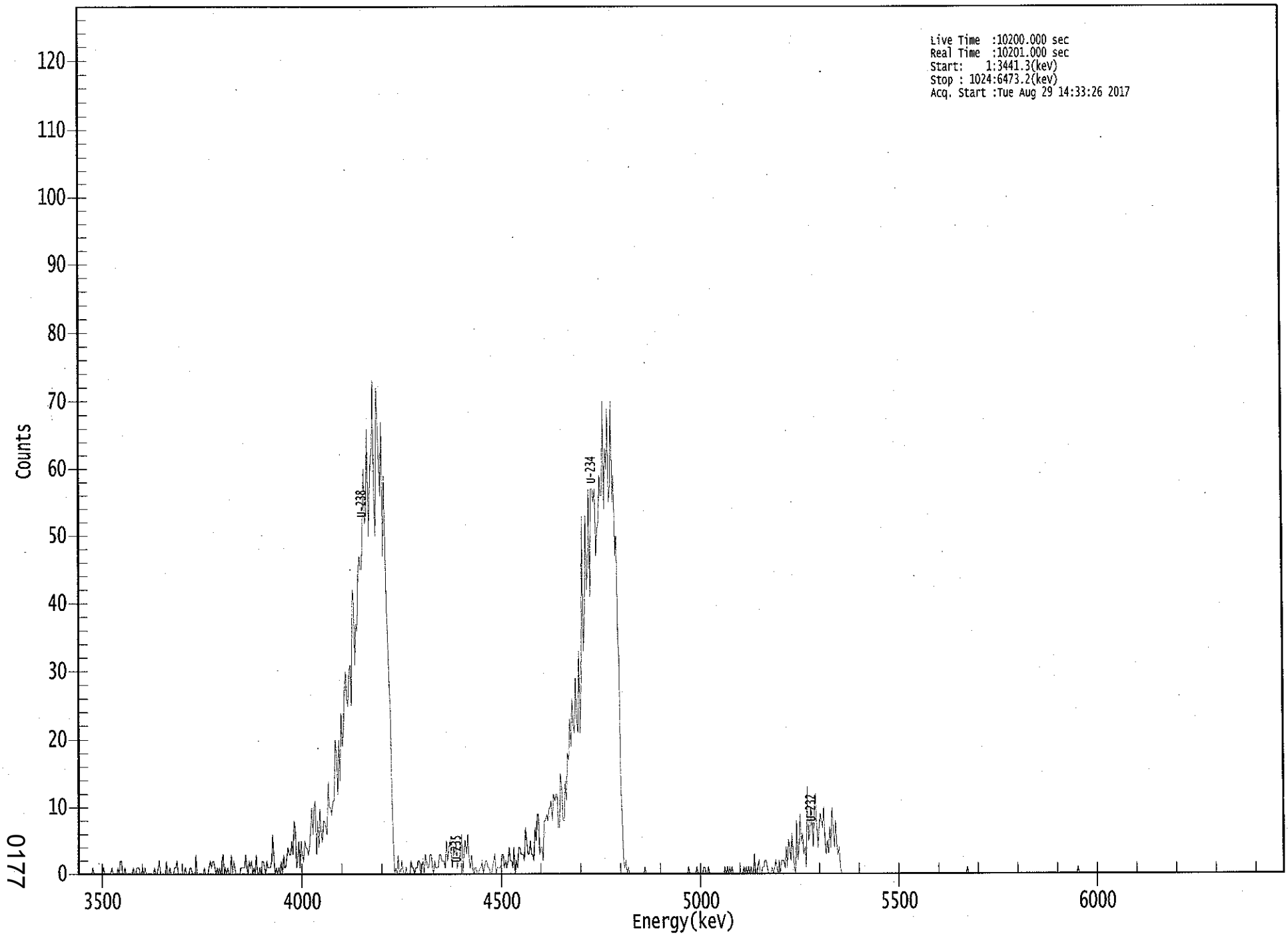
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.280	278.66	11.75	0.34	0.00E+000	4.0
U-234		4.734	2231.00	4.15	0.00	0.00E+000	84.5
U-235		4.390	129.66	17.24	0.34	0.00E+000	5.9
U-238		4.155	2231.49	4.15	0.51	0.00E+000	75.8

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.997	5302.50*	4.65E+000 +/- 5.85E-001	7.97E-002 +/- 1.00E-002
U-234	0.995	4761.50*	3.71E+001 +/- 4.92E+000	9.97E-002 +/- 1.25E-002
U-235	1.000	4385.50*	2.66E+000 +/- 5.68E-001	9.81E-002 +/- 1.23E-002
U-238	0.994	4184.40*	3.69E+001 +/- 4.90E+000	8.69E-002 +/- 1.09E-002

0000192999.CNF



0177

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

Sample Title: 17

Elapsed Live time: 10200
Elapsed Real Time: 10201

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	1	0	0	0
17:	0	0	0	0	0	1	0	0
25:	0	0	0	0	1	0	0	0
33:	0	1	0	2	2	0	0	1
41:	0	0	0	0	0	0	1	0
49:	0	1	1	1	0	0	1	0
57:	1	0	0	0	0	0	0	0
65:	1	0	0	1	2	0	0	0
73:	0	0	2	0	0	1	0	0
81:	0	1	1	2	0	0	0	0
89:	0	0	1	0	0	0	1	1
97:	0	0	0	3	0	0	0	0
105:	0	0	1	0	0	0	1	2
113:	1	2	2	1	0	1	0	1
121:	0	2	3	0	1	0	1	0
129:	0	3	0	2	1	0	0	0
137:	0	1	1	1	1	3	1	0
145:	2	1	2	0	1	0	3	0
153:	0	1	0	2	2	1	0	2
161:	1	1	1	2	6	2	0	1
169:	0	1	0	2	0	3	1	1
177:	3	4	3	3	5	3	8	7
185:	1	2	5	1	5	3	2	5
193:	4	4	3	4	7	10	6	10
201:	11	3	8	4	10	6	5	8
209:	8	7	6	14	10	10	9	11
217:	11	20	18	12	20	14	24	19
225:	21	27	30	26	25	30	31	25
233:	42	41	31	37	36	44	47	45
241:	45	52	60	52	53	66	50	56
249:	62	62	73	54	50	72	67	61
257:	56	67	47	59	49	39	35	28
265:	24	11	5	0	1	0	3	0
273:	0	2	1	0	0	1	0	0
281:	0	2	1	1	0	1	1	2
289:	2	0	1	2	0	3	2	1
297:	1	3	3	1	0	2	1	1
305:	1	3	3	2	2	2	1	5
313:	2	4	5	3	1	4	3	5
321:	1	2	2	4	6	0	4	5
329:	3	6	2	1	3	1	0	1
337:	1	0	0	1	1	2	0	1
345:	2	2	1	1	0	0	1	2
353:	3	0	1	1	1	1	3	3
361:	1	2	1	2	4	2	2	1

369:	4	0	2	1	4	4	3	3

Sample Title: 17

Channel								
377:	3	2	7	5	3	3	5	3
385:	3	2	7	5	9	9	3	4
393:	4	2	8	8	9	8	10	10
401:	11	8	12	11	12	12	7	7
409:	15	13	8	8	14	11	18	17
417:	23	19	26	22	21	29	23	21
425:	33	21	29	53	33	37	53	42
433:	46	57	41	57	57	55	57	47
441:	51	52	59	56	56	70	54	63
449:	60	69	55	58	70	55	59	47
457:	50	35	32	13	9	2	1	2
465:	0	1	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	1
481:	0	0	0	0	0	0	0	0
489:	0	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0
513:	0	0	0	0	1	0	0	0
521:	0	0	0	1	0	0	0	0
529:	0	1	1	0	0	1	0	0
537:	0	0	0	0	0	0	0	0
545:	0	0	0	1	0	1	0	1
553:	0	1	0	0	0	0	0	0
561:	0	0	0	1	0	1	0	1
569:	0	1	0	0	3	0	0	1
577:	2	0	0	1	1	2	2	1
585:	0	0	0	1	0	1	2	1
593:	0	2	0	2	2	2	1	4
601:	1	5	4	2	6	3	1	0
609:	8	2	4	9	5	6	3	4
617:	1	13	5	6	10	7	4	10
625:	12	8	4	7	9	8	7	10
633:	5	3	5	3	7	4	10	7
641:	4	8	4	3	4	1	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	1	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801:	0	0	0	0	0	0	0	0

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

Apex-Alpha™

8/620

Sample Description: HTC-A08-S001-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001929
Batch Identification: 1707089A-UU
Sample Identification: 18
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_052
Chamber Serial Number: 10006123B
Detector Serial Number: 52
Env. Background: System Bkgd 194890
Reagent Blank: <not performed>

Sample Size: 1.030E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/16/2017 6:18:29 AM
Acquisition Date/Time: 8/29/2017 2:33:58 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.610 mL
Effective Efficiency: 0.1706 +/- 0.0103
Counting Efficiency: 0.1737 +/- 0.0030 on 11/18/2016 3:34:15 PM
Chem. Recovery Factor: 0.9820 +/- 0.0616

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

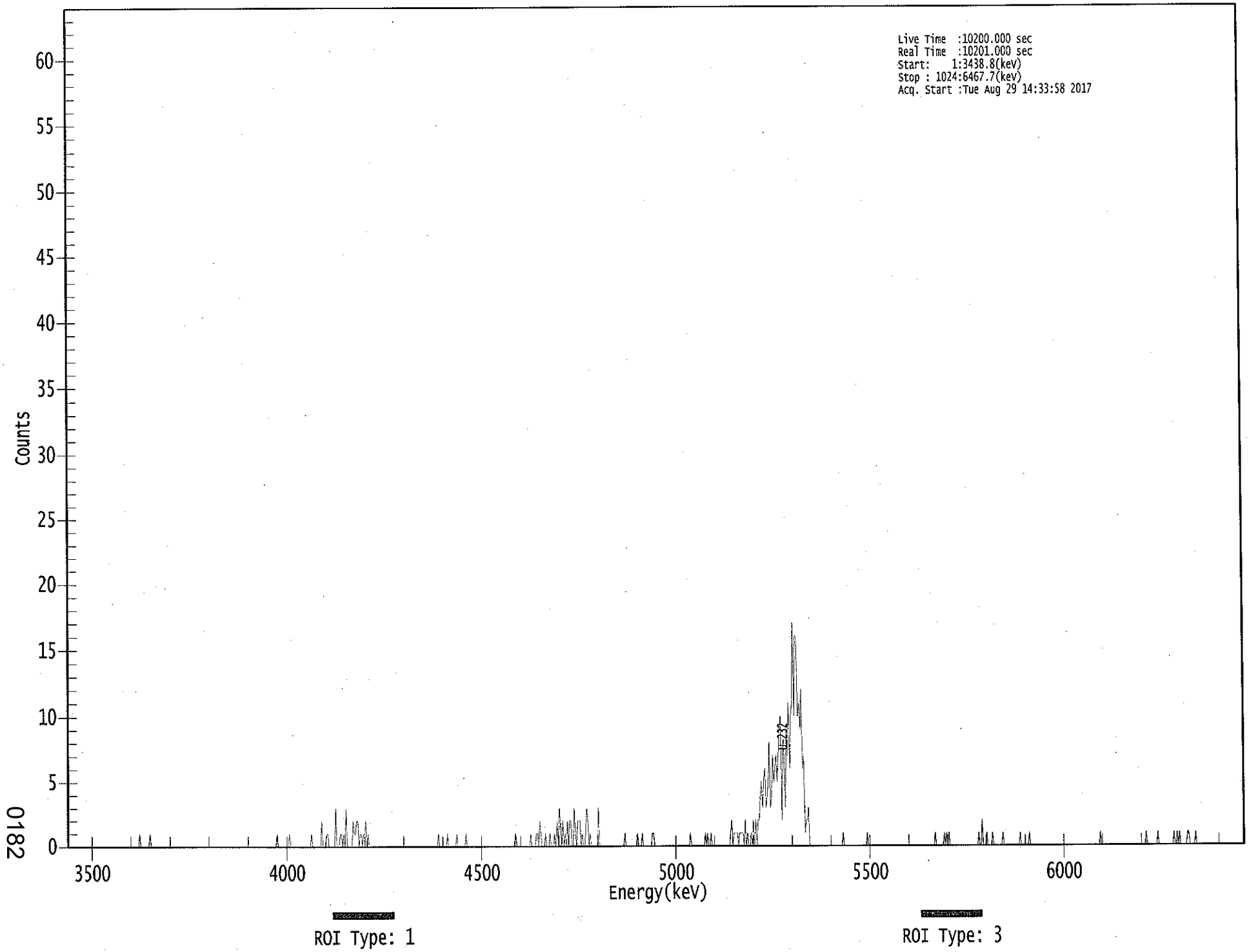
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.280	321.66	10.94	0.34	0.00E+000	29.5
U-234		4.724	44.81	29.73	1.19	0.00E+000	5.2
U-235		4.425	3.66	107.87	0.34	0.00E+000	3.0
U-238		4.151	29.49	36.46	0.51	0.00E+000	3.0

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.996	5302.50*	4.87E+000 +/- 5.77E-001	7.24E-002 +/- 8.57E-003
U-234	0.990	4761.50*	6.77E-001 +/- 2.17E-001	9.95E-002 +/- 1.18E-002
U-235	0.989	4385.50*	6.82E-002 +/- 7.40E-002	8.91E-002 +/- 1.05E-002
U-238	0.992	4184.40*	4.44E-001 +/- 1.70E-001	7.89E-002 +/- 9.34E-003

0000192995.CNF



0182

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

369:	0	0	0	0	0	0	0	0

Sample Title: 18

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

801:	0	0	0	1	0	0	0	0

Sample Title: 18

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

Apex-Alpha™

Sample Description: HTC-A08-S001-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001930
Batch Identification: 1707089A-UU
Sample Identification: 19
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_046
Chamber Serial Number: 04026482B
Detector Serial Number: 58762
Env. Background: System Bkgd 194885
Reagent Blank: <not performed>

Sample Size: 1.040E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:18:29 AM
Acquisition Date/Time: 8/29/2017 5:29:31 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.610 mL
Effective Efficiency: 0.2131 +/- 0.0117
Counting Efficiency: 0.1713 +/- 0.0029 on 11/18/2016 10:08:38 AM
Chem. Recovery Factor: 1.2435 +/- 0.0716

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

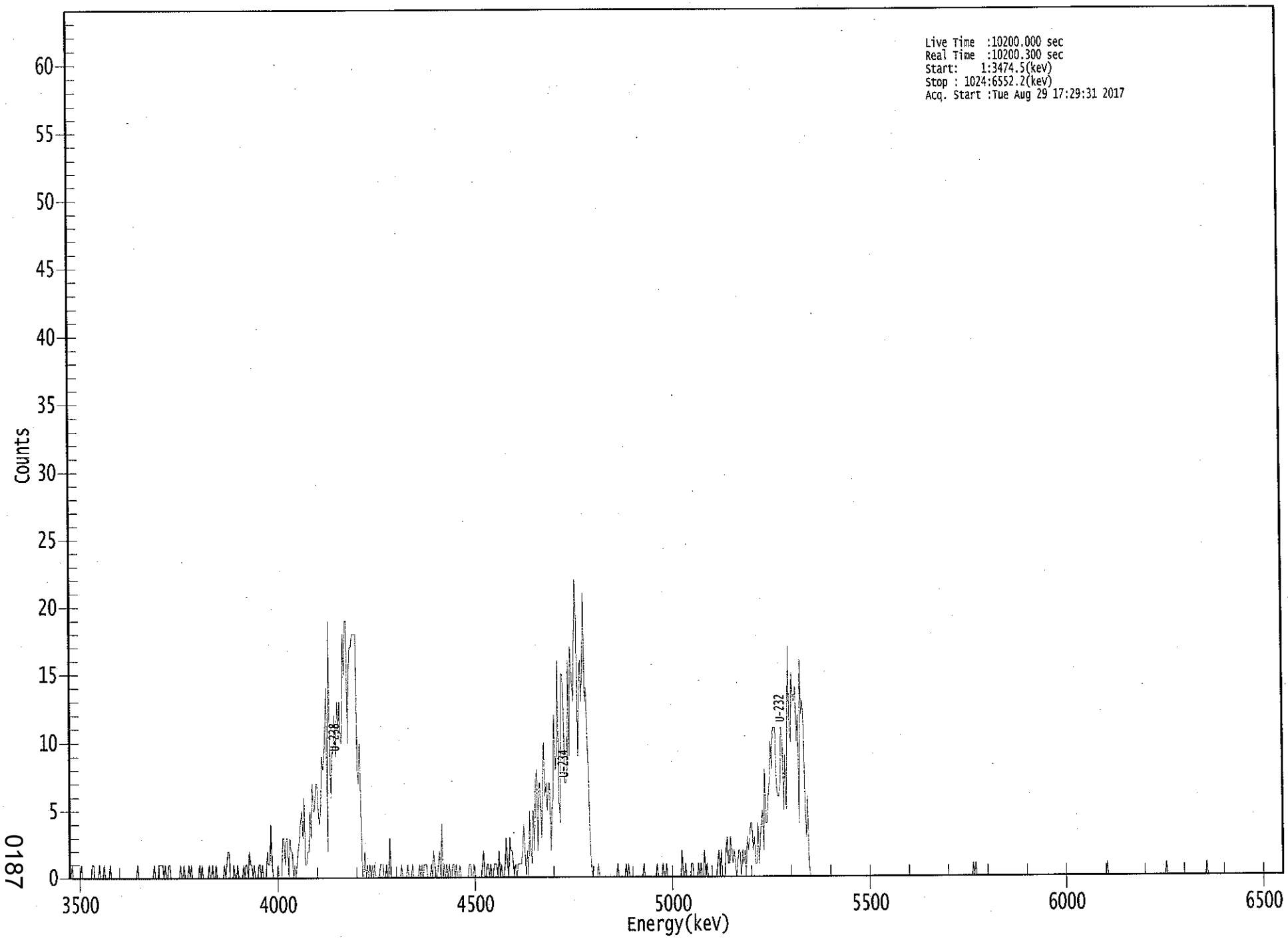
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.278	401.81	9.79	1.19	0.00E+000	29.3
U-234		4.729	511.64	8.68	1.36	0.00E+000	19.7
U-235		4.409	28.15	37.59	0.85	0.00E+000	3.0
U-238		4.148	529.98	8.52	1.02	0.00E+000	5.1

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.996	5302.50*	4.83E+000 +/- 5.21E-001	7.92E-002 +/- 8.54E-003
U-234	0.992	4761.50*	6.13E+000 +/- 8.49E-001	8.21E-002 +/- 8.86E-003
U-235	0.996	4385.50*	4.16E-001 +/- 1.63E-001	8.85E-002 +/- 9.54E-003
U-238	0.991	4184.40*	6.32E+000 +/- 8.69E-001	7.52E-002 +/- 8.11E-003

0000193017.CNF



0187

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

Sample Title: 19

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	1	0	3	2	2	1	0	1

Sample Title: 19

Channel								
377:	0	1	1	1	1	2	4	2
385:	0	2	0	5	2	1	5	2
393:	7	8	2	7	7	3	7	10
401:	6	7	5	7	7	2	5	6
409:	12	8	9	16	6	4	15	15
417:	13	7	7	8	16	9	17	15
425:	13	17	22	19	9	14	16	13
433:	16	21	13	14	10	8	3	1
441:	0	0	0	0	0	1	0	0
449:	0	0	0	0	0	0	0	0
457:	0	0	0	0	0	1	0	0
465:	0	0	0	0	1	0	1	0
473:	0	0	0	0	0	0	0	0
481:	0	0	0	1	0	0	0	0
489:	0	0	0	0	0	0	1	0
497:	0	0	0	1	0	0	1	0
505:	0	0	0	0	0	0	0	0
513:	0	0	0	2	0	0	1	0
521:	0	0	0	1	1	0	0	0
529:	0	1	0	1	0	0	2	0
537:	1	0	0	0	0	0	0	0
545:	0	1	2	0	2	0	0	0
553:	2	3	1	1	3	2	1	2
561:	1	0	1	2	2	0	2	1
569:	2	0	3	2	3	4	4	2
577:	3	1	1	4	1	3	4	5
585:	2	8	4	4	6	7	10	8
593:	11	11	11	7	6	6	7	11
601:	10	5	9	5	10	17	11	10
609:	15	13	13	14	10	12	4	16
617:	12	13	11	5	3	6	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	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	1	0	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: 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	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	1	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	1	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

8/30

Sample Description: HTC-A08-S001-0612-01 MSD
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001930
Batch Identification: 1707089A-UU
Sample Identification: 20
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_047
Chamber Serial Number: 02030596A
Detector Serial Number: 91086
Env. Background: System Bkgd 194886
Reagent Blank: <not performed>

Sample Size: 1.010E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/16/2017 6:18:29 AM
Acquisition Date/Time: 8/29/2017 5:29:29 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.610 mL
Effective Efficiency: 0.2085 +/- 0.0116
Counting Efficiency: 0.1623 +/- 0.0028 on 11/18/2016 10:08:37 AM
Chem. Recovery Factor: 1.2847 +/- 0.0746

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

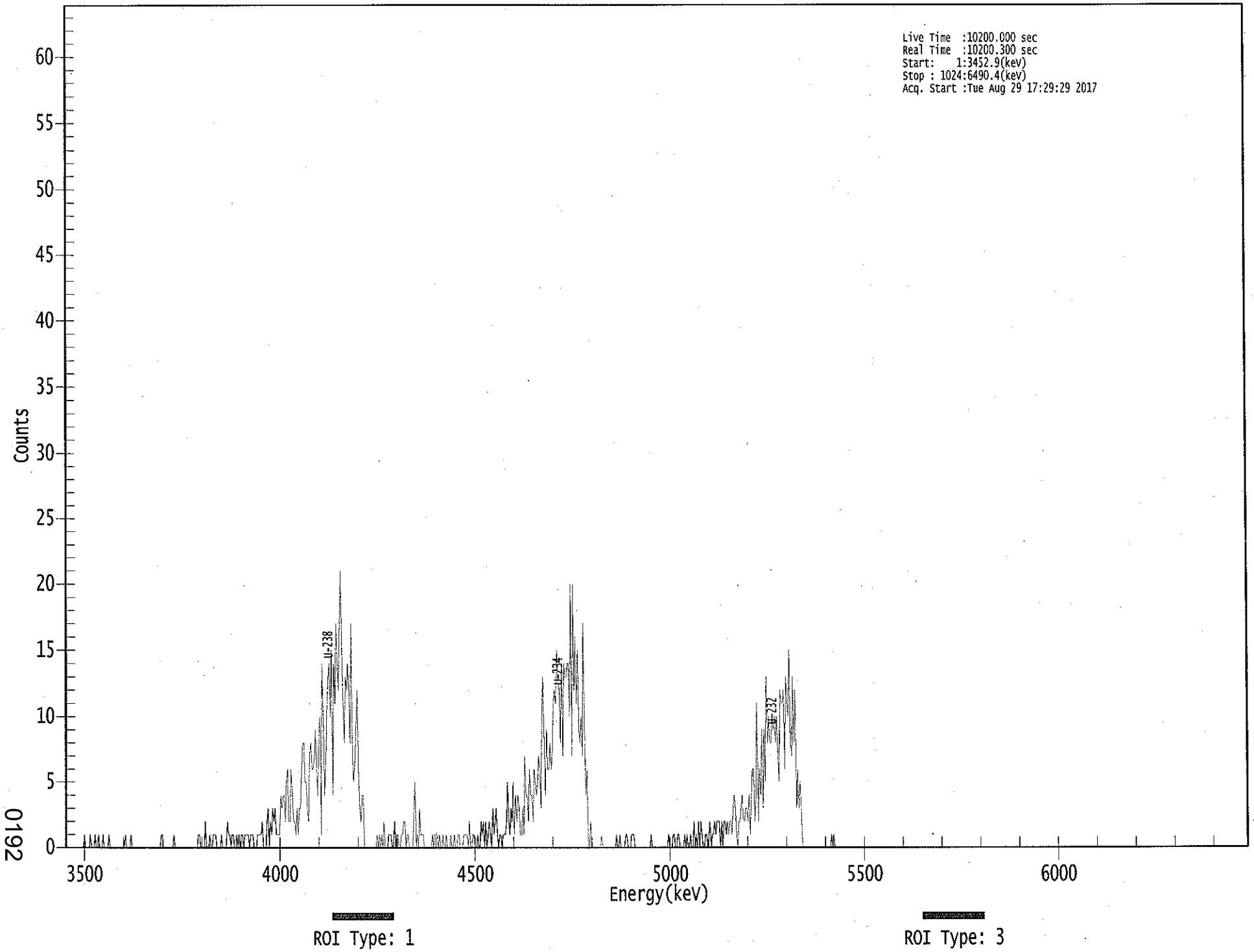
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.266	392.66	9.90	0.34	0.00E+000	15.7
U-234		4.717	524.66	8.56	0.34	0.00E+000	5.3
U-235		4.385	43.32	30.05	0.68	0.00E+000	4.9
U-238		4.128	548.15	8.38	0.85	0.00E+000	25.3

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*	4.97E+000 +/- 5.40E-001	6.05E-002 +/- 6.58E-003
U-234	0.986	4761.50*	6.62E+000 +/- 9.16E-001	6.03E-002 +/- 6.56E-003
U-235	1.000	4385.50*	6.74E-001 +/- 2.15E-001	8.77E-002 +/- 9.54E-003
U-238	0.978	4184.40*	6.88E+000 +/- 9.45E-001	7.52E-002 +/- 8.18E-003

0000193022.CNF



0192

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

Sample Title: 20

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	3	1	2	3	1	0	1	1

Sample Title: 20

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

801:	0	0	0	0	0	0	0	0

Sample Title: 20

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

8/29/2017 5:34:47 AM

Apex-Alpha™

QA SUMMARY REPORT

Review Of QA Results - Pulser Check

Date : 8/29/2017
Time : 5:34:47 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_001	21f	ALL	Not Done	
Alpha_002	21f	ALL	Not Done	
Alpha_003	21f	ALL	Passed	8/29/2017 5:18:26 AM
Alpha_004	21f	ALL	Passed	8/29/2017 5:18:27 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	8/29/2017 5:18:28 AM
Alpha_011	21f	ALL	Passed	8/29/2017 5:18:28 AM
Alpha_012	21f	ALL	Passed	8/29/2017 5:18:29 AM
Alpha_013	21f	ALL	Not Done	
Alpha_014	21f	ALL	Passed	8/29/2017 5:18:30 AM
Alpha_015	21f	ALL	Not Done	
Alpha_016	21f	ALL	Not Done	
Alpha_033	Alpha Analyst100DC	ALL	Passed	8/29/2017 5:18:31 AM
Alpha_034	Alpha Analyst100DC	ALL	Passed	8/29/2017 5:18:33 AM
Alpha_035	Alpha Analyst100DC	ALL	Passed	8/29/2017 5:18:35 AM
Alpha_036	Alpha Analyst100DC	ALL	Passed	8/29/2017 5:18:37 AM
Alpha_037	Alpha Analyst100DC	ALL	Passed	8/29/2017 5:18:39 AM
Alpha_038	Alpha Analyst100DC	Peak Energy	Action	8/29/2017 5:18:40 AM
Alpha_039	Alpha Analyst100DC	ALL	Passed	8/29/2017 5:18:43 AM
Alpha_040	Alpha Analyst100DC	Peak FWHM	Action	8/29/2017 5:18:45 AM
Alpha_041	Alpha Analyst100DC	ALL	Not Done	
Alpha_042	Alpha Analyst100DC	ALL	Not Done	
Alpha_043	Alpha Analyst100DC	ALL	Passed	8/29/2017 5:18:47 AM
Alpha_044	Alpha Analyst100DC	ALL	Passed	8/29/2017 5:18:50 AM
Alpha_045	Alpha Analyst100DC	ALL	Passed	8/29/2017 5:18:52 AM
Alpha_046	Alpha Analyst100DC	ALL	Passed	8/29/2017 5:18:55 AM
Alpha_047	Alpha Analyst100DC	ALL	Passed	8/29/2017 5:18:57 AM
Alpha_048	Alpha Analyst100DC	ALL	Passed	8/29/2017 5:19:00 AM
Alpha_049	Alpha Analyst100DC	ALL	Passed	8/29/2017 5:19:03 AM
Alpha_050	Alpha Analyst100DC	ALL	Passed	8/29/2017 5:19:05 AM
Alpha_051	Alpha Analyst100DC	ALL	Not Done	
Alpha_052	Alpha Analyst100DC	ALL	Passed	8/29/2017 5:19:08 AM
Alpha_053	Alpha Analyst100DC	ALL	Passed	8/29/2017 5:19:10 AM
Alpha_054	Alpha Analyst100DC	ALL	Passed	8/29/2017 5:19:13 AM
Alpha_055	Alpha Analyst100DC	ALL	Not Done	
Alpha_056	Alpha Analyst100DC	ALL	Passed	8/29/2017 5:19:16 AM
Alpha_057	Alpha Analyst100DC	ALL	Passed	8/29/2017 5:19:19 AM
Alpha_058	Alpha Analyst100DC	ALL	Passed	8/29/2017 5:19:22 AM

Review of QA Results - Pulser Check

8/29/2017 5:34:47 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_059	Alpha Analyst100DC	ALL	Passed	8/29/2017 5:19:25 AM
Alpha_060	Alpha Analyst100DC	ALL	Passed	8/29/2017 5:19:28 AM

APPROVED BY: _____

APPROVAL DATE: 8/29/17

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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)

Eberline Analytical
Oak Ridge Laboratory
Analysis Sheet

17-07089
ThISO
Run 1

Work Order	17-07089
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-A04-S001-2430-01	47	05/15/17 09:59	1.0700E+00
04	DO	HTC-A04-S001-2430-01	47	05/15/17 09:59	1.0500E+00
05	TRG	HTC-A04-S001-3036-01	44	05/15/17 09:56	1.1200E+00
06	TRG	HTC-A04-S001-3642-01	30	05/15/17 09:53	1.3900E+00
07	TRG	HTC-A04-S001-4248-01	50	05/15/17 09:50	1.0300E+00
08	TRG	HTC-A04-S002-0006-01	61	05/16/17 08:04	1.2000E+00
09	TRG	HTC-A04-S002-0612-01	82	05/16/17 08:02	1.1800E+00
10	TRG	HTC-A04-S002-1218-01	87	05/16/17 08:00	1.1000E+00
11	TRG	HTC-A04-S002-1824-01	51	05/16/17 07:58	1.2000E+00
12	TRG	HTC-A04-S002-2430-01	69	05/16/17 07:56	1.2600E+00
13	TRG	HTC-A04-S002-3036-01	110	05/16/17 07:54	1.1500E+00
14	TRG	HTC-A04-S002-3642-01	50	05/16/17 07:52	1.1100E+00
15	TRG	HTC-A04-S002-4248-01	67	05/16/17 07:50	1.0900E+00
16	TRG	HTC-A06-S001-0006-01	67	05/16/17 14:28	1.2500E+00
17	TRG	HTC-A06-S001-0612-01	76	05/16/17 14:26	1.1300E+00
18	MSO	HTC-A08-S001-0612-01	42	05/16/17 14:58	1.0700E+00
19	MS	HTC-A08-S001-0612-01	39	05/15/17 09:59	1.0900E+00
20	MSD	HTC-A08-S001-0612-01 MSD	39	05/16/17 14:58	1.0600E+00

0200

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

17-07089
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	0.4693	10.5		0.00								
02	MBL	0.2352	5.3		0.00								
03	DUP	0.2356	5.3		0.00								
04	DO	0.2349	5.3		0.00								
05	TRG	0.2349	5.3		0.00								
06	TRG	0.2349	5.3		0.00								
07	TRG	0.2356	5.3		0.00								
08	TRG	0.2342	5.3		0.00								
09	TRG	0.2358	5.3		0.00								
10	TRG	0.2352	5.3		0.00								
11	TRG	0.2344	5.3		0.00								
12	TRG	0.2346	5.3		0.00								
13	TRG	0.2336	5.2		0.00								
14	TRG	0.2338	5.3		0.00								
15	TRG	0.2350	5.3		0.00								
16	TRG	0.2345	5.3		0.00								
17	TRG	0.2340	5.3		0.00								
18	MSO	0.2349	5.3		0.00								
19	MS	0.2340	5.3		0.00								
20	MSD	0.2338	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.

17-07089
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			08/14/17 09:54	JHARVEY				
02	MBL			08/14/17 09:54	JHARVEY				
03	DUP			08/14/17 09:54	JHARVEY				
04	DO	08/02/17 06:55	KSALLINGS	08/14/17 09:54	JHARVEY				
05	TRG	08/02/17 06:55	KSALLINGS	08/14/17 09:54	JHARVEY				
06	TRG	08/02/17 06:55	KSALLINGS	08/14/17 09:54	JHARVEY				
07	TRG	08/02/17 06:55	KSALLINGS	08/14/17 09:54	JHARVEY				
08	TRG	08/02/17 06:55	KSALLINGS	08/14/17 09:54	JHARVEY				
09	TRG	08/02/17 06:55	KSALLINGS	08/14/17 09:54	JHARVEY				
10	TRG	08/02/17 06:55	KSALLINGS	08/14/17 09:54	JHARVEY				
11	TRG	08/02/17 06:55	KSALLINGS	08/14/17 09:54	JHARVEY				
12	TRG	08/02/17 06:55	KSALLINGS	08/14/17 09:54	JHARVEY				
13	TRG	08/02/17 06:55	KSALLINGS	08/14/17 09:54	JHARVEY				
14	TRG	08/02/17 06:55	KSALLINGS	08/14/17 09:54	JHARVEY				
15	TRG	08/02/17 06:55	KSALLINGS	08/14/17 09:54	JHARVEY				
16	TRG	08/02/17 06:55	KSALLINGS	08/14/17 09:54	JHARVEY				
17	TRG	08/02/17 06:55	KSALLINGS	08/14/17 09:54	JHARVEY				
18	MSO	08/02/17 06:55	KSALLINGS	08/14/17 09:54	JHARVEY				
19	MS	08/02/17 06:55	KSALLINGS	08/14/17 09:54	JHARVEY				
20	MSD	08/02/17 06:55	KSALLINGS	08/14/17 09:54	JHARVEY				

0202

* 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: 17-07089-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07089
Client: Weston Solutions, Inc.
0203

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	TH-228	LCS	LCS	pCi/g	5.96E+00	9.28E-01	5.90E-02	4.87E+00	122.24	OK		OK	
02	TH-228	MBL	BLANK	pCi/g	3.69E-02	5.66E-02	9.58E-02					OK	OK
03	TH-228	DUP	HTC-A04-S001-2430-01	pCi/g	7.50E-01	2.46E-01	1.08E-01				OK	OK	
04	TH-228	DO	HTC-A04-S001-2430-01	pCi/g	8.02E-01	2.36E-01	8.15E-02					OK	
05	TH-228	TRG	HTC-A04-S001-3036-01	pCi/g	1.33E+00	3.56E-01	8.33E-02					OK	
06	TH-228	TRG	HTC-A04-S001-3642-01	pCi/g	1.12E+00	3.56E-01	1.10E-01					OK	
07	TH-228	TRG	HTC-A04-S001-4248-01	pCi/g	1.27E+00	4.88E-01	2.64E-01					OK	
08	TH-228	TRG	HTC-A04-S002-0006-01	pCi/g	4.42E-01	1.74E-01	9.16E-02					OK	
09	TH-228	TRG	HTC-A04-S002-0612-01	pCi/g	4.86E-01	2.24E-01	1.26E-01					OK	
10	TH-228	TRG	HTC-A04-S002-1218-01	pCi/g	6.86E-01	2.63E-01	1.62E-01					OK	
11	TH-228	TRG	HTC-A04-S002-1824-01	pCi/g	6.60E-01	2.49E-01	1.12E-01					OK	
12	TH-228	TRG	HTC-A04-S002-2430-01	pCi/g	3.67E-01	2.00E-01	1.71E-01					OK	
13	TH-228	TRG	HTC-A04-S002-3036-01	pCi/g	6.63E-01	2.92E-01	1.31E-01					OK	
14	TH-228	TRG	HTC-A04-S002-3642-01	pCi/g	6.66E-01	2.80E-01	1.54E-01					OK	
15	TH-228	TRG	HTC-A04-S002-4248-01	pCi/g	6.78E-01	2.87E-01	1.63E-01					OK	
16	TH-228	TRG	HTC-A06-S001-0006-01	pCi/g	7.51E-01	3.32E-01	1.69E-01					OK	
17	TH-228	TRG	HTC-A06-S001-0612-01	pCi/g	6.16E-01	2.56E-01	1.19E-01					OK	
18	TH-228	MSO	HTC-A08-S001-0612-01	pCi/g	6.79E-01	2.54E-01	1.16E-01					OK	
19	TH-228	MS	HTC-A08-S001-0612-01	pCi/g	8.84E+00	1.79E+00	1.59E-01					OK	
20	TH-228	MSD	HTC-A08-S001-0612-01 MSD	pCi/g	9.14E+00	1.81E+00	1.18E-01					OK	

Preliminary Data Report & Analytical Calculations
Work Order: 17-07089-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07089
Client: Weston Solutions, Inc.
0204

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	TH-228	LCS	07/19/17 00:00	1.00E+00	104.72	0.00	0.00			
02	TH-228	MBL	07/19/17 00:00	1.00E+00	112.49	0.00	0.00			
03	TH-228	DUP	05/15/17 09:59	1.07E+00	106.07	0.00	0.00			
04	TH-228	DO	05/15/17 09:59	1.05E+00	133.76	0.00	0.00			
05	TH-228	TRG	05/15/17 09:56	1.12E+00	109.11	0.00	0.00			
06	TH-228	TRG	05/15/17 09:53	1.39E+00	81.28	0.00	0.00			
07	TH-228	TRG	05/15/17 09:50	1.03E+00	66.33	0.00	0.00			
08	TH-228	TRG	05/16/17 08:04	1.20E+00	111.20	0.00	0.00			
09	TH-228	TRG	05/16/17 08:02	1.18E+00	77.12	0.00	0.00			
10	TH-228	TRG	05/16/17 08:00	1.10E+00	78.26	0.00	0.00			
11	TH-228	TRG	05/16/17 07:58	1.20E+00	75.89	0.00	0.00			
12	TH-228	TRG	05/16/17 07:56	1.26E+00	59.83	0.00	0.00			
13	TH-228	TRG	05/16/17 07:54	1.15E+00	57.12	0.00	0.00			
14	TH-228	TRG	05/16/17 07:52	1.11E+00	70.02	0.00	0.00			
15	TH-228	TRG	05/16/17 07:50	1.09E+00	68.61	0.00	0.00			
16	TH-228	TRG	05/16/17 14:28	1.25E+00	54.14	0.00	0.00			
17	TH-228	TRG	05/16/17 14:26	1.13E+00	75.95	0.00	0.00			
18	TH-228	MSO	05/16/17 14:58	1.07E+00	100.76	0.00	0.00			
19	TH-228	MS	05/15/17 09:59	1.09E+00	104.30	0.00	0.00			
20	TH-228	MSD	05/16/17 14:58	1.06E+00	89.08	0.00	0.00			

Preliminary Data Report & Analytical Calculations
Work Order: 17-07089-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07089
Client: Weston Solutions, Inc.
0205

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-228	LCS	08/30/17 11:30		A_Spec	Alpha_044	170	4.22 E+02	1.00 E-03	17.9
02	TH-228	MBL	08/30/17 11:30		A_Spec	Alpha_045	170	2.64 E+00	8.00 E-03	16.9
03	TH-228	DUP	08/30/17 11:30		A_Spec	Alpha_046	170	4.95 E+01	9.00 E-03	17.1
04	TH-228	DO	08/30/17 11:30		A_Spec	Alpha_047	170	6.20 E+01	6.00 E-03	16.2
05	TH-228	TRG	08/30/17 11:30		A_Spec	Alpha_048	170	9.03 E+01	4.00 E-03	16.3
06	TH-228	TRG	08/30/17 11:31		A_Spec	Alpha_049	170	6.40 E+01	6.00 E-03	14.9
07	TH-228	TRG	08/30/17 11:31		A_Spec	Alpha_050	170	4.21 E+01	1.70 E-02	14.3
08	TH-228	TRG	08/30/17 14:25		A_Spec	Alpha_037	170	3.18 E+01	7.00 E-03	15.9
09	TH-228	TRG	08/30/17 14:25		A_Spec	Alpha_038	170	2.31 E+01	5.00 E-03	15.4
10	TH-228	TRG	08/30/17 14:25		A_Spec	Alpha_039	170	3.71 E+01	1.70 E-02	18.5
11	TH-228	TRG	08/30/17 14:25		A_Spec	Alpha_040	170	3.70 E+01	6.00 E-03	18.1
12	TH-228	TRG	08/30/17 14:25		A_Spec	Alpha_043	170	1.76 E+01	1.40 E-02	18.7
13	TH-228	TRG	08/30/17 14:25		A_Spec	Alpha_044	170	2.65 E+01	3.00 E-03	17.9
14	TH-228	TRG	08/30/17 14:25		A_Spec	Alpha_045	170	2.96 E+01	8.00 E-03	16.9
15	TH-228	TRG	08/30/17 14:25		A_Spec	Alpha_046	170	2.95 E+01	9.00 E-03	17.1
16	TH-228	TRG	08/30/17 14:25		A_Spec	Alpha_047	170	2.80 E+01	6.00 E-03	16.2
17	TH-228	TRG	08/30/17 14:25		A_Spec	Alpha_048	170	2.93 E+01	4.00 E-03	16.3
18	TH-228	MSO	08/30/17 14:26		A_Spec	Alpha_049	170	3.70 E+01	6.00 E-03	14.9
19	TH-228	MS	08/30/17 14:26		A_Spec	Alpha_050	170	4.88 E+02	1.70 E-02	14.3
20	TH-228	MSD	08/30/17 14:26		A_Spec	Alpha_052	170	5.09 E+02	7.00 E-03	17.4

Eberline Analytical
Oak Ridge Laboratory

Preliminary Data Report & Analytical Calculations

Work Order: 17-07089-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07089
Client: Weston Solutions, Inc.
0206

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	6.44E+00	9.89E-01	7.98E-02	5.42E+00	118.86	OK		OK	
02	TH-230	MBL	BLANK	pCi/g	1.44E-01	9.43E-02	7.89E-02					OK	OK
03	TH-230	DUP	HTC-A04-S001-2430-01	pCi/g	4.59E-01	1.76E-01	9.36E-02				INV	OK	
04	TH-230	DO	HTC-A04-S001-2430-01	pCi/g	6.33E-01	1.95E-01	6.57E-02					OK	
05	TH-230	TRG	HTC-A04-S001-3036-01	pCi/g	9.57E-01	2.74E-01	7.97E-02					OK	
06	TH-230	TRG	HTC-A04-S001-3642-01	pCi/g	1.02E+00	3.23E-01	1.08E-01					OK	
07	TH-230	TRG	HTC-A04-S001-4248-01	pCi/g	1.26E+00	4.67E-01	2.33E-01					OK	
08	TH-230	TRG	HTC-A04-S002-0006-01	pCi/g	3.01E+01	5.19E+00	5.23E-02					OK	
09	TH-230	TRG	HTC-A04-S002-0612-01	pCi/g	3.35E+01	6.86E+00	9.04E-02					OK	
10	TH-230	TRG	HTC-A04-S002-1218-01	pCi/g	2.97E+01	5.62E+00	1.10E-01					OK	
11	TH-230	TRG	HTC-A04-S002-1824-01	pCi/g	2.56E+01	4.97E+00	8.43E-02					OK	
12	TH-230	TRG	HTC-A04-S002-2430-01	pCi/g	3.62E+01	7.68E+00	1.34E-01					OK	
13	TH-230	TRG	HTC-A04-S002-3036-01	pCi/g	4.43E+01	9.70E+00	1.35E-01					OK	
14	TH-230	TRG	HTC-A04-S002-3642-01	pCi/g	2.61E+01	5.44E+00	1.14E-01					OK	
15	TH-230	TRG	HTC-A04-S002-4248-01	pCi/g	2.62E+01	5.49E+00	1.42E-01					OK	
16	TH-230	TRG	HTC-A06-S001-0006-01	pCi/g	4.68E+01	1.10E+01	1.36E-01					OK	
17	TH-230	TRG	HTC-A06-S001-0612-01	pCi/g	3.65E+01	7.33E+00	1.14E-01					OK	
18	TH-230	MSO	HTC-A08-S001-0612-01	pCi/g	7.38E-01	2.57E-01	1.13E-01					OK	
19	TH-230	MS	HTC-A08-S001-0612-01	pCi/g	6.43E+00	1.33E+00	1.40E-01					OK	
20	TH-230	MSD	HTC-A08-S001-0612-01 MSD	pCi/g	7.27E+00	1.46E+00	9.13E-02					OK	

Preliminary Data Report & Analytical Calculations
Work Order: 17-07089-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07089
Client: Weston Solutions, Inc.
0207

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	104.72	0.00	0.00			
02	TH-230	MBL	07/19/17 00:00	1.00E+00	112.49	0.00	0.00			
03	TH-230	DUP	05/15/17 09:59	1.07E+00	106.07	0.00	0.00			
04	TH-230	DO	05/15/17 09:59	1.05E+00	133.76	0.00	0.00			
05	TH-230	TRG	05/15/17 09:56	1.12E+00	109.11	0.00	0.00			
06	TH-230	TRG	05/15/17 09:53	1.39E+00	81.28	0.00	0.00			
07	TH-230	TRG	05/15/17 09:50	1.03E+00	66.33	0.00	0.00			
08	TH-230	TRG	05/16/17 08:04	1.20E+00	111.20	0.00	0.00			
09	TH-230	TRG	05/16/17 08:02	1.18E+00	77.12	0.00	0.00			
10	TH-230	TRG	05/16/17 08:00	1.10E+00	78.26	0.00	0.00			
11	TH-230	TRG	05/16/17 07:58	1.20E+00	75.89	0.00	0.00			
12	TH-230	TRG	05/16/17 07:56	1.26E+00	59.83	0.00	0.00			
13	TH-230	TRG	05/16/17 07:54	1.15E+00	57.12	0.00	0.00			
14	TH-230	TRG	05/16/17 07:52	1.11E+00	70.02	0.00	0.00			
15	TH-230	TRG	05/16/17 07:50	1.09E+00	68.61	0.00	0.00			
16	TH-230	TRG	05/16/17 14:28	1.25E+00	54.14	0.00	0.00			
17	TH-230	TRG	05/16/17 14:26	1.13E+00	75.95	0.00	0.00			
18	TH-230	MSO	05/16/17 14:58	1.07E+00	100.76	0.00	0.00			
19	TH-230	MS	05/15/17 09:59	1.09E+00	104.30	0.00	0.00			
20	TH-230	MSD	05/16/17 14:58	1.06E+00	89.08	0.00	0.00			

Preliminary Data Report & Analytical Calculations
Work Order: 17-07089-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07089
Client: Weston Solutions, Inc.
0208

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-230	LCS	08/30/17 11:30		A_Spec	Alpha_044	170	4.55 E+02	4.00 E-03	17.9
02	TH-230	MBL	08/30/17 11:30		A_Spec	Alpha_045	170	1.03 E+01	4.00 E-03	16.9
03	TH-230	DUP	08/30/17 11:30		A_Spec	Alpha_046	170	3.36 E+01	8.00 E-03	17.1
04	TH-230	DO	08/30/17 11:30		A_Spec	Alpha_047	170	5.43 E+01	4.00 E-03	16.2
05	TH-230	TRG	08/30/17 11:30		A_Spec	Alpha_048	170	7.20 E+01	0.00 E+00	16.3
06	TH-230	TRG	08/30/17 11:31		A_Spec	Alpha_049	170	6.46 E+01	8.00 E-03	14.9
07	TH-230	TRG	08/30/17 11:31		A_Spec	Alpha_050	170	4.63 E+01	1.60 E-02	14.3
08	TH-230	TRG	08/30/17 14:25		A_Spec	Alpha_037	170	2.40 E+03	1.00 E-03	15.9
09	TH-230	TRG	08/30/17 14:25		A_Spec	Alpha_038	170	1.77 E+03	2.00 E-03	15.4
10	TH-230	TRG	08/30/17 14:25		A_Spec	Alpha_039	170	1.78 E+03	7.00 E-03	18.5
11	TH-230	TRG	08/30/17 14:25		A_Spec	Alpha_040	170	1.60 E+03	3.00 E-03	18.1
12	TH-230	TRG	08/30/17 14:25		A_Spec	Alpha_043	170	1.93 E+03	9.00 E-03	18.7
13	TH-230	TRG	08/30/17 14:25		A_Spec	Alpha_044	170	1.96 E+03	5.00 E-03	17.9
14	TH-230	TRG	08/30/17 14:25		A_Spec	Alpha_045	170	1.29 E+03	4.00 E-03	16.9
15	TH-230	TRG	08/30/17 14:25		A_Spec	Alpha_046	170	1.27 E+03	8.00 E-03	17.1
16	TH-230	TRG	08/30/17 14:25		A_Spec	Alpha_047	170	1.94 E+03	4.00 E-03	16.2
17	TH-230	TRG	08/30/17 14:25		A_Spec	Alpha_048	170	1.93 E+03	0.00 E+00	16.3
18	TH-230	MSO	08/30/17 14:26		A_Spec	Alpha_049	170	4.46 E+01	8.00 E-03	14.9
19	TH-230	MS	08/30/17 14:26		A_Spec	Alpha_050	170	3.94 E+02	1.60 E-02	14.3
20	TH-230	MSD	08/30/17 14:26		A_Spec	Alpha_052	170	4.49 E+02	4.00 E-03	17.4

Preliminary Data Report & Analytical Calculations
Work Order: 17-07089-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07089
Client: Weston Solutions, Inc.
0209

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	5.81E+00	9.09E-01	5.89E-02	4.87E+00	119.25	OK		OK	
02	TH-232	MBL	BLANK	pCi/g	-4.03E-02	3.40E-02	1.22E-01					OK	OK
03	TH-232	DUP	HTC-A04-S001-2430-01	pCi/g	3.70E-01	1.57E-01	1.03E-01				INV	OK	
04	TH-232	DO	HTC-A04-S001-2430-01	pCi/g	5.54E-01	1.81E-01	7.97E-02					OK	
05	TH-232	TRG	HTC-A04-S001-3036-01	pCi/g	1.03E+00	2.87E-01	5.54E-02					OK	
06	TH-232	TRG	HTC-A04-S001-3642-01	pCi/g	1.07E+00	3.31E-01	6.58E-02					OK	
07	TH-232	TRG	HTC-A04-S001-4248-01	pCi/g	1.64E+00	5.56E-01	1.86E-01					OK	
08	TH-232	TRG	HTC-A04-S002-0006-01	pCi/g	6.34E-01	2.05E-01	5.98E-02					OK	
09	TH-232	TRG	HTC-A04-S002-0612-01	pCi/g	3.24E-01	1.70E-01	1.13E-01					OK	
10	TH-232	TRG	HTC-A04-S002-1218-01	pCi/g	4.01E-01	1.79E-01	9.95E-02					OK	
11	TH-232	TRG	HTC-A04-S002-1824-01	pCi/g	4.89E-01	1.98E-01	8.42E-02					OK	
12	TH-232	TRG	HTC-A04-S002-2430-01	pCi/g	5.81E-01	2.41E-01	1.18E-01					OK	
13	TH-232	TRG	HTC-A04-S002-3036-01	pCi/g	5.36E-01	2.45E-01	9.39E-02					OK	
14	TH-232	TRG	HTC-A04-S002-3642-01	pCi/g	4.47E-01	2.19E-01	1.77E-01					OK	
15	TH-232	TRG	HTC-A04-S002-4248-01	pCi/g	1.02E+00	3.55E-01	1.57E-01					OK	
16	TH-232	TRG	HTC-A06-S001-0006-01	pCi/g	9.08E-01	3.62E-01	1.65E-01					OK	
17	TH-232	TRG	HTC-A06-S001-0612-01	pCi/g	8.85E-01	3.08E-01	7.89E-02					OK	
18	TH-232	MSO	HTC-A08-S001-0612-01	pCi/g	5.42E-01	2.10E-01	6.89E-02					OK	
19	TH-232	MS	HTC-A08-S001-0612-01	pCi/g	7.72E+00	1.56E+00	1.12E-01					OK	
20	TH-232	MSD	HTC-A08-S001-0612-01 MSD	pCi/g	8.05E+00	1.60E+00	7.72E-02					OK	

Preliminary Data Report & Analytical Calculations
Work Order: 17-07089-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07089
Client: Weston Solutions, Inc.
0210

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	104.72	0.00	0.00			
02	TH-232	MBL	07/19/17 00:00	1.00E+00	112.49	0.00	0.00			
03	TH-232	DUP	05/15/17 09:59	1.07E+00	106.07	0.00	0.00			
04	TH-232	DO	05/15/17 09:59	1.05E+00	133.76	0.00	0.00			
05	TH-232	TRG	05/15/17 09:56	1.12E+00	109.11	0.00	0.00			
06	TH-232	TRG	05/15/17 09:53	1.39E+00	81.28	0.00	0.00			
07	TH-232	TRG	05/15/17 09:50	1.03E+00	66.33	0.00	0.00			
08	TH-232	TRG	05/16/17 08:04	1.20E+00	111.20	0.00	0.00			
09	TH-232	TRG	05/16/17 08:02	1.18E+00	77.12	0.00	0.00			
10	TH-232	TRG	05/16/17 08:00	1.10E+00	78.26	0.00	0.00			
11	TH-232	TRG	05/16/17 07:58	1.20E+00	75.89	0.00	0.00			
12	TH-232	TRG	05/16/17 07:56	1.26E+00	59.83	0.00	0.00			
13	TH-232	TRG	05/16/17 07:54	1.15E+00	57.12	0.00	0.00			
14	TH-232	TRG	05/16/17 07:52	1.11E+00	70.02	0.00	0.00			
15	TH-232	TRG	05/16/17 07:50	1.09E+00	68.61	0.00	0.00			
16	TH-232	TRG	05/16/17 14:28	1.25E+00	54.14	0.00	0.00			
17	TH-232	TRG	05/16/17 14:26	1.13E+00	75.95	0.00	0.00			
18	TH-232	MSO	05/16/17 14:58	1.07E+00	100.76	0.00	0.00			
19	TH-232	MS	05/15/17 09:59	1.09E+00	104.30	0.00	0.00			
20	TH-232	MSD	05/16/17 14:58	1.06E+00	89.08	0.00	0.00			

Preliminary Data Report & Analytical Calculations

Work Order: 17-07089-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07089
Client: Weston Solutions, Inc.
0211

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-232	LCS	08/30/17 11:30		A_Spec	Alpha_044	170	4.12 E+02	1.00 E-03	17.9
02	TH-232	MBL	08/30/17 11:30		A_Spec	Alpha_045	170	-2.89 E+00	1.70 E-02	16.9
03	TH-232	DUP	08/30/17 11:30		A_Spec	Alpha_046	170	2.71 E+01	1.10 E-02	17.1
04	TH-232	DO	08/30/17 11:30		A_Spec	Alpha_047	170	4.76 E+01	8.00 E-03	16.2
05	TH-232	TRG	08/30/17 11:30		A_Spec	Alpha_048	170	7.78 E+01	1.00 E-03	16.3
06	TH-232	TRG	08/30/17 11:31		A_Spec	Alpha_049	170	6.78 E+01	1.00 E-03	14.9
07	TH-232	TRG	08/30/17 11:31		A_Spec	Alpha_050	170	6.06 E+01	8.00 E-03	14.3
08	TH-232	TRG	08/30/17 14:25		A_Spec	Alpha_037	170	5.07 E+01	2.00 E-03	15.9
09	TH-232	TRG	08/30/17 14:25		A_Spec	Alpha_038	170	1.71 E+01	5.00 E-03	15.4
10	TH-232	TRG	08/30/17 14:25		A_Spec	Alpha_039	170	2.41 E+01	5.00 E-03	18.5
11	TH-232	TRG	08/30/17 14:25		A_Spec	Alpha_040	170	3.05 E+01	3.00 E-03	18.1
12	TH-232	TRG	08/30/17 14:25		A_Spec	Alpha_043	170	3.10 E+01	6.00 E-03	18.7
13	TH-232	TRG	08/30/17 14:25		A_Spec	Alpha_044	170	2.38 E+01	1.00 E-03	17.9
14	TH-232	TRG	08/30/17 14:25		A_Spec	Alpha_045	170	2.21 E+01	1.70 E-02	16.9
15	TH-232	TRG	08/30/17 14:25		A_Spec	Alpha_046	170	4.91 E+01	1.10 E-02	17.1
16	TH-232	TRG	08/30/17 14:25		A_Spec	Alpha_047	170	3.76 E+01	8.00 E-03	16.2
17	TH-232	TRG	08/30/17 14:25		A_Spec	Alpha_048	170	4.68 E+01	1.00 E-03	16.3
18	TH-232	MSO	08/30/17 14:26		A_Spec	Alpha_049	170	3.28 E+01	1.00 E-03	14.9
19	TH-232	MS	08/30/17 14:26		A_Spec	Alpha_050	170	4.75 E+02	8.00 E-03	14.3
20	TH-232	MSD	08/30/17 14:26		A_Spec	Alpha_052	170	4.99 E+02	2.00 E-03	17.4

Count Room Report
Client: Weston Solutions, Inc.

17-07089-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	0.4693	10.5405		0.00		
02	MBL	BLANK	07/19/17 00:00	1.0000	0.2352	5.2826		0.00		
03	DUP	HTC-A04-S001-2430-01	05/15/17 09:59	1.0700	0.2356	5.2916		0.00		
04	DO	HTC-A04-S001-2430-01	05/15/17 09:59	1.0500	0.2349	5.2759		0.00		
05	TRG	HTC-A04-S001-3036-01	05/15/17 09:56	1.1200	0.2349	5.2759		0.00		
06	TRG	HTC-A04-S001-3642-01	05/15/17 09:53	1.3900	0.2349	5.2759		0.00		
07	TRG	HTC-A04-S001-4248-01	05/15/17 09:50	1.0300	0.2356	5.2916		0.00		
08	TRG	HTC-A04-S002-0006-01	05/16/17 08:04	1.2000	0.2342	5.2601		0.00		
09	TRG	HTC-A04-S002-0612-01	05/16/17 08:02	1.1800	0.2358	5.2961		0.00		
10	TRG	HTC-A04-S002-1218-01	05/16/17 08:00	1.1000	0.2352	5.2826		0.00		
11	TRG	HTC-A04-S002-1824-01	05/16/17 07:58	1.2000	0.2344	5.2646		0.00		
12	TRG	HTC-A04-S002-2430-01	05/16/17 07:56	1.2600	0.2346	5.2691		0.00		
13	TRG	HTC-A04-S002-3036-01	05/16/17 07:54	1.1500	0.2336	5.2467		0.00		
14	TRG	HTC-A04-S002-3642-01	05/16/17 07:52	1.1100	0.2338	5.2511		0.00		
15	TRG	HTC-A04-S002-4248-01	05/16/17 07:50	1.0900	0.2350	5.2781		0.00		
16	TRG	HTC-A06-S001-0006-01	05/16/17 14:28	1.2500	0.2345	5.2669		0.00		
17	TRG	HTC-A06-S001-0612-01	05/16/17 14:26	1.1300	0.2340	5.2556		0.00		
18	MSO	HTC-A08-S001-0612-01	05/16/17 14:58	1.0700	0.2349	5.2759		0.00		
19	MS	HTC-A08-S001-0612-01	05/15/17 09:59	1.0900	0.2340	5.2556		0.00		
20	MSD	HTC-A08-S001-0612-01 MSD	05/16/17 14:58	1.0600	0.2338	5.2511		0.00		

Eberline Analytical
Oak Ridge Laboratory

Spike and Tracer Worksheet

Printed: 8/14/2017 10:47 AM

Internal Work Order	Run	Analysis Code	Date	Technician	Technician Initials	Witness Initials
17-07089	1	ThISO	8/14/2017 9:58	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	8/14/2017	0.100	0.1045	0.2051		0.2058	4.87	0.175	9.57	0.344	0.00	0.000	9.60	0.346
Th-230	Th-1b	23.520	8/14/2017	0.500	0.5113	0.5114		0.6105	5.42	0.146	5.42	0.146	0.00	0.000	6.47	0.175
Th-232	Th-8b	103.560	8/14/2017	0.100	0.1045	0.2051		0.2058	4.87	0.175	9.57	0.344	0.00	0.000	9.60	0.346

Tracers						
fraction	*Isotope*	*Sol #*	*Activity dpm/g*	*Solution Date*	*Volume Used (g)*	*Approx Addition*
01	Th-229	Th-18a	22.460	8/14/2017	0.4693	0.2200
02	Th-229	Th-18a	22.460	8/14/2017	0.2352	0.2200
03	Th-229	Th-18a	22.460	8/14/2017	0.2356	0.2200
04	Th-229	Th-18a	22.460	8/14/2017	0.2349	0.2200
05	Th-229	Th-18a	22.460	8/14/2017	0.2349	0.2200
06	Th-229	Th-18a	22.460	8/14/2017	0.2349	0.2200
07	Th-229	Th-18a	22.460	8/14/2017	0.2356	0.2200
08	Th-229	Th-18a	22.460	8/14/2017	0.2342	0.2200
09	Th-229	Th-18a	22.460	8/14/2017	0.2358	0.2200
10	Th-229	Th-18a	22.460	8/14/2017	0.2352	0.2200
11	Th-229	Th-18a	22.460	8/14/2017	0.2344	0.2200
12	Th-229	Th-18a	22.460	8/14/2017	0.2346	0.2200
13	Th-229	Th-18a	22.460	8/14/2017	0.2336	0.2200
14	Th-229	Th-18a	22.460	8/14/2017	0.2338	0.2200
15	Th-229	Th-18a	22.460	8/14/2017	0.2350	0.2200
16	Th-229	Th-18a	22.460	8/14/2017	0.2345	0.2200
17	Th-229	Th-18a	22.460	8/14/2017	0.2340	0.2200
18	Th-229	Th-18a	22.460	8/14/2017	0.2349	0.2200
19	Th-229	Th-18a	22.460	8/14/2017	0.2340	0.2200
20	Th-229	Th-18a	22.460	8/14/2017	0.2338	0.2200

Balance Printer Tapes	
Tracer	LCS
	Matrix Spike

0213

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
17-07089	1	ThISO	grams	8/10/2017	JHARVEY

Lab Fraction	Weston Solutions, Inc. Client ID	Sample Type	Muffle Data	Dilution Data			Aliquot Data		MS Aliquot Data		H-3 Solids Only	
			Ratio Post/Pre	No of Dils	Dil Factor	Ratio	Aliquot	Net Equiv	Aliquot	Net Equiv	Water Added (ml)	H3 Dist Aliq
01	LCS	LCS				1.00E+00	1.0000E+00	1.0000E+00				
02	BLANK	MBL				1.00E+00	1.0000E+00	1.0000E+00				
03	HTC-A04-S001-2430-01	DUP				1.00E+00	1.0700E+00	1.0700E+00				
04	HTC-A04-S001-2430-01	DO				1.00E+00	1.0500E+00	1.0500E+00				
05	HTC-A04-S001-3036-01	TRG				1.00E+00	1.1200E+00	1.1200E+00				
06	HTC-A04-S001-3642-01	TRG				1.00E+00	1.3900E+00	1.3900E+00				
07	HTC-A04-S001-4248-01	TRG				1.00E+00	1.0300E+00	1.0300E+00				
08	HTC-A04-S002-0006-01	TRG				1.00E+00	1.2000E+00	1.2000E+00				
09	HTC-A04-S002-0612-01	TRG				1.00E+00	1.1800E+00	1.1800E+00				
10	HTC-A04-S002-1218-01	TRG				1.00E+00	1.1000E+00	1.1000E+00				
11	HTC-A04-S002-1824-01	TRG				1.00E+00	1.2000E+00	1.2000E+00				
12	HTC-A04-S002-2430-01	TRG				1.00E+00	1.2600E+00	1.2600E+00				
13	HTC-A04-S002-3036-01	TRG				1.00E+00	1.1500E+00	1.1500E+00				
14	HTC-A04-S002-3642-01	TRG				1.00E+00	1.1100E+00	1.1100E+00				
15	HTC-A04-S002-4248-01	TRG				1.00E+00	1.0900E+00	1.0900E+00				
16	HTC-A06-S001-0006-01	TRG				1.00E+00	1.2500E+00	1.2500E+00				
17	HTC-A06-S001-0612-01	TRG				1.00E+00	1.1300E+00	1.1300E+00				
18	HTC-A08-S001-0612-01	MSO				1.00E+00	1.0700E+00	1.0700E+00				
19	HTC-A08-S001-0612-01 MS	MS				1.00E+00	1.0900E+00	1.0900E+00				
20	HTC-A08-S001-0612-01 MSD	MSD				1.00E+00	1.0600E+00	1.0600E+00				

Comments	

0214

Technician: JHarvey Date: 8/14/17

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
17-07089	8/10/2017	8/1/2017	8/2/2017	8/3/2017	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-A04-S001-2430-01	14.5200	966.0000	786.7300	951.4800	772.2100	18.84%	81.16%	0.0000	0.0000	
05	HTC-A04-S001-3036-01	14.5600	953.3800	782.6700	938.8200	768.1100	18.18%	81.82%	0.0000	0.0000	
06	HTC-A04-S001-3642-01	14.5900	918.3200	763.9000	903.7300	749.3100	17.09%	82.91%	0.0000	0.0000	
07	HTC-A04-S001-4248-01	14.6500	892.7200	735.1400	878.0700	720.4900	17.95%	82.05%	0.0000	0.0000	
08	HTC-A04-S002-0006-01	14.5700	844.8800	778.3400	830.3100	763.7700	8.01%	91.99%	0.0000	0.0000	
09	HTC-A04-S002-0612-01	14.5300	942.3800	870.9400	927.8500	856.4100	7.70%	92.30%	0.0000	0.0000	
10	HTC-A04-S002-1218-01	14.5000	927.1400	857.8600	912.6400	843.3600	7.59%	92.41%	0.0000	0.0000	
11	HTC-A04-S002-1824-01	14.4900	1027.3600	920.2800	1012.8700	905.7900	10.57%	89.43%	0.0000	0.0000	
12	HTC-A04-S002-2430-01	14.4600	891.3800	837.2200	876.9200	822.7600	6.18%	93.82%	0.0000	0.0000	
13	HTC-A04-S002-3036-01	14.4000	905.1200	830.1000	890.7200	815.7000	8.42%	91.58%	0.0000	0.0000	
14	HTC-A04-S002-3642-01	14.4400	1001.9600	923.4000	987.5200	908.9600	7.96%	92.04%	0.0000	0.0000	
15	HTC-A04-S002-4248-01	14.4800	871.5600	721.2600	857.0800	706.7800	17.54%	82.46%	0.0000	0.0000	
16	HTC-A06-S001-0006-01	14.5300	854.7400	803.7200	840.2100	789.1900	6.07%	93.93%	0.0000	0.0000	
17	HTC-A06-S001-0612-01	14.5100	778.3300	703.7900	763.8200	689.2800	9.76%	90.24%	0.0000	0.0000	
18	HTC-A08-S001-0612-01	14.5200	859.2000	689.6100	844.6800	675.0900	20.08%	79.92%	0.0000	0.0000	
19	HTC-A08-S001-0612-01 MS	14.4900	892.9800	714.9500	878.4900	700.4600	20.27%	79.73%	0.0000	0.0000	
20	HTC-A08-S001-0612-01 MSD	14.4900	892.9800	714.9500	878.4900	700.4600	20.27%	79.73%	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)

0215

Technician: Ken Sai

Date: Analysis: Rough Prep Logbook

Analysis: ThISO Page No. 10178

Apex-Alpha™

KB 8/30/17

Sample Description: SPIKE
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001931
Batch Identification: 1707089A-TH
Sample Identification: 01
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_044
Chamber Serial Number: 04026481B
Detector Serial Number: 84168
Env. Background: System Bkgd 194883
Reagent Blank: <not performed>

Sample Size: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 8/30/2017 6:37:15 AM
Acquisition Date/Time: 8/30/2017 11:30:43 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.469 mL
Effective Efficiency: 0.1877 +/- 0.0118
Counting Efficiency: 0.1793 +/- 0.0030 on 11/18/2016 10:08:42 AM
Chem. Recovery Factor: 1.0472 +/- 0.0681

Control Certificate Name: NatTh_Th-8
Chem. Recov. of Control: TH-232 1.192508 +/- 0.101684
Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

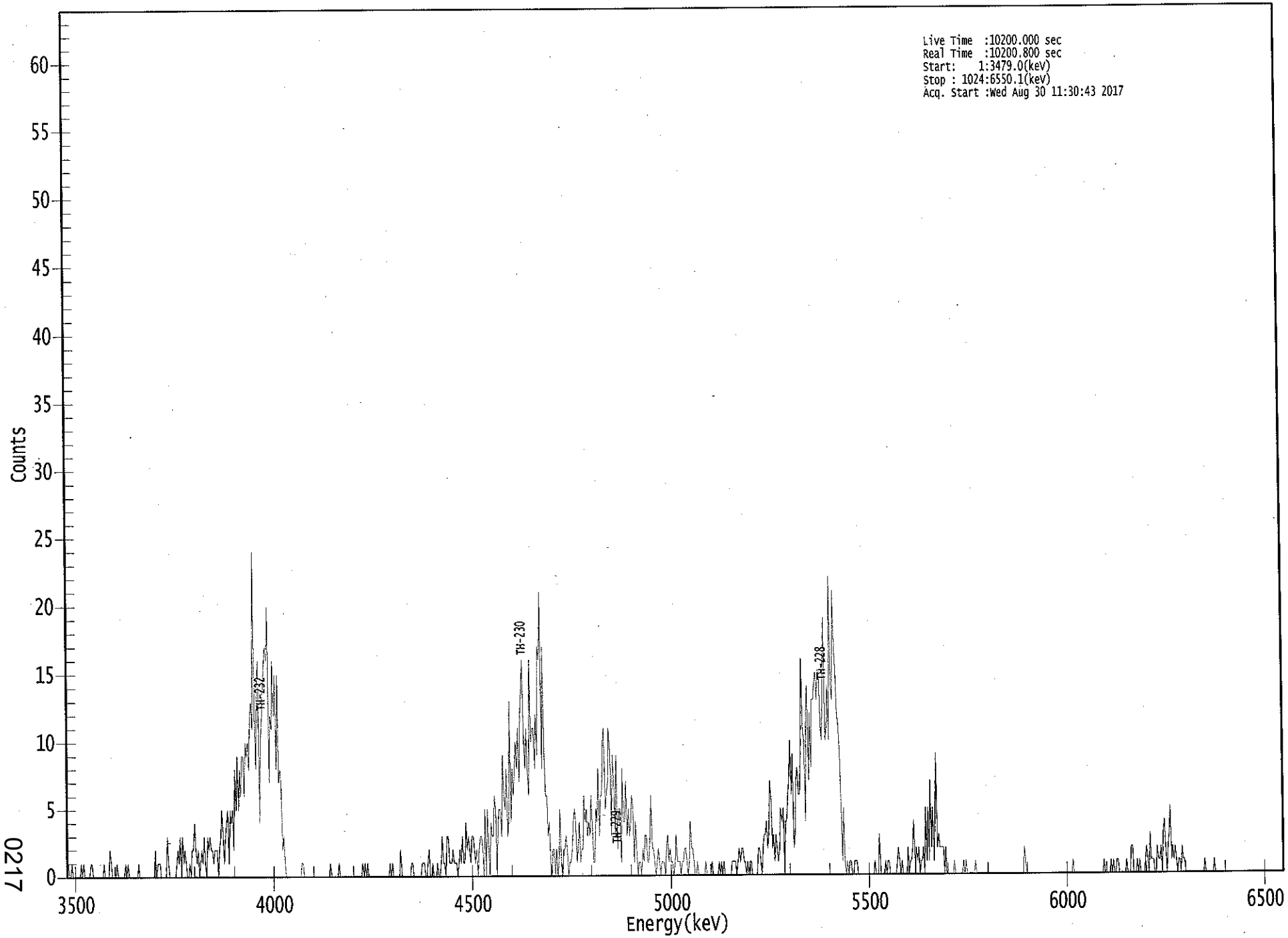
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.833	6.81	82.43	1.19	0.00E+000	4.5
TH-228		5.385	421.83	9.55	0.17	0.00E+000	23.8
TH-229	T	4.866	336.32	10.70	0.68	0.00E+000	12.3
TH-230		4.630	455.32	9.19	0.68	0.00E+000	10.9
TH-232		3.971	411.83	9.66	0.17	0.00E+000	5.8

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.999	5850.00*	9.86E-002 +/- 8.22E-002	9.54E-002 +/- 1.17E-002
TH-228	0.999	5400.00*	5.96E+000 +/- 9.28E-001	5.90E-002 +/- 7.25E-003
TH-229	1.000	4872.00*	4.77E+000 +/- 5.87E-001	8.00E-002 +/- 9.84E-003
TH-230	0.991	4672.00*	6.44E+000 +/- 9.89E-001	7.98E-002 +/- 9.81E-003
TH-232	0.997	3997.00*	5.81E+000 +/- 9.09E-001	5.89E-002 +/- 7.25E-003

0000193143.CNF



0217

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

Sample Title: 01

Elapsed Live time: 10200
Elapsed Real Time: 10201

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

369:	5	8	3	4	13	4	8	6

Sample Title: 01

Channel								
377:	8	10	8	11	7	12	14	16
385:	10	8	11	8	6	16	10	11
393:	11	8	12	9	17	16	21	8
401:	17	9	6	6	3	4	1	0
409:	2	2	0	2	0	1	5	1
417:	0	2	2	3	2	0	1	1
425:	2	4	5	4	1	2	4	1
433:	2	2	6	4	5	3	4	3
441:	6	4	1	1	5	4	8	3
449:	6	6	10	11	5	6	7	11
457:	9	3	9	7	3	9	2	5
465:	5	1	8	4	4	7	3	5
473:	3	4	6	5	1	4	2	0
481:	1	1	0	2	1	3	3	1
489:	1	3	6	2	2	1	0	1
497:	2	1	0	1	1	1	0	2
505:	3	1	2	1	1	0	1	3
513:	1	1	1	0	1	1	2	2
521:	1	0	1	4	2	2	1	0
529:	0	1	0	0	0	0	0	0
537:	1	0	0	0	0	1	0	0
545:	0	0	0	1	0	1	0	1
553:	0	0	0	0	0	0	1	1
561:	1	1	0	1	2	1	2	2
569:	1	1	0	1	0	1	1	0
577:	0	0	0	0	2	2	1	0
585:	2	3	3	4	2	3	7	6
593:	2	3	1	3	2	1	2	5
601:	4	5	0	4	4	6	7	10
609:	6	9	2	3	7	8	6	6
617:	9	16	11	10	4	12	14	7
625:	12	8	13	13	14	15	13	15
633:	15	11	10	14	19	10	11	14
641:	10	22	14	13	21	17	15	12
649:	11	9	5	1	5	1	0	1
657:	0	1	1	0	0	1	1	1
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	1	0
681:	0	0	3	0	0	0	0	1
689:	0	1	1	0	0	0	0	0
697:	0	1	2	1	0	1	0	0
705:	0	0	2	0	1	1	2	4
713:	0	2	1	2	0	1	1	2
721:	0	5	1	5	1	7	2	5
729:	1	4	9	2	3	2	2	2
737:	2	0	2	0	0	0	0	0
745:	0	1	0	0	0	0	0	0
753:	0	1	0	1	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	2	1	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	1	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	1
873:	0	0	0	0	0	1	0	1
881:	0	0	1	1	0	0	0	0
889:	0	0	1	0	0	0	2	2
897:	0	0	0	1	0	1	0	0
905:	0	0	1	2	1	0	3	1
913:	1	1	0	0	2	1	1	2
921:	0	3	4	2	0	2	3	5
929:	1	2	1	2	1	0	1	1
937:	0	2	1	1	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	1	0	0	0
961:	0	0	0	0	1	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

KB 8/30/17

Sample Description: BLANK
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001931
Batch Identification: 1707089A-TH
Sample Identification: 02
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_045
Chamber Serial Number: 04026482A
Detector Serial Number: 91131
Env. Background: System Bkgd 194884
Reagent Blank: <not performed>

Sample Size: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 8/30/2017 6:37:15 AM
Acquisition Date/Time: 8/30/2017 11:30:46 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: 0.1899 +/- 0.0157
Counting Efficiency: 0.1688 +/- 0.0029 on 11/18/2016 10:08:40 AM
Chem. Recovery Factor: 1.1249 +/- 0.0950

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

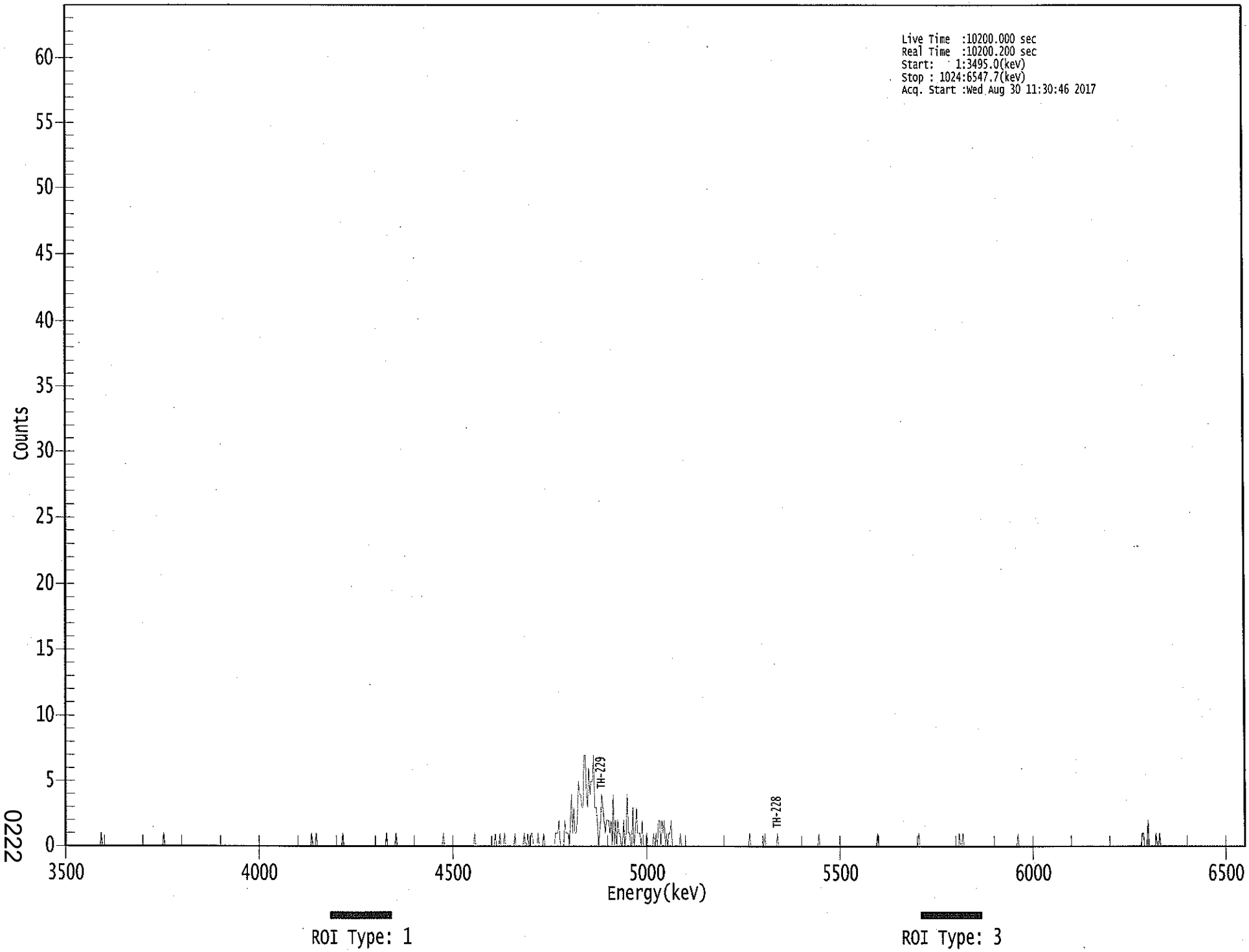
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.819	3.32	119.77	0.68	0.00E+000	3.0
TH-228		5.334	2.64	152.72	1.36	0.00E+000	3.0
TH-229	T	4.880	170.49	15.04	0.51	0.00E+000	10.1
TH-230		4.637	10.32	63.32	0.68	0.00E+000	3.0
TH-232		3.949	-2.89	82.82	2.89	0.00E+000	0.0

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.995	5850.00*	4.75E-002 +/- 5.74E-002	8.07E-002 +/- 1.31E-002
TH-228	0.977	5400.00*	3.69E-002 +/- 5.66E-002	9.58E-002 +/- 1.55E-002
TH-229	1.000	4872.00*	2.39E+000 +/- 3.88E-001	7.36E-002 +/- 1.19E-002
TH-230	0.994	4672.00*	1.44E-001 +/- 9.43E-002	7.89E-002 +/- 1.28E-002
TH-232	0.988	3997.00*	-4.03E-002 +/- 3.40E-002	1.22E-001 +/- 1.98E-002

0000193110.CNF



0222

****
***** 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	1
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	1	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	0	0	0
153:	0	0	0	0	0	0	0	0
161:	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0
177:	0	0	0	0	0	0	0	0
185:	0	0	0	0	0	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	1	0	0
217:	0	1	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	1	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	1	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	1
329:	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	0
353:	0	0	1	0	0	0	0	0
361:	0	0	0	0	0	0	0	0

369:	0	0	0	0	1	0	0	0

Sample Title: 02

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

801:	0	0	0	0	0	0	0	0

Sample Title: 02

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	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	1	1	0
937:	0	0	2	0	0	0	0	0
945:	0	1	0	0	1	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 3/30/17

Apex-Alpha™

Sample Description: HTC-A04-S001-2430-01-DUP
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001931
Batch Identification: 1707089A-TH
Sample Identification: 03
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_046
Chamber Serial Number: 04026482B
Detector Serial Number: 58762
Env. Background: System Bkgd 194885
Reagent Blank: <not performed>

Sample Size: 1.070E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:37:15 AM
Acquisition Date/Time: 8/30/2017 11:30:48 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: 0.1817 +/- 0.0154
Counting Efficiency: 0.1713 +/- 0.0029 on 11/18/2016 10:08:38 AM
Chem. Recovery Factor: 1.0607 +/- 0.0915

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

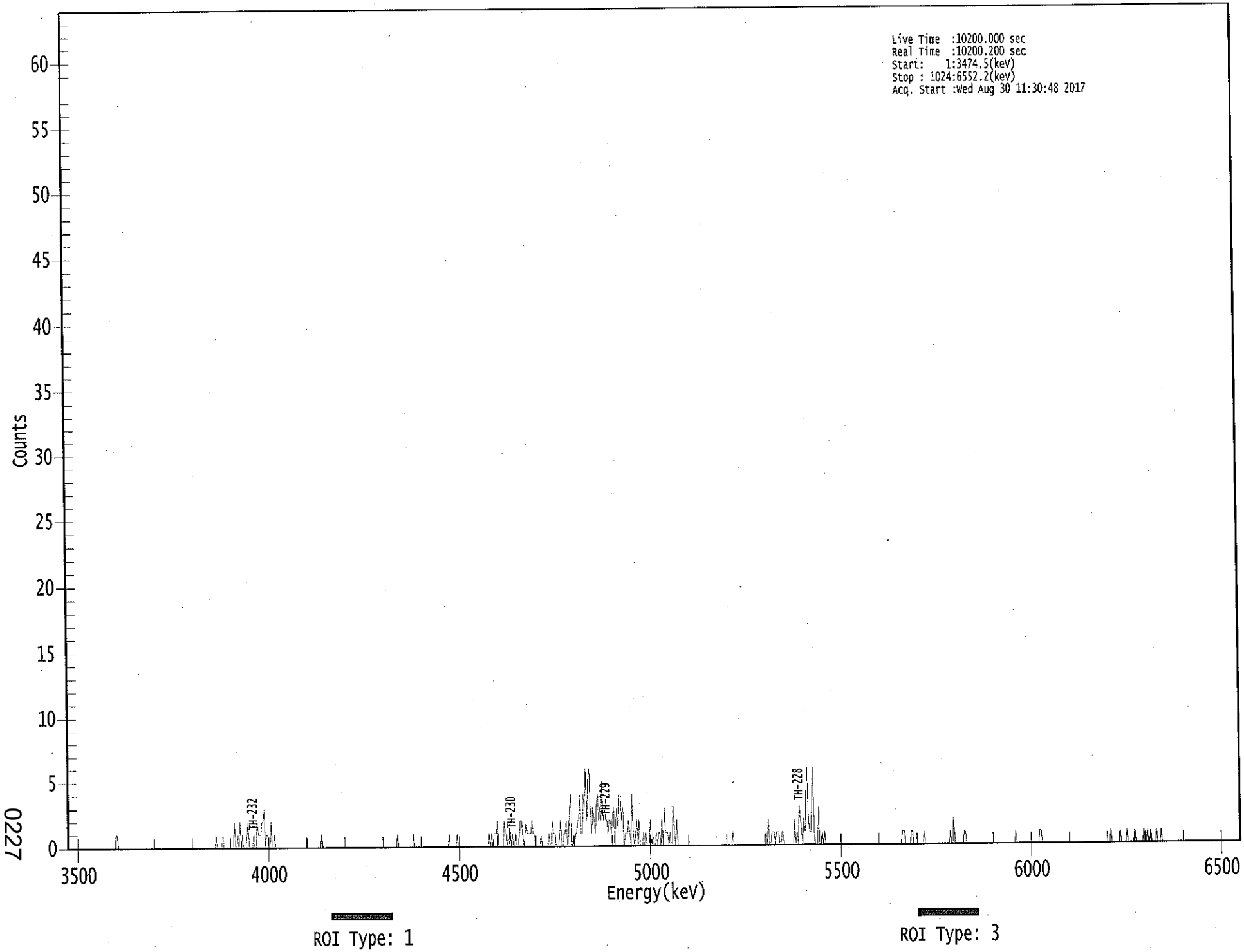
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.862	7.98	74.39	1.02	0.00E+000	3.0
TH-228		5.390	49.47	28.37	1.53	0.00E+000	6.3
TH-229	T	4.885	163.47	15.41	1.53	0.00E+000	5.3
TH-230		4.638	33.64	34.58	1.36	0.00E+000	4.5
TH-232		3.961	27.13	39.12	1.87	0.00E+000	9.0

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.999	5850.00*	1.13E-001 +/- 8.58E-002	8.89E-002 +/- 1.47E-002
TH-228	0.999	5400.00*	7.50E-001 +/- 2.46E-001	1.08E-001 +/- 1.79E-002
TH-229	0.999	4872.00*	2.24E+000 +/- 3.71E-001	9.73E-002 +/- 1.61E-002
TH-230	0.994	4672.00*	4.59E-001 +/- 1.76E-001	9.36E-002 +/- 1.55E-002
TH-232	0.993	3997.00*	3.70E-001 +/- 1.57E-001	1.03E-001 +/- 1.71E-002

0000193111.CNF



0227

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

Sample Title: 03

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	1	0	1	1	1	2	0

Sample Title: 03

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

801:	0	0	0	0	0	0	0	0

Sample Title: 03

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	1	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	1
849:	1	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	1	0	0
913:	0	0	0	0	0	1	0	0
921:	0	0	0	1	0	0	0	0
929:	0	0	1	0	0	0	0	0
937:	0	0	1	0	0	1	0	0
945:	1	0	0	0	0	1	0	0
953:	0	1	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	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 3/30/18

Sample Description: HTC-A04-S001-2430-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001931
Batch Identification: 1707089A-TH
Sample Identification: 04
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_047
Chamber Serial Number: 02030596A
Detector Serial Number: 91086
Env. Background: System Bkgd 194886
Reagent Blank: <not performed>

Sample Size: 1.050E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:37:15 AM
Acquisition Date/Time: 8/30/2017 11:30:38 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: 0.2171 +/- 0.0170
Counting Efficiency: 0.1623 +/- 0.0028 on 11/18/2016 10:08:37 AM
Chem. Recovery Factor: 1.3376 +/- 0.1070

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

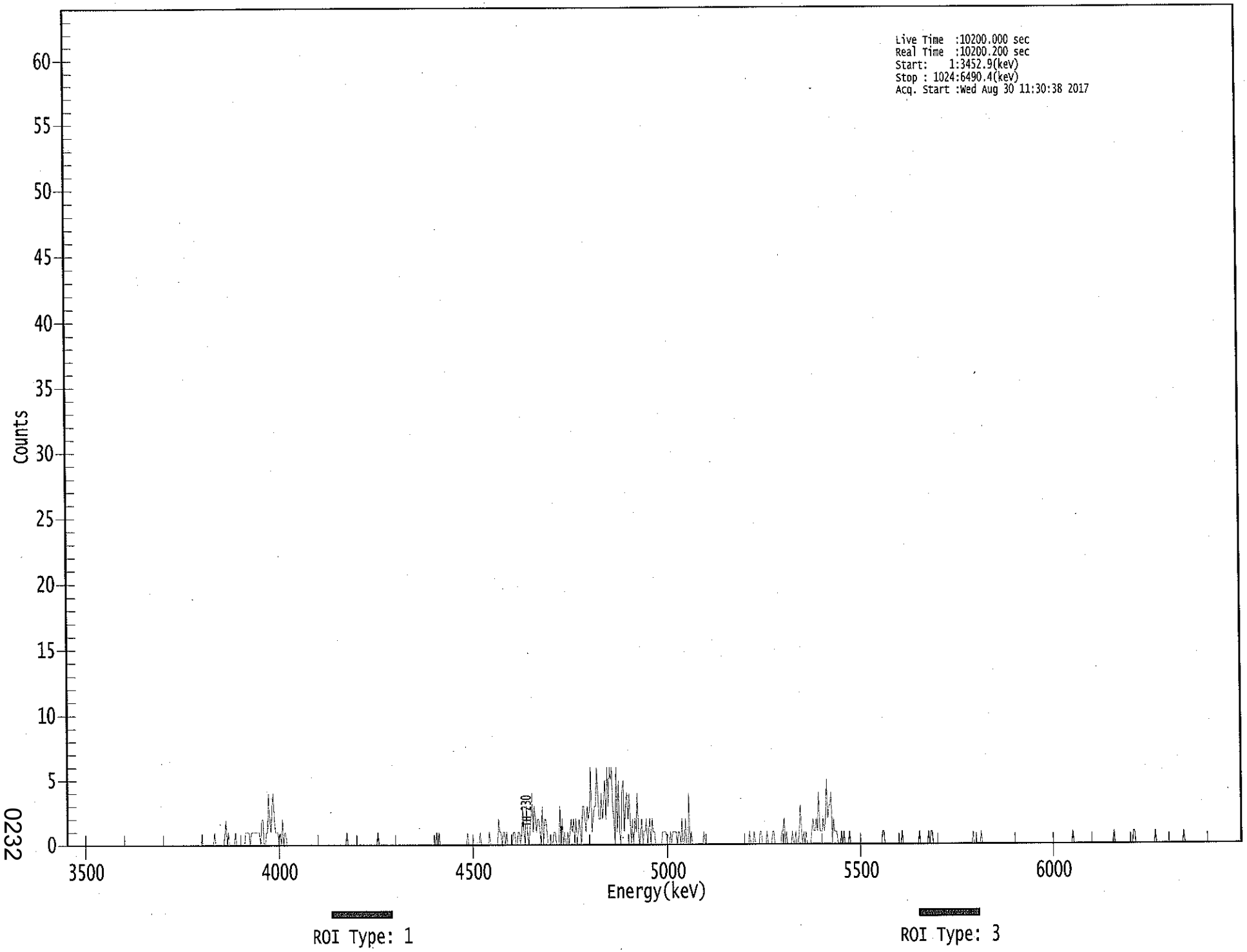
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.803	1.66	169.38	0.34	0.00E+000	3.0
TH-228		5.372	61.98	25.13	1.02	0.00E+000	4.9
TH-229	T	4.867	194.66	14.06	0.34	0.00E+000	4.8
TH-230		4.642	54.32	26.79	0.68	0.00E+000	4.9
TH-232		3.951	47.64	28.87	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	0.989	5850.00*	2.00E-002 +/- 3.40E-002	5.75E-002 +/- 8.82E-003
TH-228	0.996	5400.00*	8.02E-001 +/- 2.36E-001	8.15E-002 +/- 1.25E-002
TH-229	1.000	4872.00*	2.27E+000 +/- 3.48E-001	5.59E-002 +/- 8.56E-003
TH-230	0.995	4672.00*	6.33E-001 +/- 1.95E-001	6.57E-002 +/- 1.01E-002
TH-232	0.989	3997.00*	5.54E-001 +/- 1.81E-001	7.97E-002 +/- 1.22E-002

0000193115.CNF



0232

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

Sample Title: 04

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	0	0	0	0	0	0	2

Sample Title: 04

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

801:	0	0	0	0	0	0	0	0

Sample Title: 04

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

Apex-Alpha™

RB 8/30/17

Sample Description: HTC-A04-S001-3036-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001931
Batch Identification: 1707089A-TH
Sample Identification: 05
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_048
Chamber Serial Number: 02030596B
Detector Serial Number: 83111
Env. Background: System Bkgd 194887
Reagent Blank: <not performed>

Sample Size: 1.120E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:37:15 AM
Acquisition Date/Time: 8/30/2017 11:30:40 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: 0.1782 +/- 0.0151
Counting Efficiency: 0.1633 +/- 0.0028 on 11/18/2016 10:08:35 AM
Chem. Recovery Factor: 1.0911 +/- 0.0946

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

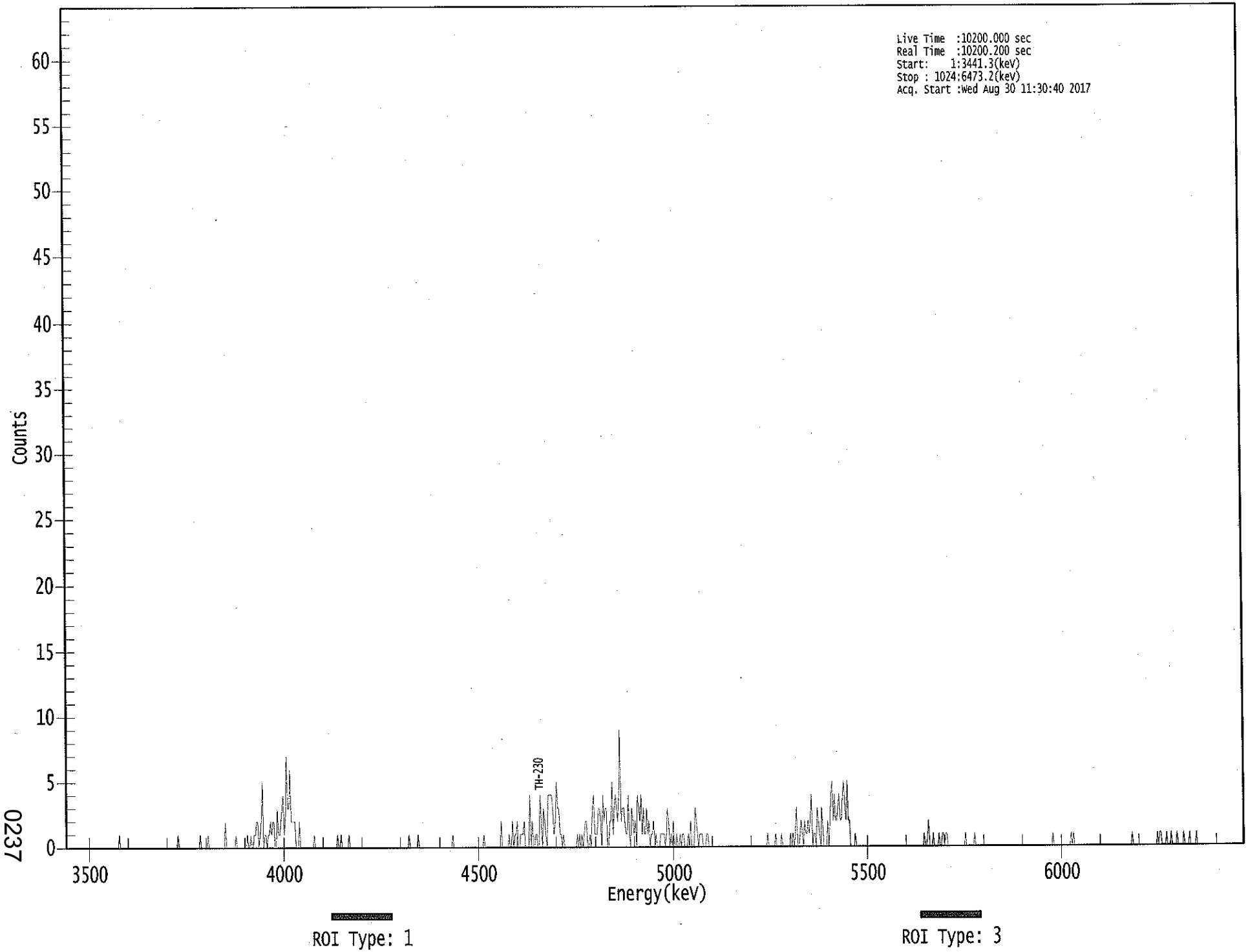
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.853	6.66	78.18	0.34	0.00E+000	5.9
TH-228		5.391	90.32	20.71	0.68	0.00E+000	7.7
TH-229	T	4.892	159.83	15.51	0.17	0.00E+000	4.6
TH-230		4.658	72.00	23.26	0.00	0.00E+000	9.1
TH-232		3.980	77.83	22.25	0.17	0.00E+000	4.7

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	9.15E-002 +/- 7.32E-002	6.57E-002 +/- 1.09E-002
TH-228	0.999	5400.00*	1.33E+000 +/- 3.55E-001	8.33E-002 +/- 1.39E-002
TH-229	0.998	4872.00*	2.13E+000 +/- 3.55E-001	5.57E-002 +/- 9.27E-003
TH-230	0.999	4672.00*	9.57E-001 +/- 2.74E-001	7.97E-002 +/- 1.33E-002
TH-232	0.998	3997.00*	1.03E+000 +/- 2.87E-001	5.54E-002 +/- 9.23E-003

0000193116.CNF



0237

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

Sample Title: 05

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	0	0	0	0	0	0	0

Sample Title: 05

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

KB 8/30/17

Apex-Alpha™

Sample Description: HTC-A04-S001-3642-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001931
Batch Identification: 1707089A-TH
Sample Identification: 06
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_049
Chamber Serial Number: 10006121A
Detector Serial Number: 49
Env. Background: System Bkgd 194888
Reagent Blank: <not performed>

Sample Size: 1.390E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:37:15 AM
Acquisition Date/Time: 8/30/2017 11:31:08 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.235 mL
Effective Efficiency: 0.1210 +/- 0.0122
Counting Efficiency: 0.1488 +/- 0.0026 on 11/18/2016 3:34:20 PM
Chem. Recovery Factor: 0.8128 +/- 0.0834

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

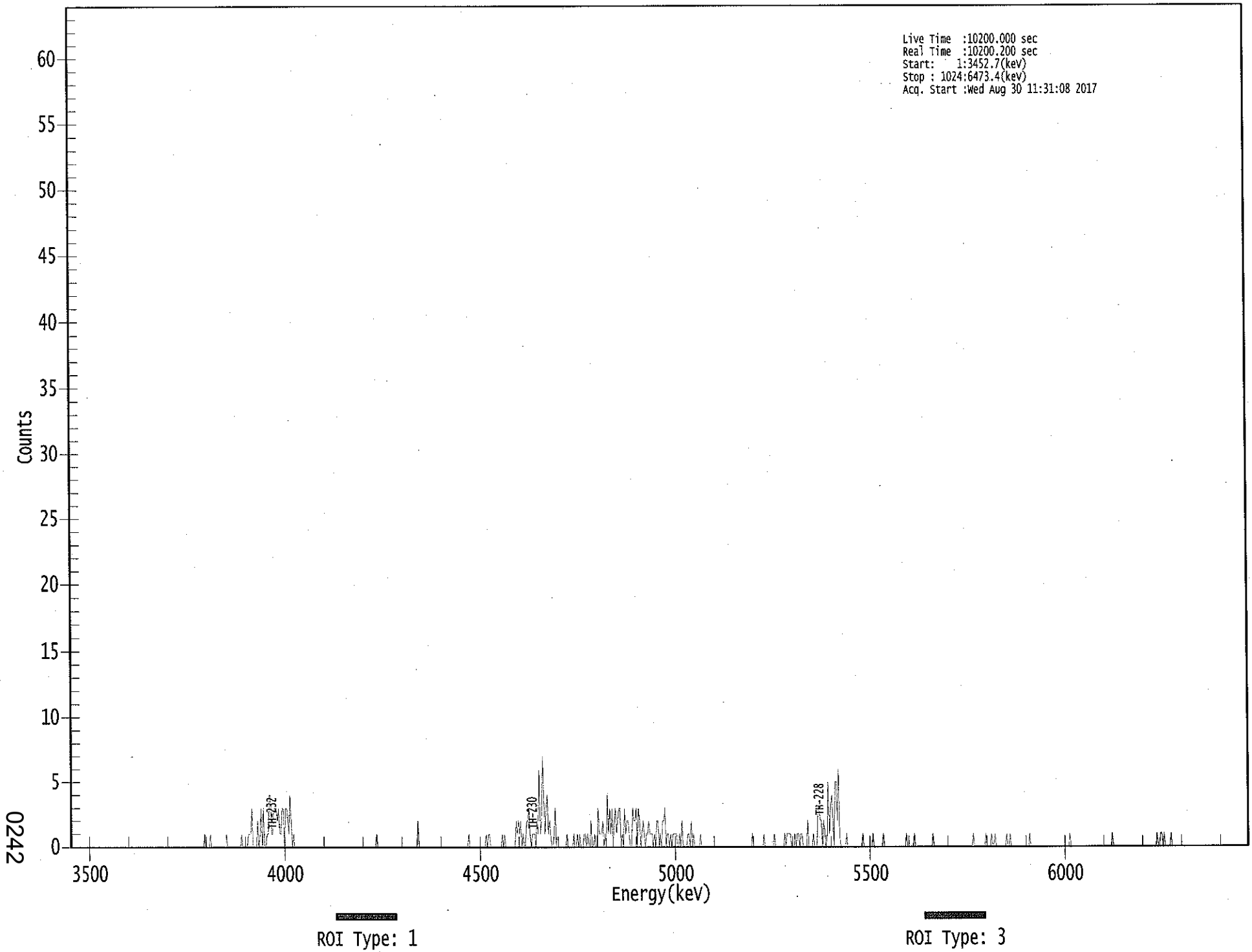
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.853	7.83	70.93	0.17	0.00E+000	3.0
TH-228		5.373	63.98	24.73	1.02	0.00E+000	4.0
TH-229	T	4.893	108.49	18.87	0.51	0.00E+000	3.4
TH-230		4.638	64.64	24.68	1.36	0.00E+000	5.5
TH-232		3.968	67.83	23.83	0.17	0.00E+000	6.9

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	1.28E-001 +/- 9.41E-002	6.81E-002 +/- 1.35E-002
TH-228	0.996	5400.00*	1.12E+000 +/- 3.56E-001	1.10E-001 +/- 2.19E-002
TH-229	0.998	4872.00*	1.72E+000 +/- 3.41E-001	8.31E-002 +/- 1.65E-002
TH-230	0.994	4672.00*	1.02E+000 +/- 3.23E-001	1.08E-001 +/- 2.15E-002
TH-232	0.996	3997.00*	1.07E+000 +/- 3.31E-001	6.58E-002 +/- 1.30E-002

0000193117.CNF



0242

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

Sample Title: 06

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	0	0	0	0	0	1	0

Sample Title: 06

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

801:	0	0	1	0	0	0	0	0

Sample Title: 06

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

Apex-Alpha™

KP 8/30/17

Sample Description: HTC-A04-S001-4248-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001931
Batch Identification: 1707089A-TH
Sample Identification: 07
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_050
Chamber Serial Number: 10006121B
Detector Serial Number: 50
Env. Background: System Bkgd 194889
Reagent Blank: <not performed>

Sample Size: 1.030E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:37:15 AM
Acquisition Date/Time: 8/30/2017 11:31:09 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: 0.0950 +/- 0.0108
Counting Efficiency: 0.1433 +/- 0.0025 on 11/18/2016 3:34:18 PM
Chem. Recovery Factor: 0.6633 +/- 0.0762

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

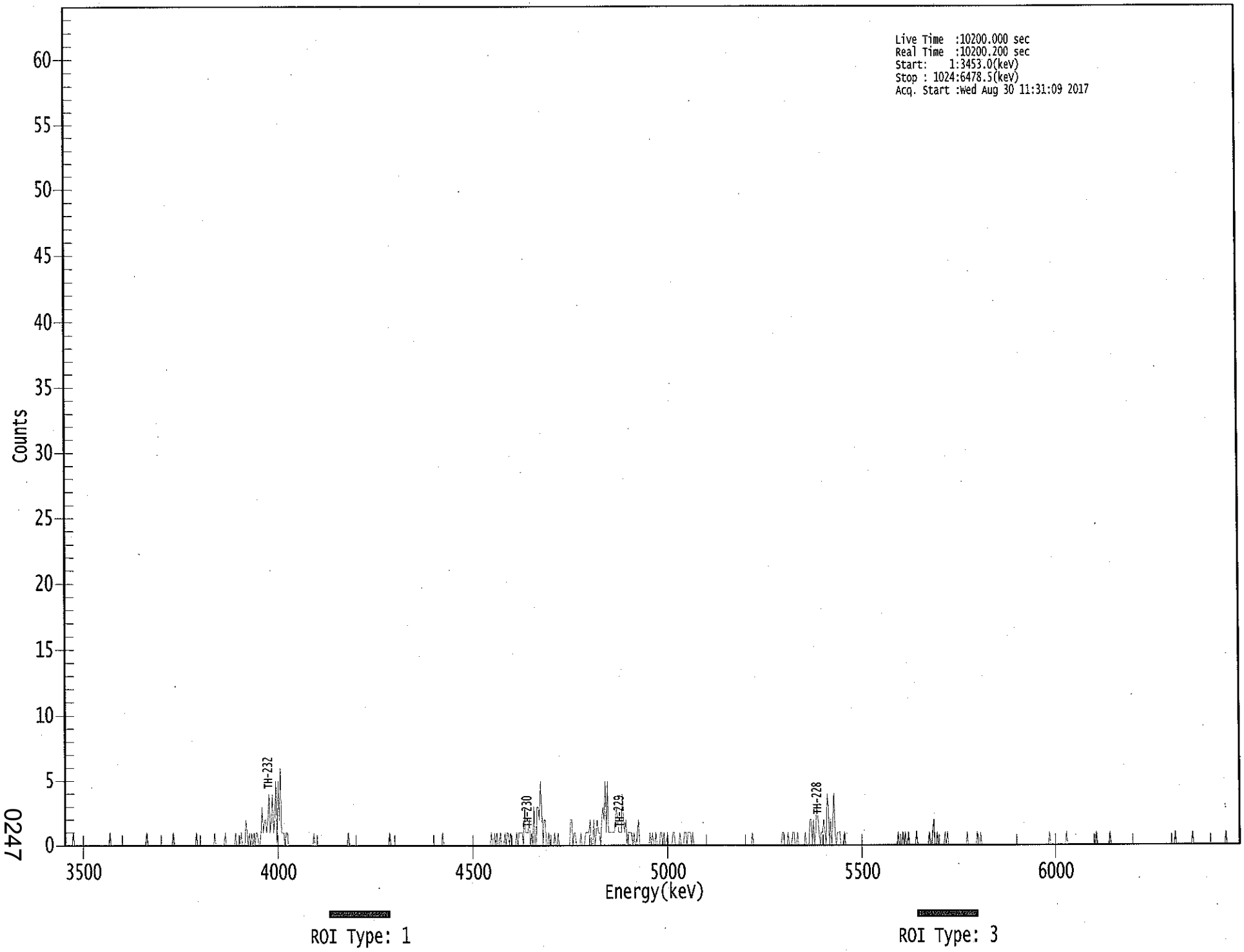
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.833	6.15	85.19	0.85	0.00E+000	3.0
TH-228		5.387	42.11	31.39	2.89	0.00E+000	5.4
TH-229	T	4.877	85.47	21.42	1.53	0.00E+000	4.3
TH-230		4.642	46.28	29.79	2.72	0.00E+000	5.9
TH-232		3.975	60.64	25.50	1.36	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)
TH-227	0.998	5850.00*	1.72E-001 +/- 1.52E-001	1.68E-001 +/- 3.74E-002
TH-228	0.999	5400.00*	1.27E+000 +/- 4.88E-001	2.64E-001 +/- 5.87E-002
TH-229	1.000	4872.00*	2.33E+000 +/- 5.18E-001	1.93E-001 +/- 4.31E-002
TH-230	0.995	4672.00*	1.26E+000 +/- 4.67E-001	2.33E-001 +/- 5.18E-002
TH-232	0.998	3997.00*	1.64E+000 +/- 5.56E-001	1.86E-001 +/- 4.13E-002

0000193112.CNF



0247

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

369:	0	0	1	0	0	1	0	1

Sample Title: 07

Channel								
377:	0	0	1	0	0	0	1	0
385:	1	1	0	1	0	0	0	0
393:	1	0	1	1	1	1	0	3
401:	1	1	1	2	0	1	0	3
409:	0	0	3	3	2	5	3	0
417:	2	2	0	0	1	0	0	0
425:	0	1	0	0	1	0	0	0
433:	0	0	0	0	0	0	0	2
441:	2	0	1	1	0	0	0	0
449:	1	0	0	0	1	1	1	1
457:	2	0	0	2	0	1	2	1
465:	1	0	2	3	2	5	1	5
473:	1	1	1	1	1	1	2	3
481:	2	1	1	1	4	2	1	2
489:	0	1	1	1	1	0	1	0
497:	0	1	2	0	0	0	0	0
505:	0	0	0	0	1	0	1	0
513:	0	1	0	0	0	1	1	0
521:	1	0	0	1	0	0	0	0
529:	1	1	0	0	0	0	1	0
537:	0	0	1	1	0	1	1	1
545:	0	1	0	0	0	0	0	0
553:	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0
569:	0	0	0	0	0	0	0	0
577:	0	0	0	0	0	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	1
625:	1	0	0	0	1	0	0	0
633:	1	1	0	0	1	0	0	0
641:	0	0	0	1	0	0	0	2
649:	2	0	2	0	1	3	2	1
657:	0	1	1	2	1	0	4	3
665:	0	2	0	2	4	1	0	1
673:	1	1	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	1	0	0	0
729:	1	0	1	0	0	1	0	0
737:	0	0	0	0	1	0	0	0
745:	0	0	0	0	0	0	0	1
753:	0	0	1	2	0	0	1	0
761:	0	0	0	0	0	1	0	1
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	1	0	0	1	0	0	0

801:	0	0	0	0	0	0	0	0

Sample Title: 07

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

Apex-Alpha™

KD
8/30/17

Sample Description: HTC-A04-S002-0006-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001931
Batch Identification: 1707089A-TH
Sample Identification: 08
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_037
Chamber Serial Number: 04026478A
Detector Serial Number: 91133
Env. Background: System Bkgd 194878
Reagent Blank: <not performed>

Sample Size: 1.200E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/16/2017 6:37:15 AM
Acquisition Date/Time: 8/30/2017 2:25:23 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: 0.1765 +/- 0.0151
Counting Efficiency: 0.1587 +/- 0.0027 on 11/18/2016 10:08:53 AM
Chem. Recovery Factor: 1.1120 +/- 0.0969

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

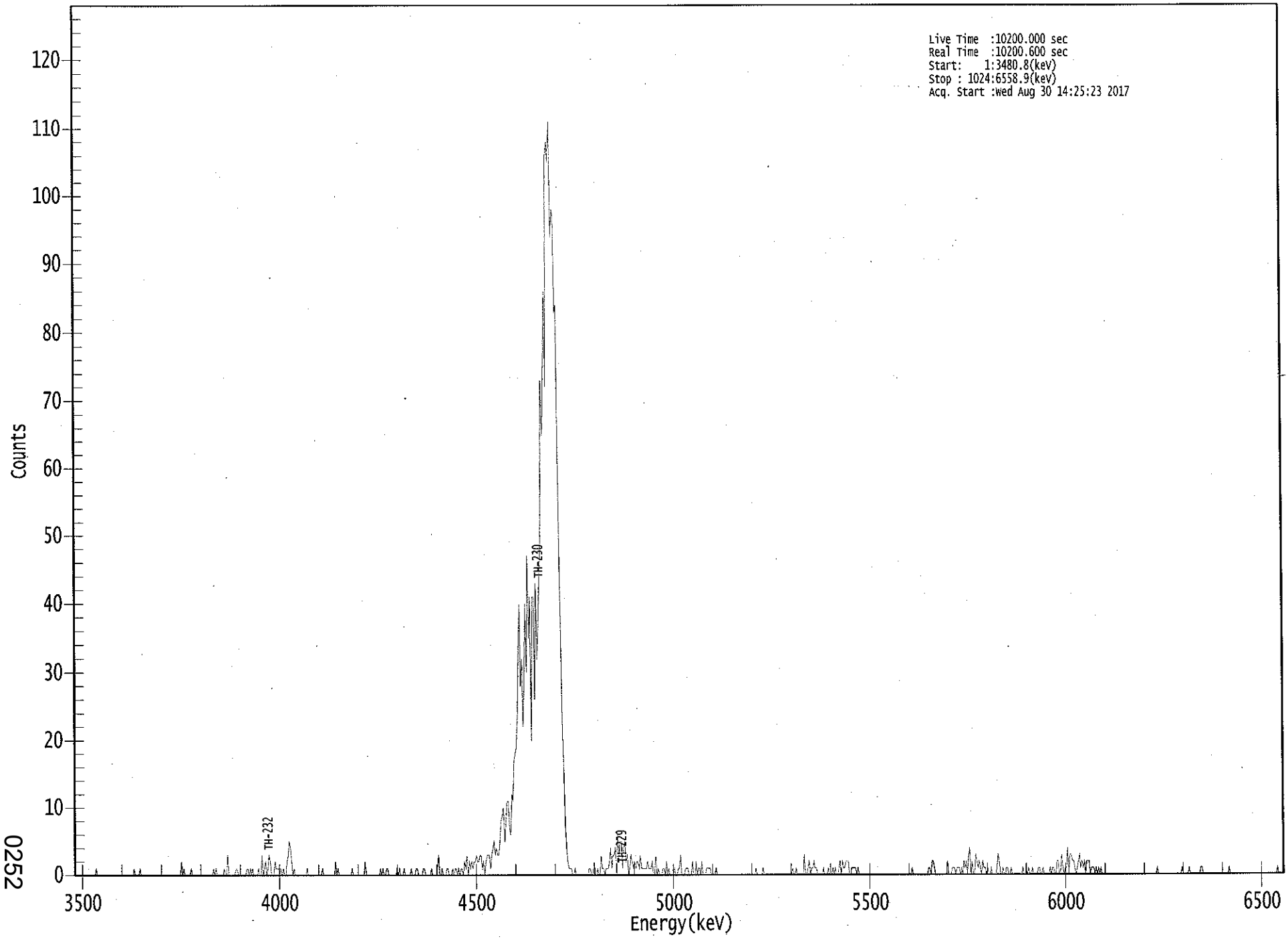
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.884	93.98	20.35	1.02	0.00E+000	5.5
TH-228		5.379	31.81	35.50	1.19	0.00E+000	3.0
TH-229	T	4.870	157.83	15.61	0.17	0.00E+000	3.0
TH-230		4.664	2402.83	4.00	0.17	0.00E+000	45.7
TH-232		3.974	50.66	27.65	0.34	0.00E+000	9.8

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.994	5850.00*	1.22E+000 +/- 3.21E-001	8.16E-002 +/- 1.37E-002
TH-228	0.998	5400.00*	4.42E-001 +/- 1.74E-001	9.16E-002 +/- 1.54E-002
TH-229	1.000	4872.00*	1.98E+000 +/- 3.32E-001	5.25E-002 +/- 8.79E-003
TH-230	1.000	4672.00*	3.01E+001 +/- 5.19E+000	5.23E-002 +/- 8.76E-003
TH-232	0.997	3997.00*	6.34E-001 +/- 2.05E-001	5.98E-002 +/- 1.00E-002

0000193122.CNF



0252

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

369:	6	12	11	17	18	19	23	32

Sample Title: 08

Channel								
377:	40	28	32	22	29	40	30	47
385:	35	41	20	41	41	26	43	32
393:	37	43	49	73	65	72	86	72
401:	106	108	105	111	94	98	97	83
409:	84	62	48	35	23	16	8	4
417:	2	1	1	1	0	0	1	0
425:	0	0	0	0	0	0	0	0
433:	0	0	1	1	0	0	2	0
441:	0	1	0	0	3	1	1	0
449:	1	1	1	2	4	1	3	3
457:	4	0	6	3	5	5	1	4
465:	5	2	3	0	1	3	2	1
473:	2	1	2	2	1	3	1	1
481:	1	1	1	2	1	1	1	2
489:	0	0	3	0	1	0	0	0
497:	1	1	0	2	0	1	0	0
505:	0	0	1	0	0	1	1	3
513:	0	0	0	1	1	1	0	0
521:	0	2	0	0	2	0	1	1
529:	0	2	0	0	0	1	1	1
537:	1	0	0	0	0	1	0	0
545:	0	0	0	0	0	0	0	0
553:	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0
569:	0	0	0	0	0	0	0	1
577:	0	0	0	0	0	1	0	0
585:	0	0	0	0	0	0	0	0
593:	0	0	0	0	0	0	0	0
601:	0	0	0	0	0	0	1	0
609:	0	1	0	0	0	0	0	0
617:	3	0	0	1	2	0	1	1
625:	2	1	1	0	0	0	0	0
633:	1	0	0	0	1	0	0	0
641:	1	0	1	0	0	1	2	0
649:	2	1	1	2	2	2	0	0
657:	1	1	1	1	0	1	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	1	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	1	1	0	2	2	1	0
729:	0	0	0	0	0	0	0	0
737:	0	2	0	0	0	1	1	1
745:	0	1	1	1	0	1	0	2
753:	1	2	0	3	4	0	2	0
761:	0	3	2	1	2	1	0	2
769:	1	1	0	1	0	0	1	0
777:	0	0	0	1	3	2	0	0
785:	1	0	0	1	1	0	0	1
793:	0	0	0	0	0	0	0	0

801:	0	1	0	0	1	0	1	0

Sample Title: 08

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

KB 3/30/14

Apex-Alpha™

Sample Description: HTC-A04-S002-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001931
Batch Identification: 1707089A-TH
Sample Identification: 09
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_038
Chamber Serial Number: 04026478B
Detector Serial Number: 91134
Env. Background: System Bkgd 194879
Reagent Blank: <not performed>

Sample Size: 1.180E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/16/2017 6:37:15 AM
Acquisition Date/Time: 8/30/2017 2:25:24 PM
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: 0.1190 +/- 0.0121
Counting Efficiency: 0.1543 +/- 0.0027 on 11/18/2016 10:08:51 AM
Chem. Recovery Factor: 0.7712 +/- 0.0797

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

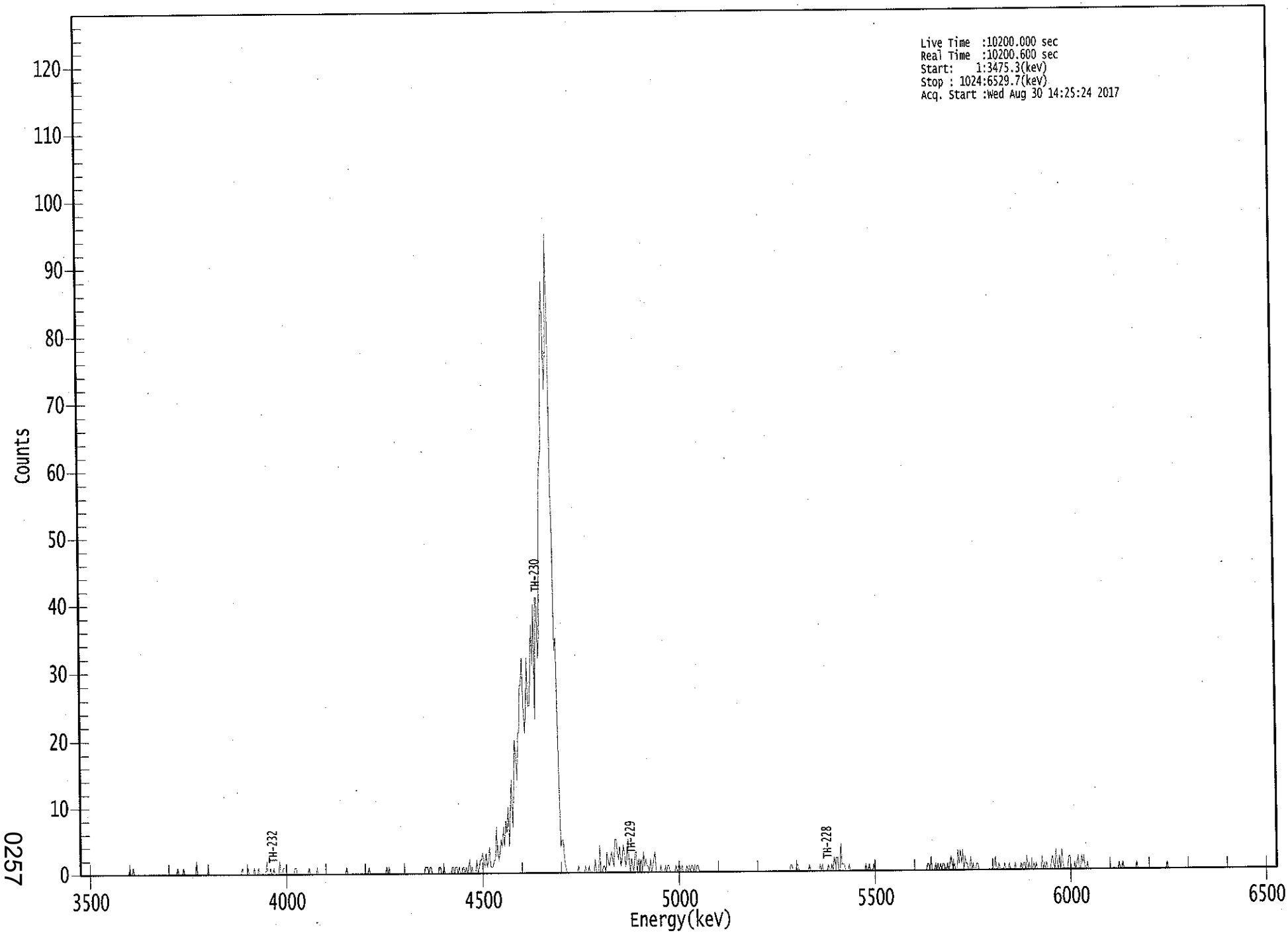
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.879	66.49	24.14	0.51	0.00E+000	3.7
TH-228		5.381	23.15	41.60	0.85	0.00E+000	3.5
TH-229	T	4.879	107.15	19.02	0.85	0.00E+000	9.3
TH-230		4.642	1770.66	4.66	0.34	0.00E+000	34.5
TH-232		3.966	17.15	48.68	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	0.996	5850.00*	1.30E+000 +/- 4.07E-001	1.02E-001 +/- 2.05E-002
TH-228	0.998	5400.00*	4.86E-001 +/- 2.24E-001	1.26E-001 +/- 2.51E-002
TH-229	1.000	4872.00*	2.03E+000 +/- 4.06E-001	1.13E-001 +/- 2.27E-002
TH-230	0.995	4672.00*	3.35E+001 +/- 6.86E+000	9.04E-002 +/- 1.80E-002
TH-232	0.995	3997.00*	3.24E-001 +/- 1.70E-001	1.13E-001 +/- 2.26E-002

0000193119.CNF



0257

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

Sample Title: 09

Elapsed Live time: 10200
Elapsed Real Time: 10201

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

369:	14	7	12	20	18	14	21	21

Sample Title: 09

Channel								
377:	28	28	32	25	21	24	32	25
385:	25	29	37	31	40	23	41	41
393:	32	35	56	61	63	80	88	79
401:	72	78	95	81	58	50	33	35
409:	23	12	4	5	5	2	1	0
417:	0	0	0	0	0	0	0	0
425:	0	1	0	0	0	0	0	1
433:	0	0	1	0	0	0	0	2
441:	0	0	0	4	0	0	1	1
449:	0	3	2	1	2	3	2	1
457:	5	5	3	2	4	1	2	4
465:	3	1	2	5	2	0	2	1
473:	0	3	3	0	2	0	2	0
481:	3	1	2	1	1	0	2	0
489:	1	2	3	0	0	0	0	1
497:	0	0	0	1	0	1	1	0
505:	0	0	0	0	1	0	1	1
513:	0	1	0	0	0	1	0	1
521:	0	1	1	0	1	0	1	1
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	0	0	0
601:	0	0	0	0	0	0	1	1
609:	0	0	0	1	1	0	0	0
617:	0	0	0	0	0	0	1	0
625:	0	0	0	0	0	0	0	1
633:	0	1	0	0	0	0	1	0
641:	0	1	0	2	1	2	2	0
649:	0	4	1	1	1	0	0	0
657:	1	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	1	0
673:	0	1	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	1	1	0	2	0
729:	0	0	1	0	1	0	1	0
737:	1	1	0	0	1	0	1	2
745:	1	0	1	0	0	3	1	3
753:	1	3	0	2	1	1	0	0
761:	2	0	1	0	0	1	1	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	2	0	0
785:	1	0	0	0	0	1	0	0
793:	0	1	0	0	0	0	1	0

801:	0	0	0	1	0	1	1	0

Sample Title: 09

Channel								
809:	2	0	1	0	0	0	1	0
817:	1	0	0	0	0	2	0	1
825:	0	1	0	0	0	1	2	1
833:	0	3	1	0	2	0	3	1
841:	0	0	0	0	2	2	0	0
849:	0	1	0	1	2	0	0	2
857:	1	2	0	0	1	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	1
889:	0	0	1	0	0	0	0	0
897:	0	0	0	0	0	0	1	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	1	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 8/30/17

Sample Description: HTC-A04-S002-1218-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001931
Batch Identification: 1707089A-TH
Sample Identification: 10
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_039
Chamber Serial Number: 06027396A
Detector Serial Number: 83109
Env. Background: System Bkgd 194880
Reagent Blank: <not performed>

Sample Size: 1.100E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/16/2017 6:37:15 AM
Acquisition Date/Time: 8/30/2017 2:25:26 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: 0.1449 +/- 0.0136
Counting Efficiency: 0.1852 +/- 0.0031 on 11/18/2016 10:08:50 AM
Chem. Recovery Factor: 0.7826 +/- 0.0745

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

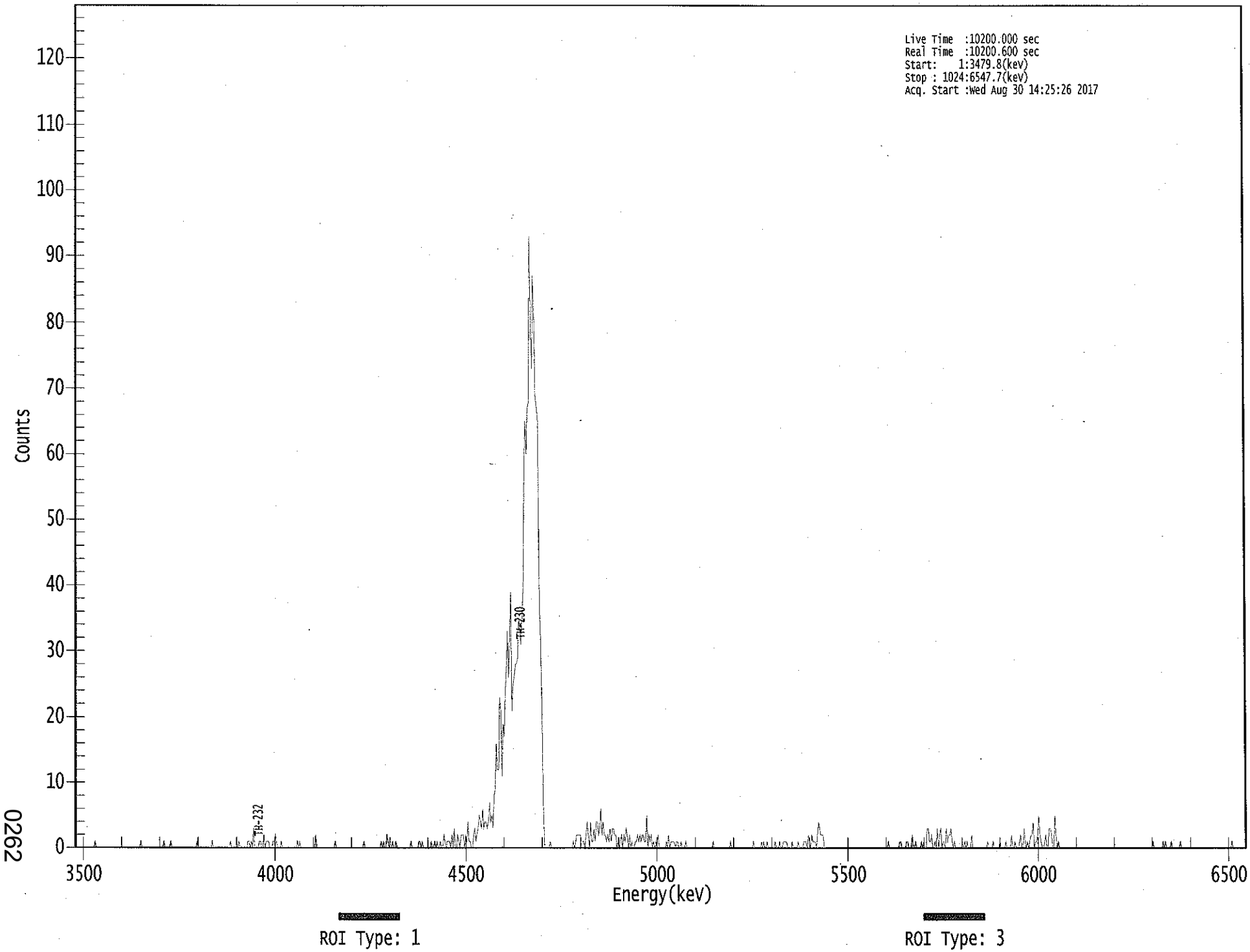
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.890	92.49	20.45	0.51	0.00E+000	5.0
TH-228		5.373	37.11	33.61	2.89	0.00E+000	9.0
TH-229	T	4.895	130.13	17.33	1.87	0.00E+000	5.2
TH-230		4.647	1782.81	4.64	1.19	0.00E+000	39.7
TH-232		3.960	24.15	40.70	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	0.992	5850.00*	1.59E+000 +/- 4.37E-001	9.03E-002 +/- 1.66E-002
TH-228	0.996	5400.00*	6.86E-001 +/- 2.63E-001	1.62E-001 +/- 2.97E-002
TH-229	0.997	4872.00*	2.17E+000 +/- 3.99E-001	1.26E-001 +/- 2.32E-002
TH-230	0.997	4672.00*	2.97E+001 +/- 5.62E+000	1.10E-001 +/- 2.01E-002
TH-232	0.993	3997.00*	4.01E-001 +/- 1.79E-001	9.95E-002 +/- 1.83E-002

0000193124.CNF



0262

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

Sample Title: 10

Elapsed Live time: 10200
Elapsed Real Time: 10201

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	1	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	1	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	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	1	0	0	0	0	0
113:	0	0	0	0	0	0	0	1
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	1
137:	0	0	0	0	0	0	1	0
145:	0	0	0	0	0	0	1	1
153:	0	1	0	3	0	0	0	0
161:	1	1	0	0	2	0	1	1
169:	1	0	0	0	1	1	2	1
177:	0	0	0	1	0	0	0	0
185:	0	0	0	0	0	0	0	0
193:	0	1	0	1	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	2	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	1	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	1	0	1	0	0	2
273:	1	0	0	0	1	0	0	1
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	1	0	0	0
297:	0	0	0	1	1	0	1	0
305:	0	0	0	0	0	0	1	0
313:	0	1	0	1	0	0	1	0
321:	0	2	1	0	1	1	1	0
329:	2	0	3	0	0	2	1	0
337:	2	2	2	0	2	1	4	1
345:	1	0	0	2	3	1	2	3
353:	5	4	3	6	3	4	4	3
361:	4	7	4	5	3	8	9	16

369:	12	12	23	21	11	19	17	23

Sample Title: 10

Channel								
377:	27	33	26	32	39	21	25	26
385:	28	28	29	35	33	31	36	39
393:	57	65	60	67	68	93	78	73
401:	87	80	69	67	65	37	32	22
409:	7	0	0	0	0	0	1	0
417:	0	0	0	0	0	0	0	0
425:	0	0	0	0	0	0	0	0
433:	0	0	1	0	1	2	2	2
441:	2	1	1	1	0	2	4	2
449:	0	4	1	1	3	1	4	4
457:	2	3	6	2	4	2	2	1
465:	2	1	3	1	3	3	2	2
473:	0	1	0	1	2	0	2	1
481:	3	2	0	2	0	1	0	0
489:	1	1	2	1	2	1	2	2
497:	1	1	5	0	2	1	2	0
505:	1	0	1	0	2	0	0	0
513:	0	0	0	1	0	2	0	1
521:	1	1	1	0	1	1	0	0
529:	1	0	0	0	1	0	0	0
537:	0	0	0	0	0	0	0	0
545:	0	0	0	0	0	0	0	0
553:	0	0	0	0	1	0	0	0
561:	0	0	0	0	0	0	0	0
569:	0	0	0	1	0	0	0	0
577:	0	0	0	0	0	0	0	0
585:	0	0	0	0	0	0	0	1
593:	0	0	0	0	0	0	1	0
601:	1	0	0	1	0	0	0	0
609:	0	0	1	0	0	0	1	0
617:	0	1	1	1	1	0	0	0
625:	0	1	0	0	0	0	1	0
633:	0	0	0	1	1	1	0	2
641:	1	0	2	1	1	1	0	2
649:	4	3	2	2	2	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	1	0	0
713:	0	0	0	0	0	0	0	1
721:	1	0	0	0	0	1	1	0
729:	0	0	2	0	0	1	0	0
737:	0	0	1	0	1	0	0	3
745:	3	1	1	2	0	0	1	0
753:	3	0	2	3	0	1	1	0
761:	3	1	2	2	3	1	0	1
769:	0	0	0	0	0	0	0	0
777:	1	0	1	0	0	0	2	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	1	0	0	0

801:	0	1	0	0	0	0	0	1

Sample Title: 10

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

Apex-Alpha™

KB 8/30/17

Sample Description: HTC-A04-S002-1824-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001931
Batch Identification: 1707089A-TH
Sample Identification: 11
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_040
Chamber Serial Number: 06027396B
Detector Serial Number: 91135
Env. Background: System Bkgd 194881
Reagent Blank: <not performed>

Sample Size: 1.200E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/16/2017 6:37:15 AM
Acquisition Date/Time: 8/30/2017 2:25:28 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: 0.1376 +/- 0.0132
Counting Efficiency: 0.1813 +/- 0.0031 on 11/18/2016 10:08:48 AM
Chem. Recovery Factor: 0.7589 +/- 0.0737

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

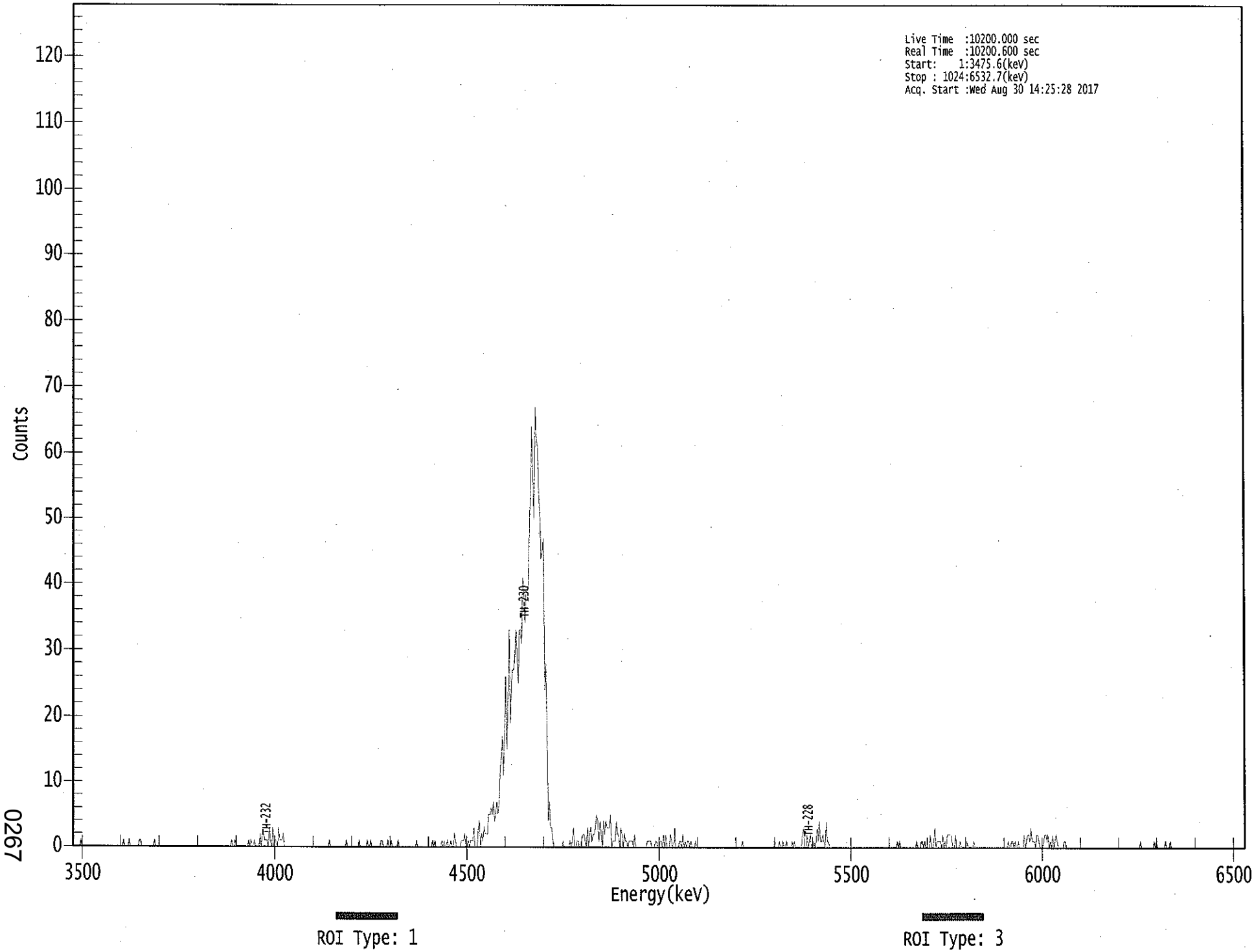
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.888	64.81	24.61	1.19	0.00E+000	3.7
TH-228		5.392	36.98	32.75	1.02	0.00E+000	4.0
TH-229	T	4.892	123.15	17.73	0.85	0.00E+000	9.0
TH-230		4.653	1595.49	4.91	0.51	0.00E+000	57.8
TH-232		3.981	30.49	35.84	0.51	0.00E+000	3.7

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.992	5850.00*	1.08E+000 +/- 3.33E-001	1.09E-001 +/- 2.05E-002
TH-228	1.000	5400.00*	6.60E-001 +/- 2.49E-001	1.12E-001 +/- 2.11E-002
TH-229	0.998	4872.00*	1.99E+000 +/- 3.72E-001	9.65E-002 +/- 1.81E-002
TH-230	0.998	4672.00*	2.56E+001 +/- 4.97E+000	8.43E-002 +/- 1.58E-002
TH-232	0.999	3997.00*	4.89E-001 +/- 1.98E-001	8.42E-002 +/- 1.58E-002

0000193125.CNF



0267

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

Sample Title: 11

Elapsed Live time: 10200
Elapsed Real Time: 10201

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

369:	5	7	5	7	12	14	17	11

Sample Title: 11

Channel								
377:	18	26	15	23	33	19	25	27
385:	27	29	33	29	25	33	33	31
393:	41	39	34	39	39	40	51	54
401:	64	55	50	67	62	61	54	50
409:	44	45	47	24	28	16	4	7
417:	3	3	1	0	0	0	0	0
425:	0	0	0	1	0	0	0	0
433:	0	1	0	1	3	0	0	1
441:	1	0	0	1	2	2	1	0
449:	3	0	2	3	1	2	2	3
457:	5	4	1	4	2	0	4	2
465:	4	3	3	3	5	0	1	1
473:	1	4	2	2	0	3	2	0
481:	2	1	1	0	1	1	1	1
489:	0	2	0	0	0	0	0	0
497:	0	0	0	0	1	1	1	1
505:	0	0	0	1	1	0	0	1
513:	1	0	2	0	2	0	0	0
521:	2	1	0	0	3	0	0	0
529:	1	1	0	2	0	1	0	1
537:	1	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:	0	0	0	0	0	0	0	0
577:	0	0	0	0	0	0	0	1
585:	0	0	0	0	0	0	0	0
593:	0	0	0	0	0	0	0	0
601:	0	0	0	0	0	0	0	0
609:	0	0	0	1	0	0	0	1
617:	0	0	1	0	0	1	0	0
625:	0	0	1	0	1	0	0	0
633:	0	0	0	2	3	0	0	2
641:	0	1	2	0	0	1	0	1
649:	3	1	4	1	1	2	1	0
657:	4	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	1	0
721:	1	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	1
737:	0	0	0	1	1	0	1	0
745:	0	0	0	2	0	0	1	3
753:	0	1	1	1	1	0	2	0
761:	1	0	2	2	2	2	1	0
769:	0	2	0	0	0	1	0	0
777:	0	0	0	1	0	0	0	0
785:	0	1	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801:	0	0	0	0	0	0	0	0

Sample Title: 11

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

KD 8/30/12

Apex-Alpha™

Sample Description:	HTC-A04-S002-2430-01
Spectrum File:	\\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001931
Batch Identification:	1707089A-TH
Sample Identification:	12
Sample Geometry:	Shelf 2
Procedure Description:	Th iso
Detector Name:	Alpha_043
Chamber Serial Number:	04026481A
Detector Serial Number:	91088
Env. Background:	System Bkgd 194882
Reagent Blank:	<not performed>
Sample Size:	1.260E+000 +/- 0.000E+000 gram
Sample Date/Time:	5/16/2017 6:37:15 AM
Acquisition Date/Time:	8/30/2017 2:25:31 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:	0.1122 +/- 0.0119
Counting Efficiency:	0.1874 +/- 0.0032 on 11/18/2016 10:08:43 AM
Chem. Recovery Factor:	0.5983 +/- 0.0642
Peak Match Tolerance:	0.175 MeV

PEAK AREA REPORT

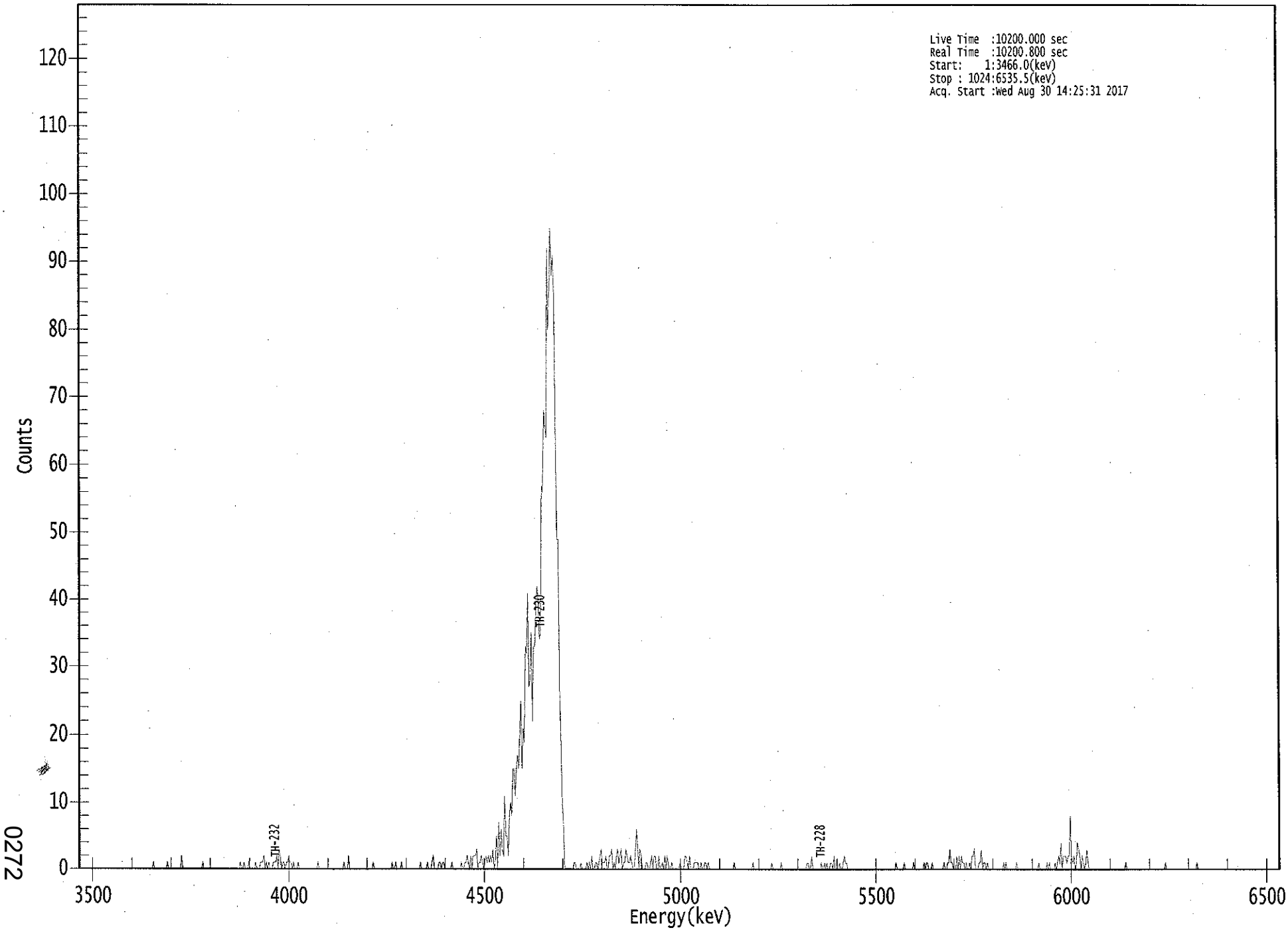
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.915	81.15	21.89	0.85	0.00E+000	4.0
TH-228		5.358	17.62	50.25	2.38	0.00E+000	3.0
TH-229	T	4.888	100.45	19.84	2.55	0.00E+000	6.8
TH-230		4.644	1926.47	4.47	1.53	0.00E+000	43.5
TH-232		3.967	30.98	35.89	1.02	0.00E+000	5.3

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.978	5850.00*	1.58E+000 +/- 4.75E-001	1.16E-001 +/- 2.41E-002
TH-228	0.991	5400.00*	3.67E-001 +/- 2.00E-001	1.71E-001 +/- 3.55E-002
TH-229	0.999	4872.00*	1.89E+000 +/- 3.93E-001	1.58E-001 +/- 3.28E-002
TH-230	0.996	4672.00*	3.62E+001 +/- 7.68E+000	1.34E-001 +/- 2.77E-002
TH-232	0.995	3997.00*	5.81E-001 +/- 2.41E-001	1.18E-001 +/- 2.45E-002

0000193131.CNF



ROI Type: 1

ROI Type: 3

0272

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

Sample Title: 12

Elapsed Live time: 10200
Elapsed Real Time: 10201

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

369:	8	15	15	11	15	17	15	20

Sample Title: 12

Channel								
377:	25	15	21	19	33	32	41	27
385:	28	35	22	33	33	39	42	40
393:	34	35	57	56	68	66	64	92
401:	80	86	95	88	91	85	66	49
409:	49	27	20	10	7	0	0	0
417:	0	0	0	0	0	1	1	0
425:	0	0	0	1	0	0	0	0
433:	1	0	1	0	2	0	0	1
441:	1	0	1	2	3	1	1	1
449:	2	0	0	2	2	3	0	1
457:	0	2	3	1	2	3	0	1
465:	1	3	2	1	1	2	1	0
473:	0	3	6	4	0	3	2	0
481:	0	0	1	1	0	0	1	2
489:	0	2	2	0	0	2	0	0
497:	1	0	2	0	2	1	0	0
505:	1	0	0	0	0	0	0	1
513:	0	0	0	2	2	1	0	2
521:	0	0	0	1	1	1	1	0
529:	0	1	0	0	1	1	0	1
537:	0	0	0	0	0	0	0	0
545:	0	0	0	0	0	0	0	0
553:	0	0	0	0	0	1	0	0
561:	0	0	0	0	0	0	0	0
569:	0	0	0	0	0	1	0	0
577:	0	0	0	0	0	0	0	0
585:	0	0	0	0	0	1	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	1	1	0	0	2
625:	0	0	0	0	0	0	0	1
633:	0	0	1	0	1	0	0	1
641:	1	0	2	0	0	0	0	1
649:	0	0	1	2	1	1	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	1
697:	0	0	0	0	0	0	1	0
705:	0	0	0	0	0	0	1	0
713:	0	0	0	0	0	0	0	1
721:	0	1	1	0	0	0	1	0
729:	0	0	0	0	0	0	0	0
737:	1	0	0	1	1	3	1	1
745:	0	0	0	2	0	2	0	2
753:	1	1	0	1	0	0	1	0
761:	2	2	3	0	0	0	1	1
769:	3	0	1	1	0	1	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	1	0	1	0	0
793:	0	0	0	0	0	0	1	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	1	0	0	0	0	0	0
825:	1	0	1	0	0	0	0	1
833:	0	1	2	1	4	0	2	2
841:	2	1	2	2	8	2	1	2
849:	0	1	4	3	2	0	2	1
857:	0	1	3	1	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	1	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	1	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	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	1

Apex-Alpha™

ICB 8/30/17

Sample Description: HTC-A04-S002-3036-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001931
Batch Identification: 1707089A-TH
Sample Identification: 13
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_044
Chamber Serial Number: 04026481B
Detector Serial Number: 84168
Env. Background: System Bkgd 194883
Reagent Blank: <not performed>

Sample Size: 1.150E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/16/2017 6:37:15 AM
Acquisition Date/Time: 8/30/2017 2:25:33 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: 0.1024 +/- 0.0112
Counting Efficiency: 0.1793 +/- 0.0030 on 11/18/2016 10:08:42 AM
Chem. Recovery Factor: 0.5712 +/- 0.0633

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

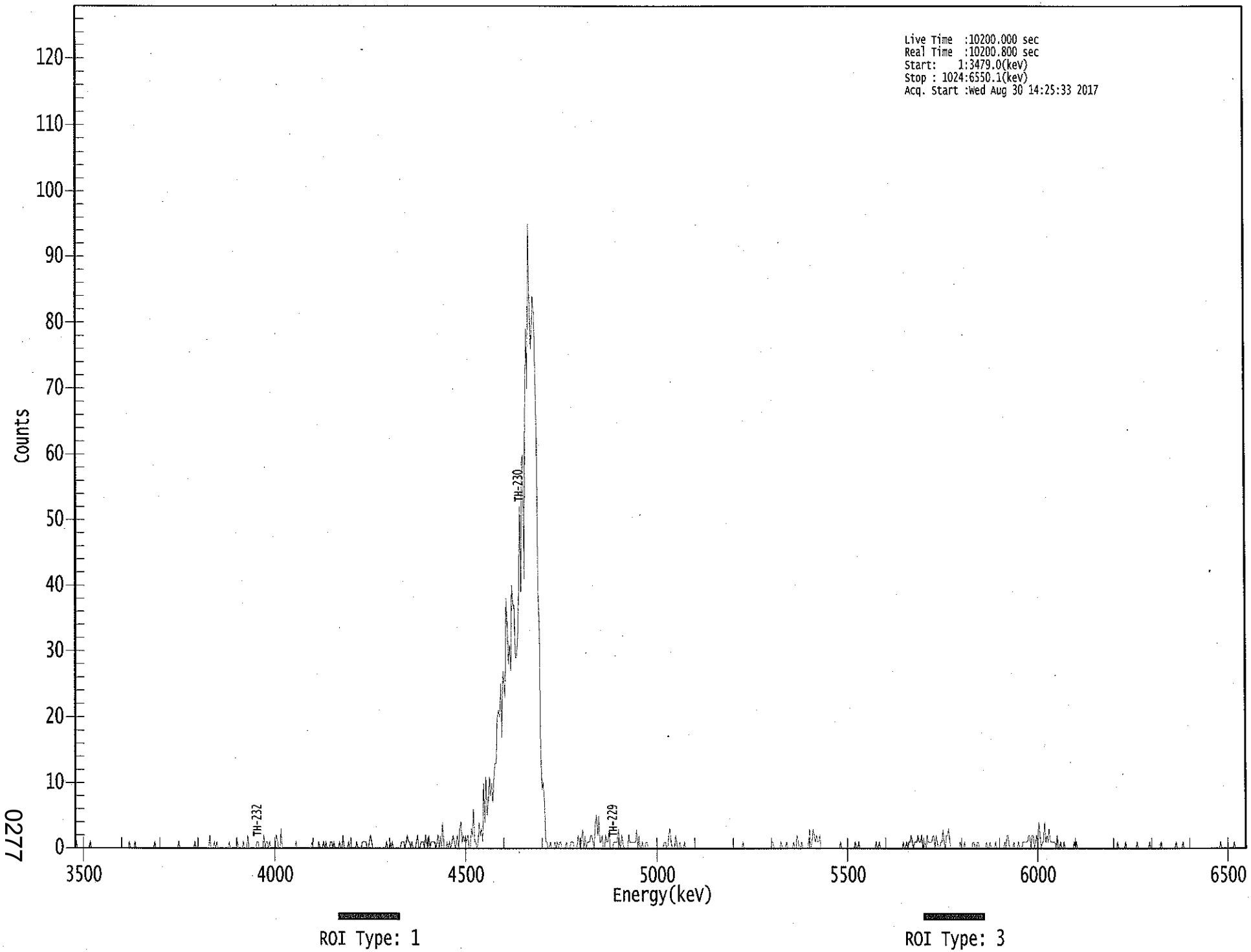
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.894	83.81	21.59	1.19	0.00E+000	5.0
TH-228		5.383	26.49	38.51	0.51	0.00E+000	3.8
TH-229	T	4.885	91.32	20.60	0.68	0.00E+000	6.6
TH-230		4.643	1963.15	4.42	0.85	0.00E+000	34.1
TH-232		3.955	23.83	40.32	0.17	0.00E+000	3.0

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.990	5850.00*	1.95E+000 +/- 5.94E-001	1.53E-001 +/- 3.30E-002
TH-228	0.998	5400.00*	6.63E-001 +/- 2.92E-001	1.31E-001 +/- 2.82E-002
TH-229	0.999	4872.00*	2.06E+000 +/- 4.43E-001	1.28E-001 +/- 2.74E-002
TH-230	0.996	4672.00*	4.43E+001 +/- 9.70E+000	1.35E-001 +/- 2.90E-002
TH-232	0.991	3997.00*	5.36E-001 +/- 2.45E-001	9.39E-002 +/- 2.02E-002

0000193132.CNF



0277

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

Sample Title: 13

Elapsed Live time: 10200
Elapsed Real Time: 10201

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

369:	20	21	20	25	17	27	25	23

Sample Title: 13

Channel								
377:	38	34	28	31	27	40	37	37
385:	29	29	32	39	52	39	59	60
393:	41	66	79	70	95	85	76	79
401:	84	81	73	62	39	33	15	9
409:	10	7	1	1	0	0	1	0
417:	0	0	1	0	1	0	1	1
425:	0	0	0	0	1	0	0	0
433:	1	1	1	0	0	0	2	1
441:	0	1	3	0	2	0	1	1
449:	1	2	2	1	0	4	5	2
457:	5	1	1	2	0	0	2	1
465:	1	3	0	0	0	1	1	1
473:	1	3	1	0	2	1	0	0
481:	0	0	2	1	1	1	1	1
489:	1	3	0	2	0	0	1	0
497:	0	1	1	0	0	0	0	0
505:	0	0	0	0	0	0	0	0
513:	0	1	1	0	0	2	3	1
521:	0	0	0	2	1	0	0	1
529:	0	0	0	1	0	0	0	0
537:	0	0	0	0	0	0	0	0
545:	0	0	0	0	0	0	0	0
553:	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0
569:	0	0	0	0	0	0	0	0
577:	0	0	0	0	0	0	1	0
585:	0	0	0	0	0	0	0	0
593:	0	0	0	0	0	0	0	0
601:	0	0	0	0	0	0	0	1
609:	1	0	0	0	0	0	0	1
617:	0	0	0	0	1	0	0	0
625:	0	0	1	0	0	2	1	0
633:	0	1	0	0	0	0	0	1
641:	3	0	1	3	2	1	2	1
649:	1	2	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	1	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	1	0	0	1	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	1	0	0	1	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	1	0	0	1	0	1
729:	1	2	1	0	1	1	1	2
737:	1	1	2	0	0	1	0	2
745:	1	1	1	1	2	2	0	2
753:	1	0	0	1	1	3	1	0
761:	2	2	3	1	0	0	0	0
769:	0	0	0	0	1	0	0	0
777:	1	0	0	0	0	0	0	1
785:	1	0	0	1	1	0	0	0
793:	0	0	0	1	0	0	1	0

801:	0	0	0	1	0	0	0	0

Sample Title: 13

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

Apex-Alpha™

KB 8/30/12

Sample Description: HTC-A04-S002-3642-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001931
Batch Identification: 1707089A-TH
Sample Identification: 14
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_045
Chamber Serial Number: 04026482A
Detector Serial Number: 91131
Env. Background: System Bkgd 194884
Reagent Blank: <not performed>

Sample Size: 1.110E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/16/2017 6:37:15 AM
Acquisition Date/Time: 8/30/2017 2:25:36 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: 0.1182 +/- 0.0121
Counting Efficiency: 0.1688 +/- 0.0029 on 11/18/2016 10:08:40 AM
Chem. Recovery Factor: 0.7002 +/- 0.0727

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

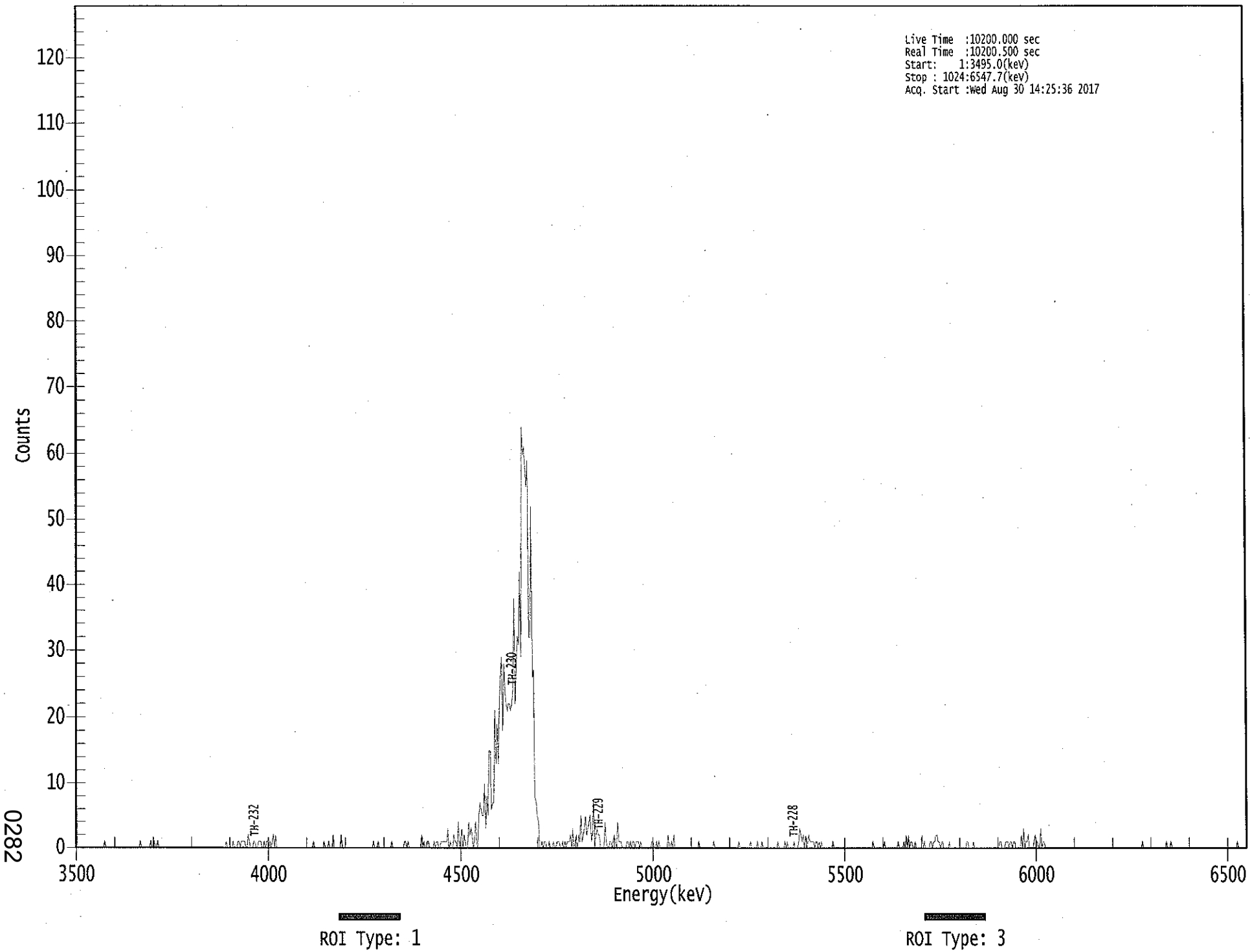
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.875	46.32	29.04	0.68	0.00E+000	3.0
TH-228		5.364	29.64	36.95	1.36	0.00E+000	6.7
TH-229	T	4.856	105.49	19.14	0.51	0.00E+000	3.6
TH-230		4.633	1291.32	5.46	0.68	0.00E+000	20.6
TH-232		3.961	22.11	44.76	2.89	0.00E+000	4.5

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.997	5850.00*	9.68E-001 +/- 3.42E-001	1.18E-001 +/- 2.37E-002
TH-228	0.993	5400.00*	6.66E-001 +/- 2.80E-001	1.54E-001 +/- 3.09E-002
TH-229	0.999	4872.00*	2.14E+000 +/- 4.30E-001	1.07E-001 +/- 2.14E-002
TH-230	0.992	4672.00*	2.61E+001 +/- 5.44E+000	1.14E-001 +/- 2.29E-002
TH-232	0.993	3997.00*	4.47E-001 +/- 2.19E-001	1.77E-001 +/- 3.55E-002

0000193120.CNF



0282

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

Sample Title: 14

Elapsed Live time: 10200
Elapsed Real Time: 10201

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	1	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	1	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:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	0	1	0	0	0	0
137:	0	1	0	0	0	1	1	0
145:	1	1	1	1	0	0	2	1
153:	0	0	0	1	1	0	0	1
161:	1	1	0	0	1	0	1	1
169:	0	1	0	1	2	0	2	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	1
209:	0	0	0	0	0	0	0	0
217:	1	0	0	0	1	0	0	0
225:	2	0	0	0	0	0	0	2
233:	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	1	0	0	0	1
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	1	1
289:	0	1	0	0	0	0	0	0
297:	0	0	0	0	0	2	0	1
305:	0	0	1	1	0	0	0	0
313:	1	0	1	1	0	0	1	1
321:	1	1	1	1	3	0	1	0
329:	0	2	1	1	0	4	0	1
337:	3	0	2	1	0	0	4	2
345:	3	2	0	1	4	1	0	5
353:	7	6	5	5	10	3	8	5
361:	15	15	6	7	7	21	13	19

369:	13	22	26	29	18	28	24	22

Sample Title: 14

Channel								
377:	21	22	22	21	22	24	38	22
385:	28	32	31	42	29	64	60	61
393:	58	55	59	32	32	52	26	27
401:	8	7	5	4	0	0	1	0
409:	1	1	0	0	1	0	0	0
417:	1	0	0	1	1	1	0	0
425:	1	0	1	0	1	1	1	2
433:	0	3	0	1	2	0	2	1
441:	5	1	2	3	5	2	3	4
449:	5	1	2	7	0	2	3	2
457:	2	0	0	0	0	4	1	0
465:	0	1	1	0	1	2	1	0
473:	4	1	1	1	0	0	0	0
481:	1	1	0	1	0	1	1	0
489:	1	1	1	0	1	0	0	0
497:	0	0	0	0	0	0	1	1
505:	0	0	1	0	1	0	0	0
513:	0	0	0	0	2	0	0	1
521:	0	2	0	0	0	0	0	0
529:	0	0	0	0	0	0	0	0
537:	0	0	0	0	0	0	0	1
545:	0	0	0	0	0	0	0	0
553:	0	0	0	0	1	0	0	0
561:	0	0	0	0	0	0	0	0
569:	0	0	0	0	0	0	0	0
577:	0	0	1	0	0	0	0	0
585:	0	0	0	0	1	0	0	0
593:	0	0	1	0	0	0	1	0
601:	0	0	0	0	0	0	0	0
609:	0	0	0	0	1	0	0	0
617:	0	0	1	0	1	0	0	0
625:	0	0	1	0	0	0	1	3
633:	2	1	2	0	2	0	1	2
641:	1	1	1	1	0	1	1	0
649:	1	0	1	0	0	0	0	0
657:	0	0	0	0	1	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	1
697:	0	0	0	0	0	0	0	0
705:	0	1	0	0	0	0	0	0
713:	0	0	0	0	0	1	0	0
721:	0	0	1	0	2	0	2	0
729:	1	1	0	0	1	0	0	0
737:	0	0	2	0	1	0	0	0
745:	0	1	1	0	1	1	2	2
753:	1	1	0	1	1	0	0	0
761:	0	0	1	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	1	1	0	0	0	0	1
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801:	0	0	0	0	0	0	1	1

Sample Title: 14

Channel								
809:	0	0	0	1	1	1	0	1
817:	1	0	1	1	0	0	0	0
825:	0	2	0	3	0	1	1	2
833:	0	0	0	0	1	2	1	1
841:	0	0	3	0	1	1	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	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	1	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	1	0	0	0	1	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	1	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

KB 8/30/17

Sample Description: HTC-A04-S002-4248-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001931
Batch Identification: 1707089A-TH
Sample Identification: 15
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_046
Chamber Serial Number: 04026482B
Detector Serial Number: 58762
Env. Background: System Bkgd 194885
Reagent Blank: <not performed>

Sample Size: 1.090E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/16/2017 6:37:15 AM
Acquisition Date/Time: 8/30/2017 2:25:40 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: 0.1176 +/- 0.0121
Counting Efficiency: 0.1713 +/- 0.0029 on 11/18/2016 10:08:38 AM
Chem. Recovery Factor: 0.6861 +/- 0.0716

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

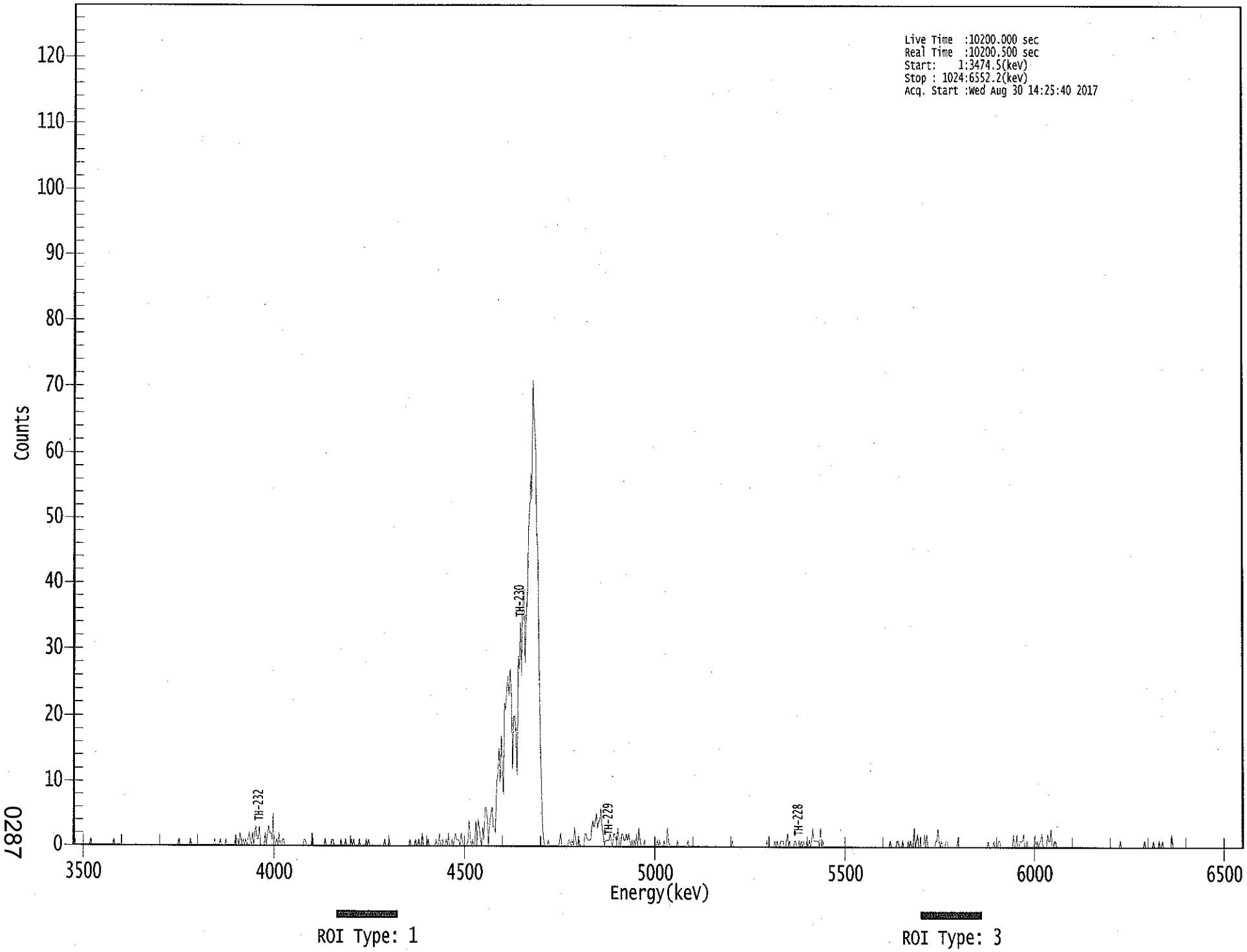
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.904	40.98	31.06	1.02	0.00E+000	4.5
TH-228		5.379	29.47	37.19	1.53	0.00E+000	4.5
TH-229	T	4.878	105.47	19.25	1.53	0.00E+000	12.0
TH-230		4.649	1266.64	5.51	1.36	0.00E+000	31.6
TH-232		3.963	49.13	28.58	1.87	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)
TH-227	0.985	5850.00*	8.77E-001 +/- 3.25E-001	1.35E-001 +/- 2.72E-002
TH-228	0.998	5400.00*	6.78E-001 +/- 2.87E-001	1.63E-001 +/- 3.30E-002
TH-229	1.000	4872.00*	2.19E+000 +/- 4.42E-001	1.48E-001 +/- 2.98E-002
TH-230	0.997	4672.00*	2.62E+001 +/- 5.49E+000	1.42E-001 +/- 2.87E-002
TH-232	0.994	3997.00*	1.02E+000 +/- 3.55E-001	1.57E-001 +/- 3.16E-002

0000193123.CNF



0287

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

369:	2	10	11	15	10	17	12	8

Sample Title: 15

Channel								
377:	22	21	24	26	23	27	23	12
385:	20	20	17	11	29	27	34	26
393:	39	39	28	35	39	48	52	57
401:	53	71	66	62	48	45	30	17
409:	10	3	1	0	0	0	1	0
417:	0	0	0	0	0	0	0	0
425:	1	2	0	0	0	0	0	0
433:	1	1	0	1	0	3	1	0
441:	1	1	0	0	0	0	2	2
449:	1	1	1	1	3	4	3	4
457:	5	3	4	4	6	3	2	0
465:	1	1	1	1	2	1	0	2
473:	2	1	1	3	0	0	2	2
481:	1	1	2	1	2	1	0	1
489:	0	1	0	2	0	3	1	0
497:	0	0	1	0	0	0	0	0
505:	0	0	0	0	0	1	0	1
513:	0	0	0	1	0	0	3	1
521:	0	0	0	0	0	0	0	1
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	0	0	0
569:	0	0	0	0	0	0	0	1
577:	0	0	0	0	0	0	0	0
585:	0	0	0	0	0	0	0	0
593:	0	0	0	0	0	0	0	0
601:	0	0	0	0	0	1	0	0
609:	0	0	0	0	1	0	1	0
617:	0	1	1	1	0	0	1	2
625:	0	1	0	0	0	1	1	0
633:	0	1	0	1	0	1	0	0
641:	1	0	1	0	1	3	1	1
649:	1	1	1	0	3	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	1	0	0	0	0	0	1
721:	1	0	0	0	1	0	0	0
729:	0	1	0	1	0	0	3	0
737:	1	2	0	0	0	0	0	2
745:	0	2	0	0	0	0	0	0
753:	0	1	1	3	1	0	1	0
761:	0	0	1	1	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	1

801:	0	0	0	0	1	0	0	0

Sample Title: 15

Channel								
809:	1	1	0	0	0	0	0	0
817:	0	0	0	0	0	2	0	0
825:	2	0	0	1	1	1	2	0
833:	0	1	0	0	0	0	0	0
841:	2	0	1	0	1	1	2	0
849:	0	0	0	2	1	1	3	0
857:	0	1	1	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	1	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	1	0	0
953:	1	0	0	0	0	0	0	0
961:	2	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 8/30/17

Sample Description: HTC-A06-S001-0006-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001931
Batch Identification: 1707089A-TH
Sample Identification: 16
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_047
Chamber Serial Number: 02030596A
Detector Serial Number: 91086
Env. Background: System Bkgd 194886
Reagent Blank: <not performed>

Sample Size: 1.250E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/16/2017 6:37:15 AM
Acquisition Date/Time: 8/30/2017 2:25:43 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: 0.0879 +/- 0.0103
Counting Efficiency: 0.1623 +/- 0.0028 on 11/18/2016 10:08:37 AM
Chem. Recovery Factor: 0.5414 +/- 0.0641

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

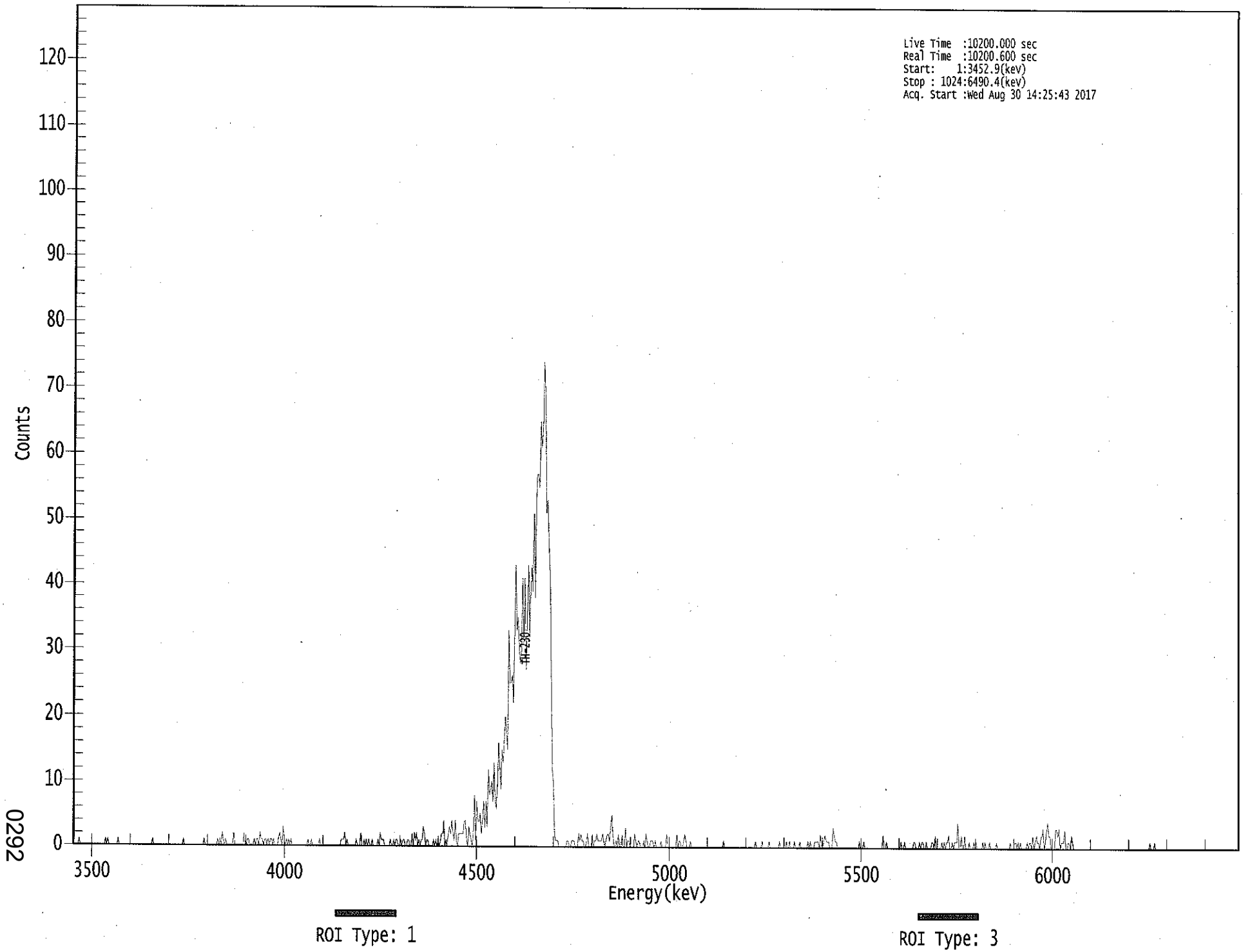
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.914	77.66	22.30	0.34	0.00E+000	3.5
TH-228		5.373	27.98	37.84	1.02	0.00E+000	5.9
TH-229	T	4.872	78.66	22.16	0.34	0.00E+000	6.2
TH-230		4.629	1937.32	4.45	0.68	0.00E+000	51.8
TH-232		3.945	37.64	32.62	1.36	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	0.979	5850.00*	1.94E+000 +/- 6.21E-001	1.19E-001 +/- 2.74E-002
TH-228	0.996	5400.00*	7.51E-001 +/- 3.32E-001	1.69E-001 +/- 3.88E-002
TH-229	1.000	4872.00*	1.91E+000 +/- 4.38E-001	1.16E-001 +/- 2.66E-002
TH-230	0.990	4672.00*	4.68E+001 +/- 1.10E+001	1.36E-001 +/- 3.13E-002
TH-232	0.986	3997.00*	9.08E-001 +/- 3.62E-001	1.65E-001 +/- 3.80E-002

0000193133.CNF



0292

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

369:	13	7	6	10	16	12	9	15

Sample Title: 16

Channel								
377:	13	16	20	18	15	33	25	25
385:	26	22	33	43	33	35	30	28
393:	30	41	31	41	27	34	43	32
401:	38	43	39	51	38	53	57	57
409:	55	65	61	64	74	69	51	53
417:	46	41	27	12	10	2	1	1
425:	1	0	0	0	0	0	0	0
433:	1	1	0	0	1	1	1	0
441:	0	0	2	1	2	1	1	0
449:	0	1	2	0	0	0	2	0
457:	1	1	2	1	1	1	1	2
465:	1	0	1	2	2	1	3	5
473:	2	0	0	1	0	2	0	0
481:	2	0	0	3	0	1	1	0
489:	0	0	0	2	1	0	1	1
497:	0	0	0	1	0	2	1	0
505:	0	1	1	1	0	1	0	0
513:	0	0	1	0	0	0	0	2
521:	0	0	0	0	0	0	0	0
529:	2	0	1	1	0	0	1	2
537:	1	0	0	0	1	0	0	0
545:	0	0	0	0	0	0	0	0
553:	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0
569:	0	1	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	1	0	0	0	0
609:	0	1	0	0	0	0	0	0
617:	0	0	1	0	0	0	0	0
625:	1	0	0	1	0	0	0	1
633:	0	0	0	0	1	0	0	0
641:	0	0	0	1	0	1	0	0
649:	0	1	1	1	1	0	2	0
657:	0	1	2	1	1	1	0	0
665:	0	3	2	1	1	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	1	0	0	0	1	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	2	0	0
713:	1	0	0	0	0	0	0	0
721:	0	0	0	0	0	1	0	0
729:	1	0	0	0	0	0	0	0
737:	1	1	0	0	0	1	0	1
745:	1	0	0	1	0	0	0	0
753:	1	1	0	2	0	0	0	0
761:	0	1	0	1	0	1	1	2
769:	0	0	1	0	1	1	1	4
777:	0	0	2	0	0	2	0	0
785:	0	1	0	0	0	1	0	1
793:	0	0	0	0	0	1	0	1

801:	0	0	0	1	0	0	0	0

Sample Title: 16

Channel								
809:	0	1	0	0	0	0	0	0
817:	0	0	0	0	0	1	0	0
825:	0	1	1	0	1	0	1	0
833:	0	0	0	0	1	0	1	1
841:	0	2	0	1	2	1	1	0
849:	2	2	3	0	1	3	4	2
857:	2	0	0	0	0	3	3	2
865:	3	0	1	1	1	3	0	0
873:	1	1	0	2	1	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	1	0	0	0	1	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 8/30/17

Sample Description: HTC-A06-S001-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001931
Batch Identification: 1707089A-TH
Sample Identification: 17
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_048
Chamber Serial Number: 02030596B
Detector Serial Number: 83111
Env. Background: System Bkgd 194887
Reagent Blank: <not performed>

Sample Size: 1.130E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/16/2017 6:37:15 AM
Acquisition Date/Time: 8/30/2017 2:25:45 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: 0.1241 +/- 0.0124
Counting Efficiency: 0.1633 +/- 0.0028 on 11/18/2016 10:08:35 AM
Chem. Recovery Factor: 0.7595 +/- 0.0771

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

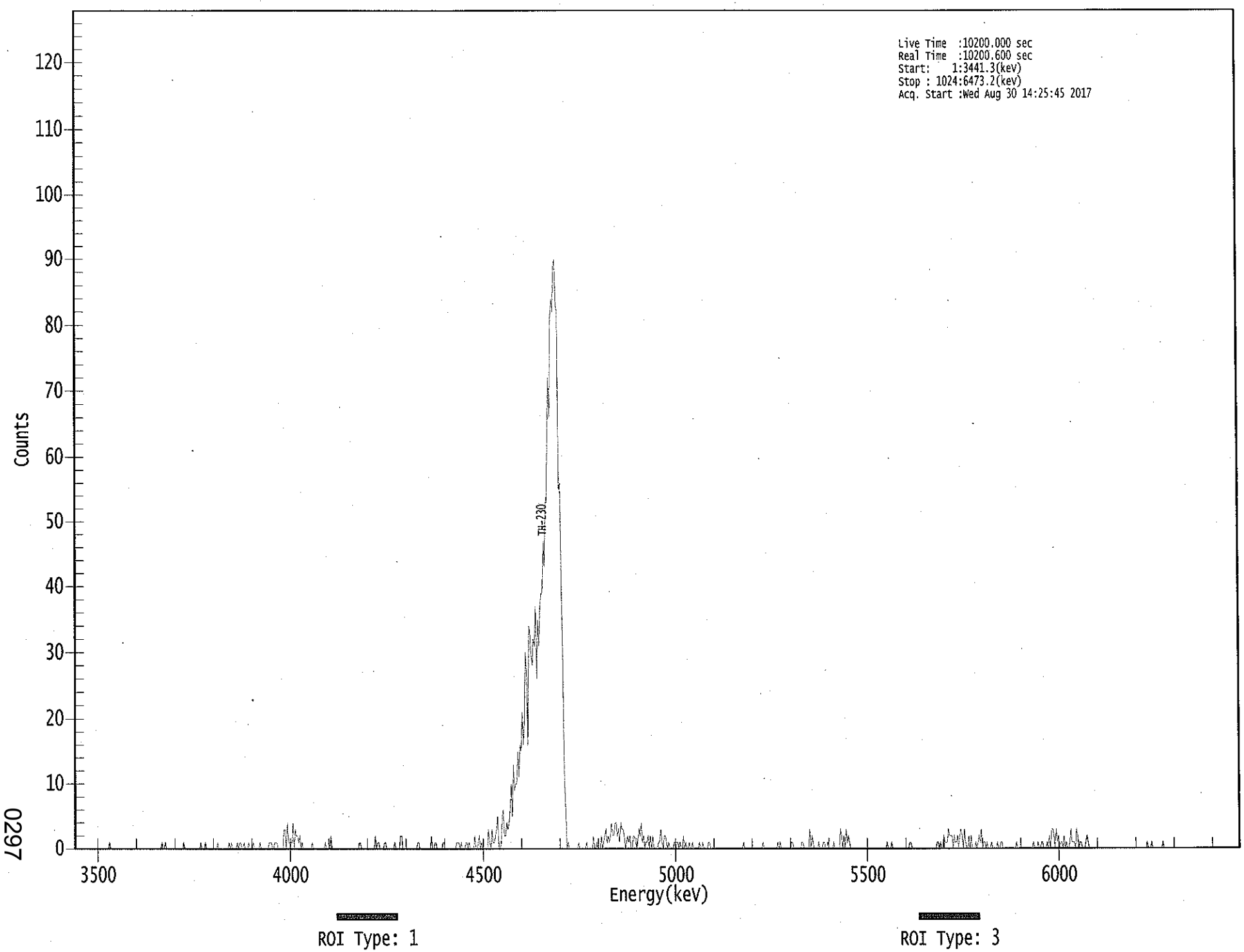
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.862	88.66	20.86	0.34	0.00E+000	11.9
TH-228		5.370	29.32	36.68	0.68	0.00E+000	3.0
TH-229	T	4.895	110.83	18.63	0.17	0.00E+000	5.9
TH-230		4.659	1927.00	4.47	0.00	0.00E+000	43.1
TH-232		3.972	46.83	28.70	0.17	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	0.999	5850.00*	1.73E+000 +/- 4.97E-001	9.35E-002 +/- 1.83E-002
TH-228	0.995	5400.00*	6.16E-001 +/- 2.56E-001	1.19E-001 +/- 2.32E-002
TH-229	0.997	4872.00*	2.10E+000 +/- 4.13E-001	7.93E-002 +/- 1.55E-002
TH-230	0.999	4672.00*	3.65E+001 +/- 7.33E+000	1.14E-001 +/- 2.23E-002
TH-232	0.997	3997.00*	8.85E-001 +/- 3.08E-001	7.89E-002 +/- 1.55E-002

0000193134.CNF



0297

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

369:	2	3	5	0	0	1	5	6

Sample Title: 17

Channel								
377:	2	2	4	3	4	6	10	5
385:	13	9	10	10	15	11	16	15
393:	21	16	20	30	26	16	34	33
401:	30	28	32	31	37	26	35	31
409:	37	39	39	47	43	53	53	63
417:	72	66	81	84	82	89	90	83
425:	82	55	56	41	28	12	6	0
433:	1	0	0	0	0	0	0	0
441:	0	1	0	0	0	0	0	0
449:	1	0	0	0	0	0	2	0
457:	0	1	0	0	0	2	0	1
465:	2	3	1	2	1	2	4	2
473:	2	4	4	2	3	1	4	3
481:	3	2	0	1	2	1	2	0
489:	0	2	2	1	0	1	3	2
497:	4	1	2	0	1	1	2	0
505:	2	0	2	0	0	0	0	1
513:	1	3	1	0	2	2	1	0
521:	1	0	0	0	0	1	1	1
529:	1	0	1	0	0	2	0	1
537:	0	0	1	0	0	1	0	0
545:	0	0	0	1	0	0	1	0
553:	0	0	0	1	1	0	0	0
561:	0	0	0	0	0	0	0	0
569:	0	0	0	0	0	0	0	0
577:	0	0	0	0	0	0	0	0
585:	0	0	1	0	0	0	0	0
593:	0	0	0	0	0	0	0	0
601:	0	0	0	1	0	0	0	0
609:	0	0	0	0	0	0	0	0
617:	1	0	1	0	0	0	0	0
625:	0	0	0	0	1	1	0	0
633:	0	0	0	0	0	1	1	0
641:	0	0	0	0	3	0	2	1
649:	0	0	0	0	1	0	0	0
657:	1	1	0	0	1	0	0	0
665:	0	1	0	0	0	0	0	3
673:	2	0	2	0	3	1	2	1
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	1	0	0	0	1	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	1	1	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	1	1	0	1
761:	0	0	2	1	1	1	3	2
769:	2	2	0	2	1	1	2	0
777:	2	3	2	0	3	1	0	0
785:	2	0	2	0	0	0	1	0
793:	1	2	1	3	0	1	1	0

801:	1	0	0	0	1	0	0	0

Sample Title: 17

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

RS 8/30/17

Sample Description: HTC-A08-S001-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001931
Batch Identification: 1707089A-TH
Sample Identification: 18
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_049
Chamber Serial Number: 10006121A
Detector Serial Number: 49
Env. Background: System Bkgd 194888
Reagent Blank: <not performed>

Sample Size: 1.070E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/16/2017 6:37:15 AM
Acquisition Date/Time: 8/30/2017 2:26:15 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: 0.1500 +/- 0.0138
Counting Efficiency: 0.1488 +/- 0.0026 on 11/18/2016 3:34:20 PM
Chem. Recovery Factor: 1.0076 +/- 0.0942

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

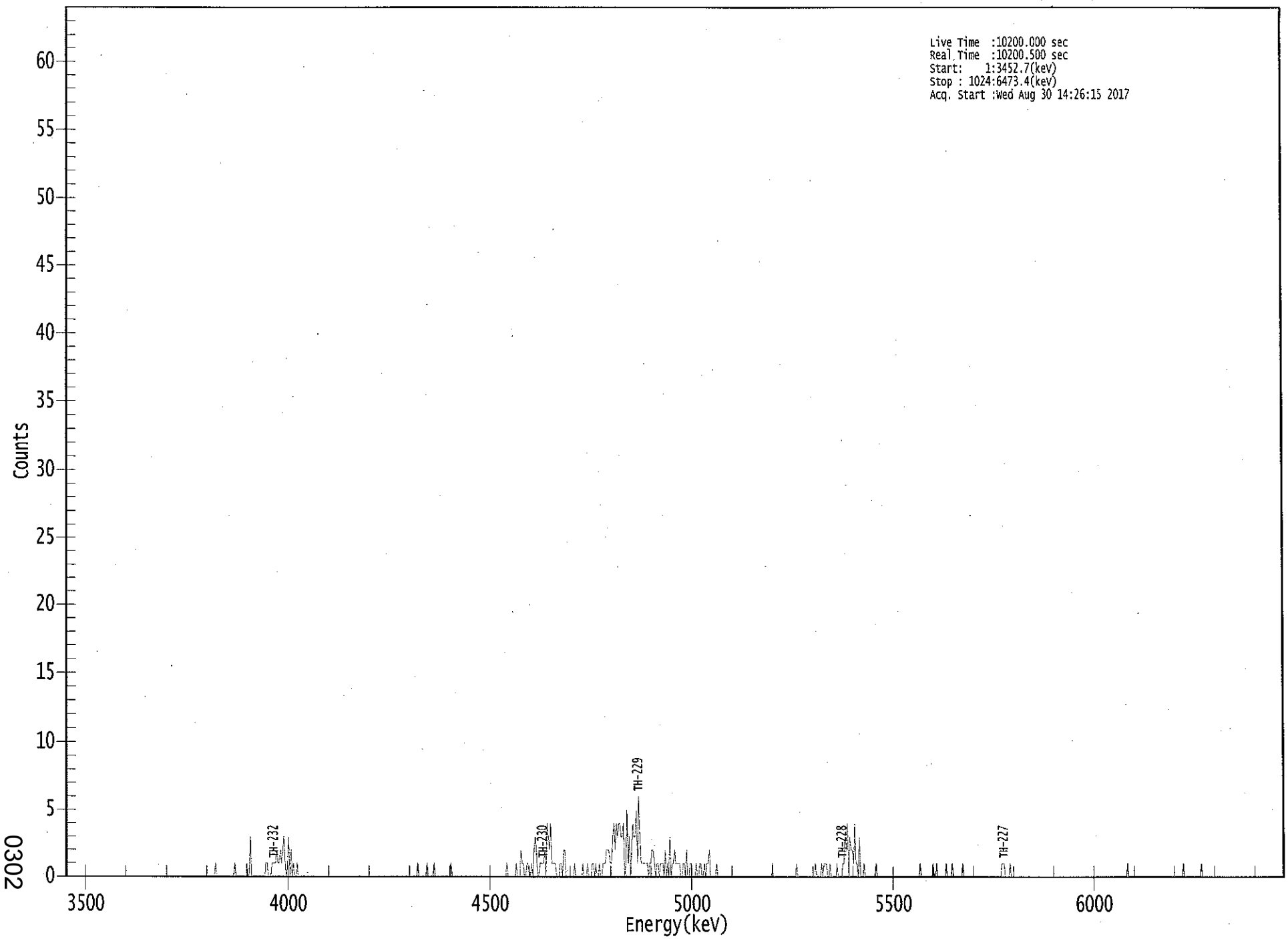
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.778	3.83	102.72	0.17	0.00E+000	8.9
TH-228		5.376	36.98	32.75	1.02	0.00E+000	4.4
TH-229	T	4.871	134.49	16.94	0.51	0.00E+000	4.7
TH-230		4.634	44.64	29.85	1.36	0.00E+000	7.4
TH-232		3.967	32.83	34.31	0.17	0.00E+000	3.0

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.973	5850.00*	6.55E-002 +/- 6.83E-002	7.13E-002 +/- 1.28E-002
TH-228	0.997	5400.00*	6.79E-001 +/- 2.54E-001	1.16E-001 +/- 2.08E-002
TH-229	1.000	4872.00*	2.23E+000 +/- 4.02E-001	8.71E-002 +/- 1.57E-002
TH-230	0.992	4672.00*	7.38E-001 +/- 2.57E-001	1.13E-001 +/- 2.04E-002
TH-232	0.995	3997.00*	5.42E-001 +/- 2.10E-001	6.89E-002 +/- 1.24E-002

0000193126.CNF



0302

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

369:	0	1	0	0	0	0	0	0

Sample Title: 18

Channel								
377:	0	1	0	0	0	2	1	1
385:	0	0	1	1	0	0	1	0
393:	2	3	2	0	0	1	1	1
401:	1	2	0	4	3	2	4	1
409:	1	1	1	0	0	0	1	1
417:	0	2	2	0	0	0	0	0
425:	0	0	1	0	0	0	0	0
433:	0	1	0	0	0	1	0	0
441:	0	1	1	0	1	0	0	1
449:	0	0	1	1	1	2	2	2
457:	1	1	3	4	2	4	3	4
465:	4	3	3	4	0	1	5	1
473:	3	0	2	4	3	3	5	1
481:	6	3	1	1	1	1	1	1
489:	0	1	1	2	2	1	0	1
497:	1	0	1	1	1	0	2	0
505:	1	0	3	0	1	1	2	1
513:	1	1	1	0	0	1	1	0
521:	2	0	0	1	1	0	0	0
529:	1	0	0	1	1	0	0	1
537:	0	1	1	2	0	0	0	0
545:	0	1	0	0	0	0	0	0
553:	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0
569:	0	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	0
601:	0	0	0	0	0	0	0	0
609:	0	0	0	0	1	0	0	0
617:	0	0	0	0	0	0	0	0
625:	0	0	0	0	1	0	0	0
633:	0	1	0	1	1	1	0	0
641:	1	0	0	0	0	0	1	0
649:	0	0	0	1	1	3	2	4
657:	0	3	2	2	1	4	1	1
665:	0	3	0	0	0	1	0	0
673:	0	0	0	0	0	0	0	1
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	1	0	0	0
721:	0	0	0	0	0	0	0	1
729:	0	0	1	0	0	0	0	0
737:	0	0	1	0	0	0	0	1
745:	0	0	0	0	0	0	0	0
753:	1	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	1	1	1	0	0	0	0
793:	1	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	1	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	1	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	1	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

KB 9/30/17

Sample Description: HTC-A08-S001-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001931
Batch Identification: 1707089A-TH
Sample Identification: 19
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_050
Chamber Serial Number: 10006121B
Detector Serial Number: 50
Env. Background: System Bkgd 194889
Reagent Blank: <not performed>

Sample Size: 1.090E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:37:15 AM
Acquisition Date/Time: 8/30/2017 2:26:18 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: 0.1494 +/- 0.0138
Counting Efficiency: 0.1433 +/- 0.0025 on 11/18/2016 3:34:18 PM
Chem. Recovery Factor: 1.0430 +/- 0.0981

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

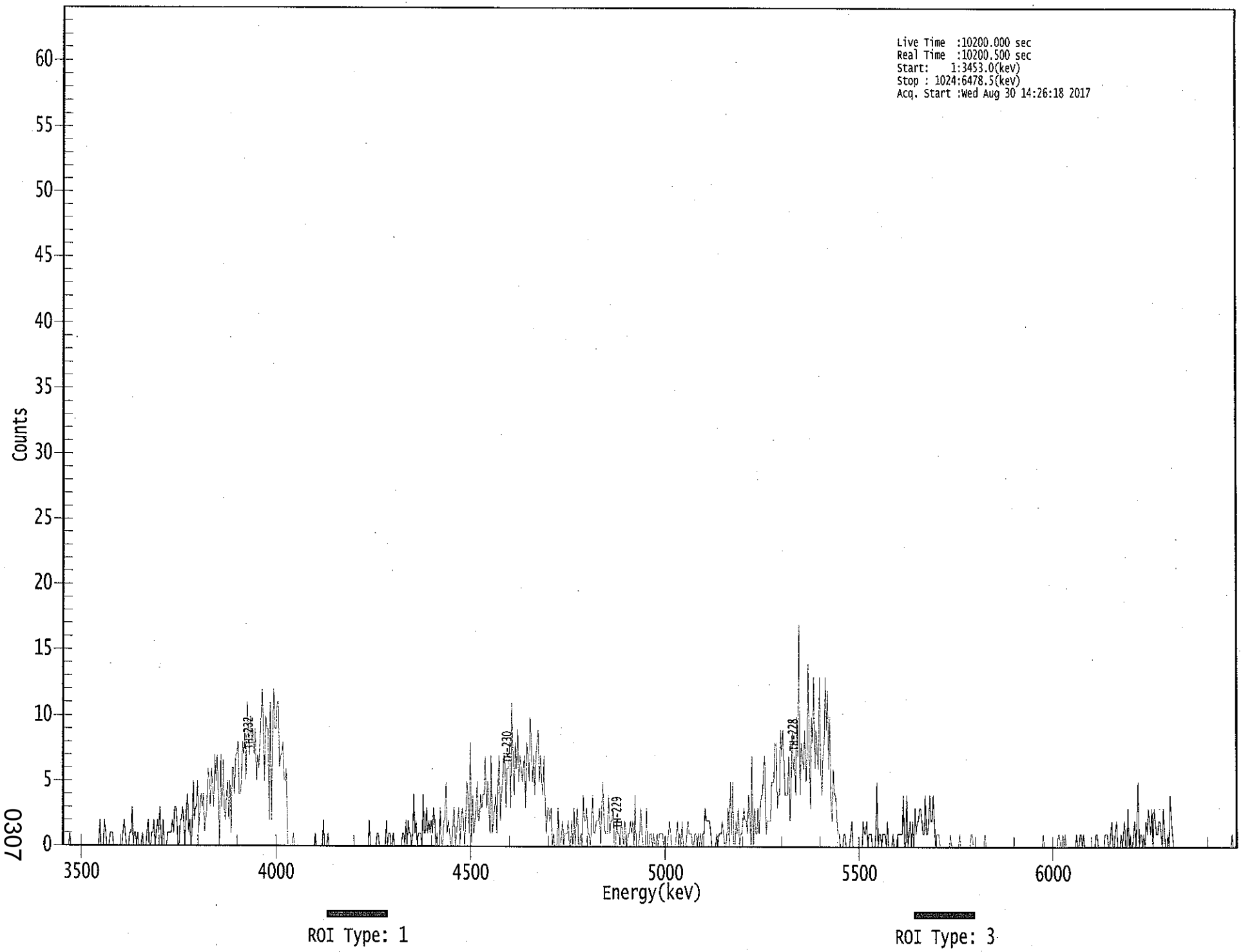
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.852	12.15	58.49	0.85	0.00E+000	8.9
TH-228		5.335	488.11	8.90	2.89	0.00E+000	4.4
TH-229	T	4.878	133.47	17.08	1.53	0.00E+000	5.9
TH-230		4.596	394.28	9.91	2.72	0.00E+000	6.5
TH-232		3.931	474.64	9.01	1.36	0.00E+000	14.0

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*	2.05E-001 +/- 1.25E-001	1.01E-001 +/- 1.83E-002
TH-228	0.978	5400.00*	8.84E+000 +/- 1.79E+000	1.59E-001 +/- 2.87E-002
TH-229	1.000	4872.00*	2.18E+000 +/- 3.96E-001	1.16E-001 +/- 2.11E-002
TH-230	0.971	4672.00*	6.43E+000 +/- 1.33E+000	1.40E-001 +/- 2.53E-002
TH-232	0.978	3997.00*	7.72E+000 +/- 1.56E+000	1.12E-001 +/- 2.02E-002

0000193127.CNF



0307

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

369:	3	5	3	1	7	1	2	3

Sample Title: 19

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

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

Apex-Alpha™

RB 8/30/17

Sample Description: HTC-A08-S001-0612-01 MSD
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001931
Batch Identification: 1707089A-TH
Sample Identification: 20
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_052
Chamber Serial Number: 10006123B
Detector Serial Number: 52
Env. Background: System Bkgd 194890
Reagent Blank: <not performed>

Sample Size: 1.060E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/16/2017 6:37:15 AM
Acquisition Date/Time: 8/30/2017 2:26:21 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: 0.1548 +/- 0.0141
Counting Efficiency: 0.1737 +/- 0.0030 on 11/18/2016 3:34:15 PM
Chem. Recovery Factor: 0.8908 +/- 0.0823

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

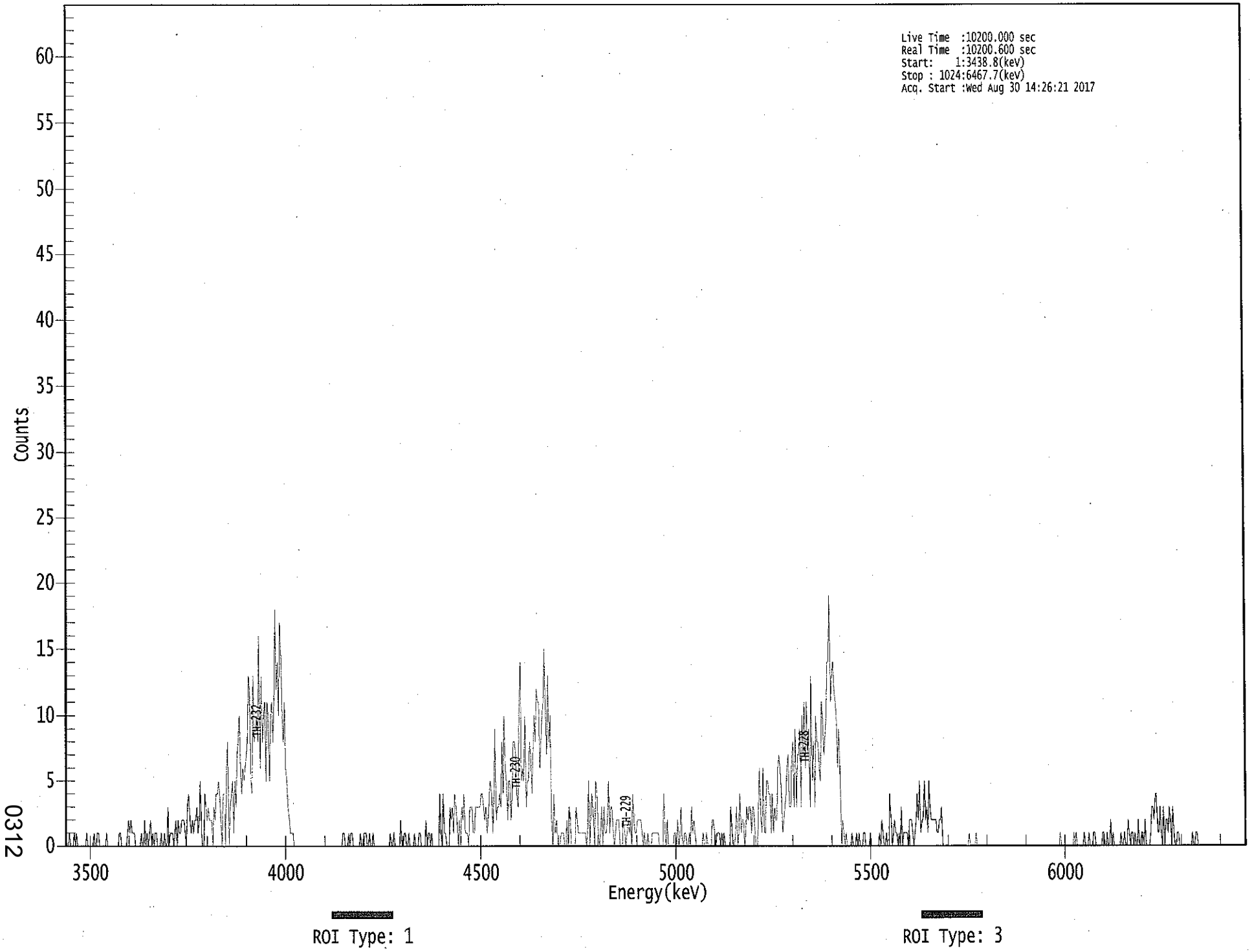
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.913	4.83	91.00	0.17	0.00E+000	3.0
TH-228		5.333	508.81	8.70	1.19	0.00E+000	27.8
TH-229	T	4.876	138.15	16.74	0.85	0.00E+000	3.3
TH-230		4.595	449.32	9.25	0.68	0.00E+000	15.1
TH-232		3.929	498.66	8.78	0.34	0.00E+000	24.2

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.979	5850.00*	8.08E-002 +/- 7.49E-002	6.98E-002 +/- 1.24E-002
TH-228	0.977	5400.00*	9.14E+000 +/- 1.81E+000	1.18E-001 +/- 2.11E-002
TH-229	1.000	4872.00*	2.24E+000 +/- 3.99E-001	9.72E-002 +/- 1.73E-002
TH-230	0.969	4672.00*	7.27E+000 +/- 1.46E+000	9.13E-002 +/- 1.62E-002
TH-232	0.976	3997.00*	8.05E+000 +/- 1.60E+000	7.72E-002 +/- 1.37E-002

0000193128.CNF



0312

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

369:	4	1	4	9	2	3	3	4

Sample Title: 20

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

801:	0	0	0	0	0	0	0	0

Sample Title: 20

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

8/30/2017 5:54:31 AM

Apex-Alpha™

QA SUMMARY REPORT

Review Of QA Results - Pulser Check

Date : 8/30/2017
Time : 5:54:31 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_001	21f	ALL	Not Done	
Alpha_002	21f	ALL	Not Done	
Alpha_003	21f	ALL	Passed	8/30/2017 5:22:20 AM
Alpha_004	21f	ALL	Passed	8/30/2017 5:22:21 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	8/30/2017 5:22:22 AM
Alpha_011	21f	ALL	Passed	8/30/2017 5:22:23 AM
Alpha_012	21f	ALL	Passed	8/30/2017 5:22:24 AM
Alpha_013	21f	ALL	Not Done	
Alpha_014	21f	ALL	Passed	8/30/2017 5:22:24 AM
Alpha_015	21f	ALL	Not Done	
Alpha_016	21f	ALL	Not Done	
Alpha_033	Alpha Analyst100DC	ALL	Passed	8/30/2017 5:22:26 AM
Alpha_034	Alpha Analyst100DC	ALL	Passed	8/30/2017 5:22:27 AM
Alpha_035	Alpha Analyst100DC	ALL	Passed	8/30/2017 5:22:29 AM
Alpha_036	Alpha Analyst100DC	ALL	Passed	8/30/2017 5:22:30 AM
Alpha_037	Alpha Analyst100DC	ALL	Passed	8/30/2017 5:22:32 AM
Alpha_038	Alpha Analyst100DC	Peak Energy	Action	8/30/2017 5:22:34 AM
Alpha_039	Alpha Analyst100DC	ALL	Passed	8/30/2017 5:22:36 AM
Alpha_040	Alpha Analyst100DC	Peak FWHM	Action	8/30/2017 5:22:38 AM
Alpha_041	Alpha Analyst100DC	ALL	Not Done	
Alpha_042	Alpha Analyst100DC	ALL	Not Done	
Alpha_043	Alpha Analyst100DC	ALL	Passed	8/30/2017 5:22:40 AM
Alpha_044	Alpha Analyst100DC	ALL	Passed	8/30/2017 5:22:43 AM
Alpha_045	Alpha Analyst100DC	ALL	Passed	8/30/2017 5:22:45 AM
Alpha_046	Alpha Analyst100DC	ALL	Passed	8/30/2017 5:22:48 AM
Alpha_047	Alpha Analyst100DC	ALL	Passed	8/30/2017 5:22:50 AM
Alpha_048	Alpha Analyst100DC	ALL	Passed	8/30/2017 5:22:53 AM
Alpha_049	Alpha Analyst100DC	ALL	Passed	8/30/2017 5:22:55 AM
Alpha_050	Alpha Analyst100DC	ALL	Passed	8/30/2017 5:22:58 AM
Alpha_051	Alpha Analyst100DC	ALL	Not Done	
Alpha_052	Alpha Analyst100DC	ALL	Passed	8/30/2017 5:23:01 AM
Alpha_053	Alpha Analyst100DC	ALL	Passed	8/30/2017 5:23:04 AM
Alpha_054	Alpha Analyst100DC	ALL	Passed	8/30/2017 5:23:06 AM
Alpha_055	Alpha Analyst100DC	ALL	Not Done	
Alpha_056	Alpha Analyst100DC	ALL	Passed	8/30/2017 5:23:09 AM
Alpha_057	Alpha Analyst100DC	ALL	Passed	8/30/2017 5:23:11 AM
Alpha_058	Alpha Analyst100DC	ALL	Passed	8/30/2017 5:23:14 AM

Review of QA Results - Pulser Check

8/30/2017 5:54:31 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_059	Alpha Analyst100DC	ALL	Passed	8/30/2017 5:23:17 AM
Alpha_060	Alpha Analyst100DC	ALL	Passed	8/30/2017 5:23:20 AM

APPROVED BY: _____

APPROVAL DATE: _____

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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

17-07089
Gamma
Run 2

Work Order	17-07089
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-A04-S001-2430-01	47	05/15/17 09:59	6.6049E+02
04	DO	HTC-A04-S001-2430-01	47	05/15/17 09:59	6.6049E+02
05	TRG	HTC-A04-S001-3036-01	44	05/15/17 09:56	6.8188E+02
06	TRG	HTC-A04-S001-3642-01	30	05/15/17 09:53	6.8862E+02
07	TRG	HTC-A04-S001-4248-01	50	05/15/17 09:50	6.6266E+02
08	TRG	HTC-A04-S002-0006-01	61	05/16/17 08:04	7.2035E+02
09	TRG	HTC-A04-S002-0612-01	82	05/16/17 08:02	8.0962E+02
10	TRG	HTC-A04-S002-1218-01	87	05/16/17 08:00	7.6491E+02
11	TRG	HTC-A04-S002-1824-01	51	05/16/17 07:58	7.7616E+02
12	TRG	HTC-A04-S002-2430-01	69	05/16/17 07:56	7.3718E+02
13	TRG	HTC-A04-S002-3036-01	110	05/16/17 07:54	7.4802E+02
14	TRG	HTC-A04-S002-3642-01	50	05/16/17 07:52	8.2946E+02
15	TRG	HTC-A04-S002-4248-01	67	05/16/17 07:50	6.6247E+02
16	TRG	HTC-A06-S001-0006-01	67	05/16/17 14:28	7.3106E+02
17	TRG	HTC-A06-S001-0612-01	76	05/16/17 14:26	6.3782E+02
18	TRG	HTC-A08-S001-0612-01	42	05/16/17 14:58	5.8903E+02

0320

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

17-07089
Gamma
Run 2

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

0321

* 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.

17-07089
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	08/02/17 06:55	KSALLINGS						
05	TRG	08/02/17 06:55	KSALLINGS						
06	TRG	08/02/17 06:55	KSALLINGS						
07	TRG	08/02/17 06:55	KSALLINGS						
08	TRG	08/02/17 06:55	KSALLINGS						
09	TRG	08/02/17 06:55	KSALLINGS						
10	TRG	08/02/17 06:55	KSALLINGS						
11	TRG	08/02/17 06:55	KSALLINGS						
12	TRG	08/02/17 06:55	KSALLINGS						
13	TRG	08/02/17 06:55	KSALLINGS						
14	TRG	08/02/17 06:55	KSALLINGS						
15	TRG	08/02/17 06:55	KSALLINGS						
16	TRG	08/02/17 06:55	KSALLINGS						
17	TRG	08/02/17 06:55	KSALLINGS						
18	TRG	08/02/17 06:55	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.

Eberline Analytical
Oak Ridge Laboratory

Preliminary Data Report & Analytical Calculations

Work Order: 17-07089-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	1.28E+02	7.63E+00	1.10E+00	1.35E+02	94.38	OK		07/19/17 00:00	1.00E+00	08/23/17 11:19	YES
01	CS-137	LCS	LCS	pCi/g	8.27E+01	7.50E+00	1.28E+00	8.44E+01	97.99	OK		07/19/17 00:00	1.00E+00	08/23/17 11:19	YES
02	AC-228	MBL	BLANK	pCi/g	6.41E-02	5.05E-02	1.15E-01					07/19/17 00:00	1.00E+00	08/23/17 11:19	NO
02	BI-212	MBL	BLANK	pCi/g	-1.05E-01	1.70E-01	2.19E-01					07/19/17 00:00	1.00E+00	08/23/17 11:19	NO
02	RA-226	MBL	BLANK	pCi/g	3.39E-02	4.34E-02	7.64E-02					07/19/17 00:00	1.00E+00	08/23/17 11:19	NO
02	CS-137	MBL	BLANK	pCi/g	6.59E-03	2.03E-02	3.36E-02					07/19/17 00:00	1.00E+00	08/23/17 11:19	NO
02	K-40	MBL	BLANK	pCi/g	-1.29E-01	2.69E-01	2.76E-01					07/19/17 00:00	1.00E+00	08/23/17 11:19	NO
02	PA-234M	MBL	BLANK	pCi/g	-1.88E-01	2.21E+00	3.53E+00					07/19/17 00:00	1.00E+00	08/23/17 11:19	NO
02	PB-212	MBL	BLANK	pCi/g	3.12E-02	3.20E-02	4.87E-02					07/19/17 00:00	1.00E+00	08/23/17 11:19	NO
02	RA-224	MBL	BLANK	pCi/g	5.62E-02	4.29E-01	5.66E-01					07/19/17 00:00	1.00E+00	08/23/17 11:19	NO
02	RA-228	MBL	BLANK	pCi/g	6.41E-02	5.05E-02	1.15E-01					07/19/17 00:00	1.00E+00	08/23/17 11:19	NO
02	TH-234	MBL	BLANK	pCi/g	3.63E-01	2.85E-01	4.81E-01					07/19/17 00:00	1.00E+00	08/23/17 11:19	NO
02	TL-208	MBL	BLANK	pCi/g	1.55E-02	4.78E-02	8.91E-02					07/19/17 00:00	1.00E+00	08/23/17 11:19	NO
03	AC-228	DUP	HTC-A04-S001-2430-01	pCi/g	1.07E+00	2.13E-01	3.43E-01				NA	05/15/17 09:59	6.60E+02	08/23/17 07:05	YES
03	BI-212	DUP	HTC-A04-S001-2430-01	pCi/g	7.16E-01	4.51E-01	7.15E-01					05/15/17 09:59	6.60E+02	08/23/17 07:05	YES
03	RA-226	DUP	HTC-A04-S001-2430-01	pCi/g	1.02E+00	1.54E-01	2.17E-01				NA	05/15/17 09:59	6.60E+02	08/23/17 07:05	YES
03	CS-137	DUP	HTC-A04-S001-2430-01	pCi/g	-1.43E-02	5.26E-02	7.73E-02					05/15/17 09:59	6.60E+02	08/23/17 07:05	NO
03	K-40	DUP	HTC-A04-S001-2430-01	pCi/g	2.78E+01	3.11E+00	1.30E+00				NA	05/15/17 09:59	6.60E+02	08/23/17 07:05	YES
03	PA-234M	DUP	HTC-A04-S001-2430-01	pCi/g	2.55E+00	5.04E+00	8.13E+00					05/15/17 09:59	6.60E+02	08/23/17 07:05	NO
03	PB-212	DUP	HTC-A04-S001-2430-01	pCi/g	1.28E+00	1.39E-01	2.05E-01					05/15/17 09:59	6.60E+02	08/23/17 07:05	YES
03	RA-224	DUP	HTC-A04-S001-2430-01	pCi/g	2.41E+00	8.17E-01	2.31E+00					05/15/17 09:59	6.60E+02	08/23/17 07:05	YES
03	RA-228	DUP	HTC-A04-S001-2430-01	pCi/g	1.07E+00	2.13E-01	3.43E-01					05/15/17 09:59	6.60E+02	08/23/17 07:05	YES
03	TH-234	DUP	HTC-A04-S001-2430-01	pCi/g	1.31E+00	1.42E+00	2.37E+00					05/15/17 09:59	6.60E+02	08/23/17 07:05	YES
03	TL-208	DUP	HTC-A04-S001-2430-01	pCi/g	1.18E+00	1.70E-01	1.62E-01					05/15/17 09:59	6.60E+02	08/23/17 07:05	YES
04	AC-228	DO	HTC-A04-S001-2430-01	pCi/g	1.44E+00	2.27E-01	4.01E-01					05/15/17 09:59	6.60E+02	08/23/17 08:11	YES
04	BI-212	DO	HTC-A04-S001-2430-01	pCi/g	8.93E-01	4.00E-01	1.42E+00					05/15/17 09:59	6.60E+02	08/23/17 08:11	YES
04	RA-226	DO	HTC-A04-S001-2430-01	pCi/g	1.09E+00	1.59E-01	1.92E-01					05/15/17 09:59	6.60E+02	08/23/17 08:11	YES
04	CS-137	DO	HTC-A04-S001-2430-01	pCi/g	-1.34E-02	5.68E-02	8.33E-02					05/15/17 09:59	6.60E+02	08/23/17 08:11	NO
04	K-40	DO	HTC-A04-S001-2430-01	pCi/g	3.01E+01	3.26E+00	7.20E-01					05/15/17 09:59	6.60E+02	08/23/17 08:11	YES
04	PA-234M	DO	HTC-A04-S001-2430-01	pCi/g	1.56E+00	5.09E+00	8.13E+00					05/15/17 09:59	6.60E+02	08/23/17 08:11	NO
04	PB-212	DO	HTC-A04-S001-2430-01	pCi/g	1.13E+00	1.30E-01	2.09E-01					05/15/17 09:59	6.60E+02	08/23/17 08:11	YES
04	RA-224	DO	HTC-A04-S001-2430-01	pCi/g	2.46E+00	8.13E-01	2.36E+00					05/15/17 09:59	6.60E+02	08/23/17 08:11	YES
04	RA-228	DO	HTC-A04-S001-2430-01	pCi/g	1.44E+00	2.27E-01	4.01E-01					05/15/17 09:59	6.60E+02	08/23/17 08:11	YES
04	TH-234	DO	HTC-A04-S001-2430-01	pCi/g	1.17E+00	1.27E+00	2.12E+00					05/15/17 09:59	6.60E+02	08/23/17 08:11	YES
04	TL-208	DO	HTC-A04-S001-2430-01	pCi/g	1.15E+00	1.68E-01	1.02E-01					05/15/17 09:59	6.60E+02	08/23/17 08:11	YES
05	AC-228	TRG	HTC-A04-S001-3036-01	pCi/g	1.19E+00	2.43E-01	3.69E-01					05/15/17 09:56	6.82E+02	08/23/17 07:05	YES
05	BI-212	TRG	HTC-A04-S001-3036-01	pCi/g	9.12E-01	5.95E-01	9.52E-01					05/15/17 09:56	6.82E+02	08/23/17 07:05	YES
05	RA-226	TRG	HTC-A04-S001-3036-01	pCi/g	9.95E-01	1.68E-01	2.21E-01					05/15/17 09:56	6.82E+02	08/23/17 07:05	YES

0323

Work Order: 17-07089-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-A04-S001-3036-01	pCi/g	-2.12E-03	6.36E-02	9.52E-02					05/15/17 09:56	6.82E+02	08/23/17 07:05	NO
05	K-40	TRG	HTC-A04-S001-3036-01	pCi/g	2.60E+01	2.83E+00	6.75E-01					05/15/17 09:56	6.82E+02	08/23/17 07:05	YES
05	PA-234M	TRG	HTC-A04-S001-3036-01	pCi/g	2.76E+00	6.53E+00	1.05E+01					05/15/17 09:56	6.82E+02	08/23/17 07:05	NO
05	PB-212	TRG	HTC-A04-S001-3036-01	pCi/g	1.32E+00	1.61E-01	2.58E-01					05/15/17 09:56	6.82E+02	08/23/17 07:05	YES
05	RA-224	TRG	HTC-A04-S001-3036-01	pCi/g	3.02E+00	1.39E+00	2.92E+00					05/15/17 09:56	6.82E+02	08/23/17 07:05	YES
05	RA-228	TRG	HTC-A04-S001-3036-01	pCi/g	1.19E+00	2.43E-01	3.69E-01					05/15/17 09:56	6.82E+02	08/23/17 07:05	YES
05	TH-234	TRG	HTC-A04-S001-3036-01	pCi/g	1.59E+00	1.64E+00	2.75E+00					05/15/17 09:56	6.82E+02	08/23/17 07:05	YES
05	TL-208	TRG	HTC-A04-S001-3036-01	pCi/g	1.08E+00	1.68E-01	1.75E-01					05/15/17 09:56	6.82E+02	08/23/17 07:05	YES
06	AC-228	TRG	HTC-A04-S001-3642-01	pCi/g	1.06E+00	3.12E-01	5.08E-01					05/15/17 09:53	6.89E+02	08/23/17 07:05	YES
06	BI-212	TRG	HTC-A04-S001-3642-01	pCi/g	7.47E-01	7.03E-01	1.15E+00					05/15/17 09:53	6.89E+02	08/23/17 07:05	YES
06	RA-226	TRG	HTC-A04-S001-3642-01	pCi/g	9.97E-01	1.79E-01	3.78E-01					05/15/17 09:53	6.89E+02	08/23/17 07:05	YES
06	CS-137	TRG	HTC-A04-S001-3642-01	pCi/g	-4.89E-03	9.42E-02	1.30E-01					05/15/17 09:53	6.89E+02	08/23/17 07:05	NO
06	K-40	TRG	HTC-A04-S001-3642-01	pCi/g	2.54E+01	3.06E+00	8.57E-01					05/15/17 09:53	6.89E+02	08/23/17 07:05	YES
06	PA-234M	TRG	HTC-A04-S001-3642-01	pCi/g	6.99E+00	8.43E+00	1.55E+01					05/15/17 09:53	6.89E+02	08/23/17 07:05	YES
06	PB-212	TRG	HTC-A04-S001-3642-01	pCi/g	1.50E+00	2.30E-01	2.82E-01					05/15/17 09:53	6.89E+02	08/23/17 07:05	YES
06	RA-224	TRG	HTC-A04-S001-3642-01	pCi/g	1.52E+01	2.07E+00	3.16E+00					05/15/17 09:53	6.89E+02	08/23/17 07:05	NO
06	RA-228	TRG	HTC-A04-S001-3642-01	pCi/g	1.06E+00	3.12E-01	5.08E-01					05/15/17 09:53	6.89E+02	08/23/17 07:05	YES
06	TH-234	TRG	HTC-A04-S001-3642-01	pCi/g	6.35E-01	1.31E+00	1.92E+00					05/15/17 09:53	6.89E+02	08/23/17 07:05	NO
06	TL-208	TRG	HTC-A04-S001-3642-01	pCi/g	1.13E+00	2.58E-01	2.73E-01					05/15/17 09:53	6.89E+02	08/23/17 07:05	YES
07	AC-228	TRG	HTC-A04-S001-4248-01	pCi/g	1.30E+00	1.83E-01	3.98E-01					05/15/17 09:50	6.63E+02	08/23/17 08:11	YES
07	BI-212	TRG	HTC-A04-S001-4248-01	pCi/g	8.42E-01	4.77E-01	7.49E-01					05/15/17 09:50	6.63E+02	08/23/17 08:11	YES
07	RA-226	TRG	HTC-A04-S001-4248-01	pCi/g	1.08E+00	1.57E-01	2.17E-01					05/15/17 09:50	6.63E+02	08/23/17 08:11	YES
07	CS-137	TRG	HTC-A04-S001-4248-01	pCi/g	-2.54E-02	4.98E-02	7.08E-02					05/15/17 09:50	6.63E+02	08/23/17 08:11	NO
07	K-40	TRG	HTC-A04-S001-4248-01	pCi/g	2.55E+01	2.64E+00	1.48E+00					05/15/17 09:50	6.63E+02	08/23/17 08:11	YES
07	PA-234M	TRG	HTC-A04-S001-4248-01	pCi/g	2.16E+00	4.76E+00	7.66E+00					05/15/17 09:50	6.63E+02	08/23/17 08:11	NO
07	PB-212	TRG	HTC-A04-S001-4248-01	pCi/g	1.21E+00	1.37E-01	2.80E-01					05/15/17 09:50	6.63E+02	08/23/17 08:11	YES
07	RA-224	TRG	HTC-A04-S001-4248-01	pCi/g	4.46E+00	1.56E+00	3.24E+00					05/15/17 09:50	6.63E+02	08/23/17 08:11	YES
07	RA-228	TRG	HTC-A04-S001-4248-01	pCi/g	1.30E+00	1.83E-01	3.98E-01					05/15/17 09:50	6.63E+02	08/23/17 08:11	YES
07	TH-234	TRG	HTC-A04-S001-4248-01	pCi/g	2.35E+00	1.13E+00	1.55E+00					05/15/17 09:50	6.63E+02	08/23/17 08:11	NO
07	TL-208	TRG	HTC-A04-S001-4248-01	pCi/g	1.20E+00	1.78E-01	1.94E-01					05/15/17 09:50	6.63E+02	08/23/17 08:11	YES
08	AC-228	TRG	HTC-A04-S002-0006-01	pCi/g	4.26E-01	5.45E-01	8.25E-01					05/16/17 08:04	7.20E+02	08/23/17 08:11	NO
08	BI-212	TRG	HTC-A04-S002-0006-01	pCi/g	2.51E-01	9.24E-01	1.55E+00					05/16/17 08:04	7.20E+02	08/23/17 08:11	NO
08	RA-226	TRG	HTC-A04-S002-0006-01	pCi/g	3.65E+01	1.88E+00	7.83E-01					05/16/17 08:04	7.20E+02	08/23/17 08:11	YES
08	CS-137	TRG	HTC-A04-S002-0006-01	pCi/g	-2.56E-01	1.75E-01	2.32E-01					05/16/17 08:04	7.20E+02	08/23/17 08:11	NO
08	K-40	TRG	HTC-A04-S002-0006-01	pCi/g	5.64E+00	2.41E+00	3.81E+00					05/16/17 08:04	7.20E+02	08/23/17 08:11	YES
08	PA-234M	TRG	HTC-A04-S002-0006-01	pCi/g	3.58E+01	1.79E+01	2.87E+01					05/16/17 08:04	7.20E+02	08/23/17 08:11	YES
08	PB-212	TRG	HTC-A04-S002-0006-01	pCi/g	4.81E-01	2.69E-01	7.97E-01					05/16/17 08:04	7.20E+02	08/23/17 08:11	YES
08	RA-224	TRG	HTC-A04-S002-0006-01	pCi/g	6.81E+01	6.87E+00	7.02E+00					05/16/17 08:04	7.20E+02	08/23/17 08:11	NO

Preliminary Data Report & Analytical Calculations

Work Order: 17-07089-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-A04-S002-0006-01	pCi/g	4.26E-01	5.45E-01	8.25E-01					05/16/17 08:04	7.20E+02	08/23/17 08:11	NO
08	TH-234	TRG	HTC-A04-S002-0006-01	pCi/g	2.83E+01	3.99E+00	5.49E+00					05/16/17 08:04	7.20E+02	08/23/17 08:11	YES
08	TL-208	TRG	HTC-A04-S002-0006-01	pCi/g	9.93E-01	4.37E-01	3.49E-01					05/16/17 08:04	7.20E+02	08/23/17 08:11	NO
09	AC-228	TRG	HTC-A04-S002-0612-01	pCi/g	1.83E-01	7.24E-01	9.77E-01					05/16/17 08:02	8.10E+02	08/23/17 08:12	NO
09	BI-212	TRG	HTC-A04-S002-0612-01	pCi/g	-1.10E+00	1.46E+00	1.87E+00					05/16/17 08:02	8.10E+02	08/23/17 08:12	NO
09	RA-226	TRG	HTC-A04-S002-0612-01	pCi/g	3.00E+01	1.80E+00	6.11E-01					05/16/17 08:02	8.10E+02	08/23/17 08:12	YES
09	CS-137	TRG	HTC-A04-S002-0612-01	pCi/g	-1.13E-02	6.08E-02	2.82E-01					05/16/17 08:02	8.10E+02	08/23/17 08:12	NO
09	K-40	TRG	HTC-A04-S002-0612-01	pCi/g	3.72E+00	2.28E+00	3.68E+00					05/16/17 08:02	8.10E+02	08/23/17 08:12	YES
09	PA-234M	TRG	HTC-A04-S002-0612-01	pCi/g	2.25E+01	1.95E+01	3.23E+01					05/16/17 08:02	8.10E+02	08/23/17 08:12	YES
09	PB-212	TRG	HTC-A04-S002-0612-01	pCi/g	1.02E-01	1.28E-01	5.48E-01					05/16/17 08:02	8.10E+02	08/23/17 08:12	NO
09	RA-224	TRG	HTC-A04-S002-0612-01	pCi/g	5.82E+01	6.14E+00	6.69E+00					05/16/17 08:02	8.10E+02	08/23/17 08:12	NO
09	RA-228	TRG	HTC-A04-S002-0612-01	pCi/g	1.83E-01	7.24E-01	9.77E-01					05/16/17 08:02	8.10E+02	08/23/17 08:12	NO
09	TH-234	TRG	HTC-A04-S002-0612-01	pCi/g	1.74E+01	3.91E+00	6.05E+00					05/16/17 08:02	8.10E+02	08/23/17 08:12	YES
09	TL-208	TRG	HTC-A04-S002-0612-01	pCi/g	5.87E-01	4.75E-01	5.61E-01					05/16/17 08:02	8.10E+02	08/23/17 08:12	NO
10	AC-228	TRG	HTC-A04-S002-1218-01	pCi/g	2.40E-01	3.71E-01	5.57E-01					05/16/17 08:00	7.65E+02	08/23/17 09:16	NO
10	BI-212	TRG	HTC-A04-S002-1218-01	pCi/g	1.23E-01	6.86E-01	1.12E+00					05/16/17 08:00	7.65E+02	08/23/17 09:16	NO
10	RA-226	TRG	HTC-A04-S002-1218-01	pCi/g	3.29E+01	1.64E+00	6.24E-01					05/16/17 08:00	7.65E+02	08/23/17 09:16	YES
10	CS-137	TRG	HTC-A04-S002-1218-01	pCi/g	5.09E-02	4.31E-02	1.74E-01					05/16/17 08:00	7.65E+02	08/23/17 09:16	YES
10	K-40	TRG	HTC-A04-S002-1218-01	pCi/g	4.36E+00	1.40E+00	2.11E+00					05/16/17 08:00	7.65E+02	08/23/17 09:16	YES
10	PA-234M	TRG	HTC-A04-S002-1218-01	pCi/g	4.76E+01	1.50E+01	2.30E+01					05/16/17 08:00	7.65E+02	08/23/17 09:16	YES
10	PB-212	TRG	HTC-A04-S002-1218-01	pCi/g	4.38E-01	1.94E-01	6.72E-01					05/16/17 08:00	7.65E+02	08/23/17 09:16	YES
10	RA-224	TRG	HTC-A04-S002-1218-01	pCi/g	6.48E+01	5.83E+00	7.63E+00					05/16/17 08:00	7.65E+02	08/23/17 09:16	YES
10	RA-228	TRG	HTC-A04-S002-1218-01	pCi/g	2.40E-01	3.71E-01	5.57E-01					05/16/17 08:00	7.65E+02	08/23/17 09:16	NO
10	TH-234	TRG	HTC-A04-S002-1218-01	pCi/g	2.67E+01	3.63E+00	4.58E+00					05/16/17 08:00	7.65E+02	08/23/17 09:16	YES
10	TL-208	TRG	HTC-A04-S002-1218-01	pCi/g	3.58E-01	1.14E-01	8.97E-02					05/16/17 08:00	7.65E+02	08/23/17 09:16	YES
11	AC-228	TRG	HTC-A04-S002-1824-01	pCi/g	6.70E-01	3.30E-01	7.16E-01					05/16/17 07:58	7.76E+02	08/23/17 09:16	YES
11	BI-212	TRG	HTC-A04-S002-1824-01	pCi/g	7.62E-01	8.17E-01	1.36E+00					05/16/17 07:58	7.76E+02	08/23/17 09:16	YES
11	RA-226	TRG	HTC-A04-S002-1824-01	pCi/g	2.66E+01	1.33E+00	3.87E-01					05/16/17 07:58	7.76E+02	08/23/17 09:16	YES
11	CS-137	TRG	HTC-A04-S002-1824-01	pCi/g	2.08E-02	4.04E-02	1.54E-01					05/16/17 07:58	7.76E+02	08/23/17 09:16	NO
11	K-40	TRG	HTC-A04-S002-1824-01	pCi/g	6.59E+00	1.64E+00	2.31E+00					05/16/17 07:58	7.76E+02	08/23/17 09:16	YES
11	PA-234M	TRG	HTC-A04-S002-1824-01	pCi/g	3.71E+01	1.29E+01	1.97E+01					05/16/17 07:58	7.76E+02	08/23/17 09:16	YES
11	PB-212	TRG	HTC-A04-S002-1824-01	pCi/g	3.50E-01	1.03E-01	4.47E-01					05/16/17 07:58	7.76E+02	08/23/17 09:16	YES
11	RA-224	TRG	HTC-A04-S002-1824-01	pCi/g	5.20E+01	4.89E+00	5.16E+00					05/16/17 07:58	7.76E+02	08/23/17 09:16	NO
11	RA-228	TRG	HTC-A04-S002-1824-01	pCi/g	6.70E-01	3.30E-01	7.16E-01					05/16/17 07:58	7.76E+02	08/23/17 09:16	YES
11	TH-234	TRG	HTC-A04-S002-1824-01	pCi/g	1.67E+01	3.41E+00	5.20E+00					05/16/17 07:58	7.76E+02	08/23/17 09:16	YES
11	TL-208	TRG	HTC-A04-S002-1824-01	pCi/g	4.90E-01	1.18E-01	8.71E-02					05/16/17 07:58	7.76E+02	08/23/17 09:16	YES
12	AC-228	TRG	HTC-A04-S002-2430-01	pCi/g	6.70E-02	2.19E-01	7.83E-01					05/16/17 07:56	7.37E+02	08/23/17 09:16	NO
12	BI-212	TRG	HTC-A04-S002-2430-01	pCi/g	-3.32E-01	9.11E-01	1.48E+00					05/16/17 07:56	7.37E+02	08/23/17 09:16	NO

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Preliminary Data Report & Analytical Calculations

Work Order: 17-07089-Gamma-2

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
12	RA-226	TRG	HTC-A04-S002-2430-01	pCi/g	3.56E+01	1.84E+00	5.91E-01					05/16/17 07:56	7.37E+02	08/23/17 09:16	YES
12	CS-137	TRG	HTC-A04-S002-2430-01	pCi/g	-1.61E-01	1.71E-01	2.36E-01					05/16/17 07:56	7.37E+02	08/23/17 09:16	NO
12	K-40	TRG	HTC-A04-S002-2430-01	pCi/g	5.69E+00	2.25E+00	3.52E+00					05/16/17 07:56	7.37E+02	08/23/17 09:16	YES
12	PA-234M	TRG	HTC-A04-S002-2430-01	pCi/g	3.49E+01	1.67E+01	3.43E+01					05/16/17 07:56	7.37E+02	08/23/17 09:16	YES
12	PB-212	TRG	HTC-A04-S002-2430-01	pCi/g	4.60E-01	2.66E-01	8.34E-01					05/16/17 07:56	7.37E+02	08/23/17 09:16	YES
12	RA-224	TRG	HTC-A04-S002-2430-01	pCi/g	6.58E+01	6.68E+00	6.88E+00					05/16/17 07:56	7.37E+02	08/23/17 09:16	NO
12	RA-228	TRG	HTC-A04-S002-2430-01	pCi/g	6.70E-02	2.19E-01	7.83E-01					05/16/17 07:56	7.37E+02	08/23/17 09:16	NO
12	TH-234	TRG	HTC-A04-S002-2430-01	pCi/g	3.22E+01	4.10E+00	5.36E+00					05/16/17 07:56	7.37E+02	08/23/17 09:16	YES
12	TL-208	TRG	HTC-A04-S002-2430-01	pCi/g	1.34E-01	4.30E-01	3.18E-01					05/16/17 07:56	7.37E+02	08/23/17 09:16	NO
13	AC-228	TRG	HTC-A04-S002-3036-01	pCi/g	6.01E-01	7.62E-01	1.07E+00					05/16/17 07:54	7.48E+02	08/23/17 09:17	NO
13	BI-212	TRG	HTC-A04-S002-3036-01	pCi/g	2.77E-01	1.55E+00	2.10E+00					05/16/17 07:54	7.48E+02	08/23/17 09:17	NO
13	RA-226	TRG	HTC-A04-S002-3036-01	pCi/g	3.31E+01	1.98E+00	7.88E-01					05/16/17 07:54	7.48E+02	08/23/17 09:17	YES
13	CS-137	TRG	HTC-A04-S002-3036-01	pCi/g	3.05E-01	2.24E-01	3.16E-01					05/16/17 07:54	7.48E+02	08/23/17 09:17	NO
13	K-40	TRG	HTC-A04-S002-3036-01	pCi/g	7.41E+00	3.26E+00	5.16E+00					05/16/17 07:54	7.48E+02	08/23/17 09:17	YES
13	PA-234M	TRG	HTC-A04-S002-3036-01	pCi/g	4.95E+01	2.68E+01	4.33E+01					05/16/17 07:54	7.48E+02	08/23/17 09:17	YES
13	PB-212	TRG	HTC-A04-S002-3036-01	pCi/g	1.37E+00	4.04E-01	5.84E-01					05/16/17 07:54	7.48E+02	08/23/17 09:17	NO
13	RA-224	TRG	HTC-A04-S002-3036-01	pCi/g	6.40E+01	7.60E+00	8.50E+00					05/16/17 07:54	7.48E+02	08/23/17 09:17	YES
13	RA-228	TRG	HTC-A04-S002-3036-01	pCi/g	6.01E-01	7.62E-01	1.07E+00					05/16/17 07:54	7.48E+02	08/23/17 09:17	NO
13	TH-234	TRG	HTC-A04-S002-3036-01	pCi/g	2.48E+01	4.33E+00	6.35E+00					05/16/17 07:54	7.48E+02	08/23/17 09:17	YES
13	TL-208	TRG	HTC-A04-S002-3036-01	pCi/g	5.03E-01	5.08E-01	5.98E-01					05/16/17 07:54	7.48E+02	08/23/17 09:17	NO
14	AC-228	TRG	HTC-A04-S002-3642-01	pCi/g	3.48E-01	2.71E-01	4.57E-01					05/16/17 07:52	8.29E+02	08/23/17 10:17	NO
14	BI-212	TRG	HTC-A04-S002-3642-01	pCi/g	2.20E-01	6.10E-01	9.11E-01					05/16/17 07:52	8.29E+02	08/23/17 10:17	NO
14	RA-226	TRG	HTC-A04-S002-3642-01	pCi/g	2.24E+01	1.18E+00	4.77E-01					05/16/17 07:52	8.29E+02	08/23/17 10:17	YES
14	CS-137	TRG	HTC-A04-S002-3642-01	pCi/g	-1.47E-01	1.04E-01	1.39E-01					05/16/17 07:52	8.29E+02	08/23/17 10:17	NO
14	K-40	TRG	HTC-A04-S002-3642-01	pCi/g	6.43E+00	1.57E+00	2.27E+00					05/16/17 07:52	8.29E+02	08/23/17 10:17	YES
14	PA-234M	TRG	HTC-A04-S002-3642-01	pCi/g	2.04E+01	1.19E+01	1.92E+01					05/16/17 07:52	8.29E+02	08/23/17 10:17	YES
14	PB-212	TRG	HTC-A04-S002-3642-01	pCi/g	4.36E-01	9.26E-02	3.24E-01					05/16/17 07:52	8.29E+02	08/23/17 10:17	YES
14	RA-224	TRG	HTC-A04-S002-3642-01	pCi/g	4.01E+01	3.87E+00	3.96E+00					05/16/17 07:52	8.29E+02	08/23/17 10:17	YES
14	RA-228	TRG	HTC-A04-S002-3642-01	pCi/g	3.48E-01	2.71E-01	4.57E-01					05/16/17 07:52	8.29E+02	08/23/17 10:17	NO
14	TH-234	TRG	HTC-A04-S002-3642-01	pCi/g	1.47E+01	2.67E+00	3.85E+00					05/16/17 07:52	8.29E+02	08/23/17 10:17	YES
14	TL-208	TRG	HTC-A04-S002-3642-01	pCi/g	5.41E-01	1.33E-01	1.17E-01					05/16/17 07:52	8.29E+02	08/23/17 10:17	YES
15	AC-228	TRG	HTC-A04-S002-4248-01	pCi/g	7.73E-01	3.04E-01	6.77E-01					05/16/17 07:50	6.62E+02	08/23/17 10:17	YES
15	BI-212	TRG	HTC-A04-S002-4248-01	pCi/g	7.26E-01	6.47E-01	1.07E+00					05/16/17 07:50	6.62E+02	08/23/17 10:17	YES
15	RA-226	TRG	HTC-A04-S002-4248-01	pCi/g	1.77E+01	9.85E-01	4.66E-01					05/16/17 07:50	6.62E+02	08/23/17 10:17	YES
15	CS-137	TRG	HTC-A04-S002-4248-01	pCi/g	-1.41E-02	3.70E-02	1.37E-01					05/16/17 07:50	6.62E+02	08/23/17 10:17	NO
15	K-40	TRG	HTC-A04-S002-4248-01	pCi/g	1.23E+01	1.73E+00	2.58E+00					05/16/17 07:50	6.62E+02	08/23/17 10:17	YES
15	PA-234M	TRG	HTC-A04-S002-4248-01	pCi/g	1.89E+01	1.09E+01	2.15E+01					05/16/17 07:50	6.62E+02	08/23/17 10:17	YES
15	PB-212	TRG	HTC-A04-S002-4248-01	pCi/g	5.34E-01	1.06E-01	3.72E-01					05/16/17 07:50	6.62E+02	08/23/17 10:17	YES

Preliminary Data Report & Analytical Calculations

Work Order: 17-07089-Gamma-2

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
15	RA-224	TRG	HTC-A04-S002-4248-01	pCi/g	3.75E+01	3.89E+00	4.71E+00					05/16/17 07:50	6.62E+02	08/23/17 10:17	NO
15	RA-228	TRG	HTC-A04-S002-4248-01	pCi/g	7.73E-01	3.04E-01	6.77E-01					05/16/17 07:50	6.62E+02	08/23/17 10:17	YES
15	TH-234	TRG	HTC-A04-S002-4248-01	pCi/g	1.27E+01	3.30E+00	5.18E+00					05/16/17 07:50	6.62E+02	08/23/17 10:17	YES
15	TL-208	TRG	HTC-A04-S002-4248-01	pCi/g	5.00E-01	1.54E-01	1.93E-01					05/16/17 07:50	6.62E+02	08/23/17 10:17	YES
16	AC-228	TRG	HTC-A06-S001-0006-01	pCi/g	4.60E-01	5.66E-01	8.47E-01					05/16/17 14:28	7.31E+02	08/23/17 10:17	NO
16	BI-212	TRG	HTC-A06-S001-0006-01	pCi/g	1.23E+00	1.15E+00	1.74E+00					05/16/17 14:28	7.31E+02	08/23/17 10:17	NO
16	RA-226	TRG	HTC-A06-S001-0006-01	pCi/g	4.26E+01	2.16E+00	7.52E-01					05/16/17 14:28	7.31E+02	08/23/17 10:17	YES
16	CS-137	TRG	HTC-A06-S001-0006-01	pCi/g	-5.38E-03	7.89E-02	2.43E-01					05/16/17 14:28	7.31E+02	08/23/17 10:17	NO
16	K-40	TRG	HTC-A06-S001-0006-01	pCi/g	3.87E+00	1.74E+00	2.72E+00					05/16/17 14:28	7.31E+02	08/23/17 10:17	YES
16	PA-234M	TRG	HTC-A06-S001-0006-01	pCi/g	2.83E+01	2.16E+01	3.57E+01					05/16/17 14:28	7.31E+02	08/23/17 10:17	YES
16	PB-212	TRG	HTC-A06-S001-0006-01	pCi/g	7.84E-01	2.94E-01	1.02E+00					05/16/17 14:28	7.31E+02	08/23/17 10:17	YES
16	RA-224	TRG	HTC-A06-S001-0006-01	pCi/g	8.30E+01	8.04E+00	7.61E+00					05/16/17 14:28	7.31E+02	08/23/17 10:17	NO
16	RA-228	TRG	HTC-A06-S001-0006-01	pCi/g	4.60E-01	5.66E-01	8.47E-01					05/16/17 14:28	7.31E+02	08/23/17 10:17	NO
16	TH-234	TRG	HTC-A06-S001-0006-01	pCi/g	2.94E+01	4.27E+00	5.95E+00					05/16/17 14:28	7.31E+02	08/23/17 10:17	YES
16	TL-208	TRG	HTC-A06-S001-0006-01	pCi/g	9.07E-01	4.68E-01	4.43E-01					05/16/17 14:28	7.31E+02	08/23/17 10:17	NO
17	AC-228	TRG	HTC-A06-S001-0612-01	pCi/g	8.31E-01	9.55E-01	1.34E+00					05/16/17 14:26	6.38E+02	08/23/17 10:17	NO
17	BI-212	TRG	HTC-A06-S001-0612-01	pCi/g	-4.79E-01	1.66E+00	2.39E+00					05/16/17 14:26	6.38E+02	08/23/17 10:17	NO
17	RA-226	TRG	HTC-A06-S001-0612-01	pCi/g	3.83E+01	2.29E+00	9.60E-01					05/16/17 14:26	6.38E+02	08/23/17 10:17	YES
17	CS-137	TRG	HTC-A06-S001-0612-01	pCi/g	1.70E-02	1.27E-01	3.59E-01					05/16/17 14:26	6.38E+02	08/23/17 10:17	NO
17	K-40	TRG	HTC-A06-S001-0612-01	pCi/g	6.21E+00	2.73E+00	4.25E+00					05/16/17 14:26	6.38E+02	08/23/17 10:17	YES
17	PA-234M	TRG	HTC-A06-S001-0612-01	pCi/g	2.69E+01	2.51E+01	4.16E+01					05/16/17 14:26	6.38E+02	08/23/17 10:17	YES
17	PB-212	TRG	HTC-A06-S001-0612-01	pCi/g	1.02E+00	3.73E-01	1.02E+00					05/16/17 14:26	6.38E+02	08/23/17 10:17	YES
17	RA-224	TRG	HTC-A06-S001-0612-01	pCi/g	7.31E+01	7.67E+00	8.33E+00					05/16/17 14:26	6.38E+02	08/23/17 10:17	NO
17	RA-228	TRG	HTC-A06-S001-0612-01	pCi/g	8.31E-01	9.55E-01	1.34E+00					05/16/17 14:26	6.38E+02	08/23/17 10:17	NO
17	TH-234	TRG	HTC-A06-S001-0612-01	pCi/g	2.90E+01	5.07E+00	7.44E+00					05/16/17 14:26	6.38E+02	08/23/17 10:17	YES
17	TL-208	TRG	HTC-A06-S001-0612-01	pCi/g	6.48E-01	5.86E-01	7.45E-01					05/16/17 14:26	6.38E+02	08/23/17 10:17	NO
18	AC-228	TRG	HTC-A08-S001-0612-01	pCi/g	1.27E+00	2.15E-01	3.45E-01					05/16/17 14:58	5.89E+02	08/23/17 11:18	YES
18	BI-212	TRG	HTC-A08-S001-0612-01	pCi/g	1.00E+00	3.94E-01	1.15E+00					05/16/17 14:58	5.89E+02	08/23/17 11:18	YES
18	RA-226	TRG	HTC-A08-S001-0612-01	pCi/g	1.14E+00	1.56E-01	2.03E-01					05/16/17 14:58	5.89E+02	08/23/17 11:18	YES
18	CS-137	TRG	HTC-A08-S001-0612-01	pCi/g	1.16E-01	7.78E-02	1.25E-01					05/16/17 14:58	5.89E+02	08/23/17 11:18	YES
18	K-40	TRG	HTC-A08-S001-0612-01	pCi/g	2.36E+01	2.53E+00	1.25E+00					05/16/17 14:58	5.89E+02	08/23/17 11:18	YES
18	PA-234M	TRG	HTC-A08-S001-0612-01	pCi/g	1.02E+01	5.25E+00	9.62E+00					05/16/17 14:58	5.89E+02	08/23/17 11:18	NO
18	PB-212	TRG	HTC-A08-S001-0612-01	pCi/g	1.49E+00	1.61E-01	3.11E-01					05/16/17 14:58	5.89E+02	08/23/17 11:18	YES
18	RA-224	TRG	HTC-A08-S001-0612-01	pCi/g	5.44E+00	1.52E+00	3.54E+00					05/16/17 14:58	5.89E+02	08/23/17 11:18	YES
18	RA-228	TRG	HTC-A08-S001-0612-01	pCi/g	1.27E+00	2.15E-01	3.45E-01					05/16/17 14:58	5.89E+02	08/23/17 11:18	YES
18	TH-234	TRG	HTC-A08-S001-0612-01	pCi/g	1.58E+00	1.26E+00	1.70E+00					05/16/17 14:58	5.89E+02	08/23/17 11:18	NO
18	TL-208	TRG	HTC-A08-S001-0612-01	pCi/g	1.21E+00	1.88E-01	2.58E-01					05/16/17 14:58	5.89E+02	08/23/17 11:18	YES

Count Room Report
Client: Weston Solutions, Inc.

17-07089-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-A04-S001-2430-01	05/15/17 09:59	660.4900				0.00		
04	DO	HTC-A04-S001-2430-01	05/15/17 09:59	660.4900				0.00		
05	TRG	HTC-A04-S001-3036-01	05/15/17 09:56	681.8800				0.00		
06	TRG	HTC-A04-S001-3642-01	05/15/17 09:53	688.6200				0.00		
07	TRG	HTC-A04-S001-4248-01	05/15/17 09:50	662.6600				0.00		
08	TRG	HTC-A04-S002-0006-01	05/16/17 08:04	720.3500				0.00		
09	TRG	HTC-A04-S002-0612-01	05/16/17 08:02	809.6200				0.00		
10	TRG	HTC-A04-S002-1218-01	05/16/17 08:00	764.9100				0.00		
11	TRG	HTC-A04-S002-1824-01	05/16/17 07:58	776.1600				0.00		
12	TRG	HTC-A04-S002-2430-01	05/16/17 07:56	737.1800				0.00		
13	TRG	HTC-A04-S002-3036-01	05/16/17 07:54	748.0200				0.00		
14	TRG	HTC-A04-S002-3642-01	05/16/17 07:52	829.4600				0.00		
15	TRG	HTC-A04-S002-4248-01	05/16/17 07:50	662.4700				0.00		
16	TRG	HTC-A06-S001-0006-01	05/16/17 14:28	731.0600				0.00		
17	TRG	HTC-A06-S001-0612-01	05/16/17 14:26	637.8200				0.00		
18	TRG	HTC-A08-S001-0612-01	05/16/17 14:58	589.0300				0.00		

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
17-07089	2	Gamma	grams	8/10/2017	KSALLINGS

Lab Fraction	Weston Solutions, Inc. Client ID	Sample Type	Muffle Data	Dilution Data			Aliquot Data		MS Aliquot Data		H-3 Solids Only	
			Ratio Post/Pre	No of Dils	Dil Factor	Ratio	Aliquot	Net Equiv	Aliquot	Net Equiv	Water Added (ml)	H3 Dist Aliq
01	LCS	LCS					1.0000E+00	1.0000E+00				
02	BLANK	MBL					1.0000E+00	1.0000E+00				
03	HTC-A04-S001-2430-01	DUP					6.6049E+02	6.6049E+02				
04	HTC-A04-S001-2430-01	DO					6.6049E+02	6.6049E+02				
05	HTC-A04-S001-3036-01	TRG					6.8188E+02	6.8188E+02				
06	HTC-A04-S001-3642-01	TRG					6.8862E+02	6.8862E+02				
07	HTC-A04-S001-4248-01	TRG					6.6266E+02	6.6266E+02				
08	HTC-A04-S002-0006-01	TRG					7.2035E+02	7.2035E+02				
09	HTC-A04-S002-0612-01	TRG					8.0962E+02	8.0962E+02				
10	HTC-A04-S002-1218-01	TRG					7.6491E+02	7.6491E+02				
11	HTC-A04-S002-1824-01	TRG					7.7616E+02	7.7616E+02				
12	HTC-A04-S002-2430-01	TRG					7.3718E+02	7.3718E+02				
13	HTC-A04-S002-3036-01	TRG					7.4802E+02	7.4802E+02				
14	HTC-A04-S002-3642-01	TRG					8.2946E+02	8.2946E+02				
15	HTC-A04-S002-4248-01	TRG					6.6247E+02	6.6247E+02				
16	HTC-A06-S001-0006-01	TRG					7.3106E+02	7.3106E+02				
17	HTC-A06-S001-0612-01	TRG					6.3782E+02	6.3782E+02				
18	HTC-A08-S001-0612-01	TRG					5.8903E+02	5.8903E+02				

Comments	

0329

Technician: Kerry Sai Date: 8/2/17

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

Rough Sample Preparation Log Book

Work Order	Lab Deadline	Date Received in Prep	Date Sealed	Date Returned	Technician
17-07089	8/10/2017	8/1/2017	8/2/2017	8/3/2017	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-A04-S001-2430-01	14.5200	966.0000	786.7300	951.4800	772.2100	18.84%	81.16%	0.0000	0.0000	
05	HTC-A04-S001-3036-01	14.5600	953.3800	782.6700	938.8200	768.1100	18.18%	81.82%	0.0000	0.0000	
06	HTC-A04-S001-3642-01	14.5900	918.3200	763.9000	903.7300	749.3100	17.09%	82.91%	0.0000	0.0000	
07	HTC-A04-S001-4248-01	14.6500	892.7200	735.1400	878.0700	720.4900	17.95%	82.05%	0.0000	0.0000	
08	HTC-A04-S002-0006-01	14.5700	844.8800	778.3400	830.3100	763.7700	8.01%	91.99%	0.0000	0.0000	
09	HTC-A04-S002-0612-01	14.5300	942.3800	870.9400	927.8500	856.4100	7.70%	92.30%	0.0000	0.0000	
10	HTC-A04-S002-1218-01	14.5000	927.1400	857.8600	912.6400	843.3600	7.59%	92.41%	0.0000	0.0000	
11	HTC-A04-S002-1824-01	14.4900	1027.3600	920.2800	1012.8700	905.7900	10.57%	89.43%	0.0000	0.0000	
12	HTC-A04-S002-2430-01	14.4600	891.3800	837.2200	876.9200	822.7600	6.18%	93.82%	0.0000	0.0000	
13	HTC-A04-S002-3036-01	14.4000	905.1200	830.1000	890.7200	815.7000	8.42%	91.58%	0.0000	0.0000	
14	HTC-A04-S002-3642-01	14.4400	1001.9600	923.4000	987.5200	908.9600	7.96%	92.04%	0.0000	0.0000	
15	HTC-A04-S002-4248-01	14.4800	871.5600	721.2600	857.0800	706.7800	17.54%	82.46%	0.0000	0.0000	
16	HTC-A06-S001-0006-01	14.5300	854.7400	803.7200	840.2100	789.1900	6.07%	93.93%	0.0000	0.0000	
17	HTC-A06-S001-0612-01	14.5100	778.3300	703.7900	763.8200	689.2800	9.76%	90.24%	0.0000	0.0000	
18	HTC-A08-S001-0612-01	14.5200	859.2000	689.6100	844.6800	675.0900	20.08%	79.92%	0.0000	0.0000	
19	HTC-A08-S001-0612-01 MS	14.4900	892.9800	714.9500	878.4900	700.4600	20.27%	79.73%	0.0000	0.0000	
20	HTC-A08-S001-0612-01 MSD	14.4900	892.9800	714.9500	878.4900	700.4600	20.27%	79.73%	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)**

0330

Technician: Kerry Sanj

Date: **Analysis: Rough Prep Logbook**

Analysis: Gamma Page No. 10178

Eckert & Ziegler
Analytics

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

CERTIFICATE OF CALIBRATION

Standard Radionuclide Source

GAS-1402

98503

Sand in 16 Ounce PP Taral Jar Filled to Capacity

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

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

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

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

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

(Certificate continued on reverse side)

ANA Form005 Rev. ---

ACCREDITED SOURCE CALIBRATION LABORATORY HEALTH PHYSICS SOCIETY FOUNDED 1964

Corporate Office
24937 Avenue Tibbitts Valencia, California 91355

Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia, 30318

Apex-Gamma

Analysis Report for 1707089-01
GAS-1402

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707089-01
Sample Description	: GAS-1402
Sample Type	: SOIL
Sample Size	: 7.360E+02 grams
Facility	: Countroom
Sample Taken On	: 10/1/2014 6:44:13AM
Acquisition Started	: 8/23/2017 11:19:16AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 1800.0 seconds
Real Time	: 1836.1 seconds
Dead Time	: 1.97 %
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	: 55800

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

Analysis Report for 1707089-01

GAS-1402

PEAK LOCATE REPORT

Peak Locate Performed on : 8/23/2017 11:49:55AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	17.82	18.14	0.0000	0.00
2	22.56	22.88	0.0000	0.00
3	32.25	32.57	0.0000	0.00
4	50.17	50.48	0.0000	0.00
5	59.62	59.93	0.0000	0.00
6	68.19	68.49	0.0000	0.00
7	88.18	88.48	0.0000	0.00
8	122.14	122.43	0.0000	0.00
9	136.53	136.81	0.0000	0.00
10	165.89	166.17	0.0000	0.00
11	187.01	187.28	0.0000	0.00
12	392.08	392.28	0.0000	0.00
13	452.69	452.86	0.0000	0.00
14	493.55	493.71	0.0000	0.00
15	661.67	661.77	0.0000	0.00
16	897.64	897.66	0.0000	0.00
17	1173.05	1172.98	0.0000	0.00
18	1332.24	1332.12	0.0000	0.00
19	1459.40	1459.23	0.0000	0.00
20	1463.40	1463.23	0.0000	0.00
21	1469.40	1469.23	0.0000	0.00
22	1475.94	1475.77	0.0000	0.00
23	1523.66	1523.48	0.0000	0.00
24	1539.27	1539.08	0.0000	0.00
25	1765.54	1765.27	0.0000	0.00
26	1835.68	1835.39	0.0000	0.00
27	2024.89	2024.53	0.0000	0.00
28	2160.00	2159.60	0.0000	0.00
29	2445.62	2445.13	0.0000	0.00
30	2505.21	2504.70	0.0000	0.00
31	2613.67	2613.11	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707089-01

GAS-1402

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/23/2017 11:49:55AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	1	17.82	17 -	29	18.14	6.58E+02	195.33	1.18E+04	1.52
m	2	22.56	17 -	29	22.88	9.55E+04	781.22	2.30E+04	2.73
	3	32.25	31 -	35	32.57	1.81E+03	226.44	9.79E+03	2.07
M	4	50.17	45 -	64	50.48	6.32E+03	400.06	2.15E+04	1.95
m	5	59.62	45 -	64	59.93	8.85E+04	693.80	1.84E+04	1.97
	6	68.19	66 -	73	68.49	7.69E+02	385.70	2.44E+04	4.00
	7	88.18	83 -	93	88.48	3.12E+04	569.91	2.62E+04	2.13
	8	122.14	117 -	127	122.43	5.52E+03	383.66	1.67E+04	2.15
	9	136.53	134 -	140	136.81	4.03E+02	246.40	1.08E+04	2.04
	10	165.89	163 -	169	166.17	5.08E+02	229.10	9.18E+03	1.94
	11	187.01	185 -	190	187.28	2.76E+02	207.45	8.38E+03	3.79
	12	392.08	390 -	395	392.28	1.43E+02	157.01	4.80E+03	3.53
	13	452.69	451 -	456	452.86	1.64E+02	158.40	4.90E+03	2.60
	14	493.55	491 -	496	493.71	1.69E+02	139.80	3.76E+03	2.75
	15	661.67	656 -	667	661.77	2.11E+04	351.30	4.86E+03	2.24
	16	897.64	894 -	901	897.66	2.38E+02	154.83	3.85E+03	3.88
	17	1173.05	1167 -	1179	1172.98	1.69E+04	297.37	2.45E+03	2.45
	18	1332.24	1325 -	1338	1332.12	1.53E+04	259.49	6.81E+02	2.58
M	19	1459.40	1451 -	1481	1459.23	2.60E+01	28.07	1.20E+02	2.57
m	20	1463.40	1451 -	1481	1463.23	2.43E+01	28.71	1.15E+02	2.57
m	21	1469.40	1451 -	1481	1469.23	2.29E+01	27.71	1.08E+02	2.58
m	22	1475.94	1451 -	1481	1475.77	1.91E+01	27.35	1.01E+02	2.58
	23	1523.66	1519 -	1528	1523.48	3.43E+01	31.30	1.21E+02	3.11
	24	1539.27	1536 -	1543	1539.08	2.90E+01	22.45	6.60E+01	4.14
	25	1765.54	1761 -	1770	1765.27	3.09E+01	26.78	8.43E+01	4.12
	26	1835.68	1829 -	1840	1835.39	3.34E+01	34.47	1.31E+02	2.66
	27	2024.89	2018 -	2029	2024.53	2.44E+01	26.83	7.71E+01	9.23
	28	2160.00	2157 -	2162	2159.60	1.36E+01	11.92	1.68E+01	2.80
	29	2445.62	2441 -	2448	2445.13	5.14E+00	6.63	3.71E+00	2.97
	30	2505.21	2498 -	2508	2504.70	1.51E+02	26.32	1.32E+01	2.53
	31	2613.67	2609 -	2616	2613.11	9.00E+00	6.00	0.00E+00	1.92

Analysis Report for 1707089-01

GAS-1402

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/23/2017 11:49:55AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	1	17.82	17 -	29	6.58E+02	195.33	1.18E+04	1.78E+02
m	2	22.56	17 -	29	9.55E+04	781.22	2.30E+04	2.49E+02
	3	32.25	31 -	35	1.81E+03	226.44	9.79E+03	1.73E+02
M	4	50.17	45 -	64	6.32E+03	400.06	2.15E+04	2.41E+02
m	5	59.62	45 -	64	8.85E+04	693.80	1.84E+04	2.23E+02
	6	68.19	66 -	73	7.69E+02	385.70	2.44E+04	3.14E+02
	7	88.18	83 -	93	3.12E+04	569.91	2.62E+04	3.68E+02
	8	122.14	117 -	127	5.52E+03	383.66	1.67E+04	2.91E+02
	9	136.53	134 -	140	4.03E+02	246.40	1.08E+04	2.00E+02
	10	165.89	163 -	169	5.08E+02	229.10	9.18E+03	1.85E+02
	11	187.01	185 -	190	2.76E+02	207.45	8.38E+03	1.68E+02
	12	392.08	390 -	395	1.43E+02	157.01	4.80E+03	1.28E+02
	13	452.69	451 -	456	1.64E+02	158.40	4.90E+03	1.28E+02
	14	493.55	491 -	496	1.69E+02	139.80	3.76E+03	1.13E+02
	15	661.67	656 -	667	2.11E+04	351.30	4.86E+03	1.62E+02
	16	897.64	894 -	901	2.38E+02	154.83	3.85E+03	1.25E+02
	17	1173.05	1167 -	1179	1.69E+04	297.37	2.45E+03	1.19E+02
	18	1332.24	1325 -	1338	1.53E+04	259.49	6.81E+02	6.43E+01
M	19	1459.40	1451 -	1481	2.60E+01	28.07	1.20E+02	1.80E+01
m	20	1463.40	1451 -	1481	2.43E+01	28.71	1.15E+02	1.76E+01
m	21	1469.40	1451 -	1481	2.29E+01	27.71	1.08E+02	1.71E+01
m	22	1475.94	1451 -	1481	1.91E+01	27.35	1.01E+02	1.65E+01
	23	1523.66	1519 -	1528	3.43E+01	31.30	1.21E+02	2.39E+01
	24	1539.27	1536 -	1543	2.90E+01	22.45	6.60E+01	1.62E+01
	25	1765.54	1761 -	1770	3.09E+01	26.78	8.43E+01	2.00E+01
	26	1835.68	1829 -	1840	3.34E+01	34.47	1.31E+02	2.67E+01
	27	2024.89	2018 -	2029	2.44E+01	26.83	7.71E+01	2.05E+01
	28	2160.00	2157 -	2162	1.36E+01	11.92	1.68E+01	7.70E+00
	29	2445.62	2441 -	2448	5.14E+00	6.63	3.71E+00	3.98E+00
	30	2505.21	2498 -	2508	1.51E+02	26.32	1.32E+01	7.66E+00
	31	2613.67	2609 -	2616	9.00E+00	6.00	0.00E+00	0.00E+00

Analysis Report for 1707089-01

GAS-1402

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/23/2017 11:49:55AM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	1	17.82	17 -	29	18.14	6.58E+02	195.33	1.18E+04	.....
m	2	22.56	17 -	29	22.88	9.55E+04	781.22	2.30E+04	.....
	3	32.25	31 -	35	32.57	1.81E+03	226.44	9.79E+03	.....
M	4	50.17	45 -	64	50.48	6.32E+03	400.06	2.15E+04	TH-227
									TE-132
m	5	59.62	45 -	64	59.93	8.85E+04	693.80	1.84E+04	AM-241
	6	68.19	66 -	73	68.49	7.69E+02	385.70	2.44E+04	TI-44
									TA-182
									TH-230
									HF-172
	7	88.18	83 -	93	88.48	3.12E+04	569.91	2.62E+04	CD-109
									LU-176
									SN-126
	8	122.14	117 -	127	122.43	5.52E+03	383.66	1.67E+04	CO-57
									EU-152
									EU-154
	9	136.53	134 -	140	136.81	4.03E+02	246.40	1.08E+04	CO-57
									SE-75
	10	165.89	163 -	169	166.17	5.08E+02	229.10	9.18E+03	CE-139
	11	187.01	185 -	190	187.28	2.76E+02	207.45	8.38E+03	RA-226
	12	392.08	390 -	395	392.28	1.43E+02	157.01	4.80E+03	SN-113
	13	452.69	451 -	456	452.86	1.64E+02	158.40	4.90E+03	.....
	14	493.55	491 -	496	493.71	1.69E+02	139.80	3.76E+03	.....
	15	661.67	656 -	667	661.77	2.11E+04	351.30	4.86E+03	CS-137
	16	897.64	894 -	901	897.66	2.38E+02	154.83	3.85E+03	Y-88
	17	1173.05	1167 -	1179	1172.98	1.69E+04	297.37	2.45E+03	CO-60
	18	1332.24	1325 -	1338	1332.12	1.53E+04	259.49	6.81E+02	CO-60
M	19	1459.40	1451 -	1481	1459.23	2.60E+01	28.07	1.20E+02	.....
m	20	1463.40	1451 -	1481	1463.23	2.43E+01	28.71	1.15E+02	.....
m	21	1469.40	1451 -	1481	1469.23	2.29E+01	27.71	1.08E+02	.....

Analysis Report for 1707089-01

GAS-1402

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
m	22	1475.94	1451 -	1481	1475.77	1.91E+01	27.35	1.01E+02	.....
	23	1523.66	1519 -	1528	1523.48	3.43E+01	31.30	1.21E+02	.....
	24	1539.27	1536 -	1543	1539.08	2.90E+01	22.45	6.60E+01	.....
	25	1765.54	1761 -	1770	1765.27	3.09E+01	26.78	8.43E+01	.....
	26	1835.68	1829 -	1840	1835.39	3.34E+01	34.47	1.31E+02	Y-88
	27	2024.89	2018 -	2029	2024.53	2.44E+01	26.83	7.71E+01	.....
	28	2160.00	2157 -	2162	2159.60	1.36E+01	11.92	1.68E+01	.....
	29	2445.62	2441 -	2448	2445.13	5.14E+00	6.63	3.71E+00	.....
	30	2505.21	2498 -	2508	2504.70	1.51E+02	26.32	1.32E+01	.....
	31	2613.67	2609 -	2616	2613.11	9.00E+00	6.00	0.00E+00	TL-208

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/23/2017 11:49:55AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	1	17.82	6.58E+02	195.33	3.49E-04	1.73E-03
m	2	22.56	9.55E+04	781.22	1.57E-03	1.73E-03
	3	32.25	1.81E+03	226.44	7.22E-03	1.73E-03
M	4	50.17	6.32E+03	400.06	1.93E-02	1.73E-03
m	5	59.62	8.85E+04	693.80	2.33E-02	1.73E-03
	6	68.19	7.69E+02	385.70	2.55E-02	1.89E-03
	7	88.18	3.12E+04	569.91	2.72E-02	2.26E-03
	8	122.14	5.52E+03	383.66	2.52E-02	2.12E-03
	9	136.53	4.03E+02	246.40	2.39E-02	1.96E-03
	10	165.89	5.08E+02	229.10	2.12E-02	1.63E-03
	11	187.01	2.76E+02	207.45	1.95E-02	1.54E-03
	12	392.08	1.43E+02	157.01	1.05E-02	9.52E-04
	13	452.69	1.64E+02	158.40	9.21E-03	8.72E-04
	14	493.55	1.69E+02	139.80	8.52E-03	8.17E-04
	15	661.67	2.11E+04	351.30	6.54E-03	5.95E-04
	16	897.64	2.38E+02	154.83	4.99E-03	3.86E-04
	17	1173.05	1.69E+04	297.37	3.96E-03	3.41E-04
	18	1332.24	1.53E+04	259.49	3.56E-03	2.96E-04
M	19	1459.40	2.60E+01	28.07	3.31E-03	2.75E-04
m	20	1463.40	2.43E+01	28.71	3.30E-03	2.75E-04

Analysis Report for 1707089-01

GAS-1402

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	21	1469.40	2.29E+01	27.71	3.29E-03	2.74E-04
m	22	1475.94	1.91E+01	27.35	3.28E-03	2.73E-04
	23	1523.66	3.43E+01	31.30	3.20E-03	2.65E-04
	24	1539.27	2.90E+01	22.45	3.18E-03	2.63E-04
	25	1765.54	3.09E+01	26.78	2.86E-03	2.26E-04
	26	1835.68	3.34E+01	34.47	2.78E-03	2.15E-04
	27	2024.89	2.44E+01	26.83	2.60E-03	2.15E-04
	28	2160.00	1.36E+01	11.92	2.50E-03	2.15E-04
	29	2445.62	5.14E+00	6.63	2.32E-03	2.15E-04
	30	2505.21	1.51E+02	26.32	2.29E-03	2.15E-04
	31	2613.67	9.00E+00	6.00	2.24E-03	2.15E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/23/2017 11:49:55AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055575.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	1	17.82	6.58E+02	195.33			6.58E+02	1.95E+02
m	2	22.56	9.55E+04	781.22	1.19E+01	6.34E+00	9.55E+04	7.81E+02
	3	32.25	1.81E+03	226.44			1.81E+03	2.26E+02
M	4	50.17	6.32E+03	400.06			6.32E+03	4.00E+02
m	5	59.62	8.85E+04	693.80	6.04E+00	1.98E+00	8.85E+04	6.94E+02
	6	68.19	7.69E+02	385.70			7.69E+02	3.86E+02
	7	88.18	3.12E+04	569.91			3.12E+04	5.70E+02
	8	122.14	5.52E+03	383.66			5.52E+03	3.84E+02
	9	136.53	4.03E+02	246.40			4.03E+02	2.46E+02
	10	165.89	5.08E+02	229.10			5.08E+02	2.29E+02
	11	187.01	2.76E+02	207.45	1.53E+01	2.91E+00	2.60E+02	2.07E+02
	12	392.08	1.43E+02	157.01			1.43E+02	1.57E+02
	13	452.69	1.64E+02	158.40			1.64E+02	1.58E+02
	14	493.55	1.69E+02	139.80			1.69E+02	1.40E+02
	15	661.67	2.11E+04	351.30			2.11E+04	3.51E+02
	16	897.64	2.38E+02	154.83			2.38E+02	1.55E+02
	17	1173.05	1.69E+04	297.37	1.20E+00	9.07E-01	1.69E+04	2.97E+02
	18	1332.24	1.53E+04	259.49	6.90E-01	9.16E-01	1.53E+04	2.59E+02
M	19	1459.40	2.60E+01	28.07			2.60E+01	2.81E+01

Analysis Report for 1707089-01

GAS-1402

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	20	1463.40	2.43E+01	28.71			2.43E+01	2.87E+01
m	21	1469.40	2.29E+01	27.71			2.29E+01	2.77E+01
m	22	1475.94	1.91E+01	27.35			1.91E+01	2.73E+01
	23	1523.66	3.43E+01	31.30			3.43E+01	3.13E+01
	24	1539.27	2.90E+01	22.45			2.90E+01	2.24E+01
	25	1765.54	3.09E+01	26.78			3.09E+01	2.68E+01
	26	1835.68	3.34E+01	34.47			3.34E+01	3.45E+01
	27	2024.89	2.44E+01	26.83			2.44E+01	2.68E+01
	28	2160.00	1.36E+01	11.92			1.36E+01	1.19E+01
	29	2445.62	5.14E+00	6.63			5.14E+00	6.63E+00
	30	2505.21	1.51E+02	26.32			1.51E+02	2.63E+01
	31	2613.67	9.00E+00	6.00			9.00E+00	6.00E+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 : 8/23/2017 11:49:55AM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055575.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	1	17.82	6.58E+02	195.33			6.58E+02	1.95E+02
m	2	22.56	9.55E+04	781.22	1.19E+01	6.34E+00	9.55E+04	7.81E+02
	3	32.25	1.81E+03	226.44			1.81E+03	2.26E+02
M	4	50.17	6.32E+03	400.06			6.32E+03	4.00E+02
m	5	59.62	8.85E+04	693.80	6.04E+00	1.98E+00	8.85E+04	6.94E+02
	6	68.19	7.69E+02	385.70			7.69E+02	3.86E+02
	7	88.18	3.12E+04	569.91			3.12E+04	5.70E+02
	8	122.14	5.52E+03	383.66			5.52E+03	3.84E+02
	9	136.53	4.03E+02	246.40			4.03E+02	2.46E+02
	10	165.89	5.08E+02	229.10			5.08E+02	2.29E+02
	11	187.01	2.76E+02	207.45	1.53E+01	2.91E+00	2.60E+02	2.07E+02
	12	392.08	1.43E+02	157.01			1.43E+02	1.57E+02
	13	452.69	1.64E+02	158.40			1.64E+02	1.58E+02
	14	493.55	1.69E+02	139.80			1.69E+02	1.40E+02
	15	661.67	2.11E+04	351.30			2.11E+04	3.51E+02
	16	897.64	2.38E+02	154.83			2.38E+02	1.55E+02

Analysis Report for 1707089-01

GAS-1402

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	17	1173.05	1.69E+04	297.37	1.20E+00	9.07E-01	1.69E+04	2.97E+02
	18	1332.24	1.53E+04	259.49	6.90E-01	9.16E-01	1.53E+04	2.59E+02
M	19	1459.40	2.60E+01	28.07			2.60E+01	2.81E+01
m	20	1463.40	2.43E+01	28.71			2.43E+01	2.87E+01
m	21	1469.40	2.29E+01	27.71			2.29E+01	2.77E+01
m	22	1475.94	1.91E+01	27.35			1.91E+01	2.73E+01
	23	1523.66	3.43E+01	31.30			3.43E+01	3.13E+01
	24	1539.27	2.90E+01	22.45			2.90E+01	2.24E+01
	25	1765.54	3.09E+01	26.78			3.09E+01	2.68E+01
	26	1835.68	3.34E+01	34.47			3.34E+01	3.45E+01
	27	2024.89	2.44E+01	26.83			2.44E+01	2.68E+01
	28	2160.00	1.36E+01	11.92			1.36E+01	1.19E+01
	29	2445.62	5.14E+00	6.63			5.14E+00	6.63E+00
	30	2505.21	1.51E+02	26.32			1.51E+02	2.63E+01
	31	2613.67	9.00E+00	6.00			9.00E+00	6.00E+00

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CO-57	0.926	122.06	*	85.51	7.82E+01	8.59E+00
		136.48	*	10.60	4.85E+01	3.00E+01
CO-60	0.992	1173.22	*	100.00	1.27E+02	1.12E+01
		1332.49	*	100.00	1.28E+02	1.09E+01
Y-88	0.599	898.02	*	93.40	1.01E+03	6.61E+02
		1836.01	*	99.38	2.38E+02	2.46E+02
CD-109	0.971	88.03	*	3.72	3.06E+03	3.18E+02
SN-113	0.604	255.12		1.93		
		391.69	*	64.90	2.49E+02	2.75E+02
SN-126	0.942	87.57	*	37.00	6.33E+01	5.39E+00
CS-137	1.000	661.65	*	85.12	8.27E+01	7.66E+00
CE-139	0.744	165.85	*	80.35	1.25E+02	5.70E+01
RA-226	0.902	186.21	*	3.28	8.30E+00	1.66E+01
AM-241	0.999	59.54	*	35.90	2.17E+02	1.61E+01

Analysis Report for 1707089-01

GAS-1402

* = 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 : 8/23/2017 11:49:55AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	1	17.82	3.65742E-01	14.83		
m	2	22.56	5.30349E+01	0.41		
	3	32.25	1.00462E+00	6.26		
M	4	50.17	3.51156E+00	3.16	Tol.	TE-132 TH-227
	6	68.19	4.27150E-01	25.08	Tol.	HF-172 TA-182 TH-230
	13	452.69	9.13876E-02	48.15	Sum	
	14	493.55	9.36150E-02	41.48		
M	19	1459.40	1.44245E-02	54.06		
m	20	1463.40	1.34985E-02	59.07		
m	21	1469.40	1.27053E-02	60.59	Sum	
m	22	1475.94	1.06127E-02	71.58		
	23	1523.66	1.90468E-02	45.66		
	24	1539.27	1.61111E-02	38.71		
	25	1765.54	1.71461E-02	43.38		
	27	2024.89	1.35714E-02	54.92		
	28	2160.00	7.55051E-03	43.84		
	29	2445.62	2.85714E-03	64.49		
	30	2505.21	8.41210E-02	8.69	Sum	
	31	2613.67	5.00000E-03	33.33	Tol.	TL-208

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

Analysis Report for 1707089-01

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	0.92	122.06	*	85.51	7.82E+01	8.59E+00
		136.48	*	10.60	4.85E+01	3.00E+01
CO-60	0.99	1173.22	*	100.00	1.27E+02	1.12E+01
		1332.49	*	100.00	1.28E+02	1.09E+01
Y-88	0.59	898.02	*	93.40	1.01E+03	6.61E+02
		1836.01	*	99.38	2.38E+02	2.46E+02
CD-109	0.97	88.03	*	3.72	3.06E+03	3.18E+02
SN-113	0.60	255.12		1.93		
		391.69	*	64.90	2.49E+02	2.75E+02
SN-126	0.94	87.57	*	37.00	6.33E+01	5.39E+00
CS-137	1.00	661.65	*	85.12	8.27E+01	7.66E+00
CE-139	0.74	165.85	*	80.35	1.25E+02	5.70E+01
RA-226	0.90	186.21	*	3.28	8.30E+00	1.66E+01
AM-241	0.99	59.54	*	35.90	2.17E+02	1.61E+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
CO-57	0.926	7.60E+01	8.27E+00	
CO-60	0.992	1.28E+02	7.79E+00	

Analysis Report for 1707089-01

GAS-1402

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	Y-88	0.599	3.32E+02	2.31E+02	
?	CD-109	0.971	3.06E+03	3.18E+02	
	SN-113	0.604	2.49E+02	2.75E+02	
?	SN-126	0.942	6.33E+01	5.39E+00	
	CS-137	1.000	8.27E+01	7.66E+00	
	CE-139	0.744	1.25E+02	5.70E+01	
	RA-226	0.902	8.30E+00	1.66E+01	
	AM-241	0.999	2.17E+02	1.61E+01	

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

Errors quoted at 2.000sigma

Analysis Report for 1707089-01

GAS-1402

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 11:49:55AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	1	17.82	3.65742E-01	14.83		
m	2	22.56	5.30349E+01	0.41		
	3	32.25	1.00462E+00	6.26		
M	4	50.17	3.51156E+00	3.16	Tol.	TE-132
						TH-227
	6	68.19	4.27150E-01	25.08	Tol.	HF-172
						TA-182
						TH-230
	13	452.69	9.13876E-02	48.15	Sum	
	14	493.55	9.36150E-02	41.48		
M	19	1459.40	1.44245E-02	54.06		
m	20	1463.40	1.34985E-02	59.07		
m	21	1469.40	1.27053E-02	60.59	Sum	
m	22	1475.94	1.06127E-02	71.58		
	23	1523.66	1.90468E-02	45.66		
	24	1539.27	1.61111E-02	38.71		
	25	1765.54	1.71461E-02	43.38		
	27	2024.89	1.35714E-02	54.92		
	28	2160.00	7.55051E-03	43.84		
	29	2445.62	2.85714E-03	64.49		
	30	2505.21	8.41210E-02	8.69	Sum	
	31	2613.67	5.00000E-03	33.33	Tol.	TL-208

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

Analysis Report for 1707089-01

GAS-1402

NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	2.66E+06	4.98E+06	4.98E+06
+		NA-22	1274.54		99.94	1.21E-01	8.34E-01	8.34E-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	-1.57E-01	2.36E-01	2.36E-01
+		K-40	1460.81		10.67	1.87E+00	2.91E+00	2.91E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	6.02E-01	3.44E-01	3.72E-01
			78.34		96.00	5.99E-02		3.44E-01
+		SC-46	889.25		99.98	1.14E+03	4.91E+03	4.92E+03
			1120.51		99.99	1.15E+03		4.91E+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	6.32E+11	1.34E+12	1.34E+12
+		MN-54	834.83		99.97	2.60E+00	7.47E+00	7.47E+00
+		CO-56	846.75		99.96	3.31E+03	1.60E+03	7.94E+03
			1037.75		14.03	1.17E+04		6.41E+04
			1238.25		67.00	1.66E+03		6.75E+03
			1771.40		15.51	5.84E+03		1.97E+04
			2598.48		16.90	0.00E+00		1.60E+03
+		CO-57	122.06	*	85.51	7.82E+01	8.28E+00	8.28E+00
			136.48	*	10.60	4.85E+01		4.85E+01
+		CO-58	810.76		99.40	-1.60E+04	2.08E+04	2.08E+04
+		FE-59	1099.22		56.50	8.95E+06	1.16E+07	2.09E+07
			1291.56		43.20	-3.64E+06		1.16E+07
+		CO-60	1173.22	*	100.00	1.27E+02	1.10E+00	1.81E+00
			1332.49	*	100.00	1.28E+02		1.10E+00
+		ZN-65	1115.52		50.75	1.46E+01	3.30E+01	3.30E+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	8.83E+03	2.00E+02	9.52E+02
			136.00		59.20	3.02E+02		2.00E+02
			264.65		59.80	-7.91E+00		3.06E+02
			279.53		25.20	-2.49E+02		7.23E+02
			400.65		11.40	6.46E+02		2.00E+03
+		RB-82	776.52		13.00	6.62E+11	1.38E+13	1.38E+13
+		RB-83	520.41		46.00	1.15E+03	5.72E+03	5.72E+03
			529.64		30.30	-3.15E+03		8.38E+03
			552.65		16.40	2.71E+03		1.56E+04
+		KR-85	513.99		0.43	6.25E+01	1.51E+02	1.51E+02
+		SR-85	513.99		99.27	1.84E+04	4.44E+04	4.44E+04

Analysis Report for 1707089-01

GAS-1402

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		Y-88	898.02	*	93.40	1.01E+03	4.00E+02	1.07E+03
			1836.01	*	99.38	2.38E+02		4.00E+02
+		MO-93	263.06		56.72	-2.42E-01	3.30E-01	8.50E-01
			684.67		99.68	-1.69E-03		6.65E-01
			1477.11		99.08	8.38E-02		3.30E-01
+		NB-93M	16.57		9.43	5.19E+01	5.97E+02	5.97E+02
+		NB-94	702.63		100.00	-8.36E-02	5.60E-01	5.60E-01
			871.10		100.00	1.73E-01		7.58E-01
+		NB-95	765.79		99.81	3.72E+06	7.47E+08	7.47E+08
+	@	NB-95M	235.69		25.00	1.00E+26	1.00E+26	1.00E+26
+		ZR-95	724.18		43.70	3.95E+04	1.02E+05	1.27E+05
			756.72		55.30	1.70E+04		1.02E+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	-9.12E+06	7.49E+07	7.49E+07
+		RU-106	621.84		9.80	1.50E+01	4.14E+01	4.14E+01
+		AG-108M	433.93		89.90	-1.40E-02	6.06E-01	6.10E-01
			614.37		90.40	-2.40E-01		6.06E-01
			722.95		90.50	-6.17E-02		6.57E-01
+		CD-109	88.03	*	3.72	3.06E+03	7.24E+01	7.24E+01
+		AG-110M	657.75		93.14	-1.54E+02	1.94E+01	2.86E+01
			677.61		10.53	-2.13E+01		9.71E+01
			706.67		16.46	-1.21E+01		6.40E+01
			763.93		21.98	-2.59E+01		5.20E+01
			884.67		71.63	-8.74E+00		2.02E+01
			1384.27		23.94	5.29E+00		1.94E+01
+		CD-113M	263.70		0.02	-4.43E+02	2.02E+03	2.02E+03
+		SN-113	255.12		1.93	4.85E+02	4.50E+02	1.20E+04
			391.69	*	64.90	2.49E+02		4.50E+02
+		TE123M	159.00		84.10	7.17E+01	1.40E+02	1.40E+02
+		SB-124	602.71		97.87	3.83E+04	1.09E+05	1.09E+05
			645.85		7.26	-2.10E+05		1.51E+06
			722.78		11.10	-9.58E+04		1.02E+06
			1691.02		49.00	3.40E+04		1.09E+05
+		I-125	35.49		6.49	1.74E+06	2.21E+06	2.21E+06
+		SB-125	176.33		6.89	-9.01E-01	3.76E+00	8.09E+00
			427.89		29.33	3.59E-02		3.76E+00
			463.38		10.35	-9.20E-03		1.19E+01
			600.56		17.80	2.81E+00		6.37E+00
			635.90		11.32	2.99E+00		1.03E+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	6.33E+01	1.50E+00	1.50E+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

Analysis Report for 1707089-01

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		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	@	SB-127	783.80		14.70	1.00E+26	1.00E+26	1.00E+26
+		I-129	29.78		57.00	-5.06E+01	2.32E+00	2.32E+00
			33.60		13.20	1.52E+01		7.21E+00
			39.58		7.52	-3.27E+01		7.75E+00
+	@	I-131	284.30		6.05	1.00E+26	1.00E+26	1.00E+26
	@		364.48		81.20	1.00E+26		1.00E+26
	@		636.97		7.26	1.00E+26		1.00E+26
	@		722.89		1.80	1.00E+26		1.00E+26
+	@	TE-132	49.72		13.10	1.00E+26	1.00E+26	1.00E+26
	@		228.16		88.00	1.00E+26		1.00E+26
+		BA-133	81.00		33.00	-3.65E-01	9.23E-01	1.16E+00
			302.84		17.80	-1.38E+00		2.80E+00
			356.01		60.00	-1.33E-01		9.23E-01
+	@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	@	XE-133	81.00		38.00	1.00E+26	1.00E+26	1.00E+26
+		CS-134	563.23		8.38	5.18E-01	1.48E+00	1.63E+01
			569.32		15.43	-4.39E+00		8.87E+00
			604.70		97.60	-5.14E-01		1.48E+00
			795.84		85.40	-2.44E-01		2.01E+00
			801.93		8.73	1.23E+00		2.04E+01
+		CS-135	268.24		16.00	-2.60E-01	2.54E+00	2.54E+00
+	@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26
	@		1260.41		28.60	1.00E+26		1.00E+26
	@		1678.03		9.54	1.00E+26		1.00E+26
+	@	CS-136	153.22		7.46	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	8.27E+01	1.28E+00	1.28E+00
+		LA-138	788.74		34.00	6.72E-01	3.37E-01	1.92E+00
			1435.80		66.00	-2.29E-01		3.37E-01
+		CE-139	165.85	*	80.35	1.25E+02	9.13E+01	9.13E+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	0.00E+00		1.00E+26
+		CE-141	145.44		48.40	2.88E+08	3.18E+09	3.18E+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

Analysis Report for 1707089-01

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		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	@	CE-143	664.55	5.20	1.00E+26	1.00E+26	1.00E+26
+		CE-144	133.54	10.80	1.73E+00	3.04E+01	3.04E+01
+		PM-144	476.78	42.00	3.56E+00	4.16E+00	1.04E+01
			618.01	98.60	-4.29E-01		4.16E+00
			696.49	99.49	2.90E+00		4.31E+00
+		PM-145	36.85	21.70	1.72E+00	1.84E+00	3.41E+00
			37.36	39.70	8.16E-01		1.84E+00
			42.30	15.10	-3.18E+00		4.35E+00
			72.40	2.31	2.98E+00		1.57E+01
+		PM-146	453.90	39.94	1.09E+00	2.07E+00	2.07E+00
			735.90	14.01	1.08E+00		6.17E+00
			747.13	13.10	1.38E+00		6.74E+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	2.24E+01	2.02E+00	2.03E+00
			244.69	5.40	1.31E+00		8.58E+00
			344.27	19.13	-5.12E-01		2.73E+00
			778.89	9.20	2.69E+00		7.88E+00
			964.01	10.40	-9.18E-01		9.82E+00
			1085.78	7.22	1.07E+00		1.34E+01
			1112.02	9.60	2.75E+00		1.03E+01
			1407.95	14.94	1.34E+00		2.02E+00
+		GD-153	97.43	31.30	4.10E+00	1.51E+01	1.51E+01
			103.18	22.20	8.17E+00		2.15E+01
+		EU-154	123.07	40.50	1.23E+01	1.11E+00	1.11E+00
			723.30	19.70	-3.51E-01		3.73E+00
			873.19	11.50	-3.98E+00		8.23E+00
			996.32	10.30	4.16E+00		1.02E+01
			1004.76	17.90	-3.97E+00		5.57E+00
			1274.45	35.50	1.98E-01		1.36E+00
+		EU-155	86.50	30.90	9.04E+01	1.67E+00	3.16E+00
			105.30	20.70	-4.53E-01		1.67E+00
+	@	EU-156	811.77	10.40	1.00E+26	1.00E+26	1.00E+26
	@		1153.47	7.20	1.00E+26		1.00E+26
	@		1230.71	8.90	1.00E+26		1.00E+26
+		HO-166M	184.41	72.60	-1.02E-01	4.05E-01	4.05E-01
			280.45	29.60	-7.98E-01		1.36E+00
			410.94	11.10	9.61E-01		4.65E+00
			711.69	54.10	3.40E-01		1.05E+00
+		TM-171	66.72	0.14	4.55E+02	6.87E+02	6.87E+02
+		HF-172	67.35	5.31	3.04E+01	6.56E+00	1.88E+01
			125.81	11.30	-6.78E+01		6.56E+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	-1.11E+01	8.27E+00	1.87E+01
			272.11	21.20	1.56E+00		8.27E+00
+		HF-175	343.40	84.00	-3.53E+03	1.89E+04	1.89E+04

Analysis Report for 1707089-01

GAS-1402

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	LU-176	88.34	13.30	1.70E+02	3.56E-01	4.99E+00
		201.83	86.00	-3.13E-02		3.56E-01
		306.78	94.00	-1.97E-02		4.49E-01
+	HF-181	133.02	41.70	-1.70E+06	1.88E+07	1.88E+07
		345.85	17.20	1.54E+07		8.49E+07
		482.03	82.80	4.13E+06		2.15E+07
+	TA-182	67.75	41.20	8.08E+02	5.00E+02	5.00E+02
		1121.30	34.90	1.16E+01		1.33E+03
		1189.05	16.23	4.19E+02		2.20E+03
		1221.41	26.98	-4.62E+02		1.01E+03
		1231.02	11.44	-2.15E+02		2.36E+03
+	IR-192	308.46	29.68	9.34E+03	2.49E+04	2.88E+04
		468.07	48.10	1.55E+03		2.49E+04
+	HG-203	279.19	77.30	1.46E+06	3.53E+06	3.53E+06
+	TL-204	374.74	94.11	-3.36E-01	8.53E-01	8.53E-01
		899.15	99.16	1.24E+00		1.45E+00
		911.74	91.10	-8.04E-01		1.57E+00
+	BI-207	569.67	97.72	-5.33E-01	5.62E-01	5.62E-01
		1063.62	74.90	-3.16E-01		1.18E+00
+	TL-208	583.14	30.22	4.68E-01	4.43E-01	1.76E+00
		860.37	4.48	4.05E+00		1.70E+01
		2614.66	35.85	-1.69E-02		4.43E-01
+	BI-210M	262.00	45.00	-2.60E-02	8.95E-01	8.95E-01
		300.00	23.00	-6.94E-01		1.79E+00
+	PB-210	46.50	4.25	-1.02E+02	1.64E+01	1.64E+01
+	PB-211	404.84	2.90	-8.92E+00	1.73E+01	1.73E+01
		831.96	2.90	-4.97E+00		2.43E+01
+	BI-212	727.17	11.80	2.00E+00	5.12E+00	5.12E+00
		1620.62	2.75	1.62E+00		9.63E+00
+	PB-212	238.63	44.60	4.74E-01	9.12E-01	9.12E-01
		300.09	3.41	-4.69E+00		1.21E+01
+	BI-214	609.31	46.30	-8.74E-02	1.18E+00	1.18E+00
		1120.29	15.10	1.22E+00		5.20E+00
		1764.49	15.80	1.63E+00		1.88E+00
		2204.22	4.98	1.50E+00		5.03E+00
+	PB-214	295.21	19.19	6.63E-02	1.24E+00	2.17E+00
		351.92	37.19	-2.71E-02		1.24E+00
+	RN-219	401.80	6.50	3.10E+00	7.77E+00	7.77E+00
+	RA-223	323.87	3.88	-6.84E-01	1.11E+01	1.11E+01
+	RA-224	240.98	3.95	1.25E+01	1.04E+01	1.04E+01
+	@ RA-225	40.00	31.00	1.00E+26	1.00E+26	1.00E+26
+	RA-226	186.21	* 3.28	8.30E+00	1.08E+01	1.08E+01
+	TH-227	50.10	8.40	3.90E+01	3.48E+00	8.52E+00
		236.00	11.50	-1.29E+00		3.48E+00
		256.20	6.30	3.94E+00		6.38E+00
+	AC-228	338.32	11.40	4.49E-01	3.01E+00	3.90E+00
		911.07	27.70	-1.68E+00		3.01E+00
		969.11	16.60	2.16E-01		5.12E+00

Analysis Report for 1707089-01

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TH-230	48.44		16.90	1.39E+01	4.21E+00	4.21E+00
		62.85		4.60	-3.69E+01		1.46E+01
		67.67		0.37	1.49E+02		9.22E+01
+	PA-231	283.67		1.60	-8.98E+00	1.79E+01	2.54E+01
		302.67		2.30	-8.82E+00		1.79E+01
+	TH-231	25.64		14.70	-4.30E+02	5.70E+00	4.55E+01
		84.21		6.40	-3.30E+02		5.70E+00
+	PA-233	311.98		38.60	3.55E+11	6.84E+11	6.84E+11
+	PA-234	131.20		20.40	3.50E-01	1.19E+00	1.19E+00
		733.99		8.80	-6.75E-01		6.82E+00
		946.00		12.00	5.63E-01		7.66E+00
+	PA-234M	1001.03		0.92	7.55E+00	8.83E+01	8.83E+01
+	TH-234	63.29		3.80	-6.83E+02	9.83E+00	9.83E+00
+	U-235	143.76		10.50	-6.16E-01	2.37E+00	2.37E+00
		163.35		4.70	-1.56E+00		5.69E+00
		205.31		4.70	-4.07E+00		7.72E+00
+	NP-237	86.50		12.60	1.48E+02	5.17E+00	5.17E+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	2.17E+02	3.33E+00	3.33E+00
+	AM-243	74.67		66.00	-2.52E-02	4.86E-01	4.86E-01
+	CM-243	209.75		3.29	-6.82E+00	3.08E+00	1.21E+01
		228.14		10.60	1.49E+00		4.07E+00
		277.60		14.00	-2.39E-01		3.08E+00

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

NUCLIDE MDA REPORT

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

Analysis Report for 1707089-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	4.98E+06	4.98E+06	2.66E+06	2.46E+06
	NA-22	1274.54		99.94	8.34E-01	8.34E-01	1.21E-01	4.01E-01
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		0.00E+00	1.00E+20
	AL-26	1808.65		99.76	2.36E-01	2.36E-01	-1.57E-01	1.08E-01
	K-40	1460.81		10.67	2.91E+00	2.91E+00	1.87E+00	1.38E+00
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	3.72E-01	3.44E-01	6.02E-01	1.85E-01
		78.34		96.00	3.44E-01		5.99E-02	1.71E-01
	SC-46	889.25		99.98	4.92E+03	4.91E+03	1.14E+03	2.43E+03
		1120.51		99.99	4.91E+03		1.15E+03	2.41E+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	1.34E+12	1.34E+12	6.32E+11	6.64E+11
	MN-54	834.83		99.97	7.47E+00	7.47E+00	2.60E+00	3.68E+00
	CO-56	846.75		99.96	7.94E+03	1.60E+03	3.31E+03	3.91E+03
		1037.75		14.03	6.41E+04		1.17E+04	3.16E+04
		1238.25		67.00	6.75E+03		1.66E+03	3.26E+03
		1771.40		15.51	1.97E+04		5.84E+03	9.19E+03
		2598.48		16.90	1.60E+03		0.00E+00	0.00E+00
+	CO-57	122.06	*	85.51	8.28E+00	8.28E+00	7.82E+01	4.12E+00
		136.48	*	10.60	4.85E+01		4.85E+01	2.41E+01
	CO-58	810.76		99.40	2.08E+04	2.08E+04	-1.60E+04	1.03E+04
	FE-59	1099.22		56.50	2.09E+07	1.16E+07	8.95E+06	1.03E+07
		1291.56		43.20	1.16E+07		-3.64E+06	5.57E+06
+	CO-60	1173.22	*	100.00	1.81E+00	1.10E+00	1.27E+02	8.97E-01
		1332.49	*	100.00	1.10E+00		1.28E+02	5.39E-01
	ZN-65	1115.52		50.75	3.30E+01	3.30E+01	1.46E+01	1.62E+01
@	GA-67	93.31		35.70	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		208.95		2.24	1.00E+26		1.00E+26	1.00E+20
@		300.22		16.00	1.00E+26		1.00E+26	1.00E+20
	SE-75	121.11		16.70	9.52E+02	2.00E+02	8.83E+03	4.73E+02
		136.00		59.20	2.00E+02		3.02E+02	9.93E+01
		264.65		59.80	3.06E+02		-7.91E+00	1.52E+02
		279.53		25.20	7.23E+02		-2.49E+02	3.58E+02
		400.65		11.40	2.00E+03		6.46E+02	9.90E+02
	RB-82	776.52		13.00	1.38E+13	1.38E+13	6.62E+11	6.80E+12
	RB-83	520.41		46.00	5.72E+03	5.72E+03	1.15E+03	2.82E+03
		529.64		30.30	8.38E+03		-3.15E+03	4.14E+03
		552.65		16.40	1.56E+04		2.71E+03	7.71E+03
	KR-85	513.99		0.43	1.51E+02	1.51E+02	6.25E+01	7.48E+01
	SR-85	513.99		99.27	4.44E+04	4.44E+04	1.84E+04	2.19E+04
+	Y-88	898.02	*	93.40	1.07E+03	4.00E+02	1.01E+03	5.29E+02
		1836.01	*	99.38	4.00E+02		2.38E+02	1.90E+02
	MO-93	263.06		56.72	8.50E-01	3.30E-01	-2.42E-01	4.21E-01
		684.67		99.68	6.65E-01		-1.69E-03	3.27E-01
		1477.11		99.08	3.30E-01		8.38E-02	1.55E-01
	NB-93M	16.57		9.43	5.97E+02	5.97E+02	5.19E+01	2.97E+02
	NB-94	702.63		100.00	5.60E-01	5.60E-01	-8.36E-02	2.75E-01
		871.10		100.00	7.58E-01		1.73E-01	3.73E-01
	NB-95	765.79		99.81	7.47E+08	7.47E+08	3.72E+06	3.68E+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	1.27E+05	1.02E+05	3.95E+04	6.25E+04

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	ZR-95	756.72		55.30	1.02E+05	1.02E+05	1.70E+04	5.04E+04
@	MO-99	181.06		6.20	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		739.58		12.80	1.00E+26		1.00E+26	1.00E+20
@		778.00		4.50	1.00E+26		1.00E+26	1.00E+20
	RU-103	497.08		89.00	7.49E+07	7.49E+07	-9.12E+06	3.70E+07
	RU-106	621.84		9.80	4.14E+01	4.14E+01	1.50E+01	2.04E+01
	AG-108M	433.93		89.90	6.10E-01	6.06E-01	-1.40E-02	3.02E-01
		614.37		90.40	6.06E-01		-2.40E-01	2.99E-01
		722.95		90.50	6.57E-01		-6.17E-02	3.23E-01
+	CD-109	88.03	*	3.72	7.24E+01	7.24E+01	3.06E+03	3.60E+01
	AG-110M	657.75		93.14	2.86E+01	1.94E+01	-1.54E+02	1.42E+01
		677.61		10.53	9.71E+01		-2.13E+01	4.78E+01
		706.67		16.46	6.40E+01		-1.21E+01	3.15E+01
		763.93		21.98	5.20E+01		-2.59E+01	2.56E+01
		884.67		71.63	2.02E+01		-8.74E+00	9.96E+00
		1384.27		23.94	1.94E+01		5.29E+00	9.08E+00
	CD-113M	263.70		0.02	2.02E+03	2.02E+03	-4.43E+02	9.99E+02
+	SN-113	255.12		1.93	1.20E+04	4.50E+02	4.85E+02	5.95E+03
		391.69	*	64.90	4.50E+02		2.49E+02	2.23E+02
	TE123M	159.00		84.10	1.40E+02	1.40E+02	7.17E+01	6.93E+01
	SB-124	602.71		97.87	1.09E+05	1.09E+05	3.83E+04	5.36E+04
		645.85		7.26	1.51E+06		-2.10E+05	7.42E+05
		722.78		11.10	1.02E+06		-9.58E+04	5.02E+05
		1691.02		49.00	1.09E+05		3.40E+04	5.07E+04
	I-125	35.49		6.49	2.21E+06	2.21E+06	1.74E+06	1.10E+06
	SB-125	176.33		6.89	8.09E+00	3.76E+00	-9.01E-01	4.00E+00
		427.89		29.33	3.76E+00		3.59E-02	1.86E+00
		463.38		10.35	1.19E+01		-9.20E-03	5.89E+00
		600.56		17.80	6.37E+00		2.81E+00	3.14E+00
		635.90		11.32	1.03E+01		2.99E+00	5.06E+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	1.50E+00	1.50E+00	6.33E+01	7.47E-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	2.32E+00	2.32E+00	-5.06E+01	1.15E+00
		33.60		13.20	7.21E+00		1.52E+01	3.58E+00
		39.58		7.52	7.75E+00		-3.27E+01	3.84E+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	1.16E+00	9.23E-01	-3.65E-01	5.78E-01
		302.84		17.80	2.80E+00		-1.38E+00	1.38E+00
		356.01		60.00	9.23E-01		-1.33E-01	4.57E-01
@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	XE-133	81.00		38.00	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	CS-134	563.23		8.38	1.63E+01	1.48E+00	5.18E-01	8.05E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CS-134	569.32		15.43	8.87E+00	1.48E+00	-4.39E+00	4.37E+00
		604.70		97.60	1.48E+00		-5.14E-01	7.28E-01
		795.84		85.40	2.01E+00		-2.44E-01	9.91E-01
		801.93		8.73	2.04E+01		1.23E+00	1.01E+01
	CS-135	268.24		16.00	2.54E+00	2.54E+00	-2.60E-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	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	1.28E+00	1.28E+00	8.27E+01	6.36E-01
	LA-138	788.74		34.00	1.92E+00	3.37E-01	6.72E-01	9.46E-01
		1435.80		66.00	3.37E-01		-2.29E-01	1.56E-01
+	CE-139	165.85	*	80.35	9.13E+01	9.13E+01	1.25E+02	4.53E+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		0.00E+00	1.00E+20
	CE-141	145.44		48.40	3.18E+09	3.18E+09	2.88E+08	1.58E+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	3.04E+01	3.04E+01	1.73E+00	1.51E+01
	PM-144	476.78		42.00	1.04E+01	4.16E+00	3.56E+00	5.13E+00
		618.01		98.60	4.16E+00		-4.29E-01	2.05E+00
		696.49		99.49	4.31E+00		2.90E+00	2.12E+00
	PM-145	36.85		21.70	3.41E+00	1.84E+00	1.72E+00	1.69E+00
		37.36		39.70	1.84E+00		8.16E-01	9.12E-01
		42.30		15.10	4.35E+00		-3.18E+00	2.16E+00
		72.40		2.31	1.57E+01		2.98E+00	7.81E+00
	PM-146	453.90		39.94	2.07E+00	2.07E+00	1.09E+00	1.02E+00
		735.90		14.01	6.17E+00		1.08E+00	3.04E+00
		747.13		13.10	6.74E+00		1.38E+00	3.32E+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	2.03E+00	2.02E+00	2.24E+01	1.01E+00
		244.69		5.40	8.58E+00		1.31E+00	4.25E+00
		344.27		19.13	2.73E+00		-5.12E-01	1.35E+00
		778.89		9.20	7.88E+00		2.69E+00	3.88E+00
		964.01		10.40	9.82E+00		-9.18E-01	4.84E+00
		1085.78		7.22	1.34E+01		1.07E+00	6.61E+00

Analysis Report for 1707089-01

GAS-1402

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
EU-152	1112.02	9.60	1.03E+01	2.02E+00	2.75E+00	5.07E+00
	1407.95	14.94	2.02E+00		1.34E+00	9.48E-01
GD-153	97.43	31.30	1.51E+01	1.51E+01	4.10E+00	7.47E+00
	103.18	22.20	2.15E+01		8.17E+00	1.07E+01
EU-154	123.07	40.50	1.11E+00	1.11E+00	1.23E+01	5.54E-01
	723.30	19.70	3.73E+00		-3.51E-01	1.84E+00
	873.19	11.50	8.23E+00		-3.98E+00	4.05E+00
	996.32	10.30	1.02E+01		4.16E+00	5.00E+00
	1004.76	17.90	5.57E+00		-3.97E+00	2.74E+00
	1274.45	35.50	1.36E+00		1.98E-01	6.55E-01
EU-155	86.50	30.90	3.16E+00	1.67E+00	9.04E+01	1.58E+00
	105.30	20.70	1.67E+00		-4.53E-01	8.30E-01
@ EU-156	811.77	10.40	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1153.47	7.20	1.00E+26		1.00E+26	1.00E+20
@	1230.71	8.90	1.00E+26		1.00E+26	1.00E+20
HO-166M	184.41	72.60	4.05E-01	4.05E-01	-1.02E-01	2.00E-01
	280.45	29.60	1.36E+00		-7.98E-01	6.74E-01
	410.94	11.10	4.65E+00		9.61E-01	2.30E+00
	711.69	54.10	1.05E+00		3.40E-01	5.16E-01
TM-171	66.72	0.14	6.87E+02	6.87E+02	4.55E+02	3.41E+02
HF-172	67.35	5.31	1.88E+01	6.56E+00	3.04E+01	9.36E+00
	125.81	11.30	6.56E+00		-6.78E+01	3.25E+00
@ LU-172	181.53	20.60	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	900.72	29.81	1.00E+26		1.00E+26	1.00E+20
@	1093.66	62.50	1.00E+26		1.00E+26	1.00E+20
LU-173	100.72	5.24	1.87E+01	8.27E+00	-1.11E+01	9.28E+00
	272.11	21.20	8.27E+00		1.56E+00	4.10E+00
HF-175	343.40	84.00	1.89E+04	1.89E+04	-3.53E+03	9.33E+03
LU-176	88.34	13.30	4.99E+00	3.56E-01	1.70E+02	2.49E+00
	201.83	86.00	3.56E-01		-3.13E-02	1.76E-01
	306.78	94.00	4.49E-01		-1.97E-02	2.22E-01
HF-181	133.02	41.70	1.88E+07	1.88E+07	-1.70E+06	9.29E+06
	345.85	17.20	8.49E+07		1.54E+07	4.20E+07
	482.03	82.80	2.15E+07		4.13E+06	1.06E+07
TA-182	67.75	41.20	5.00E+02	5.00E+02	8.08E+02	2.48E+02
	1121.30	34.90	1.33E+03		1.16E+01	6.54E+02
	1189.05	16.23	2.20E+03		4.19E+02	1.07E+03
	1221.41	26.98	1.01E+03		-4.62E+02	4.90E+02
	1231.02	11.44	2.36E+03		-2.15E+02	1.14E+03
IR-192	308.46	29.68	2.88E+04	2.49E+04	9.34E+03	1.42E+04
	468.07	48.10	2.49E+04		1.55E+03	1.23E+04
HG-203	279.19	77.30	3.53E+06	3.53E+06	1.46E+06	1.75E+06
TL-204	374.74	94.11	8.53E-01	8.53E-01	-3.36E-01	4.22E-01
	899.15	99.16	1.45E+00		1.24E+00	7.15E-01
	911.74	91.10	1.57E+00		-8.04E-01	7.75E-01
BI-207	569.67	97.72	5.62E-01	5.62E-01	-5.33E-01	2.77E-01
	1063.62	74.90	1.18E+00		-3.16E-01	5.81E-01
TL-208	583.14	30.22	1.76E+00	4.43E-01	4.68E-01	8.68E-01
	860.37	4.48	1.70E+01		4.05E+00	8.37E+00
	2614.66	35.85	4.43E-01		-1.69E-02	1.87E-01
BI-210M	262.00	45.00	8.95E-01	8.95E-01	-2.60E-02	4.43E-01
	300.00	23.00	1.79E+00		-6.94E-01	8.85E-01
PB-210	46.50	4.25	1.64E+01	1.64E+01	-1.02E+02	8.18E+00

Analysis Report for 1707089-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PB-211	404.84		2.90	1.73E+01	1.73E+01	-8.92E+00	8.56E+00
		831.96		2.90	2.43E+01		-4.97E+00	1.20E+01
	BI-212	727.17		11.80	5.12E+00	5.12E+00	2.00E+00	2.52E+00
		1620.62		2.75	9.63E+00		1.62E+00	4.49E+00
	PB-212	238.63		44.60	9.12E-01	9.12E-01	4.74E-01	4.52E-01
		300.09		3.41	1.21E+01		-4.69E+00	5.97E+00
	BI-214	609.31		46.30	1.18E+00	1.18E+00	-8.74E-02	5.80E-01
		1120.29		15.10	5.20E+00		1.22E+00	2.56E+00
		1764.49		15.80	1.88E+00		1.63E+00	8.78E-01
		2204.22		4.98	5.03E+00		1.50E+00	2.29E+00
	PB-214	295.21		19.19	2.17E+00	1.24E+00	6.63E-02	1.07E+00
		351.92		37.19	1.24E+00		-2.71E-02	6.11E-01
	RN-219	401.80		6.50	7.77E+00	7.77E+00	3.10E+00	3.84E+00
	RA-223	323.87		3.88	1.11E+01	1.11E+01	-6.84E-01	5.49E+00
	RA-224	240.98		3.95	1.04E+01	1.04E+01	1.25E+01	5.16E+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	1.08E+01	1.08E+01	8.30E+00	5.38E+00
	TH-227	50.10		8.40	8.52E+00	3.48E+00	3.90E+01	4.24E+00
		236.00		11.50	3.48E+00		-1.29E+00	1.73E+00
		256.20		6.30	6.38E+00		3.94E+00	3.16E+00
	AC-228	338.32		11.40	3.90E+00	3.01E+00	4.49E-01	1.93E+00
		911.07		27.70	3.01E+00		-1.68E+00	1.49E+00
		969.11		16.60	5.12E+00		2.16E-01	2.52E+00
	TH-230	48.44		16.90	4.21E+00	4.21E+00	1.39E+01	2.10E+00
		62.85		4.60	1.46E+01		-3.69E+01	7.28E+00
		67.67		0.37	9.22E+01		1.49E+02	4.58E+01
	PA-231	283.67		1.60	2.54E+01	1.79E+01	-8.98E+00	1.26E+01
		302.67		2.30	1.79E+01		-8.82E+00	8.85E+00
	TH-231	25.64		14.70	4.55E+01	5.70E+00	-4.30E+02	2.27E+01
		84.21		6.40	5.70E+00		-3.30E+02	2.83E+00
	PA-233	311.98		38.60	6.84E+11	6.84E+11	3.55E+11	3.39E+11
	PA-234	131.20		20.40	1.19E+00	1.19E+00	3.50E-01	5.90E-01
		733.99		8.80	6.82E+00		-6.75E-01	3.36E+00
		946.00		12.00	7.66E+00		5.63E-01	3.78E+00
	PA-234M	1001.03		0.92	8.83E+01	8.83E+01	7.55E+00	4.35E+01
	TH-234	63.29		3.80	9.83E+00	9.83E+00	-6.83E+02	4.89E+00
	U-235	143.76		10.50	2.37E+00	2.37E+00	-6.16E-01	1.17E+00
		163.35		4.70	5.69E+00		-1.56E+00	2.82E+00
		205.31		4.70	7.72E+00		-4.07E+00	3.83E+00
	NP-237	86.50		12.60	5.17E+00	5.17E+00	1.48E+02	2.58E+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	3.33E+00	3.33E+00	2.17E+02	1.66E+00
	AM-243	74.67		66.00	4.86E-01	4.86E-01	-2.52E-02	2.42E-01
	CM-243	209.75		3.29	1.21E+01	3.08E+00	-6.82E+00	5.99E+00
		228.14		10.60	4.07E+00		1.49E+00	2.02E+00
		277.60		14.00	3.08E+00		-2.39E-01	1.52E+00

Analysis Report for 1707089-01

GAS-1402

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: GAS-1402

Elapsed Live time: 1800
Elapsed Real Time: 1836

Channel								
1:	0	0	0	0	0	0	0	0
9:	151	1578	2369	4678	4588	2569	2189	2049
17:	1948	2416	1965	2337	9555	37456	39959	12973
25:	13344	12166	3813	1215	838	870	1078	1750
33:	1812	1153	912	1053	1223	1088	1091	1165
41:	1215	1358	1682	1813	1902	2027	2329	3059
49:	3996	4727	4681	4487	4523	4425	4614	4798
57:	5067	6833	23338	45359	21804	3399	1458	1341
65:	1406	1528	1658	1710	1670	1681	1585	1568
73:	1544	1584	1636	1521	1630	1649	1598	1557
81:	1643	1632	1599	1683	1779	1795	3859	13341
89:	13743	3749	1072	831	844	805	808	818
97:	818	861	789	804	774	823	833	860
105:	820	792	810	819	862	822	832	797
113:	856	822	808	756	800	855	860	849
121:	1181	2787	2919	1269	763	819	752	726
129:	782	780	736	774	752	760	747	924
137:	985	849	772	746	810	749	745	717
145:	717	705	743	692	671	699	696	738
153:	693	669	670	693	654	682	693	708
161:	719	662	638	714	701	874	806	690
169:	675	645	618	640	710	644	682	643
177:	656	674	632	656	653	682	698	677
185:	724	759	782	759	762	682	713	732
193:	702	694	702	691	691	752	709	664
201:	724	681	709	681	681	667	665	661
209:	685	721	685	689	683	741	735	757
217:	716	747	701	708	750	762	726	716
225:	739	710	690	681	740	702	684	690
233:	642	634	648	647	640	677	744	693
241:	651	648	657	648	584	617	608	586
249:	580	566	578	561	565	612	577	556
257:	578	581	605	546	544	560	574	567
265:	537	552	550	542	569	558	542	534
273:	550	490	494	549	475	498	511	554
281:	461	496	506	470	546	515	487	501
289:	489	513	487	520	464	469	496	503
297:	488	474	470	483	443	442	444	450
305:	476	455	458	496	481	479	499	491
313:	467	474	441	440	441	443	460	457
321:	471	433	449	437	417	425	471	418
329:	454	432	403	416	419	442	426	458
337:	420	436	447	415	461	435	434	436
345:	435	427	435	480	429	399	443	462
353:	449	426	442	422	419	393	417	409
361:	416	432	418	431	400	454	419	404

369:	375	414	409	413	408	417	399	433

Sample Title: GAS-1402

Channel								
377:	393	420	401	473	436	393	407	394
385:	434	415	417	408	436	393	459	458
393:	419	433	381	399	397	402	458	420
401:	413	388	391	428	410	402	402	415
409:	423	435	435	403	430	374	405	423
417:	394	431	419	405	428	376	428	391
425:	412	431	439	373	434	389	435	420
433:	421	408	416	405	394	454	381	397
441:	395	444	447	430	444	436	467	433
449:	438	377	408	458	462	443	420	425
457:	415	412	424	453	451	412	440	485
465:	475	455	427	460	455	423	427	447
473:	413	414	434	427	419	360	375	375
481:	371	347	351	310	377	334	314	340
489:	356	331	321	356	349	375	321	327
497:	282	330	326	339	315	340	283	309
505:	314	297	299	273	323	329	318	317
513:	315	307	327	287	297	255	296	282
521:	286	303	313	301	276	282	258	284
529:	230	273	280	262	252	286	253	251
537:	273	240	259	263	262	292	262	239
545:	280	245	264	244	267	240	248	251
553:	219	245	260	271	220	246	265	244
561:	208	229	241	246	251	231	227	211
569:	226	228	231	262	232	250	288	234
577:	246	236	241	236	221	224	248	239
585:	224	249	227	210	251	246	262	218
593:	247	227	216	210	219	238	233	244
601:	238	214	236	255	233	232	225	214
609:	212	264	218	219	234	199	206	224
617:	231	220	225	220	224	227	233	222
625:	230	200	218	201	233	239	210	227
633:	230	222	230	228	207	231	224	223
641:	208	217	221	209	198	223	214	221
649:	252	242	222	223	237	219	215	224
657:	230	228	335	1660	6633	9018	3903	682
665:	228	214	181	193	211	196	170	197
673:	189	196	203	203	172	186	190	179
681:	173	182	201	213	191	167	185	178
689:	189	205	197	175	170	191	217	186
697:	186	203	198	182	188	176	200	181
705:	185	180	179	179	197	185	179	198
713:	198	169	170	174	178	189	171	186
721:	178	201	174	203	196	204	220	190
729:	204	201	196	197	198	220	178	196
737:	191	209	184	201	177	193	202	181
745:	204	236	162	198	200	216	193	191
753:	191	199	200	175	204	176	201	172
761:	185	178	192	186	201	172	205	206
769:	217	196	222	210	200	201	189	191
777:	187	189	195	212	199	171	179	171
785:	196	201	204	226	202	220	191	192
793:	214	197	199	193	213	192	190	231

801:	191	220	228	216	206	236	196	204

Sample Title: GAS-1402

Channel								
809:	195	204	200	182	231	190	214	233
817:	202	197	216	216	217	225	209	228
825:	225	210	198	227	199	216	208	223
833:	196	227	249	235	225	212	211	222
841:	228	210	203	233	215	214	229	205
849:	225	230	209	218	232	232	222	229
857:	212	274	249	255	226	222	235	227
865:	248	218	233	238	238	260	216	206
873:	235	229	244	207	251	236	272	267
881:	216	253	213	232	247	223	216	250
889:	251	245	261	242	233	229	258	279
897:	274	310	289	268	254	242	243	261
905:	287	259	267	250	250	252	268	282
913:	269	253	276	298	292	260	251	258
921:	282	241	291	268	284	250	300	273
929:	255	255	273	305	282	295	298	262
937:	275	280	327	281	285	287	284	293
945:	326	308	266	327	270	283	317	337
953:	316	313	295	306	296	247	278	289
961:	285	271	261	268	272	222	262	250
969:	256	208	263	233	213	225	221	229
977:	225	216	223	213	266	208	227	228
985:	223	217	229	241	201	216	188	205
993:	230	208	231	221	231	209	220	222
1001:	220	205	185	202	181	205	206	202
1009:	218	206	201	233	190	217	231	212
1017:	227	225	188	193	205	207	210	213
1025:	189	209	212	197	207	214	218	190
1033:	184	196	182	197	236	184	182	200
1041:	213	208	188	170	184	219	210	213
1049:	182	175	209	184	185	190	198	190
1057:	182	198	210	200	193	195	185	203
1065:	198	204	204	196	211	197	216	162
1073:	195	181	192	201	182	188	196	219
1081:	210	176	192	191	192	167	198	220
1089:	185	188	188	204	184	198	201	196
1097:	204	219	206	224	192	192	194	185
1105:	184	194	193	200	214	205	182	192
1113:	186	180	187	168	188	179	147	166
1121:	146	147	146	141	137	134	141	119
1129:	138	152	137	142	119	129	131	120
1137:	135	130	109	114	103	146	132	134
1145:	124	120	128	130	112	104	111	113
1153:	107	115	127	117	112	116	96	133
1161:	107	103	123	99	117	105	96	112
1169:	107	218	1072	4172	6784	4114	961	179
1177:	105	92	92	86	70	79	87	83
1185:	82	87	79	88	79	54	87	91
1193:	78	70	73	69	53	83	52	71
1201:	68	72	70	59	58	65	49	50
1209:	53	55	63	55	56	44	57	57
1217:	48	49	36	46	41	47	41	51
1225:	47	49	43	41	49	55	37	32

1233:	49	37	38	47	24	47	30	36

Sample Title: GAS-1402

Channel								
1241:	29	32	21	35	37	34	35	28
1249:	28	44	38	38	29	31	33	34
1257:	27	37	35	27	25	36	31	19
1265:	26	24	38	31	28	24	32	29
1273:	28	30	26	25	38	35	25	25
1281:	39	24	25	29	31	20	34	28
1289:	31	23	20	25	33	28	25	39
1297:	34	20	23	24	23	28	29	26
1305:	29	10	24	22	32	22	24	22
1313:	19	23	25	29	24	27	30	24
1321:	33	29	37	33	26	35	38	50
1329:	95	781	3305	5754	4143	1176	172	35
1337:	19	17	21	15	8	9	13	7
1345:	11	10	12	9	16	13	8	15
1353:	15	14	13	9	13	8	11	11
1361:	5	9	16	7	12	13	8	12
1369:	7	9	11	11	9	8	13	16
1377:	5	8	11	9	9	14	10	14
1385:	4	11	9	6	9	6	15	10
1393:	10	14	11	13	8	3	13	13
1401:	13	11	9	3	14	13	9	5
1409:	12	13	11	6	9	14	15	6
1417:	8	6	8	8	6	9	13	7
1425:	8	9	3	13	6	7	16	11
1433:	7	10	11	3	7	9	6	9
1441:	10	8	12	9	7	5	11	11
1449:	8	12	4	14	13	4	4	11
1457:	9	12	18	12	11	8	17	10
1465:	8	10	7	11	16	9	9	10
1473:	9	9	10	14	5	9	9	7
1481:	6	6	6	9	4	11	7	6
1489:	6	7	5	4	4	9	5	10
1497:	7	7	7	6	7	9	10	5
1505:	5	9	10	3	4	4	7	10
1513:	8	6	8	9	8	5	5	9
1521:	8	9	17	8	14	9	10	6
1529:	8	10	8	10	5	6	3	3
1537:	9	8	11	12	8	6	5	5
1545:	9	16	7	7	6	5	5	6
1553:	7	8	6	5	5	12	7	6
1561:	5	9	10	10	5	6	7	7
1569:	9	6	5	10	10	6	5	7
1577:	6	10	7	7	4	4	8	7
1585:	6	9	2	7	9	5	9	7
1593:	10	6	13	8	1	5	10	3
1601:	8	6	3	9	4	9	8	6
1609:	10	10	6	2	8	5	9	4
1617:	4	7	6	7	12	7	7	9
1625:	4	7	5	5	6	6	9	5
1633:	8	6	5	5	4	4	2	5
1641:	6	4	8	8	7	4	6	10
1649:	5	7	5	11	5	7	7	4
1657:	4	3	4	5	8	4	6	6

1665:	9	10	7	8	10	3	6	8

Sample Title: GAS-1402

Channel								
1673:	4	8	10	4	5	6	8	7
1681:	7	5	7	9	8	5	8	4
1689:	7	9	2	6	8	13	7	7
1697:	3	9	6	4	3	7	7	4
1705:	2	4	2	7	6	5	5	5
1713:	6	5	9	5	2	5	4	4
1721:	6	4	5	7	8	6	6	3
1729:	6	1	4	6	4	7	3	8
1737:	2	4	5	4	5	3	4	8
1745:	6	3	4	6	9	3	2	5
1753:	10	4	4	3	5	7	1	4
1761:	5	6	6	13	9	10	9	8
1769:	4	3	5	10	4	3	15	7
1777:	6	5	5	0	10	6	3	4
1785:	5	2	7	3	4	2	4	3
1793:	4	7	4	6	7	5	5	3
1801:	3	9	6	4	5	5	2	4
1809:	7	5	6	3	5	8	6	4
1817:	4	5	3	2	3	4	7	5
1825:	6	3	9	7	6	6	4	2
1833:	8	16	19	14	5	5	9	5
1841:	4	8	4	6	4	4	3	5
1849:	3	7	3	1	2	5	4	8
1857:	3	5	3	5	4	5	3	3
1865:	4	8	8	6	3	1	3	6
1873:	8	7	5	7	6	2	3	5
1881:	4	3	7	5	6	9	7	4
1889:	3	3	7	7	5	8	5	3
1897:	2	9	4	3	3	4	5	5
1905:	7	3	3	6	6	2	7	6
1913:	4	5	4	4	7	5	2	8
1921:	5	6	4	6	1	2	11	4
1929:	0	3	6	8	6	3	6	3
1937:	0	7	5	1	3	6	5	3
1945:	4	3	4	5	4	8	8	4
1953:	4	3	2	4	5	8	4	3
1961:	5	3	5	4	4	4	7	3
1969:	6	9	1	3	6	7	4	4
1977:	5	4	5	6	1	3	5	3
1985:	5	5	7	5	2	7	5	5
1993:	3	4	8	4	4	3	4	4
2001:	2	4	2	7	5	5	4	5
2009:	5	5	4	0	3	4	2	5
2017:	6	2	7	6	4	3	3	8
2025:	8	9	5	7	1	4	3	7
2033:	4	5	4	5	3	2	7	9
2041:	2	7	5	3	3	6	2	2
2049:	6	9	4	4	3	5	6	3
2057:	0	4	0	3	1	4	4	4
2065:	3	4	7	3	5	5	4	4
2073:	5	7	3	7	5	3	6	6
2081:	6	4	5	7	2	7	3	3
2089:	4	3	3	3	3	3	1	3

2097:	3	2	3	3	1	5	2	3

Sample Title: GAS-1402

Channel								
2105:	6	3	3	1	6	2	4	2
2113:	1	3	2	5	3	5	2	1
2121:	5	5	2	2	3	3	5	3
2129:	3	3	5	5	6	3	3	6
2137:	3	4	4	0	0	3	4	3
2145:	6	3	4	5	1	5	1	2
2153:	6	5	4	1	3	2	7	4
2161:	5	1	1	5	2	1	2	4
2169:	4	2	5	1	1	2	3	2
2177:	9	2	2	5	3	5	4	3
2185:	5	3	6	1	1	3	3	3
2193:	4	2	2	5	3	4	4	2
2201:	2	3	4	2	9	4	1	8
2209:	2	3	1	4	8	4	0	3
2217:	1	3	2	4	4	4	1	2
2225:	5	5	4	5	7	6	1	6
2233:	0	2	4	2	4	5	1	2
2241:	8	7	3	3	4	4	4	3
2249:	4	4	1	4	1	4	6	3
2257:	2	1	2	0	7	4	4	4
2265:	1	5	1	5	2	3	4	1
2273:	5	10	2	3	2	1	5	3
2281:	4	2	2	2	5	4	3	6
2289:	1	3	0	3	5	2	5	1
2297:	3	3	6	2	2	5	2	1
2305:	1	5	3	3	2	1	2	5
2313:	5	3	5	2	1	1	3	5
2321:	2	1	2	4	1	2	0	0
2329:	1	3	2	1	2	2	2	3
2337:	3	2	3	2	3	3	2	1
2345:	3	3	2	0	2	3	1	3
2353:	2	1	3	2	3	1	4	2
2361:	1	0	0	1	2	3	0	1
2369:	3	3	1	2	1	1	1	1
2377:	1	0	2	3	1	1	2	0
2385:	2	3	0	1	1	3	0	1
2393:	1	0	1	1	0	1	0	1
2401:	2	1	1	1	1	1	1	0
2409:	0	2	4	0	1	2	3	2
2417:	0	2	0	1	0	0	1	1
2425:	1	0	0	0	0	0	3	1
2433:	0	1	0	1	0	1	0	0
2441:	0	0	0	2	2	2	1	0
2449:	1	0	0	2	0	0	1	0
2457:	1	0	0	0	1	1	0	0
2465:	0	0	0	1	0	1	2	1
2473:	0	1	0	1	1	1	0	0
2481:	0	0	2	0	3	3	1	0
2489:	1	2	0	0	0	1	1	0
2497:	2	0	2	1	1	4	19	40
2505:	55	27	9	0	0	0	0	0
2513:	0	1	0	0	0	0	0	0
2521:	0	0	0	0	1	0	0	0

2529:	0	0	0	0	0	0	0	0

Sample Title: GAS-1402

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

2961:	0	1	0	0	0	0	0	0

Sample Title: GAS-1402

Channel								
2969:	0	0	0	0	0	0	0	0
2977:	0	0	0	0	0	0	0	0
2985:	0	0	0	0	0	0	0	0
2993:	0	0	0	0	0	0	0	0
3001:	0	0	0	0	0	0	0	0
3009:	0	0	0	0	0	0	0	0
3017:	0	0	0	0	0	0	0	0
3025:	0	0	1	0	0	0	0	0
3033:	0	0	0	0	1	0	0	0
3041:	0	0	0	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	0	0	0
3081:	0	0	0	0	0	0	0	1
3089:	0	0	0	0	0	0	0	0
3097:	0	0	0	0	0	0	0	0
3105:	0	0	0	0	1	0	0	0
3113:	0	1	0	0	0	0	0	0
3121:	0	0	0	0	0	0	0	0
3129:	0	0	0	1	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	1	0	0	0
3161:	0	0	0	0	0	0	2	0
3169:	1	0	0	1	0	0	0	0
3177:	0	0	0	0	0	0	0	0
3185:	0	0	0	0	0	0	0	0
3193:	0	0	0	0	1	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	0	0	0	0	0
3225:	0	0	0	1	0	0	0	0
3233:	0	0	0	0	0	0	0	1
3241:	0	0	0	0	0	0	0	0
3249:	1	0	0	0	0	0	0	0
3257:	0	0	1	1	0	0	0	1
3265:	0	0	0	0	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	1	0	1	0	0	0
3305:	0	1	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	1	0	0	0	0	0	0
3337:	0	0	0	0	0	0	0	1
3345:	0	0	0	0	0	0	0	0
3353:	0	0	0	0	0	1	0	0
3361:	1	0	0	0	0	0	0	0
3369:	0	0	0	0	0	0	0	0
3377:	0	0	0	0	0	0	0	0
3385:	0	0	0	0	0	0	0	0

3393:	0	0	0	0	0	0	0	0

Sample Title: GAS-1402

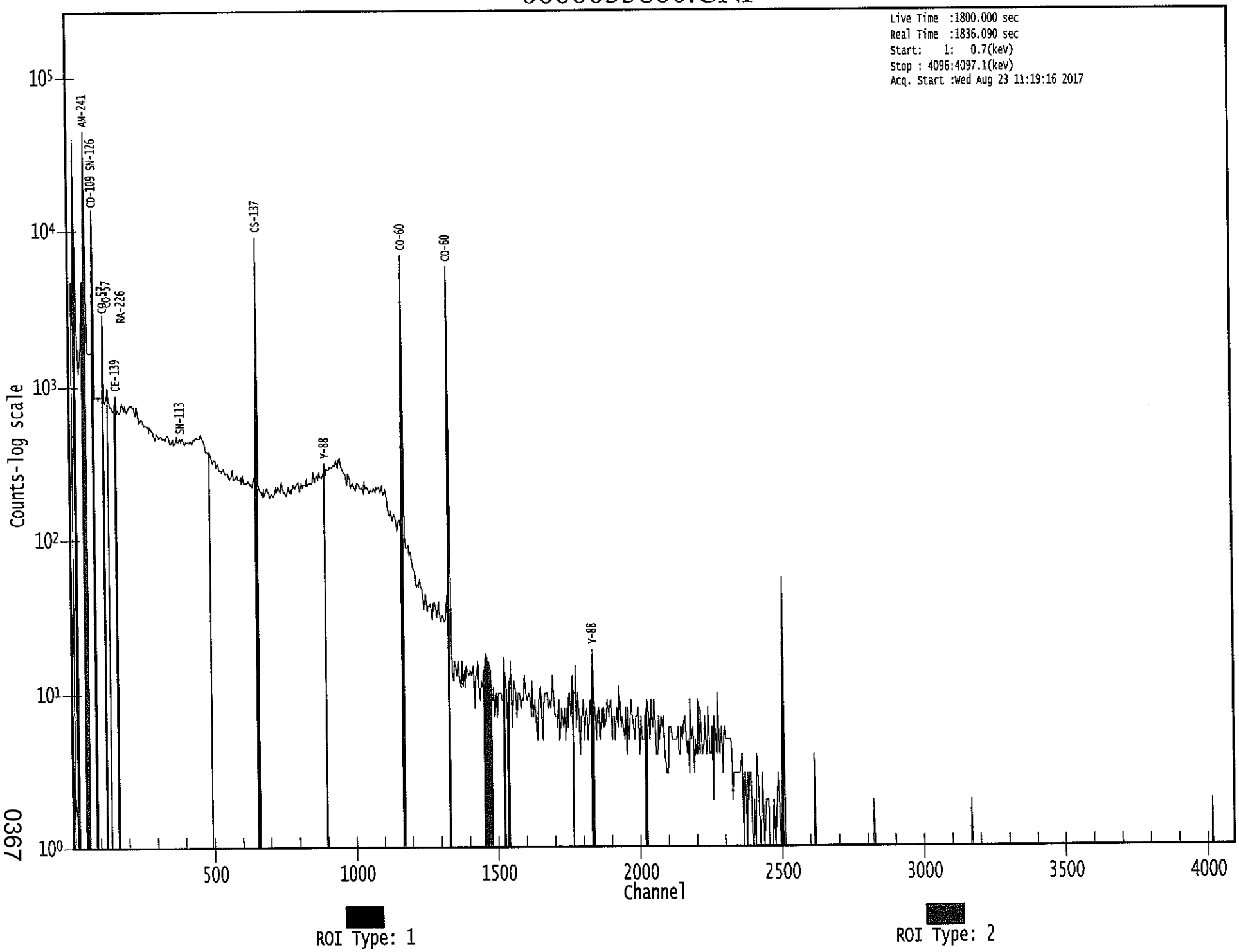
Channel								
3401:	0	1	0	0	0	0	0	0
3409:	0	0	1	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	1	0	0	0
3433:	0	0	0	0	0	1	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	1	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	1	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	1
3497:	0	0	0	0	0	0	0	0
3505:	0	0	0	0	0	0	0	0
3513:	0	0	0	0	0	0	0	0
3521:	1	0	0	0	0	0	0	0
3529:	0	0	0	0	0	0	0	0
3537:	0	0	0	0	0	0	1	0
3545:	0	0	0	0	0	0	0	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	1
3577:	0	0	1	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	1	0	0	0	1	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	1	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	1	0
3657:	0	0	0	0	0	0	0	0
3665:	0	0	0	0	0	0	0	0
3673:	0	0	0	0	0	0	0	0
3681:	1	0	0	0	0	0	0	0
3689:	1	0	0	0	0	0	0	1
3697:	0	0	0	0	0	0	0	1
3705:	0	0	0	0	0	0	0	0
3713:	0	0	0	0	0	0	0	0
3721:	0	0	0	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	1	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	1	0	0	0
3785:	0	0	0	0	0	1	0	0
3793:	0	0	0	0	0	0	0	0
3801:	0	0	0	0	0	0	1	0
3809:	0	0	0	1	0	0	0	0
3817:	0	0	0	0	0	0	0	0

3825:	0	0	0	0	1	0	0	0

Sample Title: GAS-1402

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

0000055800.CNF



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 KB 8/23/17

Apex-Gamma

Analysis Report for 1707089-02
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GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707089-02
Sample Description	: BLANK
Sample Type	: SOIL
Sample Size	: 7.834E+02 grams
Facility	: Countroom
Sample Taken On	: 8/23/2017 6:44:36AM
Acquisition Started	: 8/23/2017 11:19:07AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE2
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3600.4 seconds
Dead Time	: 0.01 %
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	: 55799

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/23/17

Analysis Report for 1707089-02

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PEAK LOCATE REPORT

Peak Locate Performed on : 8/23/2017 12:19:36PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	104.39	104.68	0.0000	0.00
2	460.27	460.17	0.0000	0.00
3	525.79	525.63	0.0000	0.00
4	610.71	610.46	0.0000	0.00
5	643.31	643.03	0.0000	0.00
6	683.29	682.97	0.0000	0.00
7	809.23	808.79	0.0000	0.00
8	818.77	818.32	0.0000	0.00
9	897.98	897.46	0.0000	0.00
10	911.67	911.13	0.0000	0.00
11	1065.90	1065.22	0.0000	0.00
12	1531.38	1530.30	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707089-02

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PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/23/2017 12:19:36PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	104.39	101 -	109	104.68	5.01E+01	37.87	1.92E+02	4.87
	2	460.27	457 -	464	460.17	1.98E+01	20.30	5.44E+01	2.81
	3	525.79	522 -	529	525.63	1.69E+01	14.83	2.02E+01	3.58
	4	610.71	607 -	614	610.46	2.36E+01	18.11	3.68E+01	4.59
	5	643.31	640 -	647	643.03	1.06E+01	12.65	1.89E+01	2.01
	6	683.29	679 -	686	682.97	1.30E+01	12.96	1.80E+01	1.26
M	7	809.23	807 -	833	808.79	1.01E+01	6.63	3.53E+00	4.02
m	8	818.77	807 -	833	818.32	6.86E+00	10.39	7.06E+00	4.04
	9	897.98	894 -	900	897.46	1.53E+01	8.96	3.35E+00	1.98
	10	911.67	908 -	914	911.13	1.50E+01	7.75	0.00E+00	3.96
	11	1065.90	1061 -	1070	1065.22	1.29E+01	12.45	1.43E+01	1.24
	12	1531.38	1527 -	1533	1530.30	5.21E+00	6.34	3.57E+00	2.93

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 : 8/23/2017 12:19:36PM

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

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
1	104.39	101 -	109	5.01E+01	37.87	1.92E+02	2.89E+01
2	460.27	457 -	464	1.98E+01	20.30	5.44E+01	1.50E+01
3	525.79	522 -	529	1.69E+01	14.83	2.02E+01	1.01E+01

Analysis Report for 1707089-02

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	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	4	610.71	607 -	614	2.36E+01	18.11	3.68E+01	1.26E+01
	5	643.31	640 -	647	1.06E+01	12.65	1.89E+01	8.92E+00
	6	683.29	679 -	686	1.30E+01	12.96	1.80E+01	8.85E+00
M	7	809.23	807 -	833	1.01E+01	6.63	3.53E+00	3.09E+00
m	8	818.77	807 -	833	6.86E+00	10.39	7.06E+00	4.37E+00
	9	897.98	894 -	900	1.53E+01	8.96	3.35E+00	3.58E+00
	10	911.67	908 -	914	1.50E+01	7.75	0.00E+00	0.00E+00
	11	1065.90	1061 -	1070	1.29E+01	12.45	1.43E+01	8.37E+00
	12	1531.38	1527 -	1533	5.21E+00	6.34	3.57E+00	3.62E+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 : 8/23/2017 12:19:36PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	104.39	101 -	109	104.68	5.01E+01	37.87	1.92E+02	EU-155
	2	460.27	457 -	464	460.17	1.98E+01	20.30	5.44E+01	.....
	3	525.79	522 -	529	525.63	1.69E+01	14.83	2.02E+01	.....
	4	610.71	607 -	614	610.46	2.36E+01	18.11	3.68E+01	.....
	5	643.31	640 -	647	643.03	1.06E+01	12.65	1.89E+01	.....
	6	683.29	679 -	686	682.97	1.30E+01	12.96	1.80E+01	.....
M	7	809.23	807 -	833	808.79	1.01E+01	6.63	3.53E+00	.....
m	8	818.77	807 -	833	818.32	6.86E+00	10.39	7.06E+00	CS-136
	9	897.98	894 -	900	897.46	1.53E+01	8.96	3.35E+00	Y-88
	10	911.67	908 -	914	911.13	1.50E+01	7.75	0.00E+00	TL-204 AC-228
	11	1065.90	1061 -	1070	1065.22	1.29E+01	12.45	1.43E+01	.....
	12	1531.38	1527 -	1533	1530.30	5.21E+00	6.34	3.57E+00	.....

Analysis Report for 1707089-02

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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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/23/2017 12:19:36PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	104.39	5.01E+01	37.87	2.65E-02	2.11E-03
	2	460.27	1.98E+01	20.30	1.07E-02	9.09E-04
	3	525.79	1.69E+01	14.83	9.65E-03	8.52E-04
	4	610.71	2.36E+01	18.11	8.59E-03	7.78E-04
	5	643.31	1.06E+01	12.65	8.24E-03	7.50E-04
	6	683.29	1.30E+01	12.96	7.85E-03	7.13E-04
M	7	809.23	1.01E+01	6.63	6.84E-03	5.92E-04
m	8	818.77	6.86E+00	10.39	6.78E-03	5.83E-04
	9	897.98	1.53E+01	8.96	6.29E-03	5.06E-04
	10	911.67	1.50E+01	7.75	6.21E-03	5.01E-04
	11	1065.90	1.29E+01	12.45	5.46E-03	4.48E-04
	12	1531.38	5.21E+00	6.34	4.12E-03	3.67E-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 : 8/23/2017 12:19:36PM

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

Analysis Report for 1707089-02

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	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	104.39	5.01E+01	37.87			5.01E+01	3.79E+01
	2	460.27	1.98E+01	20.30			1.98E+01	2.03E+01
	3	525.79	1.69E+01	14.83			1.69E+01	1.48E+01
	4	610.71	2.36E+01	18.11			2.36E+01	1.81E+01
	5	643.31	1.06E+01	12.65			1.06E+01	1.26E+01
	6	683.29	1.30E+01	12.96			1.30E+01	1.30E+01
M	7	809.23	1.01E+01	6.63			1.01E+01	6.63E+00
m	8	818.77	6.86E+00	10.39			6.86E+00	1.04E+01
	9	897.98	1.53E+01	8.96			1.53E+01	8.96E+00
	10	911.67	1.50E+01	7.75	2.63E+00	2.49E+00	1.24E+01	8.14E+00
	11	1065.90	1.29E+01	12.45			1.29E+01	1.24E+01
	12	1531.38	5.21E+00	6.34			5.21E+00	6.34E+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 : 8/23/2017 12:19:36PM

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	104.39	5.01E+01	37.87			5.01E+01	3.79E+01
	2	460.27	1.98E+01	20.30			1.98E+01	2.03E+01
	3	525.79	1.69E+01	14.83			1.69E+01	1.48E+01
	4	610.71	2.36E+01	18.11			2.36E+01	1.81E+01
	5	643.31	1.06E+01	12.65			1.06E+01	1.26E+01
	6	683.29	1.30E+01	12.96			1.30E+01	1.30E+01
M	7	809.23	1.01E+01	6.63			1.01E+01	6.63E+00
m	8	818.77	6.86E+00	10.39			6.86E+00	1.04E+01
	9	897.98	1.53E+01	8.96			1.53E+01	8.96E+00
	10	911.67	1.50E+01	7.75	2.63E+00	2.49E+00	1.24E+01	8.14E+00
	11	1065.90	1.29E+01	12.45			1.29E+01	1.24E+01
	12	1531.38	5.21E+00	6.34			5.21E+00	6.34E+00

Analysis Report for 1707089-02

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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

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
		*		?	
		*		?	

* = 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 : 8/23/2017 12:19:36PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	104.39	1.39231E-02	37.78	Tol.	EU-155
	2	460.27	5.49645E-03	51.29		
	3	525.79	4.69136E-03	43.91		
	4	610.71	6.56085E-03	38.34		
	5	643.31	2.93056E-03	59.95		
	6	683.29	3.61742E-03	49.76		
M	7	809.23	2.81591E-03	32.72		
m	8	818.77	1.90502E-03	75.77	Tol.	CS-136

Analysis Report for 1707089-02

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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
9	897.98	4.25654E-03	29.23	Tol.	Y-88
10	911.67	3.43614E-03	32.89	Tol.	TL-204 AC-228
11	1065.90	3.56944E-03	48.44		
12	1531.38	1.44841E-03	60.84		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

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

* = 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 1707089-02

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Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments

? = 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 1707089-02

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UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 12:19:36PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	104.39	1.39231E-02	37.78	Tol.	EU-155
	2	460.27	5.49645E-03	51.29		
	3	525.79	4.69136E-03	43.91		
	4	610.71	6.56085E-03	38.34		
	5	643.31	2.93056E-03	59.95		
	6	683.29	3.61742E-03	49.76		
M	7	809.23	2.81591E-03	32.72		
m	8	818.77	1.90502E-03	75.77	Tol.	CS-136
	9	897.98	4.25654E-03	29.23	Tol.	Y-88
	10	911.67	3.43614E-03	32.89	Tol.	TL-204
						AC-228
	11	1065.90	3.56944E-03	48.44		
	12	1531.38	1.44841E-03	60.84		

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59	10.42	1.12E-01	2.13E-01	2.13E-01
+	NA-22	1274.54	99.94	-3.33E-03	3.04E-02	3.04E-02
+	NA-24	1368.53	99.99	-2.71E-03	3.54E-02	3.82E-02
		2754.09	99.86	-1.90E-03		3.54E-02

Analysis Report for 1707089-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	AL-26	1808.65	99.76	5.03E-03	3.41E-02	3.41E-02
+	K-40	1460.81	10.67	-1.29E-01	2.76E-01	2.76E-01
+	AR-41	1293.64	99.16	1.41E-02	2.24E-01	2.24E-01
+	TI-44	67.88	94.40	-3.55E-04	1.41E-02	1.41E-02
		78.34	96.00	6.74E-03		1.42E-02
+	SC-46	889.25	99.98	1.27E-02	2.58E-02	3.05E-02
		1120.51	99.99	-8.85E-03		2.58E-02
+	V-48	983.52	99.98	4.98E-03	2.58E-02	2.89E-02
		1312.10	97.50	-2.15E-02		2.58E-02
+	CR-51	320.08	9.83	6.30E-02	2.09E-01	2.09E-01
+	MN-54	834.83	99.97	6.78E-03	2.71E-02	2.71E-02
+	CO-56	846.75	99.96	-7.20E-03	3.27E-02	3.27E-02
		1037.75	14.03	-5.69E-02		1.84E-01
		1238.25	67.00	1.65E-04		4.93E-02
		1771.40	15.51	-1.10E-01		1.78E-01
		2598.48	16.90	2.07E-02		1.65E-01
+	CO-57	122.06	85.51	-2.86E-03	1.49E-02	1.49E-02
		136.48	10.60	9.84E-03		1.53E-01
+	CO-58	810.76	99.40	3.53E-03	2.75E-02	2.75E-02
+	FE-59	1099.22	56.50	-3.39E-02	4.19E-02	4.19E-02
		1291.56	43.20	-2.06E-02		6.70E-02
+	CO-60	1173.22	100.00	-8.16E-03	2.96E-02	3.30E-02
		1332.49	100.00	5.24E-03		2.96E-02
+	ZN-65	1115.52	50.75	1.35E-03	5.70E-02	5.70E-02
+	GA-67	93.31	35.70	2.94E-02	4.88E-02	4.88E-02
		208.95	2.24	4.02E-01		9.13E-01
		300.22	16.00	6.41E-02		1.29E-01
+	SE-75	121.11	16.70	-5.00E-03	2.95E-02	7.51E-02
		136.00	59.20	2.61E-02		2.95E-02
		264.65	59.80	1.50E-02		3.39E-02
		279.53	25.20	-9.62E-03		7.84E-02
		400.65	11.40	4.11E-02		1.84E-01
+	RB-82	776.52	13.00	-1.72E-02	2.35E-01	2.35E-01
+	RB-83	520.41	46.00	-7.33E-03	4.44E-02	4.44E-02
		529.64	30.30	0.00E+00		4.65E-02
		552.65	16.40	6.30E-02		1.38E-01
+	KR-85	513.99	0.43	2.91E-01	7.70E+00	7.70E+00
+	SR-85	513.99	99.27	1.27E-03	3.37E-02	3.37E-02
+	Y-88	898.02	93.40	1.91E-02	1.94E-02	3.58E-02
		1836.01	99.38	-1.32E-02		1.94E-02
+	MO-93	263.06	56.72	2.44E-03	2.75E-02	3.48E-02
		684.67	99.68	6.34E-03		2.75E-02
		1477.11	99.08	8.17E-04		3.43E-02
+	NB-93M	16.57	9.43	0.00E+00	5.53E+00	5.53E+00
+	NB-94	702.63	100.00	-5.62E-03	2.94E-02	2.94E-02
		871.10	100.00	-2.87E-03		2.99E-02
+	NB-95	765.79	99.81	1.10E-02	2.71E-02	2.71E-02

Analysis Report for 1707089-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	NB-95M	235.69	25.00	-1.27E-01	7.21E-02	7.21E-02
+	ZR-95	724.18	43.70	5.30E-03	4.83E-02	6.59E-02
		756.72	55.30	8.41E-03		4.83E-02
+	MO-99	181.06	6.20	6.47E-02	2.35E-01	2.84E-01
		739.58	12.80	5.80E-02		2.35E-01
		778.00	4.50	1.80E-01		7.31E-01
+	RU-103	497.08	89.00	-2.93E-03	2.35E-02	2.35E-02
+	RU-106	621.84	9.80	5.78E-02	2.66E-01	2.66E-01
+	AG-108M	433.93	89.90	2.82E-03	2.39E-02	2.39E-02
		614.37	90.40	-4.96E-04		2.85E-02
		722.95	90.50	3.53E-03		3.09E-02
+	CD-109	88.03	3.72	-1.32E-01	3.37E-01	3.37E-01
+	AG-110M	657.75	93.14	-1.69E-02	2.56E-02	2.56E-02
		677.61	10.53	9.22E-03		2.39E-01
		706.67	16.46	-6.53E-02		1.63E-01
		763.93	21.98	3.56E-02		1.22E-01
		884.67	71.63	6.90E-03		4.49E-02
		1384.27	23.94	-2.48E-02		1.08E-01
+	CD-113M	263.70	0.02	2.05E+00	8.61E+01	8.61E+01
+	SN-113	255.12	1.93	-7.36E-01	3.40E-02	9.71E-01
		391.69	64.90	4.90E-03		3.40E-02
+	TE123M	159.00	84.10	-7.16E-03	2.07E-02	2.07E-02
+	SB-124	602.71	97.87	2.83E-03	3.04E-02	3.04E-02
		645.85	7.26	5.37E-03		3.43E-01
		722.78	11.10	6.10E-02		2.65E-01
		1691.02	49.00	2.55E-02		9.24E-02
+	I-125	35.49	6.49	-6.98E+00	1.28E+00	1.28E+00
+	SB-125	176.33	6.89	1.33E-01	6.65E-02	2.57E-01
		427.89	29.33	3.88E-02		6.65E-02
		463.38	10.35	-1.21E-02		2.18E-01
		600.56	17.80	2.43E-02		1.69E-01
		635.90	11.32	4.61E-02		2.45E-01
+	SB-126	414.70	83.30	-9.54E-03	2.42E-02	2.42E-02
		666.33	99.60	2.17E-03		2.92E-02
		695.00	99.60	1.61E-02		3.32E-02
		720.50	53.80	-1.92E-03		5.63E-02
+	SN-126	87.57	37.00	-1.32E-02	3.39E-02	3.39E-02
+	SB-127	473.00	25.00	-1.44E-02	7.38E-02	7.65E-02
		685.20	35.70	-1.07E-02		7.38E-02
		783.80	14.70	7.50E-03		2.16E-01
+	I-129	29.78	57.00	2.46E-02	2.29E-01	2.29E-01
		33.60	13.20	6.83E+00		1.50E+00
		39.58	7.52	9.24E-01		7.29E-01
+	I-131	284.30	6.05	1.27E-01	2.49E-02	3.24E-01
		364.48	81.20	-1.52E-03		2.49E-02
		636.97	7.26	6.43E-02		3.72E-01
		722.89	1.80	1.81E-01		1.58E+00
+	TE-132	49.72	13.10	4.98E-02	2.41E-02	1.38E-01

Analysis Report for 1707089-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TE-132	228.16	88.00	1.44E-02	2.41E-02	2.41E-02
+	BA-133	81.00	33.00	1.74E-02	3.37E-02	3.57E-02
		302.84	17.80	2.49E-02		1.15E-01
		356.01	60.00	-2.48E-02		3.37E-02
+	I-133	529.87	86.30	-5.48E-03	2.28E-02	2.28E-02
+	XE-133	81.00	38.00	1.55E-02	3.19E-02	3.19E-02
+	CS-134	563.23	8.38	5.00E-03	2.89E-02	2.59E-01
		569.32	15.43	7.53E-02		1.81E-01
		604.70	97.60	4.64E-04		2.89E-02
		795.84	85.40	4.15E-03		3.45E-02
		801.93	8.73	3.05E-02		3.57E-01
+	CS-135	268.24	16.00	-4.15E-02	1.20E-01	1.20E-01
+	I-135	1131.51	22.50	-1.89E-02	1.44E-01	2.09E-01
		1260.41	28.60	-6.72E-02		1.44E-01
		1678.03	9.54	5.40E-02		6.23E-01
+	CS-136	153.22	7.46	-1.15E-01	2.70E-02	2.36E-01
		163.89	4.61	-5.85E-02		3.77E-01
		176.55	13.56	6.81E-02		1.32E-01
		273.65	12.66	-6.77E-02		1.55E-01
		340.57	48.50	9.33E-04		4.33E-02
		818.50	99.70	4.24E-03		2.70E-02
		1048.07	79.60	1.65E-03		3.10E-02
		1235.34	19.70	4.51E-02		1.77E-01
+	CS-137	661.65	85.12	6.59E-03	3.36E-02	3.36E-02
+	LA-138	788.74	34.00	-2.12E-04	6.10E-02	9.27E-02
		1435.80	66.00	3.03E-02		6.10E-02
+	CE-139	165.85	80.35	8.66E-03	2.28E-02	2.28E-02
+	BA-140	162.64	6.70	-5.26E-03	7.69E-02	2.64E-01
		304.84	4.50	-8.91E-02		4.12E-01
		423.70	3.20	-1.86E-01		4.22E-01
		437.55	2.00	1.26E-01		1.03E+00
		537.32	25.00	-1.23E-02		7.69E-02
+	LA-140	328.77	20.50	5.19E-02	4.43E-02	1.12E-01
		487.03	45.50	-1.20E-02		4.43E-02
		815.85	23.50	1.46E-02		1.10E-01
		1596.49	95.49	2.61E-02		4.78E-02
+	CE-141	145.44	48.40	3.49E-02	3.81E-02	3.81E-02
+	CE-143	57.36	11.80	-7.71E-02	5.59E-02	1.21E-01
		293.26	42.00	-6.32E-03		5.59E-02
		664.55	5.20	3.06E-01		6.75E-01
+	CE-144	133.54	10.80	-4.33E-02	1.18E-01	1.18E-01
+	PM-144	476.78	42.00	2.76E-02	2.37E-02	5.27E-02
		618.01	98.60	-7.09E-03		2.37E-02
		696.49	99.49	4.22E-03		3.29E-02
+	PM-145	36.85	21.70	-4.21E-01	1.62E-01	2.91E-01
		37.36	39.70	-2.78E-02		1.62E-01
		42.30	15.10	1.13E-02		1.68E-01
		72.40	2.31	1.76E-01		6.08E-01
+	PM-146	453.90	39.94	-4.82E-03	5.87E-02	5.87E-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PM-146	735.90	14.01	-2.53E-02	5.87E-02	1.92E-01
		747.13	13.10	-2.10E-02		1.74E-01
+	ND-147	91.11	28.90	-6.65E-02	4.90E-02	4.90E-02
		531.02	13.10	-2.15E-03		1.29E-01
+	PM-149	285.90	3.10	2.15E-01	6.31E-01	6.31E-01
+	EU-152	121.78	20.50	-1.19E-02	6.19E-02	6.19E-02
		244.69	5.40	8.38E-02		4.00E-01
		344.27	19.13	-2.86E-02		9.06E-02
		778.89	9.20	8.35E-02		3.39E-01
		964.01	10.40	-1.01E-01		2.93E-01
		1085.78	7.22	-2.10E-01		4.11E-01
		1112.02	9.60	-1.14E-01		3.00E-01
		1407.95	14.94	-6.48E-02		2.20E-01
+	GD-153	97.43	31.30	1.22E-03	3.71E-02	3.71E-02
		103.18	22.20	2.45E-02		6.09E-02
+	EU-154	123.07	40.50	-1.25E-02	3.11E-02	3.11E-02
		723.30	19.70	1.62E-02		1.42E-01
		873.19	11.50	3.24E-02		2.52E-01
		996.32	10.30	1.23E-01		3.14E-01
		1004.76	17.90	2.78E-02		2.04E-01
		1274.45	35.50	-9.37E-03		8.57E-02
+	EU-155	86.50	30.90	1.86E-03	3.98E-02	3.98E-02
		105.30	20.70	8.74E-03		6.61E-02
+	EU-156	811.77	10.40	7.20E-02	2.74E-01	2.74E-01
		1153.47	7.20	7.39E-02		4.76E-01
		1230.71	8.90	0.00E+00		3.36E-01
+	HO-166M	184.41	72.60	1.39E-02	2.98E-02	2.98E-02
		280.45	29.60	1.99E-02		6.83E-02
		410.94	11.10	6.60E-02		2.09E-01
		711.69	54.10	-2.68E-02		4.83E-02
+	TM-171	66.72	0.14	2.43E+00	9.86E+00	9.86E+00
+	HF-172	67.35	5.31	-6.33E-03	1.10E-01	2.51E-01
		125.81	11.30	-8.60E-03		1.10E-01
+	LU-172	181.53	20.60	2.73E-02	5.11E-02	8.29E-02
		900.72	29.81	-8.74E-03		1.15E-01
		1093.66	62.50	1.90E-02		5.11E-02
+	LU-173	100.72	5.24	-6.84E-02	9.34E-02	2.07E-01
		272.11	21.20	2.87E-03		9.34E-02
+	HF-175	343.40	84.00	1.15E-02	2.39E-02	2.39E-02
+	LU-176	88.34	13.30	1.10E-02	1.90E-02	1.01E-01
		201.83	86.00	-1.23E-02		1.90E-02
		306.78	94.00	6.29E-03		2.02E-02
+	HF-181	133.02	41.70	-1.32E-03	2.81E-02	3.03E-02
		345.85	17.20	-2.96E-02		1.01E-01
		482.03	82.80	9.02E-03		2.81E-02
+	TA-182	67.75	41.20	-8.14E-04	3.23E-02	3.23E-02
		1121.30	34.90	-9.74E-03		7.88E-02
		1189.05	16.23	3.70E-02		1.88E-01
		1221.41	26.98	-1.82E-02		7.83E-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TA-182	1231.02	11.44	0.00E+00	3.23E-02	2.59E-01
+	IR-192	308.46	29.68	-1.62E-02	3.80E-02	5.84E-02
		468.07	48.10	9.45E-04		3.80E-02
+	HG-203	279.19	77.30	4.92E-03	2.67E-02	2.67E-02
+	TL-204	374.74	94.11	6.64E-03	2.30E-02	2.30E-02
		899.15	99.16	-1.54E-03		3.37E-02
		911.74	91.10	1.95E-02		3.51E-02
+	BI-207	569.67	97.72	1.19E-02	2.86E-02	2.86E-02
		1063.62	74.90	2.11E-02		4.99E-02
+	TL-208	583.14	30.22	1.55E-02	8.91E-02	8.91E-02
		860.37	4.48	-1.45E-01		5.96E-01
		2614.66	35.85	5.12E-02		1.33E-01
+	BI-210M	262.00	45.00	-1.03E-02	4.24E-02	4.24E-02
		300.00	23.00	4.26E-02		8.58E-02
+	PB-210	46.50	4.25	5.69E-01	5.89E-01	5.89E-01
+	PB-211	404.84	2.90	-3.17E-02	7.02E-01	7.02E-01
		831.96	2.90	-2.49E-01		8.60E-01
+	BI-212	727.17	11.80	-1.05E-01	2.19E-01	2.19E-01
		1620.62	2.75	-1.54E-01		1.06E+00
+	PB-212	238.63	44.60	3.12E-02	4.87E-02	4.87E-02
		300.09	3.41	2.87E-01		5.79E-01
+	BI-214	609.31	46.30	3.39E-02	7.64E-02	7.64E-02
		1120.29	15.10	-5.85E-02		1.71E-01
		1764.49	15.80	4.43E-02		2.12E-01
		2204.22	4.98	4.22E-01		9.60E-01
+	PB-214	295.21	19.19	4.02E-02	6.55E-02	1.14E-01
		351.92	37.19	1.19E-02		6.55E-02
+	RN-219	401.80	6.50	-1.95E-01	2.99E-01	2.99E-01
+	RA-223	323.87	3.88	2.86E-02	5.78E-01	5.78E-01
+	RA-224	240.98	3.95	5.62E-02	5.66E-01	5.66E-01
+	RA-225	40.00	31.00	2.20E-01	1.74E-01	1.74E-01
+	RA-226	186.21	3.28	4.92E-01	6.64E-01	6.64E-01
+	TH-227	50.10	8.40	7.33E-02	1.51E-01	2.03E-01
		236.00	11.50	-2.66E-01		1.51E-01
		256.20	6.30	0.00E+00		3.14E-01
+	AC-228	338.32	11.40	-3.05E-02	1.15E-01	1.81E-01
		911.07	27.70	6.41E-02		1.15E-01
		969.11	16.60	8.56E-02		2.30E-01
+	TH-230	48.44	16.90	-1.28E-01	1.03E-01	1.03E-01
		62.85	4.60	4.92E-01		4.02E-01
		67.67	0.37	-9.06E-02		3.59E+00
+	PA-231	283.67	1.60	4.71E-01	8.86E-01	1.20E+00
		302.67	2.30	1.92E-01		8.86E-01
+	TH-231	25.64	14.70	0.00E+00	9.96E-02	9.96E-02
		84.21	6.40	8.55E-03		1.85E-01
+	PA-233	311.98	38.60	1.01E-02	4.70E-02	4.70E-02
+	PA-234	131.20	20.40	1.61E-02	6.21E-02	6.21E-02
		733.99	8.80	1.47E-02		3.05E-01

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PA-234	946.00	12.00	-2.41E-02	6.21E-02	2.41E-01
+	PA-234M	1001.03	0.92	-1.88E-01	3.53E+00	3.53E+00
+	TH-234	63.29	3.80	3.63E-01	4.81E-01	4.81E-01
+	U-235	143.76	10.50	-3.78E-02	1.69E-01	1.69E-01
		163.35	4.70	-5.66E-02		3.65E-01
		205.31	4.70	-1.96E-01		3.70E-01
+	NP-237	86.50	12.60	4.56E-03	9.76E-02	9.76E-02
+	NP-239	106.10	22.70	8.49E-03	6.43E-02	6.43E-02
		228.18	10.70	1.21E-01		2.01E-01
		277.60	14.10	5.05E-02		1.58E-01
+	AM-241	59.54	35.90	-5.99E-03	3.49E-02	3.49E-02
+	AM-243	74.67	66.00	-8.89E-04	2.15E-02	2.15E-02
+	CM-243	209.75	3.29	3.74E-03	1.50E-01	5.91E-01
		228.14	10.60	1.14E-01		1.91E-01
		277.60	14.00	4.78E-02		1.50E-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	2.13E-01	2.13E-01	1.12E-01	9.46E-02
NA-22	1274.54	99.94	3.04E-02	3.04E-02	-3.33E-03	1.25E-02
NA-24	1368.53	99.99	3.82E-02	3.54E-02	-2.71E-03	1.54E-02
	2754.09	99.86	3.54E-02		-1.90E-03	1.25E-02
AL-26	1808.65	99.76	3.41E-02	3.41E-02	5.03E-03	1.35E-02
K-40	1460.81	10.67	2.76E-01	2.76E-01	-1.29E-01	1.10E-01
AR-41	1293.64	99.16	2.24E-01	2.24E-01	1.41E-02	9.27E-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
TI-44	67.88	94.40	1.41E-02	1.41E-02	-3.55E-04	6.48E-03
	78.34	96.00	1.42E-02		6.74E-03	6.61E-03
SC-46	889.25	99.98	3.05E-02	2.58E-02	1.27E-02	1.32E-02
	1120.51	99.99	2.58E-02		-8.85E-03	1.04E-02
V-48	983.52	99.98	2.89E-02	2.58E-02	4.98E-03	1.22E-02
	1312.10	97.50	2.58E-02		-2.15E-02	9.98E-03
CR-51	320.08	9.83	2.09E-01	2.09E-01	6.30E-02	9.49E-02
MN-54	834.83	99.97	2.71E-02	2.71E-02	6.78E-03	1.16E-02
CO-56	846.75	99.96	3.27E-02	3.27E-02	-7.20E-03	1.44E-02
	1037.75	14.03	1.84E-01		-5.69E-02	7.55E-02
	1238.25	67.00	4.93E-02		1.65E-04	2.07E-02
	1771.40	15.51	1.78E-01		-1.10E-01	6.67E-02
	2598.48	16.90	1.65E-01		2.07E-02	5.84E-02
CO-57	122.06	85.51	1.49E-02	1.49E-02	-2.86E-03	6.83E-03
	136.48	10.60	1.53E-01		9.84E-03	7.13E-02
CO-58	810.76	99.40	2.75E-02	2.75E-02	3.53E-03	1.19E-02
FE-59	1099.22	56.50	4.19E-02	4.19E-02	-3.39E-02	1.66E-02
	1291.56	43.20	6.70E-02		-2.06E-02	2.71E-02
CO-60	1173.22	100.00	3.30E-02	2.96E-02	-8.16E-03	1.40E-02
	1332.49	100.00	2.96E-02		5.24E-03	1.20E-02
ZN-65	1115.52	50.75	5.70E-02	5.70E-02	1.35E-03	2.36E-02
GA-67	93.31	35.70	4.88E-02	4.88E-02	2.94E-02	2.30E-02
	208.95	2.24	9.13E-01		4.02E-01	4.24E-01
	300.22	16.00	1.29E-01		6.41E-02	5.88E-02
SE-75	121.11	16.70	7.51E-02	2.95E-02	-5.00E-03	3.45E-02
	136.00	59.20	2.95E-02		2.61E-02	1.39E-02
	264.65	59.80	3.39E-02		1.50E-02	1.56E-02
	279.53	25.20	7.84E-02		-9.62E-03	3.58E-02
	400.65	11.40	1.84E-01		4.11E-02	8.25E-02
RB-82	776.52	13.00	2.35E-01	2.35E-01	-1.72E-02	1.03E-01
RB-83	520.41	46.00	4.44E-02	4.44E-02	-7.33E-03	1.93E-02
	529.64	30.30	4.65E-02		0.00E+00	1.88E-02
	552.65	16.40	1.38E-01		6.30E-02	6.04E-02
KR-85	513.99	0.43	7.70E+00	7.70E+00	2.91E-01	3.55E+00
SR-85	513.99	99.27	3.37E-02	3.37E-02	1.27E-03	1.55E-02
Y-88	898.02	93.40	3.58E-02	1.94E-02	1.91E-02	1.57E-02
	1836.01	99.38	1.94E-02		-1.32E-02	6.14E-03
MO-93	263.06	56.72	3.48E-02	2.75E-02	2.44E-03	1.60E-02
	684.67	99.68	2.75E-02		6.34E-03	1.21E-02
	1477.11	99.08	3.43E-02		8.17E-04	1.41E-02
NB-93M	16.57	9.43	5.53E+00	5.53E+00	0.00E+00	0.00E+00
NB-94	702.63	100.00	2.94E-02	2.94E-02	-5.62E-03	1.30E-02
	871.10	100.00	2.99E-02		-2.87E-03	1.29E-02
NB-95	765.79	99.81	2.71E-02	2.71E-02	1.10E-02	1.17E-02
NB-95M	235.69	25.00	7.21E-02	7.21E-02	-1.27E-01	3.29E-02
ZR-95	724.18	43.70	6.59E-02	4.83E-02	5.30E-03	2.90E-02
	756.72	55.30	4.83E-02		8.41E-03	2.09E-02
MO-99	181.06	6.20	2.84E-01	2.35E-01	6.47E-02	1.31E-01
	739.58	12.80	2.35E-01		5.80E-02	1.03E-01
	778.00	4.50	7.31E-01		1.80E-01	3.22E-01
RU-103	497.08	89.00	2.35E-02	2.35E-02	-2.93E-03	1.03E-02
RU-106	621.84	9.80	2.66E-01	2.66E-01	5.78E-02	1.17E-01
AG-108M	433.93	89.90	2.39E-02	2.39E-02	2.82E-03	1.06E-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
AG-108M	614.37	90.40	2.85E-02	2.39E-02	-4.96E-04	1.26E-02
	722.95	90.50	3.09E-02		3.53E-03	1.35E-02
CD-109	88.03	3.72	3.37E-01	3.37E-01	-1.32E-01	1.56E-01
AG-110M	657.75	93.14	2.56E-02	2.56E-02	-1.69E-02	1.11E-02
	677.61	10.53	2.39E-01		9.22E-03	1.04E-01
	706.67	16.46	1.63E-01		-6.53E-02	7.09E-02
	763.93	21.98	1.22E-01		3.56E-02	5.29E-02
	884.67	71.63	4.49E-02		6.90E-03	1.96E-02
	1384.27	23.94	1.08E-01		-2.48E-02	4.20E-02
CD-113M	263.70	0.02	8.61E+01	8.61E+01	2.05E+00	3.95E+01
SN-113	255.12	1.93	9.71E-01	3.40E-02	-7.36E-01	4.45E-01
	391.69	64.90	3.40E-02		4.90E-03	1.53E-02
TE123M	159.00	84.10	2.07E-02	2.07E-02	-7.16E-03	9.67E-03
SB-124	602.71	97.87	3.04E-02	3.04E-02	2.83E-03	1.37E-02
	645.85	7.26	3.43E-01		5.37E-03	1.50E-01
	722.78	11.10	2.65E-01		6.10E-02	1.17E-01
	1691.02	49.00	9.24E-02		2.55E-02	3.93E-02
I-125	35.49	6.49	1.28E+00	1.28E+00	-6.98E+00	6.17E-01
SB-125	176.33	6.89	2.57E-01	6.65E-02	1.33E-01	1.19E-01
	427.89	29.33	6.65E-02		3.88E-02	2.93E-02
	463.38	10.35	2.18E-01		-1.21E-02	9.71E-02
	600.56	17.80	1.69E-01		2.43E-02	7.62E-02
	635.90	11.32	2.45E-01		4.61E-02	1.09E-01
SB-126	414.70	83.30	2.42E-02	2.42E-02	-9.54E-03	1.07E-02
	666.33	99.60	2.92E-02		2.17E-03	1.30E-02
	695.00	99.60	3.32E-02		1.61E-02	1.49E-02
	720.50	53.80	5.63E-02		-1.92E-03	2.49E-02
SN-126	87.57	37.00	3.39E-02	3.39E-02	-1.32E-02	1.56E-02
SB-127	473.00	25.00	7.65E-02	7.38E-02	-1.44E-02	3.31E-02
	685.20	35.70	7.38E-02		-1.07E-02	3.21E-02
	783.80	14.70	2.16E-01		7.50E-03	9.51E-02
I-129	29.78	57.00	2.29E-01	2.29E-01	2.46E-02	1.09E-01
	33.60	13.20	1.50E+00		6.83E+00	7.34E-01
	39.58	7.52	7.29E-01		9.24E-01	3.49E-01
I-131	284.30	6.05	3.24E-01	2.49E-02	1.27E-01	1.48E-01
	364.48	81.20	2.49E-02		-1.52E-03	1.12E-02
	636.97	7.26	3.72E-01		6.43E-02	1.64E-01
	722.89	1.80	1.58E+00		1.81E-01	6.93E-01
TE-132	49.72	13.10	1.38E-01	2.41E-02	4.98E-02	6.31E-02
	228.16	88.00	2.41E-02		1.44E-02	1.12E-02
BA-133	81.00	33.00	3.57E-02	3.37E-02	1.74E-02	1.64E-02
	302.84	17.80	1.15E-01		2.49E-02	5.23E-02
	356.01	60.00	3.37E-02		-2.48E-02	1.52E-02
I-133	529.87	86.30	2.28E-02	2.28E-02	-5.48E-03	9.56E-03
XE-133	81.00	38.00	3.19E-02	3.19E-02	1.55E-02	1.46E-02
CS-134	563.23	8.38	2.59E-01	2.89E-02	5.00E-03	1.13E-01
	569.32	15.43	1.81E-01		7.53E-02	8.12E-02
	604.70	97.60	2.89E-02		4.64E-04	1.29E-02
	795.84	85.40	3.45E-02		4.15E-03	1.51E-02
	801.93	8.73	3.57E-01		3.05E-02	1.57E-01
CS-135	268.24	16.00	1.20E-01	1.20E-01	-4.15E-02	5.48E-02
I-135	1131.51	22.50	2.09E-01	1.44E-01	-1.89E-02	8.58E-02
	1260.41	28.60	1.44E-01		-6.72E-02	5.56E-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
I-135	1678.03	9.54	6.23E-01	1.44E-01	5.40E-02	2.52E-01
CS-136	153.22	7.46	2.36E-01	2.70E-02	-1.15E-01	1.10E-01
	163.89	4.61	3.77E-01		-5.85E-02	1.76E-01
	176.55	13.56	1.32E-01		6.81E-02	6.14E-02
	273.65	12.66	1.55E-01		-6.77E-02	7.10E-02
	340.57	48.50	4.33E-02		9.33E-04	1.96E-02
	818.50	99.70	2.70E-02		4.24E-03	1.16E-02
	1048.07	79.60	3.10E-02		1.65E-03	1.25E-02
	1235.34	19.70	1.77E-01		4.51E-02	7.46E-02
CS-137	661.65	85.12	3.36E-02	3.36E-02	6.59E-03	1.49E-02
LA-138	788.74	34.00	9.27E-02	6.10E-02	-2.12E-04	4.09E-02
	1435.80	66.00	6.10E-02		3.03E-02	2.59E-02
CE-139	165.85	80.35	2.28E-02	2.28E-02	8.66E-03	1.07E-02
BA-140	162.64	6.70	2.64E-01	7.69E-02	-5.26E-03	1.23E-01
	304.84	4.50	4.12E-01		-8.91E-02	1.86E-01
	423.70	3.20	4.22E-01		-1.86E-01	1.75E-01
	437.55	2.00	1.03E+00		1.26E-01	4.54E-01
	537.32	25.00	7.69E-02		-1.23E-02	3.29E-02
LA-140	328.77	20.50	1.12E-01	4.43E-02	5.19E-02	5.13E-02
	487.03	45.50	4.43E-02		-1.20E-02	1.94E-02
	815.85	23.50	1.10E-01		1.46E-02	4.68E-02
	1596.49	95.49	4.78E-02		2.61E-02	2.04E-02
CE-141	145.44	48.40	3.81E-02	3.81E-02	3.49E-02	1.79E-02
CE-143	57.36	11.80	1.21E-01	5.59E-02	-7.71E-02	5.48E-02
	293.26	42.00	5.59E-02		-6.32E-03	2.57E-02
	664.55	5.20	6.75E-01		3.06E-01	3.03E-01
CE-144	133.54	10.80	1.18E-01	1.18E-01	-4.33E-02	5.42E-02
PM-144	476.78	42.00	5.27E-02	2.37E-02	2.76E-02	2.34E-02
	618.01	98.60	2.37E-02		-7.09E-03	1.03E-02
	696.49	99.49	3.29E-02		4.22E-03	1.48E-02
PM-145	36.85	21.70	2.91E-01	1.62E-01	-4.21E-01	1.39E-01
	37.36	39.70	1.62E-01		-2.78E-02	7.74E-02
	42.30	15.10	1.68E-01		1.13E-02	7.76E-02
	72.40	2.31	6.08E-01		1.76E-01	2.82E-01
PM-146	453.90	39.94	5.87E-02	5.87E-02	-4.82E-03	2.63E-02
	735.90	14.01	1.92E-01		-2.53E-02	8.33E-02
	747.13	13.10	1.74E-01		-2.10E-02	7.37E-02
ND-147	91.11	28.90	4.90E-02	4.90E-02	-6.65E-02	2.28E-02
	531.02	13.10	1.29E-01		-2.15E-03	5.40E-02
PM-149	285.90	3.10	6.31E-01	6.31E-01	2.15E-01	2.86E-01
EU-152	121.78	20.50	6.19E-02	6.19E-02	-1.19E-02	2.85E-02
	244.69	5.40	4.00E-01		8.38E-02	1.86E-01
	344.27	19.13	9.06E-02		-2.86E-02	4.02E-02
	778.89	9.20	3.39E-01		8.35E-02	1.50E-01
	964.01	10.40	2.93E-01		-1.01E-01	1.25E-01
	1085.78	7.22	4.11E-01		-2.10E-01	1.72E-01
	1112.02	9.60	3.00E-01		-1.14E-01	1.25E-01
	1407.95	14.94	2.20E-01		-6.48E-02	9.01E-02
GD-153	97.43	31.30	3.71E-02	3.71E-02	1.22E-03	1.70E-02
	103.18	22.20	6.09E-02		2.45E-02	2.83E-02
EU-154	123.07	40.50	3.11E-02	3.11E-02	-1.25E-02	1.43E-02
	723.30	19.70	1.42E-01		1.62E-02	6.22E-02
	873.19	11.50	2.52E-01		3.24E-02	1.09E-01

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
EU-154	996.32	10.30	3.14E-01	3.11E-02	1.23E-01	1.35E-01
	1004.76	17.90	2.04E-01		2.78E-02	8.96E-02
	1274.45	35.50	8.57E-02		-9.37E-03	3.51E-02
EU-155	86.50	30.90	3.98E-02	3.98E-02	1.86E-03	1.83E-02
	105.30	20.70	6.61E-02		8.74E-03	3.07E-02
EU-156	811.77	10.40	2.74E-01	2.74E-01	7.20E-02	1.19E-01
	1153.47	7.20	4.76E-01		7.39E-02	2.02E-01
	1230.71	8.90	3.36E-01		0.00E+00	1.38E-01
HO-166M	184.41	72.60	2.98E-02	2.98E-02	1.39E-02	1.40E-02
	280.45	29.60	6.83E-02		1.99E-02	3.13E-02
	410.94	11.10	2.09E-01		6.60E-02	9.44E-02
	711.69	54.10	4.83E-02		-2.68E-02	2.10E-02
TM-171	66.72	0.14	9.86E+00	9.86E+00	2.43E+00	4.56E+00
HF-172	67.35	5.31	2.51E-01	1.10E-01	-6.33E-03	1.16E-01
	125.81	11.30	1.10E-01		-8.60E-03	5.05E-02
LU-172	181.53	20.60	8.29E-02	5.11E-02	2.73E-02	3.83E-02
	900.72	29.81	1.15E-01		-8.74E-03	5.03E-02
	1093.66	62.50	5.11E-02		1.90E-02	2.16E-02
LU-173	100.72	5.24	2.07E-01	9.34E-02	-6.84E-02	9.42E-02
	272.11	21.20	9.34E-02		2.87E-03	4.28E-02
HF-175	343.40	84.00	2.39E-02	2.39E-02	1.15E-02	1.08E-02
LU-176	88.34	13.30	1.01E-01	1.90E-02	1.10E-02	4.69E-02
	201.83	86.00	1.90E-02		-1.23E-02	8.71E-03
	306.78	94.00	2.02E-02		6.29E-03	9.15E-03
HF-181	133.02	41.70	3.03E-02	2.81E-02	-1.32E-03	1.39E-02
	345.85	17.20	1.01E-01		-2.96E-02	4.50E-02
	482.03	82.80	2.81E-02		9.02E-03	1.26E-02
TA-182	67.75	41.20	3.23E-02	3.23E-02	-8.14E-04	1.49E-02
	1121.30	34.90	7.88E-02		-9.74E-03	3.23E-02
	1189.05	16.23	1.88E-01		3.70E-02	7.78E-02
	1221.41	26.98	7.83E-02		-1.82E-02	2.93E-02
	1231.02	11.44	2.59E-01		0.00E+00	1.06E-01
IR-192	308.46	29.68	5.84E-02	3.80E-02	-1.62E-02	2.62E-02
	468.07	48.10	3.80E-02		9.45E-04	1.65E-02
HG-203	279.19	77.30	2.67E-02	2.67E-02	4.92E-03	1.23E-02
TL-204	374.74	94.11	2.30E-02	2.30E-02	6.64E-03	1.04E-02
	899.15	99.16	3.37E-02		-1.54E-03	1.48E-02
	911.74	91.10	3.51E-02		1.95E-02	1.53E-02
BI-207	569.67	97.72	2.86E-02	2.86E-02	1.19E-02	1.28E-02
	1063.62	74.90	4.99E-02		2.11E-02	2.18E-02
TL-208	583.14	30.22	8.91E-02	8.91E-02	1.55E-02	3.97E-02
	860.37	4.48	5.96E-01		-1.45E-01	2.54E-01
	2614.66	35.85	1.33E-01		5.12E-02	5.50E-02
BI-210M	262.00	45.00	4.24E-02	4.24E-02	-1.03E-02	1.94E-02
	300.00	23.00	8.58E-02		4.26E-02	3.91E-02
PB-210	46.50	4.25	5.89E-01	5.89E-01	5.69E-01	2.75E-01
PB-211	404.84	2.90	7.02E-01	7.02E-01	-3.17E-02	3.13E-01
	831.96	2.90	8.60E-01		-2.49E-01	3.63E-01
BI-212	727.17	11.80	2.19E-01	2.19E-01	-1.05E-01	9.47E-02
	1620.62	2.75	1.06E+00		-1.54E-01	4.09E-01
PB-212	238.63	44.60	4.87E-02	4.87E-02	3.12E-02	2.27E-02
	300.09	3.41	5.79E-01		2.87E-01	2.64E-01
BI-214	609.31	46.30	7.64E-02	7.64E-02	3.39E-02	3.50E-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BI-214	1120.29	15.10	1.71E-01	7.64E-02	-5.85E-02	6.90E-02
	1764.49	15.80	2.12E-01		4.43E-02	8.42E-02
	2204.22	4.98	9.60E-01		4.22E-01	4.02E-01
PB-214	295.21	19.19	1.14E-01	6.55E-02	4.02E-02	5.25E-02
	351.92	37.19	6.55E-02		1.19E-02	3.01E-02
RN-219	401.80	6.50	2.99E-01	2.99E-01	-1.95E-01	1.33E-01
RA-223	323.87	3.88	5.78E-01	5.78E-01	2.86E-02	2.65E-01
RA-224	240.98	3.95	5.66E-01	5.66E-01	5.62E-02	2.64E-01
RA-225	40.00	31.00	1.74E-01	1.74E-01	2.20E-01	8.30E-02
RA-226	186.21	3.28	6.64E-01	6.64E-01	4.92E-01	3.12E-01
TH-227	50.10	8.40	2.03E-01	1.51E-01	7.33E-02	9.29E-02
	236.00	11.50	1.51E-01		-2.66E-01	6.88E-02
	256.20	6.30	3.14E-01		0.00E+00	1.45E-01
AC-228	338.32	11.40	1.81E-01	1.15E-01	-3.05E-02	8.23E-02
	911.07	27.70	1.15E-01		6.41E-02	5.02E-02
	969.11	16.60	2.30E-01		8.56E-02	1.02E-01
TH-230	48.44	16.90	1.03E-01	1.03E-01	-1.28E-01	4.70E-02
	62.85	4.60	4.02E-01		4.92E-01	1.89E-01
	67.67	0.37	3.59E+00		-9.06E-02	1.66E+00
PA-231	283.67	1.60	1.20E+00	8.86E-01	4.71E-01	5.47E-01
	302.67	2.30	8.86E-01		1.92E-01	4.04E-01
TH-231	25.64	14.70	9.96E-02	9.96E-02	0.00E+00	0.00E+00
	84.21	6.40	1.85E-01		8.55E-03	8.49E-02
PA-233	311.98	38.60	4.70E-02	4.70E-02	1.01E-02	2.12E-02
PA-234	131.20	20.40	6.21E-02	6.21E-02	1.61E-02	2.85E-02
	733.99	8.80	3.05E-01		1.47E-02	1.32E-01
	946.00	12.00	2.41E-01		-2.41E-02	1.02E-01
PA-234M	1001.03	0.92	3.53E+00	3.53E+00	-1.88E-01	1.52E+00
TH-234	63.29	3.80	4.81E-01	4.81E-01	3.63E-01	2.26E-01
U-235	143.76	10.50	1.69E-01	1.69E-01	-3.78E-02	7.92E-02
	163.35	4.70	3.65E-01		-5.66E-02	1.70E-01
	205.31	4.70	3.70E-01		-1.96E-01	1.71E-01
NP-237	86.50	12.60	9.76E-02	9.76E-02	4.56E-03	4.50E-02
NP-239	106.10	22.70	6.43E-02	6.43E-02	8.49E-03	2.98E-02
	228.18	10.70	2.01E-01		1.21E-01	9.34E-02
	277.60	14.10	1.58E-01		5.05E-02	7.28E-02
AM-241	59.54	35.90	3.49E-02	3.49E-02	-5.99E-03	1.58E-02
AM-243	74.67	66.00	2.15E-02	2.15E-02	-8.89E-04	1.00E-02
CM-243	209.75	3.29	5.91E-01	1.50E-01	3.74E-03	2.75E-01
	228.14	10.60	1.91E-01		1.14E-01	8.86E-02
	277.60	14.00	1.50E-01		4.78E-02	6.89E-02

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

Analysis Report for 1707089-02

BLANK

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: BLANK

Elapsed Live time: 3600
Elapsed Real Time: 3600

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	5	32	79	81
33:	73	605	98	45	52	45	64	64
41:	36	22	12	12	7	13	44	12
49:	11	14	15	8	13	17	10	14
57:	11	14	7	18	8	12	36	37
65:	11	18	17	15	15	15	14	20
73:	18	19	16	25	22	24	13	20
81:	9	13	7	14	17	12	17	18
89:	14	25	18	19	49	25	16	21
97:	19	7	15	10	8	17	15	24
105:	17	23	17	14	11	13	20	16
113:	20	13	15	15	15	17	21	11
121:	20	12	12	19	18	15	8	13
129:	17	14	15	12	8	20	13	21
137:	10	15	8	9	15	18	10	17
145:	13	19	19	14	7	21	15	18
153:	13	9	14	16	11	14	9	21
161:	11	16	13	13	12	8	15	22
169:	9	12	8	12	17	8	10	18
177:	15	8	9	8	8	16	10	9
185:	7	42	19	10	11	10	13	13
193:	10	6	10	16	12	6	15	7
201:	7	10	12	6	11	9	9	15
209:	14	4	17	8	13	10	8	5
217:	9	5	10	9	10	13	8	10
225:	5	11	9	9	14	13	8	7
233:	13	7	9	3	9	10	23	10
241:	9	10	12	13	13	12	8	10
249:	5	11	10	11	9	10	6	7
257:	8	14	9	7	9	6	7	11
265:	10	9	8	6	8	8	10	7
273:	4	12	8	8	11	5	11	10
281:	6	7	7	7	9	6	4	6
289:	3	6	7	6	8	6	15	12
297:	4	7	8	3	10	7	4	7
305:	9	8	1	7	6	3	8	5
313:	6	5	3	8	5	4	7	9
321:	5	9	5	6	14	7	10	6
329:	6	13	6	4	4	5	3	7
337:	8	5	6	6	10	8	2	7
345:	2	2	4	6	8	7	8	14
353:	7	7	7	6	3	5	11	7
361:	5	5	2	4	8	7	6	8

369:	5	5	3	5	8	4	8	4

Sample Title: BLANK

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

801:	2	3	2	6	2	1	0	4

Sample Title: BLANK

Channel								
809:	5	1	1	1	1	1	2	1
817:	1	4	1	2	1	1	2	3
825:	2	3	2	2	2	1	3	2
833:	0	0	1	3	3	0	0	1
841:	3	3	2	1	5	3	2	2
849:	3	3	4	2	1	4	4	1
857:	3	0	0	3	4	0	1	4
865:	0	3	4	1	2	2	0	3
873:	4	2	1	1	3	0	1	1
881:	2	3	2	2	1	2	4	3
889:	2	1	2	0	1	0	2	1
897:	5	7	2	0	0	2	1	3
905:	1	1	0	0	3	1	4	5
913:	2	0	0	1	2	2	2	1
921:	1	1	2	0	2	1	3	1
929:	2	2	3	0	1	2	2	1
937:	2	0	2	3	0	2	3	2
945:	1	1	0	2	2	2	2	0
953:	2	1	3	1	0	0	1	1
961:	3	0	1	3	3	1	2	7
969:	2	3	2	3	1	0	1	2
977:	1	2	0	1	1	2	1	2
985:	0	3	2	0	2	2	1	0
993:	1	2	3	2	1	0	4	1
1001:	1	5	1	0	3	1	6	0
1009:	3	0	0	2	0	2	1	3
1017:	2	2	1	1	2	2	1	2
1025:	1	3	1	1	2	3	3	1
1033:	3	1	3	0	0	2	1	0
1041:	1	2	0	0	0	1	2	2
1049:	1	0	0	1	1	1	3	1
1057:	0	1	1	2	0	2	2	7
1065:	2	1	1	1	3	1	0	2
1073:	0	1	1	0	0	0	2	2
1081:	3	2	0	4	1	1	1	0
1089:	1	4	0	1	1	2	2	0
1097:	1	0	2	0	0	2	2	3
1105:	1	2	2	1	0	1	3	2
1113:	0	1	2	2	0	1	1	0
1121:	2	0	2	1	1	2	1	0
1129:	2	2	1	1	0	1	1	1
1137:	1	2	1	1	0	3	0	1
1145:	1	0	0	2	1	4	1	0
1153:	2	1	3	0	1	1	1	0
1161:	1	2	0	0	1	1	1	2
1169:	1	1	1	2	3	1	1	2
1177:	3	0	2	0	0	2	1	1
1185:	0	2	2	2	1	0	1	1
1193:	0	3	0	0	1	2	0	2
1201:	1	0	1	4	2	2	0	0
1209:	1	1	1	1	0	2	0	1
1217:	0	1	0	0	1	0	0	1
1225:	1	1	0	2	1	1	1	0

1233:	2	0	2	1	1	4	1	0

Sample Title: BLANK

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

1665:	1	1	2	0	0	0	1	0

Sample Title: BLANK

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

2097:	0	0	0	0	0	1	0	2

Sample Title: BLANK

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

2529:	0	2	0	0	0	1	0	0

Sample Title: BLANK

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

2961:	0	0	0	0	0	0	1	0

Sample Title: BLANK

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

3393:	0	0	0	0	0	0	0	0

Sample Title: BLANK

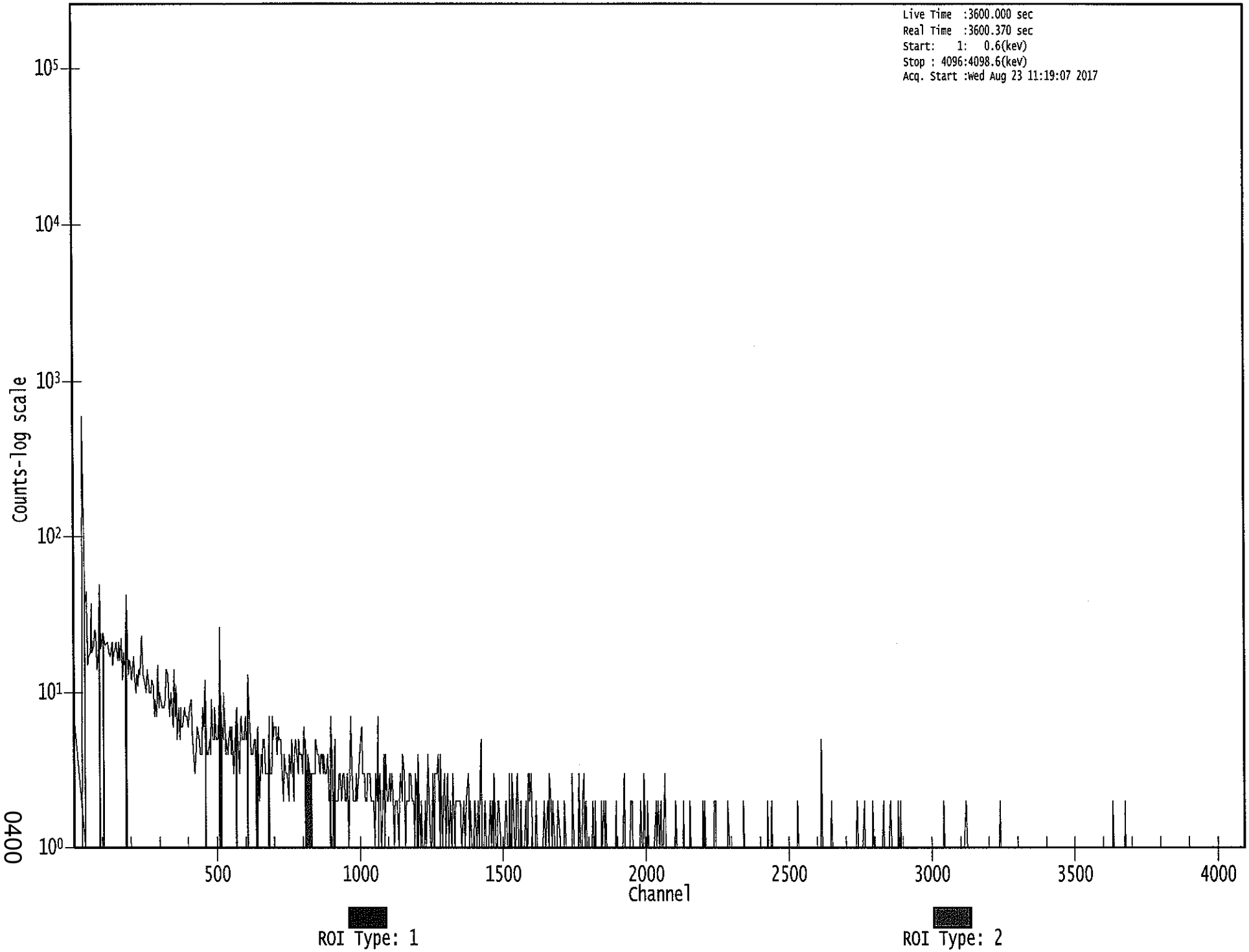
Channel								
3401:	1	0	0	0	0	0	0	0
3409:	0	1	1	0	0	0	1	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	1	0	0	1	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	1	0	0	0	0
3449:	0	0	0	0	0	0	1	0
3457:	0	1	0	1	0	0	0	1
3465:	0	0	0	0	0	1	0	0
3473:	0	0	1	0	0	0	0	0
3481:	0	0	0	0	0	0	1	0
3489:	0	0	1	0	0	0	0	0
3497:	0	0	0	0	0	1	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: BLANK

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

0000055799.CNF



0400

Apex-Gamma

Analysis Report for 1707089-03
HTC-A04-S001-2430-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707089-03
Sample Description	: HTC-A04-S001-2430-01
Sample Type	: SOIL
Sample Size	: 6.605E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 6:45:10AM
Acquisition Started	: 8/23/2017 7:05:24AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE2
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)	: 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	: 55780

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/23/17

Analysis Report for 1707089-03

HTC-A04-S001-2430-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/23/2017 8:05:58AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	62.97	63.30	0.0000	0.00
2	72.78	73.10	0.0000	0.00
3	76.59	76.90	0.0000	0.00
4	87.17	87.47	0.0000	0.00
5	92.32	92.61	0.0000	0.00
6	128.62	128.87	0.0000	0.00
7	143.95	144.19	0.0000	0.00
8	185.83	186.02	0.0000	0.00
9	208.77	208.94	0.0000	0.00
10	238.77	238.91	0.0000	0.00
11	241.76	241.90	0.0000	0.00
12	270.25	270.36	0.0000	0.00
13	276.94	277.04	0.0000	0.00
14	287.84	287.92	0.0000	0.00
15	295.11	295.19	0.0000	0.00
16	300.09	300.16	0.0000	0.00
17	327.83	327.88	0.0000	0.00
18	338.28	338.31	0.0000	0.00
19	351.86	351.88	0.0000	0.00
20	462.89	462.79	0.0000	0.00
21	510.63	510.48	0.0000	0.00
22	535.36	535.19	0.0000	0.00
23	583.11	582.89	0.0000	0.00
24	609.32	609.07	0.0000	0.00
25	727.30	726.94	0.0000	0.00
26	768.34	767.94	0.0000	0.00
27	795.05	794.63	0.0000	0.00
28	837.14	836.67	0.0000	0.00
29	860.77	860.28	0.0000	0.00
30	911.26	910.72	0.0000	0.00
31	969.48	968.89	0.0000	0.00
32	1111.14	1110.42	0.0000	0.00
33	1120.35	1119.62	0.0000	0.00
34	1238.44	1237.61	0.0000	0.00
35	1282.70	1281.82	0.0000	0.00
36	1377.89	1376.94	0.0000	0.00
37	1436.65	1435.65	0.0000	0.00
38	1461.09	1460.06	0.0000	0.00
39	1511.55	1510.48	0.0000	0.00
40	1588.88	1587.75	0.0000	0.00
41	1592.38	1591.25	0.0000	0.00
42	1631.09	1629.92	0.0000	0.00

Analysis Report for 1707089-03

HTC-A04-S001-2430-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1704.08	1702.86	0.0000	0.00
44	1764.60	1763.33	0.0000	0.00
45	1848.19	1846.85	0.0000	0.00
46	1862.04	1860.69	0.0000	0.00
47	1877.52	1876.17	0.0000	0.00
48	2065.10	2063.60	0.0000	0.00
49	2103.10	2101.58	0.0000	0.00
50	2158.16	2156.60	0.0000	0.00
51	2203.58	2201.98	0.0000	0.00
52	2249.00	2247.38	0.0000	0.00
53	2373.19	2371.48	0.0000	0.00
54	2384.09	2382.38	0.0000	0.00
55	2614.83	2612.97	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707089-03

HTC-A04-S001-2430-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/23/2017 8:05:58AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	62.97	60 -	67	63.30	1.67E+02	113.38	2.05E+03	1.71
M	2	72.78	72 -	79	73.10	3.72E+01	25.78	2.83E+02	1.10
m	3	76.59	72 -	79	76.90	3.56E+02	75.62	1.08E+03	1.10
	4	87.17	86 -	89	87.47	7.12E+01	70.06	1.18E+03	1.55
	5	92.32	89 -	96	92.61	2.77E+02	115.12	1.94E+03	1.39
	6	128.62	125 -	133	128.87	1.40E+02	99.19	1.43E+03	4.41
	7	143.95	143 -	147	144.19	5.92E+01	58.95	7.26E+02	1.90
	8	185.83	183 -	190	186.02	2.61E+02	82.07	9.50E+02	1.58
	9	208.77	205 -	212	208.94	1.16E+02	73.70	8.19E+02	1.53
M	10	238.77	235 -	246	238.91	8.69E+02	71.94	3.39E+02	1.45
m	11	241.76	235 -	246	241.90	1.43E+02	48.29	3.20E+02	1.46
	12	270.25	267 -	274	270.36	7.67E+01	59.19	5.27E+02	1.73
	13	276.94	275 -	279	277.04	5.10E+01	38.98	2.92E+02	2.36
	14	287.84	285 -	291	287.92	5.85E+01	47.86	3.73E+02	2.08
M	15	295.11	292 -	304	295.19	3.18E+02	48.76	2.56E+02	1.71
m	16	300.09	292 -	304	300.16	6.96E+01	44.83	3.03E+02	2.09
	17	327.83	326 -	330	327.88	3.80E+01	36.89	2.70E+02	1.09
	18	338.28	333 -	341	338.31	1.35E+02	64.74	5.61E+02	1.93
	19	351.86	348 -	355	351.88	4.84E+02	63.47	3.43E+02	1.38
	20	462.89	457 -	467	462.79	5.49E+01	55.73	3.84E+02	2.04
	21	510.63	504 -	514	510.48	1.72E+02	58.78	3.70E+02	2.43
	22	535.36	532 -	542	535.19	4.73E+01	46.15	2.59E+02	4.47
	23	583.11	578 -	586	582.89	3.07E+02	53.80	2.57E+02	1.72
	24	609.32	604 -	613	609.07	3.53E+02	57.75	2.75E+02	1.60
	25	727.30	723 -	730	726.94	5.55E+01	35.33	1.69E+02	1.30
	26	768.34	765 -	770	767.94	3.19E+01	27.84	1.30E+02	1.35
	27	795.05	791 -	800	794.63	7.40E+01	35.72	1.40E+02	1.92
	28	837.14	834 -	841	836.67	2.73E+01	30.79	1.39E+02	2.09
	29	860.77	856 -	864	860.28	5.25E+01	32.11	1.27E+02	1.12
	30	911.26	906 -	915	910.72	1.76E+02	39.76	1.26E+02	1.76
	31	969.48	965 -	972	968.89	7.72E+01	41.71	2.28E+02	1.88
	32	1111.14	1108 -	1113	1110.42	1.84E+01	20.69	6.91E+01	3.25
	33	1120.35	1114 -	1126	1119.62	1.07E+02	43.87	1.78E+02	2.28
	34	1238.44	1234 -	1243	1237.61	3.38E+01	37.54	1.74E+02	2.02
	35	1282.70	1278 -	1285	1281.82	2.62E+01	25.61	9.16E+01	3.28
	36	1377.89	1373 -	1382	1376.94	2.48E+01	20.42	4.65E+01	1.33
	37	1436.65	1433 -	1439	1435.65	1.00E+01	11.72	1.80E+01	2.28
	38	1461.09	1454 -	1466	1460.06	1.12E+03	73.16	9.88E+01	2.25
	39	1511.55	1505 -	1516	1510.48	2.23E+01	15.23	1.74E+01	7.86
M	40	1588.88	1583 -	1597	1587.75	2.84E+01	17.89	3.47E+01	2.72

Analysis Report for 1707089-03

HTC-A04-S001-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
m	41	1592.38	1583 -	1597	1591.25	1.40E+01	17.78	2.56E+01	2.72
	42	1631.09	1628 -	1632	1629.92	7.55E+00	7.92	6.91E+00	2.62
	43	1704.08	1698 -	1708	1702.86	9.36E+00	10.79	9.29E+00	3.83
	44	1764.60	1759 -	1766	1763.33	5.29E+01	18.22	2.02E+01	1.85
	45	1848.19	1842 -	1851	1846.85	1.35E+01	9.43	5.00E+00	3.09
	46	1862.04	1856 -	1863	1860.69	7.85E+00	7.48	4.30E+00	1.39
	47	1877.52	1871 -	1881	1876.17	1.60E+01	13.52	1.41E+01	6.85
	48	2065.10	2059 -	2068	2063.60	1.24E+01	9.22	5.20E+00	1.93
	49	2103.10	2097 -	2105	2101.58	2.60E+01	10.20	0.00E+00	5.21
	50	2158.16	2151 -	2161	2156.60	1.43E+01	9.91	5.41E+00	1.99
	51	2203.58	2197 -	2206	2201.98	2.05E+01	10.82	4.91E+00	2.72
	52	2249.00	2243 -	2250	2247.38	8.00E+00	5.66	0.00E+00	3.32
	53	2373.19	2369 -	2375	2371.48	8.82E+00	8.28	4.36E+00	1.69
	54	2384.09	2378 -	2385	2382.38	8.00E+00	5.66	0.00E+00	3.48
	55	2614.83	2609 -	2616	2612.97	1.13E+02	22.36	7.85E+00	3.03

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 : 8/23/2017 8:05:58AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	62.97	60 -	67	1.67E+02	113.38	2.05E+03	9.07E+01
M	2	72.78	72 -	79	3.72E+01	25.78	2.83E+02	2.77E+01
m	3	76.59	72 -	79	3.56E+02	75.62	1.08E+03	5.41E+01
	4	87.17	86 -	89	7.12E+01	70.06	1.18E+03	5.59E+01
	5	92.32	89 -	96	2.77E+02	115.12	1.94E+03	9.06E+01
	6	128.62	125 -	133	1.40E+02	99.19	1.43E+03	7.92E+01
	7	143.95	143 -	147	5.92E+01	58.95	7.26E+02	4.68E+01
	8	185.83	183 -	190	2.61E+02	82.07	9.50E+02	6.20E+01
	9	208.77	205 -	212	1.16E+02	73.70	8.19E+02	5.79E+01
M	10	238.77	235 -	246	8.69E+02	71.94	3.39E+02	3.03E+01
m	11	241.76	235 -	246	1.43E+02	48.29	3.20E+02	2.94E+01
	12	270.25	267 -	274	7.67E+01	59.19	5.27E+02	5.89E+01
	13	276.94	275 -	279	5.10E+01	38.98	2.92E+02	2.98E+01

Analysis Report for 1707089-03

HTC-A04-S001-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	14	287.84	285 -	291	5.85E+01	47.86	3.73E+02	3.73E+01
M	15	295.11	292 -	304	3.18E+02	48.76	2.56E+02	2.63E+01
m	16	300.09	292 -	304	6.96E+01	44.83	3.03E+02	2.86E+01
	17	327.83	326 -	330	3.80E+01	36.89	2.70E+02	2.86E+01
	18	338.28	333 -	341	1.35E+02	64.74	5.61E+02	4.97E+01
	19	351.86	348 -	355	4.84E+02	63.47	3.43E+02	3.76E+01
	20	462.89	457 -	467	5.49E+01	55.73	3.84E+02	4.42E+01
	21	510.63	504 -	514	1.72E+02	58.78	3.70E+02	4.32E+01
	22	535.36	532 -	542	4.73E+01	46.15	2.59E+02	3.62E+01
	23	583.11	578 -	586	3.07E+02	53.80	2.57E+02	3.36E+01
	24	609.32	604 -	613	3.53E+02	57.75	2.75E+02	3.61E+01
	25	727.30	723 -	730	5.55E+01	35.33	1.69E+02	2.63E+01
	26	768.34	765 -	770	3.19E+01	27.84	1.30E+02	2.09E+01
	27	795.05	791 -	800	7.40E+01	35.72	1.40E+02	2.57E+01
	28	837.14	834 -	841	2.73E+01	30.79	1.39E+02	2.38E+01
	29	860.77	856 -	864	5.25E+01	32.11	1.27E+02	2.36E+01
	30	911.26	906 -	915	1.76E+02	39.76	1.26E+02	2.43E+01
	31	969.48	965 -	972	7.72E+01	41.71	2.28E+02	3.11E+01
	32	1111.14	1108 -	1113	1.84E+01	20.69	6.91E+01	1.55E+01
	33	1120.35	1114 -	1126	1.07E+02	43.87	1.78E+02	3.18E+01
	34	1238.44	1234 -	1243	3.38E+01	37.54	1.74E+02	2.93E+01
	35	1282.70	1278 -	1285	2.62E+01	25.61	9.16E+01	1.93E+01
	36	1377.89	1373 -	1382	2.48E+01	20.42	4.65E+01	1.47E+01
	37	1436.65	1433 -	1439	1.00E+01	11.72	1.80E+01	8.11E+00
	38	1461.09	1454 -	1466	1.12E+03	73.16	9.88E+01	2.43E+01
	39	1511.55	1505 -	1516	2.23E+01	15.23	1.74E+01	9.82E+00
M	40	1588.88	1583 -	1597	2.84E+01	17.89	3.47E+01	9.69E+00
m	41	1592.38	1583 -	1597	1.40E+01	17.78	2.56E+01	8.32E+00
	42	1631.09	1628 -	1632	7.55E+00	7.92	6.91E+00	4.69E+00
	43	1704.08	1698 -	1708	9.36E+00	10.79	9.29E+00	7.31E+00
	44	1764.60	1759 -	1766	5.29E+01	18.22	2.02E+01	9.02E+00
	45	1848.19	1842 -	1851	1.35E+01	9.43	5.00E+00	4.86E+00
	46	1862.04	1856 -	1863	7.85E+00	7.48	4.30E+00	4.08E+00
	47	1877.52	1871 -	1881	1.60E+01	13.52	1.41E+01	8.96E+00
	48	2065.10	2059 -	2068	1.24E+01	9.22	5.20E+00	4.89E+00
	49	2103.10	2097 -	2105	2.60E+01	10.20	0.00E+00	0.00E+00
	50	2158.16	2151 -	2161	1.43E+01	9.91	5.41E+00	5.27E+00
	51	2203.58	2197 -	2206	2.05E+01	10.82	4.91E+00	4.85E+00
	52	2249.00	2243 -	2250	8.00E+00	5.66	0.00E+00	0.00E+00
	53	2373.19	2369 -	2375	8.82E+00	8.28	4.36E+00	4.74E+00
	54	2384.09	2378 -	2385	8.00E+00	5.66	0.00E+00	0.00E+00
	55	2614.83	2609 -	2616	1.13E+02	22.36	7.85E+00	5.68E+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 1707089-03

HTC-A04-S001-2430-01

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/23/2017 8:05:58AM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	62.97	60 -	67	63.30	1.67E+02	113.38	2.05E+03	TH-230
									TH-234
M	2	72.78	72 -	79	73.10	3.72E+01	25.78	2.83E+02	PM-145
m	3	76.59	72 -	79	76.90	3.56E+02	75.62	1.08E+03	.....
	4	87.17	86 -	89	87.47	7.12E+01	70.06	1.18E+03	SN-126
									NP-237
									EU-155
									CD-109
	5	92.32	89 -	96	92.61	2.77E+02	115.12	1.94E+03	GA-67
	6	128.62	125 -	133	128.87	1.40E+02	99.19	1.43E+03	.....
	7	143.95	143 -	147	144.19	5.92E+01	58.95	7.26E+02	U-235
	8	185.83	183 -	190	186.02	2.61E+02	82.07	9.50E+02	RA-226
	9	208.77	205 -	212	208.94	1.16E+02	73.70	8.19E+02	GA-67
									CM-243
M	10	238.77	235 -	246	238.91	8.69E+02	71.94	3.39E+02	PB-212
m	11	241.76	235 -	246	241.90	1.43E+02	48.29	3.20E+02	RA-224
	12	270.25	267 -	274	270.36	7.67E+01	59.19	5.27E+02	.....
	13	276.94	275 -	279	277.04	5.10E+01	38.98	2.92E+02	CM-243
									NP-239
	14	287.84	285 -	291	287.92	5.85E+01	47.86	3.73E+02	.....
M	15	295.11	292 -	304	295.19	3.18E+02	48.76	2.56E+02	PB-214
m	16	300.09	292 -	304	300.16	6.96E+01	44.83	3.03E+02	PB-212
									BI-210M
									GA-67
	17	327.83	326 -	330	327.88	3.80E+01	36.89	2.70E+02	LA-140
	18	338.28	333 -	341	338.31	1.35E+02	64.74	5.61E+02	AC-228
	19	351.86	348 -	355	351.88	4.84E+02	63.47	3.43E+02	PB-214
	20	462.89	457 -	467	462.79	5.49E+01	55.73	3.84E+02	SB-125
	21	510.63	504 -	514	510.48	1.72E+02	58.78	3.70E+02	.....
	22	535.36	532 -	542	535.19	4.73E+01	46.15	2.59E+02	.....
	23	583.11	578 -	586	582.89	3.07E+02	53.80	2.57E+02	TL-208
	24	609.32	604 -	613	609.07	3.53E+02	57.75	2.75E+02	BI-214
	25	727.30	723 -	730	726.94	5.55E+01	35.33	1.69E+02	BI-212
	26	768.34	765 -	770	767.94	3.19E+01	27.84	1.30E+02	.....
	27	795.05	791 -	800	794.63	7.40E+01	35.72	1.40E+02	CS-134
	28	837.14	834 -	841	836.67	2.73E+01	30.79	1.39E+02	.....
	29	860.77	856 -	864	860.28	5.25E+01	32.11	1.27E+02	TL-208
	30	911.26	906 -	915	910.72	1.76E+02	39.76	1.26E+02	AC-228

Analysis Report for 1707089-03

HTC-A04-S001-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									TL-204
	31	969.48	965 -	972	968.89	7.72E+01	41.71	2.28E+02	AC-228
	32	1111.14	1108 -	1113	1110.42	1.84E+01	20.69	6.91E+01	EU-152
	33	1120.35	1114 -	1126	1119.62	1.07E+02	43.87	1.78E+02	BI-214
									SC-46
									TA-182
	34	1238.44	1234 -	1243	1237.61	3.38E+01	37.54	1.74E+02	CO-56
	35	1282.70	1278 -	1285	1281.82	2.62E+01	25.61	9.16E+01	.....
	36	1377.89	1373 -	1382	1376.94	2.48E+01	20.42	4.65E+01	.....
	37	1436.65	1433 -	1439	1435.65	1.00E+01	11.72	1.80E+01	LA-138
	38	1461.09	1454 -	1466	1460.06	1.12E+03	73.16	9.88E+01	K-40
	39	1511.55	1505 -	1516	1510.48	2.23E+01	15.23	1.74E+01	.....
M	40	1588.88	1583 -	1597	1587.75	2.84E+01	17.89	3.47E+01	.....
m	41	1592.38	1583 -	1597	1591.25	1.40E+01	17.78	2.56E+01	.....
	42	1631.09	1628 -	1632	1629.92	7.55E+00	7.92	6.91E+00	.....
	43	1704.08	1698 -	1708	1702.86	9.36E+00	10.79	9.29E+00	.....
	44	1764.60	1759 -	1766	1763.33	5.29E+01	18.22	2.02E+01	BI-214
	45	1848.19	1842 -	1851	1846.85	1.35E+01	9.43	5.00E+00	.....
	46	1862.04	1856 -	1863	1860.69	7.85E+00	7.48	4.30E+00	.....
	47	1877.52	1871 -	1881	1876.17	1.60E+01	13.52	1.41E+01	.....
	48	2065.10	2059 -	2068	2063.60	1.24E+01	9.22	5.20E+00	.....
	49	2103.10	2097 -	2105	2101.58	2.60E+01	10.20	0.00E+00	.....
	50	2158.16	2151 -	2161	2156.60	1.43E+01	9.91	5.41E+00	.....
	51	2203.58	2197 -	2206	2201.98	2.05E+01	10.82	4.91E+00	BI-214
	52	2249.00	2243 -	2250	2247.38	8.00E+00	5.66	0.00E+00	.....
	53	2373.19	2369 -	2375	2371.48	8.82E+00	8.28	4.36E+00	.....
	54	2384.09	2378 -	2385	2382.38	8.00E+00	5.66	0.00E+00	.....
	55	2614.83	2609 -	2616	2612.97	1.13E+02	22.36	7.85E+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 : 8/23/2017 8:05:58AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	62.97	1.67E+02	113.38	2.37E-02	1.76E-03
M	2	72.78	3.72E+01	25.78	2.59E-02	2.02E-03

Analysis Report for 1707089-03

HTC-A04-S001-2430-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	3	76.59	3.56E+02	75.62	2.64E-02	2.12E-03
	4	87.17	7.12E+01	70.06	2.70E-02	2.40E-03
	5	92.32	2.77E+02	115.12	2.70E-02	2.34E-03
	6	128.62	1.40E+02	99.19	2.48E-02	1.75E-03
	7	143.95	5.92E+01	58.95	2.35E-02	1.70E-03
	8	185.83	2.61E+02	82.07	2.03E-02	1.53E-03
	9	208.77	1.16E+02	73.70	1.89E-02	1.43E-03
M	10	238.77	8.69E+02	71.94	1.72E-02	1.30E-03
m	11	241.76	1.43E+02	48.29	1.71E-02	1.28E-03
	12	270.25	7.67E+01	59.19	1.58E-02	1.16E-03
	13	276.94	5.10E+01	38.98	1.55E-02	1.13E-03
	14	287.84	5.85E+01	47.86	1.51E-02	1.11E-03
M	15	295.11	3.18E+02	48.76	1.48E-02	1.10E-03
m	16	300.09	6.96E+01	44.83	1.47E-02	1.09E-03
	17	327.83	3.80E+01	36.89	1.38E-02	1.05E-03
	18	338.28	1.35E+02	64.74	1.35E-02	1.04E-03
	19	351.86	4.84E+02	63.47	1.31E-02	1.02E-03
	20	462.89	5.49E+01	55.73	1.06E-02	9.07E-04
	21	510.63	1.72E+02	58.78	9.88E-03	8.65E-04
	22	535.36	4.73E+01	46.15	9.52E-03	8.44E-04
	23	583.11	3.07E+02	53.80	8.91E-03	8.02E-04
	24	609.32	3.53E+02	57.75	8.60E-03	7.80E-04
	25	727.30	5.55E+01	35.33	7.47E-03	6.71E-04
	26	768.34	3.19E+01	27.84	7.14E-03	6.31E-04
	27	795.05	7.40E+01	35.72	6.94E-03	6.05E-04
	28	837.14	2.73E+01	30.79	6.66E-03	5.65E-04
	29	860.77	5.25E+01	32.11	6.51E-03	5.42E-04
	30	911.26	1.76E+02	39.76	6.21E-03	5.02E-04
	31	969.48	7.72E+01	41.71	5.90E-03	4.81E-04
	32	1111.14	1.84E+01	20.69	5.28E-03	4.32E-04
	33	1120.35	1.07E+02	43.87	5.24E-03	4.29E-04
	34	1238.44	3.38E+01	37.54	4.84E-03	4.16E-04
	35	1282.70	2.62E+01	25.61	4.71E-03	4.20E-04
	36	1377.89	2.48E+01	20.42	4.45E-03	4.12E-04
	37	1436.65	1.00E+01	11.72	4.32E-03	3.95E-04
	38	1461.09	1.12E+03	73.16	4.26E-03	3.88E-04
	39	1511.55	2.23E+01	15.23	4.16E-03	3.73E-04
M	40	1588.88	2.84E+01	17.89	4.01E-03	3.51E-04
m	41	1592.38	1.40E+01	17.78	4.01E-03	3.50E-04
	42	1631.09	7.55E+00	7.92	3.94E-03	3.38E-04
	43	1704.08	9.36E+00	10.79	3.83E-03	3.17E-04
	44	1764.60	5.29E+01	18.22	3.75E-03	3.00E-04
	45	1848.19	1.35E+01	9.43	3.64E-03	2.79E-04
	46	1862.04	7.85E+00	7.48	3.63E-03	2.79E-04
	47	1877.52	1.60E+01	13.52	3.61E-03	2.79E-04
	48	2065.10	1.24E+01	9.22	3.44E-03	2.79E-04
	49	2103.10	2.60E+01	10.20	3.41E-03	2.79E-04
	50	2158.16	1.43E+01	9.91	3.37E-03	2.79E-04
	51	2203.58	2.05E+01	10.82	3.34E-03	2.79E-04
	52	2249.00	8.00E+00	5.66	3.32E-03	2.79E-04
	53	2373.19	8.82E+00	8.28	3.26E-03	2.79E-04
	54	2384.09	8.00E+00	5.66	3.25E-03	2.79E-04
	55	2614.83	1.13E+02	22.36	3.20E-03	2.79E-04

Analysis Report for 1707089-03

HTC-A04-S001-2430-01

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 : 8/23/2017 8:05:58AM

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	62.97	1.67E+02	113.38	6.29E+01	1.34E+01	1.04E+02	1.14E+02
M	2	72.78	3.72E+01	25.78			3.72E+01	2.58E+01
m	3	76.59	3.56E+02	75.62			3.56E+02	7.56E+01
	4	87.17	7.12E+01	70.06			7.12E+01	7.01E+01
	5	92.32	2.77E+02	115.12	4.88E+01	1.30E+00	2.29E+02	1.15E+02
	6	128.62	1.40E+02	99.19			1.40E+02	9.92E+01
	7	143.95	5.92E+01	58.95	1.06E+01	1.02E+01	4.86E+01	5.98E+01
	8	185.83	2.61E+02	82.07	3.48E+01	7.32E+00	2.26E+02	8.24E+01
	9	208.77	1.16E+02	73.70			1.16E+02	7.37E+01
M	10	238.77	8.69E+02	71.94	7.09E+00	6.85E+00	8.62E+02	7.23E+01
m	11	241.76	1.43E+02	48.29			1.43E+02	4.83E+01
	12	270.25	7.67E+01	59.19			7.67E+01	5.92E+01
	13	276.94	5.10E+01	38.98			5.10E+01	3.90E+01
	14	287.84	5.85E+01	47.86			5.85E+01	4.79E+01
M	15	295.11	3.18E+02	48.76			3.18E+02	4.88E+01
m	16	300.09	6.96E+01	44.83			6.96E+01	4.48E+01
	17	327.83	3.80E+01	36.89			3.80E+01	3.69E+01
	18	338.28	1.35E+02	64.74			1.35E+02	6.47E+01
	19	351.86	4.84E+02	63.47	1.04E+01	5.08E+00	4.73E+02	6.37E+01
	20	462.89	5.49E+01	55.73			5.49E+01	5.57E+01
	21	510.63	1.72E+02	58.78	7.08E+01	4.94E+00	1.01E+02	5.90E+01
	22	535.36	4.73E+01	46.15			4.73E+01	4.61E+01
	23	583.11	3.07E+02	53.80	5.65E+00	3.57E+00	3.01E+02	5.39E+01
	24	609.32	3.53E+02	57.75	1.07E+01	3.96E+00	3.42E+02	5.79E+01
	25	727.30	5.55E+01	35.33			5.55E+01	3.53E+01
	26	768.34	3.19E+01	27.84			3.19E+01	2.78E+01
	27	795.05	7.40E+01	35.72			7.40E+01	3.57E+01
	28	837.14	2.73E+01	30.79			2.73E+01	3.08E+01
	29	860.77	5.25E+01	32.11			5.25E+01	3.21E+01
	30	911.26	1.76E+02	39.76	2.63E+00	2.49E+00	1.73E+02	3.98E+01
	31	969.48	7.72E+01	41.71			7.72E+01	4.17E+01
	32	1111.14	1.84E+01	20.69			1.84E+01	2.07E+01
	33	1120.35	1.07E+02	43.87	2.45E+00	2.38E+00	1.04E+02	4.39E+01
	34	1238.44	3.38E+01	37.54			3.38E+01	3.75E+01
	35	1282.70	2.62E+01	25.61			2.62E+01	2.56E+01

Analysis Report for 1707089-03

HTC-A04-S001-2430-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	36	1377.89	2.48E+01	20.42			2.48E+01	2.04E+01
	37	1436.65	1.00E+01	11.72			1.00E+01	1.17E+01
	38	1461.09	1.12E+03	73.16	5.90E+00	2.63E+00	1.11E+03	7.32E+01
	39	1511.55	2.23E+01	15.23			2.23E+01	1.52E+01
M	40	1588.88	2.84E+01	17.89			2.84E+01	1.79E+01
m	41	1592.38	1.40E+01	17.78			1.40E+01	1.78E+01
	42	1631.09	7.55E+00	7.92			7.55E+00	7.92E+00
	43	1704.08	9.36E+00	10.79			9.36E+00	1.08E+01
	44	1764.60	5.29E+01	18.22	3.33E+00	1.73E+00	4.96E+01	1.83E+01
	45	1848.19	1.35E+01	9.43			1.35E+01	9.43E+00
	46	1862.04	7.85E+00	7.48			7.85E+00	7.48E+00
	47	1877.52	1.60E+01	13.52	8.94E-01	1.03E+00	1.51E+01	1.36E+01
	48	2065.10	1.24E+01	9.22			1.24E+01	9.22E+00
	49	2103.10	2.60E+01	10.20			2.60E+01	1.02E+01
	50	2158.16	1.43E+01	9.91			1.43E+01	9.91E+00
	51	2203.58	2.05E+01	10.82			2.05E+01	1.08E+01
	52	2249.00	8.00E+00	5.66			8.00E+00	5.66E+00
	53	2373.19	8.82E+00	8.28			8.82E+00	8.28E+00
	54	2384.09	8.00E+00	5.66			8.00E+00	5.66E+00
	55	2614.83	1.13E+02	22.36	4.77E+00	1.52E+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 : 8/23/2017 8:05:58AM

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	62.97	1.67E+02	113.38	6.29E+01	1.34E+01	1.04E+02	1.14E+02
M	2	72.78	3.72E+01	25.78			3.72E+01	2.58E+01
m	3	76.59	3.56E+02	75.62			3.56E+02	7.56E+01
	4	87.17	7.12E+01	70.06			7.12E+01	7.01E+01
	5	92.32	2.77E+02	115.12	4.88E+01	1.30E+00	2.29E+02	1.15E+02
	6	128.62	1.40E+02	99.19			1.40E+02	9.92E+01
	7	143.95	5.92E+01	58.95	1.06E+01	1.02E+01	4.86E+01	5.98E+01
	8	185.83	2.61E+02	82.07	3.48E+01	7.32E+00	2.26E+02	8.24E+01

Analysis Report for 1707089-03

HTC-A04-S001-2430-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	9	208.77	1.16E+02	73.70			1.16E+02	7.37E+01
M	10	238.77	8.69E+02	71.94	7.09E+00	6.85E+00	8.62E+02	7.23E+01
m	11	241.76	1.43E+02	48.29			1.43E+02	4.83E+01
	12	270.25	7.67E+01	59.19			7.67E+01	5.92E+01
	13	276.94	5.10E+01	38.98			5.10E+01	3.90E+01
	14	287.84	5.85E+01	47.86			5.85E+01	4.79E+01
M	15	295.11	3.18E+02	48.76			3.18E+02	4.88E+01
m	16	300.09	6.96E+01	44.83			6.96E+01	4.48E+01
	17	327.83	3.80E+01	36.89			3.80E+01	3.69E+01
	18	338.28	1.35E+02	64.74			1.35E+02	6.47E+01
	19	351.86	4.84E+02	63.47	1.04E+01	5.08E+00	4.73E+02	6.37E+01
	20	462.89	5.49E+01	55.73			5.49E+01	5.57E+01
	21	510.63	1.72E+02	58.78	7.08E+01	4.94E+00	1.01E+02	5.90E+01
	22	535.36	4.73E+01	46.15			4.73E+01	4.61E+01
	23	583.11	3.07E+02	53.80	5.65E+00	3.57E+00	3.01E+02	5.39E+01
	24	609.32	3.53E+02	57.75	1.07E+01	3.96E+00	3.42E+02	5.79E+01
	25	727.30	5.55E+01	35.33			5.55E+01	3.53E+01
	26	768.34	3.19E+01	27.84			3.19E+01	2.78E+01
	27	795.05	7.40E+01	35.72			7.40E+01	3.57E+01
	28	837.14	2.73E+01	30.79			2.73E+01	3.08E+01
	29	860.77	5.25E+01	32.11			5.25E+01	3.21E+01
	30	911.26	1.76E+02	39.76	2.63E+00	2.49E+00	1.73E+02	3.98E+01
	31	969.48	7.72E+01	41.71			7.72E+01	4.17E+01
	32	1111.14	1.84E+01	20.69			1.84E+01	2.07E+01
	33	1120.35	1.07E+02	43.87	2.45E+00	2.38E+00	1.04E+02	4.39E+01
	34	1238.44	3.38E+01	37.54			3.38E+01	3.75E+01
	35	1282.70	2.62E+01	25.61			2.62E+01	2.56E+01
	36	1377.89	2.48E+01	20.42			2.48E+01	2.04E+01
	37	1436.65	1.00E+01	11.72			1.00E+01	1.17E+01
	38	1461.09	1.12E+03	73.16	5.90E+00	2.63E+00	1.11E+03	7.32E+01
	39	1511.55	2.23E+01	15.23			2.23E+01	1.52E+01
M	40	1588.88	2.84E+01	17.89			2.84E+01	1.79E+01
m	41	1592.38	1.40E+01	17.78			1.40E+01	1.78E+01
	42	1631.09	7.55E+00	7.92			7.55E+00	7.92E+00
	43	1704.08	9.36E+00	10.79			9.36E+00	1.08E+01
	44	1764.60	5.29E+01	18.22	3.33E+00	1.73E+00	4.96E+01	1.83E+01
	45	1848.19	1.35E+01	9.43			1.35E+01	9.43E+00
	46	1862.04	7.85E+00	7.48			7.85E+00	7.48E+00
	47	1877.52	1.60E+01	13.52	8.94E-01	1.03E+00	1.51E+01	1.36E+01
	48	2065.10	1.24E+01	9.22			1.24E+01	9.22E+00
	49	2103.10	2.60E+01	10.20			2.60E+01	1.02E+01
	50	2158.16	1.43E+01	9.91			1.43E+01	9.91E+00
	51	2203.58	2.05E+01	10.82			2.05E+01	1.08E+01
	52	2249.00	8.00E+00	5.66			8.00E+00	5.66E+00
	53	2373.19	8.82E+00	8.28			8.82E+00	8.28E+00
	54	2384.09	8.00E+00	5.66			8.00E+00	5.66E+00
	55	2614.83	1.13E+02	22.36	4.77E+00	1.52E+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 1707089-03

HTC-A04-S001-2430-01

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	0.988	1460.81	*	10.67	2.78E+01	3.18E+00
CD-109	0.888	88.03	*	3.72	9.36E-01	9.27E-01
SN-126	0.975	87.57	*	37.00	8.11E-02	8.01E-02
EU-155	0.319	86.50	*	30.90	1.01E-01	9.97E-02
		105.30		20.70		
TL-208	0.996	583.14	*	30.22	1.27E+00	2.55E-01
		860.37	*	4.48	2.05E+00	1.26E+00
		2614.66	*	35.85	1.07E+00	2.41E-01
BI-212	0.766	727.17	*	11.80	7.16E-01	4.60E-01
		1620.62		2.75		
PB-212	0.997	238.63	*	44.60	1.28E+00	1.44E-01
		300.09	*	3.41	1.58E+00	1.03E+00
BI-214	0.996	609.31	*	46.30	9.76E-01	1.87E-01
		1120.29	*	15.10	1.50E+00	6.43E-01
		1764.49	*	15.80	9.52E-01	3.60E-01
		2204.22	*	4.98	1.40E+00	7.48E-01
PB-214	0.999	295.21	*	19.19	1.27E+00	2.16E-01
		351.92	*	37.19	1.11E+00	1.72E-01
RA-224	0.906	240.98	*	3.95	2.41E+00	8.34E-01
RA-226	0.977	186.21	*	3.28	3.86E+00	7.20E+00
AC-228	0.991	338.32	*	11.40	9.98E-01	4.86E-01
		911.07	*	27.70	1.15E+00	2.79E-01
		969.11	*	16.60	8.95E-01	4.89E-01
TH-234	0.984	63.29	*	3.80	1.31E+00	1.44E+00
NP-237	0.931	86.50	*	12.60	2.38E-01	2.35E-01
CM-243	0.322	209.75	*	3.29	2.15E+00	1.37E+00
		228.14		10.60		
		277.60	*	14.00	2.68E-01	2.06E-01

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

Analysis Report for 1707089-03

HTC-A04-S001-2430-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 8:05:58AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	2	72.78	1.03272E-02	34.67	Tol.	PM-145
m	3	76.59	9.88726E-02	10.62		
	5	92.32	6.34774E-02	25.19		
	6	128.62	3.89953E-02	35.33		
	7	143.95	1.34900E-02	61.59	Tol.	U-235
	12	270.25	2.12932E-02	38.61		
	14	287.84	1.62619E-02	40.88		
	17	327.83	1.05556E-02	48.54	Tol.	LA-140
	20	462.89	1.52564E-02	50.73	Sum	
	21	510.63	2.81135E-02	29.14		
	22	535.36	1.31270E-02	48.83		
	26	768.34	8.84880E-03	43.70	Sum	
	27	795.05	2.05556E-02	24.14	Sum	
	28	837.14	7.59450E-03	56.31		
	32	1111.14	5.12055E-03	56.11	Tol.	EU-152
	34	1238.44	9.38361E-03	55.56	Tol.	CO-56
	35	1282.70	7.28395E-03	48.84		
	36	1377.89	6.87500E-03	41.25		
	37	1436.65	2.77778E-03	58.58	Tol.	LA-138
	39	1511.55	6.20072E-03	34.12		
M	40	1588.88	7.90275E-03	31.44	Sum	
m	41	1592.38	3.88929E-03	63.48	D-Esc	
	42	1631.09	2.09596E-03	52.49		
	43	1704.08	2.59921E-03	57.68	Sum	
	45	1848.19	3.75000E-03	34.94	Sum	
	46	1862.04	2.18056E-03	47.66		
	47	1877.52	4.18399E-03	45.00		
	48	2065.10	3.44444E-03	37.18	Sum	
	49	2103.10	7.22222E-03	19.61	S-Esc	
	50	2158.16	3.97059E-03	34.67		
	52	2249.00	2.22222E-03	35.36		
	53	2373.19	2.44950E-03	46.93	Sum	
	54	2384.09	2.22222E-03	35.36		

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

Analysis Report for 1707089-03

HTC-A04-S001-2430-01

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	0.98	1460.81	*	10.67	2.78E+01	3.18E+00
CD-109	0.88	88.03	*	3.72	9.36E-01	9.27E-01
SN-126	0.97	87.57	*	37.00	8.11E-02	8.01E-02
EU-155	0.31	86.50	*	30.90	1.01E-01	9.97E-02
		105.30		20.70		
TL-208	0.99	583.14	*	30.22	1.27E+00	2.55E-01
		860.37	*	4.48	2.05E+00	1.26E+00
		2614.66	*	35.85	1.07E+00	2.41E-01
BI-212	0.76	727.17	*	11.80	7.16E-01	4.60E-01
		1620.62		2.75		
PB-212	0.99	238.63	*	44.60	1.28E+00	1.44E-01
		300.09	*	3.41	1.58E+00	1.03E+00
BI-214	0.99	609.31	*	46.30	9.76E-01	1.87E-01
		1120.29	*	15.10	1.50E+00	6.43E-01
		1764.49	*	15.80	9.52E-01	3.60E-01
		2204.22	*	4.98	1.40E+00	7.48E-01
PB-214	0.99	295.21	*	19.19	1.27E+00	2.16E-01
		351.92	*	37.19	1.11E+00	1.72E-01
RA-224	0.90	240.98	*	3.95	2.41E+00	8.34E-01
RA-226	0.97	186.21	*	3.28	3.86E+00	7.20E+00
AC-228	0.99	338.32	*	11.40	9.98E-01	4.86E-01
		911.07	*	27.70	1.15E+00	2.79E-01
		969.11	*	16.60	8.95E-01	4.89E-01
TH-234	0.98	63.29	*	3.80	1.31E+00	1.44E+00
NP-237	0.93	86.50	*	12.60	2.38E-01	2.35E-01
CM-243	0.32	209.75	*	3.29	2.15E+00	1.37E+00
		228.14		10.60		
		277.60	*	14.00	2.68E-01	2.06E-01

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

Analysis Report for 1707089-03

HTC-A04-S001-2430-01

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.988	2.78E+01	3.18E+00	
?	CD-109	0.888	9.36E-01	9.27E-01	
?	SN-126	0.975	8.11E-02	8.01E-02	
?	EU-155	0.319	1.01E-01	9.97E-02	
	TL-208	0.996	1.18E+00	1.74E-01	
	BI-212	0.766	7.16E-01	4.60E-01	
	PB-212	0.997	1.28E+00	1.42E-01	
	BI-214	0.996	1.02E+00	1.57E-01	
	PB-214	0.999	1.17E+00	1.35E-01	
	RA-224	0.906	2.41E+00	8.34E-01	
	RA-226	0.977	3.86E+00	7.20E+00	
	AC-228	0.991	1.07E+00	2.17E-01	
	TH-234	0.984	1.31E+00	1.44E+00	
?	NP-237	0.931	2.38E-01	2.35E-01	
	CM-243	0.322	3.10E-01	2.04E-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 1707089-03

HTC-A04-S001-2430-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 8:05:58AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	2	72.78	1.03272E-02	34.67	Tol.	PM-145
m	3	76.59	9.88726E-02	10.62		
	5	92.32	6.34774E-02	25.19		
	6	128.62	3.89953E-02	35.33		
	7	143.95	1.34900E-02	61.59	Tol.	U-235
	12	270.25	2.12932E-02	38.61		
	14	287.84	1.62619E-02	40.88		
	17	327.83	1.05556E-02	48.54	Tol.	LA-140
	20	462.89	1.52564E-02	50.73	Sum	
	21	510.63	2.81135E-02	29.14		
	22	535.36	1.31270E-02	48.83		
	26	768.34	8.84880E-03	43.70	Sum	
	27	795.05	2.05556E-02	24.14	Sum	
	28	837.14	7.59450E-03	56.31		
	32	1111.14	5.12055E-03	56.11	Tol.	EU-152
	34	1238.44	9.38361E-03	55.56	Tol.	CO-56
	35	1282.70	7.28395E-03	48.84		
	36	1377.89	6.87500E-03	41.25		
	37	1436.65	2.77778E-03	58.58	Tol.	LA-138
	39	1511.55	6.20072E-03	34.12		
M	40	1588.88	7.90275E-03	31.44	Sum	
m	41	1592.38	3.88929E-03	63.48	D-Esc	
	42	1631.09	2.09596E-03	52.49		
	43	1704.08	2.59921E-03	57.68	Sum	
	45	1848.19	3.75000E-03	34.94	Sum	
	46	1862.04	2.18056E-03	47.66		
	47	1877.52	4.18399E-03	45.00		
	48	2065.10	3.44444E-03	37.18	Sum	
	49	2103.10	7.22222E-03	19.61	S-Esc	
	50	2158.16	3.97059E-03	34.67		
	52	2249.00	2.22222E-03	35.36		
	53	2373.19	2.44950E-03	46.93	Sum	
	54	2384.09	2.22222E-03	35.36		

Analysis Report for 1707089-03

HTC-A04-S001-2430-01

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

NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	1.31E-01	1.73E+00	1.73E+00
+		NA-22	1274.54		99.94	3.05E-02	9.86E-02	9.86E-02
+	@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@		2754.09		99.86	1.00E+26		1.00E+26
+		AL-26	1808.65		99.76	3.40E-03	5.38E-02	5.38E-02
+		K-40	1460.81	*	10.67	2.78E+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	-1.40E-03	4.61E-02	4.61E-02
			78.34		96.00	1.91E-02		5.37E-02
+		SC-46	889.25		99.98	5.17E-02	1.76E-01	1.76E-01
			1120.51		99.99	3.29E-01		2.85E-01
+		V-48	983.52		99.98	1.85E+00	5.71E+00	5.71E+00
			1312.10		97.50	-7.02E-01		6.01E+00
+		CR-51	320.08		9.83	-2.54E+00	5.77E+00	5.77E+00
+		MN-54	834.83		99.97	9.93E-03	1.03E-01	1.03E-01
+		CO-56	846.75		99.96	4.86E-02	1.67E-01	1.67E-01
			1037.75		14.03	4.22E-01		1.42E+00
			1238.25		67.00	3.34E-01		4.18E-01
			1771.40		15.51	-1.22E+00		7.88E-01
			2598.48		16.90	1.69E-02		3.73E-01
+		CO-57	122.06		85.51	4.05E-02	5.44E-02	5.44E-02
			136.48		10.60	-5.26E-02		5.61E-01
+		CO-58	810.76		99.40	-4.47E-02	1.70E-01	1.70E-01
+		FE-59	1099.22		56.50	4.62E-01	7.39E-01	7.39E-01
			1291.56		43.20	2.56E-01		8.24E-01
+		CO-60	1173.22		100.00	3.03E-02	8.09E-02	1.02E-01
			1332.49		100.00	-4.68E-03		8.09E-02
+		ZN-65	1115.52		50.75	-6.01E-01	2.22E-01	2.22E-01
+		GA-67	93.31		35.70	4.56E+08	2.21E+08	2.21E+08
			208.95		2.24	3.67E+09		4.17E+09
			300.22		16.00	4.45E+08		6.11E+08
+		SE-75	121.11		16.70	-9.08E-02	1.35E-01	3.70E-01

Analysis Report for 1707089-03

HTC-A04-S001-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00		59.20	1.15E-02	1.35E-01	1.39E-01
		264.65		59.80	-2.12E-02		1.35E-01
		279.53		25.20	6.83E-02		3.42E-01
		400.65		11.40	3.23E-01		7.85E-01
+	RB-82	776.52		13.00	3.33E-01	7.91E+00	7.91E+00
+	RB-83	520.41		46.00	8.24E-02	2.60E-01	2.60E-01
		529.64		30.30	-1.00E-01		3.66E-01
		552.65		16.40	1.54E-01		7.26E-01
+	KR-85	513.99		0.43	-2.11E+00	1.34E+01	1.34E+01
+	SR-85	513.99		99.27	-2.64E-02	1.67E-01	1.67E-01
+	Y-88	898.02		93.40	-4.77E-02	1.28E-01	1.36E-01
		1836.01		99.38	5.57E-02		1.28E-01
+	MO-93	263.06		56.72	7.91E-03	5.72E-02	8.50E-02
		684.67		99.68	2.69E-03		6.64E-02
		1477.11		99.08	-5.52E-03		5.72E-02
+	NB-93M	16.57		9.43	0.00E+00	6.65E+00	6.65E+00
+	NB-94	702.63		100.00	2.73E-02	7.25E-02	7.39E-02
		871.10		100.00	-2.04E-03		7.25E-02
+	NB-95	765.79		99.81	8.08E-02	5.84E-01	5.84E-01
+	NB-95M	235.69		25.00	-5.00E+08	6.20E+07	6.20E+07
+	ZR-95	724.18		43.70	-2.27E-02	3.79E-01	5.57E-01
		756.72		55.30	1.78E-02		3.79E-01
+	MO-99	181.06		6.20	1.09E+10	4.35E+10	6.70E+10
		739.58		12.80	-1.61E+10		4.35E+10
		778.00		4.50	-9.78E+10		1.27E+11
+	RU-103	497.08		89.00	-1.90E-01	3.09E-01	3.09E-01
+	RU-106	621.84		9.80	-3.60E-01	7.16E-01	7.16E-01
+	AG-108M	433.93		89.90	6.40E-04	5.96E-02	5.96E-02
		614.37		90.40	3.91E-02		7.15E-02
		722.95		90.50	-2.52E-03		7.85E-02
+	CD-109	88.03	*	3.72	9.36E-01	1.51E+00	1.51E+00
+	AG-110M	657.75		93.14	1.62E-02	8.82E-02	8.82E-02
		677.61		10.53	-7.93E-02		7.89E-01
		706.67		16.46	-4.86E-01		5.41E-01
		763.93		21.98	6.30E-02		4.27E-01
		884.67		71.63	-2.76E-02		1.32E-01
		1384.27		23.94	2.35E-03		3.53E-01
+	CD-113M	263.70		0.02	-5.70E+01	2.04E+02	2.04E+02
+	SN-113	255.12		1.93	4.99E-01	1.36E-01	4.48E+00
		391.69		64.90	-2.61E-02		1.36E-01
+	TE123M	159.00		84.10	2.29E-02	9.60E-02	9.60E-02
+	SB-124	602.71		97.87	-1.35E-02	2.09E-01	2.09E-01
		645.85		7.26	1.44E+00		2.80E+00
		722.78		11.10	-9.46E-02		1.90E+00
		1691.02		49.00	3.53E-03		3.18E-01
+	I-125	35.49		6.49	-3.91E+01	5.89E+00	5.89E+00
+	SB-125	176.33		6.89	-1.41E-01	1.85E-01	7.27E-01
		427.89		29.33	-5.63E-02		1.85E-01

Analysis Report for 1707089-03

HTC-A04-S001-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-125	463.38		10.35	3.95E-01	1.85E-01	6.23E-01
		600.56		17.80	-2.90E-02		3.81E-01
		635.90		11.32	3.49E-01		6.28E-01
+	SB-126	414.70		83.30	-8.64E+00	1.43E+01	1.43E+01
		666.33		99.60	9.32E+00		1.93E+01
		695.00		99.60	-4.56E+00		1.84E+01
		720.50		53.80	-5.38E+00		3.24E+01
+	SN-126	87.57	*	37.00	8.11E-02	1.30E-01	1.30E-01
+	SB-127	473.00		25.00	1.54E+06	1.22E+07	1.25E+07
		685.20		35.70	-2.69E+06		1.22E+07
		783.80		14.70	8.17E+06		3.33E+07
+	I-129	29.78		57.00	6.44E-02	4.04E-01	4.04E-01
		33.60		13.20	9.11E+00		2.05E+00
		39.58		7.52	9.85E-01		1.26E+00
+	I-131	284.30		6.05	-1.64E+02	3.18E+02	4.18E+03
		364.48		81.20	-5.70E+01		3.18E+02
		636.97		7.26	2.78E+03		5.02E+03
		722.89		1.80	-7.03E+02		2.19E+04
+	TE-132	49.72		13.10	5.50E+07	1.05E+08	6.71E+08
		228.16		88.00	1.24E+08		1.05E+08
+	BA-133	81.00		33.00	4.82E-02	7.63E-02	1.24E-01
		302.84		17.80	1.60E-02		2.84E-01
		356.01		60.00	1.81E-02		7.63E-02
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	2.28E+04	5.84E+04	5.84E+04
+	CS-134	563.23		8.38	-3.41E-01	7.76E-02	6.67E-01
		569.32		15.43	-5.26E-02		3.97E-01
		604.70		97.60	4.88E-03		7.76E-02
		795.84		85.40	1.40E-01		1.13E-01
		801.93		8.73	-3.66E-01		7.64E-01
+	CS-135	268.24		16.00	-1.07E-02	3.26E-01	3.26E-01
+	@ I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41		28.60	1.00E+26		1.00E+26
	@	1678.03		9.54	1.00E+26		1.00E+26
+	CS-136	153.22		7.46	-1.16E+01	1.25E+01	1.26E+02
		163.89		4.61	-6.72E+01		1.92E+02
		176.55		13.56	-1.30E+01		6.70E+01
		273.65		12.66	-1.14E+02		6.95E+01
		340.57		48.50	3.07E+00		2.34E+01
		818.50		99.70	5.37E+00		1.25E+01
		1048.07		79.60	-4.60E+00		2.07E+01
		1235.34		19.70	6.05E-01		1.15E+02
+	CS-137	661.65		85.12	-1.43E-02	7.73E-02	7.73E-02
+	LA-138	788.74		34.00	2.39E-02	9.78E-02	2.17E-01
		1435.80		66.00	-1.33E-03		9.78E-02
+	CE-139	165.85		80.35	4.00E-02	9.74E-02	9.74E-02
+	BA-140	162.64		6.70	-4.33E+01	5.08E+01	1.52E+02
		304.84		4.50	1.75E+01		2.16E+02
		423.70		3.20	-1.75E+02		3.59E+02

Analysis Report for 1707089-03

HTC-A04-S001-2430-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		BA-140	437.55		2.00	9.96E+01	5.08E+01	5.99E+02
			537.32		25.00	1.32E+01		5.08E+01
+		LA-140	328.77		20.50	1.01E+01	1.65E+01	5.96E+01
			487.03		45.50	-2.07E+00		2.54E+01
			815.85		23.50	1.12E+00		5.78E+01
			1596.49		95.49	-5.05E-01		1.65E+01
+		CE-141	145.44		48.40	4.24E-01	8.32E-01	8.32E-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	1.40E-01	4.17E-01	4.17E-01
+		PM-144	476.78		42.00	1.07E-02	7.23E-02	1.42E-01
			618.01		98.60	-1.16E-02		7.23E-02
			696.49		99.49	-6.33E-03		8.42E-02
+		PM-145	36.85		21.70	-3.03E-01	2.61E-01	4.93E-01
			37.36		39.70	-1.62E-01		2.61E-01
			42.30		15.10	-1.59E-01		4.62E-01
			72.40		2.31	-9.40E+00		2.03E+00
+		PM-146	453.90		39.94	-2.07E-03	1.30E-01	1.30E-01
			735.90		14.01	4.47E-02		4.70E-01
			747.13		13.10	-7.99E-02		5.48E-01
+		ND-147	91.11		28.90	-9.98E+01	8.75E+01	8.75E+01
			531.02		13.10	1.09E+01		2.18E+02
+		PM-149	285.90		3.10	-7.00E+12	6.44E+13	6.44E+13
+		EU-152	121.78		20.50	1.32E-01	1.78E-01	1.78E-01
			244.69		5.40	-1.49E+00		9.19E-01
			344.27		19.13	1.70E-01		2.71E-01
			778.89		9.20	-5.48E-01		7.14E-01
			964.01		10.40	8.99E-02		9.03E-01
			1085.78		7.22	-4.36E-01		1.11E+00
			1112.02		9.60	-1.23E-02		8.89E-01
			1407.95		14.94	-5.61E-02		5.11E-01
+		GD-153	97.43		31.30	1.59E-02	1.47E-01	1.47E-01
			103.18		22.20	-8.70E-02		1.94E-01
+		EU-154	123.07		40.50	-1.16E-02	8.78E-02	8.78E-02
			723.30		19.70	-1.18E-02		3.68E-01
			873.19		11.50	-4.06E-02		6.54E-01
			996.32		10.30	9.06E-02		7.27E-01
			1004.76		17.90	-3.36E-01		3.92E-01
			1274.45		35.50	8.14E-02		2.64E-01
+		EU-155	86.50	*	30.90	1.01E-01	1.62E-01	1.62E-01
			105.30		20.70	4.64E-02		1.77E-01
+		EU-156	811.77		10.40	-2.84E+01	5.62E+01	5.62E+01
			1153.47		7.20	6.80E+01		1.34E+02
			1230.71		8.90	-1.77E+01		1.11E+02
+		HO-166M	184.41		72.60	1.59E-01	8.52E-02	8.52E-02
			280.45		29.60	6.36E-02		1.57E-01
			410.94		11.10	1.94E-01		4.70E-01
			711.69		54.10	3.71E-02		1.34E-01

Analysis Report for 1707089-03

HTC-A04-S001-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TM-171	66.72		0.14	1.40E+01	3.56E+01	3.56E+01
+	HF-172	67.35		5.31	-2.76E-02	3.50E-01	9.08E-01
		125.81		11.30	-3.62E-02		3.50E-01
+	LU-172	181.53		20.60	4.10E+03	4.51E+03	7.33E+03
		900.72		29.81	-1.93E+01		7.01E+03
		1093.66		62.50	1.25E+03		4.51E+03
+	LU-173	100.72		5.24	1.30E-01	2.87E-01	7.22E-01
		272.11		21.20	2.43E-01		2.87E-01
+	HF-175	343.40		84.00	4.04E-02	1.56E-01	1.56E-01
+	LU-176	88.34		13.30	1.31E-01	4.64E-02	3.56E-01
		201.83		86.00	2.06E-03		5.67E-02
		306.78		94.00	5.14E-03		4.64E-02
+	HF-181	133.02		41.70	4.07E-02	2.86E-01	4.48E-01
		345.85		17.20	-6.74E-02		1.51E+00
		482.03		82.80	-6.57E-02		2.86E-01
+	TA-182	67.75		41.20	-5.86E-03	1.93E-01	1.93E-01
		1121.30		34.90	8.22E-01		6.60E-01
		1189.05		16.23	-2.55E-01		1.08E+00
		1221.41		26.98	4.96E-02		7.43E-01
		1231.02		11.44	-2.63E-01		1.65E+00
+	IR-192	308.46		29.68	-1.38E-01	2.53E-01	3.80E-01
		468.07		48.10	-3.00E-02		2.53E-01
+	HG-203	279.19		77.30	5.65E-02	2.89E-01	2.89E-01
+	TL-204	374.74		94.11	-6.56E-03	5.40E-02	5.40E-02
		899.15		99.16	1.28E-02		7.20E-02
		911.74		91.10	3.82E-01		1.53E-01
+	BI-207	569.67		97.72	-7.62E-03	5.75E-02	5.75E-02
		1063.62		74.90	-5.48E-02		1.09E-01
+	TL-208	583.14	*	30.22	1.27E+00	1.62E-01	2.98E-01
		860.37	*	4.48	2.05E+00		1.94E+00
		2614.66	*	35.85	1.07E+00		1.62E-01
+	BI-210M	262.00		45.00	2.87E-02	1.05E-01	1.05E-01
		300.00		23.00	1.80E-01		2.48E-01
+	PB-210	46.50		4.25	1.58E+00	1.48E+00	1.48E+00
+	PB-211	404.84		2.90	-3.01E-01	1.71E+00	1.71E+00
		831.96		2.90	7.43E-01		2.63E+00
+	BI-212	727.17	*	11.80	7.16E-01	7.15E-01	7.15E-01
		1620.62		2.75	9.05E-01		2.45E+00
+	PB-212	238.63	*	44.60	1.28E+00	2.05E-01	2.05E-01
		300.09	*	3.41	1.58E+00		2.68E+00
+	BI-214	609.31	*	46.30	9.76E-01	2.17E-01	2.17E-01
		1120.29	*	15.10	1.50E+00		9.57E-01
		1764.49	*	15.80	9.52E-01		4.21E-01
		2204.22	*	4.98	1.40E+00		8.48E-01
+	PB-214	295.21	*	19.19	1.27E+00	1.85E-01	4.67E-01
		351.92	*	37.19	1.11E+00		1.85E-01
+	RN-219	401.80		6.50	2.65E-01	7.73E-01	7.73E-01
+	RA-223	323.87		3.88	8.65E-01	1.28E+00	1.28E+00

Analysis Report for 1707089-03

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98	*	3.95	2.41E+00	2.31E+00	2.31E+00
+	RA-225	40.00		31.00	2.52E+01	3.23E+01	3.23E+01
+	RA-226	186.21	*	3.28	3.86E+00	2.20E+00	2.20E+00
+	TH-227	50.10		8.40	4.86E-02	5.92E-01	5.92E-01
		236.00		11.50	-4.96E+00		6.14E-01
		256.20		6.30	-2.92E-01		7.37E-01
+	AC-228	338.32	*	11.40	9.98E-01	3.43E-01	7.57E-01
		911.07	*	27.70	1.15E+00		3.43E-01
		969.11	*	16.60	8.95E-01		7.53E-01
+	TH-230	48.44		16.90	-2.77E-01	3.07E-01	3.07E-01
		62.85		4.60	8.78E-01		1.12E+00
		67.67		0.37	-3.57E-01		1.17E+01
+	PA-231	283.67		1.60	-1.11E-01	2.15E+00	2.84E+00
		302.67		2.30	1.21E-01		2.15E+00
+	TH-231	25.64		14.70	0.00E+00	1.18E-01	1.18E-01
		84.21		6.40	5.42E-01		6.23E-01
+	PA-233	311.98		38.60	2.83E-01	1.68E+00	1.68E+00
+	PA-234	131.20		20.40	8.49E-02	1.88E-01	1.88E-01
		733.99		8.80	-8.37E-02		7.06E-01
		946.00		12.00	-3.32E-01		5.00E-01
+	PA-234M	1001.03		0.92	2.55E+00	8.13E+00	8.13E+00
+	TH-234	63.29	*	3.80	1.31E+00	2.37E+00	2.37E+00
+	U-235	143.76		10.50	-1.05E-01	4.42E-01	4.42E-01
		163.35		4.70	-3.39E-01		9.68E-01
		205.31		4.70	-3.29E-02		1.04E+00
+	NP-237	86.50	*	12.60	2.38E-01	3.83E-01	3.83E-01
+	NP-239	106.10		22.70	2.50E+11	9.55E+11	9.55E+11
		228.18		10.70	3.58E+12		3.02E+12
		277.60		14.10	-3.00E+11		2.15E+12
+	AM-241	59.54		35.90	-5.67E-02	1.28E-01	1.28E-01
+	AM-243	74.67		66.00	-1.76E-01	9.04E-02	9.04E-02
+	CM-243	209.75	*	3.29	2.15E+00	3.28E-01	2.19E+00
		228.14		10.60	5.94E-01		5.01E-01
		277.60	*	14.00	2.68E-01		3.28E-01

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

Analysis Report for 1707089-03

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NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	1.73E+00	1.73E+00	1.31E-01	8.14E-01
	NA-22	1274.54		99.94	9.86E-02	9.86E-02	3.05E-02	4.58E-02
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	5.38E-02	5.38E-02	3.40E-03	2.27E-02
+	K-40	1460.81	*	10.67	1.30E+00	1.30E+00	2.78E+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	4.61E-02	4.61E-02	-1.40E-03	2.24E-02
		78.34		96.00	5.37E-02		1.91E-02	2.63E-02
	SC-46	889.25		99.98	1.76E-01	1.76E-01	5.17E-02	8.27E-02
		1120.51		99.99	2.85E-01		3.29E-01	1.36E-01
	V-48	983.52		99.98	5.71E+00	5.71E+00	1.85E+00	2.65E+00
		1312.10		97.50	6.01E+00		-7.02E-01	2.74E+00
	CR-51	320.08		9.83	5.77E+00	5.77E+00	-2.54E+00	2.75E+00
	MN-54	834.83		99.97	1.03E-01	1.03E-01	9.93E-03	4.87E-02
	CO-56	846.75		99.96	1.67E-01	1.67E-01	4.86E-02	7.80E-02
		1037.75		14.03	1.42E+00		4.22E-01	6.62E-01
		1238.25		67.00	4.18E-01		3.34E-01	1.98E-01
		1771.40		15.51	7.88E-01		-1.22E+00	3.30E-01
		2598.48		16.90	3.73E-01		1.69E-02	1.18E-01
	CO-57	122.06		85.51	5.44E-02	5.44E-02	4.05E-02	2.63E-02
		136.48		10.60	5.61E-01		-5.26E-02	2.73E-01
	CO-58	810.76		99.40	1.70E-01	1.70E-01	-4.47E-02	7.89E-02
	FE-59	1099.22		56.50	7.39E-01	7.39E-01	4.62E-01	3.45E-01
		1291.56		43.20	8.24E-01		2.56E-01	3.76E-01
	CO-60	1173.22		100.00	1.02E-01	8.09E-02	3.03E-02	4.79E-02
		1332.49		100.00	8.09E-02		-4.68E-03	3.70E-02
	ZN-65	1115.52		50.75	2.22E-01	2.22E-01	-6.01E-01	1.04E-01
	GA-67	93.31		35.70	2.21E+08	2.21E+08	4.56E+08	1.08E+08
		208.95		2.24	4.17E+09		3.67E+09	2.02E+09
		300.22		16.00	6.11E+08		4.45E+08	2.94E+08
	SE-75	121.11		16.70	3.70E-01	1.35E-01	-9.08E-02	1.78E-01
		136.00		59.20	1.39E-01		1.15E-02	6.74E-02
		264.65		59.80	1.35E-01		-2.12E-02	6.49E-02
		279.53		25.20	3.42E-01		6.83E-02	1.64E-01
		400.65		11.40	7.85E-01		3.23E-01	3.72E-01
	RB-82	776.52		13.00	7.91E+00	7.91E+00	3.33E-01	3.70E+00
	RB-83	520.41		46.00	2.60E-01	2.60E-01	8.24E-02	1.22E-01
		529.64		30.30	3.66E-01		-1.00E-01	1.71E-01
		552.65		16.40	7.26E-01		1.54E-01	3.41E-01
	KR-85	513.99		0.43	1.34E+01	1.34E+01	-2.11E+00	6.31E+00
	SR-85	513.99		99.27	1.67E-01	1.67E-01	-2.64E-02	7.90E-02

Analysis Report for 1707089-03

HTC-A04-S001-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	Y-88	898.02		93.40	1.36E-01	1.28E-01	-4.77E-02	6.28E-02
		1836.01		99.38	1.28E-01		5.57E-02	5.58E-02
	MO-93	263.06		56.72	8.50E-02	5.72E-02	7.91E-03	4.08E-02
		684.67		99.68	6.64E-02		2.69E-03	3.12E-02
		1477.11		99.08	5.72E-02		-5.52E-03	2.49E-02
	NB-93M	16.57		9.43	6.65E+00	6.65E+00	0.00E+00	0.00E+00
	NB-94	702.63		100.00	7.39E-02	7.25E-02	2.73E-02	3.50E-02
		871.10		100.00	7.25E-02		-2.04E-03	3.38E-02
	NB-95	765.79		99.81	5.84E-01	5.84E-01	8.08E-02	2.77E-01
	NB-95M	235.69		25.00	6.20E+07	6.20E+07	-5.00E+08	3.02E+07
	ZR-95	724.18		43.70	5.57E-01	3.79E-01	-2.27E-02	2.65E-01
		756.72		55.30	3.79E-01		1.78E-02	1.78E-01
	MO-99	181.06		6.20	6.70E+10	4.35E+10	1.09E+10	3.24E+10
		739.58		12.80	4.35E+10		-1.61E+10	2.03E+10
		778.00		4.50	1.27E+11		-9.78E+10	5.93E+10
	RU-103	497.08		89.00	3.09E-01	3.09E-01	-1.90E-01	1.45E-01
	RU-106	621.84		9.80	7.16E-01	7.16E-01	-3.60E-01	3.35E-01
	AG-108M	433.93		89.90	5.96E-02	5.96E-02	6.40E-04	2.83E-02
		614.37		90.40	7.15E-02		3.91E-02	3.38E-02
		722.95		90.50	7.85E-02		-2.52E-03	3.70E-02
+	CD-109	88.03	*	3.72	1.51E+00	1.51E+00	9.36E-01	7.36E-01
	AG-110M	657.75		93.14	8.82E-02	8.82E-02	1.62E-02	4.14E-02
		677.61		10.53	7.89E-01		-7.93E-02	3.70E-01
		706.67		16.46	5.41E-01		-4.86E-01	2.54E-01
		763.93		21.98	4.27E-01		6.30E-02	2.00E-01
		884.67		71.63	1.32E-01		-2.76E-02	6.17E-02
		1384.27		23.94	3.53E-01		2.35E-03	1.58E-01
	CD-113M	263.70		0.02	2.04E+02	2.04E+02	-5.70E+01	9.80E+01
	SN-113	255.12		1.93	4.48E+00	1.36E-01	4.99E-01	2.15E+00
		391.69		64.90	1.36E-01		-2.61E-02	6.44E-02
	TE123M	159.00		84.10	9.60E-02	9.60E-02	2.29E-02	4.65E-02
	SB-124	602.71		97.87	2.09E-01	2.09E-01	-1.35E-02	9.90E-02
		645.85		7.26	2.80E+00		1.44E+00	1.32E+00
		722.78		11.10	1.90E+00		-9.46E-02	8.93E-01
		1691.02		49.00	3.18E-01		3.53E-03	1.33E-01
	I-125	35.49		6.49	5.89E+00	5.89E+00	-3.91E+01	2.85E+00
	SB-125	176.33		6.89	7.27E-01	1.85E-01	-1.41E-01	3.52E-01
		427.89		29.33	1.85E-01		-5.63E-02	8.75E-02
		463.38		10.35	6.23E-01		3.95E-01	2.97E-01
		600.56		17.80	3.81E-01		-2.90E-02	1.80E-01
		635.90		11.32	6.28E-01		3.49E-01	2.96E-01
	SB-126	414.70		83.30	1.43E+01	1.43E+01	-8.64E+00	6.75E+00
		666.33		99.60	1.93E+01		9.32E+00	9.15E+00
		695.00		99.60	1.84E+01		-4.56E+00	8.67E+00
		720.50		53.80	3.24E+01		-5.38E+00	1.52E+01
+	SN-126	87.57	*	37.00	1.30E-01	1.30E-01	8.11E-02	6.37E-02
	SB-127	473.00		25.00	1.25E+07	1.22E+07	1.54E+06	5.88E+06
		685.20		35.70	1.22E+07		-2.69E+06	5.71E+06
		783.80		14.70	3.33E+07		8.17E+06	1.57E+07
	I-129	29.78		57.00	4.04E-01	4.04E-01	6.44E-02	1.95E-01
		33.60		13.20	2.05E+00		9.11E+00	1.01E+00
		39.58		7.52	1.26E+00		9.85E-01	6.14E-01
	I-131	284.30		6.05	4.18E+03	3.18E+02	-1.64E+02	2.00E+03

Analysis Report for 1707089-03

HTC-A04-S001-2430-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
I-131	364.48	81.20	3.18E+02	3.18E+02	-5.70E+01	1.51E+02
	636.97	7.26	5.02E+03		2.78E+03	2.37E+03
	722.89	1.80	2.19E+04		-7.03E+02	1.03E+04
TE-132	49.72	13.10	6.71E+08	1.05E+08	5.50E+07	3.24E+08
	228.16	88.00	1.05E+08		1.24E+08	5.06E+07
BA-133	81.00	33.00	1.24E-01	7.63E-02	4.82E-02	6.00E-02
	302.84	17.80	2.84E-01		1.60E-02	1.36E-01
	356.01	60.00	7.63E-02		1.81E-02	3.62E-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	5.84E+04	5.84E+04	2.28E+04	2.84E+04
CS-134	563.23	8.38	6.67E-01	7.76E-02	-3.41E-01	3.12E-01
	569.32	15.43	3.97E-01		-5.26E-02	1.86E-01
	604.70	97.60	7.76E-02		4.88E-03	3.68E-02
	795.84	85.40	1.13E-01		1.40E-01	5.36E-02
	801.93	8.73	7.64E-01		-3.66E-01	3.54E-01
CS-135	268.24	16.00	3.26E-01	3.26E-01	-1.07E-02	1.57E-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	1.26E+02	1.25E+01	-1.16E+01	6.12E+01
	163.89	4.61	1.92E+02		-6.72E+01	9.30E+01
	176.55	13.56	6.70E+01		-1.30E+01	3.24E+01
	273.65	12.66	6.95E+01		-1.14E+02	3.33E+01
	340.57	48.50	2.34E+01		3.07E+00	1.12E+01
	818.50	99.70	1.25E+01		5.37E+00	5.78E+00
	1048.07	79.60	2.07E+01		-4.60E+00	9.68E+00
	1235.34	19.70	1.15E+02		6.05E-01	5.46E+01
CS-137	661.65	85.12	7.73E-02	7.73E-02	-1.43E-02	3.64E-02
LA-138	788.74	34.00	2.17E-01	9.78E-02	2.39E-02	1.02E-01
	1435.80	66.00	9.78E-02		-1.33E-03	4.35E-02
CE-139	165.85	80.35	9.74E-02	9.74E-02	4.00E-02	4.73E-02
BA-140	162.64	6.70	1.52E+02	5.08E+01	-4.33E+01	7.38E+01
	304.84	4.50	2.16E+02		1.75E+01	1.02E+02
	423.70	3.20	3.59E+02		-1.75E+02	1.70E+02
	437.55	2.00	5.99E+02		9.96E+01	2.84E+02
	537.32	25.00	5.08E+01		1.32E+01	2.39E+01
LA-140	328.77	20.50	5.96E+01	1.65E+01	1.01E+01	2.86E+01
	487.03	45.50	2.54E+01		-2.07E+00	1.20E+01
	815.85	23.50	5.78E+01		1.12E+00	2.67E+01
	1596.49	95.49	1.65E+01		-5.05E-01	7.34E+00
CE-141	145.44	48.40	8.32E-01	8.32E-01	4.24E-01	4.05E-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	4.17E-01	4.17E-01	1.40E-01	2.01E-01
PM-144	476.78	42.00	1.42E-01	7.23E-02	1.07E-02	6.67E-02
	618.01	98.60	7.23E-02		-1.16E-02	3.39E-02
	696.49	99.49	8.42E-02		-6.33E-03	3.97E-02
PM-145	36.85	21.70	4.93E-01	2.61E-01	-3.03E-01	2.38E-01
	37.36	39.70	2.61E-01		-1.62E-01	1.26E-01
	42.30	15.10	4.62E-01		-1.59E-01	2.23E-01
	72.40	2.31	2.03E+00		-9.40E+00	9.89E-01
PM-146	453.90	39.94	1.30E-01	1.30E-01	-2.07E-03	6.15E-02

Analysis Report for 1707089-03

HTC-A04-S001-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PM-146	735.90		14.01	4.70E-01	1.30E-01	4.47E-02	2.19E-01
		747.13		13.10	5.48E-01		-7.99E-02	2.57E-01
	ND-147	91.11		28.90	8.75E+01	8.75E+01	-9.98E+01	4.27E+01
		531.02		13.10	2.18E+02		1.09E+01	1.02E+02
	PM-149	285.90		3.10	6.44E+13	6.44E+13	-7.00E+12	3.08E+13
	EU-152	121.78		20.50	1.78E-01	1.78E-01	1.32E-01	8.60E-02
		244.69		5.40	9.19E-01		-1.49E+00	4.43E-01
		344.27		19.13	2.71E-01		1.70E-01	1.29E-01
		778.89		9.20	7.14E-01		-5.48E-01	3.33E-01
		964.01		10.40	9.03E-01		8.99E-02	4.26E-01
		1085.78		7.22	1.11E+00		-4.36E-01	5.17E-01
		1112.02		9.60	8.89E-01		-1.23E-02	4.14E-01
		1407.95		14.94	5.11E-01		-5.61E-02	2.32E-01
	GD-153	97.43		31.30	1.47E-01	1.47E-01	1.59E-02	7.10E-02
		103.18		22.20	1.94E-01		-8.70E-02	9.37E-02
	EU-154	123.07		40.50	8.78E-02	8.78E-02	-1.16E-02	4.24E-02
		723.30		19.70	3.68E-01		-1.18E-02	1.74E-01
		873.19		11.50	6.54E-01		-4.06E-02	3.06E-01
		996.32		10.30	7.27E-01		9.06E-02	3.37E-01
		1004.76		17.90	3.92E-01		-3.36E-01	1.81E-01
		1274.45		35.50	2.64E-01		8.14E-02	1.23E-01
+	EU-155	86.50	*	30.90	1.62E-01	1.62E-01	1.01E-01	7.93E-02
		105.30		20.70	1.77E-01		4.64E-02	8.57E-02
	EU-156	811.77		10.40	5.62E+01	5.62E+01	-2.84E+01	2.60E+01
		1153.47		7.20	1.34E+02		6.80E+01	6.31E+01
		1230.71		8.90	1.11E+02		-1.77E+01	5.22E+01
	HO-166M	184.41		72.60	8.52E-02	8.52E-02	1.59E-01	4.16E-02
		280.45		29.60	1.57E-01		6.36E-02	7.52E-02
		410.94		11.10	4.70E-01		1.94E-01	2.23E-01
		711.69		54.10	1.34E-01		3.71E-02	6.30E-02
	TM-171	66.72		0.14	3.56E+01	3.56E+01	1.40E+01	1.73E+01
	HF-172	67.35		5.31	9.08E-01	3.50E-01	-2.76E-02	4.41E-01
		125.81		11.30	3.50E-01		-3.62E-02	1.69E-01
	LU-172	181.53		20.60	7.33E+03	4.51E+03	4.10E+03	3.55E+03
		900.72		29.81	7.01E+03		-1.93E+01	3.25E+03
		1093.66		62.50	4.51E+03		1.25E+03	2.11E+03
	LU-173	100.72		5.24	7.22E-01	2.87E-01	1.30E-01	3.48E-01
		272.11		21.20	2.87E-01		2.43E-01	1.38E-01
	HF-175	343.40		84.00	1.56E-01	1.56E-01	4.04E-02	7.43E-02
	LU-176	88.34		13.30	3.56E-01	4.64E-02	1.31E-01	1.74E-01
		201.83		86.00	5.67E-02		2.06E-03	2.74E-02
		306.78		94.00	4.64E-02		5.14E-03	2.20E-02
	HF-181	133.02		41.70	4.48E-01	2.86E-01	4.07E-02	2.16E-01
		345.85		17.20	1.51E+00		-6.74E-02	7.18E-01
		482.03		82.80	2.86E-01		-6.57E-02	1.34E-01
	TA-182	67.75		41.20	1.93E-01	1.93E-01	-5.86E-03	9.38E-02
		1121.30		34.90	6.60E-01		8.22E-01	3.15E-01
		1189.05		16.23	1.08E+00		-2.55E-01	5.07E-01
		1221.41		26.98	7.43E-01		4.96E-02	3.50E-01
		1231.02		11.44	1.65E+00		-2.63E-01	7.75E-01
	IR-192	308.46		29.68	3.80E-01	2.53E-01	-1.38E-01	1.81E-01
		468.07		48.10	2.53E-01		-3.00E-02	1.19E-01
	HG-203	279.19		77.30	2.89E-01	2.89E-01	5.65E-02	1.39E-01

Analysis Report for 1707089-03

HTC-A04-S001-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TL-204	374.74		94.11	5.40E-02	5.40E-02	-6.56E-03	2.56E-02
		899.15		99.16	7.20E-02		1.28E-02	3.34E-02
		911.74		91.10	1.53E-01		3.82E-01	7.36E-02
	BI-207	569.67		97.72	5.75E-02	5.75E-02	-7.62E-03	2.70E-02
		1063.62		74.90	1.09E-01		-5.48E-02	5.07E-02
+	TL-208	583.14	*	30.22	2.98E-01	1.62E-01	1.27E+00	1.43E-01
		860.37	*	4.48	1.94E+00		2.05E+00	9.19E-01
		2614.66	*	35.85	1.62E-01		1.07E+00	6.78E-02
	BI-210M	262.00		45.00	1.05E-01	1.05E-01	2.87E-02	5.04E-02
		300.00		23.00	2.48E-01		1.80E-01	1.19E-01
	PB-210	46.50		4.25	1.48E+00	1.48E+00	1.58E+00	7.19E-01
	PB-211	404.84		2.90	1.71E+00	1.71E+00	-3.01E-01	8.08E-01
		831.96		2.90	2.63E+00		7.43E-01	1.23E+00
+	BI-212	727.17	*	11.80	7.15E-01	7.15E-01	7.16E-01	3.40E-01
		1620.62		2.75	2.45E+00		9.05E-01	1.09E+00
+	PB-212	238.63	*	44.60	2.05E-01	2.05E-01	1.28E+00	1.00E-01
		300.09	*	3.41	2.68E+00		1.58E+00	1.31E+00
+	BI-214	609.31	*	46.30	2.17E-01	2.17E-01	9.76E-01	1.05E-01
		1120.29	*	15.10	9.57E-01		1.50E+00	4.59E-01
		1764.49	*	15.80	4.21E-01		9.52E-01	1.85E-01
		2204.22	*	4.98	8.48E-01		1.40E+00	3.32E-01
+	PB-214	295.21	*	19.19	4.67E-01	1.85E-01	1.27E+00	2.28E-01
		351.92	*	37.19	1.85E-01		1.11E+00	8.94E-02
	RN-219	401.80		6.50	7.73E-01	7.73E-01	2.65E-01	3.67E-01
	RA-223	323.87		3.88	1.28E+00	1.28E+00	8.65E-01	6.13E-01
+	RA-224	240.98	*	3.95	2.31E+00	2.31E+00	2.41E+00	1.13E+00
	RA-225	40.00		31.00	3.23E+01	3.23E+01	2.52E+01	1.57E+01
+	RA-226	186.21	*	3.28	2.20E+00	2.20E+00	3.86E+00	1.08E+00
	TH-227	50.10		8.40	5.92E-01	5.92E-01	4.86E-02	2.86E-01
		236.00		11.50	6.14E-01		-4.96E+00	2.99E-01
		256.20		6.30	7.37E-01		-2.92E-01	3.54E-01
+	AC-228	338.32	*	11.40	7.57E-01	3.43E-01	9.98E-01	3.68E-01
		911.07	*	27.70	3.43E-01		1.15E+00	1.62E-01
		969.11	*	16.60	7.53E-01		8.95E-01	3.61E-01
	TH-230	48.44		16.90	3.07E-01	3.07E-01	-2.77E-01	1.48E-01
		62.85		4.60	1.12E+00		8.78E-01	5.48E-01
		67.67		0.37	1.17E+01		-3.57E-01	5.70E+00
	PA-231	283.67		1.60	2.84E+00	2.15E+00	-1.11E-01	1.36E+00
		302.67		2.30	2.15E+00		1.21E-01	1.03E+00
	TH-231	25.64		14.70	1.18E-01	1.18E-01	0.00E+00	0.00E+00
		84.21		6.40	6.23E-01		5.42E-01	3.03E-01
	PA-233	311.98		38.60	1.68E+00	1.68E+00	2.83E-01	8.02E-01
	PA-234	131.20		20.40	1.88E-01	1.88E-01	8.49E-02	9.07E-02
		733.99		8.80	7.06E-01		-8.37E-02	3.29E-01
		946.00		12.00	5.00E-01		-3.32E-01	2.29E-01
	PA-234M	1001.03		0.92	8.13E+00	8.13E+00	2.55E+00	3.77E+00
+	TH-234	63.29	*	3.80	2.37E+00	2.37E+00	1.31E+00	1.17E+00
	U-235	143.76		10.50	4.42E-01	4.42E-01	-1.05E-01	2.15E-01
		163.35		4.70	9.68E-01		-3.39E-01	4.69E-01
		205.31		4.70	1.04E+00		-3.29E-02	5.05E-01
+	NP-237	86.50	*	12.60	3.83E-01	3.83E-01	2.38E-01	1.87E-01
	NP-239	106.10		22.70	9.55E+11	9.55E+11	2.50E+11	4.62E+11
		228.18		10.70	3.02E+12		3.58E+12	1.46E+12

Analysis Report for 1707089-03

HTC-A04-S001-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	NP-239	277.60		14.10	2.15E+12	9.55E+11	-3.00E+11	1.03E+12
	AM-241	59.54		35.90	1.28E-01	1.28E-01	-5.67E-02	6.20E-02
	AM-243	74.67		66.00	9.04E-02	9.04E-02	-1.76E-01	4.43E-02
+	CM-243	209.75	*	3.29	2.19E+00	3.28E-01	2.15E+00	1.07E+00
		228.14		10.60	5.01E-01		5.94E-01	2.42E-01
		277.60	*	14.00	3.28E-01		2.68E-01	1.57E-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.

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

Sample Title: HTC-A04-S001-2430-01

Elapsed Live time: 3600
Elapsed Real Time: 3601

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	57	85	124	145
33:	240	694	105	110	81	100	118	121
41:	122	95	81	88	85	100	148	81
49:	76	104	89	91	79	95	95	126
57:	99	136	101	126	133	132	169	208
65:	147	141	134	145	117	132	141	133
73:	177	177	430	229	472	379	114	143
81:	125	119	118	154	135	99	215	224
89:	122	211	151	156	253	150	121	81
97:	90	94	103	99	68	91	71	85
105:	106	97	90	93	81	98	98	80
113:	86	88	92	87	84	88	64	85
121:	87	85	106	66	90	95	82	104
129:	117	106	87	103	71	90	85	76
137:	90	77	89	82	99	56	78	103
145:	94	72	75	77	72	83	66	92
153:	78	100	73	84	71	68	67	64
161:	72	51	67	82	59	76	74	66
169:	62	64	57	64	59	65	66	53
177:	63	83	58	70	70	67	50	77
185:	107	197	112	67	61	65	55	50
193:	56	48	57	60	61	45	61	57
201:	60	64	56	59	57	67	54	60
209:	113	79	49	47	45	53	52	55
217:	51	53	50	53	57	65	53	54
225:	44	56	58	58	66	56	36	57
233:	41	51	39	50	59	312	648	107
241:	110	133	65	49	36	34	44	35
249:	40	43	30	41	46	43	40	39
257:	32	37	42	30	50	43	34	35
265:	30	41	34	41	35	77	60	37
273:	30	26	33	39	49	48	28	30
281:	45	32	33	29	26	37	36	49
289:	40	30	27	25	30	52	207	105
297:	41	40	41	62	46	43	32	19
305:	31	19	24	25	29	28	25	38
313:	37	36	32	36	23	29	22	31
321:	23	32	39	34	28	23	32	65
329:	28	25	31	40	32	31	21	24
337:	49	118	98	25	17	36	26	29
345:	28	31	26	31	33	35	118	316
353:	84	22	16	15	27	29	22	23
361:	31	32	16	18	19	27	20	21

369:	21	31	21	17	21	22	27	25

Sample Title: HTC-A04-S001-2430-01

Channel								
377:	22	30	23	17	18	23	28	22
385:	22	31	24	30	22	24	14	26
393:	23	22	25	21	19	15	21	19
401:	25	26	23	21	18	26	21	22
409:	28	29	22	28	12	18	20	15
417:	19	18	23	22	27	30	17	21
425:	21	18	26	25	17	19	26	23
433:	23	27	28	14	21	22	26	16
441:	21	26	10	21	21	18	16	25
449:	16	18	24	17	16	23	19	19
457:	17	18	23	19	17	32	43	29
465:	12	22	15	19	8	16	19	11
473:	11	16	20	13	19	11	20	19
481:	16	8	11	17	20	13	17	18
489:	19	17	25	13	11	19	9	9
497:	16	16	21	27	20	18	18	20
505:	21	15	12	21	34	78	81	43
513:	17	15	14	11	17	16	18	18
521:	15	19	15	14	21	15	16	9
529:	19	13	14	9	22	21	23	22
537:	18	13	14	13	12	10	14	11
545:	17	16	14	14	15	22	11	13
553:	20	11	11	15	8	14	20	13
561:	19	14	11	13	11	17	20	16
569:	8	24	13	19	20	19	16	11
577:	12	17	21	13	23	75	170	83
585:	21	12	16	13	18	13	18	18
593:	15	14	14	12	15	12	15	9
601:	11	20	15	13	18	14	24	58
609:	215	111	18	8	11	16	7	15
617:	22	9	6	9	11	10	13	15
625:	12	16	9	18	17	9	13	13
633:	11	13	13	16	14	14	16	8
641:	7	9	15	13	12	9	10	17
649:	12	13	7	9	6	11	11	8
657:	17	6	14	13	13	12	10	20
665:	13	17	17	13	16	13	9	10
673:	13	11	7	12	13	11	8	16
681:	10	14	9	9	14	10	16	11
689:	11	16	11	12	9	14	17	17
697:	11	9	14	16	14	25	9	12
705:	13	15	12	11	12	19	14	15
713:	11	14	12	9	10	9	10	11
721:	10	11	14	10	13	21	44	15
729:	12	11	7	8	9	16	8	8
737:	10	10	8	10	11	10	15	8
745:	17	7	10	20	8	11	13	12
753:	18	9	16	11	9	15	5	14
761:	8	13	15	11	8	13	14	33
769:	19	10	14	12	18	7	10	13
777:	8	10	7	7	10	11	18	5
785:	19	15	13	12	11	6	8	16
793:	10	27	36	13	11	7	6	10

801:	4	9	8	10	15	16	10	10

Sample Title: HTC-A04-S001-2430-01

Channel								
809:	8	7	11	4	8	5	7	10
817:	9	8	8	3	13	8	3	13
825:	6	7	13	6	16	13	14	15
833:	12	6	16	20	14	11	9	12
841:	9	8	7	16	8	6	11	9
849:	8	6	8	11	3	9	8	4
857:	10	7	9	41	12	18	10	5
865:	11	11	7	11	8	10	14	8
873:	7	10	11	10	10	12	8	14
881:	5	11	6	11	8	12	12	10
889:	10	11	9	11	11	6	7	9
897:	5	8	6	12	5	11	7	8
905:	7	4	6	9	16	54	98	34
913:	5	8	5	9	8	5	10	7
921:	6	6	8	13	7	11	6	7
929:	11	15	10	10	14	13	9	8
937:	10	5	2	11	5	3	8	9
945:	4	4	8	3	9	9	8	8
953:	12	7	4	9	11	8	8	9
961:	14	12	8	22	21	10	18	42
969:	57	25	12	6	12	6	10	5
977:	8	9	8	6	9	10	9	7
985:	9	8	2	8	11	8	2	6
993:	6	5	6	14	9	5	10	13
1001:	7	7	6	3	5	12	7	11
1009:	10	7	7	4	4	7	14	6
1017:	6	6	11	6	12	9	8	5
1025:	6	6	8	8	6	5	10	12
1033:	7	8	4	11	10	9	11	13
1041:	6	6	12	8	13	6	6	12
1049:	14	10	12	14	9	10	5	9
1057:	12	9	6	7	12	8	2	10
1065:	8	14	18	12	13	9	15	12
1073:	8	5	6	9	6	9	10	4
1081:	10	8	14	10	4	3	11	6
1089:	9	15	9	12	11	11	6	9
1097:	13	6	13	10	11	7	3	6
1105:	5	11	9	5	12	12	13	9
1113:	2	8	10	6	9	18	31	42
1121:	19	9	11	11	13	9	8	7
1129:	13	8	12	10	10	10	12	9
1137:	8	15	2	11	10	12	7	11
1145:	11	6	13	9	9	10	12	12
1153:	12	11	19	8	9	8	16	14
1161:	14	9	5	12	11	12	10	7
1169:	7	6	16	11	14	11	13	9
1177:	11	13	8	10	19	14	12	13
1185:	5	13	10	6	17	9	12	9
1193:	13	14	11	4	13	10	14	7
1201:	10	12	11	10	11	14	10	8
1209:	9	10	8	12	17	16	5	11
1217:	9	10	10	10	12	14	20	15
1225:	14	16	17	10	11	8	12	10

1233:	11	12	9	13	26	22	11	8

Sample Title: HTC-A04-S001-2430-01

Channel								
1241:	6	9	5	9	5	15	10	13
1249:	4	6	14	7	5	7	7	12
1257:	8	5	5	3	11	8	3	6
1265:	4	8	9	8	3	6	13	6
1273:	9	6	6	12	6	6	10	6
1281:	13	9	14	9	5	6	8	11
1289:	3	4	4	3	8	4	0	4
1297:	7	6	2	6	2	7	7	4
1305:	3	5	6	5	8	5	4	7
1313:	4	4	7	5	6	7	4	4
1321:	4	3	3	6	9	4	4	8
1329:	7	8	5	4	6	2	6	8
1337:	3	7	3	1	4	4	2	7
1345:	7	3	4	4	1	5	5	2
1353:	4	2	5	5	5	9	2	3
1361:	3	3	3	5	4	0	3	1
1369:	2	2	7	1	2	4	6	3
1377:	12	6	4	3	4	4	2	1
1385:	5	4	2	2	0	3	2	4
1393:	4	3	5	2	3	2	7	6
1401:	8	4	5	1	3	6	6	5
1409:	2	2	2	1	4	3	3	1
1417:	5	2	3	3	1	1	1	5
1425:	4	2	3	3	2	2	1	2
1433:	0	3	4	6	3	2	1	2
1441:	4	1	0	4	4	2	1	3
1449:	2	3	2	5	8	5	8	8
1457:	31	77	196	443	307	82	5	4
1465:	2	1	2	2	3	4	3	4
1473:	4	0	1	0	0	2	3	1
1481:	2	0	0	3	1	0	1	1
1489:	2	5	2	0	2	2	3	2
1497:	3	2	2	4	2	4	1	2
1505:	0	2	2	7	5	1	4	2
1513:	1	2	5	0	1	1	1	1
1521:	5	1	1	2	3	1	3	1
1529:	4	1	2	3	1	2	0	2
1537:	3	3	0	1	3	0	0	2
1545:	3	5	3	0	4	0	4	0
1553:	2	2	2	1	1	1	2	1
1561:	3	2	1	1	1	1	2	3
1569:	1	1	1	1	2	1	1	4
1577:	2	2	1	4	0	4	2	4
1585:	0	4	11	13	5	4	7	3
1593:	3	1	4	1	1	1	1	2
1601:	1	0	1	1	0	0	5	1
1609:	1	0	2	0	1	1	2	1
1617:	0	3	1	8	3	1	1	2
1625:	1	0	2	0	4	4	3	0
1633:	1	2	3	2	3	3	3	1
1641:	1	1	1	0	2	0	0	1
1649:	1	1	0	4	0	2	0	1
1657:	0	2	1	5	1	2	1	1

1665:	2	0	2	3	1	0	2	5

Sample Title: HTC-A04-S001-2430-01

Channel								
1673:	0	2	2	2	1	5	2	2
1681:	1	3	1	0	3	0	2	1
1689:	1	1	1	0	2	1	0	0
1697:	2	0	0	2	4	2	1	2
1705:	1	1	1	0	0	1	1	0
1713:	1	1	2	2	2	1	0	4
1721:	5	1	1	2	1	2	4	3
1729:	4	4	2	2	1	0	3	1
1737:	0	0	1	0	2	0	1	4
1745:	0	2	1	2	1	3	1	1
1753:	0	0	0	2	1	3	0	1
1761:	6	4	27	17	8	0	2	0
1769:	1	1	2	0	1	2	2	0
1777:	1	2	1	2	2	1	1	0
1785:	0	3	3	0	0	0	1	0
1793:	1	0	2	0	2	1	0	2
1801:	1	2	0	2	2	2	3	1
1809:	0	0	0	0	1	1	1	2
1817:	2	0	2	1	1	1	0	1
1825:	1	0	0	3	2	2	2	5
1833:	2	1	2	1	1	1	1	0
1841:	0	0	1	1	1	4	1	5
1849:	1	2	0	1	0	1	0	1
1857:	0	1	1	1	2	4	0	0
1865:	0	0	3	3	1	3	0	3
1873:	4	2	1	2	5	2	3	1
1881:	0	0	1	0	3	0	1	1
1889:	4	0	3	3	1	0	3	2
1897:	0	2	1	0	2	0	0	0
1905:	2	0	3	2	1	2	2	2
1913:	2	1	1	1	0	1	4	1
1921:	1	2	0	2	3	0	0	2
1929:	2	3	2	2	2	1	4	2
1937:	3	3	0	0	0	1	1	0
1945:	0	3	3	0	1	0	1	1
1953:	1	0	1	1	0	2	1	2
1961:	0	1	2	1	1	1	0	0
1969:	0	2	0	1	1	1	2	2
1977:	3	1	1	0	1	0	1	1
1985:	1	1	2	1	0	0	0	1
1993:	0	2	0	3	1	2	0	1
2001:	2	1	1	0	2	0	0	0
2009:	1	2	1	2	0	6	2	0
2017:	3	2	0	1	0	1	0	1
2025:	0	1	0	1	0	0	0	1
2033:	3	2	0	1	0	0	0	0
2041:	0	1	1	1	1	0	0	0
2049:	1	0	2	0	0	4	0	1
2057:	0	0	0	1	1	1	2	5
2065:	3	1	1	0	1	2	1	2
2073:	0	2	1	1	1	2	1	1
2081:	0	1	0	1	2	2	1	0
2089:	1	2	1	0	0	1	0	0

2097:	0	1	4	1	5	6	6	3

Sample Title: HTC-A04-S001-2430-01

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

2529:	0	0	0	1	0	0	0	0

Sample Title: HTC-A04-S001-2430-01

Channel								
2537:	0	0	0	1	0	1	0	1
2545:	1	0	0	2	1	0	2	0
2553:	1	0	1	1	0	0	1	0
2561:	0	1	0	0	0	0	1	1
2569:	0	1	0	1	1	0	0	1
2577:	1	0	1	2	1	0	1	0
2585:	1	0	0	0	0	0	0	0
2593:	0	0	0	0	0	0	0	0
2601:	0	1	0	0	2	2	0	2
2609:	0	6	9	26	32	35	9	0
2617:	0	2	1	0	0	0	0	0
2625:	1	0	0	2	1	0	0	0
2633:	0	0	0	0	0	0	2	0
2641:	0	1	0	0	1	1	0	1
2649:	0	2	0	0	1	0	0	0
2657:	0	0	1	1	0	0	0	0
2665:	0	0	0	0	1	0	0	0
2673:	0	1	0	0	0	0	0	1
2681:	0	0	0	0	1	1	1	1
2689:	1	0	0	0	0	0	0	0
2697:	0	0	0	1	0	0	1	0
2705:	1	0	0	0	0	0	2	0
2713:	2	0	0	0	0	1	0	0
2721:	0	0	0	0	0	0	0	0
2729:	1	0	0	0	0	0	0	1
2737:	0	0	1	0	0	0	1	0
2745:	0	0	0	0	0	0	1	0
2753:	2	0	1	0	1	0	0	1
2761:	0	0	0	0	0	1	1	0
2769:	0	0	0	0	0	0	0	0
2777:	0	0	0	0	0	0	0	0
2785:	0	0	1	0	0	0	0	0
2793:	0	0	0	0	0	0	0	1
2801:	1	0	2	1	0	0	0	1
2809:	0	3	0	0	0	0	0	0
2817:	0	0	0	1	1	1	0	0
2825:	0	0	0	0	0	1	0	1
2833:	0	0	2	0	0	0	0	0
2841:	0	0	0	0	0	1	2	0
2849:	0	0	0	1	1	0	1	0
2857:	0	0	0	0	0	0	0	0
2865:	0	0	0	0	0	1	0	0
2873:	2	0	1	0	0	0	0	0
2881:	1	0	1	0	1	0	0	0
2889:	0	0	0	1	0	0	0	0
2897:	0	1	0	1	0	0	0	1
2905:	0	1	0	0	0	0	0	0
2913:	0	0	0	0	0	1	0	0
2921:	0	0	0	0	0	0	0	0
2929:	0	1	0	0	1	0	0	0
2937:	1	0	0	1	0	0	0	0
2945:	0	0	0	0	1	1	1	1
2953:	1	0	0	1	0	0	0	0

2961:	0	0	1	1	0	0	1	0

Sample Title: HTC-A04-S001-2430-01

Channel								
2969:	1	0	0	0	0	0	0	1
2977:	0	0	1	0	0	1	0	0
2985:	0	0	0	0	1	0	0	0
2993:	0	0	0	0	0	0	1	1
3001:	0	0	0	0	0	0	3	0
3009:	1	1	0	1	1	0	1	0
3017:	0	0	0	0	0	0	0	0
3025:	0	0	1	0	0	0	1	0
3033:	0	0	0	0	1	1	0	0
3041:	0	0	2	0	0	0	0	0
3049:	0	0	0	0	0	0	0	0
3057:	0	0	0	0	0	1	0	1
3065:	1	0	0	0	0	0	0	0
3073:	0	0	0	0	0	0	0	0
3081:	0	0	0	0	0	1	1	0
3089:	1	0	0	0	0	0	0	0
3097:	0	0	0	0	0	0	0	1
3105:	0	0	0	0	0	0	0	0
3113:	0	1	1	0	0	0	0	0
3121:	0	1	1	1	0	0	0	0
3129:	0	0	0	0	0	0	2	0
3137:	0	0	0	0	1	1	1	0
3145:	0	0	0	0	0	0	0	0
3153:	0	0	0	0	0	0	1	0
3161:	0	1	0	0	0	0	0	2
3169:	0	0	0	0	0	1	0	0
3177:	1	0	1	0	0	0	0	0
3185:	0	0	0	0	0	0	0	0
3193:	0	0	0	1	0	0	0	0
3201:	0	0	0	1	0	0	1	0
3209:	0	0	0	0	0	0	0	0
3217:	0	0	0	0	0	0	0	0
3225:	0	0	1	1	0	1	1	0
3233:	1	0	0	0	1	0	0	0
3241:	0	1	0	1	0	1	0	0
3249:	0	1	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	1	0	0	0	0	0	0
3281:	0	0	1	0	1	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	1	1	0	0
3321:	0	0	0	1	0	0	0	0
3329:	0	0	1	0	1	0	0	0
3337:	0	0	0	0	0	1	0	0
3345:	0	0	0	0	0	0	0	0
3353:	0	0	0	1	0	0	0	0
3361:	0	0	0	0	1	0	0	1
3369:	0	1	0	0	0	0	0	0
3377:	0	0	1	0	0	0	0	0
3385:	0	0	0	0	0	0	1	0

3393:	0	1	1	0	0	0	0	0

Sample Title: HTC-A04-S001-2430-01

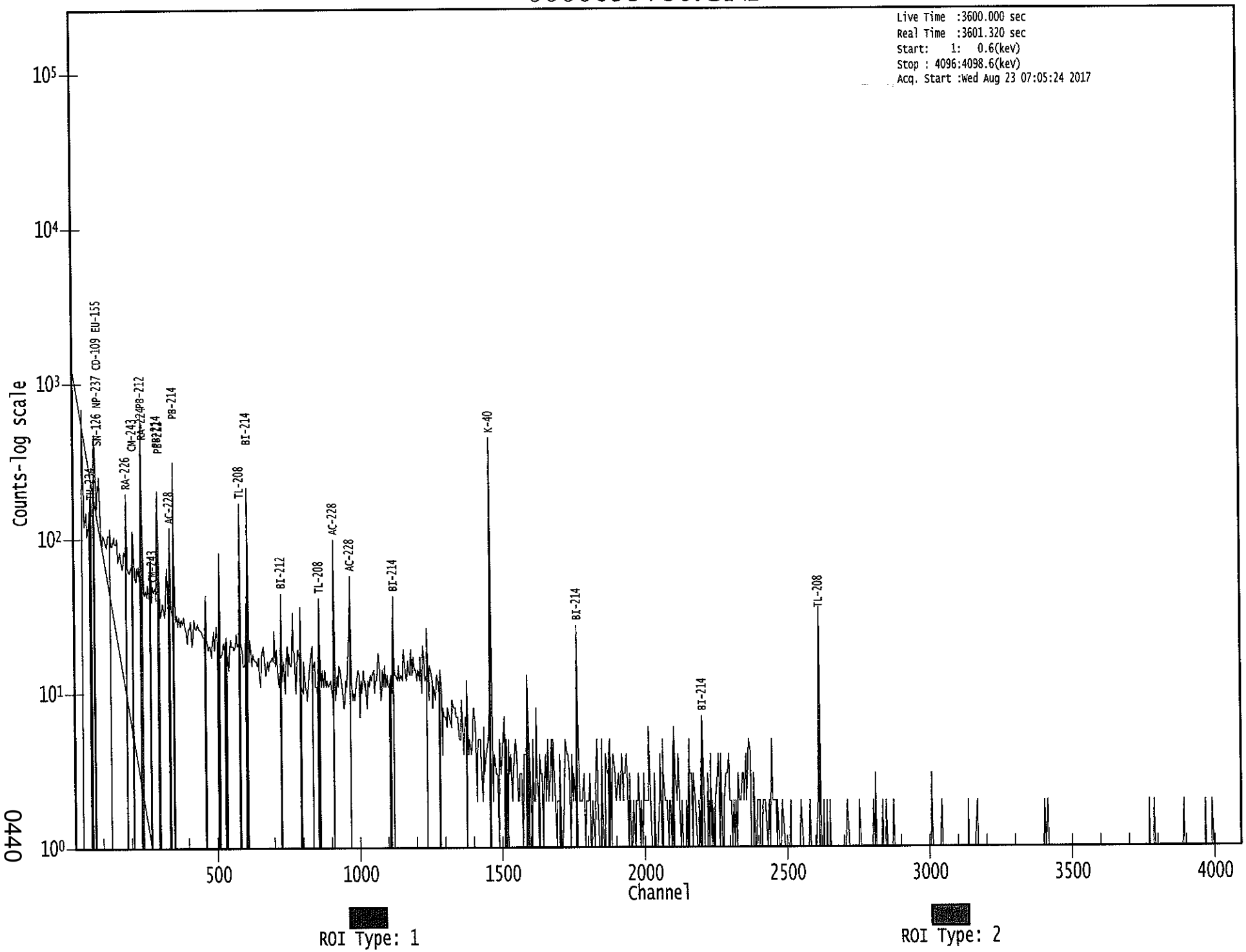
Channel								
3401:	0	0	2	0	0	0	0	1
3409:	0	1	0	0	0	0	2	0
3417:	0	1	0	0	0	0	0	0
3425:	0	0	0	0	0	0	0	1
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	1	0	1	0
3449:	0	0	0	0	0	0	0	1
3457:	0	0	0	0	1	0	0	0
3465:	0	1	0	0	1	0	0	0
3473:	0	1	0	1	0	1	1	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A04-S001-2430-01

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

0000055780.CNF



0440

Apex-Gamma

8/23

Analysis Report for 1707089-04

HTC-A04-S001-2430-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707089-04
Sample Description	: HTC-A04-S001-2430-01
Sample Type	: SOIL
Sample Size	: 6.605E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 6:45:38AM
Acquisition Started	: 8/23/2017 8:11:41AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE2
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)	: 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	: 55787

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/23/17

Analysis Report for 1707089-04

HTC-A04-S001-2430-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/23/2017 9:12:16AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	46.13	46.48	0.0000	0.00
2	62.67	63.00	0.0000	0.00
3	76.35	76.67	0.0000	0.00
4	87.85	88.15	0.0000	0.00
5	93.30	93.60	0.0000	0.00
6	99.61	99.90	0.0000	0.00
7	128.88	129.13	0.0000	0.00
8	185.62	185.81	0.0000	0.00
9	209.60	209.76	0.0000	0.00
10	238.78	238.92	0.0000	0.00
11	241.82	241.95	0.0000	0.00
12	276.76	276.86	0.0000	0.00
13	295.14	295.22	0.0000	0.00
14	299.93	300.00	0.0000	0.00
15	338.39	338.42	0.0000	0.00
16	351.93	351.94	0.0000	0.00
17	463.33	463.23	0.0000	0.00
18	510.92	510.78	0.0000	0.00
19	562.30	562.10	0.0000	0.00
20	583.19	582.97	0.0000	0.00
21	609.19	608.95	0.0000	0.00
22	720.52	720.17	0.0000	0.00
23	727.54	727.17	0.0000	0.00
24	734.37	734.00	0.0000	0.00
25	784.70	784.28	0.0000	0.00
26	794.91	794.49	0.0000	0.00
27	911.36	910.82	0.0000	0.00
28	968.15	967.56	0.0000	0.00
29	1120.21	1119.48	0.0000	0.00
30	1377.87	1376.91	0.0000	0.00
31	1397.74	1396.77	0.0000	0.00
32	1407.70	1406.72	0.0000	0.00
33	1460.97	1459.95	0.0000	0.00
34	1630.52	1629.36	0.0000	0.00
35	1661.19	1660.00	0.0000	0.00
36	1706.16	1704.94	0.0000	0.00
37	1729.66	1728.42	0.0000	0.00
38	1765.47	1764.20	0.0000	0.00
39	1802.60	1801.30	0.0000	0.00
40	1847.86	1846.52	0.0000	0.00
41	1881.36	1880.00	0.0000	0.00
42	1908.38	1907.00	0.0000	0.00

Analysis Report for 1707089-04

HTC-A04-S001-2430-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	2103.66	2102.14	0.0000	0.00
44	2171.70	2170.13	0.0000	0.00
45	2204.78	2203.19	0.0000	0.00
46	2342.31	2340.62	0.0000	0.00
47	2484.41	2482.62	0.0000	0.00
48	2614.77	2612.91	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707089-04

HTC-A04-S001-2430-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/23/2017 9:12:16AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	46.13	44 -	49	46.48	1.03E+02	71.36	9.36E+02	1.08
	2	62.67	59 -	65	63.00	1.56E+02	101.12	1.75E+03	1.27
	3	76.35	74 -	80	76.67	1.02E+03	120.23	1.86E+03	3.71
	4	87.85	86 -	91	88.15	2.03E+02	93.39	1.59E+03	1.55
	5	93.30	91 -	96	93.60	2.43E+02	89.49	1.34E+03	1.97
	6	99.61	98 -	102	99.90	6.05E+01	63.16	8.27E+02	1.74
	7	128.88	126 -	132	129.13	7.11E+01	81.05	1.14E+03	1.22
	8	185.62	182 -	189	185.81	1.97E+02	81.54	9.79E+02	1.35
	9	209.60	207 -	213	209.76	7.32E+01	67.94	7.84E+02	1.89
M	10	238.78	235 -	246	238.92	7.67E+02	69.63	3.56E+02	1.45
m	11	241.82	235 -	246	241.95	1.46E+02	48.00	3.05E+02	1.46
	12	276.76	274 -	280	276.86	7.13E+01	54.73	4.85E+02	1.55
M	13	295.14	291 -	303	295.22	2.79E+02	51.13	2.99E+02	1.56
m	14	299.93	291 -	303	300.00	7.02E+01	40.62	3.03E+02	1.57
	15	338.39	335 -	341	338.42	2.02E+02	53.01	3.58E+02	1.77
	16	351.93	348 -	355	351.94	4.63E+02	63.34	3.60E+02	1.27
	17	463.33	460 -	467	463.23	6.90E+01	37.52	1.90E+02	1.50
	18	510.92	506 -	515	510.78	1.65E+02	49.39	2.52E+02	2.16
	19	562.30	559 -	565	562.10	2.67E+01	28.52	1.27E+02	1.57
	20	583.19	579 -	587	582.97	2.87E+02	52.51	2.49E+02	1.55
	21	609.19	603 -	612	608.95	3.92E+02	55.19	2.14E+02	1.87
M	22	720.52	715 -	740	720.17	2.65E+01	27.06	9.05E+01	2.63
m	23	727.54	715 -	740	727.17	6.92E+01	30.98	9.55E+01	2.63
m	24	734.37	715 -	740	734.00	2.04E+01	19.34	6.27E+01	1.81
	25	784.70	780 -	787	784.28	2.15E+01	27.57	1.13E+02	1.61
	26	794.91	791 -	799	794.49	3.82E+01	36.85	1.88E+02	2.73
	27	911.36	906 -	915	910.82	2.06E+02	45.24	1.74E+02	1.78
	28	968.15	962 -	973	967.56	1.43E+02	50.40	2.45E+02	2.11
	29	1120.21	1113 -	1124	1119.48	1.02E+02	45.65	2.07E+02	1.81
	30	1377.87	1371 -	1381	1376.91	3.06E+01	19.22	3.27E+01	1.81
	31	1397.74	1391 -	1403	1396.77	2.14E+01	23.02	5.32E+01	3.02
	32	1407.70	1403 -	1411	1406.72	2.27E+01	17.94	3.47E+01	5.33
	33	1460.97	1453 -	1465	1459.95	1.21E+03	71.14	2.60E+01	2.55
	34	1630.52	1624 -	1632	1629.36	1.11E+01	12.69	1.79E+01	1.79
	35	1661.19	1658 -	1662	1660.00	6.50E+00	6.96	5.00E+00	2.71
	36	1706.16	1701 -	1707	1704.94	5.00E+00	7.52	6.00E+00	2.51
	37	1729.66	1725 -	1732	1728.42	1.90E+01	8.72	0.00E+00	4.67
	38	1765.47	1757 -	1770	1764.20	5.61E+01	24.54	4.19E+01	2.30
	39	1802.60	1798 -	1804	1801.30	8.20E+00	7.23	3.60E+00	1.93
	40	1847.86	1843 -	1849	1846.52	1.05E+01	8.97	7.00E+00	1.86

Analysis Report for 1707089-04

HTC-A04-S001-2430-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1881.36	1874 -	1884	1880.00	1.62E+01	10.31	5.68E+00	5.16
42	1908.38	1904 -	1910	1907.00	8.50E+00	8.51	7.00E+00	3.64
43	2103.66	2095 -	2106	2102.14	2.90E+01	10.77	0.00E+00	4.74
44	2171.70	2166 -	2173	2170.13	8.00E+00	5.66	0.00E+00	2.88
45	2204.78	2200 -	2206	2203.19	1.41E+01	8.73	3.75E+00	2.92
46	2342.31	2337 -	2344	2340.62	1.30E+01	7.21	0.00E+00	4.79
47	2484.41	2478 -	2485	2482.62	5.36E+00	6.63	3.29E+00	1.10
48	2614.77	2606 -	2618	2612.91	1.18E+02	21.73	0.00E+00	2.53

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 : 8/23/2017 9:12:16AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	46.13	44 -	49	1.03E+02	71.36	9.36E+02	5.62E+01
	2	62.67	59 -	65	1.56E+02	101.12	1.75E+03	8.06E+01
	3	76.35	74 -	80	1.02E+03	120.23	1.86E+03	8.37E+01
	4	87.85	86 -	91	2.03E+02	93.39	1.59E+03	7.31E+01
	5	93.30	91 -	96	2.43E+02	89.49	1.34E+03	6.90E+01
	6	99.61	98 -	102	6.05E+01	63.16	8.27E+02	5.03E+01
	7	128.88	126 -	132	7.11E+01	81.05	1.14E+03	6.52E+01
	8	185.62	182 -	189	1.97E+02	81.54	9.79E+02	6.29E+01
	9	209.60	207 -	213	7.32E+01	67.94	7.84E+02	5.40E+01
M	10	238.78	235 -	246	7.67E+02	69.63	3.56E+02	3.10E+01
m	11	241.82	235 -	246	1.46E+02	48.00	3.05E+02	2.87E+01
	12	276.76	274 -	280	7.13E+01	54.73	4.85E+02	4.28E+01
M	13	295.14	291 -	303	2.79E+02	51.13	2.99E+02	2.84E+01
m	14	299.93	291 -	303	7.02E+01	40.62	3.03E+02	2.86E+01
	15	338.39	335 -	341	2.02E+02	53.01	3.58E+02	3.68E+01
	16	351.93	348 -	355	4.63E+02	63.34	3.60E+02	3.82E+01
	17	463.33	460 -	467	6.90E+01	37.52	1.90E+02	2.77E+01
	18	510.92	506 -	515	1.65E+02	49.39	2.52E+02	3.47E+01
	19	562.30	559 -	565	2.67E+01	28.52	1.27E+02	2.18E+01

Analysis Report for 1707089-04

HTC-A04-S001-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	20	583.19	579 -	587	2.87E+02	52.51	2.49E+02	3.30E+01
	21	609.19	603 -	612	3.92E+02	55.19	2.14E+02	3.16E+01
M	22	720.52	715 -	740	2.65E+01	27.06	9.05E+01	1.56E+01
m	23	727.54	715 -	740	6.92E+01	30.98	9.55E+01	1.61E+01
m	24	734.37	715 -	740	2.04E+01	19.34	6.27E+01	1.30E+01
	25	784.70	780 -	787	2.15E+01	27.57	1.13E+02	2.13E+01
	26	794.91	791 -	799	3.82E+01	36.85	1.88E+02	2.85E+01
	27	911.36	906 -	915	2.06E+02	45.24	1.74E+02	2.87E+01
	28	968.15	962 -	973	1.43E+02	50.40	2.45E+02	3.65E+01
	29	1120.21	1113 -	1124	1.02E+02	45.65	2.07E+02	3.36E+01
	30	1377.87	1371 -	1381	3.06E+01	19.22	3.27E+01	1.29E+01
	31	1397.74	1391 -	1403	2.14E+01	23.02	5.32E+01	1.73E+01
	32	1407.70	1403 -	1411	2.27E+01	17.94	3.47E+01	1.25E+01
	33	1460.97	1453 -	1465	1.21E+03	71.14	2.60E+01	1.22E+01
	34	1630.52	1624 -	1632	1.11E+01	12.69	1.79E+01	8.88E+00
	35	1661.19	1658 -	1662	6.50E+00	6.96	5.00E+00	3.90E+00
	36	1706.16	1701 -	1707	5.00E+00	7.52	6.00E+00	4.97E+00
	37	1729.66	1725 -	1732	1.90E+01	8.72	0.00E+00	0.00E+00
	38	1765.47	1757 -	1770	5.61E+01	24.54	4.19E+01	1.60E+01
	39	1802.60	1798 -	1804	8.20E+00	7.23	3.60E+00	3.63E+00
	40	1847.86	1843 -	1849	1.05E+01	8.97	7.00E+00	5.10E+00
	41	1881.36	1874 -	1884	1.62E+01	10.31	5.68E+00	5.30E+00
	42	1908.38	1904 -	1910	8.50E+00	8.51	7.00E+00	5.10E+00
	43	2103.66	2095 -	2106	2.90E+01	10.77	0.00E+00	0.00E+00
	44	2171.70	2166 -	2173	8.00E+00	5.66	0.00E+00	0.00E+00
	45	2204.78	2200 -	2206	1.41E+01	8.73	3.75E+00	3.65E+00
	46	2342.31	2337 -	2344	1.30E+01	7.21	0.00E+00	0.00E+00
	47	2484.41	2478 -	2485	5.36E+00	6.63	3.29E+00	3.91E+00
	48	2614.77	2606 -	2618	1.18E+02	21.73	0.00E+00	0.00E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/23/2017 9:12:16AM

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

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

Analysis Report for 1707089-04

HTC-A04-S001-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	46.13	44 -	49	46.48	1.03E+02	71.36	9.36E+02	PB-210
	2	62.67	59 -	65	63.00	1.56E+02	101.12	1.75E+03	TH-230
									TH-234
	3	76.35	74 -	80	76.67	1.02E+03	120.23	1.86E+03	.....
	4	87.85	86 -	91	88.15	2.03E+02	93.39	1.59E+03	CD-109
									SN-126
									LU-176
	5	93.30	91 -	96	93.60	2.43E+02	89.49	1.34E+03	GA-67
	6	99.61	98 -	102	99.90	6.05E+01	63.16	8.27E+02	.....
	7	128.88	126 -	132	129.13	7.11E+01	81.05	1.14E+03	.....
	8	185.62	182 -	189	185.81	1.97E+02	81.54	9.79E+02	RA-226
	9	209.60	207 -	213	209.76	7.32E+01	67.94	7.84E+02	CM-243
									GA-67
M	10	238.78	235 -	246	238.92	7.67E+02	69.63	3.56E+02	PB-212
m	11	241.82	235 -	246	241.95	1.46E+02	48.00	3.05E+02	RA-224
	12	276.76	274 -	280	276.86	7.13E+01	54.73	4.85E+02	CM-243
									NP-239
M	13	295.14	291 -	303	295.22	2.79E+02	51.13	2.99E+02	PB-214
m	14	299.93	291 -	303	300.00	7.02E+01	40.62	3.03E+02	BI-210M
									PB-212
									GA-67
	15	338.39	335 -	341	338.42	2.02E+02	53.01	3.58E+02	AC-228
	16	351.93	348 -	355	351.94	4.63E+02	63.34	3.60E+02	PB-214
	17	463.33	460 -	467	463.23	6.90E+01	37.52	1.90E+02	SB-125
	18	510.92	506 -	515	510.78	1.65E+02	49.39	2.52E+02	.....
	19	562.30	559 -	565	562.10	2.67E+01	28.52	1.27E+02	CS-134
	20	583.19	579 -	587	582.97	2.87E+02	52.51	2.49E+02	TL-208
	21	609.19	603 -	612	608.95	3.92E+02	55.19	2.14E+02	BI-214
M	22	720.52	715 -	740	720.17	2.65E+01	27.06	9.05E+01	SB-126
m	23	727.54	715 -	740	727.17	6.92E+01	30.98	9.55E+01	BI-212
m	24	734.37	715 -	740	734.00	2.04E+01	19.34	6.27E+01	PA-234
	25	784.70	780 -	787	784.28	2.15E+01	27.57	1.13E+02	SB-127
	26	794.91	791 -	799	794.49	3.82E+01	36.85	1.88E+02	CS-134
	27	911.36	906 -	915	910.82	2.06E+02	45.24	1.74E+02	AC-228
									TL-204
	28	968.15	962 -	973	967.56	1.43E+02	50.40	2.45E+02	AC-228
	29	1120.21	1113 -	1124	1119.48	1.02E+02	45.65	2.07E+02	BI-214
									SC-46
	30	1377.87	1371 -	1381	1376.91	3.06E+01	19.22	3.27E+01	.....
	31	1397.74	1391 -	1403	1396.77	2.14E+01	23.02	5.32E+01	.....
	32	1407.70	1403 -	1411	1406.72	2.27E+01	17.94	3.47E+01	EU-152
	33	1460.97	1453 -	1465	1459.95	1.21E+03	71.14	2.60E+01	K-40
	34	1630.52	1624 -	1632	1629.36	1.11E+01	12.69	1.79E+01	.....
	35	1661.19	1658 -	1662	1660.00	6.50E+00	6.96	5.00E+00	.....
	36	1706.16	1701 -	1707	1704.94	5.00E+00	7.52	6.00E+00	.....
	37	1729.66	1725 -	1732	1728.42	1.90E+01	8.72	0.00E+00	.....
	38	1765.47	1757 -	1770	1764.20	5.61E+01	24.54	4.19E+01	BI-214
	39	1802.60	1798 -	1804	1801.30	8.20E+00	7.23	3.60E+00	.....
	40	1847.86	1843 -	1849	1846.52	1.05E+01	8.97	7.00E+00	.....
	41	1881.36	1874 -	1884	1880.00	1.62E+01	10.31	5.68E+00	.....
	42	1908.38	1904 -	1910	1907.00	8.50E+00	8.51	7.00E+00	.....

Analysis Report for 1707089-04

HTC-A04-S001-2430-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
43	2103.66	2095 -	2106	2102.14	2.90E+01	10.77	0.00E+00	.....
44	2171.70	2166 -	2173	2170.13	8.00E+00	5.66	0.00E+00	.....
45	2204.78	2200 -	2206	2203.19	1.41E+01	8.73	3.75E+00	BI-214
46	2342.31	2337 -	2344	2340.62	1.30E+01	7.21	0.00E+00	.....
47	2484.41	2478 -	2485	2482.62	5.36E+00	6.63	3.29E+00	.....
48	2614.77	2606 -	2618	2612.91	1.18E+02	21.73	0.00E+00	TL-208

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/23/2017 9:12:16AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.13	1.03E+02	71.36	1.56E-02	1.67E-03
	2	62.67	1.56E+02	101.12	2.36E-02	1.76E-03
	3	76.35	1.02E+03	120.23	2.63E-02	2.12E-03
	4	87.85	2.03E+02	93.39	2.70E-02	2.42E-03
	5	93.30	2.43E+02	89.49	2.70E-02	2.32E-03
	6	99.61	6.05E+01	63.16	2.68E-02	2.20E-03
	7	128.88	7.11E+01	81.05	2.48E-02	1.75E-03
	8	185.62	1.97E+02	81.54	2.03E-02	1.53E-03
	9	209.60	7.32E+01	67.94	1.88E-02	1.43E-03
M	10	238.78	7.67E+02	69.63	1.72E-02	1.30E-03
m	11	241.82	1.46E+02	48.00	1.71E-02	1.28E-03
	12	276.76	7.13E+01	54.73	1.55E-02	1.13E-03
M	13	295.14	2.79E+02	51.13	1.48E-02	1.10E-03
m	14	299.93	7.02E+01	40.62	1.47E-02	1.09E-03
	15	338.39	2.02E+02	53.01	1.34E-02	1.04E-03
	16	351.93	4.63E+02	63.34	1.31E-02	1.02E-03
	17	463.33	6.90E+01	37.52	1.06E-02	9.06E-04
	18	510.92	1.65E+02	49.39	9.87E-03	8.65E-04
	19	562.30	2.67E+01	28.52	9.16E-03	8.20E-04
	20	583.19	2.87E+02	52.51	8.90E-03	8.02E-04
	21	609.19	3.92E+02	55.19	8.60E-03	7.80E-04
M	22	720.52	2.65E+01	27.06	7.52E-03	6.77E-04
m	23	727.54	6.92E+01	30.98	7.46E-03	6.71E-04
m	24	734.37	2.04E+01	19.34	7.41E-03	6.64E-04

Analysis Report for 1707089-04

HTC-A04-S001-2430-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
25	784.70	2.15E+01	27.57	7.02E-03	6.15E-04
26	794.91	3.82E+01	36.85	6.95E-03	6.06E-04
27	911.36	2.06E+02	45.24	6.21E-03	5.02E-04
28	968.15	1.43E+02	50.40	5.91E-03	4.82E-04
29	1120.21	1.02E+02	45.65	5.24E-03	4.29E-04
30	1377.87	3.06E+01	19.22	4.45E-03	4.12E-04
31	1397.74	2.14E+01	23.02	4.41E-03	4.06E-04
32	1407.70	2.27E+01	17.94	4.38E-03	4.03E-04
33	1460.97	1.21E+03	71.14	4.26E-03	3.88E-04
34	1630.52	1.11E+01	12.69	3.94E-03	3.39E-04
35	1661.19	6.50E+00	6.96	3.89E-03	3.30E-04
36	1706.16	5.00E+00	7.52	3.83E-03	3.17E-04
37	1729.66	1.90E+01	8.72	3.79E-03	3.10E-04
38	1765.47	5.61E+01	24.54	3.74E-03	3.00E-04
39	1802.60	8.20E+00	7.23	3.70E-03	2.89E-04
40	1847.86	1.05E+01	8.97	3.64E-03	2.79E-04
41	1881.36	1.62E+01	10.31	3.61E-03	2.79E-04
42	1908.38	8.50E+00	8.51	3.58E-03	2.79E-04
43	2103.66	2.90E+01	10.77	3.41E-03	2.79E-04
44	2171.70	8.00E+00	5.66	3.36E-03	2.79E-04
45	2204.78	1.41E+01	8.73	3.34E-03	2.79E-04
46	2342.31	1.30E+01	7.21	3.27E-03	2.79E-04
47	2484.41	5.36E+00	6.63	3.22E-03	2.79E-04
48	2614.77	1.18E+02	21.73	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 : 8/23/2017 9:12:16AM

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	46.13	1.03E+02	71.36	3.74E+01	5.77E+00	6.56E+01	7.16E+01
2	62.67	1.56E+02	101.12	6.29E+01	1.34E+01	9.26E+01	1.02E+02
3	76.35	1.02E+03	120.23			1.02E+03	1.20E+02
4	87.85	2.03E+02	93.39			2.03E+02	9.34E+01
5	93.30	2.43E+02	89.49	4.88E+01	1.30E+00	1.94E+02	8.95E+01
6	99.61	6.05E+01	63.16			6.05E+01	6.32E+01

Analysis Report for 1707089-04

HTC-A04-S001-2430-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	7	128.88	7.11E+01	81.05			7.11E+01	8.11E+01
	8	185.62	1.97E+02	81.54	3.48E+01	7.32E+00	1.62E+02	8.19E+01
	9	209.60	7.32E+01	67.94			7.32E+01	6.79E+01
M	10	238.78	7.67E+02	69.63	7.09E+00	6.85E+00	7.60E+02	7.00E+01
m	11	241.82	1.46E+02	48.00			1.46E+02	4.80E+01
	12	276.76	7.13E+01	54.73			7.13E+01	5.47E+01
M	13	295.14	2.79E+02	51.13			2.79E+02	5.11E+01
m	14	299.93	7.02E+01	40.62			7.02E+01	4.06E+01
	15	338.39	2.02E+02	53.01			2.02E+02	5.30E+01
	16	351.93	4.63E+02	63.34	1.04E+01	5.08E+00	4.53E+02	6.35E+01
	17	463.33	6.90E+01	37.52			6.90E+01	3.75E+01
	18	510.92	1.65E+02	49.39	7.08E+01	4.94E+00	9.42E+01	4.96E+01
	19	562.30	2.67E+01	28.52			2.67E+01	2.85E+01
	20	583.19	2.87E+02	52.51	5.65E+00	3.57E+00	2.81E+02	5.26E+01
	21	609.19	3.92E+02	55.19	1.07E+01	3.96E+00	3.81E+02	5.53E+01
M	22	720.52	2.65E+01	27.06			2.65E+01	2.71E+01
m	23	727.54	6.92E+01	30.98			6.92E+01	3.10E+01
m	24	734.37	2.04E+01	19.34			2.04E+01	1.93E+01
	25	784.70	2.15E+01	27.57			2.15E+01	2.76E+01
	26	794.91	3.82E+01	36.85			3.82E+01	3.69E+01
	27	911.36	2.06E+02	45.24	2.63E+00	2.49E+00	2.03E+02	4.53E+01
	28	968.15	1.43E+02	50.40			1.43E+02	5.04E+01
	29	1120.21	1.02E+02	45.65	2.45E+00	2.38E+00	9.99E+01	4.57E+01
	30	1377.87	3.06E+01	19.22			3.06E+01	1.92E+01
	31	1397.74	2.14E+01	23.02			2.14E+01	2.30E+01
	32	1407.70	2.27E+01	17.94			2.27E+01	1.79E+01
	33	1460.97	1.21E+03	71.14	5.90E+00	2.63E+00	1.20E+03	7.12E+01
	34	1630.52	1.11E+01	12.69			1.11E+01	1.27E+01
	35	1661.19	6.50E+00	6.96			6.50E+00	6.96E+00
	36	1706.16	5.00E+00	7.52			5.00E+00	7.52E+00
	37	1729.66	1.90E+01	8.72			1.90E+01	8.72E+00
	38	1765.47	5.61E+01	24.54	3.33E+00	1.73E+00	5.27E+01	2.46E+01
	39	1802.60	8.20E+00	7.23			8.20E+00	7.23E+00
	40	1847.86	1.05E+01	8.97			1.05E+01	8.97E+00
	41	1881.36	1.62E+01	10.31			1.62E+01	1.03E+01
	42	1908.38	8.50E+00	8.51			8.50E+00	8.51E+00
	43	2103.66	2.90E+01	10.77			2.90E+01	1.08E+01
	44	2171.70	8.00E+00	5.66			8.00E+00	5.66E+00
	45	2204.78	1.41E+01	8.73			1.41E+01	8.73E+00
	46	2342.31	1.30E+01	7.21			1.30E+01	7.21E+00
	47	2484.41	5.36E+00	6.63			5.36E+00	6.63E+00
	48	2614.77	1.18E+02	21.73	4.77E+00	1.52E+00	1.13E+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 1707089-04

HTC-A04-S001-2430-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/23/2017 9:12:16AM

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	46.13	1.03E+02	71.36	3.74E+01	5.77E+00	6.56E+01	7.16E+01
	2	62.67	1.56E+02	101.12	6.29E+01	1.34E+01	9.26E+01	1.02E+02
	3	76.35	1.02E+03	120.23			1.02E+03	1.20E+02
	4	87.85	2.03E+02	93.39			2.03E+02	9.34E+01
	5	93.30	2.43E+02	89.49	4.88E+01	1.30E+00	1.94E+02	8.95E+01
	6	99.61	6.05E+01	63.16			6.05E+01	6.32E+01
	7	128.88	7.11E+01	81.05			7.11E+01	8.11E+01
	8	185.62	1.97E+02	81.54	3.48E+01	7.32E+00	1.62E+02	8.19E+01
	9	209.60	7.32E+01	67.94			7.32E+01	6.79E+01
M	10	238.78	7.67E+02	69.63	7.09E+00	6.85E+00	7.60E+02	7.00E+01
m	11	241.82	1.46E+02	48.00			1.46E+02	4.80E+01
	12	276.76	7.13E+01	54.73			7.13E+01	5.47E+01
M	13	295.14	2.79E+02	51.13			2.79E+02	5.11E+01
m	14	299.93	7.02E+01	40.62			7.02E+01	4.06E+01
	15	338.39	2.02E+02	53.01			2.02E+02	5.30E+01
	16	351.93	4.63E+02	63.34	1.04E+01	5.08E+00	4.53E+02	6.35E+01
	17	463.33	6.90E+01	37.52			6.90E+01	3.75E+01
	18	510.92	1.65E+02	49.39	7.08E+01	4.94E+00	9.42E+01	4.96E+01
	19	562.30	2.67E+01	28.52			2.67E+01	2.85E+01
	20	583.19	2.87E+02	52.51	5.65E+00	3.57E+00	2.81E+02	5.26E+01
	21	609.19	3.92E+02	55.19	1.07E+01	3.96E+00	3.81E+02	5.53E+01
M	22	720.52	2.65E+01	27.06			2.65E+01	2.71E+01
m	23	727.54	6.92E+01	30.98			6.92E+01	3.10E+01
m	24	734.37	2.04E+01	19.34			2.04E+01	1.93E+01
	25	784.70	2.15E+01	27.57			2.15E+01	2.76E+01
	26	794.91	3.82E+01	36.85			3.82E+01	3.69E+01
	27	911.36	2.06E+02	45.24	2.63E+00	2.49E+00	2.03E+02	4.53E+01
	28	968.15	1.43E+02	50.40			1.43E+02	5.04E+01
	29	1120.21	1.02E+02	45.65	2.45E+00	2.38E+00	9.99E+01	4.57E+01
	30	1377.87	3.06E+01	19.22			3.06E+01	1.92E+01
	31	1397.74	2.14E+01	23.02			2.14E+01	2.30E+01
	32	1407.70	2.27E+01	17.94			2.27E+01	1.79E+01
	33	1460.97	1.21E+03	71.14	5.90E+00	2.63E+00	1.20E+03	7.12E+01
	34	1630.52	1.11E+01	12.69			1.11E+01	1.27E+01
	35	1661.19	6.50E+00	6.96			6.50E+00	6.96E+00
	36	1706.16	5.00E+00	7.52			5.00E+00	7.52E+00
	37	1729.66	1.90E+01	8.72			1.90E+01	8.72E+00
	38	1765.47	5.61E+01	24.54	3.33E+00	1.73E+00	5.27E+01	2.46E+01
	39	1802.60	8.20E+00	7.23			8.20E+00	7.23E+00
	40	1847.86	1.05E+01	8.97			1.05E+01	8.97E+00
	41	1881.36	1.62E+01	10.31			1.62E+01	1.03E+01

Analysis Report for 1707089-04

HTC-A04-S001-2430-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
42	1908.38	8.50E+00	8.51			8.50E+00	8.51E+00
43	2103.66	2.90E+01	10.77			2.90E+01	1.08E+01
44	2171.70	8.00E+00	5.66			8.00E+00	5.66E+00
45	2204.78	1.41E+01	8.73			1.41E+01	8.73E+00
46	2342.31	1.30E+01	7.21			1.30E+01	7.21E+00
47	2484.41	5.36E+00	6.63			5.36E+00	6.63E+00
48	2614.77	1.18E+02	21.73	4.77E+00	1.52E+00	1.13E+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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.996	1460.81	*	10.67	3.01E+01	3.32E+00
CD-109	0.995	88.03	*	3.72	2.67E+00	1.26E+00
SN-126	0.987	87.57	*	37.00	2.31E-01	1.08E-01
TL-208	0.888	583.14	*	30.22	1.19E+00	2.47E-01
		860.37		4.48		
		2614.66	*	35.85	1.12E+00	2.37E-01
PB-210	0.979	46.50	*	4.25	1.13E+00	1.24E+00
BI-212	0.751	727.17	*	11.80	8.93E-01	4.08E-01
		1620.62		2.75		
PB-212	0.996	238.63	*	44.60	1.12E+00	1.34E-01
		300.09	*	3.41	1.59E+00	9.30E-01
BI-214	0.967	609.31	*	46.30	1.09E+00	1.86E-01
		1120.29	*	15.10	1.43E+00	6.67E-01
		1764.49	*	15.80	1.01E+00	4.79E-01
		2204.22	*	4.98	9.65E-01	6.02E-01
PB-214	1.000	295.21	*	19.19	1.11E+00	2.20E-01
		351.92	*	37.19	1.06E+00	1.70E-01
RA-224	0.894	240.98	*	3.95	2.46E+00	8.30E-01
RA-226	0.945	186.21	*	3.28	2.76E+00	5.24E+00
AC-228	0.951	338.32	*	11.40	1.50E+00	4.10E-01
		911.07	*	27.70	1.34E+00	3.19E-01
		969.11	*	16.60	1.66E+00	6.00E-01
TH-234	0.940	63.29	*	3.80	1.17E+00	1.30E+00
CM-243	0.318	209.75	*	3.29	1.35E+00	1.26E+00

Analysis Report for 1707089-04

HTC-A04-S001-2430-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CM-243	0.318	228.14		10.60		
		277.60	*	14.00	3.75E-01	2.89E-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 9:12:16AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	76.35	2.83107E-01	5.90		
	5	93.30	5.39365E-02	23.05	Tol.	GA-67
	6	99.61	1.68058E-02	52.20		
	7	128.88	1.97398E-02	57.03		
	17	463.33	1.91751E-02	27.18	Sum	
	18	510.92	2.61634E-02	26.35		
	19	562.30	7.42284E-03	53.36	Sum	
M	22	720.52	7.37463E-03	50.95	Tol.	SB-126
m	24	734.37	5.67478E-03	47.33	Tol.	PA-234
	25	784.70	5.96154E-03	64.23		
	26	794.91	1.05997E-02	48.29	Sum	
	30	1377.87	8.51064E-03	31.37		
	31	1397.74	5.94907E-03	53.75	Sum	
	32	1407.70	6.29861E-03	39.57	Tol.	EU-152
	34	1630.52	3.06944E-03	57.41		
	35	1661.19	1.80556E-03	53.57		
	36	1706.16	1.38889E-03	75.17		
	37	1729.66	5.27778E-03	22.94	Sum	
	39	1802.60	2.27778E-03	44.08		
	40	1847.86	2.91667E-03	42.72	Sum	
	41	1881.36	4.48830E-03	31.90		
	42	1908.38	2.36111E-03	50.09		
	43	2103.66	8.05556E-03	18.57	S-Esc	
	44	2171.70	2.22222E-03	35.36		
	46	2342.31	3.61111E-03	27.74		
	47	2484.41	1.48810E-03	61.91		

Analysis Report for 1707089-04

HTC-A04-S001-2430-01

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

NUCLIDE 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	3.01E+01	3.32E+00
CD-109	0.99	88.03	*	3.72	2.67E+00	1.26E+00
SN-126	0.98	87.57	*	37.00	2.31E-01	1.08E-01
TL-208	0.88	583.14	*	30.22	1.19E+00	2.47E-01
		860.37		4.48		
		2614.66	*	35.85	1.12E+00	2.37E-01
PB-210	0.97	46.50	*	4.25	1.13E+00	1.24E+00
BI-212	0.75	727.17	*	11.80	8.93E-01	4.08E-01
		1620.62		2.75		
PB-212	0.99	238.63	*	44.60	1.12E+00	1.34E-01
		300.09	*	3.41	1.59E+00	9.30E-01
BI-214	0.96	609.31	*	46.30	1.09E+00	1.86E-01
		1120.29	*	15.10	1.43E+00	6.67E-01
		1764.49	*	15.80	1.01E+00	4.79E-01
		2204.22	*	4.98	9.65E-01	6.02E-01
PB-214	1.00	295.21	*	19.19	1.11E+00	2.20E-01
		351.92	*	37.19	1.06E+00	1.70E-01
RA-224	0.89	240.98	*	3.95	2.46E+00	8.30E-01
RA-226	0.94	186.21	*	3.28	2.76E+00	5.24E+00
AC-228	0.95	338.32	*	11.40	1.50E+00	4.10E-01
		911.07	*	27.70	1.34E+00	3.19E-01
		969.11	*	16.60	1.66E+00	6.00E-01
TH-234	0.94	63.29	*	3.80	1.17E+00	1.30E+00
CM-243	0.31	209.75	*	3.29	1.35E+00	1.26E+00
		228.14		10.60		
		277.60	*	14.00	3.75E-01	2.89E-01

Analysis Report for 1707089-04

HTC-A04-S001-2430-01

* = 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	0.996	3.01E+01	3.32E+00	
?	CD-109	0.995	2.67E+00	1.26E+00	
?	SN-126	0.987	2.31E-01	1.08E-01	
	TL-208	0.888	1.15E+00	1.71E-01	
	PB-210	0.979	1.13E+00	1.24E+00	
	BI-212	0.751	8.93E-01	4.08E-01	
	PB-212	0.996	1.13E+00	1.32E-01	
	BI-214	0.967	1.09E+00	1.62E-01	
	PB-214	1.000	1.08E+00	1.35E-01	
	RA-224	0.894	2.46E+00	8.30E-01	
	RA-226	0.945	2.76E+00	5.24E+00	
	AC-228	0.951	1.44E+00	2.32E-01	
	TH-234	0.940	1.17E+00	1.30E+00	
	CM-243	0.318	4.24E-01	2.82E-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 1707089-04

HTC-A04-S001-2430-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 9:12:16AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	76.35	2.83107E-01	5.90		
	5	93.30	5.39365E-02	23.05	Tol.	GA-67
	6	99.61	1.68058E-02	52.20		
	7	128.88	1.97398E-02	57.03		
	17	463.33	1.91751E-02	27.18	Sum	
	18	510.92	2.61634E-02	26.35		
	19	562.30	7.42284E-03	53.36	Sum	
M	22	720.52	7.37463E-03	50.95	Tol.	SB-126
m	24	734.37	5.67478E-03	47.33	Tol.	PA-234
	25	784.70	5.96154E-03	64.23		
	26	794.91	1.05997E-02	48.29	Sum	
	30	1377.87	8.51064E-03	31.37		
	31	1397.74	5.94907E-03	53.75	Sum	
	32	1407.70	6.29861E-03	39.57	Tol.	EU-152
	34	1630.52	3.06944E-03	57.41		
	35	1661.19	1.80556E-03	53.57		
	36	1706.16	1.38889E-03	75.17		
	37	1729.66	5.27778E-03	22.94	Sum	
	39	1802.60	2.27778E-03	44.08		
	40	1847.86	2.91667E-03	42.72	Sum	
	41	1881.36	4.48830E-03	31.90		
	42	1908.38	2.36111E-03	50.09		
	43	2103.66	8.05556E-03	18.57	S-Esc	
	44	2171.70	2.22222E-03	35.36		
	46	2342.31	3.61111E-03	27.74		
	47	2484.41	1.48810E-03	61.91		

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 1707089-04

HTC-A04-S001-2430-01

NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	-1.54E-01	1.76E+00	1.76E+00
+		NA-22	1274.54		99.94	-5.64E-02	7.82E-02	7.82E-02
+	@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@		2754.09		99.86	1.00E+26		1.00E+26
+		AL-26	1808.65		99.76	6.18E-03	5.15E-02	5.15E-02
+		K-40	1460.81	*	10.67	3.01E+01	7.20E-01	7.20E-01
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	-3.44E-03	4.77E-02	4.77E-02
			78.34		96.00	4.18E-02		5.51E-02
+		SC-46	889.25		99.98	-9.33E-02	1.53E-01	1.53E-01
			1120.51		99.99	4.20E-01		2.96E-01
+		V-48	983.52		99.98	3.36E+00	5.90E+00	5.90E+00
			1312.10		97.50	1.05E+00		6.17E+00
+		CR-51	320.08		9.83	-6.37E-01	5.95E+00	5.95E+00
+		MN-54	834.83		99.97	-5.64E-02	9.09E-02	9.09E-02
+		CO-56	846.75		99.96	3.33E-02	1.57E-01	1.57E-01
			1037.75		14.03	-4.00E-01		1.16E+00
			1238.25		67.00	9.35E-02		4.16E-01
			1771.40		15.51	-2.52E-01		9.52E-01
			2598.48		16.90	-8.46E-03		7.16E-01
+		CO-57	122.06		85.51	-2.58E-02	4.99E-02	4.99E-02
			136.48		10.60	-3.76E-01		5.35E-01
+		CO-58	810.76		99.40	-1.57E-02	1.90E-01	1.90E-01
+		FE-59	1099.22		56.50	-7.73E-02	6.87E-01	6.87E-01
			1291.56		43.20	-5.52E-02		9.73E-01
+		CO-60	1173.22		100.00	-7.72E-03	8.09E-02	1.01E-01
			1332.49		100.00	3.97E-02		8.09E-02
+		ZN-65	1115.52		50.75	-5.62E-01	2.63E-01	2.63E-01
+		GA-67	93.31		35.70	5.40E+08	2.29E+08	2.29E+08
			208.95		2.24	4.09E+09		4.21E+09
			300.22		16.00	5.46E+08		6.08E+08
+		SE-75	121.11		16.70	-1.11E-01	1.33E-01	3.57E-01
			136.00		59.20	-1.49E-03		1.33E-01
			264.65		59.80	-3.40E-02		1.42E-01
			279.53		25.20	-1.34E-01		3.36E-01
			400.65		11.40	-4.13E-01		7.52E-01
+		RB-82	776.52		13.00	-5.60E-01	7.50E+00	7.50E+00
+		RB-83	520.41		46.00	6.18E-02	2.65E-01	2.65E-01
			529.64		30.30	-2.68E-02		3.64E-01
			552.65		16.40	1.92E-02		6.90E-01
+		KR-85	513.99		0.43	-1.85E+01	1.27E+01	1.27E+01
+		SR-85	513.99		99.27	-2.32E-01	1.59E-01	1.59E-01

Analysis Report for 1707089-04

HTC-A04-S001-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	Y-88	898.02		93.40	8.97E-02	8.45E-02	1.60E-01
		1836.01		99.38	-3.60E-02		8.45E-02
+	MO-93	263.06		56.72	-3.86E-03	6.20E-02	8.46E-02
		684.67		99.68	-5.32E-02		6.48E-02
		1477.11		99.08	1.53E-03		6.20E-02
+	NB-93M	16.57		9.43	0.00E+00	6.65E+00	6.65E+00
+	NB-94	702.63		100.00	-1.02E-02	6.45E-02	6.68E-02
		871.10		100.00	8.94E-03		6.45E-02
+	NB-95	765.79		99.81	8.88E-02	5.77E-01	5.77E-01
+	NB-95M	235.69		25.00	-4.67E+08	6.33E+07	6.33E+07
+	ZR-95	724.18		43.70	1.09E-01	3.72E-01	5.51E-01
		756.72		55.30	-1.01E-01		3.72E-01
+	MO-99	181.06		6.20	6.66E+09	4.55E+10	6.85E+10
		739.58		12.80	6.00E+07		4.55E+10
		778.00		4.50	-1.88E+10		1.19E+11
+	RU-103	497.08		89.00	9.99E-03	3.37E-01	3.37E-01
+	RU-106	621.84		9.80	-4.90E-01	7.16E-01	7.16E-01
+	AG-108M	433.93		89.90	-6.54E-03	5.30E-02	5.30E-02
		614.37		90.40	1.10E-02		7.15E-02
		722.95		90.50	-1.16E-01		7.98E-02
+	CD-109	88.03	*	3.72	2.67E+00	1.96E+00	1.96E+00
+	AG-110M	657.75		93.14	-3.00E-02	9.37E-02	9.37E-02
		677.61		10.53	-3.77E-02		8.27E-01
		706.67		16.46	3.58E-02		5.70E-01
		763.93		21.98	-4.41E-01		4.41E-01
		884.67		71.63	4.52E-02		1.35E-01
		1384.27		23.94	3.06E-02		3.17E-01
+	CD-113M	263.70		0.02	1.77E+01	2.12E+02	2.12E+02
+	SN-113	255.12		1.93	-9.79E-01	1.37E-01	4.53E+00
		391.69		64.90	7.40E-03		1.37E-01
+	TE123M	159.00		84.10	7.58E-03	9.99E-02	9.99E-02
+	SB-124	602.71		97.87	3.76E-03	2.18E-01	2.18E-01
		645.85		7.26	-5.48E-01		2.67E+00
		722.78		11.10	-4.04E+00		1.89E+00
		1691.02		49.00	-3.82E-02		3.72E-01
+	I-125	35.49		6.49	-4.43E+01	6.15E+00	6.15E+00
+	SB-125	176.33		6.89	3.71E-01	1.85E-01	7.48E-01
		427.89		29.33	-2.53E-02		1.85E-01
		463.38		10.35	8.01E-01		6.21E-01
		600.56		17.80	-1.66E-01		3.74E-01
		635.90		11.32	6.70E-03		5.83E-01
+	SB-126	414.70		83.30	9.57E-01	1.63E+01	1.63E+01
		666.33		99.60	6.88E+00		1.90E+01
		695.00		99.60	1.97E+00		1.76E+01
		720.50		53.80	1.37E+01		3.31E+01
+	SN-126	87.57	*	37.00	2.31E-01	1.70E-01	1.70E-01
+	SB-127	473.00		25.00	1.97E+06	1.26E+07	1.37E+07
		685.20		35.70	-3.10E+05		1.26E+07

Analysis Report for 1707089-04

HTC-A04-S001-2430-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-127	783.80	14.70	1.74E+07	1.26E+07	3.15E+07
+	I-129	29.78	57.00	2.97E-01	4.06E-01	4.06E-01
		33.60	13.20	9.02E+00		2.02E+00
		39.58	7.52	7.61E-01		1.25E+00
+	I-131	284.30	6.05	6.72E+01	3.32E+02	4.28E+03
		364.48	81.20	1.01E+02		3.32E+02
		636.97	7.26	8.69E+02		4.86E+03
		722.89	1.80	-3.26E+04		2.24E+04
+	TE-132	49.72	13.10	-1.08E+08	9.74E+07	6.41E+08
		228.16	88.00	3.34E+07		9.74E+07
+	BA-133	81.00	33.00	1.98E-02	7.99E-02	1.18E-01
		302.84	17.80	7.04E-02		2.86E-01
		356.01	60.00	-5.49E-03		7.99E-02
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	9.39E+03	5.63E+04	5.63E+04
+	CS-134	563.23	8.38	3.19E-01	7.66E-02	6.68E-01
		569.32	15.43	7.20E-02		3.61E-01
		604.70	97.60	-7.78E-03		7.66E-02
		795.84	85.40	7.85E-02		1.09E-01
		801.93	8.73	-2.99E-01		8.85E-01
+	CS-135	268.24	16.00	-1.28E-02	3.31E-01	3.31E-01
+	@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41	28.60	1.00E+26		1.00E+26
	@	1678.03	9.54	1.00E+26		1.00E+26
+	CS-136	153.22	7.46	7.81E+01	1.34E+01	1.24E+02
		163.89	4.61	-9.02E+00		1.98E+02
		176.55	13.56	3.43E+01		6.91E+01
		273.65	12.66	-3.84E+01		7.64E+01
		340.57	48.50	9.34E-01		2.35E+01
		818.50	99.70	6.40E-01		1.34E+01
		1048.07	79.60	5.15E+00		2.02E+01
		1235.34	19.70	2.55E+01		1.14E+02
+	CS-137	661.65	85.12	-1.34E-02	8.33E-02	8.33E-02
+	LA-138	788.74	34.00	-3.92E-02	1.17E-01	2.03E-01
		1435.80	66.00	7.08E-02		1.17E-01
+	CE-139	165.85	80.35	3.44E-02	9.77E-02	9.77E-02
+	BA-140	162.64	6.70	4.72E+01	4.90E+01	1.59E+02
		304.84	4.50	4.35E+01		2.40E+02
		423.70	3.20	9.20E+01		3.61E+02
		437.55	2.00	2.69E+02		5.85E+02
		537.32	25.00	1.89E+01		4.90E+01
+	LA-140	328.77	20.50	6.73E+00	1.72E+01	6.04E+01
		487.03	45.50	1.78E+00		2.56E+01
		815.85	23.50	-3.34E+01		6.44E+01
		1596.49	95.49	1.67E+00		1.72E+01
+	CE-141	145.44	48.40	6.58E-02	8.21E-01	8.21E-01
+	@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26
	@	293.26	42.00	1.00E+26		1.00E+26
	@	664.55	5.20	1.00E+26		1.00E+26

Analysis Report for 1707089-04

HTC-A04-S001-2430-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CE-144	133.54	10.80	1.60E-01	4.09E-01	4.09E-01
+	PM-144	476.78	42.00	-1.26E-02	7.60E-02	1.44E-01
		618.01	98.60	1.84E-02		7.81E-02
		696.49	99.49	-2.39E-02		7.60E-02
+	PM-145	36.85	21.70	1.08E-01	2.74E-01	5.23E-01
		37.36	39.70	-1.19E-01		2.74E-01
		42.30	15.10	-1.19E-01		4.53E-01
		72.40	2.31	4.99E-01		1.97E+00
+	PM-146	453.90	39.94	2.80E-02	1.32E-01	1.32E-01
		735.90	14.01	2.65E-01		5.12E-01
		747.13	13.10	-2.39E-01		4.73E-01
+	ND-147	91.11	28.90	-1.19E+02	8.36E+01	8.36E+01
		531.02	13.10	-4.78E+01		2.03E+02
+	PM-149	285.90	3.10	-3.25E+13	6.32E+13	6.32E+13
+	EU-152	121.78	20.50	-8.43E-02	1.63E-01	1.63E-01
		244.69	5.40	-1.99E+00		8.92E-01
		344.27	19.13	1.58E-01		2.58E-01
		778.89	9.20	-1.04E-01		6.60E-01
		964.01	10.40	-1.96E-01		9.33E-01
		1085.78	7.22	7.31E-01		1.23E+00
		1112.02	9.60	5.61E-02		1.00E+00
		1407.95	14.94	1.52E-01		5.66E-01
+	GD-153	97.43	31.30	-2.98E-02	1.43E-01	1.43E-01
		103.18	22.20	-1.53E-01		1.89E-01
+	EU-154	123.07	40.50	1.28E-02	8.53E-02	8.53E-02
		723.30	19.70	-5.45E-01		3.74E-01
		873.19	11.50	-4.72E-01		5.16E-01
		996.32	10.30	-2.55E-01		7.15E-01
		1004.76	17.90	-1.51E-01		3.99E-01
		1274.45	35.50	-1.51E-01		2.09E-01
+	EU-155	86.50	30.90	2.27E-01	1.58E-01	1.58E-01
		105.30	20.70	9.97E-02		1.77E-01
+	EU-156	811.77	10.40	-3.82E+01	6.28E+01	6.28E+01
		1153.47	7.20	5.04E+00		1.24E+02
		1230.71	8.90	1.40E+01		1.18E+02
+	HO-166M	184.41	72.60	1.72E-01	8.31E-02	8.31E-02
		280.45	29.60	3.13E-02		1.60E-01
		410.94	11.10	3.02E-01		4.96E-01
		711.69	54.10	2.38E-02		1.19E-01
+	TM-171	66.72	0.14	8.57E+00	3.59E+01	3.59E+01
+	HF-172	67.35	5.31	-6.78E-02	3.41E-01	9.40E-01
		125.81	11.30	-8.90E-03		3.41E-01
+	LU-172	181.53	20.60	-7.39E+02	3.90E+03	7.24E+03
		900.72	29.81	1.43E+03		8.05E+03
		1093.66	62.50	-8.37E+02		3.90E+03
+	LU-173	100.72	5.24	4.26E-01	3.03E-01	7.54E-01
		272.11	21.20	9.46E-02		3.03E-01
+	HF-175	343.40	84.00	9.71E-02	1.53E-01	1.53E-01
+	LU-176	88.34	13.30	3.10E-01	5.14E-02	3.57E-01

Analysis Report for 1707089-04

HTC-A04-S001-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LU-176	201.83		86.00	-2.48E-02	5.14E-02	5.81E-02
		306.78		94.00	1.33E-02		5.14E-02
+	HF-181	133.02		41.70	-7.47E-02	3.01E-01	4.28E-01
		345.85		17.20	1.58E-01		1.42E+00
		482.03		82.80	-2.71E-02		3.01E-01
+	TA-182	67.75		41.20	-1.44E-02	2.00E-01	2.00E-01
		1121.30		34.90	1.04E+00		6.69E-01
		1189.05		16.23	-3.05E-01		1.07E+00
		1221.41		26.98	4.68E-02		7.47E-01
		1231.02		11.44	2.08E-01		1.75E+00
+	IR-192	308.46		29.68	2.45E-01	2.55E-01	4.10E-01
		468.07		48.10	7.59E-02		2.55E-01
+	HG-203	279.19		77.30	2.07E-01	2.98E-01	2.98E-01
+	TL-204	374.74		94.11	5.56E-03	5.70E-02	5.70E-02
		899.15		99.16	4.93E-03		8.10E-02
		911.74		91.10	4.52E-01		1.67E-01
+	BI-207	569.67		97.72	1.04E-02	5.22E-02	5.22E-02
		1063.62		74.90	6.40E-03		1.09E-01
+	TL-208	583.14	*	30.22	1.19E+00	1.02E-01	2.93E-01
		860.37		4.48	4.83E-01		1.67E+00
		2614.66	*	35.85	1.12E+00		1.02E-01
+	BI-210M	262.00		45.00	7.86E-02	1.06E-01	1.06E-01
		300.00		23.00	2.19E-01		2.44E-01
+	PB-210	46.50	*	4.25	1.13E+00	2.03E+00	2.03E+00
+	PB-211	404.84		2.90	6.46E-04	1.66E+00	1.66E+00
		831.96		2.90	-1.52E-01		2.63E+00
+	BI-212	727.17	*	11.80	8.93E-01	1.42E+00	1.42E+00
		1620.62		2.75	5.35E-01		2.23E+00
+	PB-212	238.63	*	44.60	1.12E+00	2.09E-01	2.09E-01
		300.09	*	3.41	1.59E+00		2.88E+00
+	BI-214	609.31	*	46.30	1.09E+00	1.92E-01	1.92E-01
		1120.29	*	15.10	1.43E+00		1.01E+00
		1764.49	*	15.80	1.01E+00		6.79E-01
		2204.22	*	4.98	9.65E-01		6.84E-01
+	PB-214	295.21	*	19.19	1.11E+00	1.88E-01	5.05E-01
		351.92	*	37.19	1.06E+00		1.88E-01
+	RN-219	401.80		6.50	-1.91E-01	7.47E-01	7.47E-01
+	RA-223	323.87		3.88	-1.10E-01	1.25E+00	1.25E+00
+	RA-224	240.98	*	3.95	2.46E+00	2.35E+00	2.35E+00
+	RA-225	40.00		31.00	1.95E+01	3.21E+01	3.21E+01
+	RA-226	186.21	*	3.28	2.76E+00	2.23E+00	2.23E+00
+	TH-227	50.10		8.40	-9.45E-02	5.60E-01	5.60E-01
		236.00		11.50	-4.59E+00		6.22E-01
		256.20		6.30	4.30E-01		7.59E-01
+	AC-228	338.32	*	11.40	1.50E+00	4.01E-01	5.66E-01
		911.07	*	27.70	1.34E+00		4.01E-01
		969.11	*	16.60	1.66E+00		8.77E-01
+	TH-230	48.44		16.90	-3.57E-01	2.94E-01	2.94E-01

Analysis Report for 1707089-04

HTC-A04-S001-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TH-230	62.85		4.60	1.77E+00	2.94E-01	1.15E+00
		67.67		0.37	-8.76E-01		1.22E+01
+	PA-231	283.67		1.60	4.54E-02	2.17E+00	2.89E+00
		302.67		2.30	5.35E-01		2.17E+00
+	TH-231	25.64		14.70	0.00E+00	1.18E-01	1.18E-01
		84.21		6.40	4.66E-01		6.32E-01
+	PA-233	311.98		38.60	-5.66E-01	1.53E+00	1.53E+00
+	PA-234	131.20		20.40	-1.35E-02	1.77E-01	1.77E-01
		733.99		8.80	-2.36E-01		7.63E-01
		946.00		12.00	-2.03E-01		5.75E-01
+	PA-234M	1001.03		0.92	1.56E+00	8.13E+00	8.13E+00
+	TH-234	63.29	*	3.80	1.17E+00	2.12E+00	2.12E+00
+	U-235	143.76		10.50	1.78E-01	4.48E-01	4.48E-01
		163.35		4.70	-4.53E-02		9.95E-01
		205.31		4.70	-1.32E-02		1.07E+00
+	NP-237	86.50		12.60	5.36E-01	3.74E-01	3.74E-01
+	NP-239	106.10		22.70	5.44E+11	9.64E+11	9.64E+11
		228.18		10.70	9.67E+11		2.82E+12
		277.60		14.10	1.93E+12		2.34E+12
+	AM-241	59.54		35.90	-3.23E-02	1.32E-01	1.32E-01
+	AM-243	74.67		66.00	-2.31E-01	8.75E-02	8.75E-02
+	CM-243	209.75	*	3.29	1.35E+00	4.62E-01	2.05E+00
		228.14		10.60	1.58E-01		4.62E-01
		277.60	*	14.00	3.75E-01		4.65E-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

Analysis Report for 1707089-04

HTC-A04-S001-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	1.76E+00	1.76E+00	-1.54E-01	8.29E-01
	NA-22	1274.54		99.94	7.82E-02	7.82E-02	-5.64E-02	3.56E-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	5.15E-02	5.15E-02	6.18E-03	2.15E-02
+	K-40	1460.81	*	10.67	7.20E-01	7.20E-01	3.01E+01	3.26E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	4.77E-02	4.77E-02	-3.44E-03	2.32E-02
		78.34		96.00	5.51E-02		4.18E-02	2.69E-02
	SC-46	889.25		99.98	1.53E-01	1.53E-01	-9.33E-02	7.08E-02
		1120.51		99.99	2.96E-01		4.20E-01	1.41E-01
	V-48	983.52		99.98	5.90E+00	5.90E+00	3.36E+00	2.75E+00
		1312.10		97.50	6.17E+00		1.05E+00	2.82E+00
	CR-51	320.08		9.83	5.95E+00	5.95E+00	-6.37E-01	2.84E+00
	MN-54	834.83		99.97	9.09E-02	9.09E-02	-5.64E-02	4.26E-02
	CO-56	846.75		99.96	1.57E-01	1.57E-01	3.33E-02	7.31E-02
		1037.75		14.03	1.16E+00		-4.00E-01	5.34E-01
		1238.25		67.00	4.16E-01		9.35E-02	1.97E-01
		1771.40		15.51	9.52E-01		-2.52E-01	4.12E-01
		2598.48		16.90	7.16E-01		-8.46E-03	2.89E-01
	CO-57	122.06		85.51	4.99E-02	4.99E-02	-2.58E-02	2.40E-02
		136.48		10.60	5.35E-01		-3.76E-01	2.60E-01
	CO-58	810.76		99.40	1.90E-01	1.90E-01	-1.57E-02	8.92E-02
	FE-59	1099.22		56.50	6.87E-01	6.87E-01	-7.73E-02	3.19E-01
		1291.56		43.20	9.73E-01		-5.52E-02	4.50E-01
	CO-60	1173.22		100.00	1.01E-01	8.09E-02	-7.72E-03	4.73E-02
		1332.49		100.00	8.09E-02		3.97E-02	3.70E-02
	ZN-65	1115.52		50.75	2.63E-01	2.63E-01	-5.62E-01	1.24E-01
	GA-67	93.31		35.70	2.29E+08	2.29E+08	5.40E+08	1.12E+08
		208.95		2.24	4.21E+09		4.09E+09	2.04E+09
		300.22		16.00	6.08E+08		5.46E+08	2.93E+08
	SE-75	121.11		16.70	3.57E-01	1.33E-01	-1.11E-01	1.72E-01
		136.00		59.20	1.33E-01		-1.49E-03	6.43E-02
		264.65		59.80	1.42E-01		-3.40E-02	6.82E-02
		279.53		25.20	3.36E-01		-1.34E-01	1.61E-01
		400.65		11.40	7.52E-01		-4.13E-01	3.56E-01
	RB-82	776.52		13.00	7.50E+00	7.50E+00	-5.60E-01	3.50E+00
	RB-83	520.41		46.00	2.65E-01	2.65E-01	6.18E-02	1.25E-01
		529.64		30.30	3.64E-01		-2.68E-02	1.70E-01
		552.65		16.40	6.90E-01		1.92E-02	3.22E-01
	KR-85	513.99		0.43	1.27E+01	1.27E+01	-1.85E+01	5.99E+00
	SR-85	513.99		99.27	1.59E-01	1.59E-01	-2.32E-01	7.50E-02
	Y-88	898.02		93.40	1.60E-01	8.45E-02	8.97E-02	7.48E-02
		1836.01		99.38	8.45E-02		-3.60E-02	3.42E-02
	MO-93	263.06		56.72	8.46E-02	6.20E-02	-3.86E-03	4.06E-02
		684.67		99.68	6.48E-02		-5.32E-02	3.04E-02
		1477.11		99.08	6.20E-02		1.53E-03	2.72E-02
	NB-93M	16.57		9.43	6.65E+00	6.65E+00	0.00E+00	0.00E+00
	NB-94	702.63		100.00	6.68E-02	6.45E-02	-1.02E-02	3.14E-02
		871.10		100.00	6.45E-02		8.94E-03	2.99E-02
	NB-95	765.79		99.81	5.77E-01	5.77E-01	8.88E-02	2.73E-01
	NB-95M	235.69		25.00	6.33E+07	6.33E+07	-4.67E+08	3.09E+07
	ZR-95	724.18		43.70	5.51E-01	3.72E-01	1.09E-01	2.61E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	ZR-95	756.72		55.30	3.72E-01	3.72E-01	-1.01E-01	1.75E-01
	MO-99	181.06		6.20	6.85E+10	4.55E+10	6.66E+09	3.32E+10
		739.58		12.80	4.55E+10		6.00E+07	2.13E+10
		778.00		4.50	1.19E+11		-1.88E+10	5.52E+10
	RU-103	497.08		89.00	3.37E-01	3.37E-01	9.99E-03	1.58E-01
	RU-106	621.84		9.80	7.16E-01	7.16E-01	-4.90E-01	3.36E-01
	AG-108M	433.93		89.90	5.30E-02	5.30E-02	-6.54E-03	2.50E-02
		614.37		90.40	7.15E-02		1.10E-02	3.38E-02
		722.95		90.50	7.98E-02		-1.16E-01	3.76E-02
+	CD-109	88.03	*	3.72	1.96E+00	1.96E+00	2.67E+00	9.62E-01
	AG-110M	657.75		93.14	9.37E-02	9.37E-02	-3.00E-02	4.42E-02
		677.61		10.53	8.27E-01		-3.77E-02	3.89E-01
		706.67		16.46	5.70E-01		3.58E-02	2.69E-01
		763.93		21.98	4.41E-01		-4.41E-01	2.08E-01
		884.67		71.63	1.35E-01		4.52E-02	6.32E-02
		1384.27		23.94	3.17E-01		3.06E-02	1.39E-01
	CD-113M	263.70		0.02	2.12E+02	2.12E+02	1.77E+01	1.02E+02
	SN-113	255.12		1.93	4.53E+00	1.37E-01	-9.79E-01	2.18E+00
		391.69		64.90	1.37E-01		7.40E-03	6.47E-02
	TE123M	159.00		84.10	9.99E-02	9.99E-02	7.58E-03	4.85E-02
	SB-124	602.71		97.87	2.18E-01	2.18E-01	3.76E-03	1.03E-01
		645.85		7.26	2.67E+00		-5.48E-01	1.26E+00
		722.78		11.10	1.89E+00		-4.04E+00	8.88E-01
		1691.02		49.00	3.72E-01		-3.82E-02	1.60E-01
	I-125	35.49		6.49	6.15E+00	6.15E+00	-4.43E+01	2.98E+00
	SB-125	176.33		6.89	7.48E-01	1.85E-01	3.71E-01	3.63E-01
		427.89		29.33	1.85E-01		-2.53E-02	8.76E-02
		463.38		10.35	6.21E-01		8.01E-01	2.95E-01
		600.56		17.80	3.74E-01		-1.66E-01	1.76E-01
		635.90		11.32	5.83E-01		6.70E-03	2.74E-01
	SB-126	414.70		83.30	1.63E+01	1.63E+01	9.57E-01	7.74E+00
		666.33		99.60	1.90E+01		6.88E+00	9.00E+00
		695.00		99.60	1.76E+01		1.97E+00	8.25E+00
		720.50		53.80	3.31E+01		1.37E+01	1.55E+01
+	SN-126	87.57	*	37.00	1.70E-01	1.70E-01	2.31E-01	8.33E-02
	SB-127	473.00		25.00	1.37E+07	1.26E+07	1.97E+06	6.44E+06
		685.20		35.70	1.26E+07		-3.10E+05	5.93E+06
		783.80		14.70	3.15E+07		1.74E+07	1.47E+07
	I-129	29.78		57.00	4.06E-01	4.06E-01	2.97E-01	1.96E-01
		33.60		13.20	2.02E+00		9.02E+00	9.91E-01
		39.58		7.52	1.25E+00		7.61E-01	6.09E-01
	I-131	284.30		6.05	4.28E+03	3.32E+02	6.72E+01	2.04E+03
		364.48		81.20	3.32E+02		1.01E+02	1.58E+02
		636.97		7.26	4.86E+03		8.69E+02	2.29E+03
		722.89		1.80	2.24E+04		-3.26E+04	1.05E+04
	TE-132	49.72		13.10	6.41E+08	9.74E+07	-1.08E+08	3.09E+08
		228.16		88.00	9.74E+07		3.34E+07	4.69E+07
	BA-133	81.00		33.00	1.18E-01	7.99E-02	1.98E-02	5.74E-02
		302.84		17.80	2.86E-01		7.04E-02	1.37E-01
		356.01		60.00	7.99E-02		-5.49E-03	3.79E-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	5.63E+04	5.63E+04	9.39E+03	2.73E+04
	CS-134	563.23		8.38	6.68E-01	7.66E-02	3.19E-01	3.12E-01

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-134	569.32	15.43	3.61E-01	7.66E-02	7.20E-02	1.68E-01
	604.70	97.60	7.66E-02		-7.78E-03	3.63E-02
	795.84	85.40	1.09E-01		7.85E-02	5.16E-02
	801.93	8.73	8.85E-01		-2.99E-01	4.14E-01
CS-135	268.24	16.00	3.31E-01	3.31E-01	-1.28E-02	1.59E-01
@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41	28.60	1.00E+26		1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		1.00E+26	1.00E+20
CS-136	153.22	7.46	1.24E+02	1.34E+01	7.81E+01	6.04E+01
	163.89	4.61	1.98E+02		-9.02E+00	9.60E+01
	176.55	13.56	6.91E+01		3.43E+01	3.35E+01
	273.65	12.66	7.64E+01		-3.84E+01	3.67E+01
	340.57	48.50	2.35E+01		9.34E-01	1.13E+01
	818.50	99.70	1.34E+01		6.40E-01	6.23E+00
	1048.07	79.60	2.02E+01		5.15E+00	9.42E+00
	1235.34	19.70	1.14E+02		2.55E+01	5.36E+01
CS-137	661.65	85.12	8.33E-02	8.33E-02	-1.34E-02	3.94E-02
LA-138	788.74	34.00	2.03E-01	1.17E-01	-3.92E-02	9.51E-02
	1435.80	66.00	1.17E-01		7.08E-02	5.33E-02
CE-139	165.85	80.35	9.77E-02	9.77E-02	3.44E-02	4.74E-02
BA-140	162.64	6.70	1.59E+02	4.90E+01	4.72E+01	7.73E+01
	304.84	4.50	2.40E+02		4.35E+01	1.15E+02
	423.70	3.20	3.61E+02		9.20E+01	1.71E+02
	437.55	2.00	5.85E+02		2.69E+02	2.77E+02
	537.32	25.00	4.90E+01		1.89E+01	2.30E+01
LA-140	328.77	20.50	6.04E+01	1.72E+01	6.73E+00	2.90E+01
	487.03	45.50	2.56E+01		1.78E+00	1.21E+01
	815.85	23.50	6.44E+01		-3.34E+01	3.00E+01
	1596.49	95.49	1.72E+01		1.67E+00	7.69E+00
CE-141	145.44	48.40	8.21E-01	8.21E-01	6.58E-02	3.99E-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	4.09E-01	4.09E-01	1.60E-01	1.97E-01
PM-144	476.78	42.00	1.44E-01	7.60E-02	-1.26E-02	6.79E-02
	618.01	98.60	7.81E-02		1.84E-02	3.68E-02
	696.49	99.49	7.60E-02		-2.39E-02	3.56E-02
PM-145	36.85	21.70	5.23E-01	2.74E-01	1.08E-01	2.53E-01
	37.36	39.70	2.74E-01		-1.19E-01	1.33E-01
	42.30	15.10	4.53E-01		-1.19E-01	2.19E-01
	72.40	2.31	1.97E+00		4.99E-01	9.59E-01
PM-146	453.90	39.94	1.32E-01	1.32E-01	2.80E-02	6.21E-02
	735.90	14.01	5.12E-01		2.65E-01	2.41E-01
	747.13	13.10	4.73E-01		-2.39E-01	2.20E-01
ND-147	91.11	28.90	8.36E+01	8.36E+01	-1.19E+02	4.07E+01
	531.02	13.10	2.03E+02		-4.78E+01	9.49E+01
PM-149	285.90	3.10	6.32E+13	6.32E+13	-3.25E+13	3.02E+13
EU-152	121.78	20.50	1.63E-01	1.63E-01	-8.43E-02	7.86E-02
	244.69	5.40	8.92E-01		-1.99E+00	4.29E-01
	344.27	19.13	2.58E-01		1.58E-01	1.23E-01
	778.89	9.20	6.60E-01		-1.04E-01	3.06E-01
	964.01	10.40	9.33E-01		-1.96E-01	4.41E-01
	1085.78	7.22	1.23E+00		7.31E-01	5.74E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-152	1112.02		9.60	1.00E+00	1.63E-01	5.61E-02	4.71E-01
		1407.95		14.94	5.66E-01		1.52E-01	2.59E-01
	GD-153	97.43		31.30	1.43E-01	1.43E-01	-2.98E-02	6.93E-02
		103.18		22.20	1.89E-01		-1.53E-01	9.12E-02
	EU-154	123.07		40.50	8.53E-02	8.53E-02	1.28E-02	4.11E-02
		723.30		19.70	3.74E-01		-5.45E-01	1.76E-01
		873.19		11.50	5.16E-01		-4.72E-01	2.37E-01
		996.32		10.30	7.15E-01		-2.55E-01	3.31E-01
		1004.76		17.90	3.99E-01		-1.51E-01	1.84E-01
		1274.45		35.50	2.09E-01		-1.51E-01	9.52E-02
	EU-155	86.50		30.90	1.58E-01	1.58E-01	2.27E-01	7.73E-02
		105.30		20.70	1.77E-01		9.97E-02	8.54E-02
	EU-156	811.77		10.40	6.28E+01	6.28E+01	-3.82E+01	2.93E+01
		1153.47		7.20	1.24E+02		5.04E+00	5.77E+01
		1230.71		8.90	1.18E+02		1.40E+01	5.55E+01
	HO-166M	184.41		72.60	8.31E-02	8.31E-02	1.72E-01	4.05E-02
		280.45		29.60	1.60E-01		3.13E-02	7.66E-02
		410.94		11.10	4.96E-01		3.02E-01	2.36E-01
		711.69		54.10	1.19E-01		2.38E-02	5.57E-02
	TM-171	66.72		0.14	3.59E+01	3.59E+01	8.57E+00	1.75E+01
	HF-172	67.35		5.31	9.40E-01	3.41E-01	-6.78E-02	4.57E-01
		125.81		11.30	3.41E-01		-8.90E-03	1.65E-01
	LU-172	181.53		20.60	7.24E+03	3.90E+03	-7.39E+02	3.50E+03
		900.72		29.81	8.05E+03		1.43E+03	3.77E+03
		1093.66		62.50	3.90E+03		-8.37E+02	1.81E+03
	LU-173	100.72		5.24	7.54E-01	3.03E-01	4.26E-01	3.64E-01
		272.11		21.20	3.03E-01		9.46E-02	1.46E-01
	HF-175	343.40		84.00	1.53E-01	1.53E-01	9.71E-02	7.27E-02
	LU-176	88.34		13.30	3.57E-01	5.14E-02	3.10E-01	1.74E-01
		201.83		86.00	5.81E-02		-2.48E-02	2.81E-02
		306.78		94.00	5.14E-02		1.33E-02	2.46E-02
	HF-181	133.02		41.70	4.28E-01	3.01E-01	-7.47E-02	2.06E-01
		345.85		17.20	1.42E+00		1.58E-01	6.75E-01
		482.03		82.80	3.01E-01		-2.71E-02	1.41E-01
	TA-182	67.75		41.20	2.00E-01	2.00E-01	-1.44E-02	9.72E-02
		1121.30		34.90	6.69E-01		1.04E+00	3.19E-01
		1189.05		16.23	1.07E+00		-3.05E-01	5.00E-01
		1221.41		26.98	7.47E-01		4.68E-02	3.52E-01
		1231.02		11.44	1.75E+00		2.08E-01	8.22E-01
	IR-192	308.46		29.68	4.10E-01	2.55E-01	2.45E-01	1.96E-01
		468.07		48.10	2.55E-01		7.59E-02	1.20E-01
	HG-203	279.19		77.30	2.98E-01	2.98E-01	2.07E-01	1.43E-01
	TL-204	374.74		94.11	5.70E-02	5.70E-02	5.56E-03	2.71E-02
		899.15		99.16	8.10E-02		4.93E-03	3.79E-02
		911.74		91.10	1.67E-01		4.52E-01	8.08E-02
	BI-207	569.67		97.72	5.22E-02	5.22E-02	1.04E-02	2.44E-02
		1063.62		74.90	1.09E-01		6.40E-03	5.07E-02
+	TL-208	583.14	*	30.22	2.93E-01	1.02E-01	1.19E+00	1.41E-01
		860.37		4.48	1.67E+00		4.83E-01	7.80E-01
		2614.66	*	35.85	1.02E-01		1.12E+00	3.77E-02
	BI-210M	262.00		45.00	1.06E-01	1.06E-01	7.86E-02	5.09E-02
		300.00		23.00	2.44E-01		2.19E-01	1.18E-01
+	PB-210	46.50	*	4.25	2.03E+00	2.03E+00	1.13E+00	9.93E-01

Analysis Report for 1707089-04

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PB-211	404.84		2.90	1.66E+00	1.66E+00	6.46E-04	7.86E-01
		831.96		2.90	2.63E+00		-1.52E-01	1.23E+00
+	BI-212	727.17	*	11.80	1.42E+00	1.42E+00	8.93E-01	6.92E-01
		1620.62		2.75	2.23E+00		5.35E-01	9.71E-01
+	PB-212	238.63	*	44.60	2.09E-01	2.09E-01	1.12E+00	1.02E-01
		300.09	*	3.41	2.88E+00		1.59E+00	1.41E+00
+	BI-214	609.31	*	46.30	1.92E-01	1.92E-01	1.09E+00	9.20E-02
		1120.29	*	15.10	1.01E+00		1.43E+00	4.85E-01
		1764.49	*	15.80	6.79E-01		1.01E+00	3.14E-01
		2204.22	*	4.98	6.84E-01		9.65E-01	2.50E-01
+	PB-214	295.21	*	19.19	5.05E-01	1.88E-01	1.11E+00	2.47E-01
		351.92	*	37.19	1.88E-01		1.06E+00	9.08E-02
	RN-219	401.80		6.50	7.47E-01	7.47E-01	-1.91E-01	3.54E-01
	RA-223	323.87		3.88	1.25E+00	1.25E+00	-1.10E-01	5.95E-01
+	RA-224	240.98	*	3.95	2.35E+00	2.35E+00	2.46E+00	1.15E+00
	RA-225	40.00		31.00	3.21E+01	3.21E+01	1.95E+01	1.56E+01
+	RA-226	186.21	*	3.28	2.23E+00	2.23E+00	2.76E+00	1.09E+00
	TH-227	50.10		8.40	5.60E-01	5.60E-01	-9.45E-02	2.70E-01
		236.00		11.50	6.22E-01		-4.59E+00	3.03E-01
		256.20		6.30	7.59E-01		4.30E-01	3.64E-01
+	AC-228	338.32	*	11.40	5.66E-01	4.01E-01	1.50E+00	2.73E-01
		911.07	*	27.70	4.01E-01		1.34E+00	1.91E-01
		969.11	*	16.60	8.77E-01		1.66E+00	4.23E-01
	TH-230	48.44		16.90	2.94E-01	2.94E-01	-3.57E-01	1.41E-01
		62.85		4.60	1.15E+00		1.77E+00	5.60E-01
		67.67		0.37	1.22E+01		-8.76E-01	5.91E+00
	PA-231	283.67		1.60	2.89E+00	2.17E+00	4.54E-02	1.38E+00
		302.67		2.30	2.17E+00		5.35E-01	1.04E+00
	TH-231	25.64		14.70	1.18E-01	1.18E-01	0.00E+00	0.00E+00
		84.21		6.40	6.32E-01		4.66E-01	3.07E-01
	PA-233	311.98		38.60	1.53E+00	1.53E+00	-5.66E-01	7.29E-01
	PA-234	131.20		20.40	1.77E-01	1.77E-01	-1.35E-02	8.52E-02
		733.99		8.80	7.63E-01		-2.36E-01	3.58E-01
		946.00		12.00	5.75E-01		-2.03E-01	2.66E-01
	PA-234M	1001.03		0.92	8.13E+00	8.13E+00	1.56E+00	3.77E+00
+	TH-234	63.29	*	3.80	2.12E+00	2.12E+00	1.17E+00	1.04E+00
	U-235	143.76		10.50	4.48E-01	4.48E-01	1.78E-01	2.18E-01
		163.35		4.70	9.95E-01		-4.53E-02	4.83E-01
		205.31		4.70	1.07E+00		-1.32E-02	5.20E-01
	NP-237	86.50		12.60	3.74E-01	3.74E-01	5.36E-01	1.82E-01
	NP-239	106.10		22.70	9.64E+11	9.64E+11	5.44E+11	4.66E+11
		228.18		10.70	2.82E+12		9.67E+11	1.36E+12
		277.60		14.10	2.34E+12		1.93E+12	1.13E+12
	AM-241	59.54		35.90	1.32E-01	1.32E-01	-3.23E-02	6.41E-02
	AM-243	74.67		66.00	8.75E-02	8.75E-02	-2.31E-01	4.28E-02
+	CM-243	209.75	*	3.29	2.05E+00	4.62E-01	1.35E+00	1.00E+00
		228.14		10.60	4.62E-01		1.58E-01	2.23E-01
		277.60	*	14.00	4.65E-01		3.75E-01	2.25E-01

Analysis Report for 1707089-04

HTC-A04-S001-2430-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A04-S001-2430-01

Elapsed Live time: 3600
Elapsed Real Time: 3601

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	50	83	135	125
33:	206	702	99	106	119	104	106	130
41:	119	98	69	87	93	85	158	82
49:	66	90	84	102	90	110	106	94
57:	121	123	113	140	132	143	167	222
65:	114	148	137	143	145	142	154	155
73:	161	142	438	201	498	432	123	114
81:	127	113	112	154	136	109	195	245
89:	125	189	136	144	240	191	121	79
97:	81	96	96	106	89	87	71	76
105:	109	99	83	84	103	76	76	97
113:	88	93	99	83	79	71	76	99
121:	75	65	92	85	78	90	85	85
129:	120	91	85	85	74	80	83	61
137:	76	81	78	95	72	82	79	102
145:	81	70	77	79	81	58	87	60
153:	80	82	88	74	70	76	87	62
161:	76	72	66	71	76	70	69	73
169:	65	72	59	74	65	53	71	80
177:	69	54	69	64	56	63	70	69
185:	83	190	104	54	53	72	62	65
193:	54	47	55	75	49	60	61	56
201:	71	65	58	61	75	55	61	50
209:	87	93	63	52	59	50	57	45
217:	48	50	64	54	56	33	52	56
225:	50	50	49	63	52	34	41	50
233:	52	53	51	61	53	306	579	99
241:	113	134	55	46	42	30	41	41
249:	42	38	39	47	44	38	41	39
257:	43	42	25	38	32	47	42	37
265:	32	39	42	38	38	78	61	38
273:	31	49	39	43	65	47	39	32
281:	30	28	45	29	22	39	34	41
289:	35	28	31	30	42	52	197	140
297:	35	32	43	73	50	27	30	31
305:	36	24	35	28	36	27	27	23
313:	35	23	28	22	25	35	22	34
321:	23	32	34	27	25	29	35	69
329:	23	26	32	39	26	30	33	27
337:	32	140	102	31	16	26	28	29
345:	31	22	23	23	24	31	101	337
353:	77	23	27	17	24	29	23	20
361:	24	21	27	22	21	31	19	21

369:	23	18	23	28	23	25	25	31

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Channel								
377:	27	23	19	28	30	16	29	21
385:	16	18	22	22	22	16	22	24
393:	19	29	21	19	24	25	25	28
401:	16	20	15	27	23	17	21	21
409:	32	30	25	22	24	19	23	23
417:	21	21	16	22	19	29	14	18
425:	23	24	19	23	23	16	22	13
433:	21	14	23	19	17	23	23	18
441:	17	18	22	24	19	20	18	25
449:	26	15	15	25	16	13	24	18
457:	22	15	15	7	19	24	47	23
465:	19	20	5	20	21	15	17	13
473:	23	19	19	16	16	16	19	18
481:	14	16	14	17	10	22	22	18
489:	16	14	22	14	21	15	18	18
497:	22	15	12	17	15	15	14	13
505:	19	10	13	18	30	64	80	32
513:	15	21	8	14	13	15	19	21
521:	22	12	21	13	16	19	8	21
529:	13	11	17	14	11	14	17	20
537:	17	15	14	11	16	15	9	11
545:	15	14	10	18	13	18	14	15
553:	9	13	10	15	12	10	11	11
561:	16	21	9	12	10	6	12	13
569:	15	14	12	13	15	11	18	14
577:	4	19	7	18	14	73	185	76
585:	11	11	16	13	15	15	12	8
593:	10	16	12	27	13	11	17	15
601:	12	14	11	20	21	13	21	68
609:	199	120	19	7	10	14	18	18
617:	11	17	8	9	12	10	13	17
625:	7	17	15	15	19	9	7	11
633:	11	6	10	15	9	12	20	15
641:	14	9	13	16	12	10	9	9
649:	11	14	13	13	11	14	14	8
657:	19	10	11	15	16	19	15	17
665:	18	18	12	9	13	8	9	10
673:	12	10	12	8	11	16	15	14
681:	12	16	6	10	14	11	9	22
689:	13	12	16	13	11	13	14	7
697:	13	9	6	11	11	15	15	13
705:	12	13	16	15	10	9	17	10
713:	7	7	4	9	9	11	12	13
721:	18	10	5	10	10	27	40	27
729:	12	13	10	12	9	17	8	13
737:	9	9	18	5	8	10	11	5
745:	5	8	7	10	8	16	10	14
753:	10	15	11	10	8	17	9	14
761:	14	7	17	15	7	17	11	30
769:	20	7	10	18	17	8	9	13
777:	6	6	6	5	10	9	9	8
785:	15	18	4	13	6	8	9	15
793:	8	22	23	20	12	11	12	12

801:	9	12	12	6	10	18	15	9

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Channel								
809:	5	12	15	8	10	8	10	11
817:	5	12	14	8	7	11	8	8
825:	9	14	9	12	15	12	10	8
833:	13	12	10	15	6	9	21	14
841:	6	8	7	5	9	10	6	9
849:	11	5	9	7	10	10	7	9
857:	5	7	13	17	15	5	12	7
865:	12	5	10	9	15	6	7	6
873:	3	7	7	6	9	9	5	14
881:	10	10	7	12	12	11	6	6
889:	7	11	12	2	8	13	8	11
897:	8	12	12	11	9	9	11	8
905:	10	9	7	8	19	68	116	37
913:	14	8	7	9	8	6	11	6
921:	13	5	7	4	8	11	4	8
929:	8	5	8	12	11	15	8	11
937:	10	6	11	6	8	7	7	7
945:	6	7	9	10	10	13	8	8
953:	7	8	13	14	6	10	11	12
961:	6	15	15	24	22	9	20	48
969:	62	26	10	8	7	13	9	6
977:	10	9	4	5	12	7	9	13
985:	9	7	7	3	9	11	6	10
993:	8	7	4	14	6	7	7	8
1001:	13	10	6	10	1	7	2	10
1009:	9	11	8	9	11	7	5	7
1017:	4	5	5	7	13	4	12	6
1025:	9	6	14	12	10	8	15	9
1033:	6	6	7	4	4	9	5	8
1041:	7	9	5	11	8	9	5	6
1049:	15	11	7	10	5	9	10	2
1057:	7	11	7	9	10	11	9	9
1065:	8	5	5	11	12	10	7	8
1073:	11	7	6	11	10	9	8	3
1081:	12	16	6	8	8	8	13	10
1089:	5	6	12	8	6	6	10	5
1097:	5	14	6	11	6	12	12	8
1105:	6	13	6	11	12	12	9	12
1113:	10	13	13	14	11	16	31	50
1121:	21	12	9	6	7	4	9	7
1129:	6	18	6	8	4	11	10	10
1137:	9	7	12	7	12	9	8	5
1145:	6	9	9	11	8	4	9	11
1153:	12	12	9	13	13	7	10	9
1161:	8	9	10	12	10	14	11	9
1169:	5	14	8	15	9	12	13	13
1177:	12	12	11	9	17	7	17	11
1185:	9	7	7	10	12	10	15	8
1193:	11	9	7	15	18	11	10	17
1201:	18	16	14	5	20	8	11	13
1209:	12	7	14	11	8	8	13	13
1217:	13	17	12	12	7	9	20	15
1225:	9	16	13	20	7	10	12	12

1233:	15	8	15	13	14	22	9	19

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Channel								
1241:	12	12	7	7	10	7	8	10
1249:	5	12	9	7	7	8	10	6
1257:	11	2	4	5	9	10	2	14
1265:	6	10	11	3	5	8	5	4
1273:	5	4	4	7	6	14	5	12
1281:	6	7	9	8	8	5	7	11
1289:	8	7	6	10	6	5	12	6
1297:	5	6	5	7	6	4	4	5
1305:	5	4	9	5	6	5	6	7
1313:	4	6	5	2	7	4	4	3
1321:	7	4	5	7	4	3	3	4
1329:	4	7	3	7	5	4	8	5
1337:	1	5	5	4	5	6	3	2
1345:	2	3	4	3	5	5	1	3
1353:	3	0	3	2	5	5	4	2
1361:	0	1	3	3	4	3	2	4
1369:	2	3	1	3	2	3	7	4
1377:	9	13	2	3	0	2	2	3
1385:	5	3	4	3	2	0	2	1
1393:	2	9	1	8	3	3	4	4
1401:	6	5	0	6	5	7	7	7
1409:	5	1	2	1	3	3	3	1
1417:	2	3	1	1	2	1	3	3
1425:	0	3	1	4	4	0	6	4
1433:	2	7	2	2	4	4	2	1
1441:	2	2	0	1	4	3	0	2
1449:	3	1	4	0	2	5	6	16
1457:	23	79	234	434	341	74	7	2
1465:	0	2	4	1	2	2	4	2
1473:	3	1	1	0	4	4	0	3
1481:	2	0	0	0	2	3	1	2
1489:	0	0	0	1	2	1	3	4
1497:	2	1	1	1	4	1	1	1
1505:	2	2	1	3	5	2	1	5
1513:	3	1	1	3	3	1	3	1
1521:	3	3	0	2	7	3	2	0
1529:	3	2	4	3	4	2	6	0
1537:	3	3	5	1	0	3	1	3
1545:	2	3	2	1	2	0	1	2
1553:	2	1	3	2	1	2	2	1
1561:	0	3	2	1	3	1	3	2
1569:	0	2	3	2	1	1	3	2
1577:	0	4	0	2	1	3	3	2
1585:	3	3	7	11	5	3	2	6
1593:	5	1	1	4	1	4	0	1
1601:	2	0	2	0	0	2	2	0
1609:	1	2	1	2	0	1	1	0
1617:	2	1	2	4	2	3	1	2
1625:	2	1	3	0	1	6	5	0
1633:	1	0	0	1	3	2	1	0
1641:	2	1	3	0	1	1	1	0
1649:	0	0	1	0	5	1	3	1
1657:	1	0	3	3	3	0	1	5

1665:	3	0	3	1	0	1	0	1

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Channel								
1673:	1	0	1	3	0	3	3	1
1681:	3	1	1	3	1	3	1	3
1689:	1	0	1	1	1	2	3	1
1697:	1	2	1	0	0	0	1	2
1705:	1	4	0	2	0	0	3	0
1713:	1	0	0	0	1	1	2	0
1721:	0	2	0	0	0	3	3	3
1729:	5	3	2	0	0	1	1	1
1737:	1	0	2	1	2	3	0	1
1745:	1	3	1	0	4	1	2	2
1753:	0	1	1	3	1	1	2	3
1761:	1	4	16	24	13	4	2	2
1769:	2	2	0	0	0	2	3	1
1777:	0	1	3	1	1	0	1	1
1785:	1	1	0	4	1	1	0	0
1793:	0	2	0	0	0	0	1	0
1801:	4	4	1	0	1	2	0	3
1809:	0	1	1	1	0	0	0	2
1817:	1	0	1	2	1	1	0	0
1825:	1	1	1	2	1	1	0	0
1833:	2	1	0	0	0	2	1	3
1841:	1	0	1	1	0	4	6	2
1849:	0	1	0	0	0	0	0	1
1857:	2	0	1	2	2	3	2	0
1865:	1	3	1	1	0	1	1	1
1873:	1	0	1	1	1	2	5	3
1881:	1	1	4	0	0	1	3	2
1889:	1	1	2	4	3	0	0	1
1897:	2	0	0	0	1	0	1	0
1905:	3	1	2	5	1	0	1	1
1913:	2	2	1	0	1	0	1	2
1921:	2	1	1	0	2	1	3	1
1929:	1	1	1	3	1	1	1	0
1937:	1	4	0	1	1	2	1	2
1945:	0	1	1	0	0	1	1	0
1953:	0	0	2	3	0	1	1	0
1961:	1	0	0	1	0	0	0	1
1969:	0	0	1	0	2	1	1	1
1977:	0	2	2	0	0	1	2	1
1985:	0	2	0	2	2	2	0	0
1993:	1	1	1	0	0	0	0	0
2001:	0	0	0	0	2	0	1	2
2009:	2	1	4	3	0	1	1	1
2017:	1	0	2	1	0	0	0	2
2025:	0	0	0	1	1	1	1	1
2033:	1	3	0	1	0	0	0	2
2041:	0	2	2	0	2	0	1	1
2049:	0	2	0	1	1	0	2	2
2057:	1	1	1	1	2	2	0	0
2065:	1	1	0	0	1	2	1	0
2073:	1	1	3	1	0	0	0	0
2081:	1	0	3	0	3	1	2	0
2089:	2	1	3	1	0	0	0	1

2097:	1	2	1	0	4	5	5	5

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

2529:	0	0	0	0	0	0	1	0

Sample Title: HTC-A04-S001-2430-01

Channel								
2537:	0	0	1	0	0	0	1	1
2545:	0	0	1	0	0	2	0	1
2553:	0	0	1	0	0	0	0	0
2561:	0	1	0	0	0	0	0	1
2569:	0	1	0	0	0	1	2	0
2577:	0	0	0	0	0	1	0	0
2585:	1	0	1	0	0	0	1	0
2593:	1	1	1	0	3	0	0	0
2601:	0	0	1	1	0	0	1	3
2609:	2	4	10	17	37	26	14	3
2617:	1	0	0	0	0	0	1	1
2625:	0	0	1	1	0	0	0	0
2633:	0	0	0	0	0	1	0	0
2641:	0	0	0	0	0	1	1	0
2649:	0	1	0	1	1	0	0	0
2657:	1	0	0	0	1	0	0	1
2665:	0	0	1	0	0	0	1	0
2673:	1	0	1	0	0	0	0	2
2681:	0	0	1	1	1	2	0	0
2689:	0	1	0	1	0	0	0	1
2697:	1	0	0	0	0	1	0	0
2705:	0	1	2	1	0	1	0	0
2713:	0	0	1	0	0	0	0	0
2721:	0	0	0	0	1	0	2	0
2729:	1	0	0	1	1	1	1	2
2737:	0	0	0	0	0	1	1	0
2745:	0	0	0	0	0	0	0	0
2753:	0	0	0	1	0	1	1	0
2761:	0	1	0	1	0	0	1	0
2769:	0	0	0	0	0	0	1	0
2777:	1	0	1	0	0	0	0	0
2785:	0	0	0	1	0	1	0	2
2793:	0	0	0	0	0	0	2	0
2801:	0	0	1	1	0	0	0	0
2809:	1	1	1	0	1	0	0	0
2817:	1	0	1	0	0	0	0	0
2825:	0	1	1	0	1	0	0	0
2833:	1	0	1	0	1	0	0	1
2841:	0	0	1	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	1	0	0	0	0	0
2873:	0	1	0	0	0	0	0	0
2881:	0	0	0	0	0	0	0	1
2889:	0	1	0	0	0	0	0	0
2897:	0	0	0	0	0	1	0	0
2905:	0	0	0	1	0	0	0	0
2913:	0	0	0	0	0	0	0	0
2921:	0	0	0	0	1	0	0	0
2929:	0	0	1	1	1	0	1	0
2937:	1	0	0	0	0	1	0	0
2945:	0	2	0	0	0	0	1	0
2953:	0	1	0	0	0	1	0	0

2961:	0	0	0	0	0	0	1	0

Sample Title: HTC-A04-S001-2430-01

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

3393:	0	0	1	0	1	0	0	0

Sample Title: HTC-A04-S001-2430-01

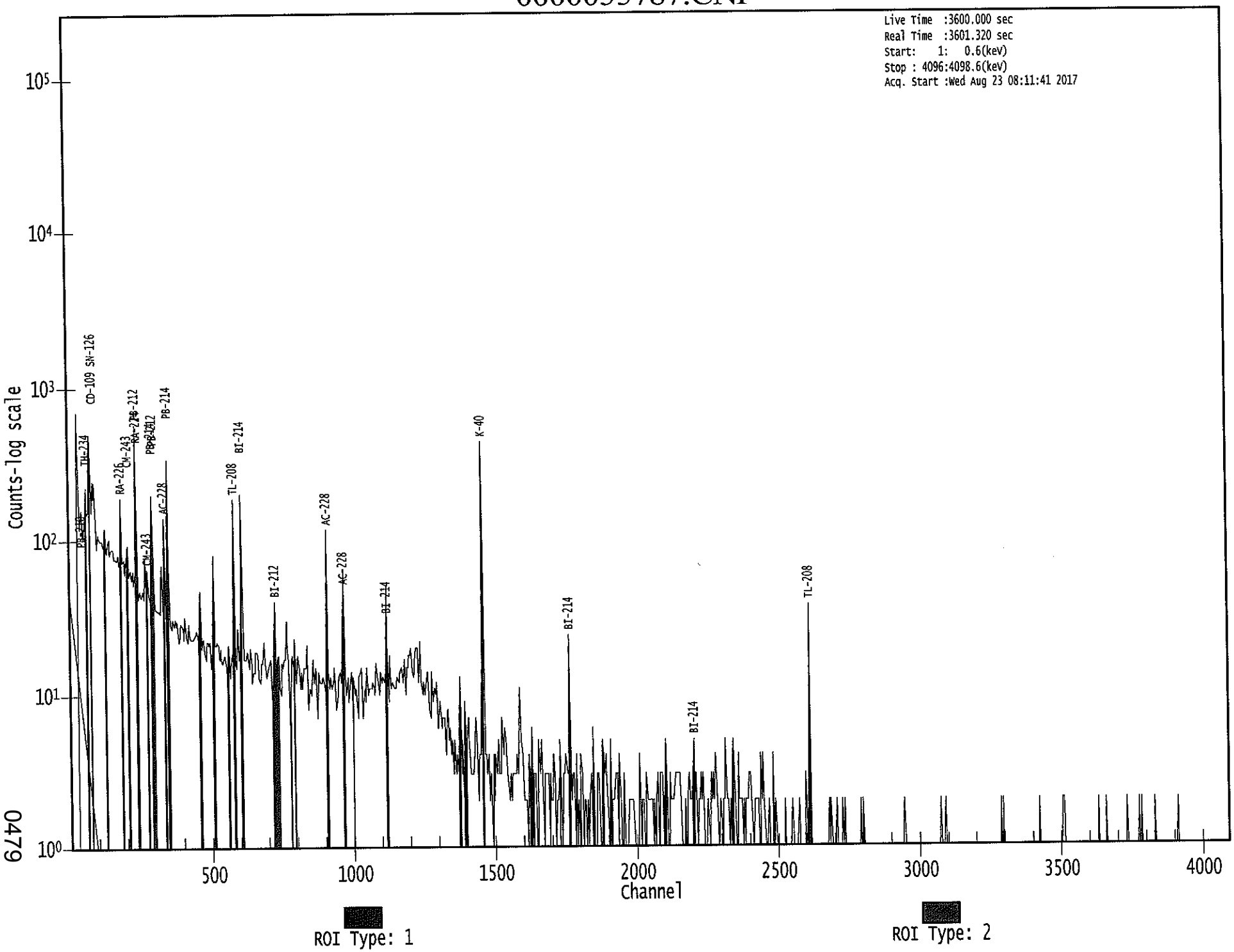
Channel								
3401:	1	0	0	1	0	0	0	0
3409:	0	1	0	0	0	0	0	0
3417:	0	0	0	0	0	0	2	0
3425:	0	0	0	0	0	0	0	1
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	1	0	0	0	0	0	1	1
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	1
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	1	0	0	0	1	0	0	0
3497:	0	1	1	0	0	1	0	0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

3825:	0	0	0	1	1	2	0	0

Sample Title: HTC-A04-S001-2430-01

Channel								
3833:	0	0	0	0	0	0	0	0
3841:	0	0	0	0	0	0	0	0
3849:	0	1	0	0	0	0	0	0
3857:	0	0	0	0	0	0	0	0
3865:	0	0	0	0	0	0	0	0
3873:	0	0	0	0	1	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	0	0	0
3905:	0	0	1	1	0	0	1	2
3913:	0	0	0	0	1	0	0	0
3921:	0	0	0	0	0	0	0	0
3929:	0	0	0	0	1	0	0	0
3937:	0	1	0	0	0	0	0	0
3945:	0	1	0	0	0	0	0	0
3953:	0	0	0	0	1	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	0	0	0	0	0	0	0
4009:	0	1	0	0	0	0	0	0
4017:	0	0	0	0	0	0	0	0
4025:	0	0	0	1	0	0	0	0
4033:	0	0	0	0	0	0	0	0
4041:	0	0	0	0	0	0	0	0
4049:	0	0	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	1	0	0	0
4081:	0	0	1	0	0	1	0	0
4089:	0	0	0	0	0	0	0	0

0000055787.CNF



0479

Apex-Gamma

8/23

Analysis Report for 1707089-05

HTC-A04-S001-3036-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707089-05
Sample Description	: HTC-A04-S001-3036-01
Sample Type	: SOIL
Sample Size	: 6.819E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 6:46:12AM
Acquisition Started	: 8/23/2017 7:05:30AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3608.5 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	: 55781

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/23/17

Analysis Report for 1707089-05

HTC-A04-S001-3036-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/23/2017 8:06:32AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	46.29	46.60	0.0000	0.00
2	62.92	63.23	0.0000	0.00
3	75.20	75.50	0.0000	0.00
4	77.39	77.70	0.0000	0.00
5	93.08	93.38	0.0000	0.00
6	129.06	129.34	0.0000	0.00
7	186.42	186.68	0.0000	0.00
8	194.91	195.18	0.0000	0.00
9	209.61	209.87	0.0000	0.00
10	238.92	239.17	0.0000	0.00
11	241.92	242.17	0.0000	0.00
12	271.10	271.33	0.0000	0.00
13	295.42	295.65	0.0000	0.00
14	300.34	300.56	0.0000	0.00
15	338.26	338.47	0.0000	0.00
16	352.10	352.31	0.0000	0.00
17	463.65	463.83	0.0000	0.00
18	510.85	511.00	0.0000	0.00
19	578.71	578.85	0.0000	0.00
20	583.34	583.47	0.0000	0.00
21	609.78	609.90	0.0000	0.00
22	639.15	639.26	0.0000	0.00
23	726.95	727.04	0.0000	0.00
24	795.15	795.21	0.0000	0.00
25	806.10	806.16	0.0000	0.00
26	860.04	860.08	0.0000	0.00
27	911.66	911.68	0.0000	0.00
28	929.29	929.31	0.0000	0.00
29	933.97	933.99	0.0000	0.00
30	969.11	969.11	0.0000	0.00
31	1119.73	1119.68	0.0000	0.00
32	1377.80	1377.66	0.0000	0.00
33	1408.78	1408.64	0.0000	0.00
34	1460.84	1460.68	0.0000	0.00
35	1532.44	1532.25	0.0000	0.00
36	1540.42	1540.23	0.0000	0.00
37	1593.21	1593.00	0.0000	0.00
38	1729.02	1728.76	0.0000	0.00
39	1759.75	1759.49	0.0000	0.00
40	1763.78	1763.51	0.0000	0.00
41	1779.84	1779.57	0.0000	0.00
42	1925.52	1925.20	0.0000	0.00

Analysis Report for 1707089-05

HTC-A04-S001-3036-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	2104.33	2103.95	0.0000	0.00
44	2222.08	2221.66	0.0000	0.00
45	2286.87	2286.43	0.0000	0.00
46	2310.12	2309.67	0.0000	0.00
47	2614.35	2613.80	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707089-05

HTC-A04-S001-3036-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/23/2017 8:06:32AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	46.29	43 -	49	46.60	1.40E+02	88.67	1.32E+03	2.72
	2	62.92	59 -	68	63.23	1.74E+02	140.25	2.72E+03	2.01
M	3	75.20	71 -	81	75.50	4.78E+02	108.53	1.81E+03	2.01
m	4	77.39	71 -	81	77.70	6.37E+02	113.23	1.66E+03	2.02
	5	93.08	91 -	97	93.38	2.40E+02	106.07	1.76E+03	2.08
	6	129.06	126 -	133	129.34	1.78E+02	90.53	1.25E+03	2.32
	7	186.42	182 -	191	186.68	2.20E+02	98.06	1.23E+03	2.28
	8	194.91	192 -	199	195.18	1.24E+02	73.35	8.10E+02	4.89
	9	209.61	207 -	214	209.87	1.08E+02	73.43	8.24E+02	3.56
M	10	238.92	234 -	247	239.17	8.77E+02	80.86	5.61E+02	1.87
m	11	241.92	234 -	247	242.17	1.73E+02	80.12	5.15E+02	1.87
	12	271.10	268 -	275	271.33	4.79E+01	59.53	5.56E+02	2.15
	13	295.42	292 -	298	295.65	1.79E+02	59.40	5.12E+02	1.67
	14	300.34	299 -	304	300.56	5.68E+01	46.47	3.76E+02	2.81
	15	338.26	333 -	344	338.47	1.47E+02	76.32	6.56E+02	2.20
	16	352.10	347 -	357	352.31	4.45E+02	72.10	4.55E+02	2.23
	17	463.65	461 -	469	463.83	4.70E+01	45.12	2.86E+02	2.60
	18	510.85	507 -	514	511.00	1.47E+02	44.23	2.27E+02	2.66
M	19	578.71	577 -	587	578.85	2.01E+01	19.70	7.68E+01	2.54
m	20	583.34	577 -	587	583.47	2.38E+02	41.59	1.41E+02	2.31
	21	609.78	606 -	615	609.90	2.86E+02	50.69	2.00E+02	2.05
	22	639.15	634 -	646	639.26	5.76E+01	44.77	2.11E+02	7.44
	23	726.95	723 -	732	727.04	5.88E+01	38.78	1.84E+02	1.97
M	24	795.15	791 -	809	795.21	4.46E+01	26.97	1.03E+02	2.26
m	25	806.10	791 -	809	806.16	1.72E+01	24.72	9.90E+01	2.27
	26	860.04	857 -	863	860.08	3.77E+01	26.67	1.03E+02	1.75
	27	911.66	909 -	916	911.68	1.52E+02	35.61	1.15E+02	2.48
M	28	929.29	928 -	940	929.31	1.06E+01	11.94	3.45E+01	2.45
m	29	933.97	928 -	940	933.99	3.15E+01	30.11	1.16E+02	3.11
	30	969.11	965 -	973	969.11	8.23E+01	40.79	1.91E+02	2.24
	31	1119.73	1115 -	1126	1119.68	5.36E+01	43.13	2.11E+02	2.41
	32	1377.80	1375 -	1383	1377.66	1.71E+01	19.14	4.78E+01	3.02
	33	1408.78	1405 -	1415	1408.64	1.78E+01	21.17	5.23E+01	2.29
	34	1460.84	1456 -	1466	1460.68	8.35E+02	58.88	1.73E+01	2.50
	35	1532.44	1526 -	1535	1532.25	9.80E+00	10.49	1.04E+01	1.06
	36	1540.42	1537 -	1544	1540.23	1.07E+01	8.25	4.62E+00	3.01
	37	1593.21	1591 -	1596	1593.00	1.37E+01	10.82	8.61E+00	3.09
	38	1729.02	1725 -	1733	1728.76	1.70E+01	8.25	0.00E+00	4.58
M	39	1759.75	1757 -	1769	1759.49	5.74E+00	6.04	5.00E+00	2.96
m	40	1763.78	1757 -	1769	1763.51	4.93E+01	16.99	9.00E+00	2.96

Analysis Report for 1707089-05

HTC-A04-S001-3036-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1779.84	1776 -	1781	1779.57	7.00E+00	5.29	0.00E+00	1.77
42	1925.52	1921 -	1928	1925.20	8.15E+00	7.48	3.70E+00	2.95
43	2104.33	2099 -	2107	2103.95	1.02E+01	12.53	1.75E+01	2.97
44	2222.08	2218 -	2223	2221.66	5.89E+00	7.35	6.22E+00	1.20
45	2286.87	2284 -	2289	2286.43	7.00E+00	5.29	0.00E+00	2.22
46	2310.12	2307 -	2311	2309.67	4.71E+00	6.36	4.57E+00	1.27
47	2614.35	2609 -	2617	2613.80	6.89E+01	17.44	4.18E+00	2.33

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/23/2017 8:06:32AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	46.29	43 -	49	1.40E+02	88.67	1.32E+03	7.03E+01
	2	62.92	59 -	68	1.74E+02	140.25	2.72E+03	1.13E+02
M	3	75.20	71 -	81	4.78E+02	108.53	1.81E+03	7.00E+01
m	4	77.39	71 -	81	6.37E+02	113.23	1.66E+03	6.69E+01
	5	93.08	91 -	97	2.40E+02	106.07	1.76E+03	8.34E+01
	6	129.06	126 -	133	1.78E+02	90.53	1.25E+03	7.11E+01
	7	186.42	182 -	191	2.20E+02	98.06	1.23E+03	7.68E+01
	8	194.91	192 -	199	1.24E+02	73.35	8.10E+02	5.74E+01
	9	209.61	207 -	214	1.08E+02	73.43	8.24E+02	5.79E+01
M	10	238.92	234 -	247	8.77E+02	80.86	5.61E+02	3.89E+01
m	11	241.92	234 -	247	1.73E+02	80.12	5.15E+02	3.73E+01
	12	271.10	268 -	275	4.79E+01	59.53	5.56E+02	4.76E+01
	13	295.42	292 -	298	1.79E+02	59.40	5.12E+02	4.36E+01
	14	300.34	299 -	304	5.68E+01	46.47	3.76E+02	3.61E+01
	15	338.26	333 -	344	1.47E+02	76.32	6.56E+02	5.95E+01
	16	352.10	347 -	357	4.45E+02	72.10	4.55E+02	4.81E+01
	17	463.65	461 -	469	4.70E+01	45.12	2.86E+02	3.53E+01
	18	510.85	507 -	514	1.47E+02	44.23	2.27E+02	3.04E+01
M	19	578.71	577 -	587	2.01E+01	19.70	7.68E+01	1.44E+01
m	20	583.34	577 -	587	2.38E+02	41.59	1.41E+02	1.95E+01

Analysis Report for 1707089-05

HTC-A04-S001-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	21	609.78	606 -	615	2.86E+02	50.69	2.00E+02	3.10E+01
	22	639.15	634 -	646	5.76E+01	44.77	2.11E+02	3.46E+01
	23	726.95	723 -	732	5.88E+01	38.78	1.84E+02	2.93E+01
M	24	795.15	791 -	809	4.46E+01	26.97	1.03E+02	1.67E+01
m	25	806.10	791 -	809	1.72E+01	24.72	9.90E+01	1.64E+01
	26	860.04	857 -	863	3.77E+01	26.67	1.03E+02	1.95E+01
	27	911.66	909 -	916	1.52E+02	35.61	1.15E+02	2.11E+01
M	28	929.29	928 -	940	1.06E+01	11.94	3.45E+01	9.65E+00
m	29	933.97	928 -	940	3.15E+01	30.11	1.16E+02	1.77E+01
	30	969.11	965 -	973	8.23E+01	40.79	1.91E+02	3.00E+01
	31	1119.73	1115 -	1126	5.36E+01	43.13	2.11E+02	3.33E+01
	32	1377.80	1375 -	1383	1.71E+01	19.14	4.78E+01	1.42E+01
	33	1408.78	1405 -	1415	1.78E+01	21.17	5.23E+01	1.60E+01
	34	1460.84	1456 -	1466	8.35E+02	58.88	1.73E+01	9.20E+00
	35	1532.44	1526 -	1535	9.80E+00	10.49	1.04E+01	6.92E+00
	36	1540.42	1537 -	1544	1.07E+01	8.25	4.62E+00	4.13E+00
	37	1593.21	1591 -	1596	1.37E+01	10.82	8.61E+00	6.48E+00
	38	1729.02	1725 -	1733	1.70E+01	8.25	0.00E+00	0.00E+00
M	39	1759.75	1757 -	1769	5.74E+00	6.04	5.00E+00	3.68E+00
m	40	1763.78	1757 -	1769	4.93E+01	16.99	9.00E+00	4.93E+00
	41	1779.84	1776 -	1781	7.00E+00	5.29	0.00E+00	0.00E+00
	42	1925.52	1921 -	1928	8.15E+00	7.48	3.70E+00	3.98E+00
	43	2104.33	2099 -	2107	1.02E+01	12.53	1.75E+01	8.86E+00
	44	2222.08	2218 -	2223	5.89E+00	7.35	6.22E+00	4.54E+00
	45	2286.87	2284 -	2289	7.00E+00	5.29	0.00E+00	0.00E+00
	46	2310.12	2307 -	2311	4.71E+00	6.36	4.57E+00	3.82E+00
	47	2614.35	2609 -	2617	6.89E+01	17.44	4.18E+00	4.40E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/23/2017 8:06:32AM

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

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

Analysis Report for 1707089-05

HTC-A04-S001-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	46.29	43 -	49	46.60	1.40E+02	88.67	1.32E+03	PB-210
	2	62.92	59 -	68	63.23	1.74E+02	140.25	2.72E+03	TH-230
									TH-234
M	3	75.20	71 -	81	75.50	4.78E+02	108.53	1.81E+03	AM-243
m	4	77.39	71 -	81	77.70	6.37E+02	113.23	1.66E+03	TI-44
	5	93.08	91 -	97	93.38	2.40E+02	106.07	1.76E+03	GA-67
	6	129.06	126 -	133	129.34	1.78E+02	90.53	1.25E+03	.....
	7	186.42	182 -	191	186.68	2.20E+02	98.06	1.23E+03	RA-226
	8	194.91	192 -	199	195.18	1.24E+02	73.35	8.10E+02	.....
	9	209.61	207 -	214	209.87	1.08E+02	73.43	8.24E+02	CM-243
									GA-67
M	10	238.92	234 -	247	239.17	8.77E+02	80.86	5.61E+02	PB-212
m	11	241.92	234 -	247	242.17	1.73E+02	80.12	5.15E+02	RA-224
	12	271.10	268 -	275	271.33	4.79E+01	59.53	5.56E+02	.....
	13	295.42	292 -	298	295.65	1.79E+02	59.40	5.12E+02	PB-214
	14	300.34	299 -	304	300.56	5.68E+01	46.47	3.76E+02	GA-67
									PB-212
									BI-210M
	15	338.26	333 -	344	338.47	1.47E+02	76.32	6.56E+02	AC-228
	16	352.10	347 -	357	352.31	4.45E+02	72.10	4.55E+02	PB-214
	17	463.65	461 -	469	463.83	4.70E+01	45.12	2.86E+02	SB-125
	18	510.85	507 -	514	511.00	1.47E+02	44.23	2.27E+02	.....
M	19	578.71	577 -	587	578.85	2.01E+01	19.70	7.68E+01	.....
m	20	583.34	577 -	587	583.47	2.38E+02	41.59	1.41E+02	TL-208
	21	609.78	606 -	615	609.90	2.86E+02	50.69	2.00E+02	BI-214
	22	639.15	634 -	646	639.26	5.76E+01	44.77	2.11E+02	.....
	23	726.95	723 -	732	727.04	5.88E+01	38.78	1.84E+02	BI-212
M	24	795.15	791 -	809	795.21	4.46E+01	26.97	1.03E+02	CS-134
m	25	806.10	791 -	809	806.16	1.72E+01	24.72	9.90E+01	.....
	26	860.04	857 -	863	860.08	3.77E+01	26.67	1.03E+02	TL-208
	27	911.66	909 -	916	911.68	1.52E+02	35.61	1.15E+02	TL-204
									AC-228
M	28	929.29	928 -	940	929.31	1.06E+01	11.94	3.45E+01	.....
m	29	933.97	928 -	940	933.99	3.15E+01	30.11	1.16E+02	.....
	30	969.11	965 -	973	969.11	8.23E+01	40.79	1.91E+02	AC-228
	31	1119.73	1115 -	1126	1119.68	5.36E+01	43.13	2.11E+02	BI-214
									SC-46
	32	1377.80	1375 -	1383	1377.66	1.71E+01	19.14	4.78E+01	.....
	33	1408.78	1405 -	1415	1408.64	1.78E+01	21.17	5.23E+01	EU-152
	34	1460.84	1456 -	1466	1460.68	8.35E+02	58.88	1.73E+01	K-40
	35	1532.44	1526 -	1535	1532.25	9.80E+00	10.49	1.04E+01	.....
	36	1540.42	1537 -	1544	1540.23	1.07E+01	8.25	4.62E+00	.....
	37	1593.21	1591 -	1596	1593.00	1.37E+01	10.82	8.61E+00	.....
	38	1729.02	1725 -	1733	1728.76	1.70E+01	8.25	0.00E+00	.....
M	39	1759.75	1757 -	1769	1759.49	5.74E+00	6.04	5.00E+00	.....
m	40	1763.78	1757 -	1769	1763.51	4.93E+01	16.99	9.00E+00	BI-214
	41	1779.84	1776 -	1781	1779.57	7.00E+00	5.29	0.00E+00	.....
	42	1925.52	1921 -	1928	1925.20	8.15E+00	7.48	3.70E+00	.....
	43	2104.33	2099 -	2107	2103.95	1.02E+01	12.53	1.75E+01	.....
	44	2222.08	2218 -	2223	2221.66	5.89E+00	7.35	6.22E+00	.....
	45	2286.87	2284 -	2289	2286.43	7.00E+00	5.29	0.00E+00	.....
	46	2310.12	2307 -	2311	2309.67	4.71E+00	6.36	4.57E+00	.....
	47	2614.35	2609 -	2617	2613.80	6.89E+01	17.44	4.18E+00	TL-208

Analysis Report for 1707089-05

HTC-A04-S001-3036-01

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/23/2017 8:06:32AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.29	1.40E+02	88.67	1.71E-02	1.73E-03
	2	62.92	1.74E+02	140.25	2.43E-02	1.79E-03
M	3	75.20	4.78E+02	108.53	2.65E-02	2.02E-03
m	4	77.39	6.37E+02	113.23	2.67E-02	2.06E-03
	5	93.08	2.40E+02	106.07	2.71E-02	2.24E-03
	6	129.06	1.78E+02	90.53	2.46E-02	2.04E-03
	7	186.42	2.20E+02	98.06	1.96E-02	1.55E-03
	8	194.91	1.24E+02	73.35	1.89E-02	1.51E-03
	9	209.61	1.08E+02	73.43	1.79E-02	1.45E-03
M	10	238.92	8.77E+02	80.86	1.61E-02	1.34E-03
m	11	241.92	1.73E+02	80.12	1.59E-02	1.33E-03
	12	271.10	4.79E+01	59.53	1.45E-02	1.21E-03
	13	295.42	1.79E+02	59.40	1.35E-02	1.15E-03
	14	300.34	5.68E+01	46.47	1.33E-02	1.14E-03
	15	338.26	1.47E+02	76.32	1.20E-02	1.06E-03
	16	352.10	4.45E+02	72.10	1.15E-02	1.03E-03
	17	463.65	4.70E+01	45.12	9.01E-03	8.57E-04
	18	510.85	1.47E+02	44.23	8.26E-03	7.95E-04
M	19	578.71	2.01E+01	19.70	7.38E-03	7.05E-04
m	20	583.34	2.38E+02	41.59	7.32E-03	6.98E-04
	21	609.78	2.86E+02	50.69	7.04E-03	6.63E-04
	22	639.15	5.76E+01	44.77	6.75E-03	6.24E-04
	23	726.95	5.88E+01	38.78	6.01E-03	5.37E-04
M	24	795.15	4.46E+01	26.97	5.55E-03	4.77E-04
m	25	806.10	1.72E+01	24.72	5.48E-03	4.67E-04
	26	860.04	3.77E+01	26.67	5.18E-03	4.20E-04
	27	911.66	1.52E+02	35.61	4.92E-03	3.84E-04
M	28	929.29	1.06E+01	11.94	4.84E-03	3.81E-04
m	29	933.97	3.15E+01	30.11	4.82E-03	3.80E-04
	30	969.11	8.23E+01	40.79	4.66E-03	3.74E-04
	31	1119.73	5.36E+01	43.13	4.12E-03	3.50E-04
	32	1377.80	1.71E+01	19.14	3.47E-03	2.88E-04
	33	1408.78	1.78E+01	21.17	3.41E-03	2.83E-04
	34	1460.84	8.35E+02	58.88	3.31E-03	2.75E-04

Analysis Report for 1707089-05

HTC-A04-S001-3036-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	35	1532.44	9.80E+00	10.49	3.19E-03	2.64E-04
	36	1540.42	1.07E+01	8.25	3.17E-03	2.62E-04
	37	1593.21	1.37E+01	10.82	3.09E-03	2.54E-04
	38	1729.02	1.70E+01	8.25	2.91E-03	2.32E-04
M	39	1759.75	5.74E+00	6.04	2.87E-03	2.27E-04
m	40	1763.78	4.93E+01	16.99	2.87E-03	2.27E-04
	41	1779.84	7.00E+00	5.29	2.85E-03	2.24E-04
	42	1925.52	8.15E+00	7.48	2.69E-03	2.15E-04
	43	2104.33	1.02E+01	12.53	2.54E-03	2.15E-04
	44	2222.08	5.89E+00	7.35	2.45E-03	2.15E-04
	45	2286.87	7.00E+00	5.29	2.41E-03	2.15E-04
	46	2310.12	4.71E+00	6.36	2.40E-03	2.15E-04
	47	2614.35	6.89E+01	17.44	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 : 8/23/2017 8:06:32AM

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	46.29	1.40E+02	88.67	4.47E+01	1.09E+01	9.50E+01	8.93E+01
	2	62.92	1.74E+02	140.25	4.12E+01	5.67E+00	1.33E+02	1.40E+02
M	3	75.20	4.78E+02	108.53			4.78E+02	1.09E+02
m	4	77.39	6.37E+02	113.23			6.37E+02	1.13E+02
	5	93.08	2.40E+02	106.07	7.98E+01	7.31E+00	1.61E+02	1.06E+02
	6	129.06	1.78E+02	90.53			1.78E+02	9.05E+01
	7	186.42	2.20E+02	98.06	3.06E+01	5.82E+00	1.89E+02	9.82E+01
	8	194.91	1.24E+02	73.35			1.24E+02	7.33E+01
	9	209.61	1.08E+02	73.43			1.08E+02	7.34E+01
M	10	238.92	8.77E+02	80.86	1.40E+01	2.71E+00	8.63E+02	8.09E+01
m	11	241.92	1.73E+02	80.12			1.73E+02	8.01E+01
	12	271.10	4.79E+01	59.53			4.79E+01	5.95E+01
	13	295.42	1.79E+02	59.40			1.79E+02	5.94E+01
	14	300.34	5.68E+01	46.47			5.68E+01	4.65E+01
	15	338.26	1.47E+02	76.32			1.47E+02	7.63E+01
	16	352.10	4.45E+02	72.10	6.53E+00	4.43E+00	4.38E+02	7.22E+01
	17	463.65	4.70E+01	45.12			4.70E+01	4.51E+01

Analysis Report for 1707089-05

HTC-A04-S001-3036-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	18	510.85	1.47E+02	44.23	5.21E+01	4.74E+00	9.52E+01	4.45E+01
M	19	578.71	2.01E+01	19.70			2.01E+01	1.97E+01
m	20	583.34	2.38E+02	41.59			2.38E+02	4.16E+01
	21	609.78	2.86E+02	50.69	3.25E+00	2.97E+00	2.83E+02	5.08E+01
	22	639.15	5.76E+01	44.77			5.76E+01	4.48E+01
	23	726.95	5.88E+01	38.78			5.88E+01	3.88E+01
M	24	795.15	4.46E+01	26.97	0.00E+00	0.00E+00	4.46E+01	2.70E+01
m	25	806.10	1.72E+01	24.72			1.72E+01	2.47E+01
	26	860.04	3.77E+01	26.67			3.77E+01	2.67E+01
	27	911.66	1.52E+02	35.61	2.85E+00	2.76E+00	1.49E+02	3.57E+01
M	28	929.29	1.06E+01	11.94			1.06E+01	1.19E+01
m	29	933.97	3.15E+01	30.11			3.15E+01	3.01E+01
	30	969.11	8.23E+01	40.79			8.23E+01	4.08E+01
	31	1119.73	5.36E+01	43.13			5.36E+01	4.31E+01
	32	1377.80	1.71E+01	19.14			1.71E+01	1.91E+01
	33	1408.78	1.78E+01	21.17			1.78E+01	2.12E+01
	34	1460.84	8.35E+02	58.88	1.00E+00	1.77E+00	8.34E+02	5.89E+01
	35	1532.44	9.80E+00	10.49			9.80E+00	1.05E+01
	36	1540.42	1.07E+01	8.25			1.07E+01	8.25E+00
	37	1593.21	1.37E+01	10.82			1.37E+01	1.08E+01
	38	1729.02	1.70E+01	8.25			1.70E+01	8.25E+00
M	39	1759.75	5.74E+00	6.04			5.74E+00	6.04E+00
m	40	1763.78	4.93E+01	16.99			4.93E+01	1.70E+01
	41	1779.84	7.00E+00	5.29			7.00E+00	5.29E+00
	42	1925.52	8.15E+00	7.48			8.15E+00	7.48E+00
	43	2104.33	1.02E+01	12.53			1.02E+01	1.25E+01
	44	2222.08	5.89E+00	7.35			5.89E+00	7.35E+00
	45	2286.87	7.00E+00	5.29			7.00E+00	5.29E+00
	46	2310.12	4.71E+00	6.36			4.71E+00	6.36E+00
	47	2614.35	6.89E+01	17.44	1.86E+00	1.12E+00	6.71E+01	1.75E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/23/2017 8:06:32AM

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

Analysis Report for 1707089-05

HTC-A04-S001-3036-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	46.29	1.40E+02	88.67	4.47E+01	1.09E+01	9.50E+01	8.93E+01
	2	62.92	1.74E+02	140.25	4.12E+01	5.67E+00	1.33E+02	1.40E+02
M	3	75.20	4.78E+02	108.53			4.78E+02	1.09E+02
m	4	77.39	6.37E+02	113.23			6.37E+02	1.13E+02
	5	93.08	2.40E+02	106.07	7.98E+01	7.31E+00	1.61E+02	1.06E+02
	6	129.06	1.78E+02	90.53			1.78E+02	9.05E+01
	7	186.42	2.20E+02	98.06	3.06E+01	5.82E+00	1.89E+02	9.82E+01
	8	194.91	1.24E+02	73.35			1.24E+02	7.33E+01
	9	209.61	1.08E+02	73.43			1.08E+02	7.34E+01
M	10	238.92	8.77E+02	80.86	1.40E+01	2.71E+00	8.63E+02	8.09E+01
m	11	241.92	1.73E+02	80.12			1.73E+02	8.01E+01
	12	271.10	4.79E+01	59.53			4.79E+01	5.95E+01
	13	295.42	1.79E+02	59.40			1.79E+02	5.94E+01
	14	300.34	5.68E+01	46.47			5.68E+01	4.65E+01
	15	338.26	1.47E+02	76.32			1.47E+02	7.63E+01
	16	352.10	4.45E+02	72.10	6.53E+00	4.43E+00	4.38E+02	7.22E+01
	17	463.65	4.70E+01	45.12			4.70E+01	4.51E+01
	18	510.85	1.47E+02	44.23	5.21E+01	4.74E+00	9.52E+01	4.45E+01
M	19	578.71	2.01E+01	19.70			2.01E+01	1.97E+01
m	20	583.34	2.38E+02	41.59			2.38E+02	4.16E+01
	21	609.78	2.86E+02	50.69	3.25E+00	2.97E+00	2.83E+02	5.08E+01
	22	639.15	5.76E+01	44.77			5.76E+01	4.48E+01
	23	726.95	5.88E+01	38.78			5.88E+01	3.88E+01
M	24	795.15	4.46E+01	26.97	0.00E+00	0.00E+00	4.46E+01	2.70E+01
m	25	806.10	1.72E+01	24.72			1.72E+01	2.47E+01
	26	860.04	3.77E+01	26.67			3.77E+01	2.67E+01
	27	911.66	1.52E+02	35.61	2.85E+00	2.76E+00	1.49E+02	3.57E+01
M	28	929.29	1.06E+01	11.94			1.06E+01	1.19E+01
m	29	933.97	3.15E+01	30.11			3.15E+01	3.01E+01
	30	969.11	8.23E+01	40.79			8.23E+01	4.08E+01
	31	1119.73	5.36E+01	43.13			5.36E+01	4.31E+01
	32	1377.80	1.71E+01	19.14			1.71E+01	1.91E+01
	33	1408.78	1.78E+01	21.17			1.78E+01	2.12E+01
	34	1460.84	8.35E+02	58.88	1.00E+00	1.77E+00	8.34E+02	5.89E+01
	35	1532.44	9.80E+00	10.49			9.80E+00	1.05E+01
	36	1540.42	1.07E+01	8.25			1.07E+01	8.25E+00
	37	1593.21	1.37E+01	10.82			1.37E+01	1.08E+01
	38	1729.02	1.70E+01	8.25			1.70E+01	8.25E+00
M	39	1759.75	5.74E+00	6.04			5.74E+00	6.04E+00
m	40	1763.78	4.93E+01	16.99			4.93E+01	1.70E+01
	41	1779.84	7.00E+00	5.29			7.00E+00	5.29E+00
	42	1925.52	8.15E+00	7.48			8.15E+00	7.48E+00
	43	2104.33	1.02E+01	12.53			1.02E+01	1.25E+01
	44	2222.08	5.89E+00	7.35			5.89E+00	7.35E+00
	45	2286.87	7.00E+00	5.29			7.00E+00	5.29E+00
	46	2310.12	4.71E+00	6.36			4.71E+00	6.36E+00
	47	2614.35	6.89E+01	17.44	1.86E+00	1.12E+00	6.71E+01	1.75E+01

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

Analysis Report for 1707089-05

HTC-A04-S001-3036-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	1.000	1460.81	*	10.67	2.60E+01	2.89E+00
TL-208	0.988	583.14	*	30.22	1.18E+00	2.36E-01
		860.37	*	4.48	1.79E+00	1.27E+00
		2614.66	*	35.85	9.20E-01	2.56E-01
PB-210	0.993	46.50	*	4.25	1.45E+00	1.37E+00
BI-212	0.766	727.17	*	11.80	9.12E-01	6.08E-01
		1620.62		2.75		
PB-212	0.987	238.63	*	44.60	1.32E+00	1.66E-01
		300.09	*	3.41	1.38E+00	1.14E+00
BI-214	0.890	609.31	*	46.30	9.55E-01	1.94E-01
		1120.29	*	15.10	9.49E-01	7.68E-01
		1764.49	*	15.80	1.20E+00	4.24E-01
		2204.22		4.98		
PB-214	0.994	295.21	*	19.19	7.63E-01	2.61E-01
		351.92	*	37.19	1.12E+00	2.11E-01
RA-224	0.867	240.98	*	3.95	3.02E+00	1.42E+00
RA-226	0.993	186.21	*	3.28	3.25E+00	6.18E+00
AC-228	0.973	338.32	*	11.40	1.19E+00	6.26E-01
		911.07	*	27.70	1.20E+00	3.03E-01
		969.11	*	16.60	1.17E+00	5.88E-01
TH-234	0.978	63.29	*	3.80	1.59E+00	1.68E+00
AM-243	0.957	74.67	*	66.00	3.00E-01	7.19E-02

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 8:06:32AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Analysis Report for 1707089-05

HTC-A04-S001-3036-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	4	77.39	1.76934E-01	8.89		
	5	93.08	4.46222E-02	33.09	Sum	
	6	129.06	4.94698E-02	25.42		
	8	194.91	3.44880E-02	29.54		
	9	209.61	3.00614E-02	33.93	Tol.	GA-67 CM-243
	12	271.10	1.33061E-02	62.14		
	17	463.65	1.30629E-02	47.97	Tol.	SB-125
	18	510.85	2.64539E-02	23.35		
M	19	578.71	5.58769E-03	48.96		
	22	639.15	1.60055E-02	38.85	Sum	
M	24	795.15	1.23934E-02	30.22	Tol.	CS-134
m	25	806.10	4.77172E-03	71.96		
M	28	929.29	2.93876E-03	56.42		
m	29	933.97	8.74504E-03	47.82		
	32	1377.80	4.75271E-03	55.95		
	33	1408.78	4.95265E-03	59.37	Tol.	EU-152
	35	1532.44	2.72222E-03	53.51		
	36	1540.42	2.97009E-03	38.56		
	37	1593.21	3.80401E-03	39.49	D-Esc	
	38	1729.02	4.72222E-03	24.25	Sum	
M	39	1759.75	1.59539E-03	52.60		
	41	1779.84	1.94444E-03	37.80		
	42	1925.52	2.26389E-03	45.91		
	43	2104.33	2.84357E-03	61.20	S-Esc	
	44	2222.08	1.63580E-03	62.39		
	45	2286.87	1.94444E-03	37.80		
	46	2310.12	1.30952E-03	67.50		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Analysis Report for 1707089-05

HTC-A04-S001-3036-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	1.00	1460.81	*	10.67	2.60E+01	2.89E+00
TL-208	0.98	583.14	*	30.22	1.18E+00	2.36E-01
		860.37	*	4.48	1.79E+00	1.27E+00
		2614.66	*	35.85	9.20E-01	2.56E-01
PB-210	0.99	46.50	*	4.25	1.45E+00	1.37E+00
BI-212	0.76	727.17	*	11.80	9.12E-01	6.08E-01
		1620.62		2.75		
PB-212	0.98	238.63	*	44.60	1.32E+00	1.66E-01
		300.09	*	3.41	1.38E+00	1.14E+00
BI-214	0.89	609.31	*	46.30	9.55E-01	1.94E-01
		1120.29	*	15.10	9.49E-01	7.68E-01
		1764.49	*	15.80	1.20E+00	4.24E-01
		2204.22		4.98		
PB-214	0.99	295.21	*	19.19	7.63E-01	2.61E-01
		351.92	*	37.19	1.12E+00	2.11E-01
RA-224	0.86	240.98	*	3.95	3.02E+00	1.42E+00
RA-226	0.99	186.21	*	3.28	3.25E+00	6.18E+00
AC-228	0.97	338.32	*	11.40	1.19E+00	6.26E-01
		911.07	*	27.70	1.20E+00	3.03E-01
		969.11	*	16.60	1.17E+00	5.88E-01
TH-234	0.97	63.29	*	3.80	1.59E+00	1.68E+00
AM-243	0.95	74.67	*	66.00	3.00E-01	7.19E-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	1.000	2.60E+01	2.89E+00	
TL-208	0.988	1.08E+00	1.72E-01	
PB-210	0.993	1.45E+00	1.37E+00	
BI-212	0.766	9.12E-01	6.08E-01	
PB-212	0.987	1.32E+00	1.64E-01	

Analysis Report for 1707089-05

HTC-A04-S001-3036-01

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
BI-214	0.890	9.95E-01	1.72E-01	
PB-214	0.994	9.82E-01	1.64E-01	
RA-224	0.867	3.02E+00	1.42E+00	
RA-226	0.993	3.25E+00	6.18E+00	
AC-228	0.973	1.19E+00	2.48E-01	
TH-234	0.978	1.59E+00	1.68E+00	
AM-243	0.957	3.00E-01	7.19E-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 1707089-05

HTC-A04-S001-3036-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 8:06:32AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	4	77.39	1.76934E-01	8.89		
	5	93.08	4.46222E-02	33.09	Sum	
	6	129.06	4.94698E-02	25.42		
	8	194.91	3.44880E-02	29.54		
	9	209.61	3.00614E-02	33.93	Tol.	GA-67 CM-243
	12	271.10	1.33061E-02	62.14		
	17	463.65	1.30629E-02	47.97	Tol.	SB-125
	18	510.85	2.64539E-02	23.35		
M	19	578.71	5.58769E-03	48.96		
	22	639.15	1.60055E-02	38.85	Sum	
M	24	795.15	1.23934E-02	30.22	Tol.	CS-134
m	25	806.10	4.77172E-03	71.96		
M	28	929.29	2.93876E-03	56.42		
m	29	933.97	8.74504E-03	47.82		
	32	1377.80	4.75271E-03	55.95		
	33	1408.78	4.95265E-03	59.37	Tol.	EU-152
	35	1532.44	2.72222E-03	53.51		
	36	1540.42	2.97009E-03	38.56		
	37	1593.21	3.80401E-03	39.49	D-Esc	
	38	1729.02	4.72222E-03	24.25	Sum	
M	39	1759.75	1.59539E-03	52.60		
	41	1779.84	1.94444E-03	37.80		
	42	1925.52	2.26389E-03	45.91		
	43	2104.33	2.84357E-03	61.20	S-Esc	
	44	2222.08	1.63580E-03	62.39		
	45	2286.87	1.94444E-03	37.80		
	46	2310.12	1.30952E-03	67.50		

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

Analysis Report for 1707089-05

HTC-A04-S001-3036-01

NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	5.35E-01	2.44E+00	2.44E+00
+		NA-22	1274.54		99.94	-1.68E-03	1.08E-01	1.08E-01
+	@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@		2754.09		99.86	1.00E+26		1.00E+26
+		AL-26	1808.65		99.76	3.53E-02	6.53E-02	6.53E-02
+		K-40	1460.81	*	10.67	2.60E+01	6.75E-01	6.75E-01
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	1.45E-02	5.98E-02	5.98E-02
			78.34		96.00	1.44E-01		7.29E-02
+		SC-46	889.25		99.98	-1.00E-01	1.75E-01	1.75E-01
			1120.51		99.99	4.89E-01		3.35E-01
+		V-48	983.52		99.98	8.27E-01	7.18E+00	7.18E+00
			1312.10		97.50	1.77E+00		7.82E+00
+		CR-51	320.08		9.83	-2.15E+00	7.72E+00	7.72E+00
+		MN-54	834.83		99.97	-4.57E-02	1.07E-01	1.07E-01
+		CO-56	846.75		99.96	-9.31E-02	1.82E-01	1.82E-01
			1037.75		14.03	-1.27E-01		1.53E+00
			1238.25		67.00	1.30E-01		5.03E-01
			1771.40		15.51	1.40E-01		9.51E-01
			2598.48		16.90	4.67E-02		6.50E-01
+		CO-57	122.06		85.51	3.23E-02	6.64E-02	6.64E-02
			136.48		10.60	1.91E-01		5.48E-01
+		CO-58	810.76		99.40	-4.65E-02	2.03E-01	2.03E-01
+		FE-59	1099.22		56.50	-1.11E-01	8.98E-01	8.98E-01
			1291.56		43.20	-1.73E-02		1.08E+00
+		CO-60	1173.22		100.00	-4.77E-02	9.43E-02	1.06E-01
			1332.49		100.00	1.13E-02		9.43E-02
+		ZN-65	1115.52		50.75	3.10E-02	2.84E-01	2.84E-01
+		GA-67	93.31		35.70	4.39E+08	2.69E+08	2.69E+08
			208.95		2.24	5.22E+09		4.94E+09
			300.22		16.00	-1.23E+09		7.41E+08
+		SE-75	121.11		16.70	1.12E-01	1.34E-01	4.67E-01
			136.00		59.20	4.62E-05		1.34E-01
			264.65		59.80	1.12E-01		1.79E-01
			279.53		25.20	4.12E-01		4.36E-01
			400.65		11.40	-1.85E-01		1.01E+00
+		RB-82	776.52		13.00	-3.33E+00	9.20E+00	9.20E+00
+		RB-83	520.41		46.00	-2.45E-01	3.21E-01	3.21E-01
			529.64		30.30	-8.57E-02		5.17E-01
			552.65		16.40	3.33E-01		9.74E-01

Analysis Report for 1707089-05

HTC-A04-S001-3036-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	KR-85	513.99	0.43	5.75E-01	2.23E+01	2.23E+01
+	SR-85	513.99	99.27	7.19E-03	2.79E-01	2.79E-01
+	Y-88	898.02	93.40	-4.56E-02	1.38E-01	1.73E-01
		1836.01	99.38	-2.84E-02		1.38E-01
+	MO-93	263.06	56.72	3.06E-02	7.54E-02	1.08E-01
		684.67	99.68	1.88E-02		8.17E-02
		1477.11	99.08	1.94E-02		7.54E-02
+	NB-93M	16.57	9.43	1.07E+01	6.56E+01	6.56E+01
+	NB-94	702.63	100.00	-7.72E-03	7.78E-02	7.78E-02
		871.10	100.00	-1.49E-02		8.59E-02
+	NB-95	765.79	99.81	-2.92E-02	6.51E-01	6.51E-01
+	NB-95M	235.69	25.00	1.39E+08	8.70E+07	8.70E+07
+	ZR-95	724.18	43.70	-7.02E-02	4.73E-01	5.72E-01
		756.72	55.30	1.96E-01		4.73E-01
+	MO-99	181.06	6.20	-3.64E+09	5.25E+10	7.04E+10
		739.58	12.80	-3.86E+09		5.25E+10
		778.00	4.50	-2.70E+10		1.53E+11
+	RU-103	497.08	89.00	-1.18E-01	4.40E-01	4.40E-01
+	RU-106	621.84	9.80	-4.75E-01	8.33E-01	8.33E-01
+	AG-108M	433.93	89.90	-7.70E-03	7.36E-02	7.36E-02
		614.37	90.40	-1.44E-03		9.48E-02
		722.95	90.50	-1.31E-02		8.11E-02
+	CD-109	88.03	3.72	9.10E-01	1.80E+00	1.80E+00
+	AG-110M	657.75	93.14	7.12E-02	1.21E-01	1.21E-01
		677.61	10.53	1.32E-01		9.94E-01
		706.67	16.46	-3.17E-01		5.92E-01
		763.93	21.98	-2.53E-01		4.94E-01
		884.67	71.63	-3.68E-03		1.54E-01
		1384.27	23.94	1.68E-01		4.72E-01
+	CD-113M	263.70	0.02	1.59E+02	2.65E+02	2.65E+02
+	SN-113	255.12	1.93	1.75E-01	1.90E-01	5.46E+00
		391.69	64.90	1.23E-02		1.90E-01
+	TE123M	159.00	84.10	-1.65E-02	9.80E-02	9.80E-02
+	SB-124	602.71	97.87	2.20E-02	2.24E-01	2.24E-01
		645.85	7.26	1.07E-01		2.97E+00
		722.78	11.10	-3.38E-01		2.09E+00
		1691.02	49.00	9.96E-02		3.61E-01
+	I-125	35.49	6.49	-5.61E-02	5.67E+00	5.67E+00
+	SB-125	176.33	6.89	-1.95E-01	2.35E-01	7.41E-01
		427.89	29.33	-1.34E-01		2.35E-01
		463.38	10.35	4.31E-01		7.68E-01
		600.56	17.80	8.03E-02		4.39E-01
		635.90	11.32	-4.53E-01		6.81E-01
+	SB-126	414.70	83.30	-5.72E-01	2.06E+01	2.16E+01
		666.33	99.60	-2.34E+00		2.06E+01
		695.00	99.60	1.04E-01		2.10E+01
		720.50	53.80	-4.36E+00		3.51E+01
+	SN-126	87.57	37.00	7.88E-02	1.56E-01	1.56E-01

Analysis Report for 1707089-05

HTC-A04-S001-3036-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SB-127	473.00	25.00	-1.00E+07	1.49E+07	1.68E+07
		685.20	35.70	3.42E+06		1.49E+07
		783.80	14.70	-7.47E+06		3.73E+07
+	I-129	29.78	57.00	1.57E-01	3.66E-01	3.66E-01
		33.60	13.20	-6.50E-01		1.02E+00
		39.58	7.52	-4.83E-01		1.22E+00
+	I-131	284.30	6.05	1.70E+03	4.01E+02	5.50E+03
		364.48	81.20	-6.19E+01		4.01E+02
		636.97	7.26	-1.56E+03		5.84E+03
		722.89	1.80	-3.66E+03		2.27E+04
+	TE-132	49.72	13.10	-1.49E+08	1.22E+08	8.27E+08
		228.16	88.00	1.24E+07		1.22E+08
+	BA-133	81.00	33.00	-3.64E-02	1.46E-01	1.61E-01
		302.84	17.80	-1.06E-01		3.63E-01
		356.01	60.00	-4.23E-03		1.46E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-1.72E+04	7.61E+04	7.61E+04
+	CS-134	563.23	8.38	4.10E-01	8.34E-02	1.01E+00
		569.32	15.43	-3.16E-01		5.15E-01
		604.70	97.60	2.95E-02		8.34E-02
		795.84	85.40	7.47E-02		1.23E-01
		801.93	8.73	-6.54E-01		9.95E-01
+	CS-135	268.24	16.00	4.40E-02	3.80E-01	3.80E-01
+	@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41	28.60	1.00E+26		1.00E+26
	@	1678.03	9.54	1.00E+26		1.00E+26
+	CS-136	153.22	7.46	1.33E+01	1.44E+01	1.25E+02
		163.89	4.61	5.63E+01		1.94E+02
		176.55	13.56	-1.80E+01		6.83E+01
		273.65	12.66	-1.04E+01		9.59E+01
		340.57	48.50	4.97E+01		3.23E+01
		818.50	99.70	-4.75E+00		1.44E+01
		1048.07	79.60	1.61E+01		2.48E+01
		1235.34	19.70	-1.33E+00		1.28E+02
+	CS-137	661.65	85.12	-2.12E-03	9.52E-02	9.52E-02
+	LA-138	788.74	34.00	1.31E-02	1.31E-01	2.40E-01
		1435.80	66.00	-9.56E-04		1.31E-01
+	CE-139	165.85	80.35	2.61E-02	9.58E-02	9.58E-02
+	BA-140	162.64	6.70	-1.02E+02	6.19E+01	1.48E+02
		304.84	4.50	7.67E+01		3.00E+02
		423.70	3.20	1.93E+02		4.90E+02
		437.55	2.00	-3.05E+02		7.37E+02
		537.32	25.00	7.75E+00		6.19E+01
+	LA-140	328.77	20.50	2.27E+01	1.85E+01	7.01E+01
		487.03	45.50	5.93E+00		3.07E+01
		815.85	23.50	1.58E+01		7.51E+01
		1596.49	95.49	8.45E-01		1.85E+01
+	CE-141	145.44	48.40	3.40E-01	8.24E-01	8.24E-01
+	@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26

Analysis Report for 1707089-05

HTC-A04-S001-3036-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
@	CE-143	293.26	42.00	1.00E+26	1.00E+26	1.00E+26
@		664.55	5.20	1.00E+26		1.00E+26
+	CE-144	133.54	10.80	8.79E-02	5.32E-01	5.32E-01
+	PM-144	476.78	42.00	7.88E-03	8.41E-02	1.95E-01
		618.01	98.60	9.05E-03		8.41E-02
		696.49	99.49	-1.50E-02		9.39E-02
+	PM-145	36.85	21.70	-4.86E-01	2.68E-01	4.90E-01
		37.36	39.70	8.48E-02		2.68E-01
		42.30	15.10	-1.89E-01		5.41E-01
		72.40	2.31	-6.80E+00		2.78E+00
+	PM-146	453.90	39.94	3.50E-02	1.73E-01	1.73E-01
		735.90	14.01	3.14E-01		6.13E-01
		747.13	13.10	-3.62E-02		5.96E-01
+	ND-147	91.11	28.90	-2.36E+01	1.12E+02	1.12E+02
		531.02	13.10	6.73E+01		2.99E+02
+	PM-149	285.90	3.10	1.23E+13	8.01E+13	8.01E+13
+	EU-152	121.78	20.50	1.06E-01	2.17E-01	2.17E-01
		244.69	5.40	-1.89E+00		1.35E+00
		344.27	19.13	-2.38E-02		3.26E-01
		778.89	9.20	2.34E-01		8.70E-01
		964.01	10.40	1.89E-01		1.06E+00
		1085.78	7.22	-3.85E-02		1.38E+00
		1112.02	9.60	1.85E-01		1.09E+00
		1407.95	14.94	2.55E-01		6.27E-01
+	GD-153	97.43	31.30	5.48E-02	1.82E-01	1.82E-01
		103.18	22.20	-1.26E-01		2.55E-01
+	EU-154	123.07	40.50	-2.44E-02	1.10E-01	1.10E-01
		723.30	19.70	-6.15E-02		3.80E-01
		873.19	11.50	2.78E-01		7.81E-01
		996.32	10.30	4.60E-02		9.00E-01
		1004.76	17.90	2.84E-01		5.75E-01
		1274.45	35.50	-4.48E-03		2.88E-01
+	EU-155	86.50	30.90	7.67E-02	1.91E-01	1.91E-01
		105.30	20.70	1.82E-02		2.20E-01
+	EU-156	811.77	10.40	8.53E+00	7.29E+01	7.29E+01
		1153.47	7.20	3.12E+01		1.65E+02
		1230.71	8.90	1.26E+01		1.29E+02
+	HO-166M	184.41	72.60	1.11E-01	8.25E-02	8.25E-02
		280.45	29.60	6.90E-02		2.01E-01
		410.94	11.10	4.37E-01		6.45E-01
		711.69	54.10	7.20E-02		1.54E-01
+	TM-171	66.72	0.14	-7.13E+01	4.44E+01	4.44E+01
+	HF-172	67.35	5.31	2.85E-01	4.40E-01	1.18E+00
		125.81	11.30	-5.04E-02		4.40E-01
+	LU-172	181.53	20.60	6.65E+02	5.63E+03	7.62E+03
		900.72	29.81	6.43E+02		9.40E+03
		1093.66	62.50	4.01E+02		5.63E+03
+	LU-173	100.72	5.24	4.02E-02	3.39E-01	9.38E-01
		272.11	21.20	1.40E-01		3.39E-01

Analysis Report for 1707089-05

HTC-A04-S001-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	HF-175	343.40		84.00	-1.43E-02	1.96E-01	1.96E-01
+	LU-176	88.34		13.30	2.54E-01	5.50E-02	4.43E-01
		201.83		86.00	-1.97E-02		5.50E-02
		306.78		94.00	1.12E-02		6.22E-02
+	HF-181	133.02		41.70	6.47E-02	4.19E-01	5.58E-01
		345.85		17.20	-1.34E-01		1.86E+00
		482.03		82.80	7.72E-02		4.19E-01
+	TA-182	67.75		41.20	6.06E-02	2.51E-01	2.51E-01
		1121.30		34.90	7.35E-01		7.42E-01
		1189.05		16.23	2.57E-01		1.27E+00
		1221.41		26.98	4.05E-02		8.71E-01
		1231.02		11.44	1.88E-01		1.92E+00
+	IR-192	308.46		29.68	-1.14E-01	3.52E-01	5.04E-01
		468.07		48.10	3.74E-02		3.52E-01
+	HG-203	279.19		77.30	3.21E-04	3.40E-01	3.40E-01
+	TL-204	374.74		94.11	-6.46E-03	7.16E-02	7.16E-02
		899.15		99.16	-5.87E-02		8.80E-02
		911.74		91.10	3.77E-01		1.77E-01
+	BI-207	569.67		97.72	-1.21E-02	7.60E-02	7.60E-02
		1063.62		74.90	1.31E-03		1.36E-01
+	TL-208	583.14	*	30.22	1.18E+00	1.75E-01	3.30E-01
		860.37	*	4.48	1.79E+00		1.98E+00
		2614.66	*	35.85	9.20E-01		1.75E-01
+	BI-210M	262.00		45.00	5.08E-02	1.34E-01	1.34E-01
		300.00		23.00	-4.99E-01		3.00E-01
+	PB-210	46.50	*	4.25	1.45E+00	2.23E+00	2.23E+00
+	PB-211	404.84		2.90	-7.16E-01	2.34E+00	2.34E+00
		831.96		2.90	-3.18E-01		3.06E+00
+	BI-212	727.17	*	11.80	9.12E-01	9.52E-01	9.52E-01
		1620.62		2.75	8.52E-01		3.08E+00
+	PB-212	238.63	*	44.60	1.32E+00	2.58E-01	2.58E-01
		300.09	*	3.41	1.38E+00		1.83E+00
+	BI-214	609.31	*	46.30	9.55E-01	2.21E-01	2.21E-01
		1120.29	*	15.10	9.49E-01		1.23E+00
		1764.49	*	15.80	1.20E+00		4.71E-01
		2204.22		4.98	5.38E-01		1.86E+00
+	PB-214	295.21	*	19.19	7.63E-01	2.56E-01	3.83E-01
		351.92	*	37.19	1.12E+00		2.56E-01
+	RN-219	401.80		6.50	2.39E-01	1.03E+00	1.03E+00
+	RA-223	323.87		3.88	-8.17E-01	1.61E+00	1.61E+00
+	RA-224	240.98	*	3.95	3.02E+00	2.92E+00	2.92E+00
+	RA-225	40.00		31.00	-1.24E+01	3.14E+01	3.14E+01
+	RA-226	186.21	*	3.28	3.25E+00	2.71E+00	2.71E+00
+	TH-227	50.10		8.40	-1.32E-01	7.31E-01	7.31E-01
		236.00		11.50	1.38E+00		8.62E-01
		256.20		6.30	3.45E-02		9.20E-01
+	AC-228	338.32	*	11.40	1.19E+00	3.69E-01	9.84E-01
		911.07	*	27.70	1.20E+00		3.69E-01

Analysis Report for 1707089-05

HTC-A04-S001-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	AC-228	969.11	*	16.60	1.17E+00	3.69E-01	8.93E-01
+	TH-230	48.44		16.90	-3.60E-02	3.94E-01	3.94E-01
		62.85		4.60	1.29E+00		1.36E+00
		67.67		0.37	3.68E+00		1.52E+01
+	PA-231	283.67		1.60	-6.60E-01	2.75E+00	3.66E+00
		302.67		2.30	-8.06E-01		2.75E+00
+	TH-231	25.64		14.70	1.21E-01	8.25E-01	2.56E+00
		84.21		6.40	-5.64E-01		8.25E-01
+	PA-233	311.98		38.60	-2.75E-01	2.08E+00	2.08E+00
+	PA-234	131.20		20.40	1.27E-01	2.40E-01	2.40E-01
		733.99		8.80	-2.55E-02		9.36E-01
		946.00		12.00	-1.92E-01		7.35E-01
+	PA-234M	1001.03		0.92	2.76E+00	1.05E+01	1.05E+01
+	TH-234	63.29	*	3.80	1.59E+00	2.75E+00	2.75E+00
+	U-235	143.76		10.50	2.77E-01	4.52E-01	4.52E-01
		163.35		4.70	2.84E-01		9.79E-01
		205.31		4.70	2.54E-02		1.27E+00
+	NP-237	86.50		12.60	1.81E-01	4.51E-01	4.51E-01
+	NP-239	106.10		22.70	9.79E+10	1.19E+12	1.19E+12
		228.18		10.70	3.58E+11		3.51E+12
		277.60		14.10	-3.82E+11		2.59E+12
+	AM-241	59.54		35.90	-2.02E-01	1.63E-01	1.63E-01
+	AM-243	74.67	*	66.00	3.00E-01	1.52E-01	1.52E-01
+	CM-243	209.75		3.29	1.68E+00	4.29E-01	1.96E+00
		228.14		10.60	5.93E-02		5.82E-01
		277.60		14.00	-6.33E-02		4.29E-01

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated
@ = Half-life too short to be able to perform the decay correction
? = 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 1707089-05

HTC-A04-S001-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	2.44E+00	2.44E+00	5.35E-01	1.16E+00
	NA-22	1274.54		99.94	1.08E-01	1.08E-01	-1.68E-03	4.95E-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	6.53E-02	6.53E-02	3.53E-02	2.74E-02
+	K-40	1460.81	*	10.67	6.75E-01	6.75E-01	2.60E+01	2.95E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	5.98E-02	5.98E-02	1.45E-02	2.93E-02
		78.34		96.00	7.29E-02		1.44E-01	3.59E-02
	SC-46	889.25		99.98	1.75E-01	1.75E-01	-1.00E-01	8.07E-02
		1120.51		99.99	3.35E-01		4.89E-01	1.59E-01
	V-48	983.52		99.98	7.18E+00	7.18E+00	8.27E-01	3.34E+00
		1312.10		97.50	7.82E+00		1.77E+00	3.58E+00
	CR-51	320.08		9.83	7.72E+00	7.72E+00	-2.15E+00	3.71E+00
	MN-54	834.83		99.97	1.07E-01	1.07E-01	-4.57E-02	5.00E-02
	CO-56	846.75		99.96	1.82E-01	1.82E-01	-9.31E-02	8.41E-02
		1037.75		14.03	1.53E+00		-1.27E-01	7.08E-01
		1238.25		67.00	5.03E-01		1.30E-01	2.37E-01
		1771.40		15.51	9.51E-01		1.40E-01	3.94E-01
		2598.48		16.90	6.50E-01		4.67E-02	2.30E-01
	CO-57	122.06		85.51	6.64E-02	6.64E-02	3.23E-02	3.23E-02
		136.48		10.60	5.48E-01		1.91E-01	2.67E-01
	CO-58	810.76		99.40	2.03E-01	2.03E-01	-4.65E-02	9.41E-02
	FE-59	1099.22		56.50	8.98E-01	8.98E-01	-1.11E-01	4.19E-01
		1291.56		43.20	1.08E+00		-1.73E-02	4.97E-01
	CO-60	1173.22		100.00	1.06E-01	9.43E-02	-4.77E-02	4.93E-02
		1332.49		100.00	9.43E-02		1.13E-02	4.28E-02
	ZN-65	1115.52		50.75	2.84E-01	2.84E-01	3.10E-02	1.33E-01
	GA-67	93.31		35.70	2.69E+08	2.69E+08	4.39E+08	1.32E+08
		208.95		2.24	4.94E+09		5.22E+09	2.41E+09
		300.22		16.00	7.41E+08		-1.23E+09	3.58E+08
	SE-75	121.11		16.70	4.67E-01	1.34E-01	1.12E-01	2.27E-01
		136.00		59.20	1.34E-01		4.62E-05	6.49E-02
		264.65		59.80	1.79E-01		1.12E-01	8.66E-02
		279.53		25.20	4.36E-01		4.12E-01	2.11E-01
		400.65		11.40	1.01E+00		-1.85E-01	4.84E-01
	RB-82	776.52		13.00	9.20E+00	9.20E+00	-3.33E+00	4.29E+00
	RB-83	520.41		46.00	3.21E-01	3.21E-01	-2.45E-01	1.52E-01
		529.64		30.30	5.17E-01		-8.57E-02	2.45E-01
		552.65		16.40	9.74E-01		3.33E-01	4.61E-01
	KR-85	513.99		0.43	2.23E+01	2.23E+01	5.75E-01	1.07E+01
	SR-85	513.99		99.27	2.79E-01	2.79E-01	7.19E-03	1.34E-01
	Y-88	898.02		93.40	1.73E-01	1.38E-01	-4.56E-02	8.03E-02
		1836.01		99.38	1.38E-01		-2.84E-02	5.88E-02
	MO-93	263.06		56.72	1.08E-01	7.54E-02	3.06E-02	5.22E-02
		684.67		99.68	8.17E-02		1.88E-02	3.85E-02
		1477.11		99.08	7.54E-02		1.94E-02	3.31E-02
	NB-93M	16.57		9.43	6.56E+01	6.56E+01	1.07E+01	3.20E+01
	NB-94	702.63		100.00	7.78E-02	7.78E-02	-7.72E-03	3.65E-02
		871.10		100.00	8.59E-02		-1.49E-02	4.00E-02
	NB-95	765.79		99.81	6.51E-01	6.51E-01	-2.92E-02	3.07E-01

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
NB-95M	235.69	25.00	8.70E+07	8.70E+07	1.39E+08	4.27E+07
ZR-95	724.18	43.70	5.72E-01	4.73E-01	-7.02E-02	2.69E-01
	756.72	55.30	4.73E-01		1.96E-01	2.23E-01
MO-99	181.06	6.20	7.04E+10	5.25E+10	-3.64E+09	3.41E+10
	739.58	12.80	5.25E+10		-3.86E+09	2.45E+10
	778.00	4.50	1.53E+11		-2.70E+10	7.12E+10
RU-103	497.08	89.00	4.40E-01	4.40E-01	-1.18E-01	2.09E-01
RU-106	621.84	9.80	8.33E-01	8.33E-01	-4.75E-01	3.90E-01
AG-108M	433.93	89.90	7.36E-02	7.36E-02	-7.70E-03	3.50E-02
	614.37	90.40	9.48E-02		-1.44E-03	4.50E-02
	722.95	90.50	8.11E-02		-1.31E-02	3.78E-02
CD-109	88.03	3.72	1.80E+00	1.80E+00	9.10E-01	8.84E-01
AG-110M	657.75	93.14	1.21E-01	1.21E-01	7.12E-02	5.71E-02
	677.61	10.53	9.94E-01		1.32E-01	4.68E-01
	706.67	16.46	5.92E-01		-3.17E-01	2.77E-01
	763.93	21.98	4.94E-01		-2.53E-01	2.32E-01
	884.67	71.63	1.54E-01		-3.68E-03	7.18E-02
	1384.27	23.94	4.72E-01		1.68E-01	2.12E-01
CD-113M	263.70	0.02	2.65E+02	2.65E+02	1.59E+02	1.28E+02
SN-113	255.12	1.93	5.46E+00	1.90E-01	1.75E-01	2.64E+00
	391.69	64.90	1.90E-01		1.23E-02	9.12E-02
TE123M	159.00	84.10	9.80E-02	9.80E-02	-1.65E-02	4.76E-02
SB-124	602.71	97.87	2.24E-01	2.24E-01	2.20E-02	1.05E-01
	645.85	7.26	2.97E+00		1.07E-01	1.39E+00
	722.78	11.10	2.09E+00		-3.38E-01	9.74E-01
	1691.02	49.00	3.61E-01		9.96E-02	1.48E-01
I-125	35.49	6.49	5.67E+00	5.67E+00	-5.61E-02	2.76E+00
SB-125	176.33	6.89	7.41E-01	2.35E-01	-1.95E-01	3.59E-01
	427.89	29.33	2.35E-01		-1.34E-01	1.12E-01
	463.38	10.35	7.68E-01		4.31E-01	3.67E-01
	600.56	17.80	4.39E-01		8.03E-02	2.07E-01
	635.90	11.32	6.81E-01		-4.53E-01	3.20E-01
SB-126	414.70	83.30	2.16E+01	2.06E+01	-5.72E-01	1.03E+01
	666.33	99.60	2.06E+01		-2.34E+00	9.67E+00
	695.00	99.60	2.10E+01		1.04E-01	9.86E+00
	720.50	53.80	3.51E+01		-4.36E+00	1.63E+01
SN-126	87.57	37.00	1.56E-01	1.56E-01	7.88E-02	7.66E-02
SB-127	473.00	25.00	1.68E+07	1.49E+07	-1.00E+07	7.94E+06
	685.20	35.70	1.49E+07		3.42E+06	7.00E+06
	783.80	14.70	3.73E+07		-7.47E+06	1.74E+07
I-129	29.78	57.00	3.66E-01	3.66E-01	1.57E-01	1.78E-01
	33.60	13.20	1.02E+00		-6.50E-01	4.98E-01
	39.58	7.52	1.22E+00		-4.83E-01	5.95E-01
I-131	284.30	6.05	5.50E+03	4.01E+02	1.70E+03	2.65E+03
	364.48	81.20	4.01E+02		-6.19E+01	1.92E+02
	636.97	7.26	5.84E+03		-1.56E+03	2.75E+03
	722.89	1.80	2.27E+04		-3.66E+03	1.06E+04
TE-132	49.72	13.10	8.27E+08	1.22E+08	-1.49E+08	4.03E+08
	228.16	88.00	1.22E+08		1.24E+07	5.90E+07
BA-133	81.00	33.00	1.61E-01	1.46E-01	-3.64E-02	7.89E-02
	302.84	17.80	3.63E-01		-1.06E-01	1.75E-01
	356.01	60.00	1.46E-01		-4.23E-03	7.06E-02
@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
XE-133	81.00	38.00	7.61E+04	7.61E+04	-1.72E+04	3.73E+04
CS-134	563.23	8.38	1.01E+00	8.34E-02	4.10E-01	4.77E-01
	569.32	15.43	5.15E-01		-3.16E-01	2.43E-01
	604.70	97.60	8.34E-02		2.95E-02	3.93E-02
	795.84	85.40	1.23E-01		7.47E-02	5.78E-02
	801.93	8.73	9.95E-01		-6.54E-01	4.64E-01
CS-135	268.24	16.00	3.80E-01	3.80E-01	4.40E-02	1.84E-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	1.25E+02	1.44E+01	1.33E+01	6.07E+01
	163.89	4.61	1.94E+02		5.63E+01	9.42E+01
	176.55	13.56	6.83E+01		-1.80E+01	3.31E+01
	273.65	12.66	9.59E+01		-1.04E+01	4.64E+01
	340.57	48.50	3.23E+01		4.97E+01	1.56E+01
	818.50	99.70	1.44E+01		-4.75E+00	6.65E+00
	1048.07	79.60	2.48E+01		1.61E+01	1.16E+01
	1235.34	19.70	1.28E+02		-1.33E+00	6.03E+01
CS-137	661.65	85.12	9.52E-02	9.52E-02	-2.12E-03	4.49E-02
LA-138	788.74	34.00	2.40E-01	1.31E-01	1.31E-02	1.12E-01
	1435.80	66.00	1.31E-01		-9.56E-04	5.90E-02
CE-139	165.85	80.35	9.58E-02	9.58E-02	2.61E-02	4.65E-02
BA-140	162.64	6.70	1.48E+02	6.19E+01	-1.02E+02	7.15E+01
	304.84	4.50	3.00E+02		7.67E+01	1.45E+02
	423.70	3.20	4.90E+02		1.93E+02	2.34E+02
	437.55	2.00	7.37E+02		-3.05E+02	3.51E+02
	537.32	25.00	6.19E+01		7.75E+00	2.92E+01
LA-140	328.77	20.50	7.01E+01	1.85E+01	2.27E+01	3.37E+01
	487.03	45.50	3.07E+01		5.93E+00	1.45E+01
	815.85	23.50	7.51E+01		1.58E+01	3.49E+01
	1596.49	95.49	1.85E+01		8.45E-01	8.10E+00
CE-141	145.44	48.40	8.24E-01	8.24E-01	3.40E-01	4.01E-01
@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	293.26	42.00	1.00E+26		1.00E+26	1.00E+20
@	664.55	5.20	1.00E+26		1.00E+26	1.00E+20
CE-144	133.54	10.80	5.32E-01	5.32E-01	8.79E-02	2.59E-01
PM-144	476.78	42.00	1.95E-01	8.41E-02	7.88E-03	9.24E-02
	618.01	98.60	8.41E-02		9.05E-03	3.94E-02
	696.49	99.49	9.39E-02		-1.50E-02	4.41E-02
PM-145	36.85	21.70	4.90E-01	2.68E-01	-4.86E-01	2.38E-01
	37.36	39.70	2.68E-01		8.48E-02	1.30E-01
	42.30	15.10	5.41E-01		-1.89E-01	2.63E-01
	72.40	2.31	2.78E+00		-6.80E+00	1.37E+00
PM-146	453.90	39.94	1.73E-01	1.73E-01	3.50E-02	8.21E-02
	735.90	14.01	6.13E-01		3.14E-01	2.88E-01
	747.13	13.10	5.96E-01		-3.62E-02	2.78E-01
ND-147	91.11	28.90	1.12E+02	1.12E+02	-2.36E+01	5.50E+01
	531.02	13.10	2.99E+02		6.73E+01	1.42E+02
PM-149	285.90	3.10	8.01E+13	8.01E+13	1.23E+13	3.86E+13
EU-152	121.78	20.50	2.17E-01	2.17E-01	1.06E-01	1.06E-01
	244.69	5.40	1.35E+00		-1.89E+00	6.59E-01
	344.27	19.13	3.26E-01		-2.38E-02	1.56E-01
	778.89	9.20	8.70E-01		2.34E-01	4.06E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-152	964.01		10.40	1.06E+00	2.17E-01	1.89E-01	5.00E-01
		1085.78		7.22	1.38E+00		-3.85E-02	6.42E-01
		1112.02		9.60	1.09E+00		1.85E-01	5.06E-01
		1407.95		14.94	6.27E-01		2.55E-01	2.84E-01
	GD-153	97.43		31.30	1.82E-01	1.82E-01	5.48E-02	8.87E-02
		103.18		22.20	2.55E-01		-1.26E-01	1.24E-01
	EU-154	123.07		40.50	1.10E-01	1.10E-01	-2.44E-02	5.34E-02
		723.30		19.70	3.80E-01		-6.15E-02	1.77E-01
		873.19		11.50	7.81E-01		2.78E-01	3.65E-01
		996.32		10.30	9.00E-01		4.60E-02	4.18E-01
		1004.76		17.90	5.75E-01		2.84E-01	2.69E-01
		1274.45		35.50	2.88E-01		-4.48E-03	1.32E-01
	EU-155	86.50		30.90	1.91E-01	1.91E-01	7.67E-02	9.36E-02
		105.30		20.70	2.20E-01		1.82E-02	1.07E-01
	EU-156	811.77		10.40	7.29E+01	7.29E+01	8.53E+00	3.39E+01
		1153.47		7.20	1.65E+02		3.12E+01	7.75E+01
		1230.71		8.90	1.29E+02		1.26E+01	6.03E+01
	HO-166M	184.41		72.60	8.25E-02	8.25E-02	1.11E-01	4.02E-02
		280.45		29.60	2.01E-01		6.90E-02	9.68E-02
		410.94		11.10	6.45E-01		4.37E-01	3.09E-01
		711.69		54.10	1.54E-01		7.20E-02	7.25E-02
	TM-171	66.72		0.14	4.44E+01	4.44E+01	-7.13E+01	2.17E+01
	HF-172	67.35		5.31	1.18E+00	4.40E-01	2.85E-01	5.76E-01
		125.81		11.30	4.40E-01		-5.04E-02	2.14E-01
	LU-172	181.53		20.60	7.62E+03	5.63E+03	6.65E+02	3.70E+03
		900.72		29.81	9.40E+03		6.43E+02	4.38E+03
		1093.66		62.50	5.63E+03		4.01E+02	2.64E+03
	LU-173	100.72		5.24	9.38E-01	3.39E-01	4.02E-02	4.57E-01
		272.11		21.20	3.39E-01		1.40E-01	1.64E-01
	HF-175	343.40		84.00	1.96E-01	1.96E-01	-1.43E-02	9.42E-02
	LU-176	88.34		13.30	4.43E-01	5.50E-02	2.54E-01	2.18E-01
		201.83		86.00	5.50E-02		-1.97E-02	2.65E-02
		306.78		94.00	6.22E-02		1.12E-02	2.99E-02
	HF-181	133.02		41.70	5.58E-01	4.19E-01	6.47E-02	2.72E-01
		345.85		17.20	1.86E+00		-1.34E-01	8.94E-01
		482.03		82.80	4.19E-01		7.72E-02	1.99E-01
	TA-182	67.75		41.20	2.51E-01	2.51E-01	6.06E-02	1.23E-01
		1121.30		34.90	7.42E-01		7.35E-01	3.52E-01
		1189.05		16.23	1.27E+00		2.57E-01	5.91E-01
		1221.41		26.98	8.71E-01		4.05E-02	4.09E-01
		1231.02		11.44	1.92E+00		1.88E-01	8.96E-01
	IR-192	308.46		29.68	5.04E-01	3.52E-01	-1.14E-01	2.42E-01
		468.07		48.10	3.52E-01		3.74E-02	1.67E-01
	HG-203	279.19		77.30	3.40E-01	3.40E-01	3.21E-04	1.64E-01
	TL-204	374.74		94.11	7.16E-02	7.16E-02	-6.46E-03	3.43E-02
		899.15		99.16	8.80E-02		-5.87E-02	4.08E-02
		911.74		91.10	1.77E-01		3.77E-01	8.52E-02
	BI-207	569.67		97.72	7.60E-02	7.60E-02	-1.21E-02	3.59E-02
		1063.62		74.90	1.36E-01		1.31E-03	6.34E-02
+	TL-208	583.14	*	30.22	3.30E-01	1.75E-01	1.18E+00	1.58E-01
		860.37	*	4.48	1.98E+00		1.79E+00	9.24E-01
		2614.66	*	35.85	1.75E-01		9.20E-01	6.89E-02
	BI-210M	262.00		45.00	1.34E-01	1.34E-01	5.08E-02	6.50E-02

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BI-210M	300.00		23.00	3.00E-01	1.34E-01	-4.99E-01	1.45E-01
+	PB-210	46.50	*	4.25	2.23E+00	2.23E+00	1.45E+00	1.09E+00
	PB-211	404.84		2.90	2.34E+00	2.34E+00	-7.16E-01	1.12E+00
		831.96		2.90	3.06E+00		-3.18E-01	1.43E+00
+	BI-212	727.17	*	11.80	9.52E-01	9.52E-01	9.12E-01	4.55E-01
		1620.62		2.75	3.08E+00		8.52E-01	1.36E+00
+	PB-212	238.63	*	44.60	2.58E-01	2.58E-01	1.32E+00	1.27E-01
		300.09	*	3.41	1.83E+00		1.38E+00	8.80E-01
+	BI-214	609.31	*	46.30	2.21E-01	2.21E-01	9.55E-01	1.06E-01
		1120.29	*	15.10	1.23E+00		9.49E-01	5.91E-01
		1764.49	*	15.80	4.71E-01		1.20E+00	2.02E-01
		2204.22		4.98	1.86E+00		5.38E-01	8.08E-01
+	PB-214	295.21	*	19.19	3.83E-01	2.56E-01	7.63E-01	1.86E-01
		351.92	*	37.19	2.56E-01		1.12E+00	1.24E-01
	RN-219	401.80		6.50	1.03E+00	1.03E+00	2.39E-01	4.91E-01
	RA-223	323.87		3.88	1.61E+00	1.61E+00	-8.17E-01	7.74E-01
+	RA-224	240.98	*	3.95	2.92E+00	2.92E+00	3.02E+00	1.44E+00
	RA-225	40.00		31.00	3.14E+01	3.14E+01	-1.24E+01	1.53E+01
+	RA-226	186.21	*	3.28	2.71E+00	2.71E+00	3.25E+00	1.33E+00
	TH-227	50.10		8.40	7.31E-01	7.31E-01	-1.32E-01	3.57E-01
		236.00		11.50	8.62E-01		1.38E+00	4.23E-01
		256.20		6.30	9.20E-01		3.45E-02	4.44E-01
+	AC-228	338.32	*	11.40	9.84E-01	3.69E-01	1.19E+00	4.81E-01
		911.07	*	27.70	3.69E-01		1.20E+00	1.73E-01
		969.11	*	16.60	8.93E-01		1.17E+00	4.27E-01
	TH-230	48.44		16.90	3.94E-01	3.94E-01	-3.60E-02	1.92E-01
		62.85		4.60	1.36E+00		1.29E+00	6.68E-01
		67.67		0.37	1.52E+01		3.68E+00	7.46E+00
	PA-231	283.67		1.60	3.66E+00	2.75E+00	-6.60E-01	1.76E+00
		302.67		2.30	2.75E+00		-8.06E-01	1.33E+00
	TH-231	25.64		14.70	2.56E+00	8.25E-01	1.21E-01	1.25E+00
		84.21		6.40	8.25E-01		-5.64E-01	4.04E-01
	PA-233	311.98		38.60	2.08E+00	2.08E+00	-2.75E-01	1.00E+00
	PA-234	131.20		20.40	2.40E-01	2.40E-01	1.27E-01	1.17E-01
		733.99		8.80	9.36E-01		-2.55E-02	4.40E-01
		946.00		12.00	7.35E-01		-1.92E-01	3.41E-01
	PA-234M	1001.03		0.92	1.05E+01	1.05E+01	2.76E+00	4.91E+00
+	TH-234	63.29	*	3.80	2.75E+00	2.75E+00	1.59E+00	1.36E+00
	U-235	143.76		10.50	4.52E-01	4.52E-01	2.77E-01	2.20E-01
		163.35		4.70	9.79E-01		2.84E-01	4.75E-01
		205.31		4.70	1.27E+00		2.54E-02	6.19E-01
	NP-237	86.50		12.60	4.51E-01	4.51E-01	1.81E-01	2.21E-01
	NP-239	106.10		22.70	1.19E+12	1.19E+12	9.79E+10	5.78E+11
		228.18		10.70	3.51E+12		3.58E+11	1.70E+12
		277.60		14.10	2.59E+12		-3.82E+11	1.25E+12
	AM-241	59.54		35.90	1.63E-01	1.63E-01	-2.02E-01	7.96E-02
+	AM-243	74.67	*	66.00	1.52E-01	1.52E-01	3.00E-01	7.53E-02
	CM-243	209.75		3.29	1.96E+00	4.29E-01	1.68E+00	9.54E-01
		228.14		10.60	5.82E-01		5.93E-02	2.83E-01
		277.60		14.00	4.29E-01		-6.33E-02	2.07E-01

Analysis Report for 1707089-05

HTC-A04-S001-3036-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A04-S001-3036-01

Elapsed Live time: 3600
Elapsed Real Time: 3609

Channel								
1:	0	0	0	0	0	0	0	0
9:	7	162	168	157	134	105	119	118
17:	103	99	101	104	94	74	91	85
25:	82	103	78	103	88	93	102	88
33:	91	91	89	84	101	86	90	123
41:	91	97	109	107	95	135	141	129
49:	83	92	98	106	117	112	102	129
57:	124	126	124	143	144	138	195	214
65:	158	144	143	133	158	172	155	151
73:	157	213	344	378	392	435	209	138
81:	120	135	123	149	147	149	180	232
89:	163	178	188	169	229	223	131	93
97:	86	101	102	98	88	92	95	81
105:	108	102	108	92	102	95	87	76
113:	100	84	83	94	94	71	86	93
121:	90	78	94	88	80	78	104	101
129:	123	133	89	96	77	77	96	81
137:	76	75	88	67	85	78	80	105
145:	85	89	66	83	81	72	73	75
153:	77	83	106	82	86	77	78	72
161:	52	71	61	62	70	85	65	68
169:	54	75	84	69	67	74	67	77
177:	69	65	59	70	76	68	75	72
185:	93	128	137	76	69	69	48	59
193:	67	76	83	68	62	66	48	49
201:	63	49	52	57	57	66	41	76
209:	78	82	90	52	55	46	54	50
217:	57	58	45	42	45	44	60	47
225:	50	51	65	57	46	55	54	50
233:	54	48	48	48	66	209	484	321
241:	95	139	95	59	49	45	38	43
249:	35	36	38	40	45	44	38	35
257:	38	36	40	41	37	43	53	38
265:	38	35	39	35	22	54	59	46
273:	38	36	36	30	43	45	41	28
281:	32	31	49	22	26	31	45	41
289:	32	34	36	35	35	51	91	139
297:	55	29	46	53	53	40	24	29
305:	27	21	35	40	32	20	34	21
313:	29	38	46	31	26	23	31	30
321:	41	26	37	32	26	24	26	43
329:	34	28	29	30	22	30	29	33
337:	33	77	90	52	30	24	28	27
345:	30	21	23	33	26	28	78	188
353:	174	48	22	33	19	20	28	20
361:	30	20	13	24	20	20	27	25

369:	24	17	20	17	27	31	23	21

Sample Title: HTC-A04-S001-3036-01

Channel								
377:	30	22	34	27	19	20	18	28
385:	22	28	25	23	20	27	24	21
393:	27	33	24	27	23	20	25	18
401:	19	33	20	19	29	16	26	23
409:	36	28	23	21	23	27	18	19
417:	21	26	25	15	25	22	21	34
425:	23	17	18	17	21	19	19	11
433:	31	22	16	24	15	20	22	20
441:	15	16	22	21	17	25	17	17
449:	16	12	20	15	19	17	21	16
457:	21	18	20	16	14	26	31	33
465:	17	16	19	21	13	20	15	9
473:	19	13	14	17	16	27	19	15
481:	20	19	15	17	14	11	12	14
489:	12	16	7	11	22	19	9	16
497:	15	13	13	26	19	19	12	16
505:	18	18	12	17	27	49	69	47
513:	30	10	17	19	22	20	16	8
521:	12	14	16	12	19	18	17	15
529:	14	15	12	21	13	19	11	11
537:	10	22	12	14	11	10	14	24
545:	18	15	17	8	10	26	18	12
553:	15	11	9	12	12	16	11	18
561:	14	13	17	22	18	14	13	14
569:	15	12	18	14	18	17	15	9
577:	10	15	21	11	14	43	92	100
585:	34	16	8	13	15	10	8	10
593:	15	9	15	9	16	15	18	11
601:	11	7	19	11	17	6	10	24
609:	107	136	45	21	14	14	9	9
617:	11	14	6	13	14	10	9	6
625:	15	11	19	13	11	12	12	11
633:	8	6	14	15	10	11	16	18
641:	21	18	10	10	8	6	12	14
649:	9	12	14	22	16	6	16	12
657:	13	19	18	15	14	10	12	11
665:	14	13	11	16	6	13	13	16
673:	16	11	11	8	16	16	12	10
681:	14	9	11	15	12	12	14	14
689:	12	8	13	14	12	13	10	10
697:	9	12	15	9	7	16	17	14
705:	6	9	9	12	10	9	12	9
713:	13	22	13	8	9	11	8	9
721:	9	4	7	12	7	17	32	22
729:	19	12	13	10	15	16	13	7
737:	7	13	11	6	7	10	13	8
745:	12	12	14	6	8	5	6	11
753:	13	8	18	15	14	11	13	10
761:	10	7	12	7	14	8	17	15
769:	17	16	19	14	17	10	8	12
777:	3	8	16	10	7	10	5	9
785:	16	10	15	9	11	7	8	9
793:	7	15	28	11	12	11	11	9

801:	11	10	5	11	6	15	12	10

Sample Title: HTC-A04-S001-3036-01

Channel								
809:	5	9	3	14	10	5	15	8
817:	11	4	6	7	6	10	12	5
825:	11	13	4	12	12	18	10	6
833:	9	7	13	17	10	7	14	8
841:	7	12	9	8	8	9	5	6
849:	7	8	9	10	8	7	4	9
857:	4	6	16	30	18	9	6	10
865:	8	11	12	7	8	12	10	6
873:	9	12	9	9	8	7	8	11
881:	9	7	7	15	8	4	10	8
889:	10	5	6	5	9	8	9	12
897:	5	12	7	6	7	7	14	13
905:	9	10	7	7	3	26	65	46
913:	34	16	11	8	9	8	9	7
921:	8	8	6	6	5	5	6	5
929:	12	4	7	6	21	13	9	11
937:	12	7	6	4	11	7	5	5
945:	8	4	11	14	11	8	13	15
953:	9	9	11	14	12	10	5	10
961:	12	2	17	19	16	10	12	40
969:	50	28	6	12	4	8	6	8
977:	6	11	10	5	13	7	6	6
985:	7	14	8	11	6	15	10	6
993:	5	10	6	8	11	9	7	5
1001:	10	13	8	12	6	6	8	16
1009:	9	4	11	9	8	12	5	6
1017:	6	8	11	9	8	15	8	10
1025:	6	9	12	5	6	6	12	10
1033:	7	11	7	8	4	10	9	5
1041:	7	6	7	3	9	12	4	11
1049:	9	9	11	7	5	9	8	14
1057:	11	10	9	7	16	8	7	6
1065:	12	9	5	10	9	8	7	4
1073:	11	11	7	8	8	10	12	10
1081:	8	2	8	4	9	9	12	7
1089:	8	9	13	7	16	7	13	12
1097:	7	8	15	5	10	10	13	8
1105:	10	11	13	7	12	5	12	7
1113:	12	8	4	10	15	11	17	25
1121:	31	16	10	6	6	8	14	7
1129:	12	11	7	17	10	10	7	7
1137:	8	6	6	13	14	10	10	12
1145:	7	9	7	14	4	7	13	13
1153:	14	10	13	13	12	12	4	6
1161:	7	11	6	8	7	10	12	11
1169:	8	11	5	7	8	6	10	7
1177:	11	10	8	11	17	11	10	9
1185:	10	6	9	5	12	6	13	13
1193:	6	7	8	10	9	11	11	5
1201:	13	13	9	17	11	7	13	5
1209:	15	5	11	12	12	6	10	10
1217:	11	8	11	10	9	19	4	20
1225:	14	10	8	10	9	10	10	8

1233:	10	12	9	10	17	16	13	14

Sample Title: HTC-A04-S001-3036-01

Channel								
1241:	16	12	13	10	10	7	5	6
1249:	8	8	8	6	13	7	8	5
1257:	6	7	4	5	5	5	9	5
1265:	9	13	8	10	5	7	10	16
1273:	4	3	5	3	3	5	8	9
1281:	8	7	8	6	5	5	5	3
1289:	4	7	8	10	6	4	6	8
1297:	12	7	4	5	5	5	8	11
1305:	4	6	1	8	4	9	7	8
1313:	4	4	5	3	7	5	4	5
1321:	2	7	6	6	4	4	3	6
1329:	5	2	6	8	4	4	4	6
1337:	2	2	5	5	3	4	2	8
1345:	2	3	3	1	6	1	4	6
1353:	3	3	3	2	5	7	6	5
1361:	3	5	3	3	3	5	4	7
1369:	2	4	6	4	4	3	0	7
1377:	7	7	5	5	4	3	3	4
1385:	2	6	5	1	1	1	1	5
1393:	5	4	6	5	3	1	2	1
1401:	3	6	3	1	1	3	4	8
1409:	8	3	4	3	4	2	4	3
1417:	3	3	1	5	2	2	1	3
1425:	4	1	2	2	1	7	3	2
1433:	8	4	1	1	6	0	6	6
1441:	3	3	2	1	2	3	2	2
1449:	3	6	1	1	4	3	1	0
1457:	1	13	97	254	305	136	28	8
1465:	2	0	2	2	1	0	3	0
1473:	1	0	3	3	2	1	0	3
1481:	4	1	1	1	2	0	2	0
1489:	4	1	2	2	4	1	3	2
1497:	3	1	2	1	3	3	2	3
1505:	4	2	5	1	4	4	0	4
1513:	4	1	1	3	1	2	1	1
1521:	1	0	1	0	1	1	2	1
1529:	1	0	2	1	1	6	0	0
1537:	0	1	4	2	3	1	2	0
1545:	1	3	2	3	2	3	0	0
1553:	2	0	1	1	0	2	2	2
1561:	3	2	0	0	1	0	1	1
1569:	2	2	1	3	1	0	0	1
1577:	0	1	2	2	2	2	3	0
1585:	1	3	2	7	4	1	4	5
1593:	2	6	1	0	0	1	1	1
1601:	0	1	1	1	4	3	1	3
1609:	3	0	2	2	1	1	2	1
1617:	2	2	5	3	2	1	1	3
1625:	0	3	0	1	4	4	4	3
1633:	1	1	2	2	3	6	0	3
1641:	3	2	0	1	0	0	2	0
1649:	2	2	0	2	2	0	1	0
1657:	0	0	3	1	2	3	1	1

1665:	0	0	0	0	1	2	0	2

Sample Title: HTC-A04-S001-3036-01

Channel								
1673:	0	1	1	3	3	0	1	3
1681:	1	0	0	0	1	1	2	1
1689:	0	0	2	1	1	0	0	0
1697:	0	3	3	0	0	2	1	1
1705:	1	1	0	1	2	0	1	1
1713:	1	0	0	1	0	2	1	2
1721:	0	1	1	0	0	1	4	3
1729:	3	3	2	1	0	0	1	1
1737:	2	1	1	0	2	1	0	0
1745:	0	0	1	3	1	0	4	1
1753:	0	1	1	1	0	1	1	3
1761:	1	4	16	14	14	6	3	2
1769:	0	1	2	0	0	0	0	0
1777:	0	0	3	4	0	0	1	1
1785:	1	0	1	2	0	1	1	1
1793:	3	1	3	0	1	0	0	1
1801:	0	0	0	3	1	1	1	0
1809:	0	1	1	1	0	0	1	2
1817:	1	1	1	1	3	2	1	1
1825:	4	0	4	0	1	1	1	3
1833:	2	0	1	1	0	2	1	1
1841:	2	2	1	1	1	1	3	2
1849:	1	1	4	2	1	1	1	1
1857:	0	2	1	1	1	2	0	0
1865:	0	2	3	2	2	3	2	1
1873:	0	0	0	0	2	1	2	0
1881:	1	0	2	1	0	1	1	2
1889:	0	0	1	2	2	2	2	1
1897:	2	0	1	0	1	0	0	1
1905:	0	1	1	0	1	1	1	1
1913:	0	0	3	1	1	1	1	0
1921:	0	0	0	3	2	4	1	0
1929:	1	2	0	1	1	0	0	4
1937:	1	0	1	1	1	0	1	1
1945:	0	0	1	2	0	1	0	0
1953:	2	1	0	1	1	0	0	1
1961:	3	0	1	0	2	0	2	0
1969:	0	0	1	1	0	3	0	1
1977:	1	1	2	2	0	0	2	1
1985:	2	0	1	2	1	0	2	0
1993:	1	0	1	1	2	0	1	1
2001:	0	1	1	0	2	1	1	0
2009:	1	0	0	2	1	1	1	0
2017:	2	0	2	1	1	1	0	0
2025:	0	1	3	1	1	2	0	0
2033:	1	2	1	0	0	1	0	1
2041:	0	1	0	0	2	2	1	2
2049:	0	1	1	0	2	1	0	3
2057:	0	1	1	0	0	0	1	0
2065:	2	2	0	1	0	0	0	0
2073:	1	0	1	1	1	1	3	0
2081:	1	0	0	3	0	3	1	3
2089:	0	0	0	1	1	0	0	1

2097:	2	1	2	1	1	0	5	4

Sample Title: HTC-A04-S001-3036-01

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

2529:	0	0	1	0	2	0	1	0

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Channel								
2537:	0	0	1	0	1	0	0	0
2545:	0	0	0	0	0	0	0	1
2553:	0	0	0	2	0	2	0	3
2561:	0	0	0	1	0	0	0	0
2569:	0	1	0	2	0	0	0	0
2577:	0	0	0	1	0	0	0	0
2585:	0	1	0	0	1	0	0	0
2593:	0	0	0	0	0	1	0	1
2601:	0	0	0	1	0	0	0	0
2609:	0	0	2	7	19	25	10	8
2617:	0	1	0	0	0	2	1	0
2625:	0	0	0	0	0	0	0	0
2633:	0	0	0	0	0	0	0	1
2641:	0	0	0	0	0	0	0	0
2649:	1	0	0	0	0	0	0	0
2657:	1	1	1	1	1	1	1	0
2665:	0	1	0	0	0	0	0	1
2673:	0	0	1	0	0	1	0	1
2681:	0	0	1	0	0	0	1	0
2689:	0	0	0	0	1	1	0	0
2697:	0	0	0	0	0	1	0	1
2705:	0	0	0	0	0	0	0	0
2713:	0	0	0	0	0	0	0	0
2721:	1	1	0	0	0	0	0	0
2729:	2	0	0	0	0	1	0	0
2737:	1	0	0	0	0	0	0	0
2745:	0	0	0	0	1	0	0	2
2753:	0	0	0	0	1	0	0	0
2761:	0	1	0	0	0	0	0	0
2769:	0	0	0	1	0	0	0	0
2777:	0	0	0	0	0	0	0	0
2785:	0	0	0	0	0	0	0	0
2793:	1	0	0	0	1	0	0	0
2801:	0	0	0	0	0	0	0	0
2809:	1	0	0	0	1	0	1	0
2817:	0	0	1	0	0	0	0	0
2825:	0	1	0	0	0	0	0	0
2833:	0	2	0	0	1	0	0	0
2841:	1	0	0	0	1	0	0	0
2849:	1	0	0	0	0	0	0	0
2857:	0	0	0	1	0	0	0	0
2865:	1	0	0	0	0	1	0	0
2873:	0	0	0	1	0	0	0	0
2881:	0	0	0	0	0	0	0	1
2889:	0	0	0	0	0	0	2	0
2897:	0	0	0	0	0	0	0	0
2905:	0	0	0	0	0	1	1	0
2913:	1	0	0	0	0	0	0	0
2921:	0	0	0	0	0	0	0	0
2929:	0	0	0	0	0	0	0	0
2937:	0	1	0	0	0	0	0	1
2945:	0	0	1	0	0	0	0	0
2953:	0	0	0	0	0	0	0	0

2961:	0	1	1	1	0	0	0	0

Sample Title: HTC-A04-S001-3036-01

Channel								
2969:	0	1	1	0	0	0	0	0
2977:	0	1	0	0	0	0	0	0
2985:	0	0	0	0	0	0	0	1
2993:	0	0	0	0	0	0	0	0
3001:	0	0	0	1	0	0	0	0
3009:	0	0	0	0	0	0	0	0
3017:	0	0	0	1	0	0	1	0
3025:	0	0	0	1	0	0	0	0
3033:	0	0	0	0	0	0	0	0
3041:	0	0	0	0	0	0	1	0
3049:	0	0	0	1	0	0	0	2
3057:	1	0	0	0	0	0	0	0
3065:	2	0	0	0	0	1	0	0
3073:	0	0	0	0	0	1	0	0
3081:	0	0	0	0	1	0	0	0
3089:	0	0	0	0	0	0	0	0
3097:	0	0	0	0	0	0	0	0
3105:	0	1	1	1	0	0	0	0
3113:	0	0	0	0	0	0	0	0
3121:	0	0	0	0	0	0	0	0
3129:	0	0	0	0	0	0	1	0
3137:	0	0	0	0	0	1	1	1
3145:	0	0	0	0	0	0	0	0
3153:	0	0	0	0	1	0	0	0
3161:	2	0	0	0	0	0	0	0
3169:	0	1	0	0	0	0	0	0
3177:	0	0	0	2	0	0	0	0
3185:	0	0	0	1	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	1	1
3217:	0	0	0	0	0	0	0	0
3225:	0	0	0	0	0	0	0	0
3233:	0	0	0	1	0	0	0	0
3241:	0	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	1	0	0
3273:	0	0	0	0	0	0	0	0
3281:	0	0	0	0	0	0	0	0
3289:	1	0	0	0	0	0	0	0
3297:	0	0	0	1	0	0	0	0
3305:	1	0	0	0	0	0	0	1
3313:	0	0	0	0	0	0	0	0
3321:	1	0	0	0	1	0	0	1
3329:	0	0	0	0	0	0	0	0
3337:	0	0	0	0	0	0	0	0
3345:	1	0	0	0	0	0	0	0
3353:	0	0	1	0	0	0	0	0
3361:	0	0	0	0	0	0	0	1
3369:	0	1	0	0	0	0	0	0
3377:	0	0	1	0	0	0	0	0
3385:	0	0	0	0	0	1	3	0

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A04-S001-3036-01

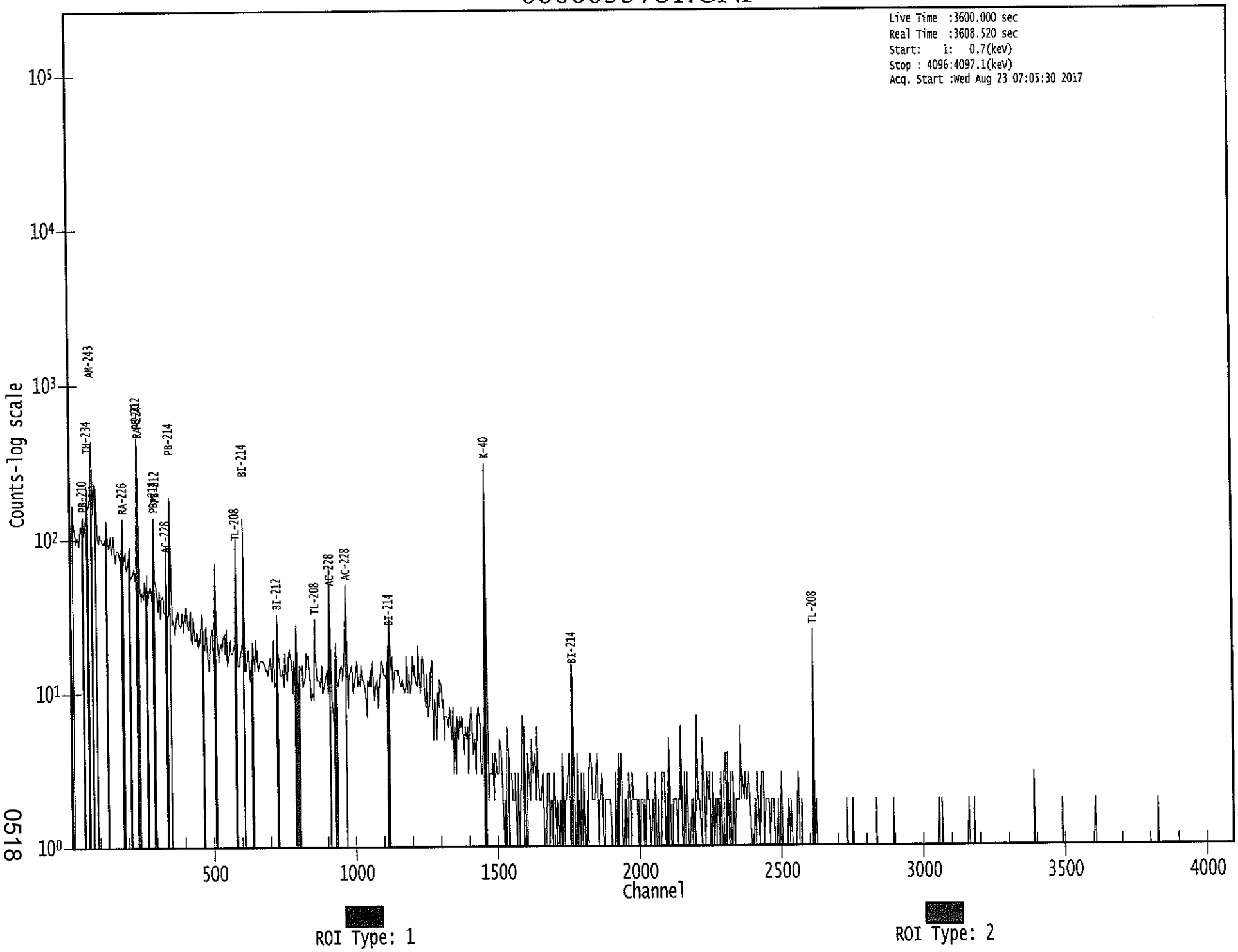
Channel								
3401:	0	0	0	0	0	0	1	0
3409:	0	0	0	0	0	0	0	0
3417:	1	0	0	0	0	1	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	1	0	0	1	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	1	0	0	0
3465:	1	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	1	0	0	0	0	0	0
3489:	0	2	0	0	0	0	0	0
3497:	0	0	0	0	1	0	0	0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

3825:	0	0	2	0	0	0	0	0

Sample Title: HTC-A04-S001-3036-01

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

0000055781.CNF



0518

Apex-Gamma

8/23

Analysis Report for 1707089-06

HTC-A04-S001-3642-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707089-06
Sample Description	: HTC-A04-S001-3642-01
Sample Type	: SOIL
Sample Size	: 6.886E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 6:47:08AM
Acquisition Started	: 8/23/2017 7:05:37AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3605.0 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	: 55782

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/23/17

Analysis Report for 1707089-06

HTC-A04-S001-3642-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/23/2017 8:07:04AM
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	45.83	44.88	0.0000	0.00
2	76.14	75.20	0.0000	0.00
3	84.50	83.56	0.0000	0.00
4	87.60	86.66	0.0000	0.00
5	93.06	92.13	0.0000	0.00
6	155.28	154.36	0.0000	0.00
7	185.82	184.91	0.0000	0.00
8	239.23	238.34	0.0000	0.00
9	295.10	294.22	0.0000	0.00
10	327.88	327.02	0.0000	0.00
11	338.43	337.57	0.0000	0.00
12	352.40	351.54	0.0000	0.00
13	463.42	462.60	0.0000	0.00
14	510.49	509.69	0.0000	0.00
15	583.09	582.32	0.0000	0.00
16	609.33	608.57	0.0000	0.00
17	613.27	612.51	0.0000	0.00
18	727.14	726.43	0.0000	0.00
19	767.83	767.13	0.0000	0.00
20	776.59	775.90	0.0000	0.00
21	789.63	788.94	0.0000	0.00
22	910.99	910.35	0.0000	0.00
23	998.84	998.25	0.0000	0.00
24	1001.78	1001.18	0.0000	0.00
25	1020.40	1019.82	0.0000	0.00
26	1093.39	1092.84	0.0000	0.00
27	1120.74	1120.20	0.0000	0.00
28	1330.35	1329.91	0.0000	0.00
29	1386.98	1386.56	0.0000	0.00
30	1409.66	1409.25	0.0000	0.00
31	1431.99	1431.60	0.0000	0.00
32	1460.55	1460.18	0.0000	0.00
33	1496.02	1495.66	0.0000	0.00
34	1580.90	1580.58	0.0000	0.00
35	1587.34	1587.03	0.0000	0.00
36	1592.64	1592.33	0.0000	0.00
37	1764.10	1763.89	0.0000	0.00
38	2063.04	2063.00	0.0000	0.00
39	2203.12	2203.17	0.0000	0.00
40	2613.81	2614.13	0.0000	0.00

Analysis Report for 1707089-06

HTC-A04-S001-3642-01

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707089-06

HTC-A04-S001-3642-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/23/2017 8:07:04AM

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	45.83	42 -	47	44.88	1.17E+02	68.69	8.57E+02	2.86
	2	76.14	70 -	79	75.20	8.88E+02	142.00	2.37E+03	3.60
M	3	84.50	81 -	96	83.56	8.38E+01	58.34	8.41E+02	2.10
m	4	87.60	81 -	96	86.66	2.22E+02	103.83	1.55E+03	2.64
m	5	93.06	81 -	96	92.13	3.19E+02	111.51	1.53E+03	2.92
	6	155.28	152 -	158	154.36	6.00E+01	68.60	8.12E+02	3.49
	7	185.82	180 -	189	184.91	1.31E+02	85.48	9.65E+02	2.46
	8	239.23	232 -	244	238.34	8.42E+02	109.71	1.02E+03	2.46
	9	295.10	289 -	297	294.22	1.30E+02	64.18	5.53E+02	2.23
	10	327.88	323 -	331	327.02	6.96E+01	52.28	3.77E+02	3.00
	11	338.43	334 -	342	337.57	8.57E+01	58.50	4.77E+02	2.34
	12	352.40	347 -	358	351.54	3.33E+02	69.02	4.20E+02	2.76
	13	463.42	458 -	467	462.60	6.37E+01	43.20	2.31E+02	2.38
	14	510.49	504 -	516	509.69	1.57E+02	52.28	2.50E+02	2.25
	15	583.09	578 -	588	582.32	1.49E+02	49.18	2.46E+02	2.59
M	16	609.33	601 -	616	608.57	2.08E+02	39.00	1.22E+02	2.31
m	17	613.27	601 -	616	612.51	2.17E+01	40.55	1.43E+02	2.80
	18	727.14	723 -	731	726.43	3.60E+01	34.30	1.62E+02	1.59
	19	767.83	763 -	771	767.13	3.52E+01	28.95	1.06E+02	1.86
	20	776.59	774 -	779	775.90	1.56E+01	20.07	6.68E+01	2.30
	21	789.63	779 -	797	788.94	6.34E+01	50.47	1.99E+02	15.32
	22	910.99	907 -	915	910.35	1.05E+02	33.67	1.14E+02	2.28
M	23	998.84	995 -	1004	998.25	3.13E+01	19.75	4.78E+01	2.71
m	24	1001.78	995 -	1004	1001.18	1.96E+01	24.08	8.09E+01	3.28
	25	1020.40	1012 -	1027	1019.82	4.37E+01	38.05	1.25E+02	11.28
	26	1093.39	1090 -	1095	1092.84	2.04E+01	21.10	6.93E+01	1.74
	27	1120.74	1115 -	1126	1120.20	5.79E+01	33.05	1.06E+02	3.34
	28	1330.35	1325 -	1333	1329.91	1.42E+01	18.40	3.96E+01	6.37
	29	1386.98	1383 -	1390	1386.56	1.58E+01	14.00	1.85E+01	5.09
	30	1409.66	1405 -	1413	1409.25	2.31E+01	12.19	7.85E+00	4.58
	31	1431.99	1429 -	1435	1431.60	9.87E+00	11.72	1.83E+01	1.08
	32	1460.55	1453 -	1465	1460.18	5.94E+02	49.84	1.30E+01	2.49
	33	1496.02	1491 -	1502	1495.66	1.66E+01	14.56	1.89E+01	5.56
	34	1580.90	1577 -	1583	1580.58	6.38E+00	6.65	3.25E+00	1.90
	35	1587.34	1584 -	1589	1587.03	9.08E+00	8.12	5.83E+00	2.80
	36	1592.64	1590 -	1596	1592.33	1.10E+01	11.00	1.40E+01	4.09
	37	1764.10	1759 -	1767	1763.89	3.50E+01	12.97	4.08E+00	3.57
	38	2063.04	2059 -	2066	2063.00	9.00E+00	6.00	0.00E+00	3.00
	39	2203.12	2199 -	2207	2203.17	9.19E+00	11.17	1.36E+01	3.62
	40	2613.81	2610 -	2618	2614.13	5.70E+01	16.01	4.08E+00	2.66

Analysis Report for 1707089-06

HTC-A04-S001-3642-01

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/23/2017 8:07:04AM

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	45.83	42 -	47	1.17E+02	68.69	8.57E+02	5.36E+01
	2	76.14	70 -	79	8.88E+02	142.00	2.37E+03	1.06E+02
M	3	84.50	81 -	96	8.38E+01	58.34	8.41E+02	4.77E+01
m	4	87.60	81 -	96	2.22E+02	103.83	1.55E+03	6.47E+01
m	5	93.06	81 -	96	3.19E+02	111.51	1.53E+03	6.44E+01
	6	155.28	152 -	158	6.00E+01	68.60	8.12E+02	5.49E+01
	7	185.82	180 -	189	1.31E+02	85.48	9.65E+02	6.77E+01
	8	239.23	232 -	244	8.42E+02	109.71	1.02E+03	7.65E+01
	9	295.10	289 -	297	1.30E+02	64.18	5.53E+02	4.93E+01
	10	327.88	323 -	331	6.96E+01	52.28	3.77E+02	4.07E+01
	11	338.43	334 -	342	8.57E+01	58.50	4.77E+02	4.56E+01
	12	352.40	347 -	358	3.33E+02	69.02	4.20E+02	4.82E+01
	13	463.42	458 -	467	6.37E+01	43.20	2.31E+02	3.30E+01
	14	510.49	504 -	516	1.57E+02	52.28	2.50E+02	3.77E+01
	15	583.09	578 -	588	1.49E+02	49.18	2.46E+02	3.51E+01
M	16	609.33	601 -	616	2.08E+02	39.00	1.22E+02	1.82E+01
m	17	613.27	601 -	616	2.17E+01	40.55	1.43E+02	1.96E+01
	18	727.14	723 -	731	3.60E+01	34.30	1.62E+02	2.64E+01
	19	767.83	763 -	771	3.52E+01	28.95	1.06E+02	2.17E+01
	20	776.59	774 -	779	1.56E+01	20.07	6.68E+01	1.52E+01
	21	789.63	779 -	797	6.34E+01	50.47	1.99E+02	3.94E+01
	22	910.99	907 -	915	1.05E+02	33.67	1.14E+02	2.20E+01
M	23	998.84	995 -	1004	3.13E+01	19.75	4.78E+01	1.14E+01
m	24	1001.78	995 -	1004	1.96E+01	24.08	8.09E+01	1.48E+01
	25	1020.40	1012 -	1027	4.37E+01	38.05	1.25E+02	2.93E+01
	26	1093.39	1090 -	1095	2.04E+01	21.10	6.93E+01	1.57E+01
	27	1120.74	1115 -	1126	5.79E+01	33.05	1.06E+02	2.41E+01
	28	1330.35	1325 -	1333	1.42E+01	18.40	3.96E+01	1.38E+01
	29	1386.98	1383 -	1390	1.58E+01	14.00	1.85E+01	9.48E+00
	30	1409.66	1405 -	1413	2.31E+01	12.19	7.85E+00	6.16E+00
	31	1431.99	1429 -	1435	9.87E+00	11.72	1.83E+01	8.13E+00

Analysis Report for 1707089-06

HTC-A04-S001-3642-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
32	1460.55	1453 -	1465	5.94E+02	49.84	1.30E+01	8.64E+00
33	1496.02	1491 -	1502	1.66E+01	14.56	1.89E+01	9.92E+00
34	1580.90	1577 -	1583	6.38E+00	6.65	3.25E+00	3.56E+00
35	1587.34	1584 -	1589	9.08E+00	8.12	5.83E+00	4.48E+00
36	1592.64	1590 -	1596	1.10E+01	11.00	1.40E+01	7.21E+00
37	1764.10	1759 -	1767	3.50E+01	12.97	4.08E+00	4.38E+00
38	2063.04	2059 -	2066	9.00E+00	6.00	0.00E+00	0.00E+00
39	2203.12	2199 -	2207	9.19E+00	11.17	1.36E+01	7.71E+00
40	2613.81	2610 -	2618	5.70E+01	16.01	4.08E+00	4.38E+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 : 8/23/2017 8:07:04AM

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	45.83	42 -	47	44.88	1.17E+02	68.69	8.57E+02	PB-210
	2	76.14	70 -	79	75.20	8.88E+02	142.00	2.37E+03	.....
M	3	84.50	81 -	96	83.56	8.38E+01	58.34	8.41E+02	TH-231
m	4	87.60	81 -	96	86.66	2.22E+02	103.83	1.55E+03	SN-126
									CD-109
									LU-176
m	5	93.06	81 -	96	92.13	3.19E+02	111.51	1.53E+03	GA-67
	6	155.28	152 -	158	154.36	6.00E+01	68.60	8.12E+02	.....
	7	185.82	180 -	189	184.91	1.31E+02	85.48	9.65E+02	RA-226
	8	239.23	232 -	244	238.34	8.42E+02	109.71	1.02E+03	PB-212
	9	295.10	289 -	297	294.22	1.30E+02	64.18	5.53E+02	PB-214
	10	327.88	323 -	331	327.02	6.96E+01	52.28	3.77E+02	LA-140
	11	338.43	334 -	342	337.57	8.57E+01	58.50	4.77E+02	AC-228
	12	352.40	347 -	358	351.54	3.33E+02	69.02	4.20E+02	PB-214
	13	463.42	458 -	467	462.60	6.37E+01	43.20	2.31E+02	SB-125
	14	510.49	504 -	516	509.69	1.57E+02	52.28	2.50E+02	.....
	15	583.09	578 -	588	582.32	1.49E+02	49.18	2.46E+02	TL-208

Analysis Report for 1707089-06

HTC-A04-S001-3642-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	16	609.33	601 -	616	608.57	2.08E+02	39.00	1.22E+02	BI-214
m	17	613.27	601 -	616	612.51	2.17E+01	40.55	1.43E+02	.....
	18	727.14	723 -	731	726.43	3.60E+01	34.30	1.62E+02	BI-212
	19	767.83	763 -	771	767.13	3.52E+01	28.95	1.06E+02	.....
	20	776.59	774 -	779	775.90	1.56E+01	20.07	6.68E+01	RB-82
	21	789.63	779 -	797	788.94	6.34E+01	50.47	1.99E+02	LA-138
	22	910.99	907 -	915	910.35	1.05E+02	33.67	1.14E+02	AC-228
									TL-204
M	23	998.84	995 -	1004	998.25	3.13E+01	19.75	4.78E+01	.....
m	24	1001.78	995 -	1004	1001.18	1.96E+01	24.08	8.09E+01	PA-234M
	25	1020.40	1012 -	1027	1019.82	4.37E+01	38.05	1.25E+02	.....
	26	1093.39	1090 -	1095	1092.84	2.04E+01	21.10	6.93E+01	LU-172
	27	1120.74	1115 -	1126	1120.20	5.79E+01	33.05	1.06E+02	SC-46
									BI-214
									TA-182
	28	1330.35	1325 -	1333	1329.91	1.42E+01	18.40	3.96E+01	.....
	29	1386.98	1383 -	1390	1386.56	1.58E+01	14.00	1.85E+01	.....
	30	1409.66	1405 -	1413	1409.25	2.31E+01	12.19	7.85E+00	.....
	31	1431.99	1429 -	1435	1431.60	9.87E+00	11.72	1.83E+01	.....
	32	1460.55	1453 -	1465	1460.18	5.94E+02	49.84	1.30E+01	K-40
	33	1496.02	1491 -	1502	1495.66	1.66E+01	14.56	1.89E+01	.....
	34	1580.90	1577 -	1583	1580.58	6.38E+00	6.65	3.25E+00	.....
	35	1587.34	1584 -	1589	1587.03	9.08E+00	8.12	5.83E+00	.....
	36	1592.64	1590 -	1596	1592.33	1.10E+01	11.00	1.40E+01	.....
	37	1764.10	1759 -	1767	1763.89	3.50E+01	12.97	4.08E+00	BI-214
	38	2063.04	2059 -	2066	2063.00	9.00E+00	6.00	0.00E+00	.....
	39	2203.12	2199 -	2207	2203.17	9.19E+00	11.17	1.36E+01	.....
	40	2613.81	2610 -	2618	2614.13	5.70E+01	16.01	4.08E+00	TL-208

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/23/2017 8:07:04AM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
1	45.83	1.17E+02	68.69	1.62E-02	1.56E-03
2	76.14	8.88E+02	142.00	2.32E-02	1.91E-03

Analysis Report for 1707089-06

HTC-A04-S001-3642-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	3	84.50	8.38E+01	58.34	2.36E-02	2.09E-03
m	4	87.60	2.22E+02	103.83	2.37E-02	2.16E-03
m	5	93.06	3.19E+02	111.51	2.37E-02	2.09E-03
	6	155.28	6.00E+01	68.60	1.94E-02	1.53E-03
	7	185.82	1.31E+02	85.48	1.69E-02	1.40E-03
	8	239.23	8.42E+02	109.71	1.36E-02	1.14E-03
	9	295.10	1.30E+02	64.18	1.10E-02	9.13E-04
	10	327.88	6.96E+01	52.28	9.91E-03	8.45E-04
	11	338.43	8.57E+01	58.50	9.60E-03	8.22E-04
	12	352.40	3.33E+02	69.02	9.20E-03	7.93E-04
	13	463.42	6.37E+01	43.20	6.94E-03	6.81E-04
	14	510.49	1.57E+02	52.28	6.29E-03	6.61E-04
	15	583.09	1.49E+02	49.18	5.51E-03	6.31E-04
M	16	609.33	2.08E+02	39.00	5.27E-03	6.20E-04
m	17	613.27	2.17E+01	40.55	5.24E-03	6.19E-04
	18	727.14	3.60E+01	34.30	4.45E-03	5.16E-04
	19	767.83	3.52E+01	28.95	4.23E-03	4.65E-04
	20	776.59	1.56E+01	20.07	4.19E-03	4.54E-04
	21	789.63	6.34E+01	50.47	4.12E-03	4.38E-04
	22	910.99	1.05E+02	33.67	3.62E-03	2.99E-04
M	23	998.84	3.13E+01	19.75	3.33E-03	2.78E-04
m	24	1001.78	1.96E+01	24.08	3.33E-03	2.78E-04
	25	1020.40	4.37E+01	38.05	3.27E-03	2.73E-04
	26	1093.39	2.04E+01	21.10	3.08E-03	2.56E-04
	27	1120.74	5.79E+01	33.05	3.01E-03	2.50E-04
	28	1330.35	1.42E+01	18.40	2.59E-03	2.27E-04
	29	1386.98	1.58E+01	14.00	2.50E-03	2.19E-04
	30	1409.66	2.31E+01	12.19	2.46E-03	2.16E-04
	31	1431.99	9.87E+00	11.72	2.43E-03	2.12E-04
	32	1460.55	5.94E+02	49.84	2.39E-03	2.08E-04
	33	1496.02	1.66E+01	14.56	2.33E-03	2.02E-04
	34	1580.90	6.38E+00	6.65	2.22E-03	1.90E-04
	35	1587.34	9.08E+00	8.12	2.21E-03	1.89E-04
	36	1592.64	1.10E+01	11.00	2.20E-03	1.88E-04
	37	1764.10	3.50E+01	12.97	2.00E-03	1.62E-04
	38	2063.04	9.00E+00	6.00	1.70E-03	1.51E-04
	39	2203.12	9.19E+00	11.17	1.58E-03	1.51E-04
	40	2613.81	5.70E+01	16.01	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 : 8/23/2017 8:07:04AM

Analysis Report for 1707089-06

HTC-A04-S001-3642-01

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	45.83	1.17E+02	68.69	2.81E+01	8.29E+00	8.86E+01	6.92E+01
	2	76.14	8.88E+02	142.00			8.88E+02	1.42E+02
M	3	84.50	8.38E+01	58.34			8.38E+01	5.83E+01
m	4	87.60	2.22E+02	103.83			2.22E+02	1.04E+02
m	5	93.06	3.19E+02	111.51	5.99E+01	8.61E+00	2.60E+02	1.12E+02
	6	155.28	6.00E+01	68.60			6.00E+01	6.86E+01
	7	185.82	1.31E+02	85.48	2.43E+01	7.50E+00	1.07E+02	8.58E+01
	8	239.23	8.42E+02	109.71	1.06E+01	6.01E+00	8.31E+02	1.10E+02
	9	295.10	1.30E+02	64.18			1.30E+02	6.42E+01
	10	327.88	6.96E+01	52.28			6.96E+01	5.23E+01
	11	338.43	8.57E+01	58.50			8.57E+01	5.85E+01
	12	352.40	3.33E+02	69.02			3.33E+02	6.90E+01
	13	463.42	6.37E+01	43.20			6.37E+01	4.32E+01
	14	510.49	1.57E+02	52.28	4.55E+01	4.99E+00	1.12E+02	5.25E+01
	15	583.09	1.49E+02	49.18			1.49E+02	4.92E+01
M	16	609.33	2.08E+02	39.00			2.08E+02	3.90E+01
m	17	613.27	2.17E+01	40.55			2.17E+01	4.05E+01
	18	727.14	3.60E+01	34.30			3.60E+01	3.43E+01
	19	767.83	3.52E+01	28.95			3.52E+01	2.89E+01
	20	776.59	1.56E+01	20.07			1.56E+01	2.01E+01
	21	789.63	6.34E+01	50.47			6.34E+01	5.05E+01
	22	910.99	1.05E+02	33.67			1.05E+02	3.37E+01
M	23	998.84	3.13E+01	19.75			3.13E+01	1.97E+01
m	24	1001.78	1.96E+01	24.08			1.96E+01	2.41E+01
	25	1020.40	4.37E+01	38.05			4.37E+01	3.81E+01
	26	1093.39	2.04E+01	21.10			2.04E+01	2.11E+01
	27	1120.74	5.79E+01	33.05			5.79E+01	3.30E+01
	28	1330.35	1.42E+01	18.40			1.42E+01	1.84E+01
	29	1386.98	1.58E+01	14.00			1.58E+01	1.40E+01
	30	1409.66	2.31E+01	12.19			2.31E+01	1.22E+01
	31	1431.99	9.87E+00	11.72			9.87E+00	1.17E+01
	32	1460.55	5.94E+02	49.84			5.94E+02	4.98E+01
	33	1496.02	1.66E+01	14.56			1.66E+01	1.46E+01
	34	1580.90	6.38E+00	6.65			6.38E+00	6.65E+00
	35	1587.34	9.08E+00	8.12			9.08E+00	8.12E+00
	36	1592.64	1.10E+01	11.00			1.10E+01	1.10E+01
	37	1764.10	3.50E+01	12.97			3.50E+01	1.30E+01
	38	2063.04	9.00E+00	6.00			9.00E+00	6.00E+00
	39	2203.12	9.19E+00	11.17			9.19E+00	1.12E+01
	40	2613.81	5.70E+01	16.01			5.70E+01	1.60E+01

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

Analysis Report for 1707089-06

HTC-A04-S001-3642-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/23/2017 8:07:04AM

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	45.83	1.17E+02	68.69	2.81E+01	8.29E+00	8.86E+01	6.92E+01
	2	76.14	8.88E+02	142.00			8.88E+02	1.42E+02
M	3	84.50	8.38E+01	58.34			8.38E+01	5.83E+01
m	4	87.60	2.22E+02	103.83			2.22E+02	1.04E+02
m	5	93.06	3.19E+02	111.51	5.99E+01	8.61E+00	2.60E+02	1.12E+02
	6	155.28	6.00E+01	68.60			6.00E+01	6.86E+01
	7	185.82	1.31E+02	85.48	2.43E+01	7.50E+00	1.07E+02	8.58E+01
	8	239.23	8.42E+02	109.71	1.06E+01	6.01E+00	8.31E+02	1.10E+02
	9	295.10	1.30E+02	64.18			1.30E+02	6.42E+01
	10	327.88	6.96E+01	52.28			6.96E+01	5.23E+01
	11	338.43	8.57E+01	58.50			8.57E+01	5.85E+01
	12	352.40	3.33E+02	69.02			3.33E+02	6.90E+01
	13	463.42	6.37E+01	43.20			6.37E+01	4.32E+01
	14	510.49	1.57E+02	52.28	4.55E+01	4.99E+00	1.12E+02	5.25E+01
	15	583.09	1.49E+02	49.18			1.49E+02	4.92E+01
M	16	609.33	2.08E+02	39.00			2.08E+02	3.90E+01
m	17	613.27	2.17E+01	40.55			2.17E+01	4.05E+01
	18	727.14	3.60E+01	34.30			3.60E+01	3.43E+01
	19	767.83	3.52E+01	28.95			3.52E+01	2.89E+01
	20	776.59	1.56E+01	20.07			1.56E+01	2.01E+01
	21	789.63	6.34E+01	50.47			6.34E+01	5.05E+01
	22	910.99	1.05E+02	33.67			1.05E+02	3.37E+01
M	23	998.84	3.13E+01	19.75			3.13E+01	1.97E+01
m	24	1001.78	1.96E+01	24.08			1.96E+01	2.41E+01
	25	1020.40	4.37E+01	38.05			4.37E+01	3.81E+01
	26	1093.39	2.04E+01	21.10			2.04E+01	2.11E+01
	27	1120.74	5.79E+01	33.05			5.79E+01	3.30E+01
	28	1330.35	1.42E+01	18.40			1.42E+01	1.84E+01
	29	1386.98	1.58E+01	14.00			1.58E+01	1.40E+01
	30	1409.66	2.31E+01	12.19			2.31E+01	1.22E+01
	31	1431.99	9.87E+00	11.72			9.87E+00	1.17E+01
	32	1460.55	5.94E+02	49.84			5.94E+02	4.98E+01
	33	1496.02	1.66E+01	14.56			1.66E+01	1.46E+01
	34	1580.90	6.38E+00	6.65			6.38E+00	6.65E+00
	35	1587.34	9.08E+00	8.12			9.08E+00	8.12E+00
	36	1592.64	1.10E+01	11.00			1.10E+01	1.10E+01
	37	1764.10	3.50E+01	12.97			3.50E+01	1.30E+01
	38	2063.04	9.00E+00	6.00			9.00E+00	6.00E+00
	39	2203.12	9.19E+00	11.17			9.19E+00	1.12E+01
	40	2613.81	5.70E+01	16.01			5.70E+01	1.60E+01

Analysis Report for 1707089-06

HTC-A04-S001-3642-01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.989	1460.81	*	10.67	2.54E+01	3.12E+00
RB-82	0.925	776.52	*	13.00	4.72E+00	6.09E+00
CD-109	0.970	88.03	*	3.72	3.19E+00	1.53E+00
SN-126	1.000	87.57	*	37.00	2.76E-01	1.32E-01
TL-208	0.827	583.14	*	30.22	9.77E-01	3.41E-01
		860.37		4.48		
		2614.66	*	35.85	1.35E+00	4.13E-01
PB-210	0.931	46.50	*	4.25	1.42E+00	1.12E+00
BI-212	0.776	727.17	*	11.80	7.47E-01	7.17E-01
		1620.62		2.75		
PB-212	0.845	238.63	*	44.60	1.50E+00	2.35E-01
		300.09		3.41		
BI-214	0.927	609.31	*	46.30	9.29E-01	2.06E-01
		1120.29	*	15.10	1.39E+00	8.00E-01
		1764.49	*	15.80	1.21E+00	4.58E-01
		2204.22		4.98		
PB-214	0.976	295.21	*	19.19	6.71E-01	3.35E-01
		351.92	*	37.19	1.06E+00	2.38E-01
RA-226	0.975	186.21	*	3.28	2.10E+00	4.20E+00
AC-228	0.585	338.32	*	11.40	8.54E-01	5.88E-01
		911.07	*	27.70	1.14E+00	3.78E-01
		969.11		16.60		
PA-234M	0.914	1001.03	*	0.92	6.99E+00	8.60E+00

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

Analysis Report for 1707089-06

HTC-A04-S001-3642-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 8:07:04AM
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	76.14	2.46690E-01	7.99		
M	3	84.50	2.32900E-02	34.79	Tol.	TH-231
m	5	93.06	7.21113E-02	21.54		
	6	155.28	1.66667E-02	57.17		
	10	327.88	1.93260E-02	37.57	Tol.	LA-140
	13	463.42	1.76924E-02	33.91	Tol.	SB-125
	14	510.49	3.09984E-02	23.53		
m	17	613.27	6.02693E-03	93.44		
	19	767.83	9.78535E-03	41.09		
	21	789.63	1.76065E-02	39.81	Tol.	LA-138
M	23	998.84	8.68107E-03	31.60	Sum	
	25	1020.40	1.21384E-02	43.54		
	26	1093.39	5.65657E-03	51.80	Tol.	LU-172
	28	1330.35	3.94608E-03	64.76		
	29	1386.98	4.37778E-03	44.42		
	30	1409.66	6.40946E-03	26.41		
	31	1431.99	2.74123E-03	59.36		
	33	1496.02	4.59936E-03	43.97		
	34	1580.90	1.77083E-03	52.17		
	35	1587.34	2.52315E-03	44.72		
	36	1592.64	3.05556E-03	50.00	D-Esc	
	38	2063.04	2.50000E-03	33.33		
	39	2203.12	2.55208E-03	60.78		

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 1707089-06

HTC-A04-S001-3642-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.98	1460.81	*	10.67	2.54E+01	3.12E+00
RB-82	0.92	776.52	*	13.00	4.72E+00	6.09E+00
CD-109	0.97	88.03	*	3.72	3.19E+00	1.53E+00
SN-126	1.00	87.57	*	37.00	2.76E-01	1.32E-01
TL-208	0.82	583.14	*	30.22	9.77E-01	3.41E-01
		860.37		4.48		
		2614.66	*	35.85	1.35E+00	4.13E-01
PB-210	0.93	46.50	*	4.25	1.42E+00	1.12E+00
BI-212	0.77	727.17	*	11.80	7.47E-01	7.17E-01
		1620.62		2.75		
PB-212	0.84	238.63	*	44.60	1.50E+00	2.35E-01
		300.09		3.41		
BI-214	0.92	609.31	*	46.30	9.29E-01	2.06E-01
		1120.29	*	15.10	1.39E+00	8.00E-01
		1764.49	*	15.80	1.21E+00	4.58E-01
		2204.22		4.98		
PB-214	0.97	295.21	*	19.19	6.71E-01	3.35E-01
		351.92	*	37.19	1.06E+00	2.38E-01
RA-226	0.97	186.21	*	3.28	2.10E+00	4.20E+00
AC-228	0.58	338.32	*	11.40	8.54E-01	5.88E-01
		911.07	*	27.70	1.14E+00	3.78E-01
		969.11		16.60		
PA-234M	0.91	1001.03	*	0.92	6.99E+00	8.60E+00

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.989	2.54E+01	3.12E+00	
	RB-82	0.925	4.72E+00	6.09E+00	
?	CD-109	0.970	3.19E+00	1.53E+00	
?	SN-126	1.000	2.76E-01	1.32E-01	

Analysis Report for 1707089-06

HTC-A04-S001-3642-01

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
TL-208	0.827	1.13E+00	2.63E-01	
PB-210	0.931	1.42E+00	1.12E+00	
BI-212	0.776	7.47E-01	7.17E-01	
PB-212	0.845	1.50E+00	2.35E-01	
BI-214	0.927	9.97E-01	1.83E-01	
PB-214	0.976	9.30E-01	1.94E-01	
RA-226	0.975	2.10E+00	4.20E+00	
AC-228	0.585	1.06E+00	3.18E-01	
PA-234M	0.914	6.99E+00	8.60E+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 1707089-06

HTC-A04-S001-3642-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 8:07:04AM
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	76.14	2.46690E-01	7.99		
M	3	84.50	2.32900E-02	34.79	Tol.	TH-231
m	5	93.06	7.21113E-02	21.54		
	6	155.28	1.66667E-02	57.17		
	10	327.88	1.93260E-02	37.57	Tol.	LA-140
	13	463.42	1.76924E-02	33.91	Tol.	SB-125
	14	510.49	3.09984E-02	23.53		
m	17	613.27	6.02693E-03	93.44		
	19	767.83	9.78535E-03	41.09		
	21	789.63	1.76065E-02	39.81	Tol.	LA-138
M	23	998.84	8.68107E-03	31.60	Sum	
	25	1020.40	1.21384E-02	43.54		
	26	1093.39	5.65657E-03	51.80	Tol.	LU-172
	28	1330.35	3.94608E-03	64.76		
	29	1386.98	4.37778E-03	44.42		
	30	1409.66	6.40946E-03	26.41		
	31	1431.99	2.74123E-03	59.36		
	33	1496.02	4.59936E-03	43.97		
	34	1580.90	1.77083E-03	52.17		
	35	1587.34	2.52315E-03	44.72		
	36	1592.64	3.05556E-03	50.00	D-Esc	
	38	2063.04	2.50000E-03	33.33		
	39	2203.12	2.55208E-03	60.78		

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 1707089-06

HTC-A04-S001-3642-01

NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	1.88E+00	3.06E+00	3.06E+00
+		NA-22	1274.54		99.94	-5.12E-02	1.52E-01	1.52E-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	-3.74E-02	8.41E-02	8.41E-02
+		K-40	1460.81	*	10.67	2.54E+01	8.57E-01	8.57E-01
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	-4.64E-02	7.27E-02	7.27E-02
			78.34		96.00	3.32E-01		9.13E-02
+		SC-46	889.25		99.98	-4.72E-02	2.73E-01	2.73E-01
			1120.51		99.99	5.03E-01		4.11E-01
+		V-48	983.52		99.98	4.92E+00	9.38E+00	9.38E+00
			1312.10		97.50	-5.66E+00		9.50E+00
+		CR-51	320.08		9.83	1.65E+00	8.26E+00	8.26E+00
+		MN-54	834.83		99.97	-2.86E-02	1.46E-01	1.46E-01
+		CO-56	846.75		99.96	-5.42E-02	2.74E-01	2.74E-01
			1037.75		14.03	-4.43E-01		2.32E+00
			1238.25		67.00	6.44E-01		7.10E-01
			1771.40		15.51	-1.15E+00		1.02E+00
			2598.48		16.90	2.41E-01		1.12E+00
+		CO-57	122.06		85.51	3.82E-02	8.36E-02	8.36E-02
			136.48		10.60	-1.00E-01		6.59E-01
+		CO-58	810.76		99.40	-3.04E-02	2.94E-01	2.94E-01
+		FE-59	1099.22		56.50	-3.87E-01	9.89E-01	9.89E-01
			1291.56		43.20	2.75E-01		1.58E+00
+		CO-60	1173.22		100.00	-1.45E-02	1.27E-01	1.63E-01
			1332.49		100.00	-2.04E-02		1.27E-01
+		ZN-65	1115.52		50.75	-1.98E-02	3.93E-01	3.93E-01
+		GA-67	93.31		35.70	4.80E+08	3.30E+08	3.30E+08
			208.95		2.24	3.40E+09		5.14E+09
			300.22		16.00	2.76E+08		7.91E+08
+		SE-75	121.11		16.70	-6.59E-03	1.64E-01	5.83E-01
			136.00		59.20	-3.21E-02		1.64E-01
			264.65		59.80	-8.12E-02		1.94E-01
			279.53		25.20	1.04E-01		4.95E-01
			400.65		11.40	-2.29E-01		1.14E+00
+		RB-82	776.52	*	13.00	4.72E+00	9.99E+00	9.99E+00
+		RB-83	520.41		46.00	3.40E-02	3.74E-01	3.74E-01
			529.64		30.30	1.08E-02		5.56E-01
			552.65		16.40	1.54E-01		1.09E+00
+		KR-85	513.99		0.43	2.95E+01	2.63E+01	2.63E+01
+		SR-85	513.99		99.27	3.69E-01	3.29E-01	3.29E-01

Analysis Report for 1707089-06

HTC-A04-S001-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	Y-88	898.02		93.40	-1.26E-01	1.31E-01	2.47E-01
		1836.01		99.38	-6.38E-03		1.31E-01
+	MO-93	263.06		56.72	7.63E-03	9.54E-02	1.16E-01
		684.67		99.68	6.70E-02		1.09E-01
		1477.11		99.08	1.52E-02		9.54E-02
+	NB-93M	16.57		9.43	1.78E+01	7.68E+00	7.68E+00
+	NB-94	702.63		100.00	2.35E-02	1.08E-01	1.08E-01
		871.10		100.00	-3.67E-02		1.21E-01
+	NB-95	765.79		99.81	-2.35E-02	8.76E-01	8.76E-01
+	NB-95M	235.69		25.00	1.48E+08	9.34E+07	9.34E+07
+	ZR-95	724.18		43.70	-1.22E-01	6.09E-01	8.46E-01
		756.72		55.30	1.05E-01		6.09E-01
+	MO-99	181.06		6.20	7.32E+09	8.14E+10	8.24E+10
		739.58		12.80	4.22E+10		8.14E+10
		778.00		4.50	1.13E+11		2.18E+11
+	RU-103	497.08		89.00	-2.29E-01	4.98E-01	4.98E-01
+	RU-106	621.84		9.80	5.20E-02	1.04E+00	1.04E+00
+	AG-108M	433.93		89.90	-3.73E-02	7.86E-02	7.86E-02
		614.37		90.40	-2.54E-01		1.07E-01
		722.95		90.50	-3.36E-02		1.28E-01
+	CD-109	88.03	*	3.72	3.19E+00	3.93E+00	3.93E+00
+	AG-110M	657.75		93.14	-2.32E-02	1.60E-01	1.60E-01
		677.61		10.53	-3.48E-02		1.24E+00
		706.67		16.46	7.05E-02		8.17E-01
		763.93		21.98	1.85E-01		7.55E-01
		884.67		71.63	-2.99E-02		2.31E-01
		1384.27		23.94	-2.40E-02		7.26E-01
+	CD-113M	263.70		0.02	-1.98E+02	2.80E+02	2.80E+02
+	SN-113	255.12		1.93	-1.33E-01	1.96E-01	6.17E+00
		391.69		64.90	-8.78E-02		1.96E-01
+	TE123M	159.00		84.10	-1.80E-02	1.21E-01	1.21E-01
+	SB-124	602.71		97.87	2.53E-02	2.97E-01	2.97E-01
		645.85		7.26	2.41E+00		3.94E+00
		722.78		11.10	-8.65E-01		3.29E+00
		1691.02		49.00	-2.79E-01		4.43E-01
+	I-125	35.49		6.49	2.24E+00	5.13E+00	5.13E+00
+	SB-125	176.33		6.89	5.33E-01	2.84E-01	9.19E-01
		427.89		29.33	-5.44E-02		2.84E-01
		463.38		10.35	9.83E-01		9.49E-01
		600.56		17.80	-1.23E-02		5.31E-01
		635.90		11.32	2.21E-01		8.37E-01
+	SB-126	414.70		83.30	-9.00E+00	2.30E+01	2.30E+01
		666.33		99.60	4.31E+00		2.75E+01
		695.00		99.60	7.80E+00		2.83E+01
		720.50		53.80	4.55E+00		5.67E+01
+	SN-126	87.57	*	37.00	2.76E-01	3.40E-01	3.40E-01
+	SB-127	473.00		25.00	1.53E+06	1.99E+07	2.18E+07
		685.20		35.70	1.22E+07		1.99E+07

Analysis Report for 1707089-06

HTC-A04-S001-3642-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-127	783.80	14.70	1.42E+07	1.99E+07	5.16E+07
+	I-129	29.78	57.00	5.09E-02	2.52E-01	2.52E-01
		33.60	13.20	-2.04E-01		8.52E-01
		39.58	7.52	-3.45E-01		1.13E+00
+	I-131	284.30	6.05	1.54E+03	4.89E+02	6.29E+03
		364.48	81.20	2.09E+02		4.89E+02
		636.97	7.26	2.19E+03		6.75E+03
		722.89	1.80	-9.38E+03		3.56E+04
+	TE-132	49.72	13.10	-1.02E+08	1.31E+08	9.82E+08
		228.16	88.00	7.31E+07		1.31E+08
+	BA-133	81.00	33.00	-6.08E-01	1.61E-01	2.13E-01
		302.84	17.80	2.57E-01		4.19E-01
		356.01	60.00	1.56E-02		1.61E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-2.87E+05	1.01E+05	1.01E+05
+	CS-134	563.23	8.38	1.52E-01	1.15E-01	1.12E+00
		569.32	15.43	1.68E-01		6.34E-01
		604.70	97.60	-5.18E-01		1.15E-01
		795.84	85.40	6.84E-04		1.51E-01
		801.93	8.73	-3.03E-01		1.33E+00
+	CS-135	268.24	16.00	2.27E-01	4.40E-01	4.40E-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	-1.38E-01	2.05E+01	1.52E+02
		163.89	4.61	1.49E+02		2.48E+02
		176.55	13.56	2.93E+01		8.51E+01
		273.65	12.66	-8.50E+01		1.05E+02
		340.57	48.50	4.34E+01		3.64E+01
		818.50	99.70	-3.05E+00		2.05E+01
		1048.07	79.60	9.07E+00		3.30E+01
		1235.34	19.70	5.33E+01		1.89E+02
+	CS-137	661.65	85.12	-4.89E-03	1.30E-01	1.30E-01
+	LA-138	788.74	34.00	-4.20E-01	1.71E-01	3.06E-01
		1435.80	66.00	-1.36E-02		1.71E-01
+	CE-139	165.85	80.35	4.46E-02	1.19E-01	1.19E-01
+	BA-140	162.64	6.70	1.31E+02	7.70E+01	1.98E+02
		304.84	4.50	4.75E+01		3.52E+02
		423.70	3.20	4.73E+01		5.71E+02
		437.55	2.00	-2.10E+02		8.13E+02
		537.32	25.00	-9.09E+00		7.70E+01
+	LA-140	328.77	20.50	5.16E+01	2.50E+01	8.59E+01
		487.03	45.50	6.31E+00		4.08E+01
		815.85	23.50	-2.46E+01		1.02E+02
		1596.49	95.49	-6.36E+00		2.50E+01
+	CE-141	145.44	48.40	5.82E-02	9.99E-01	9.99E-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 1707089-06

HTC-A04-S001-3642-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CE-144	133.54	10.80	-2.67E-01	6.44E-01	6.44E-01
+	PM-144	476.78	42.00	9.32E-02	1.02E-01	2.50E-01
		618.01	98.60	-1.94E-02		1.02E-01
		696.49	99.49	1.30E-03		1.30E-01
+	PM-145	36.85	21.70	-3.87E-02	2.41E-01	4.52E-01
		37.36	39.70	-2.07E-02		2.41E-01
		42.30	15.10	1.02E-01		5.45E-01
		72.40	2.31	-3.42E-02		3.34E+00
+	PM-146	453.90	39.94	2.92E-02	1.83E-01	1.83E-01
		735.90	14.01	-3.77E-01		8.06E-01
		747.13	13.10	-2.32E-02		8.85E-01
+	ND-147	91.11	28.90	2.45E+02	1.40E+02	1.40E+02
		531.02	13.10	1.35E+02		3.39E+02
+	PM-149	285.90	3.10	-2.16E+13	8.85E+13	8.85E+13
+	EU-152	121.78	20.50	1.25E-01	2.74E-01	2.74E-01
		244.69	5.40	-1.88E-01		1.37E+00
		344.27	19.13	7.55E-02		3.86E-01
		778.89	9.20	2.45E-02		1.25E+00
		964.01	10.40	-1.06E+00		1.29E+00
		1085.78	7.22	-6.19E-01		2.07E+00
		1112.02	9.60	1.60E-01		1.40E+00
		1407.95	14.94	4.65E-01		8.20E-01
+	GD-153	97.43	31.30	2.17E-02	2.43E-01	2.43E-01
		103.18	22.20	1.35E-01		3.28E-01
+	EU-154	123.07	40.50	3.80E-02	1.41E-01	1.41E-01
		723.30	19.70	-9.38E-02		6.48E-01
		873.19	11.50	-2.47E-01		1.09E+00
		996.32	10.30	-2.53E-02		1.37E+00
		1004.76	17.90	1.52E-01		7.91E-01
		1274.45	35.50	-1.37E-01		4.07E-01
+	EU-155	86.50	30.90	2.48E-01	2.37E-01	2.37E-01
		105.30	20.70	-1.03E-01		2.69E-01
+	EU-156	811.77	10.40	-1.18E+00	1.01E+02	1.01E+02
		1153.47	7.20	-5.76E+01		2.03E+02
		1230.71	8.90	-3.99E+01		1.95E+02
+	HO-166M	184.41	72.60	1.49E-01	9.32E-02	9.32E-02
		280.45	29.60	1.00E-01		2.39E-01
		410.94	11.10	5.23E-01		7.10E-01
		711.69	54.10	-7.53E-02		1.81E-01
+	TM-171	66.72	0.14	-1.02E+01	5.59E+01	5.59E+01
+	HF-172	67.35	5.31	-2.68E-01	5.53E-01	1.47E+00
		125.81	11.30	-5.53E-03		5.53E-01
+	LU-172	181.53	20.60	1.03E+03	7.51E+03	9.07E+03
		900.72	29.81	8.08E+03		1.36E+04
		1093.66	62.50	1.40E+03		7.51E+03
+	LU-173	100.72	5.24	-8.08E-02	3.83E-01	1.17E+00
		272.11	21.20	1.66E-01		3.83E-01
+	HF-175	343.40	84.00	4.55E-02	2.33E-01	2.33E-01
+	LU-176	88.34	13.30	-8.08E-02	7.08E-02	5.31E-01

Analysis Report for 1707089-06

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LU-176	201.83		86.00	-3.36E-02	7.08E-02	7.23E-02
		306.78		94.00	-4.94E-02		7.08E-02
+	HF-181	133.02		41.70	-1.77E-01	5.06E-01	6.82E-01
		345.85		17.20	4.27E-01		2.13E+00
		482.03		82.80	-1.77E-01		5.06E-01
+	TA-182	67.75		41.20	-1.95E-01	3.05E-01	3.05E-01
		1121.30		34.90	9.89E-01		9.22E-01
		1189.05		16.23	-7.34E-01		1.68E+00
		1221.41		26.98	-6.43E-01		1.12E+00
		1231.02		11.44	-2.16E+00		2.79E+00
+	IR-192	308.46		29.68	2.68E-04	4.26E-01	5.82E-01
		468.07		48.10	-8.42E-03		4.26E-01
+	HG-203	279.19		77.30	6.32E-02	4.04E-01	4.04E-01
+	TL-204	374.74		94.11	1.94E-02	8.12E-02	8.12E-02
		899.15		99.16	4.20E-02		1.35E-01
		911.74		91.10	3.69E-01		2.15E-01
+	BI-207	569.67		97.72	2.43E-02	9.18E-02	9.18E-02
		1063.62		74.90	6.39E-02		2.02E-01
+	TL-208	583.14	*	30.22	9.77E-01	2.73E-01	4.78E-01
		860.37		4.48	2.53E-01		2.60E+00
		2614.66	*	35.85	1.35E+00		2.73E-01
+	BI-210M	262.00		45.00	6.92E-03	1.44E-01	1.44E-01
		300.00		23.00	1.12E-01		3.21E-01
+	PB-210	46.50	*	4.25	1.42E+00	1.80E+00	1.80E+00
+	PB-211	404.84		2.90	-1.11E+00	2.50E+00	2.50E+00
		831.96		2.90	-4.50E-01		3.85E+00
+	BI-212	727.17	*	11.80	7.47E-01	1.15E+00	1.15E+00
		1620.62		2.75	-2.77E-01		3.56E+00
+	PB-212	238.63	*	44.60	1.50E+00	2.82E-01	2.82E-01
		300.09		3.41	7.55E-01		2.16E+00
+	BI-214	609.31	*	46.30	9.29E-01	3.78E-01	3.78E-01
		1120.29	*	15.10	1.39E+00		1.22E+00
		1764.49	*	15.80	1.21E+00		3.96E-01
		2204.22		4.98	2.31E+00		3.11E+00
+	PB-214	295.21	*	19.19	6.71E-01	3.16E-01	5.22E-01
		351.92	*	37.19	1.06E+00		3.16E-01
+	RN-219	401.80		6.50	6.38E-01	1.16E+00	1.16E+00
+	RA-223	323.87		3.88	1.09E-01	1.82E+00	1.82E+00
+	RA-224	240.98		3.95	1.52E+01	3.16E+00	3.16E+00
+	RA-225	40.00		31.00	-8.93E+00	2.92E+01	2.92E+01
+	RA-226	186.21	*	3.28	2.10E+00	2.74E+00	2.74E+00
+	TH-227	50.10		8.40	-9.01E-02	8.70E-01	8.70E-01
		236.00		11.50	1.47E+00		9.26E-01
		256.20		6.30	5.22E-01		1.05E+00
+	AC-228	338.32	*	11.40	8.54E-01	5.08E-01	9.37E-01
		911.07	*	27.70	1.14E+00		5.08E-01
		969.11		16.60	3.73E-01		9.70E-01
+	TH-230	48.44		16.90	-4.01E-02	4.62E-01	4.62E-01

Analysis Report for 1707089-06

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TH-230	62.85		4.60	5.27E-01	4.62E-01	1.59E+00
		67.67		0.37	-1.18E+01		1.85E+01
+	PA-231	283.67		1.60	1.04E+00	3.18E+00	4.27E+00
		302.67		2.30	1.96E+00		3.18E+00
+	TH-231	25.64		14.70	5.76E-01	1.03E+00	1.41E+00
		84.21		6.40	-4.16E-01		1.03E+00
+	PA-233	311.98		38.60	1.23E+00	2.28E+00	2.28E+00
+	PA-234	131.20		20.40	9.50E-02	2.77E-01	2.77E-01
		733.99		8.80	-3.15E-01		1.23E+00
		946.00		12.00	-7.79E-02		1.07E+00
+	PA-234M	1001.03	*	0.92	6.99E+00	1.55E+01	1.55E+01
+	TH-234	63.29		3.80	6.35E-01	1.92E+00	1.92E+00
+	U-235	143.76		10.50	1.58E-01	5.43E-01	5.43E-01
		163.35		4.70	8.25E-01		1.25E+00
		205.31		4.70	-3.05E-01		1.36E+00
+	NP-237	86.50		12.60	5.86E-01	5.60E-01	5.60E-01
+	NP-239	106.10		22.70	7.13E+09	1.46E+12	1.46E+12
		228.18		10.70	2.11E+12		3.79E+12
		277.60		14.10	-4.21E+10		2.93E+12
+	AM-241	59.54		35.90	2.52E-02	2.01E-01	2.01E-01
+	AM-243	74.67		66.00	6.31E-01	1.40E-01	1.40E-01
+	CM-243	209.75		3.29	4.72E-01	4.85E-01	2.02E+00
		228.14		10.60	3.50E-01		6.29E-01
		277.60		14.00	-6.98E-03		4.85E-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 1707089-06

HTC-A04-S001-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	3.06E+00	3.06E+00	1.88E+00	1.45E+00
	NA-22	1274.54		99.94	1.52E-01	1.52E-01	-5.12E-02	7.02E-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	8.41E-02	8.41E-02	-3.74E-02	3.45E-02
+	K-40	1460.81	*	10.67	8.57E-01	8.57E-01	2.54E+01	3.70E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	7.27E-02	7.27E-02	-4.64E-02	3.56E-02
		78.34		96.00	9.13E-02		3.32E-01	4.50E-02
	SC-46	889.25		99.98	2.73E-01	2.73E-01	-4.72E-02	1.27E-01
		1120.51		99.99	4.11E-01		5.03E-01	1.94E-01
	V-48	983.52		99.98	9.38E+00	9.38E+00	4.92E+00	4.35E+00
		1312.10		97.50	9.50E+00		-5.66E+00	4.31E+00
	CR-51	320.08		9.83	8.26E+00	8.26E+00	1.65E+00	3.95E+00
	MN-54	834.83		99.97	1.46E-01	1.46E-01	-2.86E-02	6.81E-02
	CO-56	846.75		99.96	2.74E-01	2.74E-01	-5.42E-02	1.28E-01
		1037.75		14.03	2.32E+00		-4.43E-01	1.08E+00
		1238.25		67.00	7.10E-01		6.44E-01	3.36E-01
		1771.40		15.51	1.02E+00		-1.15E+00	3.96E-01
		2598.48		16.90	1.12E+00		2.41E-01	3.97E-01
	CO-57	122.06		85.51	8.36E-02	8.36E-02	3.82E-02	4.08E-02
		136.48		10.60	6.59E-01		-1.00E-01	3.21E-01
	CO-58	810.76		99.40	2.94E-01	2.94E-01	-3.04E-02	1.37E-01
	FE-59	1099.22		56.50	9.89E-01	9.89E-01	-3.87E-01	4.54E-01
		1291.56		43.20	1.58E+00		2.75E-01	7.30E-01
	CO-60	1173.22		100.00	1.63E-01	1.27E-01	-1.45E-02	7.60E-02
		1332.49		100.00	1.27E-01		-2.04E-02	5.75E-02
	ZN-65	1115.52		50.75	3.93E-01	3.93E-01	-1.98E-02	1.84E-01
	GA-67	93.31		35.70	3.30E+08	3.30E+08	4.80E+08	1.62E+08
		208.95		2.24	5.14E+09		3.40E+09	2.50E+09
		300.22		16.00	7.91E+08		2.76E+08	3.81E+08
	SE-75	121.11		16.70	5.83E-01	1.64E-01	-6.59E-03	2.85E-01
		136.00		59.20	1.64E-01		-3.21E-02	7.99E-02
		264.65		59.80	1.94E-01		-8.12E-02	9.33E-02
		279.53		25.20	4.95E-01		1.04E-01	2.39E-01
		400.65		11.40	1.14E+00		-2.29E-01	5.39E-01
+	RB-82	776.52	*	13.00	9.99E+00	9.99E+00	4.72E+00	4.59E+00
	RB-83	520.41		46.00	3.74E-01	3.74E-01	3.40E-02	1.75E-01
		529.64		30.30	5.56E-01		1.08E-02	2.60E-01
		552.65		16.40	1.09E+00		1.54E-01	5.09E-01
	KR-85	513.99		0.43	2.63E+01	2.63E+01	2.95E+01	1.26E+01
	SR-85	513.99		99.27	3.29E-01	3.29E-01	3.69E-01	1.58E-01
	Y-88	898.02		93.40	2.47E-01	1.31E-01	-1.26E-01	1.15E-01
		1836.01		99.38	1.31E-01		-6.38E-03	5.09E-02
	MO-93	263.06		56.72	1.16E-01	9.54E-02	7.63E-03	5.56E-02
		684.67		99.68	1.09E-01		6.70E-02	5.15E-02
		1477.11		99.08	9.54E-02		1.52E-02	4.13E-02
	NB-93M	16.57		9.43	7.68E+00	7.68E+00	1.78E+01	3.73E+00
	NB-94	702.63		100.00	1.08E-01	1.08E-01	2.35E-02	5.09E-02
		871.10		100.00	1.21E-01		-3.67E-02	5.67E-02
	NB-95	765.79		99.81	8.76E-01	8.76E-01	-2.35E-02	4.13E-01
	NB-95M	235.69		25.00	9.34E+07	9.34E+07	1.48E+08	4.58E+07
	ZR-95	724.18		43.70	8.46E-01	6.09E-01	-1.22E-01	4.01E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	ZR-95	756.72		55.30	6.09E-01	6.09E-01	1.05E-01	2.86E-01
	MO-99	181.06		6.20	8.24E+10	8.14E+10	7.32E+09	4.00E+10
		739.58		12.80	8.14E+10		4.22E+10	3.84E+10
		778.00		4.50	2.18E+11		1.13E+11	1.02E+11
	RU-103	497.08		89.00	4.98E-01	4.98E-01	-2.29E-01	2.34E-01
	RU-106	621.84		9.80	1.04E+00	1.04E+00	5.20E-02	4.87E-01
	AG-108M	433.93		89.90	7.86E-02	7.86E-02	-3.73E-02	3.71E-02
		614.37		90.40	1.07E-01		-2.54E-01	5.04E-02
		722.95		90.50	1.28E-01		-3.36E-02	6.02E-02
+	CD-109	88.03	*	3.72	3.93E+00	3.93E+00	3.19E+00	1.95E+00
	AG-110M	657.75		93.14	1.60E-01	1.60E-01	-2.32E-02	7.56E-02
		677.61		10.53	1.24E+00		-3.48E-02	5.82E-01
		706.67		16.46	8.17E-01		7.05E-02	3.83E-01
		763.93		21.98	7.55E-01		1.85E-01	3.57E-01
		884.67		71.63	2.31E-01		-2.99E-02	1.08E-01
		1384.27		23.94	7.26E-01		-2.40E-02	3.31E-01
	CD-113M	263.70		0.02	2.80E+02	2.80E+02	-1.98E+02	1.35E+02
	SN-113	255.12		1.93	6.17E+00	1.96E-01	-1.33E-01	2.98E+00
		391.69		64.90	1.96E-01		-8.78E-02	9.32E-02
	TE123M	159.00		84.10	1.21E-01	1.21E-01	-1.80E-02	5.87E-02
	SB-124	602.71		97.87	2.97E-01	2.97E-01	2.53E-02	1.39E-01
		645.85		7.26	3.94E+00		2.41E+00	1.84E+00
		722.78		11.10	3.29E+00		-8.65E-01	1.55E+00
		1691.02		49.00	4.43E-01		-2.79E-01	1.76E-01
	I-125	35.49		6.49	5.13E+00	5.13E+00	2.24E+00	2.50E+00
	SB-125	176.33		6.89	9.19E-01	2.84E-01	5.33E-01	4.47E-01
		427.89		29.33	2.84E-01		-5.44E-02	1.35E-01
		463.38		10.35	9.49E-01		9.83E-01	4.52E-01
		600.56		17.80	5.31E-01		-1.23E-02	2.49E-01
		635.90		11.32	8.37E-01		2.21E-01	3.91E-01
	SB-126	414.70		83.30	2.30E+01	2.30E+01	-9.00E+00	1.09E+01
		666.33		99.60	2.75E+01		4.31E+00	1.29E+01
		695.00		99.60	2.83E+01		7.80E+00	1.33E+01
		720.50		53.80	5.67E+01		4.55E+00	2.67E+01
+	SN-126	87.57	*	37.00	3.40E-01	3.40E-01	2.76E-01	1.68E-01
	SB-127	473.00		25.00	2.18E+07	1.99E+07	1.53E+06	1.03E+07
		685.20		35.70	1.99E+07		1.22E+07	9.39E+06
		783.80		14.70	5.16E+07		1.42E+07	2.42E+07
	I-129	29.78		57.00	2.52E-01	2.52E-01	5.09E-02	1.23E-01
		33.60		13.20	8.52E-01		-2.04E-01	4.15E-01
		39.58		7.52	1.13E+00		-3.45E-01	5.49E-01
	I-131	284.30		6.05	6.29E+03	4.89E+02	1.54E+03	3.03E+03
		364.48		81.20	4.89E+02		2.09E+02	2.33E+02
		636.97		7.26	6.75E+03		2.19E+03	3.15E+03
		722.89		1.80	3.56E+04		-9.38E+03	1.68E+04
	TE-132	49.72		13.10	9.82E+08	1.31E+08	-1.02E+08	4.80E+08
		228.16		88.00	1.31E+08		7.31E+07	6.36E+07
	BA-133	81.00		33.00	2.13E-01	1.61E-01	-6.08E-01	1.05E-01
		302.84		17.80	4.19E-01		2.57E-01	2.02E-01
		356.01		60.00	1.61E-01		1.56E-02	7.75E-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	1.01E+05	1.01E+05	-2.87E+05	4.94E+04
	CS-134	563.23		8.38	1.12E+00	1.15E-01	1.52E-01	5.27E-01

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-134	569.32	15.43	6.34E-01	1.15E-01	1.68E-01	2.98E-01
	604.70	97.60	1.15E-01		-5.18E-01	5.44E-02
	795.84	85.40	1.51E-01		6.84E-04	7.07E-02
	801.93	8.73	1.33E+00		-3.03E-01	6.17E-01
CS-135	268.24	16.00	4.40E-01	4.40E-01	2.27E-01	2.13E-01
@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41	28.60	1.00E+26		1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		1.00E+26	1.00E+20
CS-136	153.22	7.46	1.52E+02	2.05E+01	-1.38E-01	7.42E+01
	163.89	4.61	2.48E+02		1.49E+02	1.20E+02
	176.55	13.56	8.51E+01		2.93E+01	4.13E+01
	273.65	12.66	1.05E+02		-8.50E+01	5.06E+01
	340.57	48.50	3.64E+01		4.34E+01	1.76E+01
	818.50	99.70	2.05E+01		-3.05E+00	9.51E+00
	1048.07	79.60	3.30E+01		9.07E+00	1.54E+01
	1235.34	19.70	1.89E+02		5.33E+01	8.94E+01
CS-137	661.65	85.12	1.30E-01	1.30E-01	-4.89E-03	6.13E-02
LA-138	788.74	34.00	3.06E-01	1.71E-01	-4.20E-01	1.42E-01
	1435.80	66.00	1.71E-01		-1.36E-02	7.61E-02
CE-139	165.85	80.35	1.19E-01	1.19E-01	4.46E-02	5.80E-02
BA-140	162.64	6.70	1.98E+02	7.70E+01	1.31E+02	9.63E+01
	304.84	4.50	3.52E+02		4.75E+01	1.69E+02
	423.70	3.20	5.71E+02		4.73E+01	2.72E+02
	437.55	2.00	8.13E+02		-2.10E+02	3.84E+02
	537.32	25.00	7.70E+01		-9.09E+00	3.63E+01
LA-140	328.77	20.50	8.59E+01	2.50E+01	5.16E+01	4.13E+01
	487.03	45.50	4.08E+01		6.31E+00	1.93E+01
	815.85	23.50	1.02E+02		-2.46E+01	4.73E+01
	1596.49	95.49	2.50E+01		-6.36E+00	1.09E+01
CE-141	145.44	48.40	9.99E-01	9.99E-01	5.82E-02	4.87E-01
@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	293.26	42.00	1.00E+26		1.00E+26	1.00E+20
@	664.55	5.20	1.00E+26		1.00E+26	1.00E+20
CE-144	133.54	10.80	6.44E-01	6.44E-01	-2.67E-01	3.14E-01
PM-144	476.78	42.00	2.50E-01	1.02E-01	9.32E-02	1.19E-01
	618.01	98.60	1.02E-01		-1.94E-02	4.75E-02
	696.49	99.49	1.30E-01		1.30E-03	6.14E-02
PM-145	36.85	21.70	4.52E-01	2.41E-01	-3.87E-02	2.20E-01
	37.36	39.70	2.41E-01		-2.07E-02	1.18E-01
	42.30	15.10	5.45E-01		1.02E-01	2.66E-01
	72.40	2.31	3.34E+00		-3.42E-02	1.64E+00
PM-146	453.90	39.94	1.83E-01	1.83E-01	2.92E-02	8.60E-02
	735.90	14.01	8.06E-01		-3.77E-01	3.78E-01
	747.13	13.10	8.85E-01		-2.32E-02	4.16E-01
ND-147	91.11	28.90	1.40E+02	1.40E+02	2.45E+02	6.87E+01
	531.02	13.10	3.39E+02		1.35E+02	1.59E+02
PM-149	285.90	3.10	8.85E+13	8.85E+13	-2.16E+13	4.25E+13
EU-152	121.78	20.50	2.74E-01	2.74E-01	1.25E-01	1.33E-01
	244.69	5.40	1.37E+00		-1.88E-01	6.62E-01
	344.27	19.13	3.86E-01		7.55E-02	1.85E-01
	778.89	9.20	1.25E+00		2.45E-02	5.88E-01
	964.01	10.40	1.29E+00		-1.06E+00	6.05E-01
	1085.78	7.22	2.07E+00		-6.19E-01	9.69E-01

Analysis Report for 1707089-06

HTC-A04-S001-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-152	1112.02		9.60	1.40E+00	2.74E-01	1.60E-01	6.49E-01
		1407.95		14.94	8.20E-01		4.65E-01	3.70E-01
	GD-153	97.43		31.30	2.43E-01	2.43E-01	2.17E-02	1.19E-01
		103.18		22.20	3.28E-01		1.35E-01	1.60E-01
	EU-154	123.07		40.50	1.41E-01	1.41E-01	3.80E-02	6.87E-02
		723.30		19.70	6.48E-01		-9.38E-02	3.07E-01
		873.19		11.50	1.09E+00		-2.47E-01	5.09E-01
		996.32		10.30	1.37E+00		-2.53E-02	6.43E-01
		1004.76		17.90	7.91E-01		1.52E-01	3.70E-01
		1274.45		35.50	4.07E-01		-1.37E-01	1.88E-01
	EU-155	86.50		30.90	2.37E-01	2.37E-01	2.48E-01	1.17E-01
		105.30		20.70	2.69E-01		-1.03E-01	1.31E-01
	EU-156	811.77		10.40	1.01E+02	1.01E+02	-1.18E+00	4.73E+01
		1153.47		7.20	2.03E+02		-5.76E+01	9.49E+01
		1230.71		8.90	1.95E+02		-3.99E+01	9.19E+01
	HO-166M	184.41		72.60	9.32E-02	9.32E-02	1.49E-01	4.54E-02
		280.45		29.60	2.39E-01		1.00E-01	1.15E-01
		410.94		11.10	7.10E-01		5.23E-01	3.38E-01
		711.69		54.10	1.81E-01		-7.53E-02	8.45E-02
	TM-171	66.72		0.14	5.59E+01	5.59E+01	-1.02E+01	2.74E+01
	HF-172	67.35		5.31	1.47E+00	5.53E-01	-2.68E-01	7.22E-01
		125.81		11.30	5.53E-01		-5.53E-03	2.70E-01
	LU-172	181.53		20.60	9.07E+03	7.51E+03	1.03E+03	4.40E+03
		900.72		29.81	1.36E+04		8.08E+03	6.38E+03
		1093.66		62.50	7.51E+03		1.40E+03	3.52E+03
	LU-173	100.72		5.24	1.17E+00	3.83E-01	-8.08E-02	5.73E-01
		272.11		21.20	3.83E-01		1.66E-01	1.85E-01
	HF-175	343.40		84.00	2.33E-01	2.33E-01	4.55E-02	1.11E-01
	LU-176	88.34		13.30	5.31E-01	7.08E-02	-8.08E-02	2.61E-01
		201.83		86.00	7.23E-02		-3.36E-02	3.50E-02
		306.78		94.00	7.08E-02		-4.94E-02	3.39E-02
	HF-181	133.02		41.70	6.82E-01	5.06E-01	-1.77E-01	3.32E-01
		345.85		17.20	2.13E+00		4.27E-01	1.02E+00
		482.03		82.80	5.06E-01		-1.77E-01	2.39E-01
	TA-182	67.75		41.20	3.05E-01	3.05E-01	-1.95E-01	1.49E-01
		1121.30		34.90	9.22E-01		9.89E-01	4.36E-01
		1189.05		16.23	1.68E+00		-7.34E-01	7.82E-01
		1221.41		26.98	1.12E+00		-6.43E-01	5.23E-01
		1231.02		11.44	2.79E+00		-2.16E+00	1.31E+00
	IR-192	308.46		29.68	5.82E-01	4.26E-01	2.68E-04	2.79E-01
		468.07		48.10	4.26E-01		-8.42E-03	2.02E-01
	HG-203	279.19		77.30	4.04E-01	4.04E-01	6.32E-02	1.95E-01
	TL-204	374.74		94.11	8.12E-02	8.12E-02	1.94E-02	3.87E-02
		899.15		99.16	1.35E-01		4.20E-02	6.32E-02
		911.74		91.10	2.15E-01		3.69E-01	1.03E-01
	BI-207	569.67		97.72	9.18E-02	9.18E-02	2.43E-02	4.32E-02
		1063.62		74.90	2.02E-01		6.39E-02	9.47E-02
+	TL-208	583.14	*	30.22	4.78E-01	2.73E-01	9.77E-01	2.30E-01
		860.37		4.48	2.60E+00		2.53E-01	1.22E+00
		2614.66	*	35.85	2.73E-01		1.35E+00	1.04E-01
	BI-210M	262.00		45.00	1.44E-01	1.44E-01	6.92E-03	6.94E-02
		300.00		23.00	3.21E-01		1.12E-01	1.54E-01
+	PB-210	46.50	*	4.25	1.80E+00	1.80E+00	1.42E+00	8.77E-01

Analysis Report for 1707089-06

HTC-A04-S001-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PB-211	404.84		2.90	2.50E+00	2.50E+00	-1.11E+00	1.19E+00
		831.96		2.90	3.85E+00		-4.50E-01	1.79E+00
+	BI-212	727.17	*	11.80	1.15E+00	1.15E+00	7.47E-01	5.49E-01
		1620.62		2.75	3.56E+00		-2.77E-01	1.53E+00
+	PB-212	238.63	*	44.60	2.82E-01	2.82E-01	1.50E+00	1.39E-01
		300.09		3.41	2.16E+00		7.55E-01	1.04E+00
+	BI-214	609.31	*	46.30	3.78E-01	3.78E-01	9.29E-01	1.83E-01
		1120.29	*	15.10	1.22E+00		1.39E+00	5.78E-01
		1764.49	*	15.80	3.96E-01		1.21E+00	1.51E-01
		2204.22		4.98	3.11E+00		2.31E+00	1.37E+00
+	PB-214	295.21	*	19.19	5.22E-01	3.16E-01	6.71E-01	2.54E-01
		351.92	*	37.19	3.16E-01		1.06E+00	1.53E-01
	RN-219	401.80		6.50	1.16E+00	1.16E+00	6.38E-01	5.49E-01
	RA-223	323.87		3.88	1.82E+00	1.82E+00	1.09E-01	8.74E-01
	RA-224	240.98		3.95	3.16E+00	3.16E+00	1.52E+01	1.55E+00
	RA-225	40.00		31.00	2.92E+01	2.92E+01	-8.93E+00	1.42E+01
+	RA-226	186.21	*	3.28	2.74E+00	2.74E+00	2.10E+00	1.34E+00
	TH-227	50.10		8.40	8.70E-01	8.70E-01	-9.01E-02	4.25E-01
		236.00		11.50	9.26E-01		1.47E+00	4.54E-01
		256.20		6.30	1.05E+00		5.22E-01	5.06E-01
+	AC-228	338.32	*	11.40	9.37E-01	5.08E-01	8.54E-01	4.55E-01
		911.07	*	27.70	5.08E-01		1.14E+00	2.39E-01
		969.11		16.60	9.70E-01		3.73E-01	4.59E-01
	TH-230	48.44		16.90	4.62E-01	4.62E-01	-4.01E-02	2.26E-01
		62.85		4.60	1.59E+00		5.27E-01	7.80E-01
		67.67		0.37	1.85E+01		-1.18E+01	9.08E+00
	PA-231	283.67		1.60	4.27E+00	3.18E+00	1.04E+00	2.05E+00
		302.67		2.30	3.18E+00		1.96E+00	1.53E+00
	TH-231	25.64		14.70	1.41E+00	1.03E+00	5.76E-01	6.86E-01
		84.21		6.40	1.03E+00		-4.16E-01	5.06E-01
	PA-233	311.98		38.60	2.28E+00	2.28E+00	1.23E+00	1.09E+00
	PA-234	131.20		20.40	2.77E-01	2.77E-01	9.50E-02	1.35E-01
		733.99		8.80	1.23E+00		-3.15E-01	5.77E-01
		946.00		12.00	1.07E+00		-7.79E-02	5.02E-01
+	PA-234M	1001.03	*	0.92	1.55E+01	1.55E+01	6.99E+00	7.25E+00
	TH-234	63.29		3.80	1.92E+00	1.92E+00	6.35E-01	9.40E-01
	U-235	143.76		10.50	5.43E-01	5.43E-01	1.58E-01	2.65E-01
		163.35		4.70	1.25E+00		8.25E-01	6.08E-01
		205.31		4.70	1.36E+00		-3.05E-01	6.61E-01
	NP-237	86.50		12.60	5.60E-01	5.60E-01	5.86E-01	2.75E-01
	NP-239	106.10		22.70	1.46E+12	1.46E+12	7.13E+09	7.15E+11
		228.18		10.70	3.79E+12		2.11E+12	1.83E+12
		277.60		14.10	2.93E+12		-4.21E+10	1.41E+12
	AM-241	59.54		35.90	2.01E-01	2.01E-01	2.52E-02	9.83E-02
	AM-243	74.67		66.00	1.40E-01	1.40E-01	6.31E-01	6.91E-02
	CM-243	209.75		3.29	2.02E+00	4.85E-01	4.72E-01	9.83E-01
		228.14		10.60	6.29E-01		3.50E-01	3.05E-01
		277.60		14.00	4.85E-01		-6.98E-03	2.34E-01

Analysis Report for 1707089-06

HTC-A04-S001-3642-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A04-S001-3642-01

Elapsed Live time: 3600
Elapsed Real Time: 3605

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	28	114
17:	91	88	98	77	64	64	75	73
25:	63	75	61	69	62	51	64	83
33:	56	64	94	53	69	78	68	71
41:	64	60	75	104	117	114	75	83
49:	86	95	76	104	92	86	89	88
57:	92	128	109	111	134	169	162	124
65:	111	148	124	113	140	112	136	165
73:	202	276	275	380	295	127	104	119
81:	99	101	144	132	134	182	167	151
89:	138	147	148	206	166	110	72	72
97:	85	82	85	96	73	80	82	104
105:	83	75	77	85	88	78	86	78
113:	91	72	74	68	79	70	87	82
121:	71	78	75	91	74	67	85	90
129:	89	77	68	77	54	71	74	71
137:	68	66	68	74	61	70	70	82
145:	76	63	73	59	77	65	58	58
153:	76	83	64	76	51	58	58	60
161:	65	81	63	56	61	56	51	53
169:	65	35	58	59	78	58	50	57
177:	49	49	62	40	58	48	59	75
185:	101	97	53	46	37	55	52	48
193:	35	41	64	59	64	51	43	50
201:	48	61	56	44	62	43	50	57
209:	65	50	62	48	40	57	67	50
217:	36	50	55	49	38	33	41	46
225:	49	48	45	40	46	47	40	41
233:	37	53	47	80	214	326	203	113
241:	94	62	47	34	42	30	31	34
249:	41	36	38	37	27	38	31	45
257:	34	43	25	27	33	38	37	31
265:	38	18	35	50	40	53	29	25
273:	41	21	29	42	41	42	22	29
281:	40	24	46	27	26	29	25	29
289:	34	26	27	31	57	80	92	35
297:	25	35	42	26	37	31	30	27
305:	30	21	24	29	17	25	36	24
313:	24	21	19	18	23	28	20	19
321:	30	24	19	26	28	34	48	34
329:	35	15	19	22	29	20	26	35
337:	62	66	42	25	22	26	30	22
345:	24	19	22	16	33	84	119	118
353:	39	31	23	22	21	15	16	18
361:	19	14	23	20	18	26	22	14

369:	19	19	17	17	22	21	24	16

Sample Title: HTC-A04-S001-3642-01

Channel								
377:	22	15	19	20	15	26	19	18
385:	18	16	19	22	14	22	18	11
393:	14	15	23	20	14	16	15	24
401:	19	18	14	22	11	12	21	22
409:	19	24	19	13	17	13	16	17
417:	13	14	18	18	20	19	23	19
425:	19	15	21	19	11	16	16	18
433:	10	8	16	11	17	19	15	11
441:	17	17	16	16	11	17	15	8
449:	15	9	10	16	9	8	19	15
457:	15	7	16	12	21	32	26	17
465:	20	15	13	11	12	18	18	10
473:	16	19	16	23	12	15	19	16
481:	13	11	16	13	24	10	9	14
489:	16	15	14	14	12	8	13	10
497:	15	10	15	21	10	15	10	6
505:	16	20	18	19	28	56	42	22
513:	13	17	14	11	11	12	11	13
521:	11	10	9	6	12	5	10	11
529:	7	13	13	12	15	7	12	9
537:	15	14	14	18	11	16	12	9
545:	12	10	8	10	9	10	12	13
553:	10	7	12	14	6	14	9	9
561:	16	13	12	15	8	9	14	7
569:	15	16	15	11	10	10	15	9
577:	9	11	13	12	37	64	65	29
585:	13	10	11	7	17	12	12	11
593:	9	19	4	17	10	7	14	10
601:	7	14	14	14	9	15	30	74
609:	95	32	18	14	18	7	13	6
617:	12	8	8	9	12	12	8	8
625:	6	12	12	8	14	6	13	7
633:	9	9	10	12	9	12	6	8
641:	4	4	9	12	12	7	8	17
649:	6	7	13	10	10	12	15	13
657:	8	10	13	10	15	15	12	8
665:	8	10	8	7	6	10	7	5
673:	12	9	5	6	12	8	8	9
681:	7	9	12	12	10	13	8	8
689:	6	5	9	10	5	10	8	9
697:	12	14	7	10	12	11	16	4
705:	5	6	4	10	7	11	4	7
713:	9	9	6	10	15	8	9	9
721:	12	6	7	14	11	16	25	13
729:	11	7	13	9	10	5	7	8
737:	8	9	10	13	10	9	18	6
745:	9	6	9	7	7	10	6	9
753:	8	7	6	9	6	10	15	12
761:	10	7	7	9	9	12	18	11
769:	8	8	6	4	8	5	13	11
777:	9	6	5	5	11	12	16	5
785:	9	8	6	4	10	8	4	8
793:	9	15	11	14	3	7	8	8

801:	6	7	8	8	7	10	7	7

Sample Title: HTC-A04-S001-3642-01

Channel								
809:	9	7	7	8	8	3	10	6
817:	7	6	5	8	7	7	6	7
825:	10	5	5	4	10	2	6	10
833:	11	7	10	11	5	9	8	13
841:	6	3	11	9	8	4	10	6
849:	8	6	10	4	5	6	2	4
857:	6	5	6	12	12	6	5	11
865:	12	8	9	7	13	3	5	4
873:	12	10	5	10	10	9	11	8
881:	11	8	6	13	7	6	9	6
889:	9	7	9	7	6	8	6	10
897:	4	6	12	8	6	13	9	9
905:	4	5	2	9	20	41	48	16
913:	10	8	8	9	6	10	6	6
921:	5	8	12	5	8	8	8	8
929:	5	7	9	5	8	4	9	4
937:	7	7	12	4	8	8	8	11
945:	6	6	6	7	9	7	9	3
953:	6	7	4	10	3	4	8	3
961:	5	6	8	13	13	5	10	23
969:	17	11	9	5	16	7	4	8
977:	4	2	4	7	6	10	7	9
985:	2	6	6	4	6	6	6	8
993:	7	1	5	6	6	14	13	13
1001:	10	12	3	2	10	6	7	9
1009:	12	4	4	6	6	5	10	8
1017:	12	5	7	6	5	5	4	8
1025:	10	7	2	4	10	4	7	13
1033:	8	10	7	10	4	2	5	14
1041:	4	6	7	7	3	10	7	5
1049:	6	7	11	7	6	5	9	5
1057:	8	5	10	6	6	9	10	6
1065:	10	6	14	9	6	10	6	2
1073:	8	9	10	8	3	10	11	9
1081:	4	3	9	7	9	10	7	13
1089:	9	8	9	10	15	9	4	4
1097:	5	4	7	5	6	4	4	7
1105:	6	6	10	8	6	5	3	5
1113:	7	6	4	8	4	12	21	15
1121:	17	7	6	12	3	2	6	5
1129:	6	5	9	5	11	2	7	11
1137:	6	6	9	5	9	5	10	4
1145:	6	3	9	11	5	5	9	5
1153:	10	5	10	13	6	11	9	10
1161:	15	9	6	2	6	12	5	7
1169:	11	10	6	7	5	6	6	13
1177:	6	9	12	4	6	11	5	5
1185:	9	6	6	8	5	4	7	9
1193:	7	5	15	10	9	11	11	11
1201:	8	16	2	13	16	9	6	7
1209:	11	10	9	9	7	11	11	4
1217:	8	8	7	5	11	8	11	10
1225:	4	15	9	13	13	4	5	6

1233:	10	12	8	14	15	16	12	14

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Channel								
1241:	6	6	5	3	10	5	9	4
1249:	8	5	4	6	3	5	8	6
1257:	5	8	11	9	5	2	8	3
1265:	5	3	5	7	3	4	7	6
1273:	4	4	7	5	4	7	10	8
1281:	6	4	5	4	4	8	4	6
1289:	6	5	7	6	8	5	2	4
1297:	2	7	5	5	6	8	5	2
1305:	8	4	5	5	1	4	4	5
1313:	4	3	4	2	3	8	5	2
1321:	4	0	2	7	2	7	3	3
1329:	4	3	7	5	0	1	4	5
1337:	5	9	3	1	1	3	3	3
1345:	2	2	4	2	2	1	1	1
1353:	0	3	4	1	1	4	1	1
1361:	4	1	5	1	2	2	4	3
1369:	0	0	3	2	2	5	4	1
1377:	11	6	4	5	2	5	1	6
1385:	2	6	3	5	2	0	0	1
1393:	2	2	1	2	0	2	4	3
1401:	1	3	3	1	1	2	4	7
1409:	0	6	4	3	0	0	1	1
1417:	2	2	3	1	4	4	1	0
1425:	3	3	4	0	2	0	8	3
1433:	3	3	0	3	2	1	0	2
1441:	3	1	1	3	1	3	3	2
1449:	2	4	4	0	1	3	2	5
1457:	9	30	101	213	149	73	13	1
1465:	0	1	1	0	3	1	1	1
1473:	1	2	3	0	2	4	0	1
1481:	1	0	1	3	0	1	2	1
1489:	3	1	0	4	2	0	5	4
1497:	4	1	2	2	2	0	2	1
1505:	3	0	2	0	4	3	2	0
1513:	1	1	4	2	1	1	2	1
1521:	1	0	1	2	1	2	5	1
1529:	0	0	2	3	1	2	1	1
1537:	3	1	1	1	1	2	2	3
1545:	1	0	4	4	0	2	0	0
1553:	0	0	1	1	2	1	0	1
1561:	1	4	3	0	1	0	3	0
1569:	2	1	1	2	1	0	1	0
1577:	1	1	0	1	3	2	0	0
1585:	0	4	3	5	0	2	4	3
1593:	4	4	1	0	2	0	1	1
1601:	2	5	1	0	3	0	0	4
1609:	1	0	4	2	3	0	3	2
1617:	1	2	2	0	2	1	2	1
1625:	1	0	3	1	1	1	1	3
1633:	1	0	2	0	2	2	1	0
1641:	2	1	2	1	0	1	1	0
1649:	0	3	2	1	1	0	2	0
1657:	3	0	1	3	2	0	1	1

1665:	0	0	2	2	1	0	2	0

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

2097:	0	1	2	0	2	2	3	1

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

2529:	0	1	0	0	0	1	0	1

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Channel								
2537:	0	0	0	0	1	0	0	0
2545:	1	0	0	0	0	0	0	0
2553:	2	0	0	1	0	0	0	0
2561:	0	1	1	0	0	0	1	0
2569:	0	0	0	0	0	0	0	1
2577:	1	0	1	1	0	0	0	0
2585:	0	0	0	0	1	0	1	0
2593:	0	0	0	1	0	0	0	0
2601:	0	1	0	0	0	0	0	0
2609:	1	0	2	9	7	15	17	8
2617:	1	0	0	0	0	0	0	0
2625:	0	0	0	0	0	0	0	0
2633:	0	0	0	1	1	0	0	0
2641:	0	0	0	0	0	0	0	1
2649:	0	0	0	0	0	1	0	0
2657:	0	1	0	0	0	0	0	0
2665:	1	0	0	0	0	1	0	1
2673:	0	0	0	0	0	0	0	0
2681:	0	0	1	0	0	0	0	0
2689:	1	0	1	0	1	1	0	0
2697:	0	0	0	0	0	0	0	0
2705:	1	0	0	0	1	0	0	0
2713:	0	0	0	1	0	1	0	0
2721:	0	0	1	0	0	0	1	0
2729:	0	0	0	1	0	1	1	0
2737:	0	0	0	0	0	0	1	0
2745:	0	0	0	0	0	0	0	0
2753:	0	0	1	0	0	1	0	0
2761:	1	0	0	0	0	0	0	1
2769:	0	0	0	0	0	0	0	0
2777:	2	0	0	1	0	1	1	0
2785:	0	1	0	0	0	0	0	0
2793:	1	0	0	0	0	0	0	0
2801:	1	0	0	2	1	0	0	0
2809:	2	0	0	0	0	1	1	1
2817:	0	0	0	0	0	1	0	0
2825:	1	0	0	0	0	0	0	0
2833:	0	0	0	0	0	0	0	0
2841:	0	1	0	0	0	0	2	0
2849:	0	0	0	1	0	1	0	0
2857:	0	0	0	0	0	0	0	0
2865:	0	0	1	0	1	1	0	0
2873:	0	0	0	0	1	0	0	1
2881:	0	0	0	1	0	0	0	0
2889:	0	0	0	0	0	0	0	0
2897:	0	0	0	0	1	0	0	0
2905:	0	1	0	0	0	0	0	0
2913:	0	0	0	0	0	0	0	0
2921:	0	0	0	0	0	0	0	2
2929:	0	1	0	1	1	0	0	0
2937:	0	1	0	0	0	0	0	0
2945:	0	0	0	0	0	0	0	0
2953:	0	0	0	0	0	0	0	0

2961:	0	0	0	0	0	0	0	0

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

3393:	0	0	1	0	0	0	0	0

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

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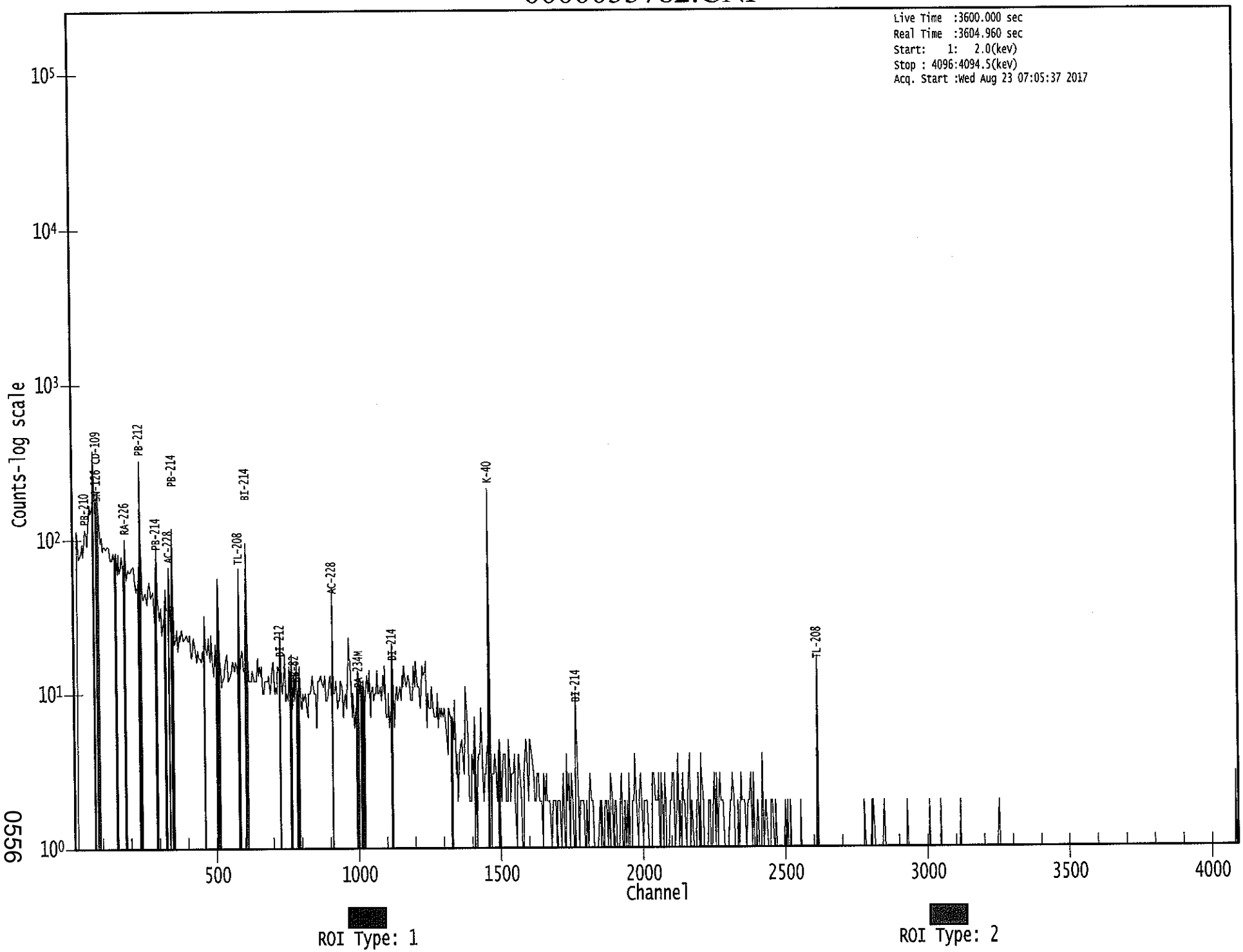
Channel								
3833:	0	0	0	0	0	1	0	0
3841:	1	0	0	0	0	0	0	0
3849:	1	0	0	0	0	0	0	0
3857:	0	0	0	0	0	0	0	0
3865:	0	0	0	0	0	0	0	0
3873:	0	0	0	0	0	0	0	0
3881:	0	0	0	0	0	0	0	1
3889:	0	0	0	0	0	0	1	0
3897:	0	0	0	0	0	0	0	1
3905:	0	0	1	1	0	1	0	0
3913:	0	0	1	0	1	0	1	0
3921:	0	0	0	0	0	0	0	0
3929:	0	0	0	1	0	0	0	0
3937:	0	0	0	0	1	0	0	0
3945:	0	0	0	0	1	0	0	0
3953:	0	0	0	0	0	1	0	0
3961:	0	0	1	0	0	0	0	0
3969:	0	0	0	0	0	0	0	1
3977:	0	1	1	0	0	0	0	0
3985:	0	1	0	0	0	0	0	0
3993:	0	0	0	0	0	0	0	0
4001:	0	0	0	1	0	0	0	0
4009:	0	0	0	0	0	0	1	0
4017:	0	0	0	0	0	0	0	0
4025:	0	0	0	0	0	0	0	0
4033:	0	0	0	0	0	0	0	1
4041:	0	0	0	0	0	0	1	0
4049:	0	0	0	0	0	0	0	0
4057:	0	0	0	0	0	0	0	0
4065:	0	0	0	1	0	0	0	0
4073:	0	0	0	0	0	0	0	0
4081:	0	0	0	3	0	0	0	0
4089:	0	0	0	0	0	0	0	0

0000055782.CNF



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Apex-Gamma

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8/23/17

Analysis Report for 1707089-07
HTC-A04-S001-4248-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707089-07
Sample Description	: HTC-A04-S001-4248-01
Sample Type	: SOIL
Sample Size	: 6.627E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 6:47:35AM
Acquisition Started	: 8/23/2017 8:11:35AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3601.5 seconds
Dead Time	: 0.04 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 19 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55786

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/23/17

Analysis Report for 1707089-07

HTC-A04-S001-4248-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/23/2017 9:11:40AM
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	53.05	53.66	0.0000	0.00
2	72.08	72.67	0.0000	0.00
3	75.32	75.91	0.0000	0.00
4	86.47	87.05	0.0000	0.00
5	89.10	89.68	0.0000	0.00
6	92.63	93.20	0.0000	0.00
7	129.56	130.10	0.0000	0.00
8	185.57	186.05	0.0000	0.00
9	201.98	202.44	0.0000	0.00
10	209.37	209.82	0.0000	0.00
11	238.57	238.99	0.0000	0.00
12	241.56	241.98	0.0000	0.00
13	270.13	270.52	0.0000	0.00
14	295.17	295.54	0.0000	0.00
15	300.19	300.55	0.0000	0.00
16	338.24	338.56	0.0000	0.00
17	351.71	352.03	0.0000	0.00
18	387.64	387.92	0.0000	0.00
19	415.67	415.91	0.0000	0.00
20	452.95	453.16	0.0000	0.00
21	463.40	463.59	0.0000	0.00
22	468.82	469.01	0.0000	0.00
23	510.91	511.06	0.0000	0.00
24	583.17	583.25	0.0000	0.00
25	609.50	609.55	0.0000	0.00
26	694.92	694.89	0.0000	0.00
27	727.33	727.26	0.0000	0.00
28	769.79	769.68	0.0000	0.00
29	785.53	785.40	0.0000	0.00
30	794.52	794.38	0.0000	0.00
31	911.45	911.20	0.0000	0.00
32	916.32	916.06	0.0000	0.00
33	934.46	934.18	0.0000	0.00
34	942.62	942.34	0.0000	0.00
35	965.51	965.20	0.0000	0.00
36	969.11	968.80	0.0000	0.00
37	1002.63	1002.29	0.0000	0.00
38	1112.46	1112.01	0.0000	0.00
39	1120.89	1120.43	0.0000	0.00
40	1240.63	1240.06	0.0000	0.00
41	1281.43	1280.81	0.0000	0.00
42	1311.23	1310.58	0.0000	0.00

Analysis Report for 1707089-07

HTC-A04-S001-4248-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1378.53	1377.81	0.0000	0.00
44	1408.60	1407.85	0.0000	0.00
45	1448.84	1448.06	0.0000	0.00
46	1452.51	1451.72	0.0000	0.00
47	1461.36	1460.56	0.0000	0.00
48	1466.14	1465.34	0.0000	0.00
49	1510.25	1509.41	0.0000	0.00
50	1588.53	1587.61	0.0000	0.00
51	1594.10	1593.17	0.0000	0.00
52	1750.67	1749.59	0.0000	0.00
53	1765.37	1764.28	0.0000	0.00
54	1804.37	1803.24	0.0000	0.00
55	2071.25	2069.86	0.0000	0.00
56	2085.09	2083.69	0.0000	0.00
57	2104.01	2102.59	0.0000	0.00
58	2154.30	2152.84	0.0000	0.00
59	2205.62	2204.10	0.0000	0.00
60	2376.99	2375.31	0.0000	0.00
61	2413.52	2411.80	0.0000	0.00
62	2615.50	2613.59	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707089-07

HTC-A04-S001-4248-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/23/2017 9:11:40AM

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	53.05	51 -	56	53.66	8.77E+01	77.54	1.13E+03	3.79
M	2	72.08	71 -	80	72.67	1.33E+02	57.14	8.46E+02	1.66
m	3	75.32	71 -	80	75.91	7.83E+02	124.50	1.95E+03	2.41
M	4	86.47	83 -	97	87.05	3.06E+02	125.22	2.25E+03	3.54
m	5	89.10	83 -	97	89.68	1.48E+02	82.44	1.18E+03	1.83
m	6	92.63	83 -	97	93.20	4.64E+02	104.18	1.47E+03	2.22
	7	129.56	126 -	135	130.10	1.58E+02	107.56	1.56E+03	1.99
	8	185.57	182 -	190	186.05	1.67E+02	95.84	1.31E+03	1.75
	9	201.98	200 -	206	202.44	8.64E+01	68.82	8.05E+02	2.68
	10	209.37	207 -	213	209.82	7.01E+01	68.45	7.94E+02	1.98
M	11	238.57	234 -	250	238.99	9.12E+02	75.63	5.22E+02	1.78
m	12	241.56	234 -	250	241.98	2.91E+02	101.26	8.47E+02	2.94
	13	270.13	267 -	274	270.52	6.92E+01	64.84	6.52E+02	1.82
	14	295.17	292 -	298	295.54	3.07E+02	63.44	5.10E+02	1.92
	15	300.19	299 -	304	300.55	7.54E+01	47.20	3.69E+02	2.04
	16	338.24	334 -	342	338.56	2.14E+02	67.79	5.75E+02	1.65
	17	351.71	347 -	354	352.03	5.18E+02	68.23	4.27E+02	1.75
	18	387.64	384 -	392	387.92	4.25E+01	50.96	3.73E+02	3.23
	19	415.67	412 -	419	415.91	6.41E+01	44.05	2.74E+02	5.70
	20	452.95	449 -	459	453.16	5.66E+01	48.36	2.85E+02	2.68
M	21	463.40	460 -	471	463.59	4.40E+01	38.16	2.26E+02	2.39
m	22	468.82	460 -	471	469.01	2.31E+01	28.99	1.72E+02	2.17
	23	510.91	507 -	515	511.06	1.69E+02	50.84	2.96E+02	1.99
	24	583.17	578 -	588	583.25	3.44E+02	57.93	2.63E+02	2.19
	25	609.50	604 -	615	609.55	4.25E+02	64.78	3.11E+02	2.14
	26	694.92	691 -	700	694.89	4.57E+01	41.87	2.23E+02	6.84
	27	727.33	724 -	734	727.26	7.37E+01	41.94	2.03E+02	2.96
	28	769.79	763 -	777	769.68	8.64E+01	53.30	2.63E+02	10.63
	29	785.53	781 -	789	785.40	2.94E+01	35.81	1.77E+02	2.36
	30	794.52	791 -	798	794.38	2.95E+01	34.99	1.85E+02	1.62
M	31	911.45	907 -	919	911.20	2.25E+02	37.59	9.84E+01	1.90
m	32	916.32	907 -	919	916.06	2.63E+01	27.93	1.18E+02	2.20
	33	934.46	929 -	937	934.18	3.41E+01	33.11	1.46E+02	1.48
	34	942.62	938 -	947	942.34	2.72E+01	32.48	1.36E+02	6.79
M	35	965.51	962 -	973	965.20	4.75E+01	31.82	1.34E+02	2.22
m	36	969.11	962 -	973	968.80	1.27E+02	35.90	1.18E+02	2.22
	37	1002.63	998 -	1008	1002.29	3.42E+01	33.04	1.30E+02	3.07
	38	1112.46	1109 -	1116	1112.01	3.69E+01	23.66	7.03E+01	2.49
	39	1120.89	1117 -	1124	1120.43	7.03E+01	29.73	1.01E+02	2.30
	40	1240.63	1234 -	1248	1240.06	8.00E+01	55.73	2.96E+02	5.83

Analysis Report for 1707089-07

HTC-A04-S001-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1281.43	1277 -	1285	1280.81	2.40E+01	25.55	8.60E+01	4.39
	42	1311.23	1307 -	1314	1310.58	1.58E+01	20.59	6.04E+01	3.10
	43	1378.53	1373 -	1387	1377.81	2.70E+01	29.98	8.60E+01	3.58
	44	1408.60	1404 -	1411	1407.85	1.57E+01	18.00	4.26E+01	1.42
M	45	1448.84	1443 -	1470	1448.06	1.78E+01	17.15	1.85E+01	2.90
m	46	1452.51	1443 -	1470	1451.72	1.10E+01	18.17	1.89E+01	2.91
m	47	1461.36	1443 -	1470	1460.56	1.21E+03	70.95	2.77E+01	2.22
m	48	1466.14	1443 -	1470	1465.34	4.68E+01	33.08	4.12E+01	2.21
	49	1510.25	1505 -	1513	1509.41	1.66E+01	14.47	2.08E+01	4.55
M	50	1588.53	1585 -	1597	1587.61	1.66E+01	10.74	1.39E+01	3.03
m	51	1594.10	1585 -	1597	1593.17	1.76E+01	14.74	2.03E+01	3.58
	52	1750.67	1746 -	1752	1749.59	8.30E+00	7.23	3.40E+00	2.85
	53	1765.37	1760 -	1771	1764.28	8.20E+01	22.80	2.40E+01	2.68
	54	1804.37	1801 -	1806	1803.24	8.90E+00	7.00	2.20E+00	3.23
	55	2071.25	2067 -	2072	2069.86	7.00E+00	5.29	0.00E+00	2.70
	56	2085.09	2081 -	2086	2083.69	5.71E+00	6.08	2.57E+00	2.93
	57	2104.01	2099 -	2107	2102.59	1.54E+01	9.60	5.22E+00	2.21
	58	2154.30	2149 -	2155	2152.84	5.21E+00	6.34	3.57E+00	2.60
	59	2205.62	2200 -	2209	2204.10	2.20E+01	17.26	3.00E+01	2.03
	60	2376.99	2371 -	2379	2375.31	1.30E+01	7.21	0.00E+00	5.07
	61	2413.52	2408 -	2414	2411.80	5.21E+00	6.34	3.57E+00	1.08
	62	2615.50	2610 -	2620	2613.59	1.23E+02	24.09	1.46E+01	2.85

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/23/2017 9:11:40AM

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	53.05	51 -	56	8.77E+01	77.54	1.13E+03	6.19E+01
M	2	72.08	71 -	80	1.33E+02	57.14	8.46E+02	4.78E+01
m	3	75.32	71 -	80	7.83E+02	124.50	1.95E+03	7.26E+01
M	4	86.47	83 -	97	3.06E+02	125.22	2.25E+03	7.80E+01
m	5	89.10	83 -	97	1.48E+02	82.44	1.18E+03	5.66E+01
m	6	92.63	83 -	97	4.64E+02	104.18	1.47E+03	6.30E+01

Analysis Report for 1707089-07

HTC-A04-S001-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	7	129.56	126 -	135	1.58E+02	107.56	1.56E+03	8.60E+01
	8	185.57	182 -	190	1.67E+02	95.84	1.31E+03	7.59E+01
	9	201.98	200 -	206	8.64E+01	68.82	8.05E+02	5.45E+01
	10	209.37	207 -	213	7.01E+01	68.45	7.94E+02	5.46E+01
M	11	238.57	234 -	250	9.12E+02	75.63	5.22E+02	3.76E+01
m	12	241.56	234 -	250	2.91E+02	101.26	8.47E+02	4.78E+01
	13	270.13	267 -	274	6.92E+01	64.84	6.52E+02	5.15E+01
	14	295.17	292 -	298	3.07E+02	63.44	5.10E+02	4.35E+01
	15	300.19	299 -	304	7.54E+01	47.20	3.69E+02	3.61E+01
	16	338.24	334 -	342	2.14E+02	67.79	5.75E+02	5.03E+01
	17	351.71	347 -	354	5.18E+02	68.23	4.27E+02	4.18E+01
	18	387.64	384 -	392	4.25E+01	50.96	3.73E+02	4.05E+01
	19	415.67	412 -	419	6.41E+01	44.05	2.74E+02	3.37E+01
	20	452.95	449 -	459	5.66E+01	48.36	2.85E+02	3.78E+01
M	21	463.40	460 -	471	4.40E+01	38.16	2.26E+02	2.47E+01
m	22	468.82	460 -	471	2.31E+01	28.99	1.72E+02	2.15E+01
	23	510.91	507 -	515	1.69E+02	50.84	2.96E+02	3.59E+01
	24	583.17	578 -	588	3.44E+02	57.93	2.63E+02	3.66E+01
	25	609.50	604 -	615	4.25E+02	64.78	3.11E+02	4.11E+01
	26	694.92	691 -	700	4.57E+01	41.87	2.23E+02	1.77E+01
	27	727.33	724 -	734	7.37E+01	41.94	2.03E+02	3.14E+01
	28	769.79	763 -	777	8.64E+01	53.30	2.63E+02	4.11E+01
	29	785.53	781 -	789	2.94E+01	35.81	1.77E+02	2.80E+01
	30	794.52	791 -	798	2.95E+01	34.99	1.85E+02	2.73E+01
M	31	911.45	907 -	919	2.25E+02	37.59	9.84E+01	1.63E+01
m	32	916.32	907 -	919	2.63E+01	27.93	1.18E+02	1.79E+01
	33	934.46	929 -	937	3.41E+01	33.11	1.46E+02	2.55E+01
	34	942.62	938 -	947	2.72E+01	32.48	1.36E+02	2.53E+01
M	35	965.51	962 -	973	4.75E+01	31.82	1.34E+02	1.91E+01
m	36	969.11	962 -	973	1.27E+02	35.90	1.18E+02	1.79E+01
	37	1002.63	998 -	1008	3.42E+01	33.04	1.30E+02	2.54E+01
	38	1112.46	1109 -	1116	3.69E+01	23.66	7.03E+01	1.67E+01
	39	1120.89	1117 -	1124	7.03E+01	29.73	1.01E+02	2.02E+01
	40	1240.63	1234 -	1248	8.00E+01	55.73	2.96E+02	1.71E+01
	41	1281.43	1277 -	1285	2.40E+01	25.55	8.60E+01	1.94E+01
	42	1311.23	1307 -	1314	1.58E+01	20.59	6.04E+01	1.56E+01
	43	1378.53	1373 -	1387	2.70E+01	29.98	8.60E+01	2.31E+01
	44	1408.60	1404 -	1411	1.57E+01	18.00	4.26E+01	1.33E+01
M	45	1448.84	1443 -	1470	1.78E+01	17.15	1.85E+01	7.07E+00
m	46	1452.51	1443 -	1470	1.10E+01	18.17	1.89E+01	7.14E+00
m	47	1461.36	1443 -	1470	1.21E+03	70.95	2.77E+01	8.65E+00
m	48	1466.14	1443 -	1470	4.68E+01	33.08	4.12E+01	1.06E+01
	49	1510.25	1505 -	1513	1.66E+01	14.47	2.08E+01	9.82E+00
M	50	1588.53	1585 -	1597	1.66E+01	10.74	1.39E+01	6.13E+00
m	51	1594.10	1585 -	1597	1.76E+01	14.74	2.03E+01	7.42E+00
	52	1750.67	1746 -	1752	8.30E+00	7.23	3.40E+00	3.59E+00
	53	1765.37	1760 -	1771	8.20E+01	22.80	2.40E+01	1.14E+01
	54	1804.37	1801 -	1806	8.90E+00	7.00	2.20E+00	3.01E+00
	55	2071.25	2067 -	2072	7.00E+00	5.29	0.00E+00	0.00E+00
	56	2085.09	2081 -	2086	5.71E+00	6.08	2.57E+00	3.09E+00
	57	2104.01	2099 -	2107	1.54E+01	9.60	5.22E+00	4.55E+00

Analysis Report for 1707089-07

HTC-A04-S001-4248-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
58	2154.30	2149 -	2155	5.21E+00	6.34	3.57E+00	3.62E+00
59	2205.62	2200 -	2209	2.20E+01	17.26	3.00E+01	1.19E+01
60	2376.99	2371 -	2379	1.30E+01	7.21	0.00E+00	0.00E+00
61	2413.52	2408 -	2414	5.21E+00	6.34	3.57E+00	3.62E+00
62	2615.50	2610 -	2620	1.23E+02	24.09	1.46E+01	7.78E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/23/2017 9:11:40AM

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	53.05	51 -	56	53.66	8.77E+01	77.54	1.13E+03	.....
M	2	72.08	71 -	80	72.67	1.33E+02	57.14	8.46E+02	PM-145
m	3	75.32	71 -	80	75.91	7.83E+02	124.50	1.95E+03	AM-243
M	4	86.47	83 -	97	87.05	3.06E+02	125.22	2.25E+03	EU-155
									NP-237
m	5	89.10	83 -	97	89.68	1.48E+02	82.44	1.18E+03	LU-176
m	6	92.63	83 -	97	93.20	4.64E+02	104.18	1.47E+03	GA-67
	7	129.56	126 -	135	130.10	1.58E+02	107.56	1.56E+03	.....
	8	185.57	182 -	190	186.05	1.67E+02	95.84	1.31E+03	RA-226
	9	201.98	200 -	206	202.44	8.64E+01	68.82	8.05E+02	LU-176
	10	209.37	207 -	213	209.82	7.01E+01	68.45	7.94E+02	CM-243
									GA-67
M	11	238.57	234 -	250	238.99	9.12E+02	75.63	5.22E+02	PB-212
m	12	241.56	234 -	250	241.98	2.91E+02	101.26	8.47E+02	RA-224
	13	270.13	267 -	274	270.52	6.92E+01	64.84	6.52E+02	.....
	14	295.17	292 -	298	295.54	3.07E+02	63.44	5.10E+02	PB-214
	15	300.19	299 -	304	300.55	7.54E+01	47.20	3.69E+02	GA-67
									PB-212
									BI-210M
	16	338.24	334 -	342	338.56	2.14E+02	67.79	5.75E+02	AC-228
	17	351.71	347 -	354	352.03	5.18E+02	68.23	4.27E+02	PB-214

Analysis Report for 1707089-07

HTC-A04-S001-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	18	387.64	384 -	392	387.92	4.25E+01	50.96	3.73E+02	.....
	19	415.67	412 -	419	415.91	6.41E+01	44.05	2.74E+02	SB-126
	20	452.95	449 -	459	453.16	5.66E+01	48.36	2.85E+02	PM-146
M	21	463.40	460 -	471	463.59	4.40E+01	38.16	2.26E+02	SB-125
m	22	468.82	460 -	471	469.01	2.31E+01	28.99	1.72E+02	IR-192
	23	510.91	507 -	515	511.06	1.69E+02	50.84	2.96E+02	.....
	24	583.17	578 -	588	583.25	3.44E+02	57.93	2.63E+02	TL-208
	25	609.50	604 -	615	609.55	4.25E+02	64.78	3.11E+02	BI-214
	26	694.92	691 -	700	694.89	4.57E+01	41.87	2.23E+02	SB-126
	27	727.33	724 -	734	727.26	7.37E+01	41.94	2.03E+02	BI-212
	28	769.79	763 -	777	769.68	8.64E+01	53.30	2.63E+02	.....
	29	785.53	781 -	789	785.40	2.94E+01	35.81	1.77E+02	.....
	30	794.52	791 -	798	794.38	2.95E+01	34.99	1.85E+02	.....
M	31	911.45	907 -	919	911.20	2.25E+02	37.59	9.84E+01	TL-204 AC-228
m	32	916.32	907 -	919	916.06	2.63E+01	27.93	1.18E+02	.....
	33	934.46	929 -	937	934.18	3.41E+01	33.11	1.46E+02	.....
	34	942.62	938 -	947	942.34	2.72E+01	32.48	1.36E+02	.....
M	35	965.51	962 -	973	965.20	4.75E+01	31.82	1.34E+02	.....
m	36	969.11	962 -	973	968.80	1.27E+02	35.90	1.18E+02	AC-228
	37	1002.63	998 -	1008	1002.29	3.42E+01	33.04	1.30E+02	.....
	38	1112.46	1109 -	1116	1112.01	3.69E+01	23.66	7.03E+01	EU-152
	39	1120.89	1117 -	1124	1120.43	7.03E+01	29.73	1.01E+02	SC-46 TA-182 BI-214
	40	1240.63	1234 -	1248	1240.06	8.00E+01	55.73	2.96E+02	.....
	41	1281.43	1277 -	1285	1280.81	2.40E+01	25.55	8.60E+01	.....
	42	1311.23	1307 -	1314	1310.58	1.58E+01	20.59	6.04E+01	V-48
	43	1378.53	1373 -	1387	1377.81	2.70E+01	29.98	8.60E+01	.....
	44	1408.60	1404 -	1411	1407.85	1.57E+01	18.00	4.26E+01	EU-152
M	45	1448.84	1443 -	1470	1448.06	1.78E+01	17.15	1.85E+01	.....
m	46	1452.51	1443 -	1470	1451.72	1.10E+01	18.17	1.89E+01	.....
m	47	1461.36	1443 -	1470	1460.56	1.21E+03	70.95	2.77E+01	K-40
m	48	1466.14	1443 -	1470	1465.34	4.68E+01	33.08	4.12E+01	.....
	49	1510.25	1505 -	1513	1509.41	1.66E+01	14.47	2.08E+01	.....
M	50	1588.53	1585 -	1597	1587.61	1.66E+01	10.74	1.39E+01	.....
m	51	1594.10	1585 -	1597	1593.17	1.76E+01	14.74	2.03E+01	.....
	52	1750.67	1746 -	1752	1749.59	8.30E+00	7.23	3.40E+00	.....
	53	1765.37	1760 -	1771	1764.28	8.20E+01	22.80	2.40E+01	BI-214
	54	1804.37	1801 -	1806	1803.24	8.90E+00	7.00	2.20E+00	.....
	55	2071.25	2067 -	2072	2069.86	7.00E+00	5.29	0.00E+00	.....
	56	2085.09	2081 -	2086	2083.69	5.71E+00	6.08	2.57E+00	.....
	57	2104.01	2099 -	2107	2102.59	1.54E+01	9.60	5.22E+00	.....
	58	2154.30	2149 -	2155	2152.84	5.21E+00	6.34	3.57E+00	.....
	59	2205.62	2200 -	2209	2204.10	2.20E+01	17.26	3.00E+01	.....
	60	2376.99	2371 -	2379	2375.31	1.30E+01	7.21	0.00E+00	.....
	61	2413.52	2408 -	2414	2411.80	5.21E+00	6.34	3.57E+00	.....
	62	2615.50	2610 -	2620	2613.59	1.23E+02	24.09	1.46E+01	TL-208

Analysis Report for 1707089-07

HTC-A04-S001-4248-01

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/23/2017 9:11:40AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	53.05	8.77E+01	77.54	2.59E-02	2.22E-03
M	2	72.08	1.33E+02	57.14	2.74E-02	2.35E-03
m	3	75.32	7.83E+02	124.50	2.75E-02	2.39E-03
M	4	86.47	3.06E+02	125.22	2.74E-02	2.50E-03
m	5	89.10	1.48E+02	82.44	2.74E-02	2.50E-03
m	6	92.63	4.64E+02	104.18	2.73E-02	2.45E-03
	7	129.56	1.58E+02	107.56	2.53E-02	1.93E-03
	8	185.57	1.67E+02	95.84	2.17E-02	1.68E-03
	9	201.98	8.64E+01	68.82	2.08E-02	1.63E-03
	10	209.37	7.01E+01	68.45	2.04E-02	1.61E-03
M	11	238.57	9.12E+02	75.63	1.89E-02	1.53E-03
m	12	241.56	2.91E+02	101.26	1.87E-02	1.52E-03
	13	270.13	6.92E+01	64.84	1.74E-02	1.43E-03
	14	295.17	3.07E+02	63.44	1.64E-02	1.37E-03
	15	300.19	7.54E+01	47.20	1.63E-02	1.36E-03
	16	338.24	2.14E+02	67.79	1.50E-02	1.27E-03
	17	351.71	5.18E+02	68.23	1.45E-02	1.24E-03
	18	387.64	4.25E+01	50.96	1.36E-02	1.15E-03
	19	415.67	6.41E+01	44.05	1.29E-02	1.13E-03
	20	452.95	5.66E+01	48.36	1.21E-02	1.11E-03
M	21	463.40	4.40E+01	38.16	1.19E-02	1.10E-03
m	22	468.82	2.31E+01	28.99	1.18E-02	1.10E-03
	23	510.91	1.69E+02	50.84	1.10E-02	1.07E-03
	24	583.17	3.44E+02	57.93	9.96E-03	1.02E-03
	25	609.50	4.25E+02	64.78	9.63E-03	1.01E-03
	26	694.92	4.57E+01	41.87	8.71E-03	9.19E-04
	27	727.33	7.37E+01	41.94	8.41E-03	8.68E-04
	28	769.79	8.64E+01	53.30	8.05E-03	8.00E-04
	29	785.53	2.94E+01	35.81	7.93E-03	7.75E-04
	30	794.52	2.95E+01	34.99	7.86E-03	7.61E-04
M	31	911.45	2.25E+02	37.59	7.08E-03	5.91E-04
m	32	916.32	2.63E+01	27.93	7.06E-03	5.89E-04
	33	934.46	3.41E+01	33.11	6.95E-03	5.82E-04
	34	942.62	2.72E+01	32.48	6.91E-03	5.79E-04

Analysis Report for 1707089-07

HTC-A04-S001-4248-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	35	965.51	4.75E+01	31.82	6.78E-03	5.71E-04
m	36	969.11	1.27E+02	35.90	6.77E-03	5.69E-04
	37	1002.63	3.42E+01	33.04	6.60E-03	5.56E-04
	38	1112.46	3.69E+01	23.66	6.10E-03	5.14E-04
	39	1120.89	7.03E+01	29.73	6.07E-03	5.11E-04
	40	1240.63	8.00E+01	55.73	5.63E-03	4.76E-04
	41	1281.43	2.40E+01	25.55	5.50E-03	4.66E-04
	42	1311.23	1.58E+01	20.59	5.41E-03	4.59E-04
	43	1378.53	2.70E+01	29.98	5.22E-03	4.44E-04
	44	1408.60	1.57E+01	18.00	5.14E-03	4.37E-04
M	45	1448.84	1.78E+01	17.15	5.04E-03	4.28E-04
m	46	1452.51	1.10E+01	18.17	5.03E-03	4.27E-04
m	47	1461.36	1.21E+03	70.95	5.00E-03	4.25E-04
m	48	1466.14	4.68E+01	33.08	4.99E-03	4.24E-04
	49	1510.25	1.66E+01	14.47	4.89E-03	4.13E-04
M	50	1588.53	1.66E+01	10.74	4.71E-03	3.95E-04
m	51	1594.10	1.76E+01	14.74	4.70E-03	3.94E-04
	52	1750.67	8.30E+00	7.23	4.40E-03	3.58E-04
	53	1765.37	8.20E+01	22.80	4.37E-03	3.54E-04
	54	1804.37	8.90E+00	7.00	4.31E-03	3.45E-04
	55	2071.25	7.00E+00	5.29	3.91E-03	3.38E-04
	56	2085.09	5.71E+00	6.08	3.89E-03	3.38E-04
	57	2104.01	1.54E+01	9.60	3.86E-03	3.38E-04
	58	2154.30	5.21E+00	6.34	3.80E-03	3.38E-04
	59	2205.62	2.20E+01	17.26	3.73E-03	3.38E-04
	60	2376.99	1.30E+01	7.21	3.54E-03	3.38E-04
	61	2413.52	5.21E+00	6.34	3.50E-03	3.38E-04
	62	2615.50	1.23E+02	24.09	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 : 8/23/2017 9:11:40AM

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	53.05	8.77E+01	77.54			8.77E+01	7.75E+01
M	2	72.08	1.33E+02	57.14			1.33E+02	5.71E+01

Analysis Report for 1707089-07

HTC-A04-S001-4248-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	3	75.32	7.83E+02	124.50			7.83E+02	1.24E+02
M	4	86.47	3.06E+02	125.22			3.06E+02	1.25E+02
m	5	89.10	1.48E+02	82.44			1.48E+02	8.24E+01
m	6	92.63	4.64E+02	104.18	1.38E+02	1.72E+01	3.27E+02	1.06E+02
	7	129.56	1.58E+02	107.56			1.58E+02	1.08E+02
	8	185.57	1.67E+02	95.84	5.22E+01	7.59E+00	1.14E+02	9.61E+01
	9	201.98	8.64E+01	68.82			8.64E+01	6.88E+01
	10	209.37	7.01E+01	68.45			7.01E+01	6.85E+01
M	11	238.57	9.12E+02	75.63	2.13E+01	6.33E+00	8.90E+02	7.59E+01
m	12	241.56	2.91E+02	101.26			2.91E+02	1.01E+02
	13	270.13	6.92E+01	64.84	1.23E+00	4.98E+00	6.79E+01	6.50E+01
	14	295.17	3.07E+02	63.44			3.07E+02	6.34E+01
	15	300.19	7.54E+01	47.20			7.54E+01	4.72E+01
	16	338.24	2.14E+02	67.79			2.14E+02	6.78E+01
	17	351.71	5.18E+02	68.23	5.79E+00	4.49E+00	5.13E+02	6.84E+01
	18	387.64	4.25E+01	50.96			4.25E+01	5.10E+01
	19	415.67	6.41E+01	44.05			6.41E+01	4.40E+01
	20	452.95	5.66E+01	48.36			5.66E+01	4.84E+01
M	21	463.40	4.40E+01	38.16			4.40E+01	3.82E+01
m	22	468.82	2.31E+01	28.99			2.31E+01	2.90E+01
	23	510.91	1.69E+02	50.84	7.28E+01	5.30E+00	9.62E+01	5.11E+01
	24	583.17	3.44E+02	57.93	2.72E+00	3.05E+00	3.42E+02	5.80E+01
	25	609.50	4.25E+02	64.78	6.35E+00	4.02E+00	4.19E+02	6.49E+01
	26	694.92	4.57E+01	41.87			4.57E+01	4.19E+01
	27	727.33	7.37E+01	41.94			7.37E+01	4.19E+01
	28	769.79	8.64E+01	53.30			8.64E+01	5.33E+01
	29	785.53	2.94E+01	35.81			2.94E+01	3.58E+01
	30	794.52	2.95E+01	34.99			2.95E+01	3.50E+01
M	31	911.45	2.25E+02	37.59	5.31E+00	3.00E+00	2.20E+02	3.77E+01
m	32	916.32	2.63E+01	27.93			2.63E+01	2.79E+01
	33	934.46	3.41E+01	33.11			3.41E+01	3.31E+01
	34	942.62	2.72E+01	32.48			2.72E+01	3.25E+01
M	35	965.51	4.75E+01	31.82			4.75E+01	3.18E+01
m	36	969.11	1.27E+02	35.90			1.27E+02	3.59E+01
	37	1002.63	3.42E+01	33.04			3.42E+01	3.30E+01
	38	1112.46	3.69E+01	23.66			3.69E+01	2.37E+01
	39	1120.89	7.03E+01	29.73			7.03E+01	2.97E+01
	40	1240.63	8.00E+01	55.73			8.00E+01	5.57E+01
	41	1281.43	2.40E+01	25.55			2.40E+01	2.55E+01
	42	1311.23	1.58E+01	20.59			1.58E+01	2.06E+01
	43	1378.53	2.70E+01	29.98			2.70E+01	3.00E+01
	44	1408.60	1.57E+01	18.00			1.57E+01	1.80E+01
M	45	1448.84	1.78E+01	17.15			1.78E+01	1.71E+01
m	46	1452.51	1.10E+01	18.17			1.10E+01	1.82E+01
m	47	1461.36	1.21E+03	70.95	8.09E+00	2.23E+00	1.20E+03	7.10E+01
m	48	1466.14	4.68E+01	33.08			4.68E+01	3.31E+01
	49	1510.25	1.66E+01	14.47			1.66E+01	1.45E+01
M	50	1588.53	1.66E+01	10.74			1.66E+01	1.07E+01
m	51	1594.10	1.76E+01	14.74			1.76E+01	1.47E+01
	52	1750.67	8.30E+00	7.23			8.30E+00	7.23E+00
	53	1765.37	8.20E+01	22.80			8.20E+01	2.28E+01
	54	1804.37	8.90E+00	7.00			8.90E+00	7.00E+00
	55	2071.25	7.00E+00	5.29			7.00E+00	5.29E+00
	56	2085.09	5.71E+00	6.08			5.71E+00	6.08E+00

Analysis Report for 1707089-07

HTC-A04-S001-4248-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
57	2104.01	1.54E+01	9.60			1.54E+01	9.60E+00
58	2154.30	5.21E+00	6.34			5.21E+00	6.34E+00
59	2205.62	2.20E+01	17.26			2.20E+01	1.73E+01
60	2376.99	1.30E+01	7.21			1.30E+01	7.21E+00
61	2413.52	5.21E+00	6.34			5.21E+00	6.34E+00
62	2615.50	1.23E+02	24.09	5.63E+00	1.38E+00	1.17E+02	2.41E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/23/2017 9:11:40AM

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	53.05	8.77E+01	77.54			8.77E+01	7.75E+01
M	2	72.08	1.33E+02	57.14			1.33E+02	5.71E+01
m	3	75.32	7.83E+02	124.50			7.83E+02	1.24E+02
M	4	86.47	3.06E+02	125.22			3.06E+02	1.25E+02
m	5	89.10	1.48E+02	82.44			1.48E+02	8.24E+01
m	6	92.63	4.64E+02	104.18	1.38E+02	1.72E+01	3.27E+02	1.06E+02
	7	129.56	1.58E+02	107.56			1.58E+02	1.08E+02
	8	185.57	1.67E+02	95.84	5.22E+01	7.59E+00	1.14E+02	9.61E+01
	9	201.98	8.64E+01	68.82			8.64E+01	6.88E+01
	10	209.37	7.01E+01	68.45			7.01E+01	6.85E+01
M	11	238.57	9.12E+02	75.63	2.13E+01	6.33E+00	8.90E+02	7.59E+01
m	12	241.56	2.91E+02	101.26			2.91E+02	1.01E+02
	13	270.13	6.92E+01	64.84	1.23E+00	4.98E+00	6.79E+01	6.50E+01
	14	295.17	3.07E+02	63.44			3.07E+02	6.34E+01
	15	300.19	7.54E+01	47.20			7.54E+01	4.72E+01
	16	338.24	2.14E+02	67.79			2.14E+02	6.78E+01
	17	351.71	5.18E+02	68.23	5.79E+00	4.49E+00	5.13E+02	6.84E+01
	18	387.64	4.25E+01	50.96			4.25E+01	5.10E+01
	19	415.67	6.41E+01	44.05			6.41E+01	4.40E+01
	20	452.95	5.66E+01	48.36			5.66E+01	4.84E+01
M	21	463.40	4.40E+01	38.16			4.40E+01	3.82E+01
m	22	468.82	2.31E+01	28.99			2.31E+01	2.90E+01

Analysis Report for 1707089-07

HTC-A04-S001-4248-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	23	510.91	1.69E+02	50.84	7.28E+01	5.30E+00	9.62E+01	5.11E+01
	24	583.17	3.44E+02	57.93	2.72E+00	3.05E+00	3.42E+02	5.80E+01
	25	609.50	4.25E+02	64.78	6.35E+00	4.02E+00	4.19E+02	6.49E+01
	26	694.92	4.57E+01	41.87			4.57E+01	4.19E+01
	27	727.33	7.37E+01	41.94			7.37E+01	4.19E+01
	28	769.79	8.64E+01	53.30			8.64E+01	5.33E+01
	29	785.53	2.94E+01	35.81			2.94E+01	3.58E+01
	30	794.52	2.95E+01	34.99			2.95E+01	3.50E+01
M	31	911.45	2.25E+02	37.59	5.31E+00	3.00E+00	2.20E+02	3.77E+01
m	32	916.32	2.63E+01	27.93			2.63E+01	2.79E+01
	33	934.46	3.41E+01	33.11			3.41E+01	3.31E+01
	34	942.62	2.72E+01	32.48			2.72E+01	3.25E+01
M	35	965.51	4.75E+01	31.82			4.75E+01	3.18E+01
m	36	969.11	1.27E+02	35.90			1.27E+02	3.59E+01
	37	1002.63	3.42E+01	33.04			3.42E+01	3.30E+01
	38	1112.46	3.69E+01	23.66			3.69E+01	2.37E+01
	39	1120.89	7.03E+01	29.73			7.03E+01	2.97E+01
	40	1240.63	8.00E+01	55.73			8.00E+01	5.57E+01
	41	1281.43	2.40E+01	25.55			2.40E+01	2.55E+01
	42	1311.23	1.58E+01	20.59			1.58E+01	2.06E+01
	43	1378.53	2.70E+01	29.98			2.70E+01	3.00E+01
	44	1408.60	1.57E+01	18.00			1.57E+01	1.80E+01
M	45	1448.84	1.78E+01	17.15			1.78E+01	1.71E+01
m	46	1452.51	1.10E+01	18.17			1.10E+01	1.82E+01
m	47	1461.36	1.21E+03	70.95	8.09E+00	2.23E+00	1.20E+03	7.10E+01
m	48	1466.14	4.68E+01	33.08			4.68E+01	3.31E+01
	49	1510.25	1.66E+01	14.47			1.66E+01	1.45E+01
M	50	1588.53	1.66E+01	10.74			1.66E+01	1.07E+01
m	51	1594.10	1.76E+01	14.74			1.76E+01	1.47E+01
	52	1750.67	8.30E+00	7.23			8.30E+00	7.23E+00
	53	1765.37	8.20E+01	22.80			8.20E+01	2.28E+01
	54	1804.37	8.90E+00	7.00			8.90E+00	7.00E+00
	55	2071.25	7.00E+00	5.29			7.00E+00	5.29E+00
	56	2085.09	5.71E+00	6.08			5.71E+00	6.08E+00
	57	2104.01	1.54E+01	9.60			1.54E+01	9.60E+00
	58	2154.30	5.21E+00	6.34			5.21E+00	6.34E+00
	59	2205.62	2.20E+01	17.26			2.20E+01	1.73E+01
	60	2376.99	1.30E+01	7.21			1.30E+01	7.21E+00
	61	2413.52	5.21E+00	6.34			5.21E+00	6.34E+00
	62	2615.50	1.23E+02	24.09	5.63E+00	1.38E+00	1.17E+02	2.41E+01

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

Analysis Report for 1707089-07

HTC-A04-S001-4248-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.953	1460.81	*	10.67	2.55E+01	2.69E+00
PM-146	0.342	453.90	*	39.94	1.38E-01	1.18E-01
		735.90		14.01		
		747.13		13.10		
EU-155	0.363	86.50	*	30.90	4.25E-01	1.78E-01
		105.30		20.70		
TL-208	0.831	583.14	*	30.22	1.29E+00	2.55E-01
		860.37		4.48		
		2614.66	*	35.85	1.12E+00	2.58E-01
BI-212	0.760	727.17	*	11.80	8.42E-01	4.87E-01
		1620.62		2.75		
PB-212	0.999	238.63	*	44.60	1.20E+00	1.41E-01
		300.09	*	3.41	1.54E+00	9.74E-01
BI-214	0.894	609.31	*	46.30	1.06E+00	1.99E-01
		1120.29	*	15.10	8.69E-01	3.75E-01
		1764.49	*	15.80	1.34E+00	3.89E-01
		2204.22		4.98		
PB-214	0.995	295.21	*	19.19	1.10E+00	2.46E-01
		351.92	*	37.19	1.07E+00	1.70E-01
RA-224	0.948	240.98	*	3.95	4.45E+00	1.59E+00
RA-226	0.937	186.21	*	3.28	1.82E+00	3.66E+00
AC-228	0.988	338.32	*	11.40	1.42E+00	4.66E-01
		911.07	*	27.70	1.27E+00	2.42E-01
		969.11	*	16.60	1.28E+00	3.78E-01
NP-237	1.000	86.50	*	12.60	1.00E+00	4.20E-01
AM-243	0.934	74.67	*	66.00	4.89E-01	8.86E-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 1707089-07

HTC-A04-S001-4248-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 9:11:40AM
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	53.05	2.43535E-02	44.22		
M	2	72.08	3.70654E-02	21.41	Tol.	PM-145
m	5	89.10	4.11456E-02	27.83	Tol.	LU-176
m	6	92.63	9.07848E-02	16.15	Tol.	GA-67
	7	129.56	4.37867E-02	34.12		
	9	201.98	2.39980E-02	39.83	Tol.	LU-176
	10	209.37	1.94825E-02	48.80	Tol.	GA-67
						CM-243
	13	270.13	1.88676E-02	47.87		
	18	387.64	1.18122E-02	59.92	Sum	
	19	415.67	1.78103E-02	34.35	Tol.	SB-126
M	21	463.40	1.22214E-02	43.37	Tol.	SB-125
m	22	468.82	6.42923E-03	62.63	Tol.	IR-192
	23	510.91	2.67332E-02	26.55		
	26	694.92	1.26875E-02	45.83	Sum	
	28	769.79	2.40138E-02	30.83		
	29	785.53	8.17326E-03	60.84		
	30	794.52	8.20355E-03	59.23	Sum	
m	32	916.32	7.30558E-03	53.10		
	33	934.46	9.47430E-03	48.54	Sum	
	34	942.62	7.55848E-03	59.68		
M	35	965.51	1.31900E-02	33.51	Sum	
	37	1002.63	9.50617E-03	48.28		
	38	1112.46	1.02373E-02	32.11	Tol.	EU-152
	40	1240.63	2.22180E-02	34.84		
	41	1281.43	6.66459E-03	53.24		
	42	1311.23	4.38406E-03	65.23	Sum	
	43	1378.53	7.50397E-03	55.49		
	44	1408.60	4.35811E-03	57.36	Tol.	EU-152
M	45	1448.84	4.94645E-03	48.14		
m	46	1452.51	3.05768E-03	82.51		
m	48	1466.14	1.30082E-02	35.31		
	49	1510.25	4.61420E-03	43.54		
M	50	1588.53	4.62202E-03	32.26		
m	51	1594.10	4.88420E-03	41.91	D-Esc	
	52	1750.67	2.30556E-03	43.54		
	54	1804.37	2.47222E-03	39.33		
	55	2071.25	1.94444E-03	37.80	Sum	
	56	2085.09	1.58730E-03	53.22		
	57	2104.01	4.27469E-03	31.21	S-Esc	
	58	2154.30	1.44841E-03	60.84		
	59	2205.62	6.11111E-03	39.23		
	60	2376.99	3.61111E-03	27.74		
	61	2413.52	1.44841E-03	60.84		

Analysis Report for 1707089-07

HTC-A04-S001-4248-01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.95	1460.81	*	10.67	2.55E+01	2.69E+00
PM-146	0.34	453.90	*	39.94	1.38E-01	1.18E-01
		735.90		14.01		
		747.13		13.10		
EU-155	0.36	86.50	*	30.90	4.25E-01	1.78E-01
		105.30		20.70		
TL-208	0.83	583.14	*	30.22	1.29E+00	2.55E-01
		860.37		4.48		
		2614.66	*	35.85	1.12E+00	2.58E-01
BI-212	0.76	727.17	*	11.80	8.42E-01	4.87E-01
		1620.62		2.75		
PB-212	0.99	238.63	*	44.60	1.20E+00	1.41E-01
		300.09	*	3.41	1.54E+00	9.74E-01
BI-214	0.89	609.31	*	46.30	1.06E+00	1.99E-01
		1120.29	*	15.10	8.69E-01	3.75E-01
		1764.49	*	15.80	1.34E+00	3.89E-01
		2204.22		4.98		
PB-214	0.99	295.21	*	19.19	1.10E+00	2.46E-01
		351.92	*	37.19	1.07E+00	1.70E-01
RA-224	0.94	240.98	*	3.95	4.45E+00	1.59E+00
RA-226	0.93	186.21	*	3.28	1.82E+00	3.66E+00
AC-228	0.98	338.32	*	11.40	1.42E+00	4.66E-01
		911.07	*	27.70	1.27E+00	2.42E-01
		969.11	*	16.60	1.28E+00	3.78E-01
NP-237	1.00	86.50	*	12.60	1.00E+00	4.20E-01
AM-243	0.93	74.67	*	66.00	4.89E-01	8.86E-02

Analysis Report for 1707089-07

HTC-A04-S001-4248-01

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.953	2.55E+01	2.69E+00	
	PM-146	0.342	1.38E-01	1.18E-01	
?	EU-155	0.363	4.25E-01	1.78E-01	
	TL-208	0.831	1.20E+00	1.81E-01	
	BI-212	0.760	8.42E-01	4.87E-01	
	PB-212	0.999	1.21E+00	1.39E-01	
	BI-214	0.894	1.08E+00	1.60E-01	
	PB-214	0.995	1.08E+00	1.40E-01	
	RA-224	0.948	4.45E+00	1.59E+00	
	RA-226	0.937	1.82E+00	3.66E+00	
	AC-228	0.988	1.30E+00	1.87E-01	
?	NP-237	1.000	1.00E+00	4.20E-01	
	AM-243	0.934	4.89E-01	8.86E-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 1707089-07

HTC-A04-S001-4248-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 9:11:40AM
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	53.05	2.43535E-02	44.22		
M	2	72.08	3.70654E-02	21.41	Tol.	PM-145
m	5	89.10	4.11456E-02	27.83	Tol.	LU-176
m	6	92.63	9.07848E-02	16.15	Tol.	GA-67
	7	129.56	4.37867E-02	34.12		
	9	201.98	2.39980E-02	39.83	Tol.	LU-176
	10	209.37	1.94825E-02	48.80	Tol.	GA-67
						CM-243
	13	270.13	1.88676E-02	47.87		
	18	387.64	1.18122E-02	59.92	Sum	
	19	415.67	1.78103E-02	34.35	Tol.	SB-126
M	21	463.40	1.22214E-02	43.37	Tol.	SB-125
m	22	468.82	6.42923E-03	62.63	Tol.	IR-192
	23	510.91	2.67332E-02	26.55		
	26	694.92	1.26875E-02	45.83	Sum	
	28	769.79	2.40138E-02	30.83		
	29	785.53	8.17326E-03	60.84		
	30	794.52	8.20355E-03	59.23	Sum	
m	32	916.32	7.30558E-03	53.10		
	33	934.46	9.47430E-03	48.54	Sum	
	34	942.62	7.55848E-03	59.68		
M	35	965.51	1.31900E-02	33.51	Sum	
	37	1002.63	9.50617E-03	48.28		
	38	1112.46	1.02373E-02	32.11	Tol.	EU-152
	40	1240.63	2.22180E-02	34.84		
	41	1281.43	6.66459E-03	53.24		
	42	1311.23	4.38406E-03	65.23	Sum	
	43	1378.53	7.50397E-03	55.49		
	44	1408.60	4.35811E-03	57.36	Tol.	EU-152
M	45	1448.84	4.94645E-03	48.14		
m	46	1452.51	3.05768E-03	82.51		
m	48	1466.14	1.30082E-02	35.31		
	49	1510.25	4.61420E-03	43.54		
M	50	1588.53	4.62202E-03	32.26		
m	51	1594.10	4.88420E-03	41.91	D-Esc	

Analysis Report for 1707089-07

HTC-A04-S001-4248-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
52	1750.67	2.30556E-03	43.54		
54	1804.37	2.47222E-03	39.33		
55	2071.25	1.94444E-03	37.80	Sum	
56	2085.09	1.58730E-03	53.22		
57	2104.01	4.27469E-03	31.21	S-Esc	
58	2154.30	1.44841E-03	60.84		
59	2205.62	6.11111E-03	39.23		
60	2376.99	3.61111E-03	27.74		
61	2413.52	1.44841E-03	60.84		

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

NUCLIDE 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	-1.91E-01	1.93E+00	1.93E+00
+	NA-22	1274.54		99.94	-6.02E-03	8.00E-02	8.00E-02
+	@ NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@	2754.09		99.86	1.00E+26		1.00E+26
+	AL-26	1808.65		99.76	-2.64E-03	3.73E-02	3.73E-02
+	K-40	1460.81	*	10.67	2.55E+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	-3.25E-02	5.54E-02	5.54E-02
		78.34		96.00	1.50E-01		7.43E-02
+	SC-46	889.25		99.98	-4.25E-02	1.49E-01	1.49E-01
		1120.51		99.99	2.79E-01		2.25E-01
+	V-48	983.52		99.98	-2.60E+00	4.69E+00	4.69E+00
		1312.10		97.50	1.81E+00		5.55E+00
+	CR-51	320.08		9.83	-6.32E+00	5.94E+00	5.94E+00
+	MN-54	834.83		99.97	-8.89E-02	8.13E-02	8.13E-02
+	CO-56	846.75		99.96	-5.20E-02	1.45E-01	1.45E-01
		1037.75		14.03	-3.35E-01		1.15E+00
		1238.25		67.00	2.17E-01		3.94E-01
		1771.40		15.51	0.00E+00		7.33E-01

Analysis Report for 1707089-07

HTC-A04-S001-4248-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CO-56	2598.48	16.90	2.44E-02	1.45E-01	4.52E-01
+	CO-57	122.06	85.51	-2.30E-02	6.20E-02	6.20E-02
		136.48	10.60	3.69E-02		5.37E-01
+	CO-58	810.76	99.40	-1.52E-01	1.43E-01	1.43E-01
+	FE-59	1099.22	56.50	1.96E-01	6.87E-01	6.87E-01
		1291.56	43.20	-2.57E-01		7.53E-01
+	CO-60	1173.22	100.00	-5.40E-02	6.28E-02	7.93E-02
		1332.49	100.00	-1.34E-02		6.28E-02
+	ZN-65	1115.52	50.75	-3.92E-01	1.84E-01	1.84E-01
+	GA-67	93.31	35.70	6.63E+08	2.92E+08	2.92E+08
		208.95	2.24	3.39E+09		3.93E+09
		300.22	16.00	-1.40E+09		6.19E+08
+	SE-75	121.11	16.70	-1.95E-01	1.33E-01	4.34E-01
		136.00	59.20	9.12E-03		1.33E-01
		264.65	59.80	-4.46E-02		1.52E-01
		279.53	25.20	9.46E-02		3.88E-01
		400.65	11.40	4.53E-01		8.80E-01
+	RB-82	776.52	13.00	-8.55E-01	7.38E+00	7.38E+00
+	RB-83	520.41	46.00	-1.67E-01	2.80E-01	2.80E-01
		529.64	30.30	-8.94E-02		4.03E-01
		552.65	16.40	-6.14E-01		7.11E-01
+	KR-85	513.99	0.43	4.60E+00	1.87E+01	1.87E+01
+	SR-85	513.99	99.27	5.76E-02	2.34E-01	2.34E-01
+	Y-88	898.02	93.40	1.61E-02	6.17E-02	1.37E-01
		1836.01	99.38	1.28E-03		6.17E-02
+	MO-93	263.06	56.72	-4.24E-02	4.86E-02	9.04E-02
		684.67	99.68	4.81E-03		6.15E-02
		1477.11	99.08	5.86E-03		4.86E-02
+	NB-93M	16.57	9.43	-6.79E-02	4.71E-01	4.71E-01
+	NB-94	702.63	100.00	2.99E-03	5.89E-02	6.11E-02
		871.10	100.00	-2.52E-02		5.89E-02
+	NB-95	765.79	99.81	2.15E-01	5.23E-01	5.23E-01
+	NB-95M	235.69	25.00	-3.43E+08	5.25E+07	5.25E+07
+	ZR-95	724.18	43.70	-2.48E-02	2.96E-01	4.64E-01
		756.72	55.30	-1.42E-01		2.96E-01
+	MO-99	181.06	6.20	-5.28E+09	4.08E+10	6.78E+10
		739.58	12.80	-6.20E+09		4.08E+10
		778.00	4.50	2.16E+09		1.24E+11
+	RU-103	497.08	89.00	1.41E-01	3.91E-01	3.91E-01
+	RU-106	621.84	9.80	-2.60E-01	7.00E-01	7.00E-01
+	AG-108M	433.93	89.90	-1.48E-02	6.00E-02	6.00E-02
		614.37	90.40	-1.92E-03		7.39E-02
		722.95	90.50	2.08E-02		7.02E-02
+	CD-109	88.03	3.72	-6.51E-01	1.90E+00	1.90E+00
+	AG-110M	657.75	93.14	-6.37E-03	8.15E-02	8.15E-02
		677.61	10.53	0.00E+00		6.96E-01
		706.67	16.46	2.50E-02		5.00E-01
		763.93	21.98	2.04E-02		3.89E-01

Analysis Report for 1707089-07

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	AG-110M	884.67	71.63	4.15E-02	8.15E-02	1.25E-01
		1384.27	23.94	7.62E-02		3.17E-01
+	CD-113M	263.70	0.02	-1.02E+02	2.21E+02	2.21E+02
+	SN-113	255.12	1.93	3.25E-01	1.51E-01	4.24E+00
		391.69	64.90	1.56E-02		1.51E-01
+	TE123M	159.00	84.10	-2.49E-02	9.26E-02	9.26E-02
+	SB-124	602.71	97.87	-4.19E-04	1.89E-01	1.89E-01
		645.85	7.26	-1.53E+00		2.25E+00
		722.78	11.10	5.35E-01		1.81E+00
		1691.02	49.00	1.42E-01		3.27E-01
+	I-125	35.49	6.49	5.00E-01	2.37E+00	2.37E+00
+	SB-125	176.33	6.89	-1.25E-01	1.85E-01	7.03E-01
		427.89	29.33	5.46E-02		1.85E-01
		463.38	10.35	9.27E-02		6.10E-01
		600.56	17.80	8.40E-02		3.62E-01
		635.90	11.32	6.28E-02		5.58E-01
+	SB-126	414.70	83.30	1.11E+01	1.85E+01	1.88E+01
		666.33	99.60	1.38E+01		1.85E+01
		695.00	99.60	1.73E+01		1.94E+01
		720.50	53.80	1.49E+00		2.84E+01
+	SN-126	87.57	37.00	1.25E-01	1.62E-01	1.62E-01
+	SB-127	473.00	25.00	-4.20E+06	1.13E+07	1.43E+07
		685.20	35.70	8.84E+05		1.13E+07
		783.80	14.70	1.71E+07		3.16E+07
+	I-129	29.78	57.00	-3.93E-02	9.54E-02	9.54E-02
		33.60	13.20	-3.86E-01		3.68E-01
		39.58	7.52	-5.18E-02		6.29E-01
+	I-131	284.30	6.05	-7.00E+02	3.41E+02	4.89E+03
		364.48	81.20	-2.02E+01		3.41E+02
		636.97	7.26	-5.68E+02		4.52E+03
		722.89	1.80	5.83E+03		1.97E+04
+	TE-132	49.72	13.10	4.59E+07	9.64E+07	6.47E+08
		228.16	88.00	2.32E+07		9.64E+07
+	BA-133	81.00	33.00	7.30E-03	1.21E-01	1.62E-01
		302.84	17.80	-6.83E-03		3.19E-01
		356.01	60.00	-1.57E-01		1.21E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	3.47E+03	7.70E+04	7.70E+04
+	CS-134	563.23	8.38	2.58E-02	7.46E-02	7.03E-01
		569.32	15.43	-3.49E-03		3.75E-01
		604.70	97.60	3.32E-03		7.46E-02
		795.84	85.40	9.54E-02		9.86E-02
		801.93	8.73	-3.24E-01		8.31E-01
+	CS-135	268.24	16.00	3.85E-01	3.69E-01	3.69E-01
+	@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41	28.60	1.00E+26		1.00E+26
	@	1678.03	9.54	1.00E+26		1.00E+26
+	CS-136	153.22	7.46	-2.45E+01	1.24E+01	1.18E+02
		163.89	4.61	-1.44E+00		1.89E+02

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CS-136	176.55		13.56	-1.16E+01	1.24E+01	6.49E+01
		273.65		12.66	-2.07E+01		8.47E+01
		340.57		48.50	3.57E+00		3.01E+01
		818.50		99.70	2.64E+00		1.24E+01
		1048.07		79.60	-6.51E-01		1.75E+01
		1235.34		19.70	-5.66E-01		9.56E+01
+	CS-137	661.65		85.12	-2.54E-02	7.08E-02	7.08E-02
+	LA-138	788.74		34.00	-2.37E-01	8.14E-02	1.81E-01
		1435.80		66.00	1.85E-02		8.14E-02
+	CE-139	165.85		80.35	7.87E-02	9.57E-02	9.57E-02
+	BA-140	162.64		6.70	-8.55E+01	5.22E+01	1.46E+02
		304.84		4.50	-3.08E+01		2.51E+02
		423.70		3.20	4.43E+01		3.60E+02
		437.55		2.00	6.10E+01		6.32E+02
		537.32		25.00	4.18E+01		5.22E+01
+	LA-140	328.77		20.50	9.72E+00	1.29E+01	6.32E+01
		487.03		45.50	-5.18E+00		2.62E+01
		815.85		23.50	1.15E+01		5.87E+01
		1596.49		95.49	2.86E-01		1.29E+01
+	CE-141	145.44		48.40	2.90E-01	8.10E-01	8.10E-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	-4.65E-01	5.15E-01	5.15E-01
+	PM-144	476.78		42.00	-2.24E-02	7.25E-02	1.58E-01
		618.01		98.60	-7.95E-03		7.25E-02
		696.49		99.49	4.42E-02		8.41E-02
+	PM-145	36.85		21.70	-4.05E-02	1.24E-01	2.23E-01
		37.36		39.70	1.07E-02		1.24E-01
		42.30		15.10	-2.31E-01		3.08E-01
		72.40		2.31	-1.88E+00		2.82E+00
+	PM-146	453.90	*	39.94	1.38E-01	1.90E-01	1.90E-01
		735.90		14.01	1.61E-01		4.24E-01
		747.13		13.10	2.47E-02		4.76E-01
+	ND-147	91.11		28.90	2.39E+02	1.23E+02	1.23E+02
		531.02		13.10	-1.44E+02		2.18E+02
+	PM-149	285.90		3.10	1.33E+13	7.22E+13	7.22E+13
+	EU-152	121.78		20.50	-9.04E-02	2.01E-01	2.01E-01
		244.69		5.40	-7.85E-02		1.01E+00
		344.27		19.13	1.45E-02		2.80E-01
		778.89		9.20	1.20E-02		6.73E-01
		964.01		10.40	-2.17E+00		8.34E-01
		1085.78		7.22	-1.67E-01		9.53E-01
		1112.02		9.60	6.22E-01		7.82E-01
		1407.95		14.94	2.27E-01		4.46E-01
+	GD-153	97.43		31.30	2.51E-02	1.90E-01	1.90E-01
		103.18		22.20	-3.27E-02		2.71E-01
+	EU-154	123.07		40.50	-6.24E-03	1.06E-01	1.06E-01
		723.30		19.70	9.74E-02		3.29E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-154	873.19		11.50	1.63E-01	1.06E-01	5.57E-01
		996.32		10.30	2.24E-01		6.42E-01
		1004.76		17.90	2.06E-01		4.20E-01
		1274.45		35.50	-1.61E-02		2.14E-01
+	EU-155	86.50	*	30.90	4.25E-01	2.27E-01	4.05E-01
		105.30		20.70	1.60E-02		2.27E-01
+	EU-156	811.77		10.40	-3.36E+01	5.09E+01	5.09E+01
		1153.47		7.20	5.13E+01		1.17E+02
		1230.71		8.90	4.56E+01		1.06E+02
+	HO-166M	184.41		72.60	1.30E-01	7.97E-02	7.97E-02
		280.45		29.60	1.42E-02		1.84E-01
		410.94		11.10	3.06E-02		5.04E-01
		711.69		54.10	-1.00E-02		1.12E-01
+	TM-171	66.72		0.14	-6.94E+01	4.21E+01	4.21E+01
+	HF-172	67.35		5.31	-6.39E-01	4.22E-01	1.09E+00
		125.81		11.30	-1.92E-02		4.22E-01
+	LU-172	181.53		20.60	-5.57E+02	3.96E+03	7.16E+03
		900.72		29.81	2.64E+03		7.26E+03
		1093.66		62.50	1.43E+03		3.96E+03
+	LU-173	100.72		5.24	6.63E-01	3.14E-01	1.01E+00
		272.11		21.20	-5.48E-02		3.14E-01
+	HF-175	343.40		84.00	8.74E-03	1.73E-01	1.73E-01
+	LU-176	88.34		13.30	-1.57E-01	5.43E-02	4.59E-01
		201.83		86.00	2.52E-02		5.75E-02
		306.78		94.00	1.04E-02		5.43E-02
+	HF-181	133.02		41.70	-4.84E-01	3.41E-01	5.36E-01
		345.85		17.20	8.18E-02		1.62E+00
		482.03		82.80	-2.06E-02		3.41E-01
+	TA-182	67.75		41.20	-1.36E-01	2.32E-01	2.32E-01
		1121.30		34.90	5.02E-01		5.22E-01
		1189.05		16.23	-4.60E-01		8.92E-01
		1221.41		26.98	-1.53E-02		6.16E-01
		1231.02		11.44	6.76E-01		1.58E+00
+	IR-192	308.46		29.68	2.88E-02	3.06E-01	4.48E-01
		468.07		48.10	-1.20E-01		3.06E-01
+	HG-203	279.19		77.30	7.65E-02	3.13E-01	3.13E-01
+	TL-204	374.74		94.11	3.42E-02	6.10E-02	6.10E-02
		899.15		99.16	5.75E-03		7.08E-02
		911.74		91.10	3.50E-01		1.51E-01
+	BI-207	569.67		97.72	4.76E-03	5.41E-02	5.41E-02
		1063.62		74.90	-2.38E-02		9.19E-02
+	TL-208	583.14	*	30.22	1.29E+00	1.94E-01	2.87E-01
		860.37		4.48	1.55E+00		1.82E+00
		2614.66	*	35.85	1.12E+00		1.94E-01
+	BI-210M	262.00		45.00	-5.41E-02	1.11E-01	1.11E-01
		300.00		23.00	-8.38E-01		2.61E-01
+	PB-210	46.50		4.25	4.11E-01	1.18E+00	1.18E+00
+	PB-211	404.84		2.90	-1.56E+00	1.82E+00	1.82E+00
		831.96		2.90	-1.51E-01		2.32E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BI-212	727.17	*	11.80	8.42E-01	7.49E-01	7.49E-01
		1620.62		2.75	7.70E-01		2.04E+00
+	PB-212	238.63	*	44.60	1.20E+00	2.80E-01	2.80E-01
		300.09	*	3.41	1.54E+00		1.53E+00
+	BI-214	609.31	*	46.30	1.06E+00	2.17E-01	2.17E-01
		1120.29	*	15.10	8.69E-01		5.33E-01
		1764.49	*	15.80	1.34E+00		4.18E-01
		2204.22		4.98	1.17E+00		1.84E+00
+	PB-214	295.21	*	19.19	1.10E+00	1.82E-01	3.22E-01
		351.92	*	37.19	1.07E+00		1.82E-01
+	RN-219	401.80		6.50	6.75E-02	8.50E-01	8.50E-01
+	RA-223	323.87		3.88	-1.19E+00	1.32E+00	1.32E+00
+	RA-224	240.98	*	3.95	4.45E+00	3.24E+00	3.24E+00
+	RA-225	40.00		31.00	-3.60E+00	1.64E+01	1.64E+01
+	RA-226	186.21	*	3.28	1.82E+00	2.49E+00	2.49E+00
+	TH-227	50.10		8.40	1.74E-01	5.16E-01	5.75E-01
		236.00		11.50	-3.37E+00		5.16E-01
		256.20		6.30	4.58E-01		8.41E-01
+	AC-228	338.32	*	11.40	1.42E+00	3.98E-01	6.87E-01
		911.07	*	27.70	1.27E+00		3.98E-01
		969.11	*	16.60	1.28E+00		6.69E-01
+	TH-230	48.44		16.90	2.80E-01	2.92E-01	2.92E-01
		62.85		4.60	1.54E+00		1.27E+00
		67.67		0.37	-8.28E+00		1.41E+01
+	PA-231	283.67		1.60	3.93E-01	2.43E+00	3.37E+00
		302.67		2.30	-5.19E-02		2.43E+00
+	TH-231	25.64		14.70	-3.12E+00	4.67E-01	4.67E-01
		84.21		6.40	-7.76E-01		8.60E-01
+	PA-233	311.98		38.60	2.93E-01	1.81E+00	1.81E+00
+	PA-234	131.20		20.40	1.63E-01	2.33E-01	2.33E-01
		733.99		8.80	1.23E-01		6.67E-01
		946.00		12.00	-8.40E-02		5.35E-01
+	PA-234M	1001.03		0.92	2.16E+00	7.66E+00	7.66E+00
+	TH-234	63.29		3.80	2.35E+00	1.55E+00	1.55E+00
+	U-235	143.76		10.50	1.83E-01	4.47E-01	4.47E-01
		163.35		4.70	-7.24E-03		9.51E-01
		205.31		4.70	-1.20E+00		1.00E+00
+	NP-237	86.50	*	12.60	1.00E+00	9.55E-01	9.55E-01
+	NP-239	106.10		22.70	7.89E+10	1.23E+12	1.23E+12
		228.18		10.70	6.73E+11		2.79E+12
		277.60		14.10	1.05E+12		2.41E+12
+	AM-241	59.54		35.90	-4.80E-02	1.45E-01	1.45E-01
+	AM-243	74.67	*	66.00	4.89E-01	1.39E-01	1.39E-01
+	CM-243	209.75		3.29	1.38E+00	3.94E-01	1.56E+00
		228.14		10.60	1.10E-01		4.57E-01
		277.60		14.00	1.72E-01		3.94E-01

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	1.93E+00	1.93E+00	-1.91E-01	9.17E-01
	NA-22	1274.54		99.94	8.00E-02	8.00E-02	-6.02E-03	3.70E-02
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	3.73E-02	3.73E-02	-2.64E-03	1.51E-02
+	K-40	1460.81	*	10.67	1.48E+00	1.48E+00	2.55E+01	7.11E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	5.54E-02	5.54E-02	-3.25E-02	2.71E-02
		78.34		96.00	7.43E-02		1.50E-01	3.66E-02
	SC-46	889.25		99.98	1.49E-01	1.49E-01	-4.25E-02	6.94E-02
		1120.51		99.99	2.25E-01		2.79E-01	1.07E-01
	V-48	983.52		99.98	4.69E+00	4.69E+00	-2.60E+00	2.17E+00
		1312.10		97.50	5.55E+00		1.81E+00	2.55E+00
	CR-51	320.08		9.83	5.94E+00	5.94E+00	-6.32E+00	2.85E+00
	MN-54	834.83		99.97	8.13E-02	8.13E-02	-8.89E-02	3.81E-02
	CO-56	846.75		99.96	1.45E-01	1.45E-01	-5.20E-02	6.74E-02
		1037.75		14.03	1.15E+00		-3.35E-01	5.32E-01
		1238.25		67.00	3.94E-01		2.17E-01	1.87E-01
		1771.40		15.51	7.33E-01		0.00E+00	3.12E-01
		2598.48		16.90	4.52E-01		2.44E-02	1.60E-01
	CO-57	122.06		85.51	6.20E-02	6.20E-02	-2.30E-02	3.01E-02
		136.48		10.60	5.37E-01		3.69E-02	2.61E-01
	CO-58	810.76		99.40	1.43E-01	1.43E-01	-1.52E-01	6.64E-02
	FE-59	1099.22		56.50	6.87E-01	6.87E-01	1.96E-01	3.23E-01
		1291.56		43.20	7.53E-01		-2.57E-01	3.46E-01
	CO-60	1173.22		100.00	7.93E-02	6.28E-02	-5.40E-02	3.69E-02
		1332.49		100.00	6.28E-02		-1.34E-02	2.84E-02
	ZN-65	1115.52		50.75	1.84E-01	1.84E-01	-3.92E-01	8.55E-02
	GA-67	93.31		35.70	2.92E+08	2.92E+08	6.63E+08	1.43E+08

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
GA-67	208.95	2.24	3.93E+09	2.92E+08	3.39E+09	1.91E+09
	300.22	16.00	6.19E+08		-1.40E+09	2.99E+08
SE-75	121.11	16.70	4.34E-01	1.33E-01	-1.95E-01	2.10E-01
	136.00	59.20	1.33E-01		9.12E-03	6.44E-02
	264.65	59.80	1.52E-01		-4.46E-02	7.33E-02
	279.53	25.20	3.88E-01		9.46E-02	1.87E-01
	400.65	11.40	8.80E-01		4.53E-01	4.22E-01
RB-82	776.52	13.00	7.38E+00	7.38E+00	-8.55E-01	3.47E+00
RB-83	520.41	46.00	2.80E-01	2.80E-01	-1.67E-01	1.33E-01
	529.64	30.30	4.03E-01		-8.94E-02	1.91E-01
	552.65	16.40	7.11E-01		-6.14E-01	3.36E-01
KR-85	513.99	0.43	1.87E+01	1.87E+01	4.60E+00	9.03E+00
SR-85	513.99	99.27	2.34E-01	2.34E-01	5.76E-02	1.13E-01
Y-88	898.02	93.40	1.37E-01	6.17E-02	1.61E-02	6.41E-02
	1836.01	99.38	6.17E-02		1.28E-03	2.39E-02
MO-93	263.06	56.72	9.04E-02	4.86E-02	-4.24E-02	4.36E-02
	684.67	99.68	6.15E-02		4.81E-03	2.90E-02
	1477.11	99.08	4.86E-02		5.86E-03	2.11E-02
NB-93M	16.57	9.43	4.71E-01	4.71E-01	-6.79E-02	2.20E-01
NB-94	702.63	100.00	6.11E-02	5.89E-02	2.99E-03	2.88E-02
	871.10	100.00	5.89E-02		-2.52E-02	2.74E-02
NB-95	765.79	99.81	5.23E-01	5.23E-01	2.15E-01	2.48E-01
NB-95M	235.69	25.00	5.25E+07	5.25E+07	-3.43E+08	2.55E+07
ZR-95	724.18	43.70	4.64E-01	2.96E-01	-2.48E-02	2.20E-01
	756.72	55.30	2.96E-01		-1.42E-01	1.38E-01
MO-99	181.06	6.20	6.78E+10	4.08E+10	-5.28E+09	3.29E+10
	739.58	12.80	4.08E+10		-6.20E+09	1.91E+10
	778.00	4.50	1.24E+11		2.16E+09	5.83E+10
RU-103	497.08	89.00	3.91E-01	3.91E-01	1.41E-01	1.87E-01
RU-106	621.84	9.80	7.00E-01	7.00E-01	-2.60E-01	3.30E-01
AG-108M	433.93	89.90	6.00E-02	6.00E-02	-1.48E-02	2.86E-02
	614.37	90.40	7.39E-02		-1.92E-03	3.52E-02
	722.95	90.50	7.02E-02		2.08E-02	3.31E-02
CD-109	88.03	3.72	1.90E+00	1.90E+00	-6.51E-01	9.34E-01
AG-110M	657.75	93.14	8.15E-02	8.15E-02	-6.37E-03	3.84E-02
	677.61	10.53	6.96E-01		0.00E+00	3.27E-01
	706.67	16.46	5.00E-01		2.50E-02	2.36E-01
	763.93	21.98	3.89E-01		2.04E-02	1.83E-01
	884.67	71.63	1.25E-01		4.15E-02	5.84E-02
	1384.27	23.94	3.17E-01		7.62E-02	1.42E-01
CD-113M	263.70	0.02	2.21E+02	2.21E+02	-1.02E+02	1.07E+02
SN-113	255.12	1.93	4.24E+00	1.51E-01	3.25E-01	2.04E+00
	391.69	64.90	1.51E-01		1.56E-02	7.25E-02
TE123M	159.00	84.10	9.26E-02	9.26E-02	-2.49E-02	4.49E-02
SB-124	602.71	97.87	1.89E-01	1.89E-01	-4.19E-04	8.95E-02
	645.85	7.26	2.25E+00		-1.53E+00	1.05E+00
	722.78	11.10	1.81E+00		5.35E-01	8.53E-01
	1691.02	49.00	3.27E-01		1.42E-01	1.41E-01
I-125	35.49	6.49	2.37E+00	2.37E+00	5.00E-01	1.15E+00
SB-125	176.33	6.89	7.03E-01	1.85E-01	-1.25E-01	3.41E-01
	427.89	29.33	1.85E-01		5.46E-02	8.81E-02
	463.38	10.35	6.10E-01		9.27E-02	2.92E-01
	600.56	17.80	3.62E-01		8.40E-02	1.72E-01

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
SB-125	635.90	11.32	5.58E-01	1.85E-01	6.28E-02	2.63E-01
SB-126	414.70	83.30	1.88E+01	1.85E+01	1.11E+01	9.02E+00
	666.33	99.60	1.85E+01		1.38E+01	8.81E+00
	695.00	99.60	1.94E+01		1.73E+01	9.21E+00
	720.50	53.80	2.84E+01		1.49E+00	1.33E+01
SN-126	87.57	37.00	1.62E-01	1.62E-01	1.25E-01	7.94E-02
SB-127	473.00	25.00	1.43E+07	1.13E+07	-4.20E+06	6.80E+06
	685.20	35.70	1.13E+07		8.84E+05	5.32E+06
	783.80	14.70	3.16E+07		1.71E+07	1.49E+07
I-129	29.78	57.00	9.54E-02	9.54E-02	-3.93E-02	4.63E-02
	33.60	13.20	3.68E-01		-3.86E-01	1.78E-01
	39.58	7.52	6.29E-01		-5.18E-02	3.06E-01
I-131	284.30	6.05	4.89E+03	3.41E+02	-7.00E+02	2.36E+03
	364.48	81.20	3.41E+02		-2.02E+01	1.63E+02
	636.97	7.26	4.52E+03		-5.68E+02	2.13E+03
	722.89	1.80	1.97E+04		5.83E+03	9.28E+03
TE-132	49.72	13.10	6.47E+08	9.64E+07	4.59E+07	3.15E+08
	228.16	88.00	9.64E+07		2.32E+07	4.66E+07
BA-133	81.00	33.00	1.62E-01	1.21E-01	7.30E-03	7.92E-02
	302.84	17.80	3.19E-01		-6.83E-03	1.54E-01
	356.01	60.00	1.21E-01		-1.57E-01	5.88E-02
@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
XE-133	81.00	38.00	7.70E+04	7.70E+04	3.47E+03	3.77E+04
CS-134	563.23	8.38	7.03E-01	7.46E-02	2.58E-02	3.32E-01
	569.32	15.43	3.75E-01		-3.49E-03	1.77E-01
	604.70	97.60	7.46E-02		3.32E-03	3.55E-02
	795.84	85.40	9.86E-02		9.54E-02	4.68E-02
	801.93	8.73	8.31E-01		-3.24E-01	3.91E-01
CS-135	268.24	16.00	3.69E-01	3.69E-01	3.85E-01	1.79E-01
@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41	28.60	1.00E+26		1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		1.00E+26	1.00E+20
CS-136	153.22	7.46	1.18E+02	1.24E+01	-2.45E+01	5.75E+01
	163.89	4.61	1.89E+02		-1.44E+00	9.17E+01
	176.55	13.56	6.49E+01		-1.16E+01	3.15E+01
	273.65	12.66	8.47E+01		-2.07E+01	4.10E+01
	340.57	48.50	3.01E+01		3.57E+00	1.47E+01
	818.50	99.70	1.24E+01		2.64E+00	5.80E+00
	1048.07	79.60	1.75E+01		-6.51E-01	8.14E+00
	1235.34	19.70	9.56E+01		-5.66E-01	4.51E+01
CS-137	661.65	85.12	7.08E-02	7.08E-02	-2.54E-02	3.34E-02
LA-138	788.74	34.00	1.81E-01	8.14E-02	-2.37E-01	8.49E-02
	1435.80	66.00	8.14E-02		1.85E-02	3.61E-02
CE-139	165.85	80.35	9.57E-02	9.57E-02	7.87E-02	4.65E-02
BA-140	162.64	6.70	1.46E+02	5.22E+01	-8.55E+01	7.08E+01
	304.84	4.50	2.51E+02		-3.08E+01	1.21E+02
	423.70	3.20	3.60E+02		4.43E+01	1.72E+02
	437.55	2.00	6.32E+02		6.10E+01	3.02E+02
	537.32	25.00	5.22E+01		4.18E+01	2.48E+01
LA-140	328.77	20.50	6.32E+01	1.29E+01	9.72E+00	3.05E+01
	487.03	45.50	2.62E+01		-5.18E+00	1.24E+01
	815.85	23.50	5.87E+01		1.15E+01	2.74E+01
	1596.49	95.49	1.29E+01		2.86E-01	5.65E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CE-141	145.44		48.40	8.10E-01	8.10E-01	2.90E-01	3.94E-01
@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		293.26		42.00	1.00E+26		1.00E+26	1.00E+20
@		664.55		5.20	1.00E+26		1.00E+26	1.00E+20
	CE-144	133.54		10.80	5.15E-01	5.15E-01	-4.65E-01	2.50E-01
	PM-144	476.78		42.00	1.58E-01	7.25E-02	-2.24E-02	7.51E-02
		618.01		98.60	7.25E-02		-7.95E-03	3.43E-02
		696.49		99.49	8.41E-02		4.42E-02	3.99E-02
	PM-145	36.85		21.70	2.23E-01	1.24E-01	-4.05E-02	1.08E-01
		37.36		39.70	1.24E-01		1.07E-02	6.04E-02
		42.30		15.10	3.08E-01		-2.31E-01	1.50E-01
		72.40		2.31	2.82E+00		-1.88E+00	1.39E+00
+	PM-146	453.90	*	39.94	1.90E-01	1.90E-01	1.38E-01	9.19E-02
		735.90		14.01	4.24E-01		1.61E-01	1.98E-01
		747.13		13.10	4.76E-01		2.47E-02	2.23E-01
	ND-147	91.11		28.90	1.23E+02	1.23E+02	2.39E+02	6.03E+01
		531.02		13.10	2.18E+02		-1.44E+02	1.03E+02
	PM-149	285.90		3.10	7.22E+13	7.22E+13	1.33E+13	3.49E+13
	EU-152	121.78		20.50	2.01E-01	2.01E-01	-9.04E-02	9.76E-02
		244.69		5.40	1.01E+00		-7.85E-02	4.91E-01
		344.27		19.13	2.80E-01		1.45E-02	1.34E-01
		778.89		9.20	6.73E-01		1.20E-02	3.15E-01
		964.01		10.40	8.34E-01		-2.17E+00	3.95E-01
		1085.78		7.22	9.53E-01		-1.67E-01	4.42E-01
		1112.02		9.60	7.82E-01		6.22E-01	3.65E-01
		1407.95		14.94	4.46E-01		2.27E-01	2.03E-01
	GD-153	97.43		31.30	1.90E-01	1.90E-01	2.51E-02	9.26E-02
		103.18		22.20	2.71E-01		-3.27E-02	1.32E-01
	EU-154	123.07		40.50	1.06E-01	1.06E-01	-6.24E-03	5.13E-02
		723.30		19.70	3.29E-01		9.74E-02	1.55E-01
		873.19		11.50	5.57E-01		1.63E-01	2.60E-01
		996.32		10.30	6.42E-01		2.24E-01	2.98E-01
		1004.76		17.90	4.20E-01		2.06E-01	1.97E-01
		1274.45		35.50	2.14E-01		-1.61E-02	9.90E-02
+	EU-155	86.50	*	30.90	4.05E-01	2.27E-01	4.25E-01	2.01E-01
		105.30		20.70	2.27E-01		1.60E-02	1.11E-01
	EU-156	811.77		10.40	5.09E+01	5.09E+01	-3.36E+01	2.36E+01
		1153.47		7.20	1.17E+02		5.13E+01	5.50E+01
		1230.71		8.90	1.06E+02		4.56E+01	5.03E+01
	HO-166M	184.41		72.60	7.97E-02	7.97E-02	1.30E-01	3.89E-02
		280.45		29.60	1.84E-01		1.42E-02	8.91E-02
		410.94		11.10	5.04E-01		3.06E-02	2.41E-01
		711.69		54.10	1.12E-01		-1.00E-02	5.25E-02
	TM-171	66.72		0.14	4.21E+01	4.21E+01	-6.94E+01	2.06E+01
	HF-172	67.35		5.31	1.09E+00	4.22E-01	-6.39E-01	5.33E-01
		125.81		11.30	4.22E-01		-1.92E-02	2.05E-01
	LU-172	181.53		20.60	7.16E+03	3.96E+03	-5.57E+02	3.47E+03
		900.72		29.81	7.26E+03		2.64E+03	3.41E+03
		1093.66		62.50	3.96E+03		1.43E+03	1.85E+03
	LU-173	100.72		5.24	1.01E+00	3.14E-01	6.63E-01	4.90E-01
		272.11		21.20	3.14E-01		-5.48E-02	1.52E-01
	HF-175	343.40		84.00	1.73E-01	1.73E-01	8.74E-03	8.30E-02
	LU-176	88.34		13.30	4.59E-01	5.43E-02	-1.57E-01	2.25E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	LU-176	201.83		86.00	5.75E-02	5.43E-02	2.52E-02	2.79E-02
		306.78		94.00	5.43E-02		1.04E-02	2.61E-02
	HF-181	133.02		41.70	5.36E-01	3.41E-01	-4.84E-01	2.61E-01
		345.85		17.20	1.62E+00		8.18E-02	7.78E-01
		482.03		82.80	3.41E-01		-2.06E-02	1.62E-01
	TA-182	67.75		41.20	2.32E-01	2.32E-01	-1.36E-01	1.14E-01
		1121.30		34.90	5.22E-01		5.02E-01	2.48E-01
		1189.05		16.23	8.92E-01		-4.60E-01	4.16E-01
		1221.41		26.98	6.16E-01		-1.53E-02	2.90E-01
		1231.02		11.44	1.58E+00		6.76E-01	7.45E-01
	IR-192	308.46		29.68	4.48E-01	3.06E-01	2.88E-02	2.16E-01
		468.07		48.10	3.06E-01		-1.20E-01	1.46E-01
	HG-203	279.19		77.30	3.13E-01	3.13E-01	7.65E-02	1.52E-01
	TL-204	374.74		94.11	6.10E-02	6.10E-02	3.42E-02	2.93E-02
		899.15		99.16	7.08E-02		5.75E-03	3.31E-02
		911.74		91.10	1.51E-01		3.50E-01	7.29E-02
	BI-207	569.67		97.72	5.41E-02	5.41E-02	4.76E-03	2.55E-02
		1063.62		74.90	9.19E-02		-2.38E-02	4.27E-02
+	TL-208	583.14	*	30.22	2.87E-01	1.94E-01	1.29E+00	1.38E-01
		860.37		4.48	1.82E+00		1.55E+00	8.64E-01
		2614.66	*	35.85	1.94E-01		1.12E+00	8.40E-02
	BI-210M	262.00		45.00	1.11E-01	1.11E-01	-5.41E-02	5.38E-02
		300.00		23.00	2.61E-01		-8.38E-01	1.26E-01
	PB-210	46.50		4.25	1.18E+00	1.18E+00	4.11E-01	5.76E-01
	PB-211	404.84		2.90	1.82E+00	1.82E+00	-1.56E+00	8.70E-01
		831.96		2.90	2.32E+00		-1.51E-01	1.09E+00
+	BI-212	727.17	*	11.80	7.49E-01	7.49E-01	8.42E-01	3.59E-01
		1620.62		2.75	2.04E+00		7.70E-01	8.99E-01
+	PB-212	238.63	*	44.60	2.80E-01	2.80E-01	1.20E+00	1.38E-01
		300.09	*	3.41	1.53E+00		1.54E+00	7.38E-01
+	BI-214	609.31	*	46.30	2.17E-01	2.17E-01	1.06E+00	1.05E-01
		1120.29	*	15.10	5.33E-01		8.69E-01	2.50E-01
		1764.49	*	15.80	4.18E-01		1.34E+00	1.87E-01
		2204.22		4.98	1.84E+00		1.17E+00	8.38E-01
+	PB-214	295.21	*	19.19	3.22E-01	1.82E-01	1.10E+00	1.56E-01
		351.92	*	37.19	1.82E-01		1.07E+00	8.83E-02
	RN-219	401.80		6.50	8.50E-01	8.50E-01	6.75E-02	4.07E-01
	RA-223	323.87		3.88	1.32E+00	1.32E+00	-1.19E+00	6.34E-01
+	RA-224	240.98	*	3.95	3.24E+00	3.24E+00	4.45E+00	1.60E+00
	RA-225	40.00		31.00	1.64E+01	1.64E+01	-3.60E+00	7.95E+00
+	RA-226	186.21	*	3.28	2.49E+00	2.49E+00	1.82E+00	1.23E+00
	TH-227	50.10		8.40	5.75E-01	5.16E-01	1.74E-01	2.81E-01
		236.00		11.50	5.16E-01		-3.37E+00	2.51E-01
		256.20		6.30	8.41E-01		4.58E-01	4.07E-01
+	AC-228	338.32	*	11.40	6.87E-01	3.98E-01	1.42E+00	3.34E-01
		911.07	*	27.70	3.98E-01		1.27E+00	1.91E-01
		969.11	*	16.60	6.69E-01		1.28E+00	3.21E-01
	TH-230	48.44		16.90	2.92E-01	2.92E-01	2.80E-01	1.42E-01
		62.85		4.60	1.27E+00		1.54E+00	6.24E-01
		67.67		0.37	1.41E+01		-8.28E+00	6.90E+00
	PA-231	283.67		1.60	3.37E+00	2.43E+00	3.93E-01	1.63E+00
		302.67		2.30	2.43E+00		-5.19E-02	1.17E+00
	TH-231	25.64		14.70	4.67E-01	4.67E-01	-3.12E+00	2.27E-01

Analysis Report for 1707089-07

HTC-A04-S001-4248-01

	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	8.60E-01	4.67E-01	-7.76E-01	4.21E-01
	PA-233	311.98		38.60	1.81E+00	1.81E+00	2.93E-01	8.73E-01
	PA-234	131.20		20.40	2.33E-01	2.33E-01	1.63E-01	1.14E-01
		733.99		8.80	6.67E-01		1.23E-01	3.13E-01
		946.00		12.00	5.35E-01		-8.40E-02	2.49E-01
	PA-234M	1001.03		0.92	7.66E+00	7.66E+00	2.16E+00	3.58E+00
	TH-234	63.29		3.80	1.55E+00	1.55E+00	2.35E+00	7.60E-01
	U-235	143.76		10.50	4.47E-01	4.47E-01	1.83E-01	2.17E-01
		163.35		4.70	9.51E-01		-7.24E-03	4.61E-01
		205.31		4.70	1.00E+00		-1.20E+00	4.86E-01
+	NP-237	86.50	*	12.60	9.55E-01	9.55E-01	1.00E+00	4.73E-01
	NP-239	106.10		22.70	1.23E+12	1.23E+12	7.89E+10	6.00E+11
		228.18		10.70	2.79E+12		6.73E+11	1.35E+12
		277.60		14.10	2.41E+12		1.05E+12	1.17E+12
	AM-241	59.54		35.90	1.45E-01	1.45E-01	-4.80E-02	7.09E-02
+	AM-243	74.67	*	66.00	1.39E-01	1.39E-01	4.89E-01	6.86E-02
	CM-243	209.75		3.29	1.56E+00	3.94E-01	1.38E+00	7.55E-01
		228.14		10.60	4.57E-01		1.10E-01	2.21E-01
		277.60		14.00	3.94E-01		1.72E-01	1.91E-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 1707089-07

HTC-A04-S001-4248-01

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

Sample Title: HTC-A04-S001-4248-01

Elapsed Live time: 3600
Elapsed Real Time: 3601

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	70	76	63	174	516	134
25:	75	83	75	83	66	65	83	62
33:	82	50	75	71	89	80	59	96
41:	79	82	75	84	82	94	138	102
49:	100	104	80	120	111	118	127	99
57:	94	126	131	148	119	138	172	264
65:	169	131	141	142	144	139	144	197
73:	162	200	382	332	427	469	164	124
81:	150	149	130	165	166	122	207	259
89:	154	192	156	171	305	238	119	99
97:	78	111	107	105	114	106	91	91
105:	84	129	102	94	85	112	91	89
113:	94	84	73	95	83	85	85	75
121:	67	78	74	79	82	81	89	82
129:	118	138	98	97	84	75	74	76
137:	81	93	84	89	84	67	101	106
145:	84	88	74	80	66	87	83	73
153:	77	82	81	82	79	84	73	73
161:	60	63	67	78	70	84	79	75
169:	64	55	77	77	63	87	83	58
177:	61	68	74	64	76	66	83	73
185:	96	167	126	68	80	64	85	75
193:	62	65	53	60	62	72	50	53
201:	82	80	74	69	64	67	57	62
209:	83	95	68	55	47	59	56	54
217:	51	54	68	55	84	56	73	60
225:	53	60	65	65	60	46	57	48
233:	59	54	59	68	53	198	588	212
241:	131	141	109	75	48	54	53	38
249:	37	44	42	33	47	49	37	44
257:	44	45	45	44	38	33	34	42
265:	31	46	40	45	42	77	65	47
273:	41	38	40	35	40	54	42	41
281:	45	34	37	37	43	42	40	35
289:	37	38	31	34	34	53	157	195
297:	58	31	49	67	57	24	36	27
305:	25	37	37	27	37	33	26	33
313:	35	38	38	31	35	23	21	23
321:	24	32	24	38	36	21	32	63
329:	40	29	39	31	33	33	34	40
337:	36	105	153	35	36	29	33	34
345:	29	23	27	27	39	33	94	303
353:	181	28	30	36	35	32	17	25
361:	25	34	19	16	29	23	19	23

369:	27	19	22	26	28	30	29	22

Sample Title: HTC-A04-S001-4248-01

Channel								
377:	26	30	25	21	23	26	16	26
385:	16	25	36	26	32	25	27	16
393:	25	18	30	21	24	29	26	29
401:	27	24	30	18	22	19	27	18
409:	24	39	22	22	30	19	33	25
417:	30	28	14	13	19	24	19	16
425:	19	20	19	19	25	15	16	17
433:	15	35	24	16	25	21	31	19
441:	21	24	14	25	18	19	17	13
449:	7	18	24	27	18	15	18	14
457:	21	22	15	16	20	14	40	28
465:	22	22	15	21	31	22	18	17
473:	19	23	19	9	19	23	23	16
481:	23	20	17	16	16	20	16	16
489:	17	16	19	17	22	20	19	24
497:	22	18	22	23	18	16	18	21
505:	8	14	14	17	20	60	89	44
513:	36	22	15	22	29	17	13	20
521:	21	20	19	18	29	13	26	20
529:	9	19	12	11	14	13	18	18
537:	19	15	19	19	10	10	13	11
545:	16	21	9	20	24	15	9	12
553:	10	15	15	18	18	16	13	15
561:	15	17	11	16	11	12	14	12
569:	21	11	12	10	11	15	11	9
577:	17	8	19	21	19	56	141	141
585:	28	17	16	10	13	12	17	7
593:	8	15	14	12	17	18	18	18
601:	13	17	15	12	17	12	9	53
609:	186	185	43	18	13	18	15	10
617:	16	15	10	19	17	16	13	9
625:	9	13	19	15	15	14	14	8
633:	14	13	18	15	14	12	11	13
641:	16	18	11	12	12	14	5	11
649:	6	10	15	10	11	13	19	15
657:	8	17	7	10	11	14	13	20
665:	19	19	20	20	13	11	12	12
673:	11	11	17	13	10	11	8	7
681:	11	13	9	15	12	13	15	13
689:	15	15	9	23	14	21	21	19
697:	10	19	13	8	13	13	15	12
705:	16	12	19	11	14	8	12	12
713:	16	13	10	14	8	4	13	18
721:	8	13	9	4	13	27	34	31
729:	12	14	14	10	7	9	13	10
737:	13	9	11	7	9	13	12	13
745:	10	8	10	14	10	13	5	14
753:	14	6	11	16	10	7	8	6
761:	11	10	7	13	11	20	16	22
769:	21	15	15	14	15	11	14	17
777:	7	11	7	14	9	10	11	18
785:	22	16	12	11	9	8	14	5
793:	14	22	32	15	11	9	15	7

801:	12	18	14	8	11	16	20	8

Sample Title: HTC-A04-S001-4248-01

Channel								
809:	6	11	5	7	10	6	11	8
817:	11	12	11	12	10	14	7	10
825:	9	10	10	11	12	12	21	8
833:	5	11	14	17	10	12	18	20
841:	14	12	9	7	9	10	9	6
849:	6	16	11	12	11	15	7	16
857:	15	8	11	32	31	10	11	9
865:	10	9	6	10	8	4	10	9
873:	8	9	15	11	5	8	7	9
881:	10	6	9	12	18	10	11	9
889:	10	9	10	10	8	10	9	6
897:	15	14	12	8	8	9	11	9
905:	10	10	6	13	8	47	112	81
913:	18	9	17	21	11	11	7	10
921:	3	9	6	5	6	5	15	10
929:	10	11	10	8	13	16	25	9
937:	5	8	9	13	14	9	5	6
945:	8	17	6	8	11	12	14	13
953:	6	10	13	7	4	6	11	7
961:	10	11	11	18	32	21	6	47
969:	67	31	11	9	6	8	8	13
977:	8	15	10	8	10	6	7	4
985:	9	7	10	7	6	8	5	6
993:	12	7	12	8	5	4	9	8
1001:	13	14	11	9	9	10	8	4
1009:	10	14	9	14	13	8	6	7
1017:	7	12	11	6	12	7	12	10
1025:	5	15	7	9	13	5	8	9
1033:	11	8	9	8	5	8	10	9
1041:	13	6	7	12	5	8	9	7
1049:	16	11	9	9	10	6	14	14
1057:	14	7	8	13	11	6	5	9
1065:	7	7	11	11	17	10	8	10
1073:	15	11	13	12	11	12	13	13
1081:	12	10	12	5	9	2	12	5
1089:	6	7	11	15	8	13	3	18
1097:	8	14	5	12	7	17	9	13
1105:	6	5	2	5	1	9	17	13
1113:	10	7	7	8	3	9	15	32
1121:	34	14	9	5	9	15	5	11
1129:	13	14	14	12	11	10	9	16
1137:	12	13	9	8	13	14	8	7
1145:	15	9	8	12	11	15	11	17
1153:	9	11	12	11	8	8	8	10
1161:	16	12	10	9	9	10	12	17
1169:	15	6	12	9	13	6	6	11
1177:	8	13	13	13	10	9	11	8
1185:	6	13	6	12	10	7	12	6
1193:	15	17	8	10	10	10	14	14
1201:	17	11	13	14	11	13	15	11
1209:	7	11	10	19	10	12	10	11
1217:	10	17	10	10	14	13	13	8
1225:	11	16	19	21	13	11	15	12

1233:	9	8	12	10	24	21	24	23

Sample Title: HTC-A04-S001-4248-01

Channel								
1241:	10	19	16	8	15	11	18	9
1249:	13	11	8	7	4	8	8	12
1257:	9	14	6	8	11	5	5	5
1265:	6	5	13	3	6	7	8	8
1273:	10	7	10	1	8	9	2	12
1281:	2	15	3	11	5	5	8	8
1289:	7	7	6	5	8	2	10	7
1297:	7	5	4	4	10	6	3	9
1305:	9	5	2	6	5	11	5	9
1313:	6	2	6	5	5	3	6	2
1321:	4	6	3	8	9	2	4	5
1329:	3	6	3	5	3	4	7	6
1337:	6	9	8	3	5	7	3	2
1345:	2	6	6	7	4	8	10	5
1353:	1	9	4	2	6	3	1	3
1361:	3	2	1	4	6	4	4	4
1369:	3	6	1	2	2	0	7	9
1377:	11	10	4	1	2	7	5	3
1385:	3	4	2	5	1	2	3	5
1393:	3	4	1	6	4	3	6	5
1401:	5	3	4	3	2	4	11	6
1409:	5	3	3	1	5	5	3	0
1417:	2	1	1	5	3	2	5	4
1425:	2	4	3	4	2	1	4	4
1433:	3	2	1	3	5	3	1	3
1441:	1	0	2	1	1	3	5	9
1449:	4	3	6	1	6	3	5	5
1457:	6	16	136	424	467	169	16	15
1465:	18	18	9	4	2	2	4	1
1473:	2	1	2	2	1	2	5	2
1481:	0	3	1	1	3	1	1	1
1489:	3	0	2	5	4	1	2	2
1497:	5	2	1	3	1	2	6	1
1505:	3	1	2	5	5	5	2	3
1513:	1	0	1	2	3	4	3	1
1521:	2	4	0	0	4	2	1	4
1529:	2	1	3	3	0	2	1	3
1537:	1	0	2	2	2	4	1	2
1545:	2	1	2	2	0	2	2	2
1553:	0	0	1	3	3	2	0	1
1561:	2	3	1	1	2	1	1	2
1569:	2	1	1	2	0	1	4	1
1577:	3	1	2	2	2	2	6	3
1585:	0	2	9	6	4	1	1	9
1593:	4	3	2	5	0	2	2	0
1601:	3	0	2	0	1	0	0	0
1609:	1	2	3	1	0	2	2	0
1617:	0	3	3	2	3	5	3	4
1625:	0	3	7	1	5	5	6	2
1633:	1	1	2	0	2	2	2	2
1641:	4	1	1	2	0	0	0	3
1649:	0	2	2	3	1	1	2	2
1657:	4	2	4	0	2	3	0	1

1665:	2	1	1	3	1	0	1	1

Sample Title: HTC-A04-S001-4248-01

Channel								
1673:	4	1	3	1	1	2	2	3
1681:	1	3	1	1	1	1	2	2
1689:	0	2	3	1	4	0	1	0
1697:	0	2	0	1	1	1	1	0
1705:	0	0	3	0	3	1	1	1
1713:	3	2	2	1	1	1	1	2
1721:	1	1	2	1	2	3	0	9
1729:	5	0	4	3	1	0	1	0
1737:	1	2	1	1	1	0	3	1
1745:	1	0	1	1	3	3	2	0
1753:	0	1	2	0	2	0	2	0
1761:	1	3	23	31	21	6	2	2
1769:	2	1	2	0	2	0	1	1
1777:	1	1	1	0	0	1	0	0
1785:	1	1	1	2	1	3	1	2
1793:	1	0	2	5	1	3	2	1
1801:	0	3	4	1	2	0	0	0
1809:	3	0	1	2	0	4	1	0
1817:	0	1	1	2	1	2	0	0
1825:	0	2	1	0	0	1	1	0
1833:	0	1	1	0	2	0	0	0
1841:	1	1	1	0	2	1	3	4
1849:	3	1	4	2	1	1	4	1
1857:	0	1	1	1	2	0	1	3
1865:	2	0	1	0	1	0	1	2
1873:	3	3	1	1	0	2	1	1
1881:	1	2	2	1	2	1	2	1
1889:	0	0	1	3	0	0	2	0
1897:	0	3	2	1	2	2	1	3
1905:	1	1	1	0	0	1	1	2
1913:	3	2	1	1	2	1	0	1
1921:	0	2	0	0	1	1	0	2
1929:	1	2	3	1	1	1	0	2
1937:	0	2	0	0	3	0	0	2
1945:	1	1	0	1	3	0	1	0
1953:	1	0	1	0	1	1	1	1
1961:	0	2	2	0	3	1	0	2
1969:	3	1	1	0	3	0	1	2
1977:	0	0	3	0	1	1	1	2
1985:	0	2	0	1	1	0	0	1
1993:	2	1	0	0	4	1	0	0
2001:	1	1	0	1	5	1	2	2
2009:	0	1	0	0	0	1	0	1
2017:	1	2	3	1	2	0	0	1
2025:	2	0	1	2	0	0	0	1
2033:	0	3	0	1	1	1	1	0
2041:	2	0	1	2	0	2	1	1
2049:	0	1	2	0	1	0	1	1
2057:	1	0	2	1	2	0	0	1
2065:	2	0	0	0	3	2	2	0
2073:	0	0	1	1	1	0	0	1
2081:	0	1	3	1	2	0	0	0
2089:	2	1	3	2	1	2	1	0

2097:	0	0	0	2	0	6	5	3

Sample Title: HTC-A04-S001-4248-01

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

2529:	0	2	0	2	0	0	0	0

Sample Title: HTC-A04-S001-4248-01

Channel								
2537:	1	1	0	0	0	1	1	0
2545:	0	0	0	1	1	0	1	0
2553:	0	1	0	0	0	0	1	2
2561:	0	2	0	2	0	0	1	2
2569:	0	0	0	2	1	1	0	0
2577:	0	0	0	2	1	0	0	0
2585:	0	1	0	0	1	0	0	0
2593:	0	0	0	0	0	0	0	1
2601:	1	1	1	0	1	0	0	0
2609:	0	0	6	20	38	36	17	6
2617:	2	1	4	0	2	0	0	1
2625:	1	0	3	0	0	0	1	1
2633:	0	0	1	0	0	0	1	0
2641:	1	1	0	0	0	0	0	0
2649:	1	0	0	0	0	0	0	1
2657:	1	0	0	1	0	0	0	0
2665:	0	0	1	0	2	0	0	0
2673:	1	1	0	0	2	0	0	0
2681:	0	0	1	0	1	0	1	1
2689:	1	0	2	0	0	0	1	0
2697:	1	0	1	0	0	0	0	0
2705:	0	0	0	0	0	0	0	0
2713:	1	1	1	0	0	0	0	0
2721:	0	0	0	0	0	0	0	0
2729:	0	0	1	2	0	1	1	0
2737:	0	0	0	1	0	0	0	0
2745:	0	1	1	1	1	0	0	0
2753:	0	0	0	2	0	0	0	0
2761:	0	0	0	0	0	0	1	0
2769:	2	0	1	0	0	0	1	0
2777:	1	0	1	0	0	0	0	0
2785:	0	0	1	1	2	1	0	1
2793:	0	0	0	0	0	2	0	0
2801:	1	1	0	0	0	0	1	1
2809:	1	0	0	0	0	0	0	0
2817:	0	0	0	0	0	1	0	0
2825:	0	0	0	0	2	0	0	0
2833:	0	0	1	1	0	0	0	1
2841:	0	0	0	0	0	0	0	0
2849:	0	0	0	0	0	0	0	0
2857:	1	0	0	0	0	0	0	0
2865:	0	0	0	0	0	0	0	0
2873:	1	0	0	0	0	1	0	1
2881:	1	0	0	0	0	0	0	0
2889:	1	0	1	1	0	0	0	0
2897:	0	0	0	1	0	2	0	0
2905:	0	0	0	1	0	0	1	0
2913:	1	0	0	0	0	0	0	0
2921:	0	0	0	2	1	0	0	0
2929:	1	0	1	1	0	0	0	0
2937:	0	1	0	1	0	1	1	0
2945:	1	0	0	1	0	0	0	0
2953:	0	0	0	0	0	0	0	0

2961:	0	0	0	0	1	0	0	0

Sample Title: HTC-A04-S001-4248-01

Channel								
2969:	0	1	0	0	0	1	0	1
2977:	0	0	0	0	0	2	0	0
2985:	1	1	0	0	0	0	0	0
2993:	1	1	0	0	1	0	0	0
3001:	0	2	0	1	0	0	0	0
3009:	0	0	1	0	0	0	0	0
3017:	0	0	0	0	0	0	0	0
3025:	0	0	0	0	0	0	0	0
3033:	0	0	0	0	1	0	1	0
3041:	0	0	0	0	0	0	1	0
3049:	0	0	1	0	0	0	0	0
3057:	0	0	0	0	0	2	0	0
3065:	0	1	0	0	0	0	0	1
3073:	0	0	0	1	0	0	2	0
3081:	1	0	0	0	0	0	0	0
3089:	1	1	0	1	0	0	0	0
3097:	0	0	1	0	0	1	0	0
3105:	0	0	0	0	0	0	0	0
3113:	0	0	1	0	0	0	0	0
3121:	0	1	0	1	0	0	1	0
3129:	0	0	0	0	0	0	0	1
3137:	0	0	0	0	1	0	0	0
3145:	0	0	0	0	1	0	1	0
3153:	0	0	0	0	0	0	0	0
3161:	0	0	0	0	0	0	0	0
3169:	0	0	0	0	0	0	0	0
3177:	1	0	1	0	0	0	0	0
3185:	0	1	0	0	0	0	0	0
3193:	1	0	1	1	3	0	0	0
3201:	0	1	0	0	0	0	0	0
3209:	0	0	1	0	0	0	0	0
3217:	1	0	0	0	0	0	0	0
3225:	0	0	1	0	0	0	2	0
3233:	1	0	1	0	1	0	0	0
3241:	0	0	0	0	1	0	0	0
3249:	0	0	0	0	0	1	2	0
3257:	1	0	0	0	0	0	0	0
3265:	0	0	0	0	1	0	0	0
3273:	0	0	0	0	0	1	0	1
3281:	0	0	0	1	0	0	0	1
3289:	0	1	1	0	0	0	0	0
3297:	0	0	0	1	0	1	0	2
3305:	0	1	0	0	0	1	0	0
3313:	0	0	0	0	1	0	0	0
3321:	0	0	0	0	0	0	0	0
3329:	0	0	0	1	1	0	0	0
3337:	0	0	0	0	0	1	0	0
3345:	0	0	0	0	1	1	0	0
3353:	0	0	0	1	0	0	0	0
3361:	0	0	1	0	0	0	0	1
3369:	0	2	0	0	1	0	0	0
3377:	0	1	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-A04-S001-4248-01

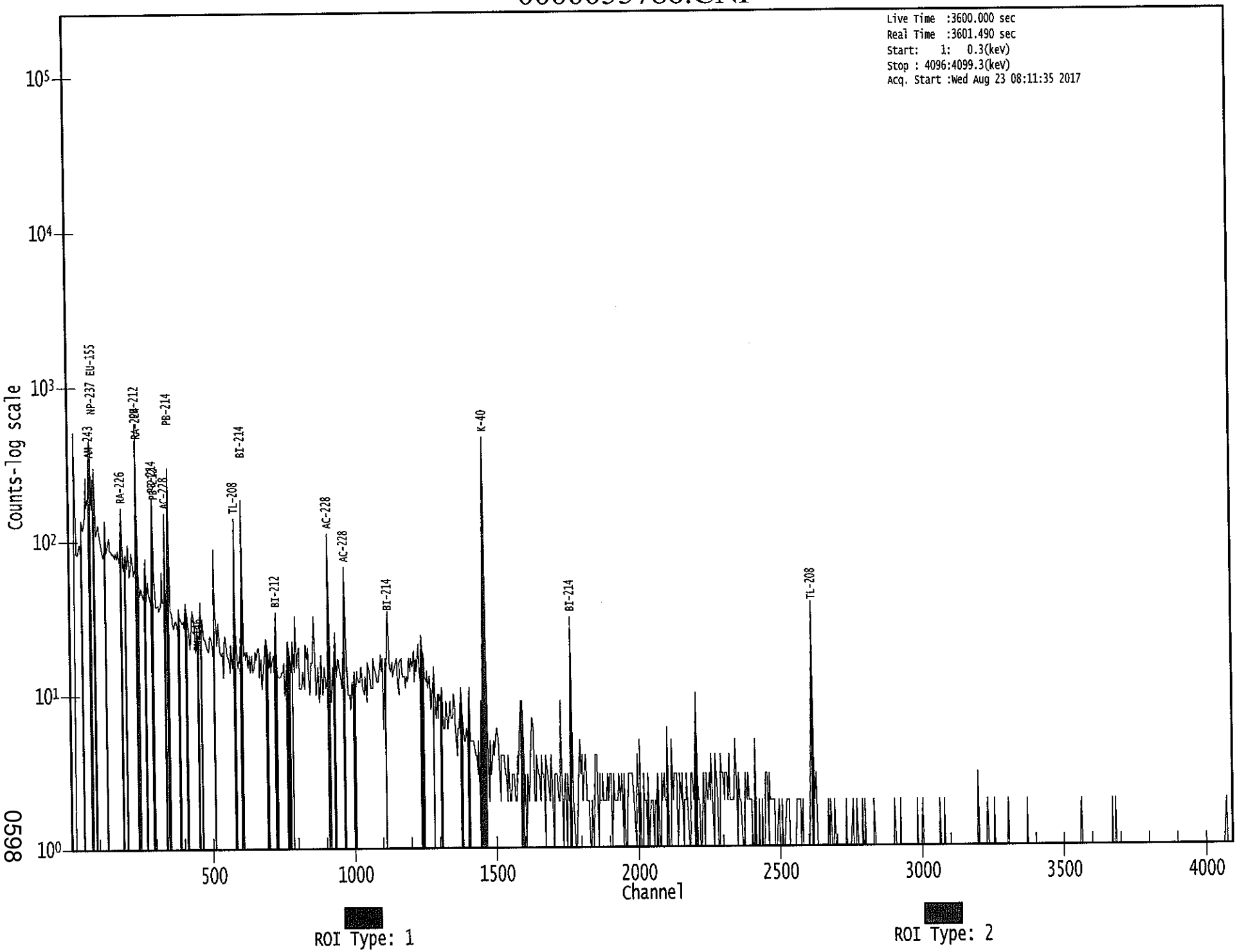
Channel								
3401:	0	0	0	0	0	0	1	0
3409:	0	1	0	0	0	0	0	0
3417:	0	0	1	0	0	0	0	0
3425:	0	1	0	0	0	0	0	0
3433:	0	0	1	0	0	0	1	0
3441:	0	1	1	1	1	1	0	1
3449:	0	0	0	0	0	0	0	1
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	1
3473:	1	0	0	1	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	1	1	0	0	0	1
3497:	1	0	0	0	1	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A04-S001-4248-01

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

0000055786.CNF



0598

Apex-Gamma

Analysis Report for 1707089-08
HTC-A04-S002-0006-01

8/23

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707089-08
Sample Description	: HTC-A04-S002-0006-01
Sample Type	: SOIL
Sample Size	: 7.203E+02 grams
Facility	: Countroom
Sample Taken On	: 5/16/2017 6:48:05AM
Acquisition Started	: 8/23/2017 8:11:49AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3625.0 seconds
Dead Time	: 0.69 %
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	: 55788

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/23/17

Analysis Report for 1707089-08

HTC-A04-S002-0006-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/23/2017 9:12:49AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	16.10	16.42	0.0000	0.00
2	46.64	46.95	0.0000	0.00
3	53.39	53.70	0.0000	0.00
4	63.40	63.71	0.0000	0.00
5	76.38	76.68	0.0000	0.00
6	84.41	84.71	0.0000	0.00
7	87.57	87.87	0.0000	0.00
8	92.77	93.07	0.0000	0.00
9	113.68	113.97	0.0000	0.00
10	144.02	144.30	0.0000	0.00
11	154.13	154.40	0.0000	0.00
12	164.14	164.41	0.0000	0.00
13	186.23	186.50	0.0000	0.00
14	205.46	205.72	0.0000	0.00
15	236.06	236.31	0.0000	0.00
16	238.77	239.02	0.0000	0.00
17	242.18	242.42	0.0000	0.00
18	257.61	257.85	0.0000	0.00
19	271.30	271.54	0.0000	0.00
20	295.37	295.60	0.0000	0.00
21	338.67	338.88	0.0000	0.00
22	352.05	352.26	0.0000	0.00
23	403.57	403.76	0.0000	0.00
24	462.69	462.86	0.0000	0.00
25	480.49	480.66	0.0000	0.00
26	486.72	486.88	0.0000	0.00
27	510.73	510.88	0.0000	0.00
28	581.35	581.49	0.0000	0.00
29	609.39	609.51	0.0000	0.00
30	641.13	641.24	0.0000	0.00
31	665.35	665.46	0.0000	0.00
32	674.52	674.62	0.0000	0.00
33	703.47	703.56	0.0000	0.00
34	717.30	717.38	0.0000	0.00
35	719.75	719.84	0.0000	0.00
36	743.57	743.65	0.0000	0.00
37	768.28	768.35	0.0000	0.00
38	785.96	786.02	0.0000	0.00
39	806.14	806.19	0.0000	0.00
40	839.22	839.26	0.0000	0.00
41	934.36	934.37	0.0000	0.00
42	943.63	943.64	0.0000	0.00

Analysis Report for 1707089-08

HTC-A04-S002-0006-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1001.20	1001.19	0.0000	0.00
44	1120.24	1120.19	0.0000	0.00
45	1154.86	1154.80	0.0000	0.00
46	1237.96	1237.87	0.0000	0.00
47	1253.07	1252.97	0.0000	0.00
48	1280.82	1280.72	0.0000	0.00
49	1300.71	1300.59	0.0000	0.00
50	1377.42	1377.28	0.0000	0.00
51	1384.87	1384.73	0.0000	0.00
52	1401.18	1401.04	0.0000	0.00
53	1407.70	1407.55	0.0000	0.00
54	1438.79	1438.63	0.0000	0.00
55	1461.52	1461.36	0.0000	0.00
56	1508.57	1508.39	0.0000	0.00
57	1515.41	1515.23	0.0000	0.00
58	1544.81	1544.62	0.0000	0.00
59	1582.84	1582.64	0.0000	0.00
60	1586.47	1586.26	0.0000	0.00
61	1660.90	1660.67	0.0000	0.00
62	1679.06	1678.83	0.0000	0.00
63	1684.36	1684.12	0.0000	0.00
64	1693.36	1693.12	0.0000	0.00
65	1729.47	1729.21	0.0000	0.00
66	1764.22	1763.96	0.0000	0.00
67	1838.45	1838.16	0.0000	0.00
68	1847.17	1846.87	0.0000	0.00
69	1872.81	1872.50	0.0000	0.00
70	1894.62	1894.31	0.0000	0.00
71	1935.97	1935.64	0.0000	0.00
72	2024.55	2024.20	0.0000	0.00
73	2118.32	2117.94	0.0000	0.00
74	2203.73	2203.31	0.0000	0.00
75	2240.28	2239.85	0.0000	0.00
76	2279.15	2278.71	0.0000	0.00
77	2292.50	2292.05	0.0000	0.00
78	2406.34	2405.86	0.0000	0.00
79	2447.41	2446.91	0.0000	0.00
80	2613.76	2613.20	0.0000	0.00
81	2920.99	2920.33	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707089-08

HTC-A04-S002-0006-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/23/2017 9:12:49AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	16.10	14 -	19	16.42	2.81E+02	225.62	9.85E+03	2.34
	2	46.64	44 -	49	46.95	1.18E+03	242.74	1.09E+04	1.51
	3	53.39	51 -	56	53.70	4.24E+02	252.20	1.24E+04	1.98
	4	63.40	61 -	66	63.71	2.56E+03	312.22	1.75E+04	1.91
	5	76.38	71 -	83	76.68	1.37E+04	652.43	4.38E+04	3.83
M	6	84.41	83 -	98	84.71	8.58E+02	183.61	9.37E+03	2.23
m	7	87.57	83 -	98	87.87	2.43E+03	349.06	2.00E+04	2.24
m	8	92.77	83 -	98	93.07	4.07E+03	350.18	1.74E+04	2.25
	9	113.68	112 -	116	113.97	2.59E+02	216.68	1.01E+04	2.45
	10	144.02	141 -	147	144.30	7.04E+02	282.51	1.40E+04	2.37
	11	154.13	153 -	157	154.40	2.90E+02	215.55	1.00E+04	2.20
	12	164.14	163 -	167	164.41	2.29E+02	203.74	8.98E+03	1.87
	13	186.23	182 -	191	186.50	4.78E+03	360.09	1.57E+04	2.17
	14	205.46	203 -	208	205.72	2.25E+02	202.76	7.94E+03	1.27
M	15	236.06	233 -	246	236.31	3.88E+02	157.25	5.15E+03	1.55
m	16	238.77	233 -	246	239.02	3.46E+02	187.38	6.11E+03	2.06
m	17	242.18	233 -	246	242.42	4.49E+03	220.91	5.97E+03	2.00
	18	257.61	253 -	262	257.85	6.42E+02	243.98	8.13E+03	4.47
	19	271.30	266 -	276	271.54	8.22E+02	265.10	8.95E+03	3.19
	20	295.37	292 -	299	295.60	9.30E+03	266.99	5.69E+03	2.14
	21	338.67	336 -	342	338.88	1.30E+02	150.06	3.97E+03	2.03
	22	352.05	347 -	357	352.26	1.58E+04	321.06	5.31E+03	2.16
	23	403.57	401 -	407	403.76	1.38E+02	135.08	3.21E+03	4.17
	24	462.69	460 -	466	462.86	9.23E+01	109.26	2.10E+03	2.00
	25	480.49	478 -	484	480.66	1.14E+02	106.29	1.97E+03	2.25
	26	486.72	484 -	490	486.88	1.11E+02	104.25	1.89E+03	3.03
	27	510.73	506 -	514	510.88	3.06E+02	118.96	1.99E+03	3.33
	28	581.35	576 -	587	581.49	2.62E+02	140.01	2.31E+03	4.64
	29	609.39	603 -	615	609.51	1.08E+04	254.75	2.55E+03	2.27
	30	641.13	639 -	644	641.24	6.60E+01	63.34	7.40E+02	2.44
	31	665.35	659 -	671	665.46	4.17E+02	128.11	1.73E+03	2.42
	32	674.52	672 -	677	674.62	6.00E+01	62.97	7.42E+02	1.73
	33	703.47	700 -	707	703.56	1.03E+02	85.23	1.14E+03	2.32
M	34	717.30	716 -	724	717.38	3.39E+01	38.82	3.98E+02	1.63
m	35	719.75	716 -	724	719.84	1.00E+02	75.04	9.37E+02	2.44
	36	743.57	739 -	750	743.65	1.62E+02	111.30	1.46E+03	3.17
	37	768.28	764 -	774	768.35	1.04E+03	123.42	1.46E+03	2.35
	38	785.96	781 -	790	786.02	1.66E+02	100.38	1.34E+03	2.74
	39	806.14	801 -	810	806.19	2.60E+02	95.32	1.15E+03	2.96
	40	839.22	835 -	843	839.26	1.20E+02	90.28	1.17E+03	2.45

Analysis Report for 1707089-08

HTC-A04-S002-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	934.36	929 -	940	934.37	5.64E+02	113.00	1.30E+03	2.42
	42	943.63	941 -	947	943.64	5.18E+01	62.68	6.78E+02	2.75
	43	1001.20	998 -	1005	1001.19	1.43E+02	72.33	7.70E+02	2.59
	44	1120.24	1115 -	1125	1120.19	2.12E+03	124.26	9.28E+02	2.47
	45	1154.86	1150 -	1161	1154.80	2.63E+02	88.07	8.50E+02	2.47
	46	1237.96	1233 -	1242	1237.87	7.59E+02	86.72	6.42E+02	2.78
	47	1253.07	1249 -	1256	1252.97	7.83E+01	53.03	4.17E+02	3.08
	48	1280.82	1274 -	1285	1280.72	2.34E+02	80.35	6.90E+02	3.22
	49	1300.71	1297 -	1304	1300.59	5.99E+01	51.65	4.06E+02	1.56
M	50	1377.42	1372 -	1390	1377.28	5.28E+02	67.85	4.14E+02	2.53
m	51	1384.87	1372 -	1390	1384.73	9.61E+01	59.18	4.99E+02	3.06
M	52	1401.18	1396 -	1410	1401.04	2.07E+02	65.43	5.00E+02	3.39
m	53	1407.70	1396 -	1410	1407.55	2.99E+02	55.17	3.27E+02	2.45
	54	1438.79	1435 -	1441	1438.63	4.55E+01	44.31	3.21E+02	2.59
	55	1461.52	1456 -	1468	1461.36	1.92E+02	81.59	6.84E+02	2.85
	56	1508.57	1504 -	1512	1508.39	2.92E+02	62.80	4.25E+02	2.64
	57	1515.41	1513 -	1517	1515.23	2.90E+01	32.51	2.08E+02	2.56
	58	1544.81	1542 -	1547	1544.62	3.46E+01	40.57	2.95E+02	2.45
M	59	1582.84	1576 -	1590	1582.64	9.26E+01	50.89	3.30E+02	2.95
m	60	1586.47	1576 -	1590	1586.26	5.45E+01	47.46	2.87E+02	2.68
	61	1660.90	1654 -	1666	1660.67	1.60E+02	54.36	2.70E+02	2.67
M	62	1679.06	1677 -	1689	1678.83	1.65E+01	17.55	6.13E+01	2.55
m	63	1684.36	1677 -	1689	1684.12	4.92E+01	39.70	1.78E+02	3.54
	64	1693.36	1689 -	1697	1693.12	6.32E+01	30.82	1.06E+02	5.32
	65	1729.47	1725 -	1735	1729.21	3.72E+02	51.22	1.44E+02	2.70
	66	1764.22	1758 -	1769	1763.96	1.72E+03	89.26	1.37E+02	2.59
	67	1838.45	1833 -	1841	1838.16	2.62E+01	32.99	1.48E+02	2.76
	68	1847.17	1842 -	1852	1846.87	2.24E+02	45.84	1.63E+02	2.85
	69	1872.81	1867 -	1878	1872.50	4.14E+01	34.29	1.27E+02	2.43
	70	1894.62	1892 -	1897	1894.31	2.28E+01	20.12	6.24E+01	1.94
	71	1935.97	1931 -	1942	1935.64	5.21E+01	32.80	1.10E+02	4.57
	72	2024.55	2020 -	2028	2024.20	2.17E+01	20.95	5.46E+01	5.62
	73	2118.32	2113 -	2125	2117.94	8.26E+01	34.76	1.01E+02	3.21
	74	2203.73	2197 -	2210	2203.31	4.37E+02	46.72	4.68E+01	3.26
	75	2240.28	2237 -	2244	2239.85	1.53E+01	12.65	1.74E+01	1.79
	76	2279.15	2275 -	2284	2278.71	1.11E+01	12.29	1.59E+01	4.59
	77	2292.50	2286 -	2295	2292.05	2.42E+01	14.25	1.57E+01	2.18
	78	2406.34	2402 -	2408	2405.86	5.50E+00	7.78	7.00E+00	2.39
	79	2447.41	2442 -	2454	2446.91	1.28E+02	22.63	0.00E+00	3.54
	80	2613.76	2607 -	2617	2613.20	2.20E+01	13.13	1.19E+01	2.93
	81	2920.99	2916 -	2922	2920.33	6.00E+00	4.90	0.00E+00	1.92

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

Analysis Report for 1707089-08

HTC-A04-S002-0006-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/23/2017 9:12:49AM

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	16.10	14 -	19	2.81E+02	225.62	9.85E+03	1.83E+02
	2	46.64	44 -	49	1.18E+03	242.74	1.09E+04	1.91E+02
	3	53.39	51 -	56	4.24E+02	252.20	1.24E+04	2.05E+02
	4	63.40	61 -	66	2.56E+03	312.22	1.75E+04	2.43E+02
	5	76.38	71 -	83	1.37E+04	652.43	4.38E+04	5.01E+02
M	6	84.41	83 -	98	8.58E+02	183.61	9.37E+03	1.59E+02
m	7	87.57	83 -	98	2.43E+03	349.06	2.00E+04	2.32E+02
m	8	92.77	83 -	98	4.07E+03	350.18	1.74E+04	2.17E+02
	9	113.68	112 -	116	2.59E+02	216.68	1.01E+04	1.76E+02
	10	144.02	141 -	147	7.04E+02	282.51	1.40E+04	2.28E+02
	11	154.13	153 -	157	2.90E+02	215.55	1.00E+04	1.75E+02
	12	164.14	163 -	167	2.29E+02	203.74	8.98E+03	1.66E+02
	13	186.23	182 -	191	4.78E+03	360.09	1.57E+04	2.73E+02
	14	205.46	203 -	208	2.25E+02	202.76	7.94E+03	1.65E+02
M	15	236.06	233 -	246	3.88E+02	157.25	5.15E+03	1.18E+02
m	16	238.77	233 -	246	3.46E+02	187.38	6.11E+03	1.29E+02
m	17	242.18	233 -	246	4.49E+03	220.91	5.97E+03	1.27E+02
	18	257.61	253 -	262	6.42E+02	243.98	8.13E+03	1.96E+02
	19	271.30	266 -	276	8.22E+02	265.10	8.95E+03	2.13E+02
	20	295.37	292 -	299	9.30E+03	266.99	5.69E+03	1.52E+02
	21	338.67	336 -	342	1.30E+02	150.06	3.97E+03	1.22E+02
	22	352.05	347 -	357	1.58E+04	321.06	5.31E+03	1.64E+02
	23	403.57	401 -	407	1.38E+02	135.08	3.21E+03	1.09E+02
	24	462.69	460 -	466	9.23E+01	109.26	2.10E+03	8.84E+01
	25	480.49	478 -	484	1.14E+02	106.29	1.97E+03	8.56E+01
	26	486.72	484 -	490	1.11E+02	104.25	1.89E+03	8.39E+01
	27	510.73	506 -	514	3.06E+02	118.96	1.99E+03	9.35E+01
	28	581.35	576 -	587	2.62E+02	140.01	2.31E+03	4.03E+01
	29	609.39	603 -	615	1.08E+04	254.75	2.55E+03	1.21E+02
	30	641.13	639 -	644	6.60E+01	63.34	7.40E+02	5.03E+01
	31	665.35	659 -	671	4.17E+02	128.11	1.73E+03	9.98E+01
	32	674.52	672 -	677	6.00E+01	62.97	7.42E+02	5.02E+01
	33	703.47	700 -	707	1.03E+02	85.23	1.14E+03	6.80E+01
M	34	717.30	716 -	724	3.39E+01	38.82	3.98E+02	3.28E+01
m	35	719.75	716 -	724	1.00E+02	75.04	9.37E+02	5.03E+01
	36	743.57	739 -	750	1.62E+02	111.30	1.46E+03	8.91E+01
	37	768.28	764 -	774	1.04E+03	123.42	1.46E+03	8.65E+01
	38	785.96	781 -	790	1.66E+02	100.38	1.34E+03	7.98E+01
	39	806.14	801 -	810	2.60E+02	95.32	1.15E+03	7.37E+01
	40	839.22	835 -	843	1.20E+02	90.28	1.17E+03	7.20E+01
	41	934.36	929 -	940	5.64E+02	113.00	1.30E+03	8.43E+01

Analysis Report for 1707089-08

HTC-A04-S002-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	42	943.63	941 -	947	5.18E+01	62.68	6.78E+02	5.01E+01
	43	1001.20	998 -	1005	1.43E+02	72.33	7.70E+02	5.61E+01
	44	1120.24	1115 -	1125	2.12E+03	124.26	9.28E+02	6.86E+01
	45	1154.86	1150 -	1161	2.63E+02	88.07	8.50E+02	6.73E+01
	46	1237.96	1233 -	1242	7.59E+02	86.72	6.42E+02	5.50E+01
	47	1253.07	1249 -	1256	7.83E+01	53.03	4.17E+02	4.11E+01
	48	1280.82	1274 -	1285	2.34E+02	80.35	6.90E+02	6.11E+01
	49	1300.71	1297 -	1304	5.99E+01	51.65	4.06E+02	4.05E+01
M	50	1377.42	1372 -	1390	5.28E+02	67.85	4.14E+02	3.34E+01
m	51	1384.87	1372 -	1390	9.61E+01	59.18	4.99E+02	3.67E+01
M	52	1401.18	1396 -	1410	2.07E+02	65.43	5.00E+02	3.68E+01
m	53	1407.70	1396 -	1410	2.99E+02	55.17	3.27E+02	2.97E+01
	54	1438.79	1435 -	1441	4.55E+01	44.31	3.21E+02	3.47E+01
	55	1461.52	1456 -	1468	1.92E+02	81.59	6.84E+02	6.31E+01
	56	1508.57	1504 -	1512	2.92E+02	62.80	4.25E+02	4.33E+01
	57	1515.41	1513 -	1517	2.90E+01	32.51	2.08E+02	2.52E+01
	58	1544.81	1542 -	1547	3.46E+01	40.57	2.95E+02	3.19E+01
M	59	1582.84	1576 -	1590	9.26E+01	50.89	3.30E+02	2.99E+01
m	60	1586.47	1576 -	1590	5.45E+01	47.46	2.87E+02	2.78E+01
	61	1660.90	1654 -	1666	1.60E+02	54.36	2.70E+02	3.95E+01
M	62	1679.06	1677 -	1689	1.65E+01	17.55	6.13E+01	1.29E+01
m	63	1684.36	1677 -	1689	4.92E+01	39.70	1.78E+02	2.20E+01
	64	1693.36	1689 -	1697	6.32E+01	30.82	1.06E+02	2.17E+01
	65	1729.47	1725 -	1735	3.72E+02	51.22	1.44E+02	2.77E+01
	66	1764.22	1758 -	1769	1.72E+03	89.26	1.37E+02	2.73E+01
	67	1838.45	1833 -	1841	2.62E+01	32.99	1.48E+02	2.58E+01
	68	1847.17	1842 -	1852	2.24E+02	45.84	1.63E+02	2.85E+01
	69	1872.81	1867 -	1878	4.14E+01	34.29	1.27E+02	2.61E+01
	70	1894.62	1892 -	1897	2.28E+01	20.12	6.24E+01	1.46E+01
	71	1935.97	1931 -	1942	5.21E+01	32.80	1.10E+02	2.42E+01
	72	2024.55	2020 -	2028	2.17E+01	20.95	5.46E+01	1.54E+01
	73	2118.32	2113 -	2125	8.26E+01	34.76	1.01E+02	2.44E+01
	74	2203.73	2197 -	2210	4.37E+02	46.72	4.68E+01	1.72E+01
	75	2240.28	2237 -	2244	1.53E+01	12.65	1.74E+01	8.17E+00
	76	2279.15	2275 -	2284	1.11E+01	12.29	1.59E+01	8.49E+00
	77	2292.50	2286 -	2295	2.42E+01	14.25	1.57E+01	8.48E+00
	78	2406.34	2402 -	2408	5.50E+00	7.78	7.00E+00	5.10E+00
	79	2447.41	2442 -	2454	1.28E+02	22.63	0.00E+00	0.00E+00
	80	2613.76	2607 -	2617	2.20E+01	13.13	1.19E+01	7.55E+00
	81	2920.99	2916 -	2922	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

Analysis Report for 1707089-08

HTC-A04-S002-0006-01

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/23/2017 9:12:49AM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	16.10	14 -	19	16.42	2.81E+02	225.62	9.85E+03	NB-93M
	2	46.64	44 -	49	46.95	1.18E+03	242.74	1.09E+04	PB-210
	3	53.39	51 -	56	53.70	4.24E+02	252.20	1.24E+04	.....
	4	63.40	61 -	66	63.71	2.56E+03	312.22	1.75E+04	TH-234
									TH-230
	5	76.38	71 -	83	76.68	1.37E+04	652.43	4.38E+04	.....
M	6	84.41	83 -	98	84.71	8.58E+02	183.61	9.37E+03	TH-231
m	7	87.57	83 -	98	87.87	2.43E+03	349.06	2.00E+04	SN-126
									CD-109
									LU-176
m	8	92.77	83 -	98	93.07	4.07E+03	350.18	1.74E+04	GA-67
	9	113.68	112 -	116	113.97	2.59E+02	216.68	1.01E+04	.....
	10	144.02	141 -	147	144.30	7.04E+02	282.51	1.40E+04	U-235
	11	154.13	153 -	157	154.40	2.90E+02	215.55	1.00E+04	CS-136
	12	164.14	163 -	167	164.41	2.29E+02	203.74	8.98E+03	CS-136
									U-235
	13	186.23	182 -	191	186.50	4.78E+03	360.09	1.57E+04	RA-226
	14	205.46	203 -	208	205.72	2.25E+02	202.76	7.94E+03	U-235
M	15	236.06	233 -	246	236.31	3.88E+02	157.25	5.15E+03	TH-227
									NB-95M
m	16	238.77	233 -	246	239.02	3.46E+02	187.38	6.11E+03	PB-212
m	17	242.18	233 -	246	242.42	4.49E+03	220.91	5.97E+03	.....
	18	257.61	253 -	262	257.85	6.42E+02	243.98	8.13E+03	.....
	19	271.30	266 -	276	271.54	8.22E+02	265.10	8.95E+03	LU-173
	20	295.37	292 -	299	295.60	9.30E+03	266.99	5.69E+03	PB-214
	21	338.67	336 -	342	338.88	1.30E+02	150.06	3.97E+03	AC-228
	22	352.05	347 -	357	352.26	1.58E+04	321.06	5.31E+03	PB-214
	23	403.57	401 -	407	403.76	1.38E+02	135.08	3.21E+03	.....
	24	462.69	460 -	466	462.86	9.23E+01	109.26	2.10E+03	SB-125
	25	480.49	478 -	484	480.66	1.14E+02	106.29	1.97E+03	.....
	26	486.72	484 -	490	486.88	1.11E+02	104.25	1.89E+03	LA-140
	27	510.73	506 -	514	510.88	3.06E+02	118.96	1.99E+03	.....
	28	581.35	576 -	587	581.49	2.62E+02	140.01	2.31E+03	.....
	29	609.39	603 -	615	609.51	1.08E+04	254.75	2.55E+03	BI-214
	30	641.13	639 -	644	641.24	6.60E+01	63.34	7.40E+02	.....
	31	665.35	659 -	671	665.46	4.17E+02	128.11	1.73E+03	CE-143
									SB-126
	32	674.52	672 -	677	674.62	6.00E+01	62.97	7.42E+02	.....
	33	703.47	700 -	707	703.56	1.03E+02	85.23	1.14E+03	NB-94
M	34	717.30	716 -	724	717.38	3.39E+01	38.82	3.98E+02	.....
m	35	719.75	716 -	724	719.84	1.00E+02	75.04	9.37E+02	SB-126

Analysis Report for 1707089-08

HTC-A04-S002-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	36	743.57	739 -	750	743.65	1.62E+02	111.30	1.46E+03	.....
	37	768.28	764 -	774	768.35	1.04E+03	123.42	1.46E+03	.....
	38	785.96	781 -	790	786.02	1.66E+02	100.38	1.34E+03	.....
	39	806.14	801 -	810	806.19	2.60E+02	95.32	1.15E+03	.....
	40	839.22	835 -	843	839.26	1.20E+02	90.28	1.17E+03	.....
	41	934.36	929 -	940	934.37	5.64E+02	113.00	1.30E+03	.....
	42	943.63	941 -	947	943.64	5.18E+01	62.68	6.78E+02	.....
	43	1001.20	998 -	1005	1001.19	1.43E+02	72.33	7.70E+02	PA-234M
	44	1120.24	1115 -	1125	1120.19	2.12E+03	124.26	9.28E+02	BI-214 SC-46
	45	1154.86	1150 -	1161	1154.80	2.63E+02	88.07	8.50E+02	.....
	46	1237.96	1233 -	1242	1237.87	7.59E+02	86.72	6.42E+02	CO-56
	47	1253.07	1249 -	1256	1252.97	7.83E+01	53.03	4.17E+02	.....
	48	1280.82	1274 -	1285	1280.72	2.34E+02	80.35	6.90E+02	.....
	49	1300.71	1297 -	1304	1300.59	5.99E+01	51.65	4.06E+02	.....
M	50	1377.42	1372 -	1390	1377.28	5.28E+02	67.85	4.14E+02	.....
m	51	1384.87	1372 -	1390	1384.73	9.61E+01	59.18	4.99E+02	AG-110M
M	52	1401.18	1396 -	1410	1401.04	2.07E+02	65.43	5.00E+02	.....
m	53	1407.70	1396 -	1410	1407.55	2.99E+02	55.17	3.27E+02	EU-152
	54	1438.79	1435 -	1441	1438.63	4.55E+01	44.31	3.21E+02	.....
	55	1461.52	1456 -	1468	1461.36	1.92E+02	81.59	6.84E+02	K-40
	56	1508.57	1504 -	1512	1508.39	2.92E+02	62.80	4.25E+02	.....
	57	1515.41	1513 -	1517	1515.23	2.90E+01	32.51	2.08E+02	.....
	58	1544.81	1542 -	1547	1544.62	3.46E+01	40.57	2.95E+02	.....
M	59	1582.84	1576 -	1590	1582.64	9.26E+01	50.89	3.30E+02	.....
m	60	1586.47	1576 -	1590	1586.26	5.45E+01	47.46	2.87E+02	.....
	61	1660.90	1654 -	1666	1660.67	1.60E+02	54.36	2.70E+02	.....
M	62	1679.06	1677 -	1689	1678.83	1.65E+01	17.55	6.13E+01	.....
m	63	1684.36	1677 -	1689	1684.12	4.92E+01	39.70	1.78E+02	.....
	64	1693.36	1689 -	1697	1693.12	6.32E+01	30.82	1.06E+02	.....
	65	1729.47	1725 -	1735	1729.21	3.72E+02	51.22	1.44E+02	.....
	66	1764.22	1758 -	1769	1763.96	1.72E+03	89.26	1.37E+02	BI-214
	67	1838.45	1833 -	1841	1838.16	2.62E+01	32.99	1.48E+02	.....
	68	1847.17	1842 -	1852	1846.87	2.24E+02	45.84	1.63E+02	.....
	69	1872.81	1867 -	1878	1872.50	4.14E+01	34.29	1.27E+02	.....
	70	1894.62	1892 -	1897	1894.31	2.28E+01	20.12	6.24E+01	.....
	71	1935.97	1931 -	1942	1935.64	5.21E+01	32.80	1.10E+02	.....
	72	2024.55	2020 -	2028	2024.20	2.17E+01	20.95	5.46E+01	.....
	73	2118.32	2113 -	2125	2117.94	8.26E+01	34.76	1.01E+02	.....
	74	2203.73	2197 -	2210	2203.31	4.37E+02	46.72	4.68E+01	BI-214
	75	2240.28	2237 -	2244	2239.85	1.53E+01	12.65	1.74E+01	.....
	76	2279.15	2275 -	2284	2278.71	1.11E+01	12.29	1.59E+01	.....
	77	2292.50	2286 -	2295	2292.05	2.42E+01	14.25	1.57E+01	.....
	78	2406.34	2402 -	2408	2405.86	5.50E+00	7.78	7.00E+00	.....
	79	2447.41	2442 -	2454	2446.91	1.28E+02	22.63	0.00E+00	.....
	80	2613.76	2607 -	2617	2613.20	2.20E+01	13.13	1.19E+01	TL-208
	81	2920.99	2916 -	2922	2920.33	6.00E+00	4.90	0.00E+00	.....

Analysis Report for 1707089-08

HTC-A04-S002-0006-01

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/23/2017 9:12:49AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	16.10	2.81E+02	225.62	1.58E-04	1.73E-03
	2	46.64	1.18E+03	242.74	1.73E-02	1.73E-03
	3	53.39	4.24E+02	252.20	2.09E-02	1.73E-03
	4	63.40	2.56E+03	312.22	2.44E-02	1.80E-03
	5	76.38	1.37E+04	652.43	2.67E-02	2.04E-03
M	6	84.41	8.58E+02	183.61	2.71E-02	2.19E-03
m	7	87.57	2.43E+03	349.06	2.72E-02	2.25E-03
m	8	92.77	4.07E+03	350.18	2.71E-02	2.24E-03
	9	113.68	2.59E+02	216.68	2.59E-02	2.16E-03
	10	144.02	7.04E+02	282.51	2.32E-02	1.87E-03
	11	154.13	2.90E+02	215.55	2.23E-02	1.76E-03
	12	164.14	2.29E+02	203.74	2.14E-02	1.65E-03
	13	186.23	4.78E+03	360.09	1.96E-02	1.55E-03
	14	205.46	2.25E+02	202.76	1.82E-02	1.47E-03
M	15	236.06	3.88E+02	157.25	1.63E-02	1.35E-03
m	16	238.77	3.46E+02	187.38	1.61E-02	1.34E-03
m	17	242.18	4.49E+03	220.91	1.59E-02	1.33E-03
	18	257.61	6.42E+02	243.98	1.51E-02	1.26E-03
	19	271.30	8.22E+02	265.10	1.45E-02	1.21E-03
	20	295.37	9.30E+03	266.99	1.35E-02	1.15E-03
	21	338.67	1.30E+02	150.06	1.19E-02	1.06E-03
	22	352.05	1.58E+04	321.06	1.15E-02	1.03E-03
	23	403.57	1.38E+02	135.08	1.02E-02	9.37E-04
	24	462.69	9.23E+01	109.26	9.03E-03	8.58E-04
	25	480.49	1.14E+02	106.29	8.73E-03	8.35E-04
	26	486.72	1.11E+02	104.25	8.62E-03	8.27E-04
	27	510.73	3.06E+02	118.96	8.26E-03	7.95E-04
	28	581.35	2.62E+02	140.01	7.35E-03	7.01E-04
	29	609.39	1.08E+04	254.75	7.04E-03	6.64E-04
	30	641.13	6.60E+01	63.34	6.73E-03	6.22E-04
	31	665.35	4.17E+02	128.11	6.51E-03	5.91E-04
	32	674.52	6.00E+01	62.97	6.43E-03	5.83E-04
	33	703.47	1.03E+02	85.23	6.19E-03	5.58E-04
M	34	717.30	3.39E+01	38.82	6.08E-03	5.45E-04

Analysis Report for 1707089-08

HTC-A04-S002-0006-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	35	719.75	1.00E+02	75.04	6.06E-03	5.43E-04
	36	743.57	1.62E+02	111.30	5.89E-03	5.22E-04
	37	768.28	1.04E+03	123.42	5.72E-03	5.01E-04
	38	785.96	1.66E+02	100.38	5.61E-03	4.85E-04
	39	806.14	2.60E+02	95.32	5.48E-03	4.67E-04
	40	839.22	1.20E+02	90.28	5.29E-03	4.38E-04
	41	934.36	5.64E+02	113.00	4.81E-03	3.80E-04
	42	943.63	5.18E+01	62.68	4.77E-03	3.79E-04
	43	1001.20	1.43E+02	72.33	4.53E-03	3.69E-04
	44	1120.24	2.12E+03	124.26	4.12E-03	3.50E-04
	45	1154.86	2.63E+02	88.07	4.01E-03	3.44E-04
	46	1237.96	7.59E+02	86.72	3.79E-03	3.22E-04
	47	1253.07	7.83E+01	53.03	3.75E-03	3.18E-04
	48	1280.82	2.34E+02	80.35	3.68E-03	3.10E-04
	49	1300.71	5.99E+01	51.65	3.63E-03	3.05E-04
M	50	1377.42	5.28E+02	67.85	3.47E-03	2.88E-04
m	51	1384.87	9.61E+01	59.18	3.45E-03	2.87E-04
M	52	1401.18	2.07E+02	65.43	3.42E-03	2.85E-04
m	53	1407.70	2.99E+02	55.17	3.41E-03	2.84E-04
	54	1438.79	4.55E+01	44.31	3.35E-03	2.79E-04
	55	1461.52	1.92E+02	81.59	3.31E-03	2.75E-04
	56	1508.57	2.92E+02	62.80	3.23E-03	2.67E-04
	57	1515.41	2.90E+01	32.51	3.22E-03	2.66E-04
	58	1544.81	3.46E+01	40.57	3.17E-03	2.62E-04
M	59	1582.84	9.26E+01	50.89	3.11E-03	2.56E-04
m	60	1586.47	5.45E+01	47.46	3.10E-03	2.55E-04
	61	1660.90	1.60E+02	54.36	3.00E-03	2.43E-04
M	62	1679.06	1.65E+01	17.55	2.97E-03	2.40E-04
m	63	1684.36	4.92E+01	39.70	2.97E-03	2.39E-04
	64	1693.36	6.32E+01	30.82	2.95E-03	2.38E-04
	65	1729.47	3.72E+02	51.22	2.91E-03	2.32E-04
	66	1764.22	1.72E+03	89.26	2.87E-03	2.26E-04
	67	1838.45	2.62E+01	32.99	2.78E-03	2.15E-04
	68	1847.17	2.24E+02	45.84	2.77E-03	2.15E-04
	69	1872.81	4.14E+01	34.29	2.75E-03	2.15E-04
	70	1894.62	2.28E+01	20.12	2.72E-03	2.15E-04
	71	1935.97	5.21E+01	32.80	2.68E-03	2.15E-04
	72	2024.55	2.17E+01	20.95	2.60E-03	2.15E-04
	73	2118.32	8.26E+01	34.76	2.53E-03	2.15E-04
	74	2203.73	4.37E+02	46.72	2.46E-03	2.15E-04
	75	2240.28	1.53E+01	12.65	2.44E-03	2.15E-04
	76	2279.15	1.11E+01	12.29	2.41E-03	2.15E-04
	77	2292.50	2.42E+01	14.25	2.41E-03	2.15E-04
	78	2406.34	5.50E+00	7.78	2.34E-03	2.15E-04
	79	2447.41	1.28E+02	22.63	2.32E-03	2.15E-04
	80	2613.76	2.20E+01	13.13	2.24E-03	2.15E-04
	81	2920.99	6.00E+00	4.90	2.13E-03	2.15E-04

Analysis Report for 1707089-08

HTC-A04-S002-0006-01

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 : 8/23/2017 9:12:49AM

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	16.10	2.81E+02	225.62			2.81E+02	2.26E+02
	2	46.64	1.18E+03	242.74	4.47E+01	1.09E+01	1.13E+03	2.43E+02
	3	53.39	4.24E+02	252.20			4.24E+02	2.52E+02
	4	63.40	2.56E+03	312.22	4.12E+01	5.67E+00	2.52E+03	3.12E+02
	5	76.38	1.37E+04	652.43			1.37E+04	6.52E+02
M	6	84.41	8.58E+02	183.61	5.71E+00	6.69E+00	8.53E+02	1.84E+02
m	7	87.57	2.43E+03	349.06			2.43E+03	3.49E+02
m	8	92.77	4.07E+03	350.18	7.98E+01	7.31E+00	3.99E+03	3.50E+02
	9	113.68	2.59E+02	216.68			2.59E+02	2.17E+02
	10	144.02	7.04E+02	282.51			7.04E+02	2.83E+02
	11	154.13	2.90E+02	215.55			2.90E+02	2.16E+02
	12	164.14	2.29E+02	203.74			2.29E+02	2.04E+02
	13	186.23	4.78E+03	360.09	3.06E+01	5.82E+00	4.75E+03	3.60E+02
	14	205.46	2.25E+02	202.76			2.25E+02	2.03E+02
M	15	236.06	3.88E+02	157.25			3.88E+02	1.57E+02
m	16	238.77	3.46E+02	187.38	1.40E+01	2.71E+00	3.32E+02	1.87E+02
m	17	242.18	4.49E+03	220.91			4.49E+03	2.21E+02
	18	257.61	6.42E+02	243.98			6.42E+02	2.44E+02
	19	271.30	8.22E+02	265.10			8.22E+02	2.65E+02
	20	295.37	9.30E+03	266.99			9.30E+03	2.67E+02
	21	338.67	1.30E+02	150.06			1.30E+02	1.50E+02
	22	352.05	1.58E+04	321.06	6.53E+00	4.43E+00	1.58E+04	3.21E+02
	23	403.57	1.38E+02	135.08			1.38E+02	1.35E+02
	24	462.69	9.23E+01	109.26			9.23E+01	1.09E+02
	25	480.49	1.14E+02	106.29			1.14E+02	1.06E+02
	26	486.72	1.11E+02	104.25			1.11E+02	1.04E+02
	27	510.73	3.06E+02	118.96	5.21E+01	4.74E+00	2.54E+02	1.19E+02
	28	581.35	2.62E+02	140.01			2.62E+02	1.40E+02
	29	609.39	1.08E+04	254.75	3.25E+00	2.97E+00	1.08E+04	2.55E+02
	30	641.13	6.60E+01	63.34			6.60E+01	6.33E+01
	31	665.35	4.17E+02	128.11			4.17E+02	1.28E+02
	32	674.52	6.00E+01	62.97			6.00E+01	6.30E+01
	33	703.47	1.03E+02	85.23			1.03E+02	8.52E+01
M	34	717.30	3.39E+01	38.82			3.39E+01	3.88E+01
m	35	719.75	1.00E+02	75.04			1.00E+02	7.50E+01

Analysis Report for 1707089-08

HTC-A04-S002-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	36	743.57	1.62E+02	111.30			1.62E+02	1.11E+02
	37	768.28	1.04E+03	123.42			1.04E+03	1.23E+02
	38	785.96	1.66E+02	100.38			1.66E+02	1.00E+02
	39	806.14	2.60E+02	95.32			2.60E+02	9.53E+01
	40	839.22	1.20E+02	90.28			1.20E+02	9.03E+01
	41	934.36	5.64E+02	113.00			5.64E+02	1.13E+02
	42	943.63	5.18E+01	62.68			5.18E+01	6.27E+01
	43	1001.20	1.43E+02	72.33			1.43E+02	7.23E+01
	44	1120.24	2.12E+03	124.26			2.12E+03	1.24E+02
	45	1154.86	2.63E+02	88.07			2.63E+02	8.81E+01
	46	1237.96	7.59E+02	86.72			7.59E+02	8.67E+01
	47	1253.07	7.83E+01	53.03			7.83E+01	5.30E+01
	48	1280.82	2.34E+02	80.35			2.34E+02	8.03E+01
	49	1300.71	5.99E+01	51.65			5.99E+01	5.17E+01
M	50	1377.42	5.28E+02	67.85			5.28E+02	6.79E+01
m	51	1384.87	9.61E+01	59.18			9.61E+01	5.92E+01
M	52	1401.18	2.07E+02	65.43			2.07E+02	6.54E+01
m	53	1407.70	2.99E+02	55.17			2.99E+02	5.52E+01
	54	1438.79	4.55E+01	44.31			4.55E+01	4.43E+01
	55	1461.52	1.92E+02	81.59	1.00E+00	1.77E+00	1.91E+02	8.16E+01
	56	1508.57	2.92E+02	62.80			2.92E+02	6.28E+01
	57	1515.41	2.90E+01	32.51			2.90E+01	3.25E+01
	58	1544.81	3.46E+01	40.57			3.46E+01	4.06E+01
M	59	1582.84	9.26E+01	50.89			9.26E+01	5.09E+01
m	60	1586.47	5.45E+01	47.46			5.45E+01	4.75E+01
	61	1660.90	1.60E+02	54.36			1.60E+02	5.44E+01
M	62	1679.06	1.65E+01	17.55			1.65E+01	1.75E+01
m	63	1684.36	4.92E+01	39.70			4.92E+01	3.97E+01
	64	1693.36	6.32E+01	30.82			6.32E+01	3.08E+01
	65	1729.47	3.72E+02	51.22			3.72E+02	5.12E+01
	66	1764.22	1.72E+03	89.26			1.72E+03	8.93E+01
	67	1838.45	2.62E+01	32.99			2.62E+01	3.30E+01
	68	1847.17	2.24E+02	45.84			2.24E+02	4.58E+01
	69	1872.81	4.14E+01	34.29			4.14E+01	3.43E+01
	70	1894.62	2.28E+01	20.12			2.28E+01	2.01E+01
	71	1935.97	5.21E+01	32.80			5.21E+01	3.28E+01
	72	2024.55	2.17E+01	20.95			2.17E+01	2.10E+01
	73	2118.32	8.26E+01	34.76			8.26E+01	3.48E+01
	74	2203.73	4.37E+02	46.72			4.37E+02	4.67E+01
	75	2240.28	1.53E+01	12.65			1.53E+01	1.26E+01
	76	2279.15	1.11E+01	12.29			1.11E+01	1.23E+01
	77	2292.50	2.42E+01	14.25			2.42E+01	1.42E+01
	78	2406.34	5.50E+00	7.78			5.50E+00	7.78E+00
	79	2447.41	1.28E+02	22.63			1.28E+02	2.26E+01
	80	2613.76	2.20E+01	13.13	1.86E+00	1.12E+00	2.02E+01	1.32E+01
	81	2920.99	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

Analysis Report for 1707089-08

HTC-A04-S002-0006-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/23/2017 9:12:49AM

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	16.10	2.81E+02	225.62			2.81E+02	2.26E+02
	2	46.64	1.18E+03	242.74	4.47E+01	1.09E+01	1.13E+03	2.43E+02
	3	53.39	4.24E+02	252.20			4.24E+02	2.52E+02
	4	63.40	2.56E+03	312.22	4.12E+01	5.67E+00	2.52E+03	3.12E+02
	5	76.38	1.37E+04	652.43			1.37E+04	6.52E+02
M	6	84.41	8.58E+02	183.61	5.71E+00	6.69E+00	8.53E+02	1.84E+02
m	7	87.57	2.43E+03	349.06			2.43E+03	3.49E+02
m	8	92.77	4.07E+03	350.18	7.98E+01	7.31E+00	3.99E+03	3.50E+02
	9	113.68	2.59E+02	216.68			2.59E+02	2.17E+02
	10	144.02	7.04E+02	282.51			7.04E+02	2.83E+02
	11	154.13	2.90E+02	215.55			2.90E+02	2.16E+02
	12	164.14	2.29E+02	203.74			2.29E+02	2.04E+02
	13	186.23	4.78E+03	360.09	3.06E+01	5.82E+00	4.75E+03	3.60E+02
	14	205.46	2.25E+02	202.76			2.25E+02	2.03E+02
M	15	236.06	3.88E+02	157.25			3.88E+02	1.57E+02
m	16	238.77	3.46E+02	187.38	1.40E+01	2.71E+00	3.32E+02	1.87E+02
m	17	242.18	4.49E+03	220.91			4.49E+03	2.21E+02
	18	257.61	6.42E+02	243.98			6.42E+02	2.44E+02
	19	271.30	8.22E+02	265.10			8.22E+02	2.65E+02
	20	295.37	9.30E+03	266.99			9.30E+03	2.67E+02
	21	338.67	1.30E+02	150.06			1.30E+02	1.50E+02
	22	352.05	1.58E+04	321.06	6.53E+00	4.43E+00	1.58E+04	3.21E+02
	23	403.57	1.38E+02	135.08			1.38E+02	1.35E+02
	24	462.69	9.23E+01	109.26			9.23E+01	1.09E+02
	25	480.49	1.14E+02	106.29			1.14E+02	1.06E+02
	26	486.72	1.11E+02	104.25			1.11E+02	1.04E+02
	27	510.73	3.06E+02	118.96	5.21E+01	4.74E+00	2.54E+02	1.19E+02
	28	581.35	2.62E+02	140.01			2.62E+02	1.40E+02
	29	609.39	1.08E+04	254.75	3.25E+00	2.97E+00	1.08E+04	2.55E+02
	30	641.13	6.60E+01	63.34			6.60E+01	6.33E+01
	31	665.35	4.17E+02	128.11			4.17E+02	1.28E+02
	32	674.52	6.00E+01	62.97			6.00E+01	6.30E+01
	33	703.47	1.03E+02	85.23			1.03E+02	8.52E+01
M	34	717.30	3.39E+01	38.82			3.39E+01	3.88E+01
m	35	719.75	1.00E+02	75.04			1.00E+02	7.50E+01
	36	743.57	1.62E+02	111.30			1.62E+02	1.11E+02
	37	768.28	1.04E+03	123.42			1.04E+03	1.23E+02
	38	785.96	1.66E+02	100.38			1.66E+02	1.00E+02
	39	806.14	2.60E+02	95.32			2.60E+02	9.53E+01

Analysis Report for 1707089-08

HTC-A04-S002-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	40	839.22	1.20E+02	90.28			1.20E+02	9.03E+01
	41	934.36	5.64E+02	113.00			5.64E+02	1.13E+02
	42	943.63	5.18E+01	62.68			5.18E+01	6.27E+01
	43	1001.20	1.43E+02	72.33			1.43E+02	7.23E+01
	44	1120.24	2.12E+03	124.26			2.12E+03	1.24E+02
	45	1154.86	2.63E+02	88.07			2.63E+02	8.81E+01
	46	1237.96	7.59E+02	86.72			7.59E+02	8.67E+01
	47	1253.07	7.83E+01	53.03			7.83E+01	5.30E+01
	48	1280.82	2.34E+02	80.35			2.34E+02	8.03E+01
	49	1300.71	5.99E+01	51.65			5.99E+01	5.17E+01
M	50	1377.42	5.28E+02	67.85			5.28E+02	6.79E+01
m	51	1384.87	9.61E+01	59.18			9.61E+01	5.92E+01
M	52	1401.18	2.07E+02	65.43			2.07E+02	6.54E+01
m	53	1407.70	2.99E+02	55.17			2.99E+02	5.52E+01
	54	1438.79	4.55E+01	44.31			4.55E+01	4.43E+01
	55	1461.52	1.92E+02	81.59	1.00E+00	1.77E+00	1.91E+02	8.16E+01
	56	1508.57	2.92E+02	62.80			2.92E+02	6.28E+01
	57	1515.41	2.90E+01	32.51			2.90E+01	3.25E+01
	58	1544.81	3.46E+01	40.57			3.46E+01	4.06E+01
M	59	1582.84	9.26E+01	50.89			9.26E+01	5.09E+01
m	60	1586.47	5.45E+01	47.46			5.45E+01	4.75E+01
	61	1660.90	1.60E+02	54.36			1.60E+02	5.44E+01
M	62	1679.06	1.65E+01	17.55			1.65E+01	1.75E+01
m	63	1684.36	4.92E+01	39.70			4.92E+01	3.97E+01
	64	1693.36	6.32E+01	30.82			6.32E+01	3.08E+01
	65	1729.47	3.72E+02	51.22			3.72E+02	5.12E+01
	66	1764.22	1.72E+03	89.26			1.72E+03	8.93E+01
	67	1838.45	2.62E+01	32.99			2.62E+01	3.30E+01
	68	1847.17	2.24E+02	45.84			2.24E+02	4.58E+01
	69	1872.81	4.14E+01	34.29			4.14E+01	3.43E+01
	70	1894.62	2.28E+01	20.12			2.28E+01	2.01E+01
	71	1935.97	5.21E+01	32.80			5.21E+01	3.28E+01
	72	2024.55	2.17E+01	20.95			2.17E+01	2.10E+01
	73	2118.32	8.26E+01	34.76			8.26E+01	3.48E+01
	74	2203.73	4.37E+02	46.72			4.37E+02	4.67E+01
	75	2240.28	1.53E+01	12.65			1.53E+01	1.26E+01
	76	2279.15	1.11E+01	12.29			1.11E+01	1.23E+01
	77	2292.50	2.42E+01	14.25			2.42E+01	1.42E+01
	78	2406.34	5.50E+00	7.78			5.50E+00	7.78E+00
	79	2447.41	1.28E+02	22.63			1.28E+02	2.26E+01
	80	2613.76	2.20E+01	13.13	1.86E+00	1.12E+00	2.02E+01	1.32E+01
	81	2920.99	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

Analysis Report for 1707089-08

HTC-A04-S002-0006-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.922	1460.81	*	10.67	5.64E+00	2.46E+00
NB-93M	0.965	16.57	*	9.43	1.99E+02	2.18E+03
CD-109	0.967	88.03	*	3.72	2.91E+01	5.12E+00
SN-126	1.000	87.57	*	37.00	2.52E+00	4.18E-01
LU-173	0.516	100.72		5.24		
		272.11	*	21.20	3.20E+00	1.07E+00
PB-210	0.997	46.50	*	4.25	1.62E+01	3.83E+00
PB-212	0.893	238.63	*	44.60	4.81E-01	2.75E-01
		300.09		3.41		
BI-214	0.995	609.31	*	46.30	3.46E+01	3.36E+00
		1120.29	*	15.10	3.55E+01	3.66E+00
		1764.49	*	15.80	3.95E+01	3.74E+00
		2204.22	*	4.98	3.71E+01	5.12E+00
PB-214	0.997	295.21	*	19.19	3.75E+01	3.37E+00
		351.92	*	37.19	3.84E+01	3.52E+00
RA-226	1.000	186.21	*	3.28	7.71E+01	1.41E+02
TH-231	0.307	25.64		14.70		
		84.21	*	6.40	5.12E+00	1.18E+00
PA-234M	0.996	1001.03	*	0.92	3.58E+01	1.83E+01
TH-234	0.998	63.29	*	3.80	2.83E+01	4.07E+00
U-235	0.970	143.76	*	10.50	3.01E+00	1.32E+00
		163.35	*	4.70	2.38E+00	2.16E+00
		205.31	*	4.70	2.75E+00	2.53E+00

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 9:12:49AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Analysis Report for 1707089-08

HTC-A04-S002-0006-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	53.39	1.17866E-01	29.72		
	5	76.38	3.80196E+00	2.38		
m	8	92.77	1.10916E+00	4.39	Sum	
	9	113.68	7.20032E-02	41.80		
	11	154.13	8.05369E-02	37.17		
M	15	236.06	1.07881E-01	20.25	Tol.	TH-227
m	17	242.18	1.24666E+00	2.46		
	18	257.61	1.78338E-01	19.00		
	21	338.67	3.62365E-02	57.52	Tol.	AC-228
	23	403.57	3.82707E-02	49.02	Sum	
	24	462.69	2.56257E-02	59.22	Tol.	SB-125
	25	480.49	3.16473E-02	46.65		
	26	486.72	3.08964E-02	46.86	Tol.	LA-140
	27	510.73	7.05612E-02	23.43	Sum	
	28	581.35	7.28684E-02	26.69		
	30	641.13	1.83231E-02	48.01		
	31	665.35	1.15886E-01	15.35	Tol.	CE-143
	32	674.52	1.66770E-02	52.44		
	33	703.47	2.85384E-02	41.48	Sum	
M	34	717.30	9.41261E-03	57.28		
m	35	719.75	2.77701E-02	37.53		
	36	743.57	4.49248E-02	34.41		
	37	768.28	2.87929E-01	5.95		
	38	785.96	4.60188E-02	30.30		
	39	806.14	7.22022E-02	18.34		
	40	839.22	3.34057E-02	37.53		
	41	934.36	1.56557E-01	10.02		
	42	943.63	1.43912E-02	60.49		
	45	1154.86	7.30539E-02	16.74		
	46	1237.96	2.10782E-01	5.71		
	47	1253.07	2.17606E-02	33.85	S-Esc	
	48	1280.82	6.50288E-02	17.16		
	49	1300.71	1.66302E-02	43.14		
M	50	1377.42	1.46575E-01	6.43		
m	51	1384.87	2.66811E-02	30.81	Tol.	AG-110M
M	52	1401.18	5.74819E-02	15.81		
m	53	1407.70	8.31212E-02	9.22	Tol.	EU-152
	54	1438.79	1.26389E-02	48.69		
	56	1508.57	8.12214E-02	10.74	Sum	
	57	1515.41	8.06809E-03	55.97		
	58	1544.81	9.62149E-03	58.57		
M	59	1582.84	2.57153E-02	27.49		
m	60	1586.47	1.51412E-02	43.53		
	61	1660.90	4.44854E-02	16.97		
M	62	1679.06	4.57518E-03	53.28		
m	63	1684.36	1.36658E-02	40.35		
	64	1693.36	1.75575E-02	24.38	S-Esc	
	65	1729.47	1.03358E-01	6.88	Sum	
	67	1838.45	7.28611E-03	62.89		
	68	1847.17	6.23243E-02	10.22		

Analysis Report for 1707089-08

HTC-A04-S002-0006-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
69	1872.81	1.14960E-02	41.43		
70	1894.62	6.33488E-03	44.12		
71	1935.97	1.44860E-02	31.45		
72	2024.55	6.03458E-03	48.22		
73	2118.32	2.29355E-02	21.05		
75	2240.28	4.24769E-03	41.36	Sum	
76	2279.15	3.07018E-03	55.59		
77	2292.50	6.71441E-03	29.47		
78	2406.34	1.52778E-03	70.71		
79	2447.41	3.55556E-02	8.84		
80	2613.76	5.60491E-03	32.66	Tol.	TL-208
81	2920.99	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

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.92	1460.81	*	10.67	5.64E+00	2.46E+00
NB-93M	0.96	16.57	*	9.43	1.99E+02	2.18E+03
CD-109	0.96	88.03	*	3.72	2.91E+01	5.12E+00
SN-126	1.00	87.57	*	37.00	2.52E+00	4.18E-01
LU-173	0.51	100.72		5.24		
		272.11	*	21.20	3.20E+00	1.07E+00
PB-210	0.99	46.50	*	4.25	1.62E+01	3.83E+00
PB-212	0.89	238.63	*	44.60	4.81E-01	2.75E-01
		300.09		3.41		
BI-214	0.99	609.31	*	46.30	3.46E+01	3.36E+00
		1120.29	*	15.10	3.55E+01	3.66E+00
		1764.49	*	15.80	3.95E+01	3.74E+00
		2204.22	*	4.98	3.71E+01	5.12E+00
PB-214	0.99	295.21	*	19.19	3.75E+01	3.37E+00
		351.92	*	37.19	3.84E+01	3.52E+00
RA-226	1.00	186.21	*	3.28	7.71E+01	1.41E+02

Analysis Report for 1707089-08

HTC-A04-S002-0006-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
TH-231	0.30	25.64		14.70		
		84.21	*	6.40	5.12E+00	1.18E+00
PA-234M	0.99	1001.03	*	0.92	3.58E+01	1.83E+01
TH-234	0.99	63.29	*	3.80	2.83E+01	4.07E+00
U-235	0.97	143.76	*	10.50	3.01E+00	1.32E+00
		163.35	*	4.70	2.38E+00	2.16E+00
		205.31	*	4.70	2.75E+00	2.53E+00

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.922	5.64E+00	2.46E+00	
	NB-93M	0.965	1.99E+02	2.18E+03	
?	CD-109	0.967	2.91E+01	5.12E+00	
?	SN-126	1.000	2.52E+00	4.18E-01	
	LU-173	0.516	3.20E+00	1.07E+00	
	PB-210	0.997	1.62E+01	3.83E+00	
	PB-212	0.893	4.81E-01	2.75E-01	
	BI-214	0.995	3.65E+01	1.91E+00	
	PB-214	0.997	3.79E+01	2.43E+00	
	RA-226	1.000	7.71E+01	1.41E+02	
	TH-231	0.307	5.12E+00	1.18E+00	
	PA-234M	0.996	3.58E+01	1.83E+01	
	TH-234	0.998	2.83E+01	4.07E+00	
	U-235	0.970	2.83E+00	1.03E+00	

Analysis Report for 1707089-08

HTC-A04-S002-0006-01

? = 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 1707089-08

HTC-A04-S002-0006-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 9:12:49AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	53.39	1.17866E-01	29.72		
	5	76.38	3.80196E+00	2.38		
m	8	92.77	1.10916E+00	4.39	Sum	
	9	113.68	7.20032E-02	41.80		
	11	154.13	8.05369E-02	37.17		
M	15	236.06	1.07881E-01	20.25	Tol.	TH-227
m	17	242.18	1.24666E+00	2.46		
	18	257.61	1.78338E-01	19.00		
	21	338.67	3.62365E-02	57.52	Tol.	AC-228
	23	403.57	3.82707E-02	49.02	Sum	
	24	462.69	2.56257E-02	59.22	Tol.	SB-125
	25	480.49	3.16473E-02	46.65		
	26	486.72	3.08964E-02	46.86	Tol.	LA-140
	27	510.73	7.05612E-02	23.43	Sum	
	28	581.35	7.28684E-02	26.69		
	30	641.13	1.83231E-02	48.01		
	31	665.35	1.15886E-01	15.35	Tol.	CE-143
	32	674.52	1.66770E-02	52.44		
	33	703.47	2.85384E-02	41.48	Sum	
M	34	717.30	9.41261E-03	57.28		
m	35	719.75	2.77701E-02	37.53		
	36	743.57	4.49248E-02	34.41		
	37	768.28	2.87929E-01	5.95		
	38	785.96	4.60188E-02	30.30		
	39	806.14	7.22022E-02	18.34		
	40	839.22	3.34057E-02	37.53		
	41	934.36	1.56557E-01	10.02		
	42	943.63	1.43912E-02	60.49		
	45	1154.86	7.30539E-02	16.74		
	46	1237.96	2.10782E-01	5.71		
	47	1253.07	2.17606E-02	33.85	S-Esc	
	48	1280.82	6.50288E-02	17.16		
	49	1300.71	1.66302E-02	43.14		

Analysis Report for 1707089-08

HTC-A04-S002-0006-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	50	1377.42	1.46575E-01	6.43		
m	51	1384.87	2.66811E-02	30.81	Tol.	AG-110M
M	52	1401.18	5.74819E-02	15.81		
m	53	1407.70	8.31212E-02	9.22	Tol.	EU-152
	54	1438.79	1.26389E-02	48.69		
	56	1508.57	8.12214E-02	10.74	Sum	
	57	1515.41	8.06809E-03	55.97		
	58	1544.81	9.62149E-03	58.57		
M	59	1582.84	2.57153E-02	27.49		
m	60	1586.47	1.51412E-02	43.53		
	61	1660.90	4.44854E-02	16.97		
M	62	1679.06	4.57518E-03	53.28		
m	63	1684.36	1.36658E-02	40.35		
	64	1693.36	1.75575E-02	24.38	S-Esc	
	65	1729.47	1.03358E-01	6.88	Sum	
	67	1838.45	7.28611E-03	62.89		
	68	1847.17	6.23243E-02	10.22		
	69	1872.81	1.14960E-02	41.43		
	70	1894.62	6.33488E-03	44.12		
	71	1935.97	1.44860E-02	31.45		
	72	2024.55	6.03458E-03	48.22		
	73	2118.32	2.29355E-02	21.05		
	75	2240.28	4.24769E-03	41.36	Sum	
	76	2279.15	3.07018E-03	55.59		
	77	2292.50	6.71441E-03	29.47		
	78	2406.34	1.52778E-03	70.71		
	79	2447.41	3.55556E-02	8.84		
	80	2613.76	5.60491E-03	32.66	Tol.	TL-208
	81	2920.99	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

Analysis Report for 1707089-08

HTC-A04-S002-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	3.75E-01	6.49E+00	6.49E+00
+	NA-22	1274.54		99.94	-7.05E-03	2.16E-01	2.16E-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	-3.90E-02	1.46E-01	1.46E-01
+	K-40	1460.81	*	10.67	5.64E+00	3.81E+00	3.81E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	7.21E-02	1.82E-01	1.82E-01
		78.34		96.00	2.25E+00		2.47E-01
+	SC-46	889.25		99.98	1.49E-01	4.96E-01	4.96E-01
		1120.51		99.99	1.25E+01		1.33E+00
+	V-48	983.52		99.98	-4.47E+00	1.50E+01	1.53E+01
		1312.10		97.50	-8.43E-01		1.50E+01
+	CR-51	320.08		9.83	-1.86E+01	2.17E+01	2.17E+01
+	MN-54	834.83		99.97	0.00E+00	2.62E-01	2.62E-01
+	CO-56	846.75		99.96	-9.00E-02	4.80E-01	4.80E-01
		1037.75		14.03	5.35E-01		3.40E+00
		1238.25		67.00	7.35E+00		1.46E+00
		1771.40		15.51	1.06E-02		2.36E+00
		2598.48		16.90	1.31E-01		8.61E-01
+	CO-57	122.06		85.51	1.03E-01	2.07E-01	2.07E-01
		136.48		10.60	-5.31E-01		1.75E+00
+	CO-58	810.76		99.40	-1.48E-01	5.07E-01	5.07E-01
+	FE-59	1099.22		56.50	-6.88E-01	1.67E+00	1.67E+00
		1291.56		43.20	-2.90E-01		2.07E+00
+	CO-60	1173.22		100.00	3.92E-02	2.11E-01	2.19E-01
		1332.49		100.00	1.47E-04		2.11E-01
+	ZN-65	1115.52		50.75	8.56E-02	5.97E-01	5.97E-01
+	GA-67	93.31		35.70	5.86E+09	7.20E+08	7.20E+08
		208.95		2.24	3.08E+09		1.15E+10
		300.22		16.00	3.98E+08		1.95E+09
+	SE-75	121.11		16.70	2.58E-01	4.30E-01	1.44E+00
		136.00		59.20	-9.41E-02		4.30E-01
		264.65		59.80	1.39E-01		5.21E-01
		279.53		25.20	-1.32E+00		1.28E+00
		400.65		11.40	-9.24E-02		3.08E+00
+	RB-82	776.52		13.00	1.21E+01	2.10E+01	2.10E+01
+	RB-83	520.41		46.00	6.15E-02	8.32E-01	8.32E-01
		529.64		30.30	-2.47E-01		1.33E+00
		552.65		16.40	3.20E-01		2.45E+00
+	KR-85	513.99		0.43	-8.84E+00	4.42E+01	4.42E+01
+	SR-85	513.99		99.27	-1.09E-01	5.47E-01	5.47E-01
+	Y-88	898.02		93.40	-5.88E-02	3.66E-01	4.46E-01
		1836.01		99.38	3.78E-01		3.66E-01
+	MO-93	263.06		56.72	8.35E-02	1.83E-01	3.21E-01
		684.67		99.68	5.46E-02		1.83E-01
		1477.11		99.08	-1.17E-01		2.56E-01

Analysis Report for 1707089-08

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	NB-93M	16.57	*	9.43	1.99E+02	2.62E+02	2.62E+02
+	NB-94	702.63		100.00	1.97E-01	1.97E-01	1.97E-01
		871.10		100.00	-8.00E-02		2.05E-01
+	NB-95	765.79		99.81	1.05E+01	2.31E+00	2.31E+00
+	NB-95M	235.69		25.00	-2.49E+08	1.43E+08	1.43E+08
+	ZR-95	724.18		43.70	2.61E-01	1.01E+00	1.25E+00
		756.72		55.30	8.78E-02		1.01E+00
+	MO-99	181.06		6.20	-2.41E+10	1.06E+11	1.79E+11
		739.58		12.80	6.22E+09		1.06E+11
		778.00		4.50	1.65E+11		2.93E+11
+	RU-103	497.08		89.00	2.92E-02	1.14E+00	1.14E+00
+	RU-106	621.84		9.80	-9.14E-01	1.94E+00	1.94E+00
+	AG-108M	433.93		89.90	1.87E-02	2.04E-01	2.04E-01
		614.37		90.40	2.85E-02		3.42E-01
		722.95		90.50	9.07E-04		2.14E-01
+	CD-109	88.03	*	3.72	2.91E+01	1.23E+01	1.23E+01
+	AG-110M	657.75		93.14	4.37E-02	2.46E-01	2.46E-01
		677.61		10.53	3.41E-01		2.16E+00
		706.67		16.46	-3.29E-02		1.51E+00
		763.93		21.98	3.69E-02		1.37E+00
		884.67		71.63	-9.00E-02		3.91E-01
		1384.27		23.94	-4.76E-01		1.31E+00
+	CD-113M	263.70		0.02	2.06E+02	7.77E+02	7.77E+02
+	SN-113	255.12		1.93	-1.53E+01	5.50E-01	1.72E+01
		391.69		64.90	4.90E-01		5.50E-01
+	TE123M	159.00		84.10	-8.64E-03	3.28E-01	3.28E-01
+	SB-124	602.71		97.87	-1.98E-01	6.03E-01	6.03E-01
		645.85		7.26	-2.61E-01		6.91E+00
		722.78		11.10	2.31E-02		5.44E+00
		1691.02		49.00	5.13E-01		1.24E+00
+	I-125	35.49		6.49	-1.05E+01	1.46E+01	1.46E+01
+	SB-125	176.33		6.89	-8.73E-02	7.04E-01	2.43E+00
		427.89		29.33	1.80E-01		7.04E-01
		463.38		10.35	7.03E-01		1.92E+00
		600.56		17.80	1.45E-01		1.15E+00
		635.90		11.32	2.56E-01		1.57E+00
+	SB-126	414.70		83.30	3.13E+00	4.61E+01	6.08E+01
		666.33		99.60	1.44E+02		5.65E+01
		695.00		99.60	2.85E+00		4.61E+01
		720.50		53.80	6.89E+01		9.34E+01
+	SN-126	87.57	*	37.00	2.52E+00	1.07E+00	1.07E+00
+	SB-127	473.00		25.00	7.48E+06	2.80E+07	4.05E+07
		685.20		35.70	8.38E+06		2.80E+07
		783.80		14.70	1.16E+08		8.46E+07
+	I-129	29.78		57.00	-3.55E-01	9.44E-01	9.44E-01
		33.60		13.20	-1.82E+00		2.68E+00
		39.58		7.52	-1.61E+00		3.20E+00
+	I-131	284.30		6.05	8.06E+03	1.09E+03	1.57E+04

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	I-131	364.48	81.20	-8.83E+01	1.09E+03	1.09E+03
		636.97	7.26	2.55E+03		1.20E+04
		722.89	1.80	2.33E+02		5.49E+04
+	TE-132	49.72	13.10	-1.09E+10	2.98E+08	2.00E+09
		228.16	88.00	1.36E+08		2.98E+08
+	BA-133	81.00	33.00	-4.61E+00	5.42E-01	5.42E-01
		302.84	17.80	1.87E-01		1.05E+00
		356.01	60.00	-1.67E-02		6.39E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-1.92E+06	2.26E+05	2.26E+05
+	CS-134	563.23	8.38	-1.90E-01	2.43E-01	2.35E+00
		569.32	15.43	-4.54E-01		1.28E+00
		604.70	97.60	-1.26E+01		3.49E-01
		795.84	85.40	5.25E-02		2.43E-01
		801.93	8.73	-2.01E-01		2.48E+00
+	CS-135	268.24	16.00	-2.49E-01	1.19E+00	1.19E+00
+	@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41	28.60	1.00E+26		1.00E+26
	@	1678.03	9.54	1.00E+26		1.00E+26
+	CS-136	153.22	7.46	-1.15E+02	3.64E+01	3.98E+02
		163.89	4.61	5.28E+02		6.31E+02
		176.55	13.56	-7.66E+00		2.13E+02
		273.65	12.66	3.95E+02		2.92E+02
		340.57	48.50	2.00E+00		7.18E+01
		818.50	99.70	1.01E+01		3.64E+01
		1048.07	79.60	-2.47E+01		4.87E+01
		1235.34	19.70	7.75E+02		3.37E+02
+	CS-137	661.65	85.12	-2.56E-01	2.32E-01	2.32E-01
+	LA-138	788.74	34.00	-5.42E-02	3.26E-01	6.32E-01
		1435.80	66.00	2.36E-02		3.26E-01
+	CE-139	165.85	80.35	2.41E-01	3.21E-01	3.21E-01
+	BA-140	162.64	6.70	-1.57E+02	1.58E+02	5.07E+02
		304.84	4.50	-5.78E+02		8.58E+02
		423.70	3.20	-4.61E+02		1.32E+03
		437.55	2.00	1.51E+03		1.98E+03
		537.32	25.00	8.65E+01		1.58E+02
+	LA-140	328.77	20.50	-1.07E+02	5.51E+01	1.94E+02
		487.03	45.50	2.71E+01		8.79E+01
		815.85	23.50	-7.49E+01		1.71E+02
		1596.49	95.49	5.94E+01		5.51E+01
+	CE-141	145.44	48.40	1.85E+00	2.69E+00	2.69E+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	-5.40E-01	1.67E+00	1.67E+00
+	PM-144	476.78	42.00	-1.37E-03	2.03E-01	5.25E-01
		618.01	98.60	-5.57E-02		2.03E-01
		696.49	99.49	7.03E-03		2.21E-01
+	PM-145	36.85	21.70	-1.72E-01	6.88E-01	1.29E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PM-145	37.36		39.70	-1.63E-01	6.88E-01	6.88E-01
		42.30		15.10	2.83E-02		1.45E+00
		72.40		2.31	-7.12E+01		8.72E+00
+	PM-146	453.90		39.94	2.77E-01	4.86E-01	4.86E-01
		735.90		14.01	-5.45E-01		1.27E+00
		747.13		13.10	-4.57E-01		1.48E+00
+	ND-147	91.11		28.90	-1.62E+02	3.35E+02	3.35E+02
		531.02		13.10	2.31E+02		7.34E+02
+	PM-149	285.90		3.10	8.34E+13	1.83E+14	1.83E+14
+	EU-152	121.78		20.50	3.37E-01	6.77E-01	6.77E-01
		244.69		5.40	1.35E+00		4.97E+00
		344.27		19.13	5.18E-02		9.66E-01
		778.89		9.20	4.99E-01		2.05E+00
		964.01		10.40	5.62E-01		2.10E+00
		1085.78		7.22	-9.48E-01		2.87E+00
		1112.02		9.60	7.27E-01		2.24E+00
		1407.95		14.94	4.89E+00		2.12E+00
+	GD-153	97.43		31.30	2.41E-01	5.72E-01	5.72E-01
		103.18		22.20	-6.74E-01		7.72E-01
+	EU-154	123.07		40.50	4.18E-02	3.46E-01	3.46E-01
		723.30		19.70	4.25E-03		1.00E+00
		873.19		11.50	5.28E-03		1.84E+00
		996.32		10.30	1.48E-01		2.12E+00
		1004.76		17.90	3.37E-01		1.26E+00
		1274.45		35.50	-1.89E-02		5.78E-01
+	EU-155	86.50		30.90	1.81E+00	6.10E-01	6.10E-01
		105.30		20.70	-4.04E-01		6.53E-01
+	EU-156	811.77		10.40	1.14E+00	1.67E+02	1.67E+02
		1153.47		7.20	7.09E+02		3.51E+02
		1230.71		8.90	1.53E+01		2.07E+02
+	HO-166M	184.41		72.60	2.72E+00	3.10E-01	3.10E-01
		280.45		29.60	-4.18E-01		6.11E-01
		410.94		11.10	-1.36E-01		1.76E+00
		711.69		54.10	3.94E-02		3.40E-01
+	TM-171	66.72		0.14	8.39E+01	1.39E+02	1.39E+02
+	HF-172	67.35		5.31	1.42E+00	1.35E+00	3.59E+00
		125.81		11.30	-1.24E+00		1.35E+00
+	LU-172	181.53		20.60	-4.45E+03	9.26E+03	2.19E+04
		900.72		29.81	-1.80E+03		2.09E+04
		1093.66		62.50	-1.13E+03		9.26E+03
+	LU-173	100.72		5.24	8.40E-01	1.67E+00	2.87E+00
		272.11	*	21.20	3.20E+00		1.67E+00
+	HF-175	343.40		84.00	3.10E-02	5.78E-01	5.78E-01
+	LU-176	88.34		13.30	-3.59E+00	1.88E-01	1.37E+00
		201.83		86.00	2.73E-02		1.88E-01
		306.78		94.00	5.56E-02		1.91E-01
+	HF-181	133.02		41.70	-8.20E-01	1.15E+00	1.72E+00
		345.85		17.20	2.89E-01		5.45E+00
		482.03		82.80	-1.74E-02		1.15E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TA-182	67.75		41.20	3.01E-01	7.60E-01	7.60E-01
		1121.30		34.90	2.82E+01		3.07E+00
		1189.05		16.23	-4.77E-01		2.25E+00
		1221.41		26.98	-5.25E-01		1.34E+00
		1231.02		11.44	2.36E-01		3.20E+00
+	IR-192	308.46		29.68	-1.66E-02	9.57E-01	1.52E+00
		468.07		48.10	1.83E-01		9.57E-01
+	HG-203	279.19		77.30	-1.04E+00	1.03E+00	1.03E+00
+	TL-204	374.74		94.11	5.11E-02	2.01E-01	2.01E-01
		899.15		99.16	-2.11E-01		2.27E-01
		911.74		91.10	2.04E-01		2.63E-01
+	BI-207	569.67		97.72	1.71E-02	1.87E-01	1.87E-01
		1063.62		74.90	-8.05E-02		2.77E-01
+	TL-208	583.14		30.22	9.93E-01	3.49E-01	6.68E-01
		860.37		4.48	3.66E-01		4.64E+00
		2614.66		35.85	3.37E-01		3.49E-01
+	BI-210M	262.00		45.00	1.03E-01	4.09E-01	4.09E-01
		300.00		23.00	1.98E-01		9.66E-01
+	PB-210	46.50	*	4.25	1.62E+01	5.52E+00	5.52E+00
+	PB-211	404.84		2.90	4.34E+00	6.98E+00	6.98E+00
		831.96		2.90	-5.10E-01		7.06E+00
+	BI-212	727.17		11.80	2.51E-01	1.55E+00	1.55E+00
		1620.62		2.75	8.28E-01		7.80E+00
+	PB-212	238.63	*	44.60	4.81E-01	7.97E-01	7.97E-01
		300.09		3.41	1.33E+00		6.52E+00
+	BI-214	609.31	*	46.30	3.46E+01	7.83E-01	7.83E-01
		1120.29	*	15.10	3.55E+01		2.35E+00
		1764.49	*	15.80	3.95E+01		1.32E+00
		2204.22	*	4.98	3.71E+01		3.15E+00
+	PB-214	295.21	*	19.19	3.75E+01	8.05E-01	1.24E+00
		351.92	*	37.19	3.84E+01		8.05E-01
+	RN-219	401.80		6.50	-2.07E-01	3.09E+00	3.09E+00
+	RA-223	323.87		3.88	-1.49E+00	4.67E+00	4.67E+00
+	RA-224	240.98		3.95	6.81E+01	7.02E+00	7.02E+00
+	RA-225	40.00		31.00	-3.96E+01	7.84E+01	7.84E+01
+	RA-226	186.21	*	3.28	7.71E+01	8.93E+00	8.93E+00
+	TH-227	50.10		8.40	-1.18E+01	1.70E+00	2.16E+00
		236.00		11.50	-2.96E+00		1.70E+00
		256.20		6.30	1.51E+00		2.97E+00
+	AC-228	338.32		11.40	1.88E-01	8.25E-01	1.66E+00
		911.07		27.70	4.26E-01		8.25E-01
		969.11		16.60	-3.07E-01		1.27E+00
+	TH-230	48.44		16.90	1.83E+00	1.20E+00	1.20E+00
		62.85		4.60	2.47E+01		4.32E+00
		67.67		0.37	1.84E+01		4.65E+01
+	PA-231	283.67		1.60	4.07E+00	7.97E+00	1.15E+01
		302.67		2.30	1.42E+00		7.97E+00
+	TH-231	25.64		14.70	1.15E+00	6.01E+00	6.89E+00

Analysis Report for 1707089-08

HTC-A04-S002-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TH-231	84.21	*	6.40	5.12E+00	6.01E+00	6.01E+00
+	PA-233	311.98		38.60	-1.41E+00	5.87E+00	5.87E+00
+	PA-234	131.20		20.40	1.45E-01	7.00E-01	7.00E-01
		733.99		8.80	-9.83E-01		1.94E+00
		946.00		12.00	-1.63E-02		1.75E+00
+	PA-234M	1001.03	*	0.92	3.58E+01	2.87E+01	2.87E+01
+	TH-234	63.29	*	3.80	2.83E+01	5.49E+00	5.49E+00
+	U-235	143.76	*	10.50	3.01E+00	1.97E+00	1.97E+00
		163.35	*	4.70	2.38E+00		3.47E+00
		205.31	*	4.70	2.75E+00		4.06E+00
+	NP-237	86.50		12.60	4.28E+00	1.44E+00	1.44E+00
+	NP-239	106.10		22.70	-1.64E+12	2.65E+12	2.65E+12
		228.18		10.70	3.64E+12		7.96E+12
		277.60		14.10	-4.00E+12		6.07E+12
+	AM-241	59.54		35.90	-1.37E-01	4.78E-01	4.78E-01
+	AM-243	74.67		66.00	1.87E+00	3.67E-01	3.67E-01
+	CM-243	209.75		3.29	1.36E+00	1.33E+00	5.57E+00
		228.14		10.60	8.00E-01		1.75E+00
		277.60		14.00	-8.77E-01		1.33E+00

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59	10.42	6.49E+00	6.49E+00	3.75E-01	3.19E+00
	NA-22	1274.54	99.94	2.16E-01	2.16E-01	-7.05E-03	1.04E-01
@	NA-24	1368.53	99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20

Analysis Report for 1707089-08

HTC-A04-S002-0006-01

	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	0.00E+00	1.00E+20
	AL-26	1808.65		99.76	1.46E-01	1.46E-01	-3.90E-02	6.80E-02
+	K-40	1460.81	*	10.67	3.81E+00	3.81E+00	5.64E+00	1.86E+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	1.82E-01	1.82E-01	7.21E-02	9.06E-02
		78.34		96.00	2.47E-01		2.25E+00	1.23E-01
	SC-46	889.25		99.98	4.96E-01	4.96E-01	1.49E-01	2.42E-01
		1120.51		99.99	1.33E+00		1.25E+01	6.60E-01
	V-48	983.52		99.98	1.53E+01	1.50E+01	-4.47E+00	7.43E+00
		1312.10		97.50	1.50E+01		-8.43E-01	7.20E+00
	CR-51	320.08		9.83	2.17E+01	2.17E+01	-1.86E+01	1.07E+01
	MN-54	834.83		99.97	2.62E-01	2.62E-01	0.00E+00	1.28E-01
	CO-56	846.75		99.96	4.80E-01	4.80E-01	-9.00E-02	2.34E-01
		1037.75		14.03	3.40E+00		5.35E-01	1.64E+00
		1238.25		67.00	1.46E+00		7.35E+00	7.18E-01
		1771.40		15.51	2.36E+00		1.06E-02	1.10E+00
		2598.48		16.90	8.61E-01		1.31E-01	3.42E-01
	CO-57	122.06		85.51	2.07E-01	2.07E-01	1.03E-01	1.02E-01
		136.48		10.60	1.75E+00		-5.31E-01	8.68E-01
	CO-58	810.76		99.40	5.07E-01	5.07E-01	-1.48E-01	2.47E-01
	FE-59	1099.22		56.50	1.67E+00	1.67E+00	-6.88E-01	8.09E-01
		1291.56		43.20	2.07E+00		-2.90E-01	9.94E-01
	CO-60	1173.22		100.00	2.19E-01	2.11E-01	3.92E-02	1.06E-01
		1332.49		100.00	2.11E-01		1.47E-04	1.01E-01
	ZN-65	1115.52		50.75	5.97E-01	5.97E-01	8.56E-02	2.90E-01
	GA-67	93.31		35.70	7.20E+08	7.20E+08	5.86E+09	3.58E+08
		208.95		2.24	1.15E+10		3.08E+09	5.72E+09
		300.22		16.00	1.95E+09		3.98E+08	9.64E+08
	SE-75	121.11		16.70	1.44E+00	4.30E-01	2.58E-01	7.16E-01
		136.00		59.20	4.30E-01		-9.41E-02	2.13E-01
		264.65		59.80	5.21E-01		1.39E-01	2.58E-01
		279.53		25.20	1.28E+00		-1.32E+00	6.31E-01
		400.65		11.40	3.08E+00		-9.24E-02	1.52E+00
	RB-82	776.52		13.00	2.10E+01	2.10E+01	1.21E+01	1.02E+01
	RB-83	520.41		46.00	8.32E-01	8.32E-01	6.15E-02	4.08E-01
		529.64		30.30	1.33E+00		-2.47E-01	6.51E-01
		552.65		16.40	2.45E+00		3.20E-01	1.20E+00
	KR-85	513.99		0.43	4.42E+01	4.42E+01	-8.84E+00	2.17E+01
	SR-85	513.99		99.27	5.47E-01	5.47E-01	-1.09E-01	2.69E-01
	Y-88	898.02		93.40	4.46E-01	3.66E-01	-5.88E-02	2.17E-01
		1836.01		99.38	3.66E-01		3.78E-01	1.73E-01
	MO-93	263.06		56.72	3.21E-01	1.83E-01	8.35E-02	1.59E-01
		684.67		99.68	1.83E-01		5.46E-02	8.91E-02
		1477.11		99.08	2.56E-01		-1.17E-01	1.24E-01
+	NB-93M	16.57	*	9.43	2.62E+02	2.62E+02	1.99E+02	1.30E+02
	NB-94	702.63		100.00	1.97E-01	1.97E-01	1.97E-01	9.63E-02
		871.10		100.00	2.05E-01		-8.00E-02	9.98E-02
	NB-95	765.79		99.81	2.31E+00	2.31E+00	1.05E+01	1.14E+00
	NB-95M	235.69		25.00	1.43E+08	1.43E+08	-2.49E+08	7.09E+07
	ZR-95	724.18		43.70	1.25E+00	1.01E+00	2.61E-01	6.11E-01
		756.72		55.30	1.01E+00		8.78E-02	4.94E-01
	MO-99	181.06		6.20	1.79E+11	1.06E+11	-2.41E+10	8.88E+10
		739.58		12.80	1.06E+11		6.22E+09	5.17E+10

Analysis Report for 1707089-08

HTC-A04-S002-0006-01

	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	2.93E+11	1.06E+11	1.65E+11	1.42E+11
	RU-103	497.08		89.00	1.14E+00	1.14E+00	2.92E-02	5.58E-01
	RU-106	621.84		9.80	1.94E+00	1.94E+00	-9.14E-01	9.43E-01
	AG-108M	433.93		89.90	2.04E-01	2.04E-01	1.87E-02	1.01E-01
		614.37		90.40	3.42E-01		2.85E-02	1.69E-01
		722.95		90.50	2.14E-01		9.07E-04	1.04E-01
+	CD-109	88.03	*	3.72	1.23E+01	1.23E+01	2.91E+01	6.14E+00
	AG-110M	657.75		93.14	2.46E-01	2.46E-01	4.37E-02	1.20E-01
		677.61		10.53	2.16E+00		3.41E-01	1.05E+00
		706.67		16.46	1.51E+00		-3.29E-02	7.35E-01
		763.93		21.98	1.37E+00		3.69E-02	6.71E-01
		884.67		71.63	3.91E-01		-9.00E-02	1.90E-01
		1384.27		23.94	1.31E+00		-4.76E-01	6.33E-01
	CD-113M	263.70		0.02	7.77E+02	7.77E+02	2.06E+02	3.84E+02
	SN-113	255.12		1.93	1.72E+01	5.50E-01	-1.53E+01	8.51E+00
		391.69		64.90	5.50E-01		4.90E-01	2.71E-01
	TE123M	159.00		84.10	3.28E-01	3.28E-01	-8.64E-03	1.63E-01
	SB-124	602.71		97.87	6.03E-01	6.03E-01	-1.98E-01	2.95E-01
		645.85		7.26	6.91E+00		-2.61E-01	3.37E+00
		722.78		11.10	5.44E+00		2.31E-02	2.65E+00
		1691.02		49.00	1.24E+00		5.13E-01	5.88E-01
	I-125	35.49		6.49	1.46E+01	1.46E+01	-1.05E+01	7.25E+00
	SB-125	176.33		6.89	2.43E+00	7.04E-01	-8.73E-02	1.20E+00
		427.89		29.33	7.04E-01		1.80E-01	3.47E-01
		463.38		10.35	1.92E+00		7.03E-01	9.43E-01
		600.56		17.80	1.15E+00		1.45E-01	5.62E-01
		635.90		11.32	1.57E+00		2.56E-01	7.65E-01
	SB-126	414.70		83.30	6.08E+01	4.61E+01	3.13E+00	3.00E+01
		666.33		99.60	5.65E+01		1.44E+02	2.77E+01
		695.00		99.60	4.61E+01		2.85E+00	2.25E+01
		720.50		53.80	9.34E+01		6.89E+01	4.56E+01
+	SN-126	87.57	*	37.00	1.07E+00	1.07E+00	2.52E+00	5.32E-01
	SB-127	473.00		25.00	4.05E+07	2.80E+07	7.48E+06	1.99E+07
		685.20		35.70	2.80E+07		8.38E+06	1.37E+07
		783.80		14.70	8.46E+07		1.16E+08	4.13E+07
	I-129	29.78		57.00	9.44E-01	9.44E-01	-3.55E-01	4.68E-01
		33.60		13.20	2.68E+00		-1.82E+00	1.33E+00
		39.58		7.52	3.20E+00		-1.61E+00	1.58E+00
	I-131	284.30		6.05	1.57E+04	1.09E+03	8.06E+03	7.76E+03
		364.48		81.20	1.09E+03		-8.83E+01	5.36E+02
		636.97		7.26	1.20E+04		2.55E+03	5.86E+03
		722.89		1.80	5.49E+04		2.33E+02	2.68E+04
	TE-132	49.72		13.10	2.00E+09	2.98E+08	-1.09E+10	9.90E+08
		228.16		88.00	2.98E+08		1.36E+08	1.48E+08
	BA-133	81.00		33.00	5.42E-01	5.42E-01	-4.61E+00	2.69E-01
		302.84		17.80	1.05E+00		1.87E-01	5.18E-01
		356.01		60.00	6.39E-01		-1.67E-02	3.18E-01
	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	XE-133	81.00		38.00	2.26E+05	2.26E+05	-1.92E+06	1.12E+05
	CS-134	563.23		8.38	2.35E+00	2.43E-01	-1.90E-01	1.15E+00
		569.32		15.43	1.28E+00		-4.54E-01	6.25E-01
		604.70		97.60	3.49E-01		-1.26E+01	1.73E-01
		795.84		85.40	2.43E-01		5.25E-02	1.18E-01

Analysis Report for 1707089-08

HTC-A04-S002-0006-01

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	2.48E+00	2.43E-01	-2.01E-01	1.21E+00
CS-135	268.24	16.00	1.19E+00	1.19E+00	-2.49E-01	5.91E-01
@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41	28.60	1.00E+26		1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		1.00E+26	1.00E+20
CS-136	153.22	7.46	3.98E+02	3.64E+01	-1.15E+02	1.97E+02
	163.89	4.61	6.31E+02		5.28E+02	3.13E+02
	176.55	13.56	2.13E+02		-7.66E+00	1.06E+02
	273.65	12.66	2.92E+02		3.95E+02	1.45E+02
	340.57	48.50	7.18E+01		2.00E+00	3.54E+01
	818.50	99.70	3.64E+01		1.01E+01	1.77E+01
	1048.07	79.60	4.87E+01		-2.47E+01	2.36E+01
	1235.34	19.70	3.37E+02		7.75E+02	1.65E+02
CS-137	661.65	85.12	2.32E-01	2.32E-01	-2.56E-01	1.14E-01
LA-138	788.74	34.00	6.32E-01	3.26E-01	-5.42E-02	3.09E-01
	1435.80	66.00	3.26E-01		2.36E-02	1.56E-01
CE-139	165.85	80.35	3.21E-01	3.21E-01	2.41E-01	1.59E-01
BA-140	162.64	6.70	5.07E+02	1.58E+02	-1.57E+02	2.51E+02
	304.84	4.50	8.58E+02		-5.78E+02	4.24E+02
	423.70	3.20	1.32E+03		-4.61E+02	6.48E+02
	437.55	2.00	1.98E+03		1.51E+03	9.75E+02
	537.32	25.00	1.58E+02		8.65E+01	7.76E+01
LA-140	328.77	20.50	1.94E+02	5.51E+01	-1.07E+02	9.57E+01
	487.03	45.50	8.79E+01		2.71E+01	4.32E+01
	815.85	23.50	1.71E+02		-7.49E+01	8.32E+01
	1596.49	95.49	5.51E+01		5.94E+01	2.65E+01
CE-141	145.44	48.40	2.69E+00	2.69E+00	1.85E+00	1.33E+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	1.67E+00	1.67E+00	-5.40E-01	8.30E-01
PM-144	476.78	42.00	5.25E-01	2.03E-01	-1.37E-03	2.58E-01
	618.01	98.60	2.03E-01		-5.57E-02	9.92E-02
	696.49	99.49	2.21E-01		7.03E-03	1.08E-01
PM-145	36.85	21.70	1.29E+00	6.88E-01	-1.72E-01	6.40E-01
	37.36	39.70	6.88E-01		-1.63E-01	3.41E-01
	42.30	15.10	1.45E+00		2.83E-02	7.16E-01
	72.40	2.31	8.72E+00		-7.12E+01	4.34E+00
PM-146	453.90	39.94	4.86E-01	4.86E-01	2.77E-01	2.39E-01
	735.90	14.01	1.27E+00		-5.45E-01	6.16E-01
	747.13	13.10	1.48E+00		-4.57E-01	7.21E-01
ND-147	91.11	28.90	3.35E+02	3.35E+02	-1.62E+02	1.66E+02
	531.02	13.10	7.34E+02		2.31E+02	3.60E+02
PM-149	285.90	3.10	1.83E+14	1.83E+14	8.34E+13	9.07E+13
EU-152	121.78	20.50	6.77E-01	6.77E-01	3.37E-01	3.36E-01
	244.69	5.40	4.97E+00		1.35E+00	2.47E+00
	344.27	19.13	9.66E-01		5.18E-02	4.77E-01
	778.89	9.20	2.05E+00		4.99E-01	9.96E-01
	964.01	10.40	2.10E+00		5.62E-01	1.02E+00
	1085.78	7.22	2.87E+00		-9.48E-01	1.39E+00
	1112.02	9.60	2.24E+00		7.27E-01	1.09E+00
	1407.95	14.94	2.12E+00		4.89E+00	1.03E+00
GD-153	97.43	31.30	5.72E-01	5.72E-01	2.41E-01	2.84E-01

Analysis Report for 1707089-08

HTC-A04-S002-0006-01

	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	7.72E-01	5.72E-01	-6.74E-01	3.83E-01
	EU-154	123.07		40.50	3.46E-01	3.46E-01	4.18E-02	1.72E-01
		723.30		19.70	1.00E+00		4.25E-03	4.88E-01
		873.19		11.50	1.84E+00		5.28E-03	8.97E-01
		996.32		10.30	2.12E+00		1.48E-01	1.03E+00
		1004.76		17.90	1.26E+00		3.37E-01	6.12E-01
		1274.45		35.50	5.78E-01		-1.89E-02	2.78E-01
	EU-155	86.50		30.90	6.10E-01	6.10E-01	1.81E+00	3.03E-01
		105.30		20.70	6.53E-01		-4.04E-01	3.24E-01
	EU-156	811.77		10.40	1.67E+02	1.67E+02	1.14E+00	8.13E+01
		1153.47		7.20	3.51E+02		7.09E+02	1.71E+02
		1230.71		8.90	2.07E+02		1.53E+01	9.98E+01
	HO-166M	184.41		72.60	3.10E-01	3.10E-01	2.72E+00	1.54E-01
		280.45		29.60	6.11E-01		-4.18E-01	3.02E-01
		410.94		11.10	1.76E+00		-1.36E-01	8.66E-01
		711.69		54.10	3.40E-01		3.94E-02	1.66E-01
	TM-171	66.72		0.14	1.39E+02	1.39E+02	8.39E+01	6.91E+01
	HF-172	67.35		5.31	3.59E+00	1.35E+00	1.42E+00	1.78E+00
		125.81		11.30	1.35E+00		-1.24E+00	6.68E-01
	LU-172	181.53		20.60	2.19E+04	9.26E+03	-4.45E+03	1.09E+04
		900.72		29.81	2.09E+04		-1.80E+03	1.02E+04
		1093.66		62.50	9.26E+03		-1.13E+03	4.48E+03
+	LU-173	100.72		5.24	2.87E+00	1.67E+00	8.40E-01	1.42E+00
		272.11	*	21.20	1.67E+00		3.20E+00	8.29E-01
	HF-175	343.40		84.00	5.78E-01	5.78E-01	3.10E-02	2.85E-01
	LU-176	88.34		13.30	1.37E+00	1.88E-01	-3.59E+00	6.82E-01
		201.83		86.00	1.88E-01		2.73E-02	9.33E-02
		306.78		94.00	1.91E-01		5.56E-02	9.45E-02
	HF-181	133.02		41.70	1.72E+00	1.15E+00	-8.20E-01	8.54E-01
		345.85		17.20	5.45E+00		2.89E-01	2.69E+00
		482.03		82.80	1.15E+00		-1.74E-02	5.66E-01
	TA-182	67.75		41.20	7.60E-01	7.60E-01	3.01E-01	3.78E-01
		1121.30		34.90	3.07E+00		2.82E+01	1.52E+00
		1189.05		16.23	2.25E+00		-4.77E-01	1.08E+00
		1221.41		26.98	1.34E+00		-5.25E-01	6.43E-01
		1231.02		11.44	3.20E+00		2.36E-01	1.54E+00
	IR-192	308.46		29.68	1.52E+00	9.57E-01	-1.66E-02	7.50E-01
		468.07		48.10	9.57E-01		1.83E-01	4.70E-01
	HG-203	279.19		77.30	1.03E+00	1.03E+00	-1.04E+00	5.07E-01
	TL-204	374.74		94.11	2.01E-01	2.01E-01	5.11E-02	9.93E-02
		899.15		99.16	2.27E-01		-2.11E-01	1.11E-01
		911.74		91.10	2.63E-01		2.04E-01	1.28E-01
	BI-207	569.67		97.72	1.87E-01	1.87E-01	1.71E-02	9.16E-02
		1063.62		74.90	2.77E-01		-8.05E-02	1.34E-01
	TL-208	583.14		30.22	6.68E-01	3.49E-01	9.93E-01	3.28E-01
		860.37		4.48	4.64E+00		3.66E-01	2.26E+00
		2614.66		35.85	3.49E-01		3.37E-01	1.57E-01
	BI-210M	262.00		45.00	4.09E-01	4.09E-01	1.03E-01	2.02E-01
		300.00		23.00	9.66E-01		1.98E-01	4.79E-01
+	PB-210	46.50	*	4.25	5.52E+00	5.52E+00	1.62E+01	2.74E+00
	PB-211	404.84		2.90	6.98E+00	6.98E+00	4.34E+00	3.44E+00
		831.96		2.90	7.06E+00		-5.10E-01	3.44E+00
	BI-212	727.17		11.80	1.55E+00	1.55E+00	2.51E-01	7.54E-01

Analysis Report for 1707089-08

HTC-A04-S002-0006-01

	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	7.80E+00	1.55E+00	8.28E-01	3.73E+00
+	PB-212	238.63	*	44.60	7.97E-01	7.97E-01	4.81E-01	3.97E-01
		300.09		3.41	6.52E+00		1.33E+00	3.23E+00
+	BI-214	609.31	*	46.30	7.83E-01	7.83E-01	3.46E+01	3.87E-01
		1120.29	*	15.10	2.35E+00		3.55E+01	1.15E+00
		1764.49	*	15.80	1.32E+00		3.95E+01	6.29E-01
		2204.22	*	4.98	3.15E+00		3.71E+01	1.46E+00
+	PB-214	295.21	*	19.19	1.24E+00	8.05E-01	3.75E+01	6.13E-01
		351.92	*	37.19	8.05E-01		3.84E+01	3.99E-01
	RN-219	401.80		6.50	3.09E+00	3.09E+00	-2.07E-01	1.53E+00
	RA-223	323.87		3.88	4.67E+00	4.67E+00	-1.49E+00	2.30E+00
	RA-224	240.98		3.95	7.02E+00	7.02E+00	6.81E+01	3.49E+00
	RA-225	40.00		31.00	7.84E+01	7.84E+01	-3.96E+01	3.89E+01
+	RA-226	186.21	*	3.28	8.93E+00	8.93E+00	7.71E+01	4.44E+00
	TH-227	50.10		8.40	2.16E+00	1.70E+00	-1.18E+01	1.07E+00
		236.00		11.50	1.70E+00		-2.96E+00	8.44E-01
		256.20		6.30	2.97E+00		1.51E+00	1.47E+00
	AC-228	338.32		11.40	1.66E+00	8.25E-01	1.88E-01	8.19E-01
		911.07		27.70	8.25E-01		4.26E-01	4.02E-01
		969.11		16.60	1.27E+00		-3.07E-01	6.15E-01
	TH-230	48.44		16.90	1.20E+00	1.20E+00	1.83E+00	5.94E-01
		62.85		4.60	4.32E+00		2.47E+01	2.15E+00
		67.67		0.37	4.65E+01		1.84E+01	2.31E+01
	PA-231	283.67		1.60	1.15E+01	7.97E+00	4.07E+00	5.70E+00
		302.67		2.30	7.97E+00		1.42E+00	3.94E+00
+	TH-231	25.64		14.70	6.89E+00	6.01E+00	1.15E+00	3.41E+00
		84.21	*	6.40	6.01E+00		5.12E+00	3.00E+00
	PA-233	311.98		38.60	5.87E+00	5.87E+00	-1.41E+00	2.90E+00
	PA-234	131.20		20.40	7.00E-01	7.00E-01	1.45E-01	3.47E-01
		733.99		8.80	1.94E+00		-9.83E-01	9.44E-01
		946.00		12.00	1.75E+00		-1.63E-02	8.51E-01
+	PA-234M	1001.03	*	0.92	2.87E+01	2.87E+01	3.58E+01	1.40E+01
+	TH-234	63.29	*	3.80	5.49E+00	5.49E+00	2.83E+01	2.73E+00
+	U-235	143.76	*	10.50	1.97E+00	1.97E+00	3.01E+00	9.77E-01
		163.35	*	4.70	3.47E+00		2.38E+00	1.72E+00
		205.31	*	4.70	4.06E+00		2.75E+00	2.01E+00
	NP-237	86.50		12.60	1.44E+00	1.44E+00	4.28E+00	7.16E-01
	NP-239	106.10		22.70	2.65E+12	2.65E+12	-1.64E+12	1.32E+12
		228.18		10.70	7.96E+12		3.64E+12	3.95E+12
		277.60		14.10	6.07E+12		-4.00E+12	3.00E+12
	AM-241	59.54		35.90	4.78E-01	4.78E-01	-1.37E-01	2.37E-01
	AM-243	74.67		66.00	3.67E-01	3.67E-01	1.87E+00	1.83E-01
	CM-243	209.75		3.29	5.57E+00	1.33E+00	1.36E+00	2.76E+00
		228.14		10.60	1.75E+00		8.00E-01	8.67E-01
		277.60		14.00	1.33E+00		-8.77E-01	6.58E-01

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

Analysis Report for 1707089-08

HTC-A04-S002-0006-01

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A04-S002-0006-01

Elapsed Live time: 3600
Elapsed Real Time: 3625

Channel								
1:	0	0	0	0	0	0	0	0
9:	92	933	891	878	911	915	888	910
17:	903	818	770	747	778	791	743	771
25:	772	711	770	748	746	682	735	730
33:	736	676	705	678	748	737	758	772
41:	785	793	833	817	890	1137	1648	1191
49:	948	1002	989	998	1231	1275	1108	1033
57:	1095	1178	1253	1323	1390	1552	2230	2760
65:	1879	1518	1565	1737	1627	1577	1625	1721
73:	1697	2416	4026	3948	5258	5436	2588	1885
81:	1730	1657	1588	1917	1852	1581	2362	2545
89:	1867	1816	1716	2028	3261	2419	1499	1196
97:	1075	1071	1144	1035	974	1023	989	962
105:	989	1040	991	997	1045	1070	1081	1072
113:	1093	1119	1074	972	976	1036	925	975
121:	989	1019	1038	973	942	970	1043	979
129:	1019	1083	1009	984	970	1003	980	989
137:	1012	948	1023	1010	1043	983	1117	1276
145:	1234	1053	982	970	1060	1056	1066	1015
153:	1065	1137	1114	1012	977	982	974	947
161:	934	919	965	1000	1015	860	877	862
169:	858	809	852	863	910	827	848	840
177:	804	876	859	835	832	860	867	851
185:	1307	2583	2667	1146	809	756	783	691
193:	730	748	792	792	787	742	725	757
201:	740	751	749	724	675	766	666	614
209:	590	671	666	612	614	581	617	604
217:	612	590	589	607	549	584	567	598
225:	605	513	619	568	551	559	558	508
233:	538	518	549	697	696	583	669	577
241:	1036	2366	2176	856	487	457	506	497
249:	423	455	469	434	393	448	467	497
257:	495	509	563	489	452	393	408	429
265:	410	370	388	412	464	612	601	554
273:	493	465	509	427	416	389	368	376
281:	393	369	414	383	405	392	391	413
289:	359	384	367	330	372	1061	3805	4380
297:	1459	408	330	392	369	339	339	340
305:	324	319	312	328	330	327	263	336
313:	298	313	298	325	304	306	305	329
321:	282	267	294	352	316	287	301	298
329:	310	352	302	284	289	337	318	291
337:	302	349	332	292	295	256	282	275
345:	290	261	247	300	302	533	2696	7036
353:	5342	1207	303	243	240	220	223	224
361:	220	210	242	220	200	198	236	227

369:	231	210	241	251	233	223	225	228

Sample Title: HTC-A04-S002-0006-01

Channel								
377:	213	227	213	225	198	234	216	252
385:	229	246	243	266	293	260	251	231
393:	240	241	242	183	229	224	216	258
401:	218	282	261	255	268	247	210	235
409:	249	212	214	209	217	249	237	220
417:	249	245	252	238	218	213	232	231
425:	221	185	215	230	193	195	201	173
433:	178	160	197	170	190	174	162	183
441:	187	156	158	178	188	181	181	168
449:	152	177	175	169	154	166	209	190
457:	159	149	168	142	160	195	180	160
465:	163	141	151	147	166	161	156	146
473:	152	140	164	138	141	139	149	184
481:	192	160	140	136	147	170	173	172
489:	125	134	132	148	143	139	122	144
497:	127	119	147	117	121	117	138	118
505:	112	111	125	122	140	166	208	166
513:	164	98	121	115	109	133	111	106
521:	104	115	115	118	114	114	120	138
529:	111	127	115	110	139	147	125	121
537:	123	113	114	120	94	114	124	120
545:	117	94	116	107	121	100	143	114
553:	117	110	102	107	109	108	120	101
561:	88	118	115	118	117	97	94	117
569:	114	110	100	107	113	103	108	95
577:	121	98	116	159	140	126	136	125
585:	108	102	92	92	84	110	94	111
593:	103	106	90	101	99	116	128	89
601:	92	116	99	117	100	120	205	1263
609:	4119	4307	1303	179	87	98	87	90
617:	85	81	68	64	64	78	68	68
625:	68	64	75	74	68	88	73	70
633:	70	82	75	79	66	85	55	94
641:	83	77	66	61	51	67	61	77
649:	80	71	72	62	58	68	79	75
657:	79	69	69	81	76	79	90	97
665:	179	194	122	87	77	73	59	70
673:	72	69	91	78	51	69	68	74
681:	65	67	63	78	79	72	83	79
689:	71	69	74	68	75	63	78	73
697:	92	68	74	74	78	89	107	94
705:	79	85	66	72	92	58	94	55
713:	72	69	72	60	86	80	90	112
721:	91	68	70	70	66	73	79	59
729:	66	73	62	66	53	61	50	57
737:	68	68	61	76	77	100	90	90
745:	64	69	76	60	71	58	58	63
753:	80	64	69	72	77	71	59	88
761:	61	77	84	64	81	125	214	453
769:	409	164	75	76	56	49	73	76
777:	64	50	64	71	64	55	64	73
785:	122	139	119	74	60	68	66	59
793:	72	65	57	65	59	70	57	56

801:	62	57	60	77	111	136	125	74

Sample Title: HTC-A04-S002-0006-01

Channel								
809:	76	56	56	60	63	52	64	65
817:	43	59	69	65	77	77	68	59
825:	79	86	69	76	52	68	80	69
833:	69	69	74	59	68	98	113	92
841:	70	69	63	57	71	58	60	72
849:	63	66	64	70	81	64	72	60
857:	69	72	72	79	50	63	61	73
865:	57	77	65	56	70	54	65	71
873:	58	70	68	67	59	73	72	77
881:	73	65	65	70	57	63	68	78
889:	70	62	65	82	61	72	88	72
897:	60	63	75	65	56	68	78	79
905:	77	71	70	61	64	69	103	67
913:	88	60	58	64	51	61	45	62
921:	73	56	67	56	65	53	62	63
929:	63	57	52	96	167	262	190	91
937:	68	58	65	43	51	52	72	57
945:	62	54	43	56	58	71	50	44
953:	49	54	58	54	50	52	49	61
961:	44	53	65	59	75	58	55	53
969:	56	53	54	57	45	59	50	59
977:	54	52	59	49	72	44	57	49
985:	53	48	43	54	61	43	54	53
993:	60	36	56	63	59	46	61	78
1001:	103	99	59	40	42	48	48	64
1009:	51	43	40	43	72	44	51	49
1017:	56	55	51	54	51	52	55	43
1025:	42	52	53	49	53	43	48	56
1033:	39	47	46	56	37	40	42	47
1041:	38	40	42	49	57	35	54	48
1049:	42	43	55	67	54	40	42	46
1057:	35	41	44	42	43	47	40	36
1065:	47	51	51	49	57	53	43	45
1073:	55	46	43	42	43	45	32	38
1081:	50	54	47	45	42	36	45	40
1089:	43	45	40	35	41	52	36	45
1097:	45	43	43	35	41	35	46	48
1105:	49	29	42	51	51	42	47	41
1113:	41	49	38	35	50	104	476	881
1121:	682	196	48	37	35	47	44	38
1129:	33	37	45	32	52	51	48	40
1137:	30	36	37	40	38	41	43	43
1145:	34	36	43	46	31	25	40	38
1153:	47	99	141	101	50	32	35	45
1161:	35	48	29	44	38	36	44	36
1169:	34	40	30	40	41	50	36	40
1177:	38	41	54	45	52	54	41	39
1185:	44	43	23	30	35	37	43	32
1193:	31	36	34	19	27	42	35	29
1201:	45	35	35	32	38	34	61	54
1209:	49	40	36	45	38	37	36	44
1217:	34	39	40	20	30	31	34	32
1225:	39	30	32	24	51	27	37	26

1233:	32	33	33	85	258	293	192	78

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Channel								
1241:	46	30	40	32	45	37	39	23
1249:	27	30	28	42	51	44	38	27
1257:	27	32	30	24	29	36	37	41
1265:	35	22	40	36	24	31	24	31
1273:	30	29	31	36	36	32	47	84
1281:	92	92	48	28	24	32	33	30
1289:	33	26	29	28	21	26	24	29
1297:	18	31	34	36	50	32	34	28
1305:	26	35	38	26	33	38	25	27
1313:	31	23	24	25	30	34	31	23
1321:	25	26	39	32	21	27	31	25
1329:	30	31	28	28	27	29	33	29
1337:	32	32	26	34	22	23	22	34
1345:	26	34	34	25	28	29	27	22
1353:	19	44	19	37	33	28	36	24
1361:	21	24	18	28	44	26	30	24
1369:	23	25	23	26	26	21	36	129
1377:	214	184	75	42	21	30	23	58
1385:	59	41	37	28	27	25	32	25
1393:	31	26	28	24	25	39	41	65
1401:	83	77	40	31	39	53	117	135
1409:	69	20	25	26	33	23	28	30
1417:	31	20	27	32	28	25	36	40
1425:	35	28	24	26	32	24	24	22
1433:	32	26	25	30	29	35	27	43
1441:	17	25	25	32	19	35	23	40
1449:	24	32	38	35	36	31	31	29
1457:	32	39	49	74	73	51	26	38
1465:	35	33	30	25	22	30	41	33
1473:	21	33	37	23	22	33	32	27
1481:	38	30	31	26	40	29	30	22
1489:	39	34	22	30	26	30	32	24
1497:	30	29	22	36	33	28	26	25
1505:	38	39	61	96	123	74	27	22
1513:	22	32	23	39	17	23	28	22
1521:	28	26	27	35	31	20	35	40
1529:	28	30	37	25	26	38	26	25
1537:	45	31	49	24	31	29	33	33
1545:	37	28	22	20	24	25	20	25
1553:	17	23	22	22	21	24	27	18
1561:	21	22	22	20	25	17	25	14
1569:	30	22	29	20	16	18	23	15
1577:	21	28	20	18	18	51	47	36
1585:	23	37	25	26	26	15	20	20
1593:	35	20	22	26	18	22	34	29
1601:	9	22	23	22	12	27	24	14
1609:	18	22	14	26	15	15	13	18
1617:	18	22	13	19	16	21	19	21
1625:	20	22	23	26	19	12	24	14
1633:	16	13	13	18	14	24	18	14
1641:	16	14	12	6	9	9	17	12
1649:	14	15	14	9	12	13	13	16
1657:	17	26	20	39	57	43	19	10

1665:	16	6	11	11	10	7	10	12

Sample Title: HTC-A04-S002-0006-01

Channel								
1673:	13	10	13	8	7	12	17	9
1681:	8	11	23	22	15	17	16	8
1689:	6	11	15	19	18	17	16	11
1697:	3	7	11	10	9	8	14	12
1705:	8	8	4	8	11	8	10	10
1713:	8	9	18	10	7	10	11	7
1721:	4	11	13	11	7	14	29	79
1729:	135	112	41	10	5	8	4	6
1737:	12	13	5	7	8	7	10	5
1745:	8	9	5	6	8	11	8	11
1753:	5	6	7	18	7	8	10	6
1761:	33	130	431	634	375	124	23	9
1769:	2	6	5	12	7	4	3	5
1777:	8	1	8	7	7	6	8	4
1785:	8	3	5	7	5	8	2	7
1793:	13	10	11	4	5	4	11	7
1801:	10	12	8	5	6	9	10	8
1809:	5	7	1	11	4	9	7	6
1817:	8	7	8	2	7	5	6	10
1825:	10	4	3	4	12	7	8	15
1833:	9	7	9	9	19	19	15	6
1841:	7	3	6	13	22	69	83	55
1849:	29	8	11	7	12	6	3	10
1857:	10	7	6	10	11	4	9	8
1865:	7	3	6	6	5	10	8	14
1873:	17	11	7	10	7	4	8	8
1881:	6	7	11	7	5	8	4	12
1889:	7	13	3	8	7	12	15	7
1897:	5	5	6	9	4	14	1	11
1905:	7	7	9	3	6	6	2	4
1913:	8	9	12	4	6	8	6	5
1921:	9	6	7	6	9	8	9	7
1929:	6	2	6	5	9	13	14	13
1937:	15	8	7	8	5	4	6	9
1945:	9	8	7	9	9	10	3	8
1953:	3	10	6	5	13	14	8	9
1961:	9	10	10	7	8	8	8	5
1969:	7	4	9	5	9	14	3	4
1977:	6	5	4	6	5	8	2	5
1985:	9	2	4	10	4	5	5	4
1993:	6	5	4	5	7	6	3	6
2001:	6	6	7	2	8	3	2	11
2009:	4	3	11	5	6	4	7	8
2017:	7	3	4	1	2	10	5	11
2025:	5	5	9	1	6	5	4	6
2033:	7	3	1	5	3	4	5	5
2041:	7	6	6	3	5	6	4	5
2049:	8	3	3	4	2	1	4	5
2057:	8	4	2	6	3	4	6	4
2065:	4	3	3	3	2	6	5	2
2073:	4	1	6	3	6	1	4	2
2081:	1	3	1	1	6	3	6	5
2089:	6	3	2	4	3	6	2	3

2097:	3	3	5	3	3	5	1	2

Sample Title: HTC-A04-S002-0006-01

Channel								
2105:	6	2	6	3	10	4	5	5
2113:	4	4	3	15	27	32	28	7
2121:	6	3	3	1	0	7	2	0
2129:	3	0	2	0	4	1	2	3
2137:	3	3	3	1	1	4	4	0
2145:	3	0	1	2	5	3	3	4
2153:	2	6	0	4	7	5	2	3
2161:	2	2	1	2	1	3	4	3
2169:	2	1	1	4	2	3	2	1
2177:	1	2	3	1	3	4	1	3
2185:	4	6	5	0	3	3	4	4
2193:	8	4	3	3	2	4	4	4
2201:	27	92	132	111	61	12	7	1
2209:	1	2	0	1	4	1	3	1
2217:	5	2	0	2	1	1	2	1
2225:	5	3	0	4	0	6	3	2
2233:	2	2	0	0	1	2	5	8
2241:	2	3	1	2	1	1	1	2
2249:	2	1	2	1	0	0	0	1
2257:	1	0	1	1	2	2	1	2
2265:	4	3	2	1	0	2	1	3
2273:	2	0	1	0	4	2	4	3
2281:	3	1	1	0	2	0	2	1
2289:	3	2	2	8	10	4	0	1
2297:	1	3	0	1	0	1	2	1
2305:	1	2	1	2	0	4	2	1
2313:	1	3	1	3	2	2	1	1
2321:	1	4	0	0	0	2	1	0
2329:	2	1	2	0	2	1	2	3
2337:	2	1	0	1	2	0	1	1
2345:	1	0	1	1	2	0	0	3
2353:	0	1	0	1	1	1	1	1
2361:	0	1	1	0	2	0	1	1
2369:	1	1	0	1	0	0	0	0
2377:	1	1	1	2	0	1	1	1
2385:	1	1	1	0	0	2	1	3
2393:	0	0	1	1	0	1	1	0
2401:	0	1	0	0	2	3	3	0
2409:	1	1	0	1	1	0	2	1
2417:	0	0	0	1	3	0	1	0
2425:	0	2	0	0	2	1	1	1
2433:	1	1	1	0	1	1	0	2
2441:	0	0	1	3	16	34	30	30
2449:	10	1	1	1	1	0	0	0
2457:	0	1	1	1	0	2	1	1
2465:	1	1	1	1	0	0	0	0
2473:	2	0	0	0	2	0	0	0
2481:	0	1	0	0	0	0	1	2
2489:	1	2	1	0	0	1	1	1
2497:	0	1	0	0	0	0	1	0
2505:	0	2	0	1	0	0	0	0
2513:	0	0	0	0	0	1	0	0
2521:	0	1	0	0	0	1	1	0

2529:	1	1	0	1	0	1	0	0

Sample Title: HTC-A04-S002-0006-01

Channel								
2537:	0	1	0	0	1	0	1	1
2545:	0	0	1	0	0	1	0	0
2553:	0	0	1	1	0	0	0	1
2561:	1	0	0	1	0	0	0	0
2569:	1	0	1	0	1	1	0	0
2577:	0	0	0	0	0	0	0	0
2585:	0	0	0	0	0	0	1	0
2593:	0	1	0	2	0	1	0	0
2601:	0	1	0	1	0	1	1	0
2609:	0	0	0	9	7	9	1	1
2617:	0	0	0	0	0	0	0	0
2625:	0	0	0	0	0	1	0	0
2633:	1	0	2	0	0	0	0	0
2641:	0	1	0	0	0	0	0	0
2649:	0	0	0	0	0	1	1	1
2657:	0	1	0	1	0	2	1	0
2665:	2	0	0	1	0	0	0	0
2673:	1	0	0	0	0	0	1	0
2681:	0	0	0	0	1	0	0	0
2689:	0	0	1	0	1	0	0	1
2697:	1	0	0	0	0	0	0	0
2705:	1	0	0	0	0	0	0	1
2713:	0	0	0	0	0	0	0	0
2721:	0	1	1	1	0	0	0	1
2729:	1	1	0	0	0	0	0	0
2737:	0	0	0	1	0	0	0	0
2745:	0	0	1	1	0	2	1	0
2753:	0	0	0	0	1	0	1	0
2761:	0	0	0	0	0	2	0	0
2769:	1	2	0	0	0	0	0	0
2777:	0	0	0	0	0	0	0	1
2785:	0	1	0	0	0	1	0	0
2793:	0	0	0	0	0	0	1	0
2801:	0	0	0	0	0	0	0	1
2809:	0	0	0	0	0	0	0	0
2817:	1	0	0	0	0	0	0	1
2825:	0	0	0	0	0	0	1	0
2833:	0	0	0	0	0	0	0	0
2841:	0	0	0	0	0	0	0	0
2849:	0	0	0	0	0	0	0	0
2857:	0	0	0	0	0	0	1	0
2865:	0	0	0	1	0	0	0	0
2873:	0	0	0	0	0	0	0	0
2881:	0	0	0	1	0	0	2	0
2889:	0	1	1	1	0	0	0	0
2897:	1	0	0	0	0	0	0	1
2905:	0	0	0	1	0	1	0	0
2913:	0	0	0	0	0	0	1	2
2921:	3	0	0	1	0	0	0	1
2929:	0	0	0	0	0	0	0	0
2937:	0	0	0	0	0	0	0	0
2945:	0	0	0	0	0	0	1	0
2953:	1	0	0	0	0	0	0	0

2961:	1	0	0	0	1	0	0	0

Sample Title: HTC-A04-S002-0006-01

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

3393:	0	0	0	0	0	0	1	0

Sample Title: HTC-A04-S002-0006-01

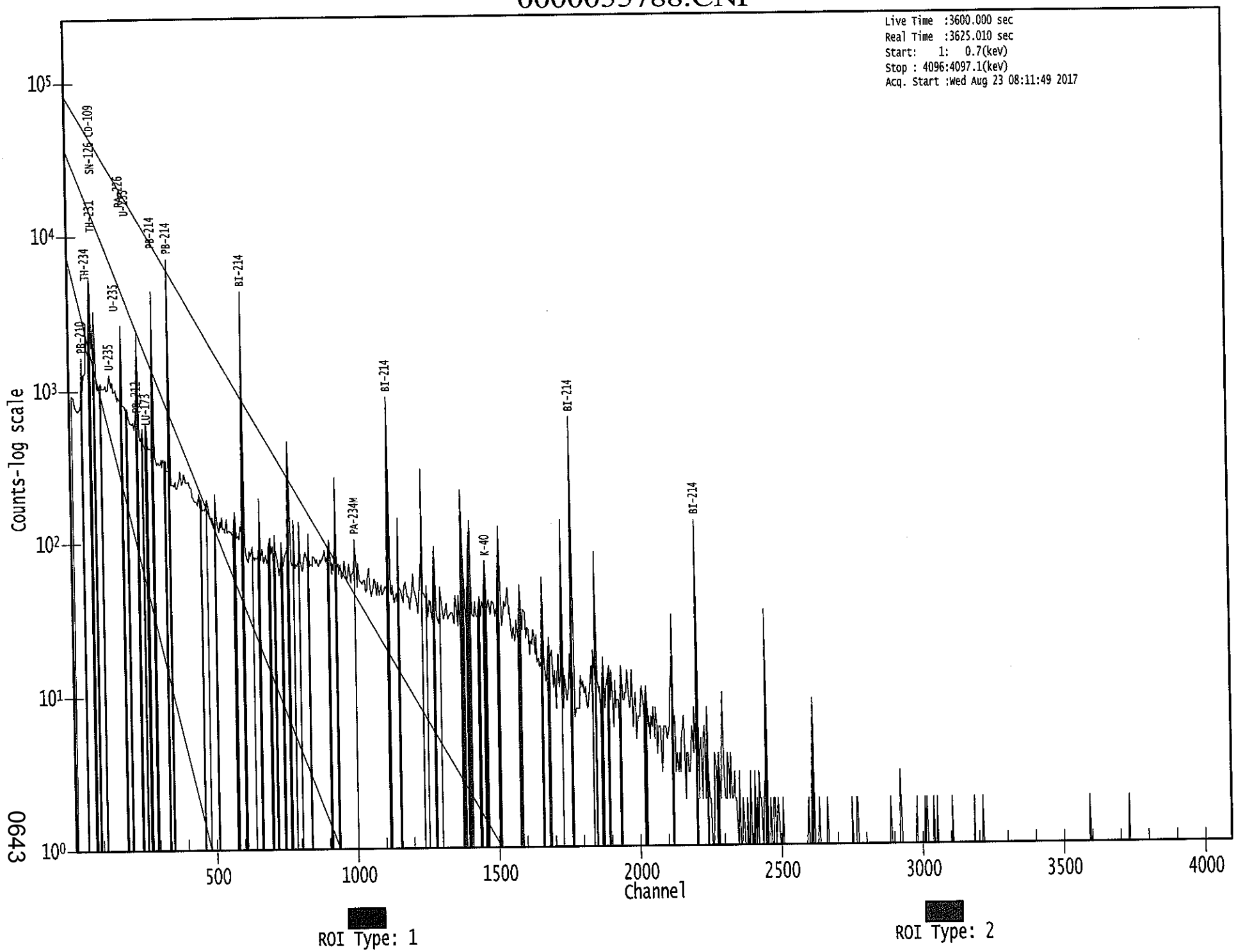
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	1	0	1
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	1	0	0	0
3473:	0	0	0	0	0	0	1	0
3481:	0	0	0	1	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	1	0	0	0	1	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A04-S002-0006-01

Channel								
3833:	0	0	0	0	0	0	0	0
3841:	0	0	0	0	0	0	0	0
3849:	0	0	0	0	0	0	0	1
3857:	0	0	0	1	1	1	0	0
3865:	0	0	0	0	0	0	0	0
3873:	0	0	0	0	0	0	0	0
3881:	0	0	0	0	0	0	0	0
3889:	0	0	0	0	0	0	1	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	0	0	0	0	0
3929:	0	0	1	0	0	0	0	0
3937:	0	0	0	0	0	0	0	0
3945:	0	0	0	1	0	0	0	1
3953:	0	0	0	0	0	0	0	0
3961:	0	0	0	0	0	0	0	1
3969:	0	0	0	0	0	0	0	0
3977:	0	0	0	0	0	0	0	0
3985:	0	0	1	0	0	0	0	1
3993:	0	0	0	1	0	0	0	1
4001:	0	0	0	0	0	0	0	0
4009:	0	0	0	1	0	0	0	0
4017:	0	1	0	0	0	0	0	0
4025:	0	0	0	0	0	0	1	0
4033:	0	1	0	0	0	1	0	0
4041:	0	1	0	0	0	0	0	0
4049:	0	0	0	0	0	0	0	0
4057:	0	0	1	0	0	0	0	0
4065:	0	0	0	0	0	0	0	1
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

0000055788.CNF



0643

Apex-Gamma

Analysis Report for 1707089-09
HTC-A04-S002-0612-01

C
8/23

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707089-09
Sample Description	: HTC-A04-S002-0612-01
Sample Type	: SOIL
Sample Size	: 8.096E+02 grams
Facility	: Countroom
Sample Taken On	: 5/16/2017 6:48:36AM
Acquisition Started	: 8/23/2017 8:12:03AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3625.5 seconds
Dead Time	: 0.70 %
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	: 55789

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/23/17

Analysis Report for 1707089-09

HTC-A04-S002-0612-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/23/2017 9:13:29AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	46.34	45.39	0.0000	0.00
2	63.26	62.31	0.0000	0.00
3	76.21	75.27	0.0000	0.00
4	83.90	82.96	0.0000	0.00
5	87.53	86.59	0.0000	0.00
6	92.65	91.71	0.0000	0.00
7	113.28	112.35	0.0000	0.00
8	143.59	142.67	0.0000	0.00
9	154.34	153.42	0.0000	0.00
10	162.99	162.07	0.0000	0.00
11	185.92	185.01	0.0000	0.00
12	211.59	210.69	0.0000	0.00
13	242.16	241.27	0.0000	0.00
14	258.58	257.69	0.0000	0.00
15	270.47	269.59	0.0000	0.00
16	295.24	294.37	0.0000	0.00
17	314.04	313.18	0.0000	0.00
18	329.00	328.14	0.0000	0.00
19	351.95	351.10	0.0000	0.00
20	389.01	388.17	0.0000	0.00
21	455.18	454.36	0.0000	0.00
22	480.71	479.90	0.0000	0.00
23	487.34	486.54	0.0000	0.00
24	510.44	509.65	0.0000	0.00
25	536.52	535.73	0.0000	0.00
26	609.22	608.46	0.0000	0.00
27	665.02	664.28	0.0000	0.00
28	703.04	702.32	0.0000	0.00
29	742.20	741.50	0.0000	0.00
30	768.27	767.58	0.0000	0.00
31	786.02	785.33	0.0000	0.00
32	806.42	805.74	0.0000	0.00
33	839.32	838.66	0.0000	0.00
34	909.55	908.91	0.0000	0.00
35	917.17	916.54	0.0000	0.00
36	933.79	933.16	0.0000	0.00
37	977.28	976.67	0.0000	0.00
38	1001.10	1000.50	0.0000	0.00
39	1120.13	1119.59	0.0000	0.00
40	1155.00	1154.47	0.0000	0.00
41	1182.10	1181.59	0.0000	0.00
42	1237.96	1237.47	0.0000	0.00

Analysis Report for 1707089-09

HTC-A04-S002-0612-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1253.53	1253.05	0.0000	0.00
44	1280.51	1280.04	0.0000	0.00
45	1377.28	1376.87	0.0000	0.00
46	1385.43	1385.02	0.0000	0.00
47	1401.04	1400.64	0.0000	0.00
48	1407.60	1407.20	0.0000	0.00
49	1460.50	1460.13	0.0000	0.00
50	1508.79	1508.44	0.0000	0.00
51	1537.89	1537.55	0.0000	0.00
52	1543.34	1543.01	0.0000	0.00
53	1583.35	1583.04	0.0000	0.00
54	1621.51	1621.22	0.0000	0.00
55	1660.84	1660.57	0.0000	0.00
56	1693.53	1693.28	0.0000	0.00
57	1729.04	1728.81	0.0000	0.00
58	1764.00	1763.79	0.0000	0.00
59	1810.34	1810.15	0.0000	0.00
60	1838.35	1838.17	0.0000	0.00
61	1846.98	1846.82	0.0000	0.00
62	1986.96	1986.87	0.0000	0.00
63	2117.90	2117.89	0.0000	0.00
64	2136.81	2136.81	0.0000	0.00
65	2203.44	2203.48	0.0000	0.00
66	2229.24	2229.30	0.0000	0.00
67	2293.79	2293.90	0.0000	0.00
68	2446.87	2447.07	0.0000	0.00
69	2466.98	2467.20	0.0000	0.00
70	2494.10	2494.33	0.0000	0.00
71	2613.68	2614.00	0.0000	0.00
72	2921.27	2921.80	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707089-09

HTC-A04-S002-0612-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/23/2017 9:13:29AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	46.34	42 -	49	45.39	9.07E+02	283.70	1.29E+04	2.08
	2	63.26	60 -	66	62.31	1.59E+03	331.96	1.90E+04	2.07
	3	76.21	69 -	81	75.27	1.16E+04	599.58	3.68E+04	3.89
M	4	83.90	81 -	96	82.96	5.11E+02	243.34	1.32E+04	1.50
m	5	87.53	81 -	96	86.59	2.28E+03	358.56	1.96E+04	2.64
m	6	92.65	81 -	96	91.71	3.66E+03	358.20	1.74E+04	2.65
	7	113.28	110 -	115	112.35	2.87E+02	233.44	1.06E+04	2.71
	8	143.59	139 -	146	142.67	6.85E+02	293.13	1.39E+04	2.70
	9	154.34	151 -	157	153.42	2.72E+02	260.11	1.21E+04	2.28
	10	162.99	160 -	165	162.07	2.34E+02	216.54	9.13E+03	2.74
	11	185.92	180 -	189	185.01	3.85E+03	328.29	1.32E+04	2.38
	12	211.59	208 -	214	210.69	2.17E+02	199.45	7.05E+03	2.43
	13	242.16	237 -	246	241.27	3.34E+03	281.53	9.17E+03	2.20
	14	258.58	255 -	260	257.69	1.26E+02	154.90	4.68E+03	2.49
	15	270.47	265 -	273	269.59	2.85E+02	208.14	6.50E+03	3.55
	16	295.24	290 -	298	294.37	6.80E+03	249.80	5.41E+03	2.36
	17	314.04	311 -	316	313.18	1.02E+02	124.08	2.99E+03	2.84
	18	329.00	326 -	331	328.14	1.50E+02	121.69	2.83E+03	3.19
	19	351.95	346 -	357	351.10	1.13E+04	293.37	5.01E+03	2.38
	20	389.01	385 -	392	388.17	1.27E+02	136.85	3.02E+03	2.78
	21	455.18	451 -	457	454.36	1.16E+02	100.12	1.72E+03	1.50
	22	480.71	477 -	483	479.90	8.96E+01	94.21	1.54E+03	2.50
	23	487.34	483 -	489	486.54	1.33E+02	93.16	1.48E+03	2.73
	24	510.44	506 -	513	509.65	1.72E+02	100.90	1.58E+03	2.47
	25	536.52	532 -	538	535.73	8.51E+01	84.62	1.23E+03	5.36
	26	609.22	603 -	612	608.46	7.61E+03	199.19	1.32E+03	2.45
	27	665.02	659 -	669	664.28	1.88E+02	105.27	1.38E+03	2.78
	28	703.04	697 -	708	702.32	1.42E+02	103.21	1.26E+03	2.33
	29	742.20	736 -	746	741.50	9.51E+01	96.41	1.19E+03	2.96
	30	768.27	763 -	772	767.58	6.35E+02	101.54	1.11E+03	2.38
	31	786.02	782 -	791	785.33	1.35E+02	89.06	1.05E+03	2.40
	32	806.42	800 -	811	805.74	2.25E+02	101.88	1.18E+03	3.31
	33	839.32	835 -	843	838.66	1.05E+02	77.98	8.66E+02	2.57
	34	909.55	905 -	913	908.91	8.31E+01	74.52	7.98E+02	1.71
	35	917.17	914 -	920	916.54	7.06E+01	58.63	5.73E+02	4.21
	36	933.79	928 -	939	933.16	3.46E+02	99.68	1.07E+03	3.21
	37	977.28	974 -	979	976.67	4.78E+01	47.70	4.16E+02	3.09
	38	1001.10	997 -	1004	1000.50	7.43E+01	65.51	6.69E+02	2.23
	39	1120.13	1115 -	1125	1119.59	1.47E+03	102.39	6.16E+02	2.59
	40	1155.00	1149 -	1160	1154.47	2.36E+02	78.89	6.59E+02	2.39

Analysis Report for 1707089-09

HTC-A04-S002-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1182.10	1179 -	1185	1181.59	5.38E+01	44.16	3.16E+02	2.83
	42	1237.96	1232 -	1243	1237.47	5.82E+02	80.10	5.13E+02	2.93
	43	1253.53	1247 -	1259	1253.05	8.20E+01	68.91	5.20E+02	2.42
	44	1280.51	1275 -	1284	1280.04	1.04E+02	61.42	4.78E+02	2.61
	45	1377.28	1371 -	1381	1376.87	3.78E+02	68.76	4.29E+02	2.83
	46	1385.43	1382 -	1390	1385.02	6.46E+01	48.97	3.31E+02	3.02
M	47	1401.04	1393 -	1414	1400.64	1.08E+02	50.25	3.08E+02	3.13
m	48	1407.60	1393 -	1414	1407.20	2.40E+02	54.49	3.12E+02	3.13
	49	1460.50	1455 -	1464	1460.13	1.02E+02	63.10	5.12E+02	2.60
	50	1508.79	1504 -	1514	1508.44	1.97E+02	65.66	4.75E+02	2.73
M	51	1537.89	1533 -	1545	1537.55	5.12E+01	52.96	3.77E+02	3.18
m	52	1543.34	1533 -	1545	1543.01	5.60E+01	35.45	1.94E+02	2.13
	53	1583.35	1579 -	1587	1583.04	5.89E+01	42.16	2.34E+02	4.22
	54	1621.51	1616 -	1627	1621.22	3.71E+01	44.81	2.28E+02	7.35
	55	1660.84	1656 -	1665	1660.57	1.01E+02	37.54	1.40E+02	3.16
	56	1693.53	1689 -	1699	1693.28	5.55E+01	33.61	1.21E+02	5.69
	57	1729.04	1723 -	1736	1728.81	2.14E+02	53.44	2.17E+02	2.63
	58	1764.00	1756 -	1771	1763.79	1.08E+03	78.94	1.91E+02	2.95
	59	1810.34	1806 -	1814	1810.15	2.01E+01	22.62	6.38E+01	5.09
M	60	1838.35	1835 -	1854	1838.17	1.51E+01	18.75	5.47E+01	2.98
m	61	1846.98	1835 -	1854	1846.82	1.57E+02	32.67	6.23E+01	2.94
	62	1986.96	1979 -	1997	1986.87	2.79E+01	34.73	9.63E+01	13.79
M	63	2117.90	2110 -	2139	2117.89	5.08E+01	21.11	3.16E+01	3.05
m	64	2136.81	2110 -	2139	2136.81	1.59E+01	12.06	8.56E+00	3.06
	65	2203.44	2196 -	2210	2203.48	2.49E+02	37.70	4.50E+01	2.73
	66	2229.24	2225 -	2232	2229.30	1.00E+01	6.32	0.00E+00	2.96
	67	2293.79	2288 -	2299	2293.90	2.75E+01	14.28	1.10E+01	1.58
	68	2446.87	2442 -	2451	2447.07	7.95E+01	18.79	5.01E+00	2.87
	69	2466.98	2463 -	2469	2467.20	5.00E+00	4.47	0.00E+00	2.31
	70	2494.10	2490 -	2496	2494.33	6.00E+00	4.90	0.00E+00	1.92
	71	2613.68	2610 -	2618	2614.00	2.90E+01	10.77	0.00E+00	1.91
	72	2921.27	2919 -	2924	2921.80	5.00E+00	4.47	0.00E+00	1.16

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 : 8/23/2017 9:13:29AM

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

Analysis Report for 1707089-09

HTC-A04-S002-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	46.34	42 -	49	9.07E+02	283.70	1.29E+04	2.28E+02
	2	63.26	60 -	66	1.59E+03	331.96	1.90E+04	2.65E+02
	3	76.21	69 -	81	1.16E+04	599.58	3.68E+04	4.60E+02
M	4	83.90	81 -	96	5.11E+02	243.34	1.32E+04	1.89E+02
m	5	87.53	81 -	96	2.28E+03	358.56	1.96E+04	2.30E+02
m	6	92.65	81 -	96	3.66E+03	358.20	1.74E+04	2.17E+02
	7	113.28	110 -	115	2.87E+02	233.44	1.06E+04	1.90E+02
	8	143.59	139 -	146	6.85E+02	293.13	1.39E+04	2.37E+02
	9	154.34	151 -	157	2.72E+02	260.11	1.21E+04	2.12E+02
	10	162.99	160 -	165	2.34E+02	216.54	9.13E+03	1.76E+02
	11	185.92	180 -	189	3.85E+03	328.29	1.32E+04	2.50E+02
	12	211.59	208 -	214	2.17E+02	199.45	7.05E+03	1.62E+02
	13	242.16	237 -	246	3.34E+03	281.53	9.17E+03	2.11E+02
	14	258.58	255 -	260	1.26E+02	154.90	4.68E+03	1.26E+02
	15	270.47	265 -	273	2.85E+02	208.14	6.50E+03	1.69E+02
	16	295.24	290 -	298	6.80E+03	249.80	5.41E+03	1.54E+02
	17	314.04	311 -	316	1.02E+02	124.08	2.99E+03	1.01E+02
	18	329.00	326 -	331	1.50E+02	121.69	2.83E+03	9.80E+01
	19	351.95	346 -	357	1.13E+04	293.37	5.01E+03	1.66E+02
	20	389.01	385 -	392	1.27E+02	136.85	3.02E+03	1.11E+02
	21	455.18	451 -	457	1.16E+02	100.12	1.72E+03	8.04E+01
	22	480.71	477 -	483	8.96E+01	94.21	1.54E+03	7.59E+01
	23	487.34	483 -	489	1.33E+02	93.16	1.48E+03	7.42E+01
	24	510.44	506 -	513	1.72E+02	100.90	1.58E+03	8.01E+01
	25	536.52	532 -	538	8.51E+01	84.62	1.23E+03	6.79E+01
	26	609.22	603 -	612	7.61E+03	199.19	1.32E+03	7.90E+01
	27	665.02	659 -	669	1.88E+02	105.27	1.38E+03	8.35E+01
	28	703.04	697 -	708	1.42E+02	103.21	1.26E+03	8.25E+01
	29	742.20	736 -	746	9.51E+01	96.41	1.19E+03	7.76E+01
	30	768.27	763 -	772	6.35E+02	101.54	1.11E+03	7.25E+01
	31	786.02	782 -	791	1.35E+02	89.06	1.05E+03	7.07E+01
	32	806.42	800 -	811	2.25E+02	101.88	1.18E+03	4.95E+01
	33	839.32	835 -	843	1.05E+02	77.98	8.66E+02	6.18E+01
	34	909.55	905 -	913	8.31E+01	74.52	7.98E+02	5.94E+01
	35	917.17	914 -	920	7.06E+01	58.63	5.73E+02	4.62E+01
	36	933.79	928 -	939	3.46E+02	99.68	1.07E+03	7.60E+01
	37	977.28	974 -	979	4.78E+01	47.70	4.16E+02	3.75E+01
	38	1001.10	997 -	1004	7.43E+01	65.51	6.69E+02	5.20E+01
	39	1120.13	1115 -	1125	1.47E+03	102.39	6.16E+02	5.59E+01
	40	1155.00	1149 -	1160	2.36E+02	78.89	6.59E+02	5.97E+01
	41	1182.10	1179 -	1185	5.38E+01	44.16	3.16E+02	3.42E+01
	42	1237.96	1232 -	1243	5.82E+02	80.10	5.13E+02	5.25E+01
	43	1253.53	1247 -	1259	8.20E+01	68.91	5.20E+02	5.46E+01
	44	1280.51	1275 -	1284	1.04E+02	61.42	4.78E+02	4.76E+01
	45	1377.28	1371 -	1381	3.78E+02	68.76	4.29E+02	4.66E+01
	46	1385.43	1382 -	1390	6.46E+01	48.97	3.31E+02	3.80E+01
M	47	1401.04	1393 -	1414	1.08E+02	50.25	3.08E+02	2.89E+01
m	48	1407.60	1393 -	1414	2.40E+02	54.49	3.12E+02	2.90E+01
	49	1460.50	1455 -	1464	1.02E+02	63.10	5.12E+02	4.91E+01
	50	1508.79	1504 -	1514	1.97E+02	65.66	4.75E+02	4.88E+01
M	51	1537.89	1533 -	1545	5.12E+01	52.96	3.77E+02	3.19E+01

Analysis Report for 1707089-09

HTC-A04-S002-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	52	1543.34	1533 -	1545	5.60E+01	35.45	1.94E+02	2.29E+01
	53	1583.35	1579 -	1587	5.89E+01	42.16	2.34E+02	3.23E+01
	54	1621.51	1616 -	1627	3.71E+01	44.81	2.28E+02	3.54E+01
	55	1660.84	1656 -	1665	1.01E+02	37.54	1.40E+02	2.61E+01
	56	1693.53	1689 -	1699	5.55E+01	33.61	1.21E+02	2.48E+01
	57	1729.04	1723 -	1736	2.14E+02	53.44	2.17E+02	3.68E+01
	58	1764.00	1756 -	1771	1.08E+03	78.94	1.91E+02	3.60E+01
	59	1810.34	1806 -	1814	2.01E+01	22.62	6.38E+01	1.71E+01
M	60	1838.35	1835 -	1854	1.51E+01	18.75	5.47E+01	1.22E+01
m	61	1846.98	1835 -	1854	1.57E+02	32.67	6.23E+01	1.30E+01
	62	1986.96	1979 -	1997	2.79E+01	34.73	9.63E+01	2.72E+01
M	63	2117.90	2110 -	2139	5.08E+01	21.11	3.16E+01	9.25E+00
m	64	2136.81	2110 -	2139	1.59E+01	12.06	8.56E+00	4.81E+00
	65	2203.44	2196 -	2210	2.49E+02	37.70	4.50E+01	1.70E+01
	66	2229.24	2225 -	2232	1.00E+01	6.32	0.00E+00	0.00E+00
	67	2293.79	2288 -	2299	2.75E+01	14.28	1.10E+01	7.97E+00
	68	2446.87	2442 -	2451	7.95E+01	18.79	5.01E+00	4.86E+00
	69	2466.98	2463 -	2469	5.00E+00	4.47	0.00E+00	0.00E+00
	70	2494.10	2490 -	2496	6.00E+00	4.90	0.00E+00	0.00E+00
	71	2613.68	2610 -	2618	2.90E+01	10.77	0.00E+00	0.00E+00
	72	2921.27	2919 -	2924	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 : 8/23/2017 9:13:29AM

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

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

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
1	46.34	42 -	49	45.39	9.07E+02	283.70	1.29E+04	PB-210
2	63.26	60 -	66	62.31	1.59E+03	331.96	1.90E+04	TH-234 TH-230
3	76.21	69 -	81	75.27	1.16E+04	599.58	3.68E+04	.....

Analysis Report for 1707089-09

HTC-A04-S002-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	4	83.90	81 -	96	82.96	5.11E+02	243.34	1.32E+04	TH-231
m	5	87.53	81 -	96	86.59	2.28E+03	358.56	1.96E+04	SN-126
									CD-109
									LU-176
m	6	92.65	81 -	96	91.71	3.66E+03	358.20	1.74E+04	GA-67
	7	113.28	110 -	115	112.35	2.87E+02	233.44	1.06E+04	.....
	8	143.59	139 -	146	142.67	6.85E+02	293.13	1.39E+04	U-235
	9	154.34	151 -	157	153.42	2.72E+02	260.11	1.21E+04	.....
	10	162.99	160 -	165	162.07	2.34E+02	216.54	9.13E+03	BA-140
									U-235
									CS-136
	11	185.92	180 -	189	185.01	3.85E+03	328.29	1.32E+04	RA-226
	12	211.59	208 -	214	210.69	2.17E+02	199.45	7.05E+03	.....
	13	242.16	237 -	246	241.27	3.34E+03	281.53	9.17E+03	.....
	14	258.58	255 -	260	257.69	1.26E+02	154.90	4.68E+03	.....
	15	270.47	265 -	273	269.59	2.85E+02	208.14	6.50E+03	.....
	16	295.24	290 -	298	294.37	6.80E+03	249.80	5.41E+03	PB-214
	17	314.04	311 -	316	313.18	1.02E+02	124.08	2.99E+03	.....
	18	329.00	326 -	331	328.14	1.50E+02	121.69	2.83E+03	LA-140
	19	351.95	346 -	357	351.10	1.13E+04	293.37	5.01E+03	PB-214
	20	389.01	385 -	392	388.17	1.27E+02	136.85	3.02E+03	.....
	21	455.18	451 -	457	454.36	1.16E+02	100.12	1.72E+03	.....
	22	480.71	477 -	483	479.90	8.96E+01	94.21	1.54E+03	.....
	23	487.34	483 -	489	486.54	1.33E+02	93.16	1.48E+03	LA-140
	24	510.44	506 -	513	509.65	1.72E+02	100.90	1.58E+03	.....
	25	536.52	532 -	538	535.73	8.51E+01	84.62	1.23E+03	BA-140
	26	609.22	603 -	612	608.46	7.61E+03	199.19	1.32E+03	BI-214
	27	665.02	659 -	669	664.28	1.88E+02	105.27	1.38E+03	CE-143
	28	703.04	697 -	708	702.32	1.42E+02	103.21	1.26E+03	NB-94
	29	742.20	736 -	746	741.50	9.51E+01	96.41	1.19E+03	.....
	30	768.27	763 -	772	767.58	6.35E+02	101.54	1.11E+03	.....
	31	786.02	782 -	791	785.33	1.35E+02	89.06	1.05E+03	.....
	32	806.42	800 -	811	805.74	2.25E+02	101.88	1.18E+03	.....
	33	839.32	835 -	843	838.66	1.05E+02	77.98	8.66E+02	.....
	34	909.55	905 -	913	908.91	8.31E+01	74.52	7.98E+02	.....
	35	917.17	914 -	920	916.54	7.06E+01	58.63	5.73E+02	.....
	36	933.79	928 -	939	933.16	3.46E+02	99.68	1.07E+03	.....
	37	977.28	974 -	979	976.67	4.78E+01	47.70	4.16E+02	.....
	38	1001.10	997 -	1004	1000.50	7.43E+01	65.51	6.69E+02	PA-234M
	39	1120.13	1115 -	1125	1119.59	1.47E+03	102.39	6.16E+02	BI-214
									SC-46
	40	1155.00	1149 -	1160	1154.47	2.36E+02	78.89	6.59E+02	.....
	41	1182.10	1179 -	1185	1181.59	5.38E+01	44.16	3.16E+02	.....
	42	1237.96	1232 -	1243	1237.47	5.82E+02	80.10	5.13E+02	CO-56
	43	1253.53	1247 -	1259	1253.05	8.20E+01	68.91	5.20E+02	.....
	44	1280.51	1275 -	1284	1280.04	1.04E+02	61.42	4.78E+02	.....
	45	1377.28	1371 -	1381	1376.87	3.78E+02	68.76	4.29E+02	.....
	46	1385.43	1382 -	1390	1385.02	6.46E+01	48.97	3.31E+02	.....
M	47	1401.04	1393 -	1414	1400.64	1.08E+02	50.25	3.08E+02	.....
m	48	1407.60	1393 -	1414	1407.20	2.40E+02	54.49	3.12E+02	EU-152
	49	1460.50	1455 -	1464	1460.13	1.02E+02	63.10	5.12E+02	K-40
	50	1508.79	1504 -	1514	1508.44	1.97E+02	65.66	4.75E+02	.....
M	51	1537.89	1533 -	1545	1537.55	5.12E+01	52.96	3.77E+02	.....
m	52	1543.34	1533 -	1545	1543.01	5.60E+01	35.45	1.94E+02	.....

Analysis Report for 1707089-09

HTC-A04-S002-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	53	1583.35	1579 -	1587	1583.04	5.89E+01	42.16	2.34E+02	.....
	54	1621.51	1616 -	1627	1621.22	3.71E+01	44.81	2.28E+02	BI-212
	55	1660.84	1656 -	1665	1660.57	1.01E+02	37.54	1.40E+02	.....
	56	1693.53	1689 -	1699	1693.28	5.55E+01	33.61	1.21E+02	.....
	57	1729.04	1723 -	1736	1728.81	2.14E+02	53.44	2.17E+02	.....
	58	1764.00	1756 -	1771	1763.79	1.08E+03	78.94	1.91E+02	BI-214
	59	1810.34	1806 -	1814	1810.15	2.01E+01	22.62	6.38E+01	.....
M	60	1838.35	1835 -	1854	1838.17	1.51E+01	18.75	5.47E+01	.....
m	61	1846.98	1835 -	1854	1846.82	1.57E+02	32.67	6.23E+01	.....
	62	1986.96	1979 -	1997	1986.87	2.79E+01	34.73	9.63E+01	.....
M	63	2117.90	2110 -	2139	2117.89	5.08E+01	21.11	3.16E+01	.....
m	64	2136.81	2110 -	2139	2136.81	1.59E+01	12.06	8.56E+00	.....
	65	2203.44	2196 -	2210	2203.48	2.49E+02	37.70	4.50E+01	BI-214
	66	2229.24	2225 -	2232	2229.30	1.00E+01	6.32	0.00E+00	.....
	67	2293.79	2288 -	2299	2293.90	2.75E+01	14.28	1.10E+01	.....
	68	2446.87	2442 -	2451	2447.07	7.95E+01	18.79	5.01E+00	.....
	69	2466.98	2463 -	2469	2467.20	5.00E+00	4.47	0.00E+00	.....
	70	2494.10	2490 -	2496	2494.33	6.00E+00	4.90	0.00E+00	.....
	71	2613.68	2610 -	2618	2614.00	2.90E+01	10.77	0.00E+00	TL-208
	72	2921.27	2919 -	2924	2921.80	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 : 8/23/2017 9:13:29AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.34	9.07E+02	283.70	1.64E-02	1.56E-03
	2	63.26	1.59E+03	331.96	2.15E-02	1.64E-03
	3	76.21	1.16E+04	599.58	2.32E-02	1.91E-03
M	4	83.90	5.11E+02	243.34	2.36E-02	2.08E-03
m	5	87.53	2.28E+03	358.56	2.37E-02	2.16E-03
m	6	92.65	3.66E+03	358.20	2.37E-02	2.10E-03
	7	113.28	2.87E+02	233.44	2.27E-02	1.78E-03
	8	143.59	6.85E+02	293.13	2.03E-02	1.57E-03
	9	154.34	2.72E+02	260.11	1.94E-02	1.54E-03
	10	162.99	2.34E+02	216.54	1.87E-02	1.50E-03

Analysis Report for 1707089-09

HTC-A04-S002-0612-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	11	185.92	3.85E+03	328.29	1.69E-02	1.40E-03
	12	211.59	2.17E+02	199.45	1.52E-02	1.27E-03
	13	242.16	3.34E+03	281.53	1.34E-02	1.13E-03
	14	258.58	1.26E+02	154.90	1.26E-02	1.05E-03
	15	270.47	2.85E+02	208.14	1.20E-02	9.89E-04
	16	295.24	6.80E+03	249.80	1.10E-02	9.13E-04
	17	314.04	1.02E+02	124.08	1.04E-02	8.74E-04
	18	329.00	1.50E+02	121.69	9.88E-03	8.42E-04
	19	351.95	1.13E+04	293.37	9.22E-03	7.94E-04
	20	389.01	1.27E+02	136.85	8.31E-03	7.16E-04
	21	455.18	1.16E+02	100.12	7.07E-03	6.84E-04
	22	480.71	8.96E+01	94.21	6.68E-03	6.74E-04
	23	487.34	1.33E+02	93.16	6.59E-03	6.71E-04
	24	510.44	1.72E+02	100.90	6.29E-03	6.61E-04
	25	536.52	8.51E+01	84.62	5.98E-03	6.51E-04
	26	609.22	7.61E+03	199.19	5.27E-03	6.20E-04
	27	665.02	1.88E+02	105.27	4.84E-03	5.95E-04
	28	703.04	1.42E+02	103.21	4.59E-03	5.47E-04
	29	742.20	9.51E+01	96.41	4.37E-03	4.98E-04
	30	768.27	6.35E+02	101.54	4.23E-03	4.65E-04
	31	786.02	1.35E+02	89.06	4.14E-03	4.43E-04
	32	806.42	2.25E+02	101.88	4.04E-03	4.17E-04
	33	839.32	1.05E+02	77.98	3.90E-03	3.76E-04
	34	909.55	8.31E+01	74.52	3.62E-03	2.99E-04
	35	917.17	7.06E+01	58.63	3.60E-03	2.97E-04
	36	933.79	3.46E+02	99.68	3.54E-03	2.94E-04
	37	977.28	4.78E+01	47.70	3.40E-03	2.83E-04
	38	1001.10	7.43E+01	65.51	3.33E-03	2.78E-04
	39	1120.13	1.47E+03	102.39	3.02E-03	2.50E-04
	40	1155.00	2.36E+02	78.89	2.94E-03	2.42E-04
	41	1182.10	5.38E+01	44.16	2.88E-03	2.37E-04
	42	1237.96	5.82E+02	80.10	2.76E-03	2.33E-04
	43	1253.53	8.20E+01	68.91	2.73E-03	2.32E-04
	44	1280.51	1.04E+02	61.42	2.68E-03	2.31E-04
	45	1377.28	3.78E+02	68.76	2.51E-03	2.20E-04
	46	1385.43	6.46E+01	48.97	2.50E-03	2.19E-04
M	47	1401.04	1.08E+02	50.25	2.48E-03	2.17E-04
m	48	1407.60	2.40E+02	54.49	2.47E-03	2.16E-04
	49	1460.50	1.02E+02	63.10	2.39E-03	2.08E-04
	50	1508.79	1.97E+02	65.66	2.32E-03	2.01E-04
M	51	1537.89	5.12E+01	52.96	2.28E-03	1.96E-04
m	52	1543.34	5.60E+01	35.45	2.27E-03	1.95E-04
	53	1583.35	5.89E+01	42.16	2.22E-03	1.89E-04
	54	1621.51	3.71E+01	44.81	2.17E-03	1.84E-04
	55	1660.84	1.01E+02	37.54	2.12E-03	1.78E-04
	56	1693.53	5.55E+01	33.61	2.08E-03	1.73E-04
	57	1729.04	2.14E+02	53.44	2.04E-03	1.67E-04
	58	1764.00	1.08E+03	78.94	2.00E-03	1.62E-04
	59	1810.34	2.01E+01	22.62	1.95E-03	1.55E-04
M	60	1838.35	1.51E+01	18.75	1.92E-03	1.51E-04
m	61	1846.98	1.57E+02	32.67	1.91E-03	1.51E-04
	62	1986.96	2.79E+01	34.73	1.77E-03	1.51E-04
M	63	2117.90	5.08E+01	21.11	1.65E-03	1.51E-04

Analysis Report for 1707089-09

HTC-A04-S002-0612-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	64	2136.81	1.59E+01	12.06	1.64E-03	1.51E-04
	65	2203.44	2.49E+02	37.70	1.58E-03	1.51E-04
	66	2229.24	1.00E+01	6.32	1.56E-03	1.51E-04
	67	2293.79	2.75E+01	14.28	1.51E-03	1.51E-04
	68	2446.87	7.95E+01	18.79	1.40E-03	1.51E-04
	69	2466.98	5.00E+00	4.47	1.38E-03	1.51E-04
	70	2494.10	6.00E+00	4.90	1.36E-03	1.51E-04
	71	2613.68	2.90E+01	10.77	1.28E-03	1.51E-04
	72	2921.27	5.00E+00	4.47	1.09E-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 : 8/23/2017 9:13:29AM

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	46.34	9.07E+02	283.70	2.81E+01	8.29E+00	8.79E+02	2.84E+02
	2	63.26	1.59E+03	331.96	5.67E+01	8.57E+00	1.53E+03	3.32E+02
	3	76.21	1.16E+04	599.58			1.16E+04	6.00E+02
M	4	83.90	5.11E+02	243.34			5.11E+02	2.43E+02
m	5	87.53	2.28E+03	358.56			2.28E+03	3.59E+02
m	6	92.65	3.66E+03	358.20	5.99E+01	8.61E+00	3.60E+03	3.58E+02
	7	113.28	2.87E+02	233.44			2.87E+02	2.33E+02
	8	143.59	6.85E+02	293.13			6.85E+02	2.93E+02
	9	154.34	2.72E+02	260.11			2.72E+02	2.60E+02
	10	162.99	2.34E+02	216.54			2.34E+02	2.17E+02
	11	185.92	3.85E+03	328.29	2.43E+01	7.50E+00	3.83E+03	3.28E+02
	12	211.59	2.17E+02	199.45			2.17E+02	1.99E+02
	13	242.16	3.34E+03	281.53			3.34E+03	2.82E+02
	14	258.58	1.26E+02	154.90			1.26E+02	1.55E+02
	15	270.47	2.85E+02	208.14			2.85E+02	2.08E+02
	16	295.24	6.80E+03	249.80			6.80E+03	2.50E+02
	17	314.04	1.02E+02	124.08			1.02E+02	1.24E+02
	18	329.00	1.50E+02	121.69			1.50E+02	1.22E+02
	19	351.95	1.13E+04	293.37			1.13E+04	2.93E+02
	20	389.01	1.27E+02	136.85			1.27E+02	1.37E+02
	21	455.18	1.16E+02	100.12			1.16E+02	1.00E+02

Analysis Report for 1707089-09

HTC-A04-S002-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	22	480.71	8.96E+01	94.21			8.96E+01	9.42E+01
	23	487.34	1.33E+02	93.16			1.33E+02	9.32E+01
	24	510.44	1.72E+02	100.90	4.55E+01	4.99E+00	1.26E+02	1.01E+02
	25	536.52	8.51E+01	84.62			8.51E+01	8.46E+01
	26	609.22	7.61E+03	199.19			7.61E+03	1.99E+02
	27	665.02	1.88E+02	105.27			1.88E+02	1.05E+02
	28	703.04	1.42E+02	103.21			1.42E+02	1.03E+02
	29	742.20	9.51E+01	96.41			9.51E+01	9.64E+01
	30	768.27	6.35E+02	101.54			6.35E+02	1.02E+02
	31	786.02	1.35E+02	89.06			1.35E+02	8.91E+01
	32	806.42	2.25E+02	101.88			2.25E+02	1.02E+02
	33	839.32	1.05E+02	77.98			1.05E+02	7.80E+01
	34	909.55	8.31E+01	74.52			8.31E+01	7.45E+01
	35	917.17	7.06E+01	58.63			7.06E+01	5.86E+01
	36	933.79	3.46E+02	99.68			3.46E+02	9.97E+01
	37	977.28	4.78E+01	47.70			4.78E+01	4.77E+01
	38	1001.10	7.43E+01	65.51			7.43E+01	6.55E+01
	39	1120.13	1.47E+03	102.39			1.47E+03	1.02E+02
	40	1155.00	2.36E+02	78.89			2.36E+02	7.89E+01
	41	1182.10	5.38E+01	44.16			5.38E+01	4.42E+01
	42	1237.96	5.82E+02	80.10			5.82E+02	8.01E+01
	43	1253.53	8.20E+01	68.91			8.20E+01	6.89E+01
	44	1280.51	1.04E+02	61.42			1.04E+02	6.14E+01
	45	1377.28	3.78E+02	68.76			3.78E+02	6.88E+01
	46	1385.43	6.46E+01	48.97			6.46E+01	4.90E+01
M	47	1401.04	1.08E+02	50.25			1.08E+02	5.03E+01
m	48	1407.60	2.40E+02	54.49			2.40E+02	5.45E+01
	49	1460.50	1.02E+02	63.10			1.02E+02	6.31E+01
	50	1508.79	1.97E+02	65.66			1.97E+02	6.57E+01
M	51	1537.89	5.12E+01	52.96			5.12E+01	5.30E+01
m	52	1543.34	5.60E+01	35.45			5.60E+01	3.55E+01
	53	1583.35	5.89E+01	42.16			5.89E+01	4.22E+01
	54	1621.51	3.71E+01	44.81			3.71E+01	4.48E+01
	55	1660.84	1.01E+02	37.54			1.01E+02	3.75E+01
	56	1693.53	5.55E+01	33.61			5.55E+01	3.36E+01
	57	1729.04	2.14E+02	53.44			2.14E+02	5.34E+01
	58	1764.00	1.08E+03	78.94			1.08E+03	7.89E+01
	59	1810.34	2.01E+01	22.62			2.01E+01	2.26E+01
M	60	1838.35	1.51E+01	18.75			1.51E+01	1.87E+01
m	61	1846.98	1.57E+02	32.67			1.57E+02	3.27E+01
	62	1986.96	2.79E+01	34.73			2.79E+01	3.47E+01
M	63	2117.90	5.08E+01	21.11			5.08E+01	2.11E+01
m	64	2136.81	1.59E+01	12.06			1.59E+01	1.21E+01
	65	2203.44	2.49E+02	37.70			2.49E+02	3.77E+01
	66	2229.24	1.00E+01	6.32			1.00E+01	6.32E+00
	67	2293.79	2.75E+01	14.28			2.75E+01	1.43E+01
	68	2446.87	7.95E+01	18.79			7.95E+01	1.88E+01
	69	2466.98	5.00E+00	4.47			5.00E+00	4.47E+00
	70	2494.10	6.00E+00	4.90			6.00E+00	4.90E+00
	71	2613.68	2.90E+01	10.77			2.90E+01	1.08E+01
	72	2921.27	5.00E+00	4.47			5.00E+00	4.47E+00

Analysis Report for 1707089-09

HTC-A04-S002-0612-01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/23/2017 9:13:29AM

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	46.34	9.07E+02	283.70	2.81E+01	8.29E+00	8.79E+02	2.84E+02
	2	63.26	1.59E+03	331.96	5.67E+01	8.57E+00	1.53E+03	3.32E+02
	3	76.21	1.16E+04	599.58			1.16E+04	6.00E+02
M	4	83.90	5.11E+02	243.34			5.11E+02	2.43E+02
m	5	87.53	2.28E+03	358.56			2.28E+03	3.59E+02
m	6	92.65	3.66E+03	358.20	5.99E+01	8.61E+00	3.60E+03	3.58E+02
	7	113.28	2.87E+02	233.44			2.87E+02	2.33E+02
	8	143.59	6.85E+02	293.13			6.85E+02	2.93E+02
	9	154.34	2.72E+02	260.11			2.72E+02	2.60E+02
	10	162.99	2.34E+02	216.54			2.34E+02	2.17E+02
	11	185.92	3.85E+03	328.29	2.43E+01	7.50E+00	3.83E+03	3.28E+02
	12	211.59	2.17E+02	199.45			2.17E+02	1.99E+02
	13	242.16	3.34E+03	281.53			3.34E+03	2.82E+02
	14	258.58	1.26E+02	154.90			1.26E+02	1.55E+02
	15	270.47	2.85E+02	208.14			2.85E+02	2.08E+02
	16	295.24	6.80E+03	249.80			6.80E+03	2.50E+02
	17	314.04	1.02E+02	124.08			1.02E+02	1.24E+02
	18	329.00	1.50E+02	121.69			1.50E+02	1.22E+02
	19	351.95	1.13E+04	293.37			1.13E+04	2.93E+02
	20	389.01	1.27E+02	136.85			1.27E+02	1.37E+02
	21	455.18	1.16E+02	100.12			1.16E+02	1.00E+02
	22	480.71	8.96E+01	94.21			8.96E+01	9.42E+01
	23	487.34	1.33E+02	93.16			1.33E+02	9.32E+01
	24	510.44	1.72E+02	100.90	4.55E+01	4.99E+00	1.26E+02	1.01E+02
	25	536.52	8.51E+01	84.62			8.51E+01	8.46E+01
	26	609.22	7.61E+03	199.19			7.61E+03	1.99E+02
	27	665.02	1.88E+02	105.27			1.88E+02	1.05E+02
	28	703.04	1.42E+02	103.21			1.42E+02	1.03E+02
	29	742.20	9.51E+01	96.41			9.51E+01	9.64E+01
	30	768.27	6.35E+02	101.54			6.35E+02	1.02E+02
	31	786.02	1.35E+02	89.06			1.35E+02	8.91E+01
	32	806.42	2.25E+02	101.88			2.25E+02	1.02E+02

Analysis Report for 1707089-09

HTC-A04-S002-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	33	839.32	1.05E+02	77.98			1.05E+02	7.80E+01
	34	909.55	8.31E+01	74.52			8.31E+01	7.45E+01
	35	917.17	7.06E+01	58.63			7.06E+01	5.86E+01
	36	933.79	3.46E+02	99.68			3.46E+02	9.97E+01
	37	977.28	4.78E+01	47.70			4.78E+01	4.77E+01
	38	1001.10	7.43E+01	65.51			7.43E+01	6.55E+01
	39	1120.13	1.47E+03	102.39			1.47E+03	1.02E+02
	40	1155.00	2.36E+02	78.89			2.36E+02	7.89E+01
	41	1182.10	5.38E+01	44.16			5.38E+01	4.42E+01
	42	1237.96	5.82E+02	80.10			5.82E+02	8.01E+01
	43	1253.53	8.20E+01	68.91			8.20E+01	6.89E+01
	44	1280.51	1.04E+02	61.42			1.04E+02	6.14E+01
	45	1377.28	3.78E+02	68.76			3.78E+02	6.88E+01
	46	1385.43	6.46E+01	48.97			6.46E+01	4.90E+01
M	47	1401.04	1.08E+02	50.25			1.08E+02	5.03E+01
m	48	1407.60	2.40E+02	54.49			2.40E+02	5.45E+01
	49	1460.50	1.02E+02	63.10			1.02E+02	6.31E+01
	50	1508.79	1.97E+02	65.66			1.97E+02	6.57E+01
M	51	1537.89	5.12E+01	52.96			5.12E+01	5.30E+01
m	52	1543.34	5.60E+01	35.45			5.60E+01	3.55E+01
	53	1583.35	5.89E+01	42.16			5.89E+01	4.22E+01
	54	1621.51	3.71E+01	44.81			3.71E+01	4.48E+01
	55	1660.84	1.01E+02	37.54			1.01E+02	3.75E+01
	56	1693.53	5.55E+01	33.61			5.55E+01	3.36E+01
	57	1729.04	2.14E+02	53.44			2.14E+02	5.34E+01
	58	1764.00	1.08E+03	78.94			1.08E+03	7.89E+01
	59	1810.34	2.01E+01	22.62			2.01E+01	2.26E+01
M	60	1838.35	1.51E+01	18.75			1.51E+01	1.87E+01
m	61	1846.98	1.57E+02	32.67			1.57E+02	3.27E+01
	62	1986.96	2.79E+01	34.73			2.79E+01	3.47E+01
M	63	2117.90	5.08E+01	21.11			5.08E+01	2.11E+01
m	64	2136.81	1.59E+01	12.06			1.59E+01	1.21E+01
	65	2203.44	2.49E+02	37.70			2.49E+02	3.77E+01
	66	2229.24	1.00E+01	6.32			1.00E+01	6.32E+00
	67	2293.79	2.75E+01	14.28			2.75E+01	1.43E+01
	68	2446.87	7.95E+01	18.79			7.95E+01	1.88E+01
	69	2466.98	5.00E+00	4.47			5.00E+00	4.47E+00
	70	2494.10	6.00E+00	4.90			6.00E+00	4.90E+00
	71	2613.68	2.90E+01	10.77			2.90E+01	1.08E+01
	72	2921.27	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 1707089-09

HTC-A04-S002-0612-01

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	0.985	1460.81	*	10.67	3.72E+00	2.32E+00
CD-109	0.960	88.03	*	3.72	2.78E+01	5.32E+00
SN-126	1.000	87.57	*	37.00	2.41E+00	4.38E-01
BA-140	0.406	162.64	*	6.70	3.71E+02	3.63E+02
		304.84		4.50		
		423.70		3.20		
		437.55		2.00		
		537.32	*	25.00	1.13E+02	1.19E+02
PB-210	0.996	46.50	*	4.25	1.18E+01	3.97E+00
BI-214	0.985	609.31	*	46.30	2.89E+01	3.48E+00
		1120.29	*	15.10	2.99E+01	3.24E+00
		1764.49	*	15.80	3.17E+01	3.46E+00
		2204.22	*	4.98	2.93E+01	5.25E+00
PB-214	1.000	295.21	*	19.19	2.98E+01	2.70E+00
		351.92	*	37.19	3.06E+01	2.75E+00
RA-226	0.987	186.21	*	3.28	6.39E+01	1.17E+02
PA-234M	0.999	1001.03	*	0.92	2.25E+01	1.99E+01
TH-234	1.000	63.29	*	3.80	1.74E+01	3.99E+00
U-235	0.648	143.76	*	10.50	2.97E+00	1.37E+00
		163.35	*	4.70	2.46E+00	2.33E+00
		205.31		4.70		

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 9:13:29AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Analysis Report for 1707089-09

HTC-A04-S002-0612-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	76.21	3.22926E+00	2.58		
M	4	83.90	1.41918E-01	23.81	Tol.	TH-231
m	6	92.65	1.00001E+00	4.98	Sum	
	7	113.28	7.98348E-02	40.61		
	9	154.34	7.55824E-02	47.80		
	12	211.59	6.01537E-02	46.05		
	13	242.16	9.28652E-01	4.21		
	14	258.58	3.50243E-02	61.42		
	15	270.47	7.92783E-02	36.47		
	17	314.04	2.82320E-02	61.04		
	18	329.00	4.18000E-02	40.43	Sum	
	20	389.01	3.51514E-02	54.07		
	21	455.18	3.21134E-02	43.30		
	22	480.71	2.48753E-02	52.60	Sum	
	23	487.34	3.68909E-02	35.07	Tol.	LA-140
	24	510.44	3.51223E-02	39.95		
	27	665.02	5.22146E-02	28.00	Tol.	CE-143
	28	703.04	3.95702E-02	36.23	Sum	
	29	742.20	2.64143E-02	50.69	D-Esc	
	30	768.27	1.76389E-01	8.00		
	31	786.02	3.75211E-02	32.97		
	32	806.42	6.25960E-02	22.61		
	33	839.32	2.92090E-02	37.08		
	34	909.55	2.30965E-02	44.81		
	35	917.17	1.96215E-02	41.50		
	36	933.79	9.59826E-02	14.42		
	37	977.28	1.32661E-02	49.94		
	40	1155.00	6.56915E-02	16.68		
	41	1182.10	1.49568E-02	41.01	D-Esc	
	42	1237.96	1.61804E-01	6.88	Tol.	CO-56
	43	1253.53	2.27778E-02	42.02	S-Esc	
	44	1280.51	2.88395E-02	29.58		
	45	1377.28	1.04910E-01	9.10		
	46	1385.43	1.79577E-02	37.88		
M	47	1401.04	2.99543E-02	23.30		
m	48	1407.60	6.67842E-02	11.33	Tol.	EU-152
	50	1508.79	5.47989E-02	16.64		
M	51	1537.89	1.42090E-02	51.77	Sum	
m	52	1543.34	1.55688E-02	31.63		
	53	1583.35	1.63550E-02	35.80		
	54	1621.51	1.03072E-02	60.38	Tol.	BI-212
	55	1660.84	2.80263E-02	18.60		
	56	1693.53	1.54167E-02	30.28		
	57	1729.04	5.93634E-02	12.50	Sum	
	59	1810.34	5.57692E-03	56.34	Sum	
M	60	1838.35	4.18506E-03	62.22		
m	61	1846.98	4.35603E-02	10.42		
	62	1986.96	7.73757E-03	62.35		
M	63	2117.90	1.41188E-02	20.76		
m	64	2136.81	4.41703E-03	37.93		
	66	2229.24	2.77778E-03	31.62		
	67	2293.79	7.63468E-03	25.98		
	68	2446.87	2.20816E-02	11.82		
	69	2466.98	1.38889E-03	44.72		

Analysis Report for 1707089-09

HTC-A04-S002-0612-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
70	2494.10	1.66667E-03	40.82		
71	2613.68	8.05556E-03	18.57	Tol.	TL-208
72	2921.27	1.38889E-03	44.72	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	0.98	1460.81	*	10.67	3.72E+00	2.32E+00
CD-109	0.96	88.03	*	3.72	2.78E+01	5.32E+00
SN-126	1.00	87.57	*	37.00	2.41E+00	4.38E-01
BA-140	0.40	162.64	*	6.70	3.71E+02	3.63E+02
		304.84		4.50		
		423.70		3.20		
		437.55		2.00		
		537.32	*	25.00	1.13E+02	1.19E+02
PB-210	0.99	46.50	*	4.25	1.18E+01	3.97E+00
BI-214	0.98	609.31	*	46.30	2.89E+01	3.48E+00
		1120.29	*	15.10	2.99E+01	3.24E+00
		1764.49	*	15.80	3.17E+01	3.46E+00
		2204.22	*	4.98	2.93E+01	5.25E+00
PB-214	1.00	295.21	*	19.19	2.98E+01	2.70E+00
		351.92	*	37.19	3.06E+01	2.75E+00
RA-226	0.98	186.21	*	3.28	6.39E+01	1.17E+02
PA-234M	0.99	1001.03	*	0.92	2.25E+01	1.99E+01
TH-234	1.00	63.29	*	3.80	1.74E+01	3.99E+00
U-235	0.64	143.76	*	10.50	2.97E+00	1.37E+00
		163.35	*	4.70	2.46E+00	2.33E+00
		205.31		4.70		

Analysis Report for 1707089-09

HTC-A04-S002-0612-01

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.985	3.72E+00	2.32E+00	
?	CD-109	0.960	2.78E+01	5.32E+00	
?	SN-126	1.000	2.41E+00	4.38E-01	
	BA-140	0.406	9.90E+01	1.09E+02	
	PB-210	0.996	1.18E+01	3.97E+00	
	BI-214	0.985	3.00E+01	1.83E+00	
	PB-214	1.000	3.02E+01	1.93E+00	
	RA-226	0.987	6.39E+01	1.17E+02	
	PA-234M	0.999	2.25E+01	1.99E+01	
	TH-234	1.000	1.74E+01	3.99E+00	
	U-235	0.648	2.69E+00	1.14E+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 1707089-09

HTC-A04-S002-0612-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 9:13:29AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	76.21	3.22926E+00	2.58		
M	4	83.90	1.41918E-01	23.81	Tol.	TH-231
m	6	92.65	1.00001E+00	4.98	Sum	
	7	113.28	7.98348E-02	40.61		
	9	154.34	7.55824E-02	47.80		
	12	211.59	6.01537E-02	46.05		
	13	242.16	9.28652E-01	4.21		
	14	258.58	3.50243E-02	61.42		
	15	270.47	7.92783E-02	36.47		
	17	314.04	2.82320E-02	61.04		
	18	329.00	4.18000E-02	40.43	Sum	
	20	389.01	3.51514E-02	54.07		
	21	455.18	3.21134E-02	43.30		
	22	480.71	2.48753E-02	52.60	Sum	
	23	487.34	3.68909E-02	35.07	Tol.	LA-140
	24	510.44	3.51223E-02	39.95		
	27	665.02	5.22146E-02	28.00	Tol.	CE-143
	28	703.04	3.95702E-02	36.23	Sum	
	29	742.20	2.64143E-02	50.69	D-Esc	
	30	768.27	1.76389E-01	8.00		
	31	786.02	3.75211E-02	32.97		
	32	806.42	6.25960E-02	22.61		
	33	839.32	2.92090E-02	37.08		
	34	909.55	2.30965E-02	44.81		
	35	917.17	1.96215E-02	41.50		
	36	933.79	9.59826E-02	14.42		
	37	977.28	1.32661E-02	49.94		
	40	1155.00	6.56915E-02	16.68		
	41	1182.10	1.49568E-02	41.01	D-Esc	
	42	1237.96	1.61804E-01	6.88	Tol.	CO-56
	43	1253.53	2.27778E-02	42.02	S-Esc	
	44	1280.51	2.88395E-02	29.58		
	45	1377.28	1.04910E-01	9.10		
	46	1385.43	1.79577E-02	37.88		
M	47	1401.04	2.99543E-02	23.30		

Analysis Report for 1707089-09

HTC-A04-S002-0612-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	48	1407.60	6.67842E-02	11.33	Tol.	EU-152
	50	1508.79	5.47989E-02	16.64		
M	51	1537.89	1.42090E-02	51.77	Sum	
m	52	1543.34	1.55688E-02	31.63		
	53	1583.35	1.63550E-02	35.80		
	54	1621.51	1.03072E-02	60.38	Tol.	BI-212
	55	1660.84	2.80263E-02	18.60		
	56	1693.53	1.54167E-02	30.28		
	57	1729.04	5.93634E-02	12.50	Sum	
	59	1810.34	5.57692E-03	56.34	Sum	
M	60	1838.35	4.18506E-03	62.22		
m	61	1846.98	4.35603E-02	10.42		
	62	1986.96	7.73757E-03	62.35		
M	63	2117.90	1.41188E-02	20.76		
m	64	2136.81	4.41703E-03	37.93		
	66	2229.24	2.77778E-03	31.62		
	67	2293.79	7.63468E-03	25.98		
	68	2446.87	2.20816E-02	11.82		
	69	2466.98	1.38889E-03	44.72		
	70	2494.10	1.66667E-03	40.82		
	71	2613.68	8.05556E-03	18.57	Tol.	TL-208
	72	2921.27	1.38889E-03	44.72	Sum	

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59	10.42	8.46E-01	6.71E+00	6.71E+00
+	NA-22	1274.54	99.94	4.85E-02	2.71E-01	2.71E-01
+	@ NA-24	1368.53	99.99	1.00E+26	1.00E+26	1.00E+26
	@	2754.09	99.86	1.00E+26		1.00E+26
+	AL-26	1808.65	99.76	7.15E-03	1.77E-01	1.77E-01

Analysis Report for 1707089-09

HTC-A04-S002-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	K-40	1460.81	*	10.67	3.72E+00	3.68E+00	3.68E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	1.19E-02	2.06E-01	2.06E-01
		78.34		96.00	3.43E+00		2.74E-01
+	SC-46	889.25		99.98	-7.03E-03	5.85E-01	5.85E-01
		1120.51		99.99	1.03E+01		1.37E+00
+	V-48	983.52		99.98	-7.02E+00	1.80E+01	1.82E+01
		1312.10		97.50	-5.97E+00		1.80E+01
+	CR-51	320.08		9.83	-4.00E+00	2.19E+01	2.19E+01
+	MN-54	834.83		99.97	8.76E-03	3.27E-01	3.27E-01
+	CO-56	846.75		99.96	2.33E-01	5.97E-01	5.97E-01
		1037.75		14.03	1.30E+00		4.36E+00
		1238.25		67.00	6.95E+00		1.59E+00
		1771.40		15.51	3.99E-02		2.63E+00
		2598.48		16.90	-2.20E-01		9.44E-01
+	CO-57	122.06		85.51	-2.05E-03	2.33E-01	2.33E-01
		136.48		10.60	-1.92E-01		1.96E+00
+	CO-58	810.76		99.40	-8.83E-02	6.80E-01	6.80E-01
+	FE-59	1099.22		56.50	-9.88E-01	2.12E+00	2.12E+00
		1291.56		43.20	-3.76E-02		2.67E+00
+	CO-60	1173.22		100.00	1.42E-01	2.48E-01	2.66E-01
		1332.49		100.00	-9.62E-02		2.48E-01
+	ZN-65	1115.52		50.75	-1.72E-01	1.17E+00	1.17E+00
+	GA-67	93.31		35.70	3.88E+09	7.73E+08	7.73E+08
		208.95		2.24	3.29E+09		1.12E+10
		300.22		16.00	4.88E+08		1.83E+09
+	SE-75	121.11		16.70	7.36E-01	4.84E-01	1.64E+00
		136.00		59.20	-1.09E-01		4.84E-01
		264.65		59.80	4.75E-02		5.25E-01
		279.53		25.20	-5.10E-01		1.26E+00
		400.65		11.40	-8.84E-01		3.13E+00
+	RB-82	776.52		13.00	-2.18E+00	2.61E+01	2.61E+01
+	RB-83	520.41		46.00	-7.17E-02	8.88E-01	8.88E-01
		529.64		30.30	2.03E-01		1.37E+00
		552.65		16.40	-1.70E+00		2.40E+00
+	KR-85	513.99		0.43	1.04E+00	4.65E+01	4.65E+01
+	SR-85	513.99		99.27	1.29E-02	5.76E-01	5.76E-01
+	Y-88	898.02		93.40	3.16E-01	3.47E-01	5.47E-01
		1836.01		99.38	-9.25E-03		3.47E-01
+	MO-93	263.06		56.72	2.85E-02	2.20E-01	3.22E-01
		684.67		99.68	1.06E-01		2.20E-01
		1477.11		99.08	2.98E-02		2.90E-01
+	NB-93M	16.57		9.43	9.02E+01	1.74E+01	1.74E+01
+	NB-94	702.63		100.00	3.41E-01	2.40E-01	2.40E-01
		871.10		100.00	7.76E-02		2.57E-01
+	NB-95	765.79		99.81	5.56E-01	2.48E+00	2.48E+00
+	NB-95M	235.69		25.00	-8.00E+07	1.37E+08	1.37E+08

Analysis Report for 1707089-09

HTC-A04-S002-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	ZR-95	724.18		43.70	6.47E-01	1.16E+00	1.55E+00
		756.72		55.30	-8.62E-01		1.16E+00
+	MO-99	181.06		6.20	3.25E+09	1.32E+11	2.02E+11
		739.58		12.80	1.17E+11		1.32E+11
		778.00		4.50	-3.83E+10		3.62E+11
+	RU-103	497.08		89.00	2.99E-01	1.19E+00	1.19E+00
+	RU-106	621.84		9.80	4.09E-01	2.20E+00	2.20E+00
+	AG-108M	433.93		89.90	1.00E-01	2.18E-01	2.18E-01
		614.37		90.40	-1.66E-01		2.22E-01
		722.95		90.50	1.59E-01		2.57E-01
+	CD-109	88.03	*	3.72	2.78E+01	1.18E+01	1.18E+01
+	AG-110M	657.75		93.14	-1.78E-03	2.99E-01	2.99E-01
		677.61		10.53	-1.22E+00		2.57E+00
		706.67		16.46	2.08E-01		1.88E+00
		763.93		21.98	5.92E-01		1.75E+00
		884.67		71.63	-3.75E-01		4.54E-01
		1384.27		23.94	-6.01E+00		1.48E+00
+	CD-113M	263.70		0.02	7.03E+01	7.84E+02	7.84E+02
+	SN-113	255.12		1.93	1.28E+00	5.56E-01	1.71E+01
		391.69		64.90	3.93E-03		5.56E-01
+	TE123M	159.00		84.10	2.59E-02	3.70E-01	3.70E-01
+	SB-124	602.71		97.87	-5.34E-02	6.06E-01	6.06E-01
		645.85		7.26	-1.45E-01		7.86E+00
		722.78		11.10	4.04E+00		6.54E+00
		1691.02		49.00	-5.45E-02		1.40E+00
+	I-125	35.49		6.49	-8.31E+00	1.27E+01	1.27E+01
+	SB-125	176.33		6.89	5.80E-01	7.56E-01	2.68E+00
		427.89		29.33	5.45E-01		7.56E-01
		463.38		10.35	5.11E-01		1.97E+00
		600.56		17.80	9.61E-02		1.14E+00
		635.90		11.32	-2.83E-01		1.69E+00
+	SB-126	414.70		83.30	3.63E+00	5.46E+01	6.29E+01
		666.33		99.60	1.06E+02		6.45E+01
		695.00		99.60	2.95E+00		5.46E+01
		720.50		53.80	4.61E+01		1.10E+02
+	SN-126	87.57	*	37.00	2.41E+00	1.02E+00	1.02E+00
+	SB-127	473.00		25.00	1.22E+07	3.37E+07	4.29E+07
		685.20		35.70	1.63E+07		3.37E+07
		783.80		14.70	1.78E+07		1.03E+08
+	I-129	29.78		57.00	-3.51E-01	6.58E-01	6.58E-01
		33.60		13.20	1.70E-03		2.21E+00
		39.58		7.52	-8.06E-01		3.01E+00
+	I-131	284.30		6.05	1.91E+03	1.11E+03	1.52E+04
		364.48		81.20	-1.80E+02		1.11E+03
		636.97		7.26	4.39E+02		1.27E+04
		722.89		1.80	4.08E+04		6.61E+04
+	TE-132	49.72		13.10	-2.92E+07	2.85E+08	2.17E+09
		228.16		88.00	-4.93E+07		2.85E+08

Analysis Report for 1707089-09

HTC-A04-S002-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BA-133	81.00		33.00	-5.09E+00	5.75E-01	6.42E-01
		302.84		17.80	8.17E-02		1.03E+00
		356.01		60.00	1.08E+00		5.75E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-2.12E+06	2.67E+05	2.67E+05
+	CS-134	563.23		8.38	1.13E-03	3.05E-01	2.49E+00
		569.32		15.43	4.91E-01		1.41E+00
		604.70		97.60	8.75E-04		3.79E-01
		795.84		85.40	2.14E-02		3.05E-01
		801.93		8.73	-1.84E-01		3.26E+00
+	CS-135	268.24		16.00	-1.41E-02	1.17E+00	1.17E+00
+	@ I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41		28.60	1.00E+26		1.00E+26
	@	1678.03		9.54	1.00E+26		1.00E+26
+	CS-136	153.22		7.46	-3.06E+00	4.48E+01	4.41E+02
		163.89		4.61	2.40E+02		6.97E+02
		176.55		13.56	1.15E+01		2.35E+02
		273.65		12.66	5.73E+01		2.77E+02
		340.57		48.50	-3.02E+01		7.13E+01
		818.50		99.70	2.87E+01		4.48E+01
		1048.07		79.60	1.28E+01		5.79E+01
		1235.34		19.70	1.47E+03		4.05E+02
+	CS-137	661.65		85.12	-1.13E-02	2.82E-01	2.82E-01
+	LA-138	788.74		34.00	5.46E-01	3.90E-01	7.62E-01
		1435.80		66.00	-1.54E-02		3.90E-01
+	CE-139	165.85		80.35	6.99E-02	3.53E-01	3.53E-01
+	BA-140	162.64	*	6.70	3.71E+02	1.85E+02	5.65E+02
		304.84		4.50	-8.91E+01		8.50E+02
		423.70		3.20	6.18E+01		1.40E+03
		437.55		2.00	-3.85E+02		2.04E+03
		537.32	*	25.00	1.13E+02		1.85E+02
+	LA-140	328.77		20.50	9.43E+01	5.52E+01	1.96E+02
		487.03		45.50	6.01E+01		9.29E+01
		815.85		23.50	-3.68E+01		2.12E+02
		1596.49		95.49	2.82E+01		5.52E+01
+	CE-141	145.44		48.40	-3.10E-01	3.00E+00	3.00E+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	1.69E-01	1.89E+00	1.89E+00
+	PM-144	476.78		42.00	1.52E-01	2.23E-01	5.51E-01
		618.01		98.60	1.09E-01		2.23E-01
		696.49		99.49	-6.76E-02		2.59E-01
+	PM-145	36.85		21.70	-1.07E+00	6.16E-01	1.15E+00
		37.36		39.70	-5.70E-01		6.16E-01
		42.30		15.10	-2.37E-02		1.42E+00
		72.40		2.31	-9.40E+01		9.67E+00
+	PM-146	453.90		39.94	5.58E-01	5.07E-01	5.07E-01
		735.90		14.01	3.92E-01		1.66E+00

Analysis Report for 1707089-09

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PM-146	747.13	13.10	3.00E-02	5.07E-01	1.85E+00
+	ND-147	91.11	28.90	2.21E+03	3.75E+02	3.75E+02
		531.02	13.10	1.15E+02		7.50E+02
+	PM-149	285.90	3.10	-7.49E+13	1.76E+14	1.76E+14
+	EU-152	121.78	20.50	-6.72E-03	7.63E-01	7.63E-01
		244.69	5.40	2.45E+01		4.55E+00
		344.27	19.13	-1.76E-01		1.00E+00
		778.89	9.20	-8.33E-01		2.56E+00
		964.01	10.40	2.24E-01		2.59E+00
		1085.78	7.22	-2.26E+00		3.46E+00
		1112.02	9.60	-1.97E+00		2.63E+00
		1407.95	14.94	3.94E+00		2.44E+00
+	GD-153	97.43	31.30	4.62E-01	6.90E-01	6.90E-01
		103.18	22.20	-1.05E+00		8.82E-01
+	EU-154	123.07	40.50	-1.79E-01	3.90E-01	3.90E-01
		723.30	19.70	5.01E-01		1.20E+00
		873.19	11.50	-2.74E-01		2.24E+00
		996.32	10.30	8.92E-01		2.61E+00
		1004.76	17.90	2.16E-01		1.62E+00
		1274.45	35.50	1.30E-01		7.26E-01
+	EU-155	86.50	30.90	1.56E-01	6.65E-01	6.65E-01
		105.30	20.70	-1.74E-01		7.45E-01
+	EU-156	811.77	10.40	2.48E+01	2.18E+02	2.18E+02
		1153.47	7.20	8.15E+02		4.18E+02
		1230.71	8.90	2.57E+01		2.44E+02
+	HO-166M	184.41	72.60	2.95E+00	3.24E-01	3.24E-01
		280.45	29.60	2.12E-01		6.07E-01
		410.94	11.10	4.17E-02		1.85E+00
		711.69	54.10	4.88E-02		4.03E-01
+	TM-171	66.72	0.14	8.86E+00	1.58E+02	1.58E+02
+	HF-172	67.35	5.31	2.33E-01	1.54E+00	4.15E+00
		125.81	11.30	3.08E-01		1.54E+00
+	LU-172	181.53	20.60	2.50E+03	1.16E+04	2.64E+04
		900.72	29.81	-3.19E+03		2.50E+04
		1093.66	62.50	5.04E+03		1.16E+04
+	LU-173	100.72	5.24	8.17E-01	1.06E+00	3.28E+00
		272.11	21.20	2.32E+00		1.06E+00
+	HF-175	343.40	84.00	-1.05E-01	5.99E-01	5.99E-01
+	LU-176	88.34	13.30	-6.88E+00	1.87E-01	1.48E+00
		201.83	86.00	-3.45E-02		2.08E-01
		306.78	94.00	-4.08E-02		1.87E-01
+	HF-181	133.02	41.70	-4.85E-01	1.18E+00	1.94E+00
		345.85	17.20	1.00E+00		5.71E+00
		482.03	82.80	-3.94E-01		1.18E+00
+	TA-182	67.75	41.20	4.94E-02	8.59E-01	8.59E-01
		1121.30	34.90	2.33E+01		3.15E+00
		1189.05	16.23	4.77E-01		2.66E+00
		1221.41	26.98	2.80E-01		1.69E+00
		1231.02	11.44	1.08E+00		3.98E+00

Analysis Report for 1707089-09

HTC-A04-S002-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	IR-192	308.46		29.68	-3.92E-01	1.01E+00	1.50E+00
		468.07		48.10	-1.04E-02		1.01E+00
+	HG-203	279.19		77.30	-4.12E-01	1.01E+00	1.01E+00
+	TL-204	374.74		94.11	-5.63E-02	2.03E-01	2.03E-01
		899.15		99.16	7.66E-02		2.82E-01
		911.74		91.10	7.54E-02		3.13E-01
+	BI-207	569.67		97.72	7.12E-02	2.04E-01	2.04E-01
		1063.62		74.90	-2.66E-01		3.25E-01
+	TL-208	583.14		30.22	5.87E-01	5.61E-01	7.17E-01
		860.37		4.48	-6.73E-01		5.51E+00
		2614.66		35.85	5.05E-01		5.61E-01
+	BI-210M	262.00		45.00	3.52E-02	4.04E-01	4.04E-01
		300.00		23.00	2.42E-01		9.06E-01
+	PB-210	46.50	*	4.25	1.18E+01	6.17E+00	6.17E+00
+	PB-211	404.84		2.90	2.85E+00	7.19E+00	7.19E+00
		831.96		2.90	2.40E+00		8.76E+00
+	BI-212	727.17		11.80	-1.10E+00	1.87E+00	1.87E+00
		1620.62		2.75	1.54E+00		8.38E+00
+	PB-212	238.63		44.60	1.02E-01	5.48E-01	5.48E-01
		300.09		3.41	1.64E+00		6.12E+00
+	BI-214	609.31	*	46.30	2.89E+01	6.11E-01	6.11E-01
		1120.29	*	15.10	2.99E+01		2.33E+00
		1764.49	*	15.80	3.17E+01		2.19E+00
		2204.22	*	4.98	2.93E+01		4.32E+00
+	PB-214	295.21	*	19.19	2.98E+01	9.07E-01	1.36E+00
		351.92	*	37.19	3.06E+01		9.07E-01
+	RN-219	401.80		6.50	9.89E-01	3.14E+00	3.14E+00
+	RA-223	323.87		3.88	-1.15E+00	4.74E+00	4.74E+00
+	RA-224	240.98		3.95	5.82E+01	6.69E+00	6.69E+00
+	RA-225	40.00		31.00	-1.99E+01	7.45E+01	7.45E+01
+	RA-226	186.21	*	3.28	6.39E+01	8.40E+00	8.40E+00
+	TH-227	50.10		8.40	-3.17E-02	1.64E+00	2.36E+00
		236.00		11.50	-9.53E-01		1.64E+00
		256.20		6.30	3.28E-01		2.93E+00
+	AC-228	338.32		11.40	9.77E-01	9.77E-01	1.66E+00
		911.07		27.70	1.83E-01		9.77E-01
		969.11		16.60	5.47E-01		1.57E+00
+	TH-230	48.44		16.90	1.91E+00	1.23E+00	1.23E+00
		62.85		4.60	1.92E+01		4.61E+00
		67.67		0.37	3.02E+00		5.25E+01
+	PA-231	283.67		1.60	1.40E+00	7.80E+00	1.12E+01
		302.67		2.30	6.21E-01		7.80E+00
+	TH-231	25.64		14.70	2.24E+00	3.00E+00	3.71E+00
		84.21		6.40	-7.37E+00		3.00E+00
+	PA-233	311.98		38.60	-9.40E-01	5.97E+00	5.97E+00
+	PA-234	131.20		20.40	1.99E-01	7.83E-01	7.83E-01
		733.99		8.80	1.52E+00		2.53E+00
		946.00		12.00	-5.56E-01		2.17E+00

Analysis Report for 1707089-09

HTC-A04-S002-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	PA-234M	1001.03	*	0.92	2.25E+01	3.23E+01	3.23E+01
+	TH-234	63.29	*	3.80	1.74E+01	6.05E+00	6.05E+00
+	U-235	143.76	*	10.50	2.97E+00	2.07E+00	2.07E+00
		163.35	*	4.70	2.46E+00		3.75E+00
		205.31		4.70	3.04E+00		3.82E+00
+	NP-237	86.50		12.60	3.68E-01	1.57E+00	1.57E+00
+	NP-239	106.10		22.70	6.05E+11	3.05E+12	3.05E+12
		228.18		10.70	-1.32E+12		7.59E+12
		277.60		14.10	-2.58E+12		5.91E+12
+	AM-241	59.54		35.90	-5.85E-01	5.67E-01	5.67E-01
+	AM-243	74.67		66.00	6.07E+00	4.11E-01	4.11E-01
+	CM-243	209.75		3.29	-3.28E-01	1.30E+00	5.38E+00
		228.14		10.60	-2.89E-01		1.67E+00
		277.60		14.00	-5.65E-01		1.30E+00

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	6.71E+00	6.71E+00	8.46E-01	3.29E+00
	NA-22	1274.54		99.94	2.71E-01	2.71E-01	4.85E-02	1.31E-01
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	1.77E-01	1.77E-01	7.15E-03	8.22E-02
+	K-40	1460.81	*	10.67	3.68E+00	3.68E+00	3.72E+00	1.79E+00
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	2.06E-01	2.06E-01	1.19E-02	1.02E-01

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
TI-44	78.34	96.00	2.74E-01	2.06E-01	3.43E+00	1.36E-01
SC-46	889.25	99.98	5.85E-01	5.85E-01	-7.03E-03	2.85E-01
	1120.51	99.99	1.37E+00		1.03E+01	6.75E-01
V-48	983.52	99.98	1.82E+01	1.80E+01	-7.02E+00	8.82E+00
	1312.10	97.50	1.80E+01		-5.97E+00	8.63E+00
CR-51	320.08	9.83	2.19E+01	2.19E+01	-4.00E+00	1.08E+01
MN-54	834.83	99.97	3.27E-01	3.27E-01	8.76E-03	1.60E-01
CO-56	846.75	99.96	5.97E-01	5.97E-01	2.33E-01	2.91E-01
	1037.75	14.03	4.36E+00		1.30E+00	2.11E+00
	1238.25	67.00	1.59E+00		6.95E+00	7.79E-01
	1771.40	15.51	2.63E+00		3.99E-02	1.22E+00
	2598.48	16.90	9.44E-01		-2.20E-01	3.35E-01
CO-57	122.06	85.51	2.33E-01	2.33E-01	-2.05E-03	1.15E-01
	136.48	10.60	1.96E+00		-1.92E-01	9.75E-01
CO-58	810.76	99.40	6.80E-01	6.80E-01	-8.83E-02	3.32E-01
FE-59	1099.22	56.50	2.12E+00	2.12E+00	-9.88E-01	1.03E+00
	1291.56	43.20	2.67E+00		-3.76E-02	1.28E+00
CO-60	1173.22	100.00	2.66E-01	2.48E-01	1.42E-01	1.28E-01
	1332.49	100.00	2.48E-01		-9.62E-02	1.19E-01
ZN-65	1115.52	50.75	1.17E+00	1.17E+00	-1.72E-01	5.74E-01
GA-67	93.31	35.70	7.73E+08	7.73E+08	3.88E+09	3.84E+08
	208.95	2.24	1.12E+10		3.29E+09	5.53E+09
	300.22	16.00	1.83E+09		4.88E+08	9.03E+08
SE-75	121.11	16.70	1.64E+00	4.84E-01	7.36E-01	8.15E-01
	136.00	59.20	4.84E-01		-1.09E-01	2.40E-01
	264.65	59.80	5.25E-01		4.75E-02	2.59E-01
	279.53	25.20	1.26E+00		-5.10E-01	6.22E-01
	400.65	11.40	3.13E+00		-8.84E-01	1.54E+00
RB-82	776.52	13.00	2.61E+01	2.61E+01	-2.18E+00	1.27E+01
RB-83	520.41	46.00	8.88E-01	8.88E-01	-7.17E-02	4.34E-01
	529.64	30.30	1.37E+00		2.03E-01	6.71E-01
	552.65	16.40	2.40E+00		-1.70E+00	1.17E+00
KR-85	513.99	0.43	4.65E+01	4.65E+01	1.04E+00	2.28E+01
SR-85	513.99	99.27	5.76E-01	5.76E-01	1.29E-02	2.82E-01
Y-88	898.02	93.40	5.47E-01	3.47E-01	3.16E-01	2.67E-01
	1836.01	99.38	3.47E-01		-9.25E-03	1.61E-01
MO-93	263.06	56.72	3.22E-01	2.20E-01	2.85E-02	1.59E-01
	684.67	99.68	2.20E-01		1.06E-01	1.07E-01
	1477.11	99.08	2.90E-01		2.98E-02	1.39E-01
NB-93M	16.57	9.43	1.74E+01	1.74E+01	9.02E+01	8.63E+00
NB-94	702.63	100.00	2.40E-01	2.40E-01	3.41E-01	1.17E-01
	871.10	100.00	2.57E-01		7.76E-02	1.25E-01
NB-95	765.79	99.81	2.48E+00	2.48E+00	5.56E-01	1.22E+00
NB-95M	235.69	25.00	1.37E+08	1.37E+08	-8.00E+07	6.80E+07
ZR-95	724.18	43.70	1.55E+00	1.16E+00	6.47E-01	7.57E-01
	756.72	55.30	1.16E+00		-8.62E-01	5.66E-01
MO-99	181.06	6.20	2.02E+11	1.32E+11	3.25E+09	1.00E+11
	739.58	12.80	1.32E+11		1.17E+11	6.45E+10
	778.00	4.50	3.62E+11		-3.83E+10	1.76E+11
RU-103	497.08	89.00	1.19E+00	1.19E+00	2.99E-01	5.82E-01
RU-106	621.84	9.80	2.20E+00	2.20E+00	4.09E-01	1.07E+00
AG-108M	433.93	89.90	2.18E-01	2.18E-01	1.00E-01	1.07E-01
	614.37	90.40	2.22E-01		-1.66E-01	1.08E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	AG-108M	722.95		90.50	2.57E-01	2.18E-01	1.59E-01	1.25E-01
+	CD-109	88.03	*	3.72	1.18E+01	1.18E+01	2.78E+01	5.88E+00
	AG-110M	657.75		93.14	2.99E-01	2.99E-01	-1.78E-03	1.46E-01
		677.61		10.53	2.57E+00		-1.22E+00	1.25E+00
		706.67		16.46	1.88E+00		2.08E-01	9.19E-01
		763.93		21.98	1.75E+00		5.92E-01	8.59E-01
		884.67		71.63	4.54E-01		-3.75E-01	2.21E-01
		1384.27		23.94	1.48E+00		-6.01E+00	7.13E-01
	CD-113M	263.70		0.02	7.84E+02	7.84E+02	7.03E+01	3.88E+02
	SN-113	255.12		1.93	1.71E+01	5.56E-01	1.28E+00	8.46E+00
		391.69		64.90	5.56E-01		3.93E-03	2.74E-01
	TE123M	159.00		84.10	3.70E-01	3.70E-01	2.59E-02	1.84E-01
	SB-124	602.71		97.87	6.06E-01	6.06E-01	-5.34E-02	2.95E-01
		645.85		7.26	7.86E+00		-1.45E-01	3.82E+00
		722.78		11.10	6.54E+00		4.04E+00	3.19E+00
		1691.02		49.00	1.40E+00		-5.45E-02	6.62E-01
	I-125	35.49		6.49	1.27E+01	1.27E+01	-8.31E+00	6.30E+00
	SB-125	176.33		6.89	2.68E+00	7.56E-01	5.80E-01	1.33E+00
		427.89		29.33	7.56E-01		5.45E-01	3.72E-01
		463.38		10.35	1.97E+00		5.11E-01	9.64E-01
		600.56		17.80	1.14E+00		9.61E-02	5.57E-01
		635.90		11.32	1.69E+00		-2.83E-01	8.23E-01
	SB-126	414.70		83.30	6.29E+01	5.46E+01	3.63E+00	3.10E+01
		666.33		99.60	6.45E+01		1.06E+02	3.16E+01
		695.00		99.60	5.46E+01		2.95E+00	2.66E+01
		720.50		53.80	1.10E+02		4.61E+01	5.37E+01
+	SN-126	87.57	*	37.00	1.02E+00	1.02E+00	2.41E+00	5.10E-01
	SB-127	473.00		25.00	4.29E+07	3.37E+07	1.22E+07	2.10E+07
		685.20		35.70	3.37E+07		1.63E+07	1.64E+07
		783.80		14.70	1.03E+08		1.78E+07	5.03E+07
	I-129	29.78		57.00	6.58E-01	6.58E-01	-3.51E-01	3.26E-01
		33.60		13.20	2.21E+00		1.70E-03	1.10E+00
		39.58		7.52	3.01E+00		-8.06E-01	1.49E+00
	I-131	284.30		6.05	1.52E+04	1.11E+03	1.91E+03	7.51E+03
		364.48		81.20	1.11E+03		-1.80E+02	5.45E+02
		636.97		7.26	1.27E+04		4.39E+02	6.19E+03
		722.89		1.80	6.61E+04		4.08E+04	3.22E+04
	TE-132	49.72		13.10	2.17E+09	2.85E+08	-2.92E+07	1.08E+09
		228.16		88.00	2.85E+08		-4.93E+07	1.41E+08
	BA-133	81.00		33.00	6.42E-01	5.75E-01	-5.09E+00	3.19E-01
		302.84		17.80	1.03E+00		8.17E-02	5.07E-01
		356.01		60.00	5.75E-01		1.08E+00	2.85E-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	2.67E+05	2.67E+05	-2.12E+06	1.33E+05
	CS-134	563.23		8.38	2.49E+00	3.05E-01	1.13E-03	1.22E+00
		569.32		15.43	1.41E+00		4.91E-01	6.87E-01
		604.70		97.60	3.79E-01		8.75E-04	1.87E-01
		795.84		85.40	3.05E-01		2.14E-02	1.49E-01
		801.93		8.73	3.26E+00		-1.84E-01	1.59E+00
	CS-135	268.24		16.00	1.17E+00	1.17E+00	-1.41E-02	5.80E-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

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CS-136	153.22		7.46	4.41E+02	4.48E+01	-3.06E+00	2.19E+02
		163.89		4.61	6.97E+02		2.40E+02	3.46E+02
		176.55		13.56	2.35E+02		1.15E+01	1.17E+02
		273.65		12.66	2.77E+02		5.73E+01	1.37E+02
		340.57		48.50	7.13E+01		-3.02E+01	3.51E+01
		818.50		99.70	4.48E+01		2.87E+01	2.18E+01
		1048.07		79.60	5.79E+01		1.28E+01	2.81E+01
		1235.34		19.70	4.05E+02		1.47E+03	1.98E+02
	CS-137	661.65		85.12	2.82E-01	2.82E-01	-1.13E-02	1.38E-01
	LA-138	788.74		34.00	7.62E-01	3.90E-01	5.46E-01	3.72E-01
		1435.80		66.00	3.90E-01		-1.54E-02	1.87E-01
	CE-139	165.85		80.35	3.53E-01	3.53E-01	6.99E-02	1.75E-01
+	BA-140	162.64	*	6.70	5.65E+02	1.85E+02	3.71E+02	2.80E+02
		304.84		4.50	8.50E+02		-8.91E+01	4.19E+02
		423.70		3.20	1.40E+03		6.18E+01	6.90E+02
		437.55		2.00	2.04E+03		-3.85E+02	1.00E+03
		537.32	*	25.00	1.85E+02		1.13E+02	9.05E+01
	LA-140	328.77		20.50	1.96E+02	5.52E+01	9.43E+01	9.69E+01
		487.03		45.50	9.29E+01		6.01E+01	4.56E+01
		815.85		23.50	2.12E+02		-3.68E+01	1.03E+02
		1596.49		95.49	5.52E+01		2.82E+01	2.63E+01
	CE-141	145.44		48.40	3.00E+00	3.00E+00	-3.10E-01	1.49E+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	1.89E+00	1.89E+00	1.69E-01	9.39E-01
	PM-144	476.78		42.00	5.51E-01	2.23E-01	1.52E-01	2.70E-01
		618.01		98.60	2.23E-01		1.09E-01	1.08E-01
		696.49		99.49	2.59E-01		-6.76E-02	1.26E-01
	PM-145	36.85		21.70	1.15E+00	6.16E-01	-1.07E+00	5.72E-01
		37.36		39.70	6.16E-01		-5.70E-01	3.06E-01
		42.30		15.10	1.42E+00		-2.37E-02	7.05E-01
		72.40		2.31	9.67E+00		-9.40E+01	4.81E+00
	PM-146	453.90		39.94	5.07E-01	5.07E-01	5.58E-01	2.49E-01
		735.90		14.01	1.66E+00		3.92E-01	8.08E-01
		747.13		13.10	1.85E+00		3.00E-02	9.00E-01
	ND-147	91.11		28.90	3.75E+02	3.75E+02	2.21E+03	1.86E+02
		531.02		13.10	7.50E+02		1.15E+02	3.67E+02
	PM-149	285.90		3.10	1.76E+14	1.76E+14	-7.49E+13	8.69E+13
	EU-152	121.78		20.50	7.63E-01	7.63E-01	-6.72E-03	3.78E-01
		244.69		5.40	4.55E+00		2.45E+01	2.26E+00
		344.27		19.13	1.00E+00		-1.76E-01	4.95E-01
		778.89		9.20	2.56E+00		-8.33E-01	1.25E+00
		964.01		10.40	2.59E+00		2.24E-01	1.26E+00
		1085.78		7.22	3.46E+00		-2.26E+00	1.67E+00
		1112.02		9.60	2.63E+00		-1.97E+00	1.27E+00
		1407.95		14.94	2.44E+00		3.94E+00	1.18E+00
	GD-153	97.43		31.30	6.90E-01	6.90E-01	4.62E-01	3.43E-01
		103.18		22.20	8.82E-01		-1.05E+00	4.38E-01
	EU-154	123.07		40.50	3.90E-01	3.90E-01	-1.79E-01	1.93E-01
		723.30		19.70	1.20E+00		5.01E-01	5.86E-01
		873.19		11.50	2.24E+00		-2.74E-01	1.09E+00
		996.32		10.30	2.61E+00		8.92E-01	1.27E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-154	1004.76		17.90	1.62E+00	3.90E-01	2.16E-01	7.91E-01
		1274.45		35.50	7.26E-01		1.30E-01	3.50E-01
	EU-155	86.50		30.90	6.65E-01	6.65E-01	1.56E-01	3.30E-01
		105.30		20.70	7.45E-01		-1.74E-01	3.70E-01
	EU-156	811.77		10.40	2.18E+02	2.18E+02	2.48E+01	1.06E+02
		1153.47		7.20	4.18E+02		8.15E+02	2.04E+02
		1230.71		8.90	2.44E+02		2.57E+01	1.17E+02
	HO-166M	184.41		72.60	3.24E-01	3.24E-01	2.95E+00	1.61E-01
		280.45		29.60	6.07E-01		2.12E-01	3.00E-01
		410.94		11.10	1.85E+00		4.17E-02	9.10E-01
		711.69		54.10	4.03E-01		4.88E-02	1.96E-01
	TM-171	66.72		0.14	1.58E+02	1.58E+02	8.86E+00	7.84E+01
	HF-172	67.35		5.31	4.15E+00	1.54E+00	2.33E-01	2.06E+00
		125.81		11.30	1.54E+00		3.08E-01	7.62E-01
	LU-172	181.53		20.60	2.64E+04	1.16E+04	2.50E+03	1.31E+04
		900.72		29.81	2.50E+04		-3.19E+03	1.22E+04
		1093.66		62.50	1.16E+04		5.04E+03	5.64E+03
	LU-173	100.72		5.24	3.28E+00	1.06E+00	8.17E-01	1.63E+00
		272.11		21.20	1.06E+00		2.32E+00	5.25E-01
	HF-175	343.40		84.00	5.99E-01	5.99E-01	-1.05E-01	2.96E-01
	LU-176	88.34		13.30	1.48E+00	1.87E-01	-6.88E+00	7.37E-01
		201.83		86.00	2.08E-01		-3.45E-02	1.03E-01
		306.78		94.00	1.87E-01		-4.08E-02	9.25E-02
	HF-181	133.02		41.70	1.94E+00	1.18E+00	-4.85E-01	9.61E-01
		345.85		17.20	5.71E+00		1.00E+00	2.82E+00
		482.03		82.80	1.18E+00		-3.94E-01	5.81E-01
	TA-182	67.75		41.20	8.59E-01	8.59E-01	4.94E-02	4.27E-01
		1121.30		34.90	3.15E+00		2.33E+01	1.55E+00
		1189.05		16.23	2.66E+00		4.77E-01	1.28E+00
		1221.41		26.98	1.69E+00		2.80E-01	8.16E-01
		1231.02		11.44	3.98E+00		1.08E+00	1.92E+00
	IR-192	308.46		29.68	1.50E+00	1.01E+00	-3.92E-01	7.39E-01
		468.07		48.10	1.01E+00		-1.04E-02	4.96E-01
	HG-203	279.19		77.30	1.01E+00	1.01E+00	-4.12E-01	5.01E-01
	TL-204	374.74		94.11	2.03E-01	2.03E-01	-5.63E-02	9.97E-02
		899.15		99.16	2.82E-01		7.66E-02	1.37E-01
		911.74		91.10	3.13E-01		7.54E-02	1.52E-01
	BI-207	569.67		97.72	2.04E-01	2.04E-01	7.12E-02	9.96E-02
		1063.62		74.90	3.25E-01		-2.66E-01	1.57E-01
	TL-208	583.14		30.22	7.17E-01	5.61E-01	5.87E-01	3.51E-01
		860.37		4.48	5.51E+00		-6.73E-01	2.68E+00
		2614.66		35.85	5.61E-01		5.05E-01	2.53E-01
	BI-210M	262.00		45.00	4.04E-01	4.04E-01	3.52E-02	2.00E-01
		300.00		23.00	9.06E-01		2.42E-01	4.48E-01
+	PB-210	46.50	*	4.25	6.17E+00	6.17E+00	1.18E+01	3.07E+00
	PB-211	404.84		2.90	7.19E+00	7.19E+00	2.85E+00	3.54E+00
		831.96		2.90	8.76E+00		2.40E+00	4.27E+00
	BI-212	727.17		11.80	1.87E+00	1.87E+00	-1.10E+00	9.13E-01
		1620.62		2.75	8.38E+00		1.54E+00	3.98E+00
	PB-212	238.63		44.60	5.48E-01	5.48E-01	1.02E-01	2.72E-01
		300.09		3.41	6.12E+00		1.64E+00	3.02E+00
+	BI-214	609.31	*	46.30	6.11E-01	6.11E-01	2.89E+01	3.00E-01
		1120.29	*	15.10	2.33E+00		2.99E+01	1.14E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BI-214	1764.49	*	15.80	2.19E+00	6.11E-01	3.17E+01	1.06E+00
		2204.22	*	4.98	4.32E+00		2.93E+01	2.00E+00
+	PB-214	295.21	*	19.19	1.36E+00	9.07E-01	2.98E+01	6.76E-01
		351.92	*	37.19	9.07E-01		3.06E+01	4.50E-01
	RN-219	401.80		6.50	3.14E+00	3.14E+00	9.89E-01	1.55E+00
	RA-223	323.87		3.88	4.74E+00	4.74E+00	-1.15E+00	2.34E+00
	RA-224	240.98		3.95	6.69E+00	6.69E+00	5.82E+01	3.32E+00
	RA-225	40.00		31.00	7.45E+01	7.45E+01	-1.99E+01	3.70E+01
+	RA-226	186.21	*	3.28	8.40E+00	8.40E+00	6.39E+01	4.18E+00
	TH-227	50.10		8.40	2.36E+00	1.64E+00	-3.17E-02	1.17E+00
		236.00		11.50	1.64E+00		-9.53E-01	8.10E-01
		256.20		6.30	2.93E+00		3.28E-01	1.45E+00
	AC-228	338.32		11.40	1.66E+00	9.77E-01	9.77E-01	8.19E-01
		911.07		27.70	9.77E-01		1.83E-01	4.76E-01
		969.11		16.60	1.57E+00		5.47E-01	7.63E-01
	TH-230	48.44		16.90	1.23E+00	1.23E+00	1.91E+00	6.10E-01
		62.85		4.60	4.61E+00		1.92E+01	2.29E+00
		67.67		0.37	5.25E+01		3.02E+00	2.61E+01
	PA-231	283.67		1.60	1.12E+01	7.80E+00	1.40E+00	5.53E+00
		302.67		2.30	7.80E+00		6.21E-01	3.85E+00
	TH-231	25.64		14.70	3.71E+00	3.00E+00	2.24E+00	1.84E+00
		84.21		6.40	3.00E+00		-7.37E+00	1.49E+00
	PA-233	311.98		38.60	5.97E+00	5.97E+00	-9.40E-01	2.95E+00
	PA-234	131.20		20.40	7.83E-01	7.83E-01	1.99E-01	3.88E-01
		733.99		8.80	2.53E+00		1.52E+00	1.23E+00
		946.00		12.00	2.17E+00		-5.56E-01	1.05E+00
+	PA-234M	1001.03	*	0.92	3.23E+01	3.23E+01	2.25E+01	1.57E+01
+	TH-234	63.29	*	3.80	6.05E+00	6.05E+00	1.74E+01	3.01E+00
+	U-235	143.76	*	10.50	2.07E+00	2.07E+00	2.97E+00	1.03E+00
		163.35	*	4.70	3.75E+00		2.46E+00	1.86E+00
		205.31		4.70	3.82E+00		3.04E+00	1.89E+00
	NP-237	86.50		12.60	1.57E+00	1.57E+00	3.68E-01	7.80E-01
	NP-239	106.10		22.70	3.05E+12	3.05E+12	6.05E+11	1.51E+12
		228.18		10.70	7.59E+12		-1.32E+12	3.76E+12
		277.60		14.10	5.91E+12		-2.58E+12	2.92E+12
	AM-241	59.54		35.90	5.67E-01	5.67E-01	-5.85E-01	2.82E-01
	AM-243	74.67		66.00	4.11E-01	4.11E-01	6.07E+00	2.05E-01
	CM-243	209.75		3.29	5.38E+00	1.30E+00	-3.28E-01	2.67E+00
		228.14		10.60	1.67E+00		-2.89E-01	8.26E-01
		277.60		14.00	1.30E+00		-5.65E-01	6.40E-01

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

Analysis Report for 1707089-09

HTC-A04-S002-0612-01

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A04-S002-0612-01

Elapsed Live time: 3600
Elapsed Real Time: 3625

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	149	724
17:	741	757	722	642	687	685	697	730
25:	687	666	678	623	631	658	670	617
33:	632	662	617	632	644	659	652	686
41:	744	725	710	881	1246	1215	885	831
49:	853	872	927	1064	1078	960	1038	1034
57:	1089	1128	1276	1284	1542	2094	1932	1463
65:	1386	1376	1443	1427	1402	1468	1524	1716
73:	2622	3450	3705	4506	3448	1873	1546	1446
81:	1332	1504	1577	1477	1495	2086	1949	1550
89:	1505	1510	2130	2500	1747	1186	956	924
97:	1046	1008	899	875	865	948	867	901
105:	898	907	898	935	920	915	967	953
113:	1006	900	864	865	932	884	879	884
121:	856	945	831	879	847	886	897	915
129:	858	900	866	870	857	871	864	890
137:	840	873	860	889	957	1060	1092	976
145:	913	870	863	876	895	882	882	911
153:	984	976	885	856	818	880	804	813
161:	841	853	846	752	696	763	712	752
169:	715	720	687	709	670	698	723	702
177:	687	729	703	665	736	715	878	1412
185:	2158	1735	883	633	622	651	628	654
193:	679	625	649	654	620	642	604	573
201:	666	574	566	593	639	541	546	507
209:	555	589	578	502	501	508	465	506
217:	509	469	477	490	475	513	510	451
225:	490	458	506	447	447	468	460	430
233:	414	454	533	577	579	526	542	1158
241:	1914	1393	595	419	400	401	345	432
249:	373	357	374	415	381	409	398	413
257:	435	430	400	392	370	375	360	358
265:	341	338	343	423	458	463	444	373
273:	353	389	363	302	327	317	328	321
281:	347	333	309	308	295	305	295	317
289:	323	304	312	403	1333	2945	2681	951
297:	303	268	310	292	277	289	278	262
305:	243	274	266	253	252	264	248	283
313:	287	281	251	247	242	242	262	242
321:	255	270	257	273	230	257	283	254
329:	292	246	235	227	226	266	230	245
337:	258	245	249	232	220	245	214	252
345:	263	237	244	283	671	2676	4837	3291
353:	809	211	185	184	184	172	188	163
361:	185	178	189	162	194	163	196	192

369:	192	201	164	201	171	187	184	184

Sample Title: HTC-A04-S002-0612-01

Channel								
377:	186	185	182	190	163	191	210	193
385:	205	209	202	236	216	213	184	173
393:	190	190	210	176	179	181	175	215
401:	219	213	186	213	207	201	203	199
409:	194	178	192	208	177	193	175	191
417:	202	197	188	183	198	195	174	183
425:	190	190	192	172	166	173	147	150
433:	156	160	145	163	121	137	141	145
441:	165	126	130	135	138	131	131	121
449:	138	138	140	124	140	181	143	132
457:	115	107	126	113	130	137	134	126
465:	136	124	119	138	141	117	114	134
473:	129	124	120	121	106	110	150	144
481:	132	112	108	108	127	156	150	128
489:	94	110	97	109	104	101	120	107
497:	112	95	94	113	83	78	102	99
505:	113	91	120	114	148	158	126	116
513:	88	104	95	104	107	91	101	89
521:	92	102	80	88	99	90	89	92
529:	105	92	106	89	95	109	113	104
537:	92	98	63	109	92	91	104	82
545:	99	85	92	89	73	82	86	63
553:	77	85	77	93	82	79	93	97
561:	66	97	77	87	87	90	91	104
569:	88	76	95	95	87	81	88	88
577:	91	98	98	131	101	102	107	101
585:	92	85	87	82	90	84	82	98
593:	80	83	81	68	89	71	62	86
601:	83	67	70	80	73	236	1076	2742
609:	2749	1019	168	56	71	78	70	60
617:	57	63	72	55	51	57	66	70
625:	53	67	60	64	57	58	63	58
633:	52	60	73	48	58	68	62	64
641:	54	44	68	66	55	67	50	69
649:	60	62	52	70	58	69	57	62
657:	59	55	54	65	68	49	93	116
665:	137	102	73	59	64	77	56	60
673:	56	69	49	48	46	56	50	51
681:	62	64	58	64	51	52	62	61
689:	42	62	61	50	61	58	42	55
697:	49	65	57	63	69	91	83	60
705:	71	66	53	46	60	63	54	60
713:	47	58	58	61	58	63	84	79
721:	48	60	40	66	56	56	60	39
729:	66	51	60	61	47	54	61	44
737:	50	55	66	62	85	81	77	58
745:	54	58	53	50	43	52	44	46
753:	47	53	45	65	52	42	47	56
761:	71	64	47	51	80	132	251	298
769:	148	81	53	49	62	46	57	48
777:	43	47	61	62	61	53	65	79
785:	104	103	60	49	46	46	53	45
793:	59	49	52	63	59	50	53	57

801:	54	45	75	78	100	101	100	45

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Channel								
809:	64	48	46	42	43	54	60	47
817:	46	53	49	55	55	55	52	43
825:	56	49	49	60	61	62	56	52
833:	67	47	55	52	62	88	76	66
841:	53	52	34	58	45	65	50	67
849:	58	45	55	54	69	55	44	61
857:	52	50	47	43	47	55	45	51
865:	49	57	47	55	54	59	49	66
873:	46	46	52	47	38	50	56	52
881:	51	48	50	36	46	47	44	54
889:	42	77	47	48	58	50	68	63
897:	53	50	50	53	49	47	50	57
905:	39	61	57	59	52	77	61	39
913:	37	46	63	47	59	59	46	37
921:	44	39	54	47	39	45	48	37
929:	45	46	57	133	158	150	90	35
937:	45	42	44	49	52	46	50	39
945:	48	42	46	55	43	53	51	30
953:	44	48	56	43	41	56	38	45
961:	55	47	52	56	53	38	41	45
969:	44	42	39	46	33	37	45	46
977:	43	55	30	39	34	42	48	41
985:	44	32	41	45	47	26	24	34
993:	36	47	35	38	39	33	50	80
1001:	73	56	37	41	48	42	34	43
1009:	45	31	47	40	37	33	44	46
1017:	36	39	30	38	31	43	41	32
1025:	32	52	37	26	31	33	35	37
1033:	33	47	39	39	28	36	43	40
1041:	38	33	36	33	45	29	38	35
1049:	34	31	40	36	28	29	28	34
1057:	37	40	27	27	24	33	34	33
1065:	37	40	38	46	37	46	39	32
1073:	37	30	23	33	30	22	33	48
1081:	37	40	23	34	34	33	23	34
1089:	35	33	41	37	24	42	33	34
1097:	37	35	31	32	34	45	33	47
1105:	42	34	54	25	38	25	32	35
1113:	22	36	20	28	75	204	500	521
1121:	255	88	30	27	26	30	33	33
1129:	45	34	28	40	39	35	26	33
1137:	25	39	46	26	27	22	26	25
1145:	27	29	23	34	22	30	39	34
1153:	54	107	102	55	29	37	31	26
1161:	28	34	40	28	29	25	23	28
1169:	33	27	41	43	26	28	21	33
1177:	24	24	20	35	37	46	31	26
1185:	17	29	29	25	30	23	26	30
1193:	20	25	28	22	27	24	30	27
1201:	25	21	24	34	33	32	41	37
1209:	32	27	34	31	29	37	25	21
1217:	29	30	23	22	29	27	29	22
1225:	34	19	28	26	31	23	24	15

1233:	21	26	46	116	199	184	104	51

Sample Title: HTC-A04-S002-0612-01

Channel								
1241:	29	26	22	24	26	17	23	28
1249:	17	22	26	40	33	29	23	29
1257:	24	26	22	18	19	29	21	15
1265:	34	22	17	21	22	31	22	20
1273:	26	30	20	28	28	25	50	58
1281:	69	28	18	19	27	26	18	23
1289:	22	32	24	28	13	29	26	27
1297:	24	21	15	23	14	24	28	30
1305:	29	20	25	19	26	20	22	21
1313:	21	18	23	23	19	27	24	24
1321:	18	25	21	26	23	20	22	16
1329:	21	21	21	22	21	25	20	23
1337:	14	36	28	13	24	20	27	25
1345:	24	19	25	28	21	21	19	24
1353:	23	27	20	25	23	27	26	22
1361:	23	18	22	28	19	21	24	18
1369:	24	19	24	23	24	30	46	110
1377:	146	104	50	19	16	19	23	36
1385:	35	38	18	22	20	19	19	18
1393:	16	21	19	23	19	21	35	53
1401:	44	49	21	17	38	62	91	82
1409:	38	24	20	26	24	16	19	20
1417:	19	20	20	28	22	33	28	30
1425:	26	29	23	22	23	21	19	23
1433:	21	25	21	23	18	18	24	15
1441:	23	26	22	21	23	24	20	19
1449:	22	22	15	31	19	26	22	24
1457:	26	26	55	67	52	34	30	22
1465:	32	29	23	22	23	19	22	28
1473:	28	28	18	24	19	26	24	23
1481:	31	23	20	30	23	13	27	22
1489:	26	24	23	23	30	21	26	22
1497:	28	29	20	25	17	23	15	20
1505:	15	24	52	85	85	48	32	25
1513:	24	25	25	32	28	14	24	19
1521:	22	20	19	20	25	25	19	34
1529:	28	22	25	19	24	15	21	23
1537:	36	36	20	26	17	27	41	27
1545:	12	18	17	16	25	14	15	14
1553:	10	20	16	19	15	17	19	14
1561:	14	19	15	17	21	15	10	21
1569:	16	21	20	23	12	14	19	23
1577:	11	17	13	16	22	27	28	25
1585:	21	11	13	10	15	19	12	8
1593:	25	18	16	17	15	16	16	11
1601:	6	15	10	15	17	16	13	11
1609:	12	17	13	12	20	13	13	10
1617:	13	17	18	15	10	13	11	14
1625:	12	12	6	10	9	5	7	12
1633:	8	8	15	11	8	13	12	11
1641:	14	8	9	8	11	12	6	8
1649:	5	7	8	6	12	14	10	8
1657:	9	14	26	33	37	21	8	11

1665:	4	7	4	8	6	8	7	9

Sample Title: HTC-A04-S002-0612-01

Channel								
1673:	8	11	8	7	10	8	9	3
1681:	8	12	13	11	4	9	7	9
1689:	2	13	13	16	9	18	13	11
1697:	8	7	6	5	6	12	10	7
1705:	5	4	9	6	9	4	7	9
1713:	6	12	8	8	5	2	5	13
1721:	9	8	11	10	11	13	33	54
1729:	84	55	20	10	4	6	5	6
1737:	7	5	6	3	13	8	5	7
1745:	4	4	11	10	4	2	17	8
1753:	7	7	4	10	7	4	5	12
1761:	31	126	288	356	228	72	12	6
1769:	6	8	3	7	3	2	6	3
1777:	6	2	1	6	4	7	5	6
1785:	6	7	4	3	4	7	8	2
1793:	5	8	4	6	1	4	3	3
1801:	4	5	6	6	6	4	5	7
1809:	9	9	6	3	6	3	2	4
1817:	4	5	5	8	4	3	4	5
1825:	5	5	9	4	4	7	7	5
1833:	5	5	3	6	6	9	11	6
1841:	4	6	5	7	20	51	49	38
1849:	15	5	6	11	2	1	5	3
1857:	5	5	6	5	0	3	5	4
1865:	5	7	5	1	4	7	5	8
1873:	11	5	2	7	3	2	3	11
1881:	9	4	2	5	4	3	0	6
1889:	4	7	9	6	7	6	8	9
1897:	7	5	5	6	6	6	7	5
1905:	8	7	8	9	3	5	5	6
1913:	4	9	4	6	3	8	10	7
1921:	4	7	7	6	10	3	7	4
1929:	3	8	5	7	10	9	10	9
1937:	12	5	7	6	4	5	8	5
1945:	9	4	5	8	8	5	10	3
1953:	7	9	9	9	4	8	6	5
1961:	6	7	6	11	5	6	5	4
1969:	5	5	7	5	2	7	9	7
1977:	3	3	1	3	9	8	2	2
1985:	3	5	4	4	3	3	4	5
1993:	3	7	5	4	1	5	5	1
2001:	2	5	3	7	6	0	5	4
2009:	3	6	5	7	2	6	3	3
2017:	5	4	2	4	6	6	3	4
2025:	6	5	0	8	1	1	10	9
2033:	1	1	5	6	3	5	5	3
2041:	3	3	0	4	6	7	3	2
2049:	3	2	2	2	4	10	7	2
2057:	3	3	6	4	2	2	2	4
2065:	1	1	2	5	4	3	7	5
2073:	0	2	4	2	2	2	3	1
2081:	1	1	1	1	2	2	1	4
2089:	4	4	1	2	2	2	2	2

2097:	5	2	0	2	5	3	2	2

Sample Title: HTC-A04-S002-0612-01

Channel								
2105:	3	3	1	4	3	2	5	2
2113:	3	1	11	6	14	19	14	8
2121:	5	2	1	1	1	4	2	5
2129:	2	2	2	1	4	1	1	3
2137:	6	3	0	1	1	3	0	2
2145:	4	4	2	5	5	4	5	4
2153:	4	0	2	2	1	0	3	2
2161:	3	1	1	0	2	2	5	0
2169:	2	1	2	0	1	1	3	2
2177:	2	2	3	1	0	0	1	2
2185:	1	2	1	1	2	1	2	2
2193:	3	1	2	0	5	1	2	6
2201:	9	32	69	82	43	16	1	1
2209:	1	3	1	3	0	1	0	2
2217:	2	0	2	1	0	1	2	0
2225:	0	1	1	0	3	2	3	0
2233:	0	0	0	2	1	3	1	2
2241:	0	1	1	0	0	0	0	0
2249:	3	2	0	0	2	0	0	1
2257:	2	1	1	1	2	2	1	1
2265:	2	0	0	0	2	3	1	0
2273:	2	1	1	2	1	0	1	1
2281:	0	1	1	0	0	1	1	1
2289:	0	1	4	4	10	4	2	2
2297:	2	3	0	0	1	0	0	3
2305:	1	1	1	2	0	0	1	1
2313:	1	1	1	1	1	2	0	0
2321:	1	0	1	1	1	0	0	2
2329:	1	2	0	3	1	2	3	3
2337:	0	2	2	1	0	0	0	2
2345:	0	1	2	1	0	1	2	1
2353:	0	0	2	0	0	0	1	0
2361:	0	0	2	1	0	0	0	0
2369:	1	1	0	1	0	1	2	0
2377:	2	1	2	0	1	1	1	0
2385:	0	2	1	2	1	2	0	0
2393:	0	1	2	0	1	0	0	0
2401:	0	1	0	1	1	0	1	1
2409:	0	0	2	1	1	1	0	2
2417:	0	0	2	2	1	0	0	2
2425:	0	0	1	1	0	0	1	1
2433:	0	0	0	0	0	2	0	0
2441:	1	0	2	1	5	19	27	16
2449:	11	1	0	0	1	0	1	0
2457:	0	0	0	0	0	0	0	0
2465:	0	1	2	2	0	0	0	0
2473:	0	1	1	0	0	0	1	0
2481:	0	2	0	0	0	0	0	0
2489:	0	0	0	0	1	2	3	0
2497:	0	0	0	0	0	0	0	0
2505:	0	1	1	0	1	0	0	0
2513:	1	1	0	0	0	0	1	0
2521:	1	0	0	0	0	2	0	0

2529:	1	0	0	0	0	0	0	0

Sample Title: HTC-A04-S002-0612-01

Channel								
2537:	0	0	0	0	0	0	0	0
2545:	1	0	0	0	0	0	0	0
2553:	0	0	0	0	0	0	0	0
2561:	0	0	0	0	0	0	0	0
2569:	0	1	0	0	1	0	0	0
2577:	1	1	1	0	1	0	0	0
2585:	0	0	0	1	0	1	0	0
2593:	1	0	0	0	0	0	1	0
2601:	0	1	0	0	1	1	0	0
2609:	0	0	3	3	1	9	11	1
2617:	1	0	0	1	0	1	0	0
2625:	0	0	0	1	0	1	0	0
2633:	1	0	1	0	0	0	0	0
2641:	0	0	0	0	0	1	0	1
2649:	0	0	0	1	0	0	1	0
2657:	0	0	0	1	1	0	1	0
2665:	0	0	0	2	0	0	0	1
2673:	0	0	0	0	0	0	0	0
2681:	0	0	0	1	0	0	0	0
2689:	1	0	0	1	0	1	0	0
2697:	0	1	0	1	0	0	0	1
2705:	0	0	1	0	0	1	0	0
2713:	0	0	0	0	0	2	0	0
2721:	0	0	0	0	0	0	0	0
2729:	0	0	0	1	0	0	1	0
2737:	0	1	0	0	0	1	0	0
2745:	0	0	1	0	1	0	0	0
2753:	0	1	0	0	0	0	0	0
2761:	1	0	0	0	0	0	0	0
2769:	1	0	0	0	0	1	0	1
2777:	0	0	0	0	0	0	0	0
2785:	0	0	0	0	0	0	1	0
2793:	0	0	2	0	0	0	0	1
2801:	1	0	1	1	0	1	1	0
2809:	0	0	0	0	0	0	0	1
2817:	0	1	0	0	0	0	0	0
2825:	0	0	1	1	1	0	0	1
2833:	0	0	0	0	0	0	0	0
2841:	0	0	0	0	0	0	0	0
2849:	0	1	0	0	0	0	0	0
2857:	0	0	0	0	0	0	0	0
2865:	1	0	0	0	0	0	0	0
2873:	0	0	1	0	0	0	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	1	0	0
2913:	0	0	0	1	0	0	0	0
2921:	1	4	0	0	0	0	0	1
2929:	0	1	2	0	0	0	0	0
2937:	0	0	0	1	1	0	0	0
2945:	0	0	0	0	0	1	0	0
2953:	0	0	0	0	0	0	0	0

2961:	0	0	1	0	0	0	1	0

Sample Title: HTC-A04-S002-0612-01

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

3393:	0	0	0	0	1	0	0	0

Sample Title: HTC-A04-S002-0612-01

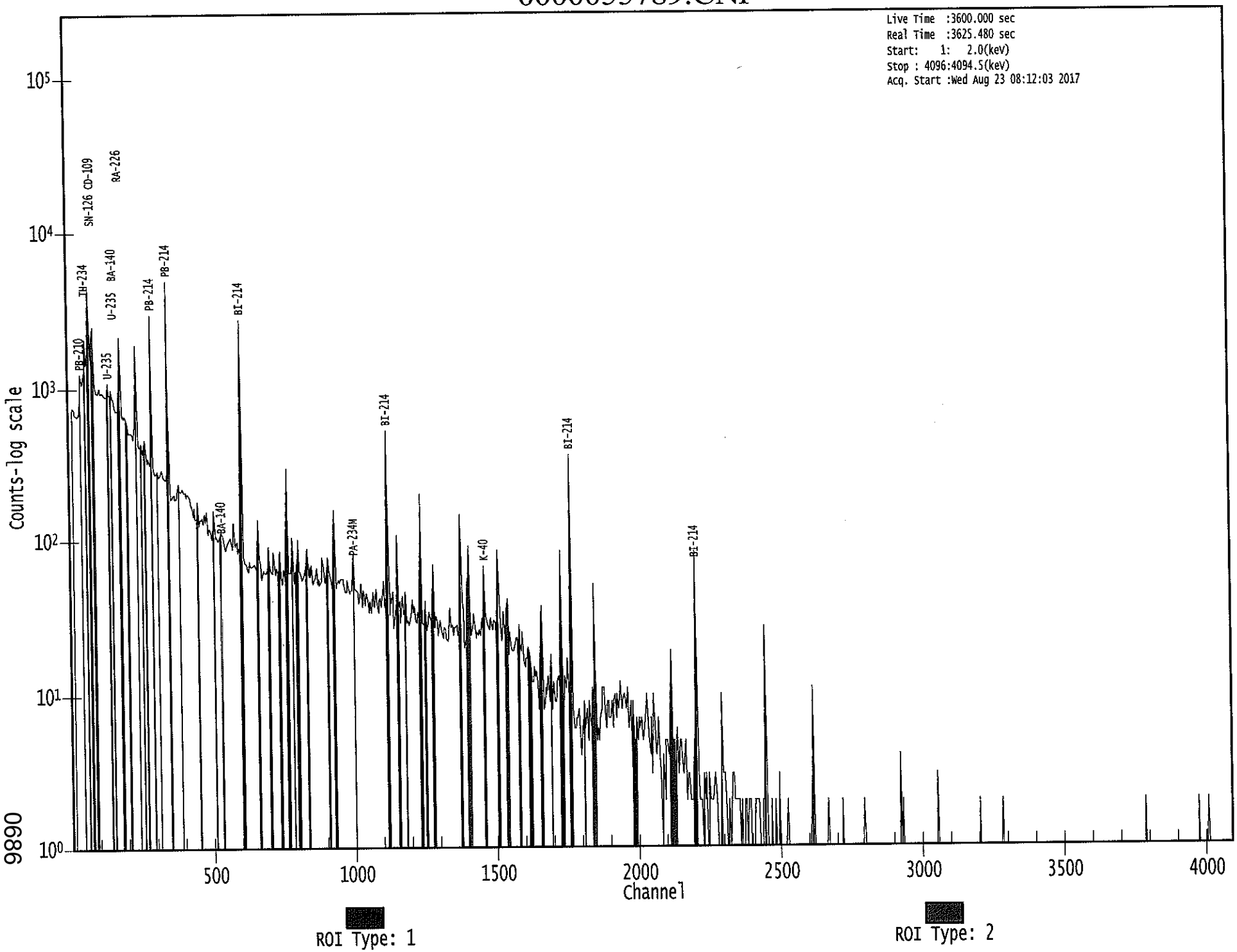
Channel								
3401:	1	0	0	1	0	0	1	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	1	0	0	0	1
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	1	0	0
3441:	0	0	0	0	0	0	0	1
3449:	0	0	0	0	0	0	1	0
3457:	1	0	0	0	0	1	0	0
3465:	0	0	0	1	0	0	1	0
3473:	0	1	1	0	0	0	0	0
3481:	0	0	0	0	0	0	0	1
3489:	0	0	0	0	0	0	1	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A04-S002-0612-01

Channel								
3833:	1	0	0	0	0	0	0	0
3841:	0	0	0	1	1	0	0	0
3849:	0	0	0	0	1	0	0	1
3857:	0	0	0	0	1	0	0	0
3865:	0	1	0	0	0	0	0	0
3873:	0	0	0	0	0	0	0	0
3881:	0	0	0	0	0	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	1	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	1	0
3945:	0	0	0	0	0	0	0	0
3953:	0	0	0	0	0	0	0	0
3961:	0	0	0	0	0	0	0	0
3969:	0	0	0	0	0	0	2	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	1	0
4001:	1	0	0	1	0	1	0	0
4009:	2	1	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	0	0	0	0	0	0
4041:	0	0	1	0	0	0	0	0
4049:	0	0	0	0	0	0	0	0
4057:	0	0	0	0	1	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	1	0	0	0	0	0	0

0000055789.CNF



9890

Apex-Gamma

8/23

Analysis Report for 1707089-10

HTC-A04-S002-1218-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707089-10
Sample Description	: HTC-A04-S002-1218-01
Sample Type	: SOIL
Sample Size	: 7.649E+02 grams
Facility	: Countroom
Sample Taken On	: 5/16/2017 6:49:02AM
Acquisition Started	: 8/23/2017 9:16:38AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3612.7 seconds
Dead Time	: 0.35 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 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	: 55790

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/23/17

Analysis Report for 1707089-10

HTC-A04-S002-1218-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/23/2017 10:16:54AM
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	46.25	46.87	0.0000	0.00
2	53.06	53.68	0.0000	0.00
3	63.13	63.74	0.0000	0.00
4	67.60	68.20	0.0000	0.00
5	76.11	76.70	0.0000	0.00
6	87.41	87.99	0.0000	0.00
7	92.62	93.19	0.0000	0.00
8	143.57	144.09	0.0000	0.00
9	154.07	154.58	0.0000	0.00
10	163.67	164.18	0.0000	0.00
11	182.46	182.94	0.0000	0.00
12	185.92	186.40	0.0000	0.00
13	235.88	236.31	0.0000	0.00
14	238.74	239.17	0.0000	0.00
15	241.91	242.33	0.0000	0.00
16	257.85	258.26	0.0000	0.00
17	269.63	270.02	0.0000	0.00
18	295.18	295.55	0.0000	0.00
19	299.59	299.95	0.0000	0.00
20	313.68	314.03	0.0000	0.00
21	338.24	338.56	0.0000	0.00
22	351.89	352.20	0.0000	0.00
23	356.09	356.39	0.0000	0.00
24	388.19	388.47	0.0000	0.00
25	462.66	462.85	0.0000	0.00
26	480.59	480.77	0.0000	0.00
27	486.91	487.08	0.0000	0.00
28	511.07	511.22	0.0000	0.00
29	572.34	572.43	0.0000	0.00
30	580.00	580.08	0.0000	0.00
31	583.18	583.26	0.0000	0.00
32	609.42	609.47	0.0000	0.00
33	613.74	613.79	0.0000	0.00
34	662.00	662.00	0.0000	0.00
35	665.64	665.63	0.0000	0.00
36	689.25	689.22	0.0000	0.00
37	702.85	702.81	0.0000	0.00
38	720.45	720.39	0.0000	0.00
39	768.44	768.33	0.0000	0.00
40	786.49	786.37	0.0000	0.00
41	806.28	806.14	0.0000	0.00
42	832.00	831.83	0.0000	0.00

Analysis Report for 1707089-10

HTC-A04-S002-1218-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	838.80	838.62	0.0000	0.00
44	873.14	872.93	0.0000	0.00
45	930.77	930.49	0.0000	0.00
46	934.28	934.01	0.0000	0.00
47	1001.48	1001.14	0.0000	0.00
48	1053.96	1053.56	0.0000	0.00
49	1062.97	1062.56	0.0000	0.00
50	1120.63	1120.17	0.0000	0.00
51	1125.03	1124.56	0.0000	0.00
52	1133.11	1132.64	0.0000	0.00
53	1155.62	1155.13	0.0000	0.00
54	1181.98	1181.46	0.0000	0.00
55	1208.41	1207.87	0.0000	0.00
56	1238.60	1238.03	0.0000	0.00
57	1253.74	1253.15	0.0000	0.00
58	1281.39	1280.77	0.0000	0.00
59	1378.28	1377.56	0.0000	0.00
60	1385.73	1385.01	0.0000	0.00
61	1402.09	1401.35	0.0000	0.00
62	1408.54	1407.80	0.0000	0.00
63	1424.71	1423.95	0.0000	0.00
64	1461.11	1460.31	0.0000	0.00
65	1509.54	1508.70	0.0000	0.00
66	1539.07	1538.20	0.0000	0.00
67	1544.59	1543.71	0.0000	0.00
68	1583.65	1582.73	0.0000	0.00
69	1588.13	1587.21	0.0000	0.00
70	1594.16	1593.24	0.0000	0.00
71	1662.28	1661.29	0.0000	0.00
72	1685.29	1684.28	0.0000	0.00
73	1693.43	1692.41	0.0000	0.00
74	1730.27	1729.21	0.0000	0.00
75	1765.18	1764.08	0.0000	0.00
76	1810.91	1809.77	0.0000	0.00
77	1839.57	1838.41	0.0000	0.00
78	1848.13	1846.95	0.0000	0.00
79	1873.58	1872.38	0.0000	0.00
80	2088.93	2087.52	0.0000	0.00
81	2102.71	2101.29	0.0000	0.00
82	2119.37	2117.94	0.0000	0.00
83	2148.95	2147.49	0.0000	0.00
84	2195.10	2193.59	0.0000	0.00
85	2204.76	2203.24	0.0000	0.00
86	2209.76	2208.24	0.0000	0.00
87	2276.56	2274.97	0.0000	0.00
88	2294.23	2292.62	0.0000	0.00
89	2419.96	2418.24	0.0000	0.00
90	2448.44	2446.69	0.0000	0.00
91	2611.91	2610.00	0.0000	0.00
92	2614.93	2613.02	0.0000	0.00
93	2618.69	2616.78	0.0000	0.00
94	2729.02	2727.00	0.0000	0.00

Analysis Report for 1707089-10

HTC-A04-S002-1218-01

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707089-10

HTC-A04-S002-1218-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/23/2017 10:16:54AM

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	46.25	44 -	49	46.87	1.19E+03	230.43	9.73E+03	1.29
	2	53.06	52 -	56	53.68	3.42E+02	215.80	1.01E+04	1.43
	3	63.13	61 -	66	63.74	2.88E+03	307.62	1.67E+04	1.39
	4	67.60	67 -	70	68.20	1.85E+02	225.90	1.27E+04	1.12
	5	76.11	71 -	83	76.70	1.22E+04	656.21	4.50E+04	3.75
M	6	87.41	83 -	102	87.99	3.63E+03	419.78	2.54E+04	2.95
m	7	92.62	83 -	102	93.19	6.20E+03	352.36	1.68E+04	2.22
	8	143.57	141 -	147	144.09	7.14E+02	286.26	1.44E+04	1.52
	9	154.07	153 -	157	154.58	2.12E+02	213.92	9.97E+03	1.89
	10	163.67	162 -	167	164.18	4.36E+02	235.36	1.07E+04	1.45
M	11	182.46	181 -	191	182.94	1.93E+02	166.12	6.74E+03	1.89
m	12	185.92	181 -	191	186.40	5.37E+03	243.07	8.32E+03	1.73
M	13	235.88	233 -	246	236.31	3.98E+02	139.87	4.58E+03	1.46
m	14	238.74	233 -	246	239.17	3.61E+02	167.64	5.67E+03	1.82
m	15	241.91	233 -	246	242.33	4.88E+03	210.40	5.54E+03	1.71
	16	257.85	254 -	262	258.26	6.10E+02	232.67	7.94E+03	3.35
	17	269.63	264 -	273	270.02	4.93E+02	254.60	9.00E+03	2.16
M	18	295.18	291 -	303	295.55	1.05E+04	244.81	3.90E+03	1.62
m	19	299.59	291 -	303	299.95	4.46E+02	147.29	3.74E+03	1.83
	20	313.68	312 -	317	314.03	1.14E+02	139.53	3.78E+03	1.25
	21	338.24	336 -	341	338.56	1.63E+02	135.90	3.56E+03	1.87
M	22	351.89	346 -	367	352.20	1.84E+04	293.29	2.64E+03	1.70
m	23	356.09	346 -	367	356.39	6.14E+02	226.08	3.73E+03	2.54
	24	388.19	385 -	392	388.47	3.38E+02	150.82	3.57E+03	3.35
	25	462.66	459 -	467	462.85	1.99E+02	134.99	2.68E+03	2.77
M	26	480.59	478 -	490	480.77	1.03E+02	85.00	1.56E+03	1.65
m	27	486.91	478 -	490	487.08	1.51E+02	84.50	1.45E+03	1.54
	28	511.07	506 -	516	511.22	3.66E+02	148.98	2.76E+03	4.04
	29	572.34	569 -	576	572.43	1.16E+02	101.31	1.64E+03	3.77
M	30	580.00	577 -	587	580.08	1.54E+02	94.68	1.46E+03	2.25
m	31	583.18	577 -	587	583.26	1.75E+02	95.86	1.46E+03	2.25
M	32	609.42	603 -	619	609.47	1.38E+04	244.36	9.43E+02	1.82
m	33	613.74	603 -	619	613.79	6.03E+02	194.35	1.30E+03	2.73
M	34	662.00	661 -	668	662.00	3.97E+01	34.00	3.66E+02	1.89
m	35	665.64	661 -	668	665.63	3.32E+02	72.70	8.96E+02	1.76
	36	689.25	687 -	692	689.22	7.60E+01	66.53	8.28E+02	3.04
	37	702.85	698 -	707	702.81	1.83E+02	107.12	1.53E+03	2.20
	38	720.45	717 -	724	720.39	1.63E+02	86.09	1.12E+03	3.04
	39	768.44	763 -	774	768.33	1.41E+03	140.09	1.75E+03	2.22
	40	786.49	783 -	791	786.37	3.57E+02	95.80	1.20E+03	1.98

Analysis Report for 1707089-10

HTC-A04-S002-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	806.28	802 -	810	806.14	3.33E+02	95.45	1.20E+03	2.20
	42	832.00	829 -	834	831.83	6.39E+01	64.25	7.66E+02	2.46
	43	838.80	835 -	842	838.62	1.68E+02	83.71	1.06E+03	2.43
	44	873.14	870 -	876	872.93	5.99E+01	71.38	8.84E+02	4.02
M	45	930.77	929 -	938	930.49	3.68E+01	26.42	2.18E+02	1.45
m	46	934.28	929 -	938	934.01	7.05E+02	79.79	7.04E+02	2.01
	47	1001.48	997 -	1006	1001.14	2.99E+02	91.37	1.03E+03	1.84
	48	1053.96	1048 -	1059	1053.56	1.55E+02	94.62	1.03E+03	4.55
	49	1062.97	1060 -	1066	1062.56	6.23E+01	59.11	5.93E+02	3.00
M	50	1120.63	1114 -	1129	1120.17	3.03E+03	120.90	4.79E+02	2.06
m	51	1125.03	1114 -	1129	1124.56	1.38E+02	92.33	6.47E+02	2.51
	52	1133.11	1129 -	1136	1132.64	7.42E+01	63.50	6.28E+02	1.63
	53	1155.62	1151 -	1159	1155.13	2.77E+02	80.29	8.15E+02	2.02
	54	1181.98	1178 -	1185	1181.46	6.05E+01	61.61	5.93E+02	3.62
	55	1208.41	1204 -	1212	1207.87	8.76E+01	67.77	6.43E+02	2.74
	56	1238.60	1232 -	1244	1238.03	1.03E+03	115.78	1.09E+03	2.32
	57	1253.74	1250 -	1257	1253.15	9.54E+01	59.03	5.19E+02	2.93
	58	1281.39	1275 -	1285	1280.77	2.32E+02	82.85	7.90E+02	2.10
M	59	1378.28	1372 -	1389	1377.56	8.27E+02	74.28	4.07E+02	2.45
m	60	1385.73	1372 -	1389	1385.01	1.24E+02	52.70	4.52E+02	2.33
M	61	1402.09	1395 -	1412	1401.35	3.02E+02	63.97	4.59E+02	2.62
m	62	1408.54	1395 -	1412	1407.80	4.21E+02	62.75	4.17E+02	2.45
	63	1424.71	1419 -	1428	1423.95	5.60E+01	63.83	5.50E+02	3.17
	64	1461.11	1456 -	1465	1460.31	2.46E+02	74.75	6.65E+02	1.97
	65	1509.54	1502 -	1515	1508.70	3.93E+02	102.89	1.00E+03	2.21
	66	1539.07	1536 -	1541	1538.20	4.45E+01	45.96	3.91E+02	1.76
	67	1544.59	1541 -	1548	1543.71	5.10E+01	56.04	4.84E+02	1.49
M	68	1583.65	1577 -	1590	1582.73	1.34E+02	54.74	3.80E+02	2.91
m	69	1588.13	1577 -	1590	1587.21	4.01E+01	42.15	2.33E+02	2.96
	70	1594.16	1591 -	1596	1593.24	2.96E+01	37.59	2.65E+02	2.77
	71	1662.28	1657 -	1668	1661.29	1.92E+02	57.10	2.93E+02	2.87
	72	1685.29	1680 -	1688	1684.28	3.81E+01	37.78	1.92E+02	3.91
	73	1693.43	1689 -	1696	1692.41	5.73E+01	31.94	1.31E+02	3.37
	74	1730.27	1723 -	1735	1729.21	5.70E+02	68.21	2.78E+02	2.45
	75	1765.18	1757 -	1770	1764.08	2.53E+03	116.32	3.77E+02	2.54
	76	1810.91	1806 -	1813	1809.77	2.72E+01	24.74	8.36E+01	3.20
M	77	1839.57	1833 -	1852	1838.41	5.54E+01	35.31	1.39E+02	3.36
m	78	1848.13	1833 -	1852	1846.95	3.13E+02	41.89	9.39E+01	2.46
	79	1873.58	1869 -	1875	1872.38	3.79E+01	27.27	1.06E+02	2.14
	80	2088.93	2084 -	2091	2087.52	1.90E+01	17.78	4.00E+01	3.90
	81	2102.71	2098 -	2104	2101.29	1.44E+01	16.94	4.12E+01	3.35
	82	2119.37	2112 -	2125	2117.94	2.15E+02	36.93	5.60E+01	2.72
	83	2148.95	2143 -	2152	2147.49	2.78E+01	15.75	1.83E+01	4.39
	84	2195.10	2190 -	2196	2193.59	1.62E+01	13.17	1.75E+01	3.18
M	85	2204.76	2197 -	2213	2203.24	6.27E+02	52.00	3.57E+00	2.63
m	86	2209.76	2197 -	2213	2208.24	2.63E+01	35.61	7.60E+00	2.63
	87	2276.56	2271 -	2278	2274.97	1.43E+01	10.20	7.33E+00	2.56
	88	2294.23	2286 -	2298	2292.62	3.77E+01	23.15	4.46E+01	2.54
	89	2419.96	2413 -	2421	2418.24	7.58E+00	9.41	8.83E+00	1.84
	90	2448.44	2441 -	2453	2446.69	1.84E+02	30.87	2.43E+01	2.50
M	91	2611.91	2609 -	2619	2610.00	6.93E+00	0.00	0.00E+00	2.49
m	92	2614.93	2609 -	2619	2613.02	4.50E+01	14.42	0.00E+00	2.73
m	93	2618.69	2609 -	2619	2616.78	1.04E+01	9.59	0.00E+00	2.74

Analysis Report for 1707089-10

HTC-A04-S002-1218-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
94	2729.02	2723 -	2729	2727.00	7.00E+00	5.29	0.00E+00	1.25

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 : 8/23/2017 10:16:54AM

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	46.25	44 -	49	1.19E+03	230.43	9.73E+03	1.81E+02
	2	53.06	52 -	56	3.42E+02	215.80	1.01E+04	1.75E+02
	3	63.13	61 -	66	2.88E+03	307.62	1.67E+04	2.37E+02
	4	67.60	67 -	70	1.85E+02	225.90	1.27E+04	1.84E+02
	5	76.11	71 -	83	1.22E+04	656.21	4.50E+04	5.08E+02
M	6	87.41	83 -	102	3.63E+03	419.78	2.54E+04	2.62E+02
m	7	92.62	83 -	102	6.20E+03	352.36	1.68E+04	2.13E+02
	8	143.57	141 -	147	7.14E+02	286.26	1.44E+04	2.31E+02
	9	154.07	153 -	157	2.12E+02	213.92	9.97E+03	1.74E+02
	10	163.67	162 -	167	4.36E+02	235.36	1.07E+04	1.90E+02
M	11	182.46	181 -	191	1.93E+02	166.12	6.74E+03	1.35E+02
m	12	185.92	181 -	191	5.37E+03	243.07	8.32E+03	1.50E+02
M	13	235.88	233 -	246	3.98E+02	139.87	4.58E+03	1.11E+02
m	14	238.74	233 -	246	3.61E+02	167.64	5.67E+03	1.24E+02
m	15	241.91	233 -	246	4.88E+03	210.40	5.54E+03	1.22E+02
	16	257.85	254 -	262	6.10E+02	232.67	7.94E+03	1.87E+02
	17	269.63	264 -	273	4.93E+02	254.60	9.00E+03	2.06E+02
M	18	295.18	291 -	303	1.05E+04	244.81	3.90E+03	1.03E+02
m	19	299.59	291 -	303	4.46E+02	147.29	3.74E+03	1.01E+02
	20	313.68	312 -	317	1.14E+02	139.53	3.78E+03	1.13E+02
	21	338.24	336 -	341	1.63E+02	135.90	3.56E+03	1.10E+02
M	22	351.89	346 -	367	1.84E+04	293.29	2.64E+03	8.45E+01
m	23	356.09	346 -	367	6.14E+02	226.08	3.73E+03	1.00E+02
	24	388.19	385 -	392	3.38E+02	150.82	3.57E+03	1.20E+02
	25	462.66	459 -	467	1.99E+02	134.99	2.68E+03	1.09E+02
M	26	480.59	478 -	490	1.03E+02	85.00	1.56E+03	6.49E+01

Analysis Report for 1707089-10

HTC-A04-S002-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	27	486.91	478 -	490	1.51E+02	84.50	1.45E+03	6.27E+01
	28	511.07	506 -	516	3.66E+02	148.98	2.76E+03	1.18E+02
	29	572.34	569 -	576	1.16E+02	101.31	1.64E+03	8.14E+01
M	30	580.00	577 -	587	1.54E+02	94.68	1.46E+03	6.27E+01
m	31	583.18	577 -	587	1.75E+02	95.86	1.46E+03	6.29E+01
M	32	609.42	603 -	619	1.38E+04	244.36	9.43E+02	5.05E+01
m	33	613.74	603 -	619	6.03E+02	194.35	1.30E+03	5.92E+01
M	34	662.00	661 -	668	3.97E+01	34.00	3.66E+02	3.14E+01
m	35	665.64	661 -	668	3.32E+02	72.70	8.96E+02	4.92E+01
	36	689.25	687 -	692	7.60E+01	66.53	8.28E+02	5.28E+01
	37	702.85	698 -	707	1.83E+02	107.12	1.53E+03	8.52E+01
	38	720.45	717 -	724	1.63E+02	86.09	1.12E+03	6.76E+01
	39	768.44	763 -	774	1.41E+03	140.09	1.75E+03	9.72E+01
	40	786.49	783 -	791	3.57E+02	95.80	1.20E+03	7.24E+01
	41	806.28	802 -	810	3.33E+02	95.45	1.20E+03	7.25E+01
	42	832.00	829 -	834	6.39E+01	64.25	7.66E+02	5.12E+01
	43	838.80	835 -	842	1.68E+02	83.71	1.06E+03	6.54E+01
	44	873.14	870 -	876	5.99E+01	71.38	8.84E+02	5.73E+01
M	45	930.77	929 -	938	3.68E+01	26.42	2.18E+02	2.43E+01
m	46	934.28	929 -	938	7.05E+02	79.79	7.04E+02	4.36E+01
	47	1001.48	997 -	1006	2.99E+02	91.37	1.03E+03	6.95E+01
	48	1053.96	1048 -	1059	1.55E+02	94.62	1.03E+03	7.50E+01
	49	1062.97	1060 -	1066	6.23E+01	59.11	5.93E+02	4.68E+01
M	50	1120.63	1114 -	1129	3.03E+03	120.90	4.79E+02	3.60E+01
m	51	1125.03	1114 -	1129	1.38E+02	92.33	6.47E+02	4.18E+01
	52	1133.11	1129 -	1136	7.42E+01	63.50	6.28E+02	2.39E+01
	53	1155.62	1151 -	1159	2.77E+02	80.29	8.15E+02	6.00E+01
	54	1181.98	1178 -	1185	6.05E+01	61.61	5.93E+02	4.90E+01
	55	1208.41	1204 -	1212	8.76E+01	67.77	6.43E+02	5.35E+01
	56	1238.60	1232 -	1244	1.03E+03	115.78	1.09E+03	7.92E+01
	57	1253.74	1250 -	1257	9.54E+01	59.03	5.19E+02	4.58E+01
	58	1281.39	1275 -	1285	2.32E+02	82.85	7.90E+02	6.33E+01
M	59	1378.28	1372 -	1389	8.27E+02	74.28	4.07E+02	3.32E+01
m	60	1385.73	1372 -	1389	1.24E+02	52.70	4.52E+02	3.49E+01
M	61	1402.09	1395 -	1412	3.02E+02	63.97	4.59E+02	3.52E+01
m	62	1408.54	1395 -	1412	4.21E+02	62.75	4.17E+02	3.36E+01
	63	1424.71	1419 -	1428	5.60E+01	63.83	5.50E+02	5.10E+01
	64	1461.11	1456 -	1465	2.46E+02	74.75	6.65E+02	5.58E+01
	65	1509.54	1502 -	1515	3.93E+02	102.89	1.00E+03	7.80E+01
	66	1539.07	1536 -	1541	4.45E+01	45.96	3.91E+02	3.61E+01
	67	1544.59	1541 -	1548	5.10E+01	56.04	4.84E+02	4.45E+01
M	68	1583.65	1577 -	1590	1.34E+02	54.74	3.80E+02	3.20E+01
m	69	1588.13	1577 -	1590	4.01E+01	42.15	2.33E+02	2.51E+01
	70	1594.16	1591 -	1596	2.96E+01	37.59	2.65E+02	2.96E+01
	71	1662.28	1657 -	1668	1.92E+02	57.10	2.93E+02	4.10E+01
	72	1685.29	1680 -	1688	3.81E+01	37.78	1.92E+02	2.93E+01
	73	1693.43	1689 -	1696	5.73E+01	31.94	1.31E+02	2.31E+01
	74	1730.27	1723 -	1735	5.70E+02	68.21	2.78E+02	4.00E+01
	75	1765.18	1757 -	1770	2.53E+03	116.32	3.77E+02	4.79E+01
	76	1810.91	1806 -	1813	2.72E+01	24.74	8.36E+01	1.84E+01
M	77	1839.57	1833 -	1852	5.54E+01	35.31	1.39E+02	1.94E+01

Analysis Report for 1707089-10

HTC-A04-S002-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	78	1848.13	1833 -	1852	3.13E+02	41.89	9.39E+01	1.59E+01
	79	1873.58	1869 -	1875	3.79E+01	27.27	1.06E+02	2.00E+01
	80	2088.93	2084 -	2091	1.90E+01	17.78	4.00E+01	1.27E+01
	81	2102.71	2098 -	2104	1.44E+01	16.94	4.12E+01	1.25E+01
	82	2119.37	2112 -	2125	2.15E+02	36.93	5.60E+01	1.85E+01
	83	2148.95	2143 -	2152	2.78E+01	15.75	1.83E+01	9.61E+00
	84	2195.10	2190 -	2196	1.62E+01	13.17	1.75E+01	8.56E+00
M	85	2204.76	2197 -	2213	6.27E+02	52.00	3.57E+00	3.11E+00
m	86	2209.76	2197 -	2213	2.63E+01	35.61	7.60E+00	4.53E+00
	87	2276.56	2271 -	2278	1.43E+01	10.20	7.33E+00	5.62E+00
	88	2294.23	2286 -	2298	3.77E+01	23.15	4.46E+01	1.61E+01
	89	2419.96	2413 -	2421	7.58E+00	9.41	8.83E+00	6.27E+00
	90	2448.44	2441 -	2453	1.84E+02	30.87	2.43E+01	1.21E+01
M	91	2611.91	2609 -	2619	6.93E+00	0.00	0.00E+00	0.00E+00
m	92	2614.93	2609 -	2619	4.50E+01	14.42	0.00E+00	0.00E+00
m	93	2618.69	2609 -	2619	1.04E+01	9.59	0.00E+00	0.00E+00
	94	2729.02	2723 -	2729	7.00E+00	5.29	0.00E+00	0.00E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/23/2017 10:16:54AM

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	46.25	44 -	49	46.87	1.19E+03	230.43	9.73E+03	PB-210
2	53.06	52 -	56	53.68	3.42E+02	215.80	1.01E+04	.....
3	63.13	61 -	66	63.74	2.88E+03	307.62	1.67E+04	TH-234
								TH-230
4	67.60	67 -	70	68.20	1.85E+02	225.90	1.27E+04	TH-230
								TA-182
								HF-172
								TI-44

Analysis Report for 1707089-10

HTC-A04-S002-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									TM-171
	5	76.11	71 -	83	76.70	1.22E+04	656.21	4.50E+04	.....
M	6	87.41	83 -	102	87.99	3.63E+03	419.78	2.54E+04	SN-126
									CD-109
									NP-237
									EU-155
									LU-176
m	7	92.62	83 -	102	93.19	6.20E+03	352.36	1.68E+04	GA-67
	8	143.57	141 -	147	144.09	7.14E+02	286.26	1.44E+04	U-235
	9	154.07	153 -	157	154.58	2.12E+02	213.92	9.97E+03	CS-136
	10	163.67	162 -	167	164.18	4.36E+02	235.36	1.07E+04	CS-136
									U-235
M	11	182.46	181 -	191	182.94	1.93E+02	166.12	6.74E+03	LU-172
m	12	185.92	181 -	191	186.40	5.37E+03	243.07	8.32E+03	RA-226
M	13	235.88	233 -	246	236.31	3.98E+02	139.87	4.58E+03	TH-227
									NB-95M
m	14	238.74	233 -	246	239.17	3.61E+02	167.64	5.67E+03	PB-212
m	15	241.91	233 -	246	242.33	4.88E+03	210.40	5.54E+03	RA-224
	16	257.85	254 -	262	258.26	6.10E+02	232.67	7.94E+03	.....
	17	269.63	264 -	273	270.02	4.93E+02	254.60	9.00E+03	.....
M	18	295.18	291 -	303	295.55	1.05E+04	244.81	3.90E+03	PB-214
m	19	299.59	291 -	303	299.95	4.46E+02	147.29	3.74E+03	BI-210M
									PB-212
									GA-67
	20	313.68	312 -	317	314.03	1.14E+02	139.53	3.78E+03	.....
	21	338.24	336 -	341	338.56	1.63E+02	135.90	3.56E+03	AC-228
M	22	351.89	346 -	367	352.20	1.84E+04	293.29	2.64E+03	PB-214
m	23	356.09	346 -	367	356.39	6.14E+02	226.08	3.73E+03	BA-133
	24	388.19	385 -	392	388.47	3.38E+02	150.82	3.57E+03	.....
	25	462.66	459 -	467	462.85	1.99E+02	134.99	2.68E+03	SB-125
M	26	480.59	478 -	490	480.77	1.03E+02	85.00	1.56E+03	.....
m	27	486.91	478 -	490	487.08	1.51E+02	84.50	1.45E+03	LA-140
	28	511.07	506 -	516	511.22	3.66E+02	148.98	2.76E+03	.....
	29	572.34	569 -	576	572.43	1.16E+02	101.31	1.64E+03	.....
M	30	580.00	577 -	587	580.08	1.54E+02	94.68	1.46E+03	.....
m	31	583.18	577 -	587	583.26	1.75E+02	95.86	1.46E+03	TL-208
M	32	609.42	603 -	619	609.47	1.38E+04	244.36	9.43E+02	BI-214
m	33	613.74	603 -	619	613.79	6.03E+02	194.35	1.30E+03	AG-108M
M	34	662.00	661 -	668	662.00	3.97E+01	34.00	3.66E+02	CS-137
m	35	665.64	661 -	668	665.63	3.32E+02	72.70	8.96E+02	SB-126
	36	689.25	687 -	692	689.22	7.60E+01	66.53	8.28E+02	.....
	37	702.85	698 -	707	702.81	1.83E+02	107.12	1.53E+03	NB-94
	38	720.45	717 -	724	720.39	1.63E+02	86.09	1.12E+03	SB-126
	39	768.44	763 -	774	768.33	1.41E+03	140.09	1.75E+03	.....
	40	786.49	783 -	791	786.37	3.57E+02	95.80	1.20E+03	.....
	41	806.28	802 -	810	806.14	3.33E+02	95.45	1.20E+03	.....
	42	832.00	829 -	834	831.83	6.39E+01	64.25	7.66E+02	PB-211
	43	838.80	835 -	842	838.62	1.68E+02	83.71	1.06E+03	.....
	44	873.14	870 -	876	872.93	5.99E+01	71.38	8.84E+02	EU-154
M	45	930.77	929 -	938	930.49	3.68E+01	26.42	2.18E+02	.....
m	46	934.28	929 -	938	934.01	7.05E+02	79.79	7.04E+02	.....
	47	1001.48	997 -	1006	1001.14	2.99E+02	91.37	1.03E+03	PA-234M
	48	1053.96	1048 -	1059	1053.56	1.55E+02	94.62	1.03E+03	.....
	49	1062.97	1060 -	1066	1062.56	6.23E+01	59.11	5.93E+02	BI-207

Analysis Report for 1707089-10

HTC-A04-S002-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	50	1120.63	1114 -	1129	1120.17	3.03E+03	120.90	4.79E+02	SC-46 BI-214 TA-182
m	51	1125.03	1114 -	1129	1124.56	1.38E+02	92.33	6.47E+02	.....
	52	1133.11	1129 -	1136	1132.64	7.42E+01	63.50	6.28E+02	.....
	53	1155.62	1151 -	1159	1155.13	2.77E+02	80.29	8.15E+02	.....
	54	1181.98	1178 -	1185	1181.46	6.05E+01	61.61	5.93E+02	.....
	55	1208.41	1204 -	1212	1207.87	8.76E+01	67.77	6.43E+02	.....
	56	1238.60	1232 -	1244	1238.03	1.03E+03	115.78	1.09E+03	CO-56
	57	1253.74	1250 -	1257	1253.15	9.54E+01	59.03	5.19E+02	.....
	58	1281.39	1275 -	1285	1280.77	2.32E+02	82.85	7.90E+02	.....
M	59	1378.28	1372 -	1389	1377.56	8.27E+02	74.28	4.07E+02	.....
m	60	1385.73	1372 -	1389	1385.01	1.24E+02	52.70	4.52E+02	.....
M	61	1402.09	1395 -	1412	1401.35	3.02E+02	63.97	4.59E+02	.....
m	62	1408.54	1395 -	1412	1407.80	4.21E+02	62.75	4.17E+02	EU-152
	63	1424.71	1419 -	1428	1423.95	5.60E+01	63.83	5.50E+02	.....
	64	1461.11	1456 -	1465	1460.31	2.46E+02	74.75	6.65E+02	K-40
	65	1509.54	1502 -	1515	1508.70	3.93E+02	102.89	1.00E+03	.....
	66	1539.07	1536 -	1541	1538.20	4.45E+01	45.96	3.91E+02	.....
	67	1544.59	1541 -	1548	1543.71	5.10E+01	56.04	4.84E+02	.....
M	68	1583.65	1577 -	1590	1582.73	1.34E+02	54.74	3.80E+02	.....
m	69	1588.13	1577 -	1590	1587.21	4.01E+01	42.15	2.33E+02	.....
	70	1594.16	1591 -	1596	1593.24	2.96E+01	37.59	2.65E+02	.....
	71	1662.28	1657 -	1668	1661.29	1.92E+02	57.10	2.93E+02	.....
	72	1685.29	1680 -	1688	1684.28	3.81E+01	37.78	1.92E+02	.....
	73	1693.43	1689 -	1696	1692.41	5.73E+01	31.94	1.31E+02	.....
	74	1730.27	1723 -	1735	1729.21	5.70E+02	68.21	2.78E+02	.....
	75	1765.18	1757 -	1770	1764.08	2.53E+03	116.32	3.77E+02	BI-214
	76	1810.91	1806 -	1813	1809.77	2.72E+01	24.74	8.36E+01	.....
M	77	1839.57	1833 -	1852	1838.41	5.54E+01	35.31	1.39E+02	.....
m	78	1848.13	1833 -	1852	1846.95	3.13E+02	41.89	9.39E+01	.....
	79	1873.58	1869 -	1875	1872.38	3.79E+01	27.27	1.06E+02	.....
	80	2088.93	2084 -	2091	2087.52	1.90E+01	17.78	4.00E+01	.....
	81	2102.71	2098 -	2104	2101.29	1.44E+01	16.94	4.12E+01	.....
	82	2119.37	2112 -	2125	2117.94	2.15E+02	36.93	5.60E+01	.....
	83	2148.95	2143 -	2152	2147.49	2.78E+01	15.75	1.83E+01	.....
	84	2195.10	2190 -	2196	2193.59	1.62E+01	13.17	1.75E+01	.....
M	85	2204.76	2197 -	2213	2203.24	6.27E+02	52.00	3.57E+00	BI-214
m	86	2209.76	2197 -	2213	2208.24	2.63E+01	35.61	7.60E+00	.....
	87	2276.56	2271 -	2278	2274.97	1.43E+01	10.20	7.33E+00	.....
	88	2294.23	2286 -	2298	2292.62	3.77E+01	23.15	4.46E+01	.....
	89	2419.96	2413 -	2421	2418.24	7.58E+00	9.41	8.83E+00	.....
	90	2448.44	2441 -	2453	2446.69	1.84E+02	30.87	2.43E+01	.....
M	91	2611.91	2609 -	2619	2610.00	6.93E+00	0.00	0.00E+00	.....
m	92	2614.93	2609 -	2619	2613.02	4.50E+01	14.42	0.00E+00	TL-208
m	93	2618.69	2609 -	2619	2616.78	1.04E+01	9.59	0.00E+00	.....
	94	2729.02	2723 -	2729	2727.00	7.00E+00	5.29	0.00E+00	.....

Analysis Report for 1707089-10

HTC-A04-S002-1218-01

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/23/2017 10:16:54AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.25	1.19E+03	230.43	2.46E-02	2.22E-03
	2	53.06	3.42E+02	215.80	2.59E-02	2.22E-03
	3	63.13	2.88E+03	307.62	2.70E-02	2.26E-03
	4	67.60	1.85E+02	225.90	2.72E-02	2.30E-03
	5	76.11	1.22E+04	656.21	2.75E-02	2.39E-03
M	6	87.41	3.63E+03	419.78	2.74E-02	2.51E-03
m	7	92.62	6.20E+03	352.36	2.73E-02	2.45E-03
	8	143.57	7.14E+02	286.26	2.44E-02	1.86E-03
	9	154.07	2.12E+02	213.92	2.37E-02	1.80E-03
	10	163.67	4.36E+02	235.36	2.31E-02	1.75E-03
M	11	182.46	1.93E+02	166.12	2.19E-02	1.69E-03
m	12	185.92	5.37E+03	243.07	2.17E-02	1.68E-03
M	13	235.88	3.98E+02	139.87	1.90E-02	1.53E-03
m	14	238.74	3.61E+02	167.64	1.89E-02	1.53E-03
m	15	241.91	4.88E+03	210.40	1.87E-02	1.52E-03
	16	257.85	6.10E+02	232.67	1.80E-02	1.47E-03
	17	269.63	4.93E+02	254.60	1.75E-02	1.44E-03
M	18	295.18	1.05E+04	244.81	1.64E-02	1.37E-03
m	19	299.59	4.46E+02	147.29	1.63E-02	1.36E-03
	20	313.68	1.14E+02	139.53	1.58E-02	1.33E-03
	21	338.24	1.63E+02	135.90	1.50E-02	1.27E-03
M	22	351.89	1.84E+04	293.29	1.45E-02	1.24E-03
m	23	356.09	6.14E+02	226.08	1.44E-02	1.23E-03
	24	388.19	3.38E+02	150.82	1.35E-02	1.15E-03
	25	462.66	1.99E+02	134.99	1.19E-02	1.10E-03
M	26	480.59	1.03E+02	85.00	1.15E-02	1.09E-03
m	27	486.91	1.51E+02	84.50	1.14E-02	1.08E-03
	28	511.07	3.66E+02	148.98	1.10E-02	1.07E-03
	29	572.34	1.16E+02	101.31	1.01E-02	1.03E-03
M	30	580.00	1.54E+02	94.68	1.00E-02	1.02E-03
m	31	583.18	1.75E+02	95.86	9.96E-03	1.02E-03
M	32	609.42	1.38E+04	244.36	9.63E-03	1.01E-03
m	33	613.74	6.03E+02	194.35	9.58E-03	1.00E-03
M	34	662.00	3.97E+01	34.00	9.04E-03	9.71E-04

Analysis Report for 1707089-10

HTC-A04-S002-1218-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	35	665.64	3.32E+02	72.70	9.00E-03	9.66E-04
	36	689.25	7.60E+01	66.53	8.76E-03	9.28E-04
	37	702.85	1.83E+02	107.12	8.63E-03	9.07E-04
	38	720.45	1.63E+02	86.09	8.47E-03	8.79E-04
	39	768.44	1.41E+03	140.09	8.06E-03	8.02E-04
	40	786.49	3.57E+02	95.80	7.92E-03	7.74E-04
	41	806.28	3.33E+02	95.45	7.77E-03	7.42E-04
	42	832.00	6.39E+01	64.25	7.59E-03	7.01E-04
	43	838.80	1.68E+02	83.71	7.54E-03	6.91E-04
	44	873.14	5.99E+01	71.38	7.32E-03	6.36E-04
M	45	930.77	3.68E+01	26.42	6.97E-03	5.84E-04
m	46	934.28	7.05E+02	79.79	6.95E-03	5.83E-04
	47	1001.48	2.99E+02	91.37	6.60E-03	5.57E-04
	48	1053.96	1.55E+02	94.62	6.35E-03	5.37E-04
	49	1062.97	6.23E+01	59.11	6.31E-03	5.33E-04
M	50	1120.63	3.03E+03	120.90	6.07E-03	5.11E-04
m	51	1125.03	1.38E+02	92.33	6.05E-03	5.09E-04
	52	1133.11	7.42E+01	63.50	6.02E-03	5.06E-04
	53	1155.62	2.77E+02	80.29	5.94E-03	4.98E-04
	54	1181.98	6.05E+01	61.61	5.84E-03	4.89E-04
	55	1208.41	8.76E+01	67.77	5.74E-03	4.83E-04
	56	1238.60	1.03E+03	115.78	5.64E-03	4.76E-04
	57	1253.74	9.54E+01	59.03	5.59E-03	4.73E-04
	58	1281.39	2.32E+02	82.85	5.50E-03	4.66E-04
M	59	1378.28	8.27E+02	74.28	5.22E-03	4.44E-04
m	60	1385.73	1.24E+02	52.70	5.20E-03	4.42E-04
M	61	1402.09	3.02E+02	63.97	5.16E-03	4.38E-04
m	62	1408.54	4.21E+02	62.75	5.14E-03	4.37E-04
	63	1424.71	5.60E+01	63.83	5.10E-03	4.33E-04
	64	1461.11	2.46E+02	74.75	5.01E-03	4.25E-04
	65	1509.54	3.93E+02	102.89	4.89E-03	4.13E-04
	66	1539.07	4.45E+01	45.96	4.82E-03	4.07E-04
	67	1544.59	5.10E+01	56.04	4.81E-03	4.05E-04
M	68	1583.65	1.34E+02	54.74	4.72E-03	3.96E-04
m	69	1588.13	4.01E+01	42.15	4.72E-03	3.95E-04
	70	1594.16	2.96E+01	37.59	4.70E-03	3.94E-04
	71	1662.28	1.92E+02	57.10	4.56E-03	3.78E-04
	72	1685.29	3.81E+01	37.78	4.52E-03	3.73E-04
	73	1693.43	5.73E+01	31.94	4.50E-03	3.71E-04
	74	1730.27	5.70E+02	68.21	4.44E-03	3.62E-04
	75	1765.18	2.53E+03	116.32	4.37E-03	3.54E-04
	76	1810.91	2.72E+01	24.74	4.30E-03	3.44E-04
M	77	1839.57	5.54E+01	35.31	4.25E-03	3.38E-04
m	78	1848.13	3.13E+02	41.89	4.23E-03	3.38E-04
	79	1873.58	3.79E+01	27.27	4.19E-03	3.38E-04
	80	2088.93	1.90E+01	17.78	3.88E-03	3.38E-04
	81	2102.71	1.44E+01	16.94	3.86E-03	3.38E-04
	82	2119.37	2.15E+02	36.93	3.84E-03	3.38E-04
	83	2148.95	2.78E+01	15.75	3.80E-03	3.38E-04
	84	2195.10	1.62E+01	13.17	3.75E-03	3.38E-04
M	85	2204.76	6.27E+02	52.00	3.74E-03	3.38E-04
m	86	2209.76	2.63E+01	35.61	3.73E-03	3.38E-04
	87	2276.56	1.43E+01	10.20	3.65E-03	3.38E-04

Analysis Report for 1707089-10

HTC-A04-S002-1218-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	88	2294.23	3.77E+01	23.15	3.63E-03	3.38E-04
	89	2419.96	7.58E+00	9.41	3.50E-03	3.38E-04
	90	2448.44	1.84E+02	30.87	3.47E-03	3.38E-04
M	91	2611.91	6.93E+00	0.00	3.31E-03	3.38E-04
m	92	2614.93	4.50E+01	14.42	3.31E-03	3.38E-04
m	93	2618.69	1.04E+01	9.59	3.30E-03	3.38E-04
	94	2729.02	7.00E+00	5.29	3.20E-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 : 8/23/2017 10:16:54AM

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	46.25	1.19E+03	230.43	3.67E+01	8.40E+00	1.15E+03	2.31E+02
	2	53.06	3.42E+02	215.80			3.42E+02	2.16E+02
	3	63.13	2.88E+03	307.62	8.94E+01	1.41E+01	2.79E+03	3.08E+02
	4	67.60	1.85E+02	225.90			1.85E+02	2.26E+02
	5	76.11	1.22E+04	656.21			1.22E+04	6.56E+02
M	6	87.41	3.63E+03	419.78			3.63E+03	4.20E+02
m	7	92.62	6.20E+03	352.36	1.38E+02	1.72E+01	6.06E+03	3.53E+02
	8	143.57	7.14E+02	286.26	1.21E+01	4.29E+01	7.02E+02	2.89E+02
	9	154.07	2.12E+02	213.92			2.12E+02	2.14E+02
	10	163.67	4.36E+02	235.36	6.72E+00	7.09E+00	4.29E+02	2.35E+02
M	11	182.46	1.93E+02	166.12			1.93E+02	1.66E+02
m	12	185.92	5.37E+03	243.07	5.22E+01	7.59E+00	5.32E+03	2.43E+02
M	13	235.88	3.98E+02	139.87			3.98E+02	1.40E+02
m	14	238.74	3.61E+02	167.64	2.13E+01	6.33E+00	3.40E+02	1.68E+02
m	15	241.91	4.88E+03	210.40			4.88E+03	2.10E+02
	16	257.85	6.10E+02	232.67			6.10E+02	2.33E+02
	17	269.63	4.93E+02	254.60	1.23E+00	4.98E+00	4.92E+02	2.55E+02
M	18	295.18	1.05E+04	244.81			1.05E+04	2.45E+02
m	19	299.59	4.46E+02	147.29			4.46E+02	1.47E+02
	20	313.68	1.14E+02	139.53			1.14E+02	1.40E+02
	21	338.24	1.63E+02	135.90			1.63E+02	1.36E+02
M	22	351.89	1.84E+04	293.29	5.79E+00	4.49E+00	1.84E+04	2.93E+02
m	23	356.09	6.14E+02	226.08			6.14E+02	2.26E+02

Analysis Report for 1707089-10

HTC-A04-S002-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	24	388.19	3.38E+02	150.82			3.38E+02	1.51E+02
	25	462.66	1.99E+02	134.99			1.99E+02	1.35E+02
M	26	480.59	1.03E+02	85.00			1.03E+02	8.50E+01
m	27	486.91	1.51E+02	84.50			1.51E+02	8.45E+01
	28	511.07	3.66E+02	148.98	7.28E+01	5.30E+00	2.93E+02	1.49E+02
	29	572.34	1.16E+02	101.31			1.16E+02	1.01E+02
M	30	580.00	1.54E+02	94.68			1.54E+02	9.47E+01
m	31	583.18	1.75E+02	95.86	2.72E+00	3.05E+00	1.73E+02	9.59E+01
M	32	609.42	1.38E+04	244.36	6.35E+00	4.02E+00	1.38E+04	2.44E+02
m	33	613.74	6.03E+02	194.35			6.03E+02	1.94E+02
M	34	662.00	3.97E+01	34.00			3.97E+01	3.40E+01
m	35	665.64	3.32E+02	72.70			3.32E+02	7.27E+01
	36	689.25	7.60E+01	66.53			7.60E+01	6.65E+01
	37	702.85	1.83E+02	107.12			1.83E+02	1.07E+02
	38	720.45	1.63E+02	86.09			1.63E+02	8.61E+01
	39	768.44	1.41E+03	140.09			1.41E+03	1.40E+02
	40	786.49	3.57E+02	95.80			3.57E+02	9.58E+01
	41	806.28	3.33E+02	95.45			3.33E+02	9.54E+01
	42	832.00	6.39E+01	64.25			6.39E+01	6.42E+01
	43	838.80	1.68E+02	83.71			1.68E+02	8.37E+01
	44	873.14	5.99E+01	71.38			5.99E+01	7.14E+01
M	45	930.77	3.68E+01	26.42			3.68E+01	2.64E+01
m	46	934.28	7.05E+02	79.79			7.05E+02	7.98E+01
	47	1001.48	2.99E+02	91.37	4.92E+00	2.75E+00	2.94E+02	9.14E+01
	48	1053.96	1.55E+02	94.62			1.55E+02	9.46E+01
	49	1062.97	6.23E+01	59.11			6.23E+01	5.91E+01
M	50	1120.63	3.03E+03	120.90			3.03E+03	1.21E+02
m	51	1125.03	1.38E+02	92.33			1.38E+02	9.23E+01
	52	1133.11	7.42E+01	63.50			7.42E+01	6.35E+01
	53	1155.62	2.77E+02	80.29			2.77E+02	8.03E+01
	54	1181.98	6.05E+01	61.61			6.05E+01	6.16E+01
	55	1208.41	8.76E+01	67.77			8.76E+01	6.78E+01
	56	1238.60	1.03E+03	115.78			1.03E+03	1.16E+02
	57	1253.74	9.54E+01	59.03			9.54E+01	5.90E+01
	58	1281.39	2.32E+02	82.85			2.32E+02	8.28E+01
M	59	1378.28	8.27E+02	74.28			8.27E+02	7.43E+01
m	60	1385.73	1.24E+02	52.70			1.24E+02	5.27E+01
M	61	1402.09	3.02E+02	63.97			3.02E+02	6.40E+01
m	62	1408.54	4.21E+02	62.75			4.21E+02	6.27E+01
	63	1424.71	5.60E+01	63.83			5.60E+01	6.38E+01
	64	1461.11	2.46E+02	74.75	8.09E+00	2.23E+00	2.37E+02	7.48E+01
	65	1509.54	3.93E+02	102.89			3.93E+02	1.03E+02
	66	1539.07	4.45E+01	45.96			4.45E+01	4.60E+01
	67	1544.59	5.10E+01	56.04			5.10E+01	5.60E+01
M	68	1583.65	1.34E+02	54.74			1.34E+02	5.47E+01
m	69	1588.13	4.01E+01	42.15			4.01E+01	4.21E+01
	70	1594.16	2.96E+01	37.59			2.96E+01	3.76E+01
	71	1662.28	1.92E+02	57.10			1.92E+02	5.71E+01
	72	1685.29	3.81E+01	37.78			3.81E+01	3.78E+01
	73	1693.43	5.73E+01	31.94			5.73E+01	3.19E+01
	74	1730.27	5.70E+02	68.21			5.70E+02	6.82E+01
	75	1765.18	2.53E+03	116.32			2.53E+03	1.16E+02
	76	1810.91	2.72E+01	24.74			2.72E+01	2.47E+01
M	77	1839.57	5.54E+01	35.31			5.54E+01	3.53E+01

Analysis Report for 1707089-10

HTC-A04-S002-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	78	1848.13	3.13E+02	41.89			3.13E+02	4.19E+01
	79	1873.58	3.79E+01	27.27			3.79E+01	2.73E+01
	80	2088.93	1.90E+01	17.78			1.90E+01	1.78E+01
	81	2102.71	1.44E+01	16.94			1.44E+01	1.69E+01
	82	2119.37	2.15E+02	36.93			2.15E+02	3.69E+01
	83	2148.95	2.78E+01	15.75			2.78E+01	1.57E+01
	84	2195.10	1.62E+01	13.17			1.62E+01	1.32E+01
M	85	2204.76	6.27E+02	52.00			6.27E+02	5.20E+01
m	86	2209.76	2.63E+01	35.61			2.63E+01	3.56E+01
	87	2276.56	1.43E+01	10.20			1.43E+01	1.02E+01
	88	2294.23	3.77E+01	23.15			3.77E+01	2.31E+01
	89	2419.96	7.58E+00	9.41			7.58E+00	9.41E+00
	90	2448.44	1.84E+02	30.87			1.84E+02	3.09E+01
M	91	2611.91	6.93E+00	0.00			6.93E+00	0.00E+00
m	92	2614.93	4.50E+01	14.42	5.63E+00	1.38E+00	3.94E+01	1.45E+01
m	93	2618.69	1.04E+01	9.59			1.04E+01	9.59E+00
	94	2729.02	7.00E+00	5.29			7.00E+00	5.29E+00

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/23/2017 10:16:54AM

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	46.25	1.19E+03	230.43	3.67E+01	8.40E+00	1.15E+03	2.31E+02
	2	53.06	3.42E+02	215.80			3.42E+02	2.16E+02
	3	63.13	2.88E+03	307.62	8.94E+01	1.41E+01	2.79E+03	3.08E+02
	4	67.60	1.85E+02	225.90			1.85E+02	2.26E+02
	5	76.11	1.22E+04	656.21			1.22E+04	6.56E+02
M	6	87.41	3.63E+03	419.78			3.63E+03	4.20E+02
m	7	92.62	6.20E+03	352.36	1.38E+02	1.72E+01	6.06E+03	3.53E+02
	8	143.57	7.14E+02	286.26	1.21E+01	4.29E+01	7.02E+02	2.89E+02
	9	154.07	2.12E+02	213.92			2.12E+02	2.14E+02
	10	163.67	4.36E+02	235.36	6.72E+00	7.09E+00	4.29E+02	2.35E+02
M	11	182.46	1.93E+02	166.12			1.93E+02	1.66E+02

Analysis Report for 1707089-10

HTC-A04-S002-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
m	12	185.92	5.37E+03	243.07	5.22E+01	7.59E+00	5.32E+03	2.43E+02
M	13	235.88	3.98E+02	139.87			3.98E+02	1.40E+02
m	14	238.74	3.61E+02	167.64	2.13E+01	6.33E+00	3.40E+02	1.68E+02
m	15	241.91	4.88E+03	210.40			4.88E+03	2.10E+02
	16	257.85	6.10E+02	232.67			6.10E+02	2.33E+02
	17	269.63	4.93E+02	254.60	1.23E+00	4.98E+00	4.92E+02	2.55E+02
M	18	295.18	1.05E+04	244.81			1.05E+04	2.45E+02
m	19	299.59	4.46E+02	147.29			4.46E+02	1.47E+02
	20	313.68	1.14E+02	139.53			1.14E+02	1.40E+02
	21	338.24	1.63E+02	135.90			1.63E+02	1.36E+02
M	22	351.89	1.84E+04	293.29	5.79E+00	4.49E+00	1.84E+04	2.93E+02
m	23	356.09	6.14E+02	226.08			6.14E+02	2.26E+02
	24	388.19	3.38E+02	150.82			3.38E+02	1.51E+02
	25	462.66	1.99E+02	134.99			1.99E+02	1.35E+02
M	26	480.59	1.03E+02	85.00			1.03E+02	8.50E+01
m	27	486.91	1.51E+02	84.50			1.51E+02	8.45E+01
	28	511.07	3.66E+02	148.98	7.28E+01	5.30E+00	2.93E+02	1.49E+02
	29	572.34	1.16E+02	101.31			1.16E+02	1.01E+02
M	30	580.00	1.54E+02	94.68			1.54E+02	9.47E+01
m	31	583.18	1.75E+02	95.86	2.72E+00	3.05E+00	1.73E+02	9.59E+01
M	32	609.42	1.38E+04	244.36	6.35E+00	4.02E+00	1.38E+04	2.44E+02
m	33	613.74	6.03E+02	194.35			6.03E+02	1.94E+02
M	34	662.00	3.97E+01	34.00			3.97E+01	3.40E+01
m	35	665.64	3.32E+02	72.70			3.32E+02	7.27E+01
	36	689.25	7.60E+01	66.53			7.60E+01	6.65E+01
	37	702.85	1.83E+02	107.12			1.83E+02	1.07E+02
	38	720.45	1.63E+02	86.09			1.63E+02	8.61E+01
	39	768.44	1.41E+03	140.09			1.41E+03	1.40E+02
	40	786.49	3.57E+02	95.80			3.57E+02	9.58E+01
	41	806.28	3.33E+02	95.45			3.33E+02	9.54E+01
	42	832.00	6.39E+01	64.25			6.39E+01	6.42E+01
	43	838.80	1.68E+02	83.71			1.68E+02	8.37E+01
	44	873.14	5.99E+01	71.38			5.99E+01	7.14E+01
M	45	930.77	3.68E+01	26.42			3.68E+01	2.64E+01
m	46	934.28	7.05E+02	79.79			7.05E+02	7.98E+01
	47	1001.48	2.99E+02	91.37	4.92E+00	2.75E+00	2.94E+02	9.14E+01
	48	1053.96	1.55E+02	94.62			1.55E+02	9.46E+01
	49	1062.97	6.23E+01	59.11			6.23E+01	5.91E+01
M	50	1120.63	3.03E+03	120.90			3.03E+03	1.21E+02
m	51	1125.03	1.38E+02	92.33			1.38E+02	9.23E+01
	52	1133.11	7.42E+01	63.50			7.42E+01	6.35E+01
	53	1155.62	2.77E+02	80.29			2.77E+02	8.03E+01
	54	1181.98	6.05E+01	61.61			6.05E+01	6.16E+01
	55	1208.41	8.76E+01	67.77			8.76E+01	6.78E+01
	56	1238.60	1.03E+03	115.78			1.03E+03	1.16E+02
	57	1253.74	9.54E+01	59.03			9.54E+01	5.90E+01
	58	1281.39	2.32E+02	82.85			2.32E+02	8.28E+01
M	59	1378.28	8.27E+02	74.28			8.27E+02	7.43E+01
m	60	1385.73	1.24E+02	52.70			1.24E+02	5.27E+01
M	61	1402.09	3.02E+02	63.97			3.02E+02	6.40E+01
m	62	1408.54	4.21E+02	62.75			4.21E+02	6.27E+01
	63	1424.71	5.60E+01	63.83			5.60E+01	6.38E+01
	64	1461.11	2.46E+02	74.75	8.09E+00	2.23E+00	2.37E+02	7.48E+01
	65	1509.54	3.93E+02	102.89			3.93E+02	1.03E+02

Analysis Report for 1707089-10

HTC-A04-S002-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	66	1539.07	4.45E+01	45.96			4.45E+01	4.60E+01
	67	1544.59	5.10E+01	56.04			5.10E+01	5.60E+01
M	68	1583.65	1.34E+02	54.74			1.34E+02	5.47E+01
m	69	1588.13	4.01E+01	42.15			4.01E+01	4.21E+01
	70	1594.16	2.96E+01	37.59			2.96E+01	3.76E+01
	71	1662.28	1.92E+02	57.10			1.92E+02	5.71E+01
	72	1685.29	3.81E+01	37.78			3.81E+01	3.78E+01
	73	1693.43	5.73E+01	31.94			5.73E+01	3.19E+01
	74	1730.27	5.70E+02	68.21			5.70E+02	6.82E+01
	75	1765.18	2.53E+03	116.32			2.53E+03	1.16E+02
	76	1810.91	2.72E+01	24.74			2.72E+01	2.47E+01
M	77	1839.57	5.54E+01	35.31			5.54E+01	3.53E+01
m	78	1848.13	3.13E+02	41.89			3.13E+02	4.19E+01
	79	1873.58	3.79E+01	27.27			3.79E+01	2.73E+01
	80	2088.93	1.90E+01	17.78			1.90E+01	1.78E+01
	81	2102.71	1.44E+01	16.94			1.44E+01	1.69E+01
	82	2119.37	2.15E+02	36.93			2.15E+02	3.69E+01
	83	2148.95	2.78E+01	15.75			2.78E+01	1.57E+01
	84	2195.10	1.62E+01	13.17			1.62E+01	1.32E+01
M	85	2204.76	6.27E+02	52.00			6.27E+02	5.20E+01
m	86	2209.76	2.63E+01	35.61			2.63E+01	3.56E+01
	87	2276.56	1.43E+01	10.20			1.43E+01	1.02E+01
	88	2294.23	3.77E+01	23.15			3.77E+01	2.31E+01
	89	2419.96	7.58E+00	9.41			7.58E+00	9.41E+00
	90	2448.44	1.84E+02	30.87			1.84E+02	3.09E+01
M	91	2611.91	6.93E+00	0.00			6.93E+00	0.00E+00
m	92	2614.93	4.50E+01	14.42	5.63E+00	1.38E+00	3.94E+01	1.45E+01
m	93	2618.69	1.04E+01	9.59			1.04E+01	9.59E+00
	94	2729.02	7.00E+00	5.29			7.00E+00	5.29E+00

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.986	1460.81	*	10.67	4.36E+00	1.43E+00
CD-109	0.939	88.03	*	3.72	4.05E+01	6.44E+00

Analysis Report for 1707089-10

HTC-A04-S002-1218-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
SN-126	0.996	87.57	*	37.00	3.51E+00	5.18E-01
CS-137	0.980	661.65	*	85.12	5.09E-02	4.40E-02
TM-171	0.883	66.72	*	0.14	5.25E+01	6.43E+01
TL-208	0.881	583.14	*	30.22	5.63E-01	3.18E-01
		860.37		4.48		
		2614.66	*	35.85	3.26E-01	1.25E-01
PB-210	0.990	46.50	*	4.25	1.09E+01	2.39E+00
PB-212	0.995	238.63	*	44.60	3.97E-01	1.98E-01
		300.09	*	3.41	7.88E+00	2.69E+00
BI-214	0.979	609.31	*	46.30	3.04E+01	3.22E+00
		1120.29	*	15.10	3.25E+01	3.02E+00
		1764.49	*	15.80	3.60E+01	3.35E+00
		2204.22	*	4.98	3.31E+01	4.06E+00
PB-214	1.000	295.21	*	19.19	3.27E+01	2.83E+00
		351.92	*	37.19	3.34E+01	2.89E+00
RA-224	0.872	240.98	*	3.95	6.48E+01	5.95E+00
RA-226	0.986	186.21	*	3.28	7.32E+01	1.34E+02
PA-234M	0.968	1001.03	*	0.92	4.76E+01	1.53E+01
TH-234	0.996	63.29	*	3.80	2.67E+01	3.70E+00
U-235	0.637	143.76	*	10.50	2.69E+00	1.20E+00
		163.35	*	4.70	3.88E+00	2.25E+00
		205.31		4.70		
NP-237	0.877	86.50	*	12.60	1.03E+01	1.52E+00

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 10:16:54AM
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	53.06	9.48838E-02	31.59		
	5	76.11	3.38734E+00	2.69		
m	7	92.62	1.68351E+00	2.91	Sum	
	9	154.07	5.88338E-02	50.50	Sum	
M	11	182.46	5.36604E-02	43.00	Tol.	LU-172
M	13	235.88	1.10431E-01	17.59	Tol.	NB-95M

Analysis Report for 1707089-10

HTC-A04-S002-1218-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
						TH-227
	16	257.85	1.69453E-01	19.07		
	17	269.63	1.36737E-01	25.87		
	20	313.68	3.15762E-02	61.37		
	21	338.24	4.52635E-02	41.70	Tol.	AC-228
m	23	356.09	1.70610E-01	18.40	Tol.	BA-133
	24	388.19	9.38888E-02	22.31		
	25	462.66	5.51486E-02	34.00	Sum	
M	26	480.59	2.84921E-02	41.43	Sum	
m	27	486.91	4.19401E-02	27.98	Tol.	LA-140
	28	511.07	8.14495E-02	25.42		
	29	572.34	3.23540E-02	43.49		
M	30	580.00	4.26609E-02	30.82		
m	33	613.74	1.67526E-01	16.11		
m	35	665.64	9.22709E-02	10.94	Tol.	SB-126
	36	689.25	2.11179E-02	43.75		
	37	702.85	5.08830E-02	29.24	Sum	
	38	720.45	4.51601E-02	26.48	Tol.	SB-126
	39	768.44	3.91792E-01	4.97	Sum	
	40	786.49	9.92989E-02	13.40		
	41	806.28	9.23611E-02	14.35	Sum	
	42	832.00	1.77399E-02	50.30	Tol.	PB-211
	43	838.80	4.67970E-02	24.85		
	44	873.14	1.66512E-02	59.54	Tol.	EU-154
M	45	930.77	1.02127E-02	35.93		
m	46	934.28	1.95846E-01	5.66	Sum	
	48	1053.96	4.31647E-02	30.44		
	49	1062.97	1.73186E-02	47.40	Tol.	BI-207
m	51	1125.03	3.83788E-02	33.41		
	52	1133.11	2.06046E-02	42.80		
	53	1155.62	7.70752E-02	14.47		
	54	1181.98	1.67943E-02	50.95	D-Esc	
	55	1208.41	2.43222E-02	38.70	Sum	
	56	1238.60	2.86260E-01	5.62		
	57	1253.74	2.64871E-02	30.95	S-Esc	
	58	1281.39	6.45023E-02	17.84		
M	59	1378.28	2.29649E-01	4.49		
m	60	1385.73	3.44274E-02	21.26		
M	61	1402.09	8.37732E-02	10.61		
m	62	1408.54	1.17040E-01	7.45	Tol.	EU-152
	63	1424.71	1.55556E-02	56.99		
	65	1509.54	1.09201E-01	13.09		
	66	1539.07	1.23692E-02	51.60		
	67	1544.59	1.41714E-02	54.92		
M	68	1583.65	3.72132E-02	20.43		
m	69	1588.13	1.11306E-02	52.59		
	70	1594.16	8.23302E-03	63.41		
	71	1662.28	5.32639E-02	14.89		
	72	1685.29	1.05721E-02	49.63		
	73	1693.43	1.59146E-02	27.87	S-Esc	
	74	1730.27	1.58361E-01	5.98	Sum	
	76	1810.91	7.55837E-03	45.46	Sum	
M	77	1839.57	1.53903E-02	31.87		
m	78	1848.13	8.68995E-02	6.70		

Analysis Report for 1707089-10

HTC-A04-S002-1218-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	79	1873.58	1.05250E-02	35.99		
	80	2088.93	5.27778E-03	46.78		
	81	2102.71	3.99603E-03	58.88		
	82	2119.37	5.97222E-02	8.59		
	83	2148.95	7.73273E-03	28.29		
	84	2195.10	4.51111E-03	40.55		
m	86	2209.76	7.31550E-03	67.61		
	87	2276.56	3.98148E-03	35.57		
	88	2294.23	1.04722E-02	30.70		
	89	2419.96	2.10648E-03	62.03		
	90	2448.44	5.10757E-02	8.39		
M	91	2611.91	1.92518E-03	0.00		
m	93	2618.69	2.88539E-03	46.17		
	94	2729.02	1.94444E-03	37.80		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.98	1460.81	*	10.67	4.36E+00	1.43E+00
CD-109	0.93	88.03	*	3.72	4.05E+01	6.44E+00
SN-126	0.99	87.57	*	37.00	3.51E+00	5.18E-01
CS-137	0.98	661.65	*	85.12	5.09E-02	4.40E-02
TM-171	0.88	66.72	*	0.14	5.25E+01	6.43E+01
TL-208	0.88	583.14	*	30.22	5.63E-01	3.18E-01
		860.37		4.48		
		2614.66	*	35.85	3.26E-01	1.25E-01
PB-210	0.99	46.50	*	4.25	1.09E+01	2.39E+00
PB-212	0.99	238.63	*	44.60	3.97E-01	1.98E-01
		300.09	*	3.41	7.88E+00	2.69E+00
BI-214	0.97	609.31	*	46.30	3.04E+01	3.22E+00
		1120.29	*	15.10	3.25E+01	3.02E+00
		1764.49	*	15.80	3.60E+01	3.35E+00

Analysis Report for 1707089-10

HTC-A04-S002-1218-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.97	2204.22	*	4.98	3.31E+01	4.06E+00
PB-214	1.00	295.21	*	19.19	3.27E+01	2.83E+00
		351.92	*	37.19	3.34E+01	2.89E+00
RA-224	0.87	240.98	*	3.95	6.48E+01	5.95E+00
RA-226	0.98	186.21	*	3.28	7.32E+01	1.34E+02
PA-234M	0.96	1001.03	*	0.92	4.76E+01	1.53E+01
TH-234	0.99	63.29	*	3.80	2.67E+01	3.70E+00
U-235	0.63	143.76	*	10.50	2.69E+00	1.20E+00
		163.35	*	4.70	3.88E+00	2.25E+00
		205.31		4.70		
NP-237	0.87	86.50	*	12.60	1.03E+01	1.52E+00

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.986	4.36E+00	1.43E+00	
?	CD-109	0.939	4.05E+01	6.44E+00	
?	SN-126	0.996	3.51E+00	5.18E-01	
	CS-137	0.980	5.09E-02	4.40E-02	
	TM-171	0.883	5.25E+01	6.43E+01	
X	TA-182	0.493			
	TL-208	0.881	3.58E-01	1.16E-01	
	PB-210	0.990	1.09E+01	2.39E+00	
	PB-212	0.995	4.38E-01	1.98E-01	
	BI-214	0.979	3.29E+01	1.68E+00	
	PB-214	1.000	3.30E+01	2.02E+00	
	RA-224	0.872	6.48E+01	5.95E+00	
	RA-226	0.986	7.32E+01	1.34E+02	
	PA-234M	0.968	4.76E+01	1.53E+01	
	TH-234	0.996	2.67E+01	3.70E+00	
	U-235	0.637	2.95E+00	1.06E+00	

Analysis Report for 1707089-10

HTC-A04-S002-1218-01

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
?	NP-237	0.877	1.03E+01	1.52E+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 1707089-10

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UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 10:16:54AM
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	53.06	9.48838E-02	31.59		
	5	76.11	3.38734E+00	2.69		
m	7	92.62	1.68351E+00	2.91	Sum	
	9	154.07	5.88338E-02	50.50	Sum	
M	11	182.46	5.36604E-02	43.00	Tol.	LU-172
M	13	235.88	1.10431E-01	17.59	Tol.	NB-95M TH-227
	16	257.85	1.69453E-01	19.07		
	17	269.63	1.36737E-01	25.87		
	20	313.68	3.15762E-02	61.37		
	21	338.24	4.52635E-02	41.70	Tol.	AC-228
m	23	356.09	1.70610E-01	18.40	Tol.	BA-133
	24	388.19	9.38888E-02	22.31		
	25	462.66	5.51486E-02	34.00	Sum	
M	26	480.59	2.84921E-02	41.43	Sum	
m	27	486.91	4.19401E-02	27.98	Tol.	LA-140
	28	511.07	8.14495E-02	25.42		
	29	572.34	3.23540E-02	43.49		
M	30	580.00	4.26609E-02	30.82		
m	33	613.74	1.67526E-01	16.11		
m	35	665.64	9.22709E-02	10.94	Tol.	SB-126
	36	689.25	2.11179E-02	43.75		
	37	702.85	5.08830E-02	29.24	Sum	
	38	720.45	4.51601E-02	26.48	Tol.	SB-126
	39	768.44	3.91792E-01	4.97	Sum	
	40	786.49	9.92989E-02	13.40		
	41	806.28	9.23611E-02	14.35	Sum	
	42	832.00	1.77399E-02	50.30	Tol.	PB-211
	43	838.80	4.67970E-02	24.85		
	44	873.14	1.66512E-02	59.54	Tol.	EU-154
M	45	930.77	1.02127E-02	35.93		
m	46	934.28	1.95846E-01	5.66	Sum	
	48	1053.96	4.31647E-02	30.44		
	49	1062.97	1.73186E-02	47.40	Tol.	BI-207
m	51	1125.03	3.83788E-02	33.41		

Analysis Report for 1707089-10

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	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	52	1133.11	2.06046E-02	42.80		
	53	1155.62	7.70752E-02	14.47		
	54	1181.98	1.67943E-02	50.95	D-Esc	
	55	1208.41	2.43222E-02	38.70	Sum	
	56	1238.60	2.86260E-01	5.62		
	57	1253.74	2.64871E-02	30.95	S-Esc	
	58	1281.39	6.45023E-02	17.84		
M	59	1378.28	2.29649E-01	4.49		
m	60	1385.73	3.44274E-02	21.26		
M	61	1402.09	8.37732E-02	10.61		
m	62	1408.54	1.17040E-01	7.45	Tol.	EU-152
	63	1424.71	1.55556E-02	56.99		
	65	1509.54	1.09201E-01	13.09		
	66	1539.07	1.23692E-02	51.60		
	67	1544.59	1.41714E-02	54.92		
M	68	1583.65	3.72132E-02	20.43		
m	69	1588.13	1.11306E-02	52.59		
	70	1594.16	8.23302E-03	63.41		
	71	1662.28	5.32639E-02	14.89		
	72	1685.29	1.05721E-02	49.63		
	73	1693.43	1.59146E-02	27.87	S-Esc	
	74	1730.27	1.58361E-01	5.98	Sum	
	76	1810.91	7.55837E-03	45.46	Sum	
M	77	1839.57	1.53903E-02	31.87		
m	78	1848.13	8.68995E-02	6.70		
	79	1873.58	1.05250E-02	35.99		
	80	2088.93	5.27778E-03	46.78		
	81	2102.71	3.99603E-03	58.88		
	82	2119.37	5.97222E-02	8.59		
	83	2148.95	7.73273E-03	28.29		
	84	2195.10	4.51111E-03	40.55		
m	86	2209.76	7.31550E-03	67.61		
	87	2276.56	3.98148E-03	35.57		
	88	2294.23	1.04722E-02	30.70		
	89	2419.96	2.10648E-03	62.03		
	90	2448.44	5.10757E-02	8.39		
M	91	2611.91	1.92518E-03	0.00		
m	93	2618.69	2.88539E-03	46.17		
	94	2729.02	1.94444E-03	37.80		

Analysis Report for 1707089-10

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

NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	1.05E+00	4.84E+00	4.84E+00
+		NA-22	1274.54		99.94	8.76E-03	1.46E-01	1.46E-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	5.16E-03	8.94E-02	8.94E-02
+		K-40	1460.81	*	10.67	4.36E+00	2.11E+00	2.11E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	-1.69E-01	1.60E-01	1.60E-01
			78.34		96.00	1.87E+00		2.23E-01
+		SC-46	889.25		99.98	3.26E-01	3.41E-01	3.41E-01
			1120.51		99.99	1.06E+01		1.00E+00
+		V-48	983.52		99.98	-2.76E+00	9.90E+00	1.03E+01
			1312.10		97.50	-9.34E-01		9.90E+00
+		CR-51	320.08		9.83	-8.71E+00	1.68E+01	1.68E+01
+		MN-54	834.83		99.97	-2.74E-01	1.79E-01	1.79E-01
+		CO-56	846.75		99.96	3.70E-02	3.36E-01	3.36E-01
			1037.75		14.03	-1.68E-02		2.38E+00
			1238.25		67.00	6.47E+00		1.07E+00
			1771.40		15.51	-1.12E+00		2.12E+00
			2598.48		16.90	0.00E+00		3.89E-01
+		CO-57	122.06		85.51	-1.71E-02	1.88E-01	1.88E-01
			136.48		10.60	-3.76E-01		1.58E+00
+		CO-58	810.76		99.40	5.17E-02	3.63E-01	3.63E-01
+		FE-59	1099.22		56.50	-6.38E-01	1.10E+00	1.10E+00
			1291.56		43.20	-4.51E-01		1.36E+00
+		CO-60	1173.22		100.00	-2.55E-02	1.35E-01	1.35E-01
			1332.49		100.00	-3.50E-02		1.38E-01
+		ZN-65	1115.52		50.75	1.17E-03	4.05E-01	4.05E-01
+		GA-67	93.31		35.70	6.64E+09	7.14E+08	7.14E+08
			208.95		2.24	2.98E+09		8.39E+09
			300.22		16.00	-3.94E+10		1.39E+09
+		SE-75	121.11		16.70	7.47E-02	3.89E-01	1.32E+00

Analysis Report for 1707089-10

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00		59.20	-9.25E-02	3.89E-01	3.89E-01
		264.65		59.80	-1.39E+00		4.28E-01
		279.53		25.20	-1.34E+00		1.03E+00
		400.65		11.40	-4.55E-01		2.36E+00
+	RB-82	776.52		13.00	-7.72E+00	1.50E+01	1.50E+01
+	RB-83	520.41		46.00	-7.15E-02	5.99E-01	5.99E-01
		529.64		30.30	-1.94E-01		9.43E-01
		552.65		16.40	4.96E-01		1.75E+00
+	KR-85	513.99		0.43	2.29E+01	3.30E+01	3.30E+01
+	SR-85	513.99		99.27	2.84E-01	4.09E-01	4.09E-01
+	Y-88	898.02		93.40	2.68E-01	2.08E-01	3.04E-01
		1836.01		99.38	-2.09E-02		2.08E-01
+	MO-93	263.06		56.72	-2.93E-01	1.26E-01	2.62E-01
		684.67		99.68	1.10E-03		1.26E-01
		1477.11		99.08	-7.38E-04		1.49E-01
+	NB-93M	16.57		9.43	-1.12E+00	1.15E+00	1.15E+00
+	NB-94	702.63		100.00	1.78E-01	1.43E-01	1.43E-01
		871.10		100.00	-1.05E-02		1.43E-01
+	NB-95	765.79		99.81	9.32E+00	1.71E+00	1.71E+00
+	NB-95M	235.69		25.00	-1.02E+07	1.02E+08	1.02E+08
+	ZR-95	724.18		43.70	3.98E-01	7.05E-01	9.19E-01
		756.72		55.30	7.68E-03		7.05E-01
+	MO-99	181.06		6.20	-2.14E+12	7.30E+10	1.58E+11
		739.58		12.80	9.31E+09		7.30E+10
		778.00		4.50	-2.92E+10		2.03E+11
+	RU-103	497.08		89.00	-6.63E-01	7.90E-01	7.90E-01
+	RU-106	621.84		9.80	3.52E-01	1.48E+00	1.48E+00
+	AG-108M	433.93		89.90	3.26E-02	1.52E-01	1.52E-01
		614.37		90.40	-8.52E+00		2.48E-01
		722.95		90.50	-6.08E-03		1.55E-01
+	CD-109	88.03	*	3.72	4.05E+01	1.39E+01	1.39E+01
+	AG-110M	657.75		93.14	-8.27E-02	1.77E-01	1.77E-01
		677.61		10.53	-7.66E-01		1.48E+00
		706.67		16.46	-1.39E-02		1.05E+00
		763.93		21.98	-1.10E-02		9.47E-01
		884.67		71.63	-1.11E-01		2.63E-01
		1384.27		23.94	-2.94E-01		9.23E-01
+	CD-113M	263.70		0.02	-1.50E+03	6.35E+02	6.35E+02
+	SN-113	255.12		1.93	-5.95E+00	4.08E-01	1.21E+01
		391.69		64.90	-1.05E-02		4.08E-01
+	TE123M	159.00		84.10	3.18E-03	2.89E-01	2.89E-01
+	SB-124	602.71		97.87	-1.45E-01	4.49E-01	4.49E-01
		645.85		7.26	1.52E+00		5.20E+00
		722.78		11.10	-1.55E-01		3.94E+00
		1691.02		49.00	6.46E-02		7.10E-01
+	I-125	35.49		6.49	-8.62E-01	5.86E+00	5.86E+00
+	SB-125	176.33		6.89	-4.47E-01	5.41E-01	2.08E+00
		427.89		29.33	3.62E-01		5.41E-01

Analysis Report for 1707089-10

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-125	463.38		10.35	8.33E-01	5.41E-01	1.41E+00
		600.56		17.80	-4.95E-02		8.13E-01
		635.90		11.32	8.68E-02		1.14E+00
+	SB-126	414.70		83.30	-1.34E+01	3.24E+01	4.38E+01
		666.33		99.60	7.93E+01		4.05E+01
		695.00		99.60	1.92E+00		3.24E+01
		720.50		53.80	8.10E+01		6.70E+01
+	SN-126	87.57	*	37.00	3.51E+00	1.20E+00	1.20E+00
+	SB-127	473.00		25.00	-4.43E+06	1.95E+07	2.98E+07
		685.20		35.70	1.70E+05		1.95E+07
		783.80		14.70	9.26E+06		6.28E+07
+	I-129	29.78		57.00	7.06E-03	2.37E-01	2.37E-01
		33.60		13.20	-6.71E-01		9.37E-01
		39.58		7.52	-3.73E-01		1.56E+00
+	I-131	284.30		6.05	3.81E+03	8.19E+02	1.26E+04
		364.48		81.20	-1.62E+02		8.19E+02
		636.97		7.26	7.39E+03		8.61E+03
		722.89		1.80	-1.57E+03		3.99E+04
+	TE-132	49.72		13.10	2.66E+08	2.09E+08	1.37E+09
		228.16		88.00	-3.59E+07		2.09E+08
+	BA-133	81.00		33.00	-4.22E+00	4.89E-01	4.89E-01
		302.84		17.80	4.84E-01		8.79E-01
		356.01		60.00	9.30E-01		4.92E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-1.77E+06	2.05E+05	2.05E+05
+	CS-134	563.23		8.38	1.23E+00	1.72E-01	1.71E+00
		569.32		15.43	-9.44E-02		9.17E-01
		604.70		97.60	-1.35E+01		2.44E-01
		795.84		85.40	3.08E-02		1.72E-01
		801.93		8.73	-8.09E-02		1.76E+00
+	CS-135	268.24		16.00	1.68E+00	9.98E-01	9.98E-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	1.73E+02	2.57E+01	3.47E+02
		163.89		4.61	7.83E+02		5.61E+02
		176.55		13.56	-3.93E+01		1.83E+02
		273.65		12.66	1.70E+02		2.32E+02
		340.57		48.50	-4.52E+00		5.63E+01
		818.50		99.70	-5.87E+00		2.57E+01
		1048.07		79.60	-1.22E+00		3.21E+01
		1235.34		19.70	7.31E+02		2.49E+02
+	CS-137	661.65	*	85.12	5.09E-02	1.74E-01	1.74E-01
+	LA-138	788.74		34.00	6.28E-01	1.98E-01	4.79E-01
		1435.80		66.00	-8.59E-03		1.98E-01
+	CE-139	165.85		80.35	8.18E-02	2.82E-01	2.82E-01
+	BA-140	162.64		6.70	3.69E+02	1.15E+02	4.48E+02
		304.84		4.50	-1.07E+01		6.76E+02
		423.70		3.20	-8.86E+01		9.98E+02

Analysis Report for 1707089-10

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		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		BA-140	437.55	2.00	-1.04E+03	1.15E+02	1.41E+03
			537.32	25.00	-2.80E+01		1.15E+02
+		LA-140	328.77	20.50	-5.12E+01	3.34E+01	1.53E+02
			487.03	45.50	4.76E+01		6.44E+01
			815.85	23.50	3.48E+00		1.27E+02
			1596.49	95.49	5.39E+00		3.34E+01
+		CE-141	145.44	48.40	3.68E+00	2.46E+00	2.46E+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	3.55E-01	1.52E+00	1.52E+00
+		PM-144	476.78	42.00	1.11E-01	1.56E-01	3.91E-01
			618.01	98.60	1.09E-02		1.61E-01
			696.49	99.49	9.13E-03		1.56E-01
+		PM-145	36.85	21.70	-3.27E-01	3.05E-01	5.53E-01
			37.36	39.70	-1.26E-02		3.05E-01
			42.30	15.10	-4.10E-01		7.88E-01
			72.40	2.31	-2.27E+01		7.88E+00
+		PM-146	453.90	39.94	2.52E-01	3.51E-01	3.51E-01
			735.90	14.01	6.74E-02		9.52E-01
			747.13	13.10	-6.18E-01		1.02E+00
+		ND-147	91.11	28.90	2.28E+03	3.38E+02	3.38E+02
			531.02	13.10	4.07E+02		5.30E+02
+		PM-149	285.90	3.10	2.97E+13	1.49E+14	1.49E+14
+		EU-152	121.78	20.50	3.48E-02	6.17E-01	6.17E-01
			244.69	5.40	2.31E+00		3.15E+00
			344.27	19.13	-1.69E-01		7.63E-01
			778.89	9.20	1.51E-01		1.43E+00
			964.01	10.40	9.14E-01		1.53E+00
			1085.78	7.22	2.12E-01		1.94E+00
			1112.02	9.60	2.38E-01		1.42E+00
			1407.95	14.94	2.35E+00		1.54E+00
+		GD-153	97.43	31.30	-1.79E+00	5.46E-01	5.46E-01
			103.18	22.20	4.19E-01		7.31E-01
+		EU-154	123.07	40.50	5.54E-02	3.17E-01	3.17E-01
			723.30	19.70	-2.85E-02		7.25E-01
			873.19	11.50	2.47E-01		1.27E+00
			996.32	10.30	8.77E-01		1.47E+00
			1004.76	17.90	1.48E+00		9.89E-01
			1274.45	35.50	2.34E-02		3.90E-01
+		EU-155	86.50	30.90	9.54E-01	5.62E-01	5.62E-01
			105.30	20.70	-3.22E-01		6.18E-01
+		EU-156	811.77	10.40	2.75E+01	1.19E+02	1.19E+02
			1153.47	7.20	6.57E+02		2.50E+02
			1230.71	8.90	-3.47E+01		1.36E+02
+		HO-166M	184.41	72.60	3.02E+00	2.29E-01	2.82E-01
			280.45	29.60	-3.67E-01		4.94E-01
			410.94	11.10	-1.26E+00		1.29E+00
			711.69	54.10	-1.25E-02		2.29E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TM-171	66.72	*	0.14	5.25E+01	1.05E+02	1.05E+02
+	HF-172	67.35		5.31	-3.31E+00	1.23E+00	3.13E+00
		125.81		11.30	-7.25E-01		1.23E+00
+	LU-172	181.53		20.60	-2.60E+05	6.24E+03	1.92E+04
		900.72		29.81	-3.71E+03		1.39E+04
		1093.66		62.50	3.29E+03		6.24E+03
+	LU-173	100.72		5.24	-6.28E-01	8.84E-01	2.69E+00
		272.11		21.20	4.50E-01		8.84E-01
+	HF-175	343.40		84.00	-1.01E-01	4.56E-01	4.56E-01
+	LU-176	88.34		13.30	-6.49E+00	1.49E-01	1.29E+00
		201.83		86.00	-1.08E-01		1.55E-01
		306.78		94.00	-1.73E-02		1.49E-01
+	HF-181	133.02		41.70	3.65E-01	8.25E-01	1.56E+00
		345.85		17.20	-5.71E-01		4.38E+00
		482.03		82.80	-8.07E-01		8.25E-01
+	TA-182	67.75	*	41.20	2.95E-01	5.92E-01	5.92E-01
		1121.30	*	34.90	2.56E+01		1.49E+00
		1189.05		16.23	-1.05E-01		1.50E+00
		1221.41		26.98	7.94E-03		9.23E-01
		1231.02		11.44	-5.34E-01		2.10E+00
+	IR-192	308.46		29.68	-1.08E+00	7.02E-01	1.18E+00
		468.07		48.10	2.75E-01		7.02E-01
+	HG-203	279.19		77.30	-1.08E+00	8.27E-01	8.27E-01
+	TL-204	374.74		94.11	3.29E-03	1.51E-01	1.51E-01
		899.15		99.16	2.62E-02		1.55E-01
		911.74		91.10	7.67E-02		1.78E-01
+	BI-207	569.67		97.72	-2.95E-02	1.34E-01	1.34E-01
		1063.62		74.90	1.15E-01		1.90E-01
+	TL-208	583.14	*	30.22	5.63E-01	8.97E-02	6.78E-01
		860.37		4.48	4.00E-01		3.16E+00
		2614.66	*	35.85	3.26E-01		8.97E-02
+	BI-210M	262.00		45.00	-5.87E-02	3.32E-01	3.32E-01
		300.00		23.00	-2.71E+01		7.51E-01
+	PB-210	46.50	*	4.25	1.09E+01	3.46E+00	3.46E+00
+	PB-211	404.84		2.90	4.89E+00	4.82E+00	5.37E+00
		831.96		2.90	-3.49E-01		4.82E+00
+	BI-212	727.17		11.80	1.23E-01	1.12E+00	1.12E+00
		1620.62		2.75	-7.79E-01		4.42E+00
+	PB-212	238.63	*	44.60	3.97E-01	6.72E-01	6.72E-01
		300.09	*	3.41	7.88E+00		7.91E+00
+	BI-214	609.31	*	46.30	3.04E+01	6.24E-01	6.24E-01
		1120.29	*	15.10	3.25E+01		1.89E+00
		1764.49	*	15.80	3.60E+01		1.40E+00
		2204.22	*	4.98	3.31E+01		9.16E-01
+	PB-214	295.21	*	19.19	3.27E+01	1.10E+00	1.40E+00
		351.92	*	37.19	3.34E+01		1.10E+00
+	RN-219	401.80		6.50	4.89E-01	2.37E+00	2.37E+00
+	RA-223	323.87		3.88	9.52E-01	3.70E+00	3.70E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98	*	3.95	6.48E+01	7.63E+00	7.63E+00
+	RA-225	40.00		31.00	-2.19E+01	3.93E+01	3.93E+01
+	RA-226	186.21	*	3.28	7.32E+01	7.82E+00	7.82E+00
+	TH-227	50.10		8.40	2.87E-01	1.20E+00	1.50E+00
		236.00		11.50	-1.21E-01		1.20E+00
		256.20		6.30	3.98E+00		2.46E+00
+	AC-228	338.32		11.40	4.11E-01	5.57E-01	1.28E+00
		911.07		27.70	2.40E-01		5.57E-01
		969.11		16.60	-6.81E-01		8.78E-01
+	TH-230	48.44		16.90	1.45E-01	7.99E-01	7.99E-01
		62.85		4.60	2.39E+01		3.67E+00
		67.67		0.37	-4.30E+01		4.06E+01
+	PA-231	283.67		1.60	6.00E+00	6.68E+00	9.31E+00
		302.67		2.30	3.67E+00		6.68E+00
+	TH-231	25.64		14.70	-2.59E+00	1.06E+00	1.06E+00
		84.21		6.40	-6.00E+00		2.49E+00
+	PA-233	311.98		38.60	-2.15E-01	4.73E+00	4.73E+00
+	PA-234	131.20		20.40	7.15E-02	6.28E-01	6.28E-01
		733.99		8.80	3.42E-02		1.48E+00
		946.00		12.00	-3.86E-01		1.18E+00
+	PA-234M	1001.03	*	0.92	4.76E+01	2.30E+01	2.30E+01
+	TH-234	63.29	*	3.80	2.67E+01	4.58E+00	4.58E+00
+	U-235	143.76	*	10.50	2.69E+00	1.80E+00	1.80E+00
		163.35	*	4.70	3.88E+00		3.47E+00
		205.31		4.70	1.33E+00		2.87E+00
+	NP-237	86.50	*	12.60	1.03E+01	3.53E+00	3.53E+00
+	NP-239	106.10		22.70	-4.89E+11	2.57E+12	2.57E+12
		228.18		10.70	-9.62E+11		5.59E+12
		277.60		14.10	1.32E+12		5.00E+12
+	AM-241	59.54		35.90	-1.09E-01	3.85E-01	3.85E-01
+	AM-243	74.67		66.00	-1.11E+00	3.26E-01	3.26E-01
+	CM-243	209.75		3.29	1.43E+00	1.08E+00	4.02E+00
		228.14		10.60	-2.09E-01		1.21E+00
		277.60		14.00	2.86E-01		1.08E+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

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NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	4.84E+00	4.84E+00	1.05E+00	2.38E+00
	NA-22	1274.54		99.94	1.46E-01	1.46E-01	8.76E-03	7.03E-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	8.94E-02	8.94E-02	5.16E-03	4.16E-02
+	K-40	1460.81	*	10.67	2.11E+00	2.11E+00	4.36E+00	1.03E+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	1.60E-01	1.60E-01	-1.69E-01	7.93E-02
		78.34		96.00	2.23E-01		1.87E+00	1.11E-01
	SC-46	889.25		99.98	3.41E-01	3.41E-01	3.26E-01	1.66E-01
		1120.51		99.99	1.00E+00		1.06E+01	4.95E-01
	V-48	983.52		99.98	1.03E+01	9.90E+00	-2.76E+00	4.99E+00
		1312.10		97.50	9.90E+00		-9.34E-01	4.76E+00
	CR-51	320.08		9.83	1.68E+01	1.68E+01	-8.71E+00	8.29E+00
	MN-54	834.83		99.97	1.79E-01	1.79E-01	-2.74E-01	8.72E-02
	CO-56	846.75		99.96	3.36E-01	3.36E-01	3.70E-02	1.64E-01
		1037.75		14.03	2.38E+00		-1.68E-02	1.15E+00
		1238.25		67.00	1.07E+00		6.47E+00	5.28E-01
		1771.40		15.51	2.12E+00		-1.12E+00	1.01E+00
		2598.48		16.90	3.89E-01		0.00E+00	1.38E-01
	CO-57	122.06		85.51	1.88E-01	1.88E-01	-1.71E-02	9.32E-02
		136.48		10.60	1.58E+00		-3.76E-01	7.84E-01
	CO-58	810.76		99.40	3.63E-01	3.63E-01	5.17E-02	1.77E-01
	FE-59	1099.22		56.50	1.10E+00	1.10E+00	-6.38E-01	5.31E-01
		1291.56		43.20	1.36E+00		-4.51E-01	6.54E-01
	CO-60	1173.22		100.00	1.35E-01	1.35E-01	-2.55E-02	6.50E-02
		1332.49		100.00	1.38E-01		-3.50E-02	6.63E-02
	ZN-65	1115.52		50.75	4.05E-01	4.05E-01	1.17E-03	1.97E-01
	GA-67	93.31		35.70	7.14E+08	7.14E+08	6.64E+09	3.55E+08
		208.95		2.24	8.39E+09		2.98E+09	4.16E+09
		300.22		16.00	1.39E+09		-3.94E+10	6.86E+08
	SE-75	121.11		16.70	1.32E+00	3.89E-01	7.47E-02	6.57E-01
		136.00		59.20	3.89E-01		-9.25E-02	1.93E-01
		264.65		59.80	4.28E-01		-1.39E+00	2.12E-01
		279.53		25.20	1.03E+00		-1.34E+00	5.10E-01
		400.65		11.40	2.36E+00		-4.55E-01	1.17E+00
	RB-82	776.52		13.00	1.50E+01	1.50E+01	-7.72E+00	7.31E+00
	RB-83	520.41		46.00	5.99E-01	5.99E-01	-7.15E-02	2.94E-01
		529.64		30.30	9.43E-01		-1.94E-01	4.62E-01
		552.65		16.40	1.75E+00		4.96E-01	8.56E-01
	KR-85	513.99		0.43	3.30E+01	3.30E+01	2.29E+01	1.62E+01
	SR-85	513.99		99.27	4.09E-01	4.09E-01	2.84E-01	2.01E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	Y-88	898.02		93.40	3.04E-01	2.08E-01	2.68E-01	1.48E-01
		1836.01		99.38	2.08E-01		-2.09E-02	9.82E-02
	MO-93	263.06		56.72	2.62E-01	1.26E-01	-2.93E-01	1.30E-01
		684.67		99.68	1.26E-01		1.10E-03	6.16E-02
		1477.11		99.08	1.49E-01		-7.38E-04	7.17E-02
	NB-93M	16.57		9.43	1.15E+00	1.15E+00	-1.12E+00	5.62E-01
	NB-94	702.63		100.00	1.43E-01	1.43E-01	1.78E-01	7.02E-02
		871.10		100.00	1.43E-01		-1.05E-02	6.96E-02
	NB-95	765.79		99.81	1.71E+00	1.71E+00	9.32E+00	8.42E-01
	NB-95M	235.69		25.00	1.02E+08	1.02E+08	-1.02E+07	5.04E+07
	ZR-95	724.18		43.70	9.19E-01	7.05E-01	3.98E-01	4.49E-01
		756.72		55.30	7.05E-01		7.68E-03	3.44E-01
	MO-99	181.06		6.20	1.58E+11	7.30E+10	-2.14E+12	7.81E+10
		739.58		12.80	7.30E+10		9.31E+09	3.56E+10
		778.00		4.50	2.03E+11		-2.92E+10	9.88E+10
	RU-103	497.08		89.00	7.90E-01	7.90E-01	-6.63E-01	3.88E-01
	RU-106	621.84		9.80	1.48E+00	1.48E+00	3.52E-01	7.23E-01
	AG-108M	433.93		89.90	1.52E-01	1.52E-01	3.26E-02	7.48E-02
		614.37		90.40	2.48E-01		-8.52E+00	1.23E-01
		722.95		90.50	1.55E-01		-6.08E-03	7.56E-02
+	CD-109	88.03	*	3.72	1.39E+01	1.39E+01	4.05E+01	6.92E+00
	AG-110M	657.75		93.14	1.77E-01	1.77E-01	-8.27E-02	8.63E-02
		677.61		10.53	1.48E+00		-7.66E-01	7.19E-01
		706.67		16.46	1.05E+00		-1.39E-02	5.10E-01
		763.93		21.98	9.47E-01		-1.10E-02	4.64E-01
		884.67		71.63	2.63E-01		-1.11E-01	1.28E-01
		1384.27		23.94	9.23E-01		-2.94E-01	4.48E-01
	CD-113M	263.70		0.02	6.35E+02	6.35E+02	-1.50E+03	3.14E+02
	SN-113	255.12		1.93	1.21E+01	4.08E-01	-5.95E+00	5.98E+00
		391.69		64.90	4.08E-01		-1.05E-02	2.01E-01
	TE123M	159.00		84.10	2.89E-01	2.89E-01	3.18E-03	1.43E-01
	SB-124	602.71		97.87	4.49E-01	4.49E-01	-1.45E-01	2.20E-01
		645.85		7.26	5.20E+00		1.52E+00	2.54E+00
		722.78		11.10	3.94E+00		-1.55E-01	1.93E+00
		1691.02		49.00	7.10E-01		6.46E-02	3.36E-01
	I-125	35.49		6.49	5.86E+00	5.86E+00	-8.62E-01	2.90E+00
	SB-125	176.33		6.89	2.08E+00	5.41E-01	-4.47E-01	1.03E+00
		427.89		29.33	5.41E-01		3.62E-01	2.67E-01
		463.38		10.35	1.41E+00		8.33E-01	6.95E-01
		600.56		17.80	8.13E-01		-4.95E-02	3.98E-01
		635.90		11.32	1.14E+00		8.68E-02	5.57E-01
	SB-126	414.70		83.30	4.38E+01	3.24E+01	-1.34E+01	2.16E+01
		666.33		99.60	4.05E+01		7.93E+01	1.99E+01
		695.00		99.60	3.24E+01		1.92E+00	1.58E+01
		720.50		53.80	6.70E+01		8.10E+01	3.27E+01
+	SN-126	87.57	*	37.00	1.20E+00	1.20E+00	3.51E+00	6.00E-01
	SB-127	473.00		25.00	2.98E+07	1.95E+07	-4.43E+06	1.46E+07
		685.20		35.70	1.95E+07		1.70E+05	9.52E+06
		783.80		14.70	6.28E+07		9.26E+06	3.08E+07
	I-129	29.78		57.00	2.37E-01	2.37E-01	7.06E-03	1.17E-01
		33.60		13.20	9.37E-01		-6.71E-01	4.64E-01
		39.58		7.52	1.56E+00		-3.73E-01	7.72E-01
	I-131	284.30		6.05	1.26E+04	8.19E+02	3.81E+03	6.26E+03

Analysis Report for 1707089-10

HTC-A04-S002-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	I-131	364.48		81.20	8.19E+02	8.19E+02	-1.62E+02	4.03E+02
		636.97		7.26	8.61E+03		7.39E+03	4.20E+03
		722.89		1.80	3.99E+04		-1.57E+03	1.95E+04
	TE-132	49.72		13.10	1.37E+09	2.09E+08	2.66E+08	6.80E+08
		228.16		88.00	2.09E+08		-3.59E+07	1.03E+08
	BA-133	81.00		33.00	4.89E-01	4.89E-01	-4.22E+00	2.43E-01
		302.84		17.80	8.79E-01		4.84E-01	4.35E-01
		356.01		60.00	4.92E-01		9.30E-01	2.45E-01
@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	XE-133	81.00		38.00	2.05E+05	2.05E+05	-1.77E+06	1.02E+05
	CS-134	563.23		8.38	1.71E+00	1.72E-01	1.23E+00	8.36E-01
		569.32		15.43	9.17E-01		-9.44E-02	4.49E-01
		604.70		97.60	2.44E-01		-1.35E+01	1.20E-01
		795.84		85.40	1.72E-01		3.08E-02	8.37E-02
		801.93		8.73	1.76E+00		-8.09E-02	8.58E-01
	CS-135	268.24		16.00	9.98E-01	9.98E-01	1.68E+00	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	3.47E+02	2.57E+01	1.73E+02	1.72E+02
		163.89		4.61	5.61E+02		7.83E+02	2.78E+02
		176.55		13.56	1.83E+02		-3.93E+01	9.06E+01
		273.65		12.66	2.32E+02		1.70E+02	1.15E+02
		340.57		48.50	5.63E+01		-4.52E+00	2.78E+01
		818.50		99.70	2.57E+01		-5.87E+00	1.25E+01
		1048.07		79.60	3.21E+01		-1.22E+00	1.56E+01
		1235.34		19.70	2.49E+02		7.31E+02	1.22E+02
+	CS-137	661.65	*	85.12	1.74E-01	1.74E-01	5.09E-02	8.51E-02
	LA-138	788.74		34.00	4.79E-01	1.98E-01	6.28E-01	2.35E-01
		1435.80		66.00	1.98E-01		-8.59E-03	9.48E-02
	CE-139	165.85		80.35	2.82E-01	2.82E-01	8.18E-02	1.40E-01
	BA-140	162.64		6.70	4.48E+02	1.15E+02	3.69E+02	2.22E+02
		304.84		4.50	6.76E+02		-1.07E+01	3.34E+02
		423.70		3.20	9.98E+02		-8.86E+01	4.92E+02
		437.55		2.00	1.41E+03		-1.04E+03	6.96E+02
		537.32		25.00	1.15E+02		-2.80E+01	5.64E+01
	LA-140	328.77		20.50	1.53E+02	3.34E+01	-5.12E+01	7.56E+01
		487.03		45.50	6.44E+01		4.76E+01	3.17E+01
		815.85		23.50	1.27E+02		3.48E+00	6.17E+01
		1596.49		95.49	3.34E+01		5.39E+00	1.61E+01
	CE-141	145.44		48.40	2.46E+00	2.46E+00	3.68E+00	1.22E+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	1.52E+00	1.52E+00	3.55E-01	7.53E-01
	PM-144	476.78		42.00	3.91E-01	1.56E-01	1.11E-01	1.92E-01
		618.01		98.60	1.61E-01		1.09E-02	7.90E-02
		696.49		99.49	1.56E-01		9.13E-03	7.60E-02
	PM-145	36.85		21.70	5.53E-01	3.05E-01	-3.27E-01	2.74E-01
		37.36		39.70	3.05E-01		-1.26E-02	1.51E-01
		42.30		15.10	7.88E-01		-4.10E-01	3.90E-01
		72.40		2.31	7.88E+00		-2.27E+01	3.92E+00
	PM-146	453.90		39.94	3.51E-01	3.51E-01	2.52E-01	1.72E-01

Analysis Report for 1707089-10

HTC-A04-S002-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PM-146	735.90		14.01	9.52E-01	3.51E-01	6.74E-02	4.64E-01
		747.13		13.10	1.02E+00		-6.18E-01	4.97E-01
	ND-147	91.11		28.90	3.38E+02	3.38E+02	2.28E+03	1.68E+02
		531.02		13.10	5.30E+02		4.07E+02	2.60E+02
	PM-149	285.90		3.10	1.49E+14	1.49E+14	2.97E+13	7.36E+13
	EU-152	121.78		20.50	6.17E-01	6.17E-01	3.48E-02	3.06E-01
		244.69		5.40	3.15E+00		2.31E+00	1.56E+00
		344.27		19.13	7.63E-01		-1.69E-01	3.77E-01
		778.89		9.20	1.43E+00		1.51E-01	6.97E-01
		964.01		10.40	1.53E+00		9.14E-01	7.45E-01
		1085.78		7.22	1.94E+00		2.12E-01	9.40E-01
		1112.02		9.60	1.42E+00		2.38E-01	6.85E-01
		1407.95		14.94	1.54E+00		2.35E+00	7.54E-01
	GD-153	97.43		31.30	5.46E-01	5.46E-01	-1.79E+00	2.71E-01
		103.18		22.20	7.31E-01		4.19E-01	3.63E-01
	EU-154	123.07		40.50	3.17E-01	3.17E-01	5.54E-02	1.57E-01
		723.30		19.70	7.25E-01		-2.85E-02	3.54E-01
		873.19		11.50	1.27E+00		2.47E-01	6.21E-01
		996.32		10.30	1.47E+00		8.77E-01	7.14E-01
		1004.76		17.90	9.89E-01		1.48E+00	4.83E-01
		1274.45		35.50	3.90E-01		2.34E-02	1.88E-01
	EU-155	86.50		30.90	5.62E-01	5.62E-01	9.54E-01	2.79E-01
		105.30		20.70	6.18E-01		-3.22E-01	3.07E-01
	EU-156	811.77		10.40	1.19E+02	1.19E+02	2.75E+01	5.81E+01
		1153.47		7.20	2.50E+02		6.57E+02	1.22E+02
		1230.71		8.90	1.36E+02		-3.47E+01	6.58E+01
	HO-166M	184.41		72.60	2.82E-01	2.29E-01	3.02E+00	1.40E-01
		280.45		29.60	4.94E-01		-3.67E-01	2.44E-01
		410.94		11.10	1.29E+00		-1.26E+00	6.35E-01
		711.69		54.10	2.29E-01		-1.25E-02	1.11E-01
+	TM-171	66.72	*	0.14	1.05E+02	1.05E+02	5.25E+01	5.23E+01
	HF-172	67.35		5.31	3.13E+00	1.23E+00	-3.31E+00	1.56E+00
		125.81		11.30	1.23E+00		-7.25E-01	6.08E-01
	LU-172	181.53		20.60	1.92E+04	6.24E+03	-2.60E+05	9.51E+03
		900.72		29.81	1.39E+04		-3.71E+03	6.75E+03
		1093.66		62.50	6.24E+03		3.29E+03	3.02E+03
	LU-173	100.72		5.24	2.69E+00	8.84E-01	-6.28E-01	1.34E+00
		272.11		21.20	8.84E-01		4.50E-01	4.38E-01
	HF-175	343.40		84.00	4.56E-01	4.56E-01	-1.01E-01	2.25E-01
	LU-176	88.34		13.30	1.29E+00	1.49E-01	-6.49E+00	6.39E-01
		201.83		86.00	1.55E-01		-1.08E-01	7.67E-02
		306.78		94.00	1.49E-01		-1.73E-02	7.39E-02
	HF-181	133.02		41.70	1.56E+00	8.25E-01	3.65E-01	7.73E-01
		345.85		17.20	4.38E+00		-5.71E-01	2.16E+00
		482.03		82.80	8.25E-01		-8.07E-01	4.06E-01
	TA-182	67.75	*	41.20	5.92E-01	5.92E-01	2.95E-01	2.94E-01
		1121.30	*	34.90	1.49E+00		2.56E+01	7.35E-01
		1189.05		16.23	1.50E+00		-1.05E-01	7.25E-01
		1221.41		26.98	9.23E-01		7.94E-03	4.46E-01
		1231.02		11.44	2.10E+00		-5.34E-01	1.01E+00
	IR-192	308.46		29.68	1.18E+00	7.02E-01	-1.08E+00	5.83E-01
		468.07		48.10	7.02E-01		2.75E-01	3.45E-01
	HG-203	279.19		77.30	8.27E-01	8.27E-01	-1.08E+00	4.09E-01

Analysis Report for 1707089-10

HTC-A04-S002-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TL-204	374.74		94.11	1.51E-01	1.51E-01	3.29E-03	7.42E-02
		899.15		99.16	1.55E-01		2.62E-02	7.56E-02
		911.74		91.10	1.78E-01		7.67E-02	8.68E-02
	BI-207	569.67		97.72	1.34E-01	1.34E-01	-2.95E-02	6.56E-02
		1063.62		74.90	1.90E-01		1.15E-01	9.20E-02
+	TL-208	583.14	*	30.22	6.78E-01	8.97E-02	5.63E-01	3.34E-01
		860.37		4.48	3.16E+00		4.00E-01	1.54E+00
		2614.66	*	35.85	8.97E-02		3.26E-01	3.37E-02
	BI-210M	262.00		45.00	3.32E-01	3.32E-01	-5.87E-02	1.65E-01
		300.00		23.00	7.51E-01		-2.71E+01	3.72E-01
+	PB-210	46.50	*	4.25	3.46E+00	3.46E+00	1.09E+01	1.72E+00
	PB-211	404.84		2.90	5.37E+00	4.82E+00	4.89E+00	2.65E+00
		831.96		2.90	4.82E+00		-3.49E-01	2.35E+00
	BI-212	727.17		11.80	1.12E+00	1.12E+00	1.23E-01	5.45E-01
		1620.62		2.75	4.42E+00		-7.79E-01	2.11E+00
+	PB-212	238.63	*	44.60	6.72E-01	6.72E-01	3.97E-01	3.34E-01
		300.09	*	3.41	7.91E+00		7.88E+00	3.93E+00
+	BI-214	609.31	*	46.30	6.24E-01	6.24E-01	3.04E+01	3.09E-01
		1120.29	*	15.10	1.89E+00		3.25E+01	9.32E-01
		1764.49	*	15.80	1.40E+00		3.60E+01	6.81E-01
		2204.22	*	4.98	9.16E-01		3.31E+01	3.87E-01
+	PB-214	295.21	*	19.19	1.40E+00	1.10E+00	3.27E+01	6.93E-01
		351.92	*	37.19	1.10E+00		3.34E+01	5.45E-01
	RN-219	401.80		6.50	2.37E+00	2.37E+00	4.89E-01	1.17E+00
	RA-223	323.87		3.88	3.70E+00	3.70E+00	9.52E-01	1.83E+00
+	RA-224	240.98	*	3.95	7.63E+00	7.63E+00	6.48E+01	3.80E+00
	RA-225	40.00		31.00	3.93E+01	3.93E+01	-2.19E+01	1.95E+01
+	RA-226	186.21	*	3.28	7.82E+00	7.82E+00	7.32E+01	3.89E+00
	TH-227	50.10		8.40	1.50E+00	1.20E+00	2.87E-01	7.45E-01
		236.00		11.50	1.20E+00		-1.21E-01	5.95E-01
		256.20		6.30	2.46E+00		3.98E+00	1.22E+00
	AC-228	338.32		11.40	1.28E+00	5.57E-01	4.11E-01	6.33E-01
		911.07		27.70	5.57E-01		2.40E-01	2.72E-01
		969.11		16.60	8.78E-01		-6.81E-01	4.27E-01
	TH-230	48.44		16.90	7.99E-01	7.99E-01	1.45E-01	3.96E-01
		62.85		4.60	3.67E+00		2.39E+01	1.82E+00
		67.67		0.37	4.06E+01		-4.30E+01	2.02E+01
	PA-231	283.67		1.60	9.31E+00	6.68E+00	6.00E+00	4.61E+00
		302.67		2.30	6.68E+00		3.67E+00	3.31E+00
	TH-231	25.64		14.70	1.06E+00	1.06E+00	-2.59E+00	5.24E-01
		84.21		6.40	2.49E+00		-6.00E+00	1.24E+00
	PA-233	311.98		38.60	4.73E+00	4.73E+00	-2.15E-01	2.34E+00
	PA-234	131.20		20.40	6.28E-01	6.28E-01	7.15E-02	3.11E-01
		733.99		8.80	1.48E+00		3.42E-02	7.24E-01
		946.00		12.00	1.18E+00		-3.86E-01	5.74E-01
+	PA-234M	1001.03	*	0.92	2.30E+01	2.30E+01	4.76E+01	1.13E+01
+	TH-234	63.29	*	3.80	4.58E+00	4.58E+00	2.67E+01	2.28E+00
+	U-235	143.76	*	10.50	1.80E+00	1.80E+00	2.69E+00	8.96E-01
		163.35	*	4.70	3.47E+00		3.88E+00	1.72E+00
		205.31		4.70	2.87E+00		1.33E+00	1.42E+00
+	NP-237	86.50	*	12.60	3.53E+00	3.53E+00	1.03E+01	1.76E+00
	NP-239	106.10		22.70	2.57E+12	2.57E+12	-4.89E+11	1.27E+12
		228.18		10.70	5.59E+12		-9.62E+11	2.77E+12

Analysis Report for 1707089-10

HTC-A04-S002-1218-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
NP-239	277.60	14.10	5.00E+12	2.57E+12	1.32E+12	2.47E+12
AM-241	59.54	35.90	3.85E-01	3.85E-01	-1.09E-01	1.91E-01
AM-243	74.67	66.00	3.26E-01	3.26E-01	-1.11E+00	1.62E-01
CM-243	209.75	3.29	4.02E+00	1.08E+00	1.43E+00	1.99E+00
	228.14	10.60	1.21E+00		-2.09E-01	6.00E-01
	277.60	14.00	1.08E+00		2.86E-01	5.35E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A04-S002-1218-01

Elapsed Live time: 3600
Elapsed Real Time: 3613

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	9	598	711	674	709	1037	698
25:	566	661	610	660	592	615	617	595
33:	617	638	589	627	673	638	657	689
41:	707	674	695	767	792	1001	1643	1010
49:	839	909	1004	956	1130	1287	1016	988
57:	1062	1115	1217	1292	1341	1453	2110	3264
65:	1643	1413	1480	1741	1661	1642	1699	1681
73:	1772	2103	4305	3551	4870	5714	2094	1903
81:	1762	1763	1490	2075	1890	1445	2192	2770
89:	1684	1994	1760	2065	4102	2473	1549	1260
97:	1050	1163	1234	1035	1008	945	973	1035
105:	1012	1102	979	994	1126	1124	1057	1121
113:	1105	1142	1000	994	1005	968	988	958
121:	963	1019	1023	929	939	1006	965	993
129:	997	991	937	1033	982	972	947	978
137:	935	1003	1066	1004	1033	1028	1112	1446
145:	1216	1036	1038	1032	1046	1022	1073	1005
153:	1018	1087	1111	1005	974	1000	1010	954
161:	933	943	985	1115	943	928	859	854
169:	922	869	877	825	840	891	841	832
177:	857	863	809	841	850	880	945	890
185:	1310	3372	2911	1078	853	855	836	807
193:	760	769	791	788	815	750	767	772
201:	729	721	702	688	730	798	729	676
209:	684	694	677	636	589	576	582	613
217:	605	608	635	580	636	580	595	571
225:	597	591	600	592	544	601	541	570
233:	586	545	576	789	741	585	774	637
241:	977	3018	2302	633	555	535	549	541
249:	473	469	453	483	458	451	467	526
257:	560	528	632	513	451	450	410	431
265:	439	459	424	435	546	678	587	551
273:	443	510	558	453	449	430	391	418
281:	420	415	401	430	441	429	433	403
289:	392	417	396	443	497	890	4836	5303
297:	1031	407	477	588	494	350	364	376
305:	371	353	284	321	323	342	323	341
313:	355	347	376	286	300	308	288	308
321:	304	314	339	367	345	281	345	324
329:	348	341	344	331	332	328	316	280
337:	297	389	376	303	299	293	301	299
345:	293	317	309	302	429	511	2634	10263
353:	5725	719	373	420	470	326	252	261
361:	217	226	221	233	216	220	208	240

369:	218	224	238	224	238	220	239	232

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Channel								
377:	248	236	220	250	236	228	233	235
385:	204	246	302	298	323	264	246	240
393:	212	256	250	236	244	252	232	264
401:	273	328	282	254	298	307	267	221
409:	233	250	210	226	232	233	243	221
417:	223	211	217	261	226	222	232	254
425:	258	233	227	245	231	210	224	189
433:	199	189	159	197	188	172	154	183
441:	177	187	198	178	204	169	179	182
449:	171	171	168	167	153	187	201	188
457:	172	159	142	174	174	192	200	171
465:	167	165	153	142	183	168	169	152
473:	136	157	162	162	169	152	159	194
481:	217	142	140	137	134	153	241	179
489:	136	142	140	151	149	125	124	141
497:	115	116	128	131	146	128	154	120
505:	136	124	129	139	163	204	216	205
513:	177	146	119	123	120	102	136	116
521:	109	129	132	116	128	118	106	139
529:	121	117	136	119	141	163	107	138
537:	136	142	108	132	146	139	135	121
545:	113	111	139	115	129	122	137	122
553:	102	117	126	101	103	109	107	125
561:	118	110	114	108	122	125	103	97
569:	104	120	105	136	137	116	117	99
577:	108	110	113	173	164	117	179	130
585:	144	113	93	117	101	116	123	104
593:	112	123	112	106	95	107	133	103
601:	113	101	116	126	144	155	196	1237
609:	6065	5786	1056	189	219	292	209	113
617:	75	74	83	76	94	70	93	89
625:	92	89	77	78	85	95	94	77
633:	83	79	87	79	95	87	69	89
641:	68	55	83	81	80	82	80	73
649:	85	89	84	77	87	80	82	84
657:	90	63	87	96	88	111	80	116
665:	210	250	103	73	103	92	85	65
673:	73	88	67	77	66	93	67	61
681:	69	83	74	71	83	67	64	100
689:	78	94	81	73	70	87	85	85
697:	78	77	86	87	88	115	142	109
705:	78	86	82	70	74	78	75	64
713:	74	68	77	78	66	86	97	128
721:	100	101	79	68	70	93	104	72
729:	70	85	85	85	71	81	83	68
737:	70	67	87	67	65	102	98	89
745:	69	78	58	78	69	75	59	83
753:	79	73	91	68	87	70	70	81
761:	71	77	62	87	88	135	234	601
769:	553	179	99	77	83	89	63	60
777:	88	69	60	67	82	63	59	66
785:	136	225	151	93	68	84	76	66
793:	73	81	75	67	65	71	72	70

801:	66	67	78	82	112	200	175	89

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Channel								
809:	60	68	65	69	79	80	72	74
817:	68	79	65	70	86	79	71	61
825:	98	75	72	80	63	64	99	91
833:	80	50	67	73	74	103	129	104
841:	83	67	79	72	67	66	77	78
849:	73	72	75	62	79	64	63	74
857:	60	83	72	70	77	71	66	70
865:	70	70	69	60	66	58	74	84
873:	76	82	74	54	74	72	74	73
881:	71	77	71	54	67	77	71	82
889:	74	83	76	74	70	55	66	79
897:	99	78	64	60	73	47	71	77
905:	74	70	76	71	65	75	106	99
913:	63	66	62	77	67	51	67	68
921:	65	68	71	68	76	70	73	65
929:	43	73	73	73	221	396	226	76
937:	64	70	56	60	74	78	58	59
945:	60	65	65	76	49	65	53	48
953:	68	57	50	60	58	63	57	65
961:	60	48	77	95	111	67	59	64
969:	71	70	53	57	43	64	66	62
977:	51	47	60	48	55	54	62	56
985:	63	54	60	69	55	54	49	52
993:	69	72	71	51	46	56	72	92
1001:	185	128	56	60	60	57	50	58
1009:	44	65	59	49	47	54	54	52
1017:	54	58	53	49	41	49	45	38
1025:	50	42	36	56	53	55	55	55
1033:	56	48	52	56	45	63	45	53
1041:	51	47	41	46	44	48	46	49
1049:	49	43	72	83	66	53	65	52
1057:	56	51	33	46	48	66	48	61
1065:	42	48	41	48	64	76	58	59
1073:	47	61	47	50	47	50	43	37
1081:	51	47	51	53	43	54	50	34
1089:	50	45	32	55	50	46	47	49
1097:	31	45	51	36	50	39	47	58
1105:	66	43	40	37	39	44	48	49
1113:	37	42	42	54	56	125	565	1445
1121:	905	198	74	77	96	59	47	35
1129:	31	50	38	52	73	53	53	38
1137:	51	51	38	49	38	50	36	44
1145:	40	49	47	44	48	53	46	42
1153:	57	98	187	136	50	33	36	48
1161:	36	51	37	41	44	39	36	50
1169:	36	42	30	36	44	39	36	33
1177:	41	32	40	52	56	59	55	29
1185:	34	41	44	40	33	34	38	40
1193:	44	46	37	37	49	46	40	40
1201:	41	35	49	35	36	49	76	56
1209:	55	32	35	35	27	36	35	36
1217:	43	42	43	43	36	32	35	40
1225:	38	38	23	33	33	39	44	39

1233:	38	37	36	83	311	492	295	69

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Channel								
1241:	50	38	53	36	49	35	44	35
1249:	36	25	25	68	63	65	43	34
1257:	32	36	34	33	30	38	43	27
1265:	28	21	43	28	30	29	27	39
1273:	28	45	32	41	38	33	61	92
1281:	139	85	38	36	32	35	39	34
1289:	34	25	28	32	35	23	28	34
1297:	34	29	24	37	33	38	35	38
1305:	27	31	30	23	31	35	33	35
1313:	25	40	31	38	40	36	40	40
1321:	35	28	32	29	23	34	29	25
1329:	34	39	33	31	31	31	26	40
1337:	40	43	32	48	37	35	30	29
1345:	38	36	39	34	32	27	31	25
1353:	35	31	21	29	24	20	28	30
1361:	33	25	36	22	36	32	30	22
1369:	28	37	28	25	34	34	47	127
1377:	293	348	127	39	41	30	29	65
1385:	82	67	30	27	27	39	26	27
1393:	27	34	22	33	36	37	37	77
1401:	137	130	58	43	34	53	156	196
1409:	98	46	39	29	32	37	35	26
1417:	23	33	22	30	30	36	39	38
1425:	46	28	32	30	25	32	28	30
1433:	29	22	29	29	25	29	26	27
1441:	34	22	29	25	38	37	34	30
1449:	31	41	33	34	30	32	19	35
1457:	37	36	50	108	144	59	36	32
1465:	41	36	29	41	32	35	40	38
1473:	42	21	36	31	25	41	35	24
1481:	33	40	24	35	29	38	32	31
1489:	36	29	24	30	29	33	38	35
1497:	36	25	29	31	36	31	31	48
1505:	44	36	63	126	193	116	53	45
1513:	36	34	39	37	31	32	38	33
1521:	45	23	36	22	24	32	37	36
1529:	41	35	41	29	35	27	31	26
1537:	39	60	48	37	30	41	61	41
1545:	27	28	31	34	22	22	31	24
1553:	25	16	32	24	28	21	26	24
1561:	17	22	14	22	19	22	13	23
1569:	28	19	14	26	32	22	29	26
1577:	26	25	24	26	41	49	70	39
1585:	34	26	34	21	24	15	15	28
1593:	32	38	28	21	34	29	33	32
1601:	28	16	20	22	14	24	30	21
1609:	22	20	26	20	16	23	27	28
1617:	20	25	20	21	14	19	20	12
1625:	22	16	12	13	13	19	18	19
1633:	15	21	16	14	19	10	14	20
1641:	17	13	12	13	18	22	9	14
1649:	12	13	15	14	15	13	17	22
1657:	13	18	24	71	76	56	20	10

1665:	15	10	17	8	10	10	15	12

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Channel								
1673:	10	7	12	5	15	10	16	11
1681:	12	15	25	20	12	18	12	9
1689:	8	14	17	23	25	20	9	7
1697:	9	10	12	11	14	8	10	16
1705:	12	15	9	12	12	8	12	16
1713:	15	10	12	17	17	12	11	14
1721:	8	17	7	17	9	18	30	134
1729:	230	154	48	14	19	17	12	7
1737:	13	14	9	13	9	15	10	12
1745:	14	9	8	9	7	11	6	16
1753:	6	10	5	12	10	9	7	23
1761:	26	142	626	975	618	145	42	38
1769:	34	26	6	5	7	10	9	3
1777:	10	8	6	9	14	5	6	8
1785:	11	8	7	9	7	10	11	8
1793:	11	3	7	8	10	6	10	13
1801:	7	10	11	10	4	7	5	9
1809:	12	9	15	7	5	5	14	7
1817:	7	9	5	12	11	9	5	11
1825:	7	8	6	10	12	9	10	6
1833:	8	12	6	14	19	26	28	10
1841:	10	10	9	10	24	90	122	83
1849:	18	10	10	5	8	9	11	5
1857:	7	4	6	10	7	6	7	7
1865:	5	8	9	10	8	10	12	24
1873:	20	11	6	7	8	6	7	10
1881:	10	4	12	8	1	11	7	9
1889:	13	13	14	14	14	8	15	15
1897:	14	11	9	10	5	7	10	5
1905:	7	6	12	8	7	6	11	11
1913:	6	2	10	1	6	9	10	5
1921:	5	4	5	7	2	3	8	7
1929:	7	11	8	12	11	17	10	18
1937:	17	9	7	7	12	16	2	4
1945:	9	6	11	7	10	10	4	3
1953:	6	10	7	8	10	9	10	10
1961:	5	13	5	13	9	8	6	10
1969:	10	6	13	13	7	9	8	5
1977:	8	4	8	7	6	6	4	8
1985:	7	4	5	5	10	2	9	9
1993:	10	9	7	6	5	8	2	3
2001:	5	6	2	4	6	7	8	3
2009:	11	4	11	4	7	5	8	10
2017:	12	10	3	5	8	8	3	7
2025:	5	4	3	1	7	1	5	3
2033:	5	5	8	4	6	5	7	10
2041:	4	10	5	4	7	5	4	4
2049:	4	2	11	10	9	5	3	8
2057:	3	3	3	9	6	5	2	2
2065:	4	2	2	3	4	2	1	4
2073:	5	4	5	3	3	7	4	4
2081:	5	1	4	1	5	6	8	5
2089:	9	4	1	4	5	1	7	7

2097:	4	3	2	8	9	4	6	3

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Channel								
2105:	2	3	3	9	2	4	3	1
2113:	5	5	7	22	56	70	40	14
2121:	4	6	6	5	2	2	4	3
2129:	1	2	4	1	5	1	4	2
2137:	3	5	1	5	4	1	2	3
2145:	3	5	8	5	5	5	1	0
2153:	1	2	2	4	3	2	4	5
2161:	4	2	5	1	5	6	5	6
2169:	4	2	4	4	0	7	3	1
2177:	2	3	5	1	6	2	6	2
2185:	3	2	5	1	4	2	3	6
2193:	2	8	4	0	0	4	3	10
2201:	23	121	232	188	74	21	4	11
2209:	9	2	4	2	1	0	0	3
2217:	4	0	1	3	1	2	1	1
2225:	0	1	2	2	1	2	1	2
2233:	1	1	0	5	1	1	2	3
2241:	1	5	4	0	3	2	1	4
2249:	1	4	0	2	3	0	0	4
2257:	0	2	3	2	1	0	5	1
2265:	3	3	1	3	2	0	2	3
2273:	0	0	5	5	3	0	0	2
2281:	2	1	1	4	2	3	1	1
2289:	2	5	6	13	14	7	3	2
2297:	2	1	1	2	3	0	3	3
2305:	1	3	1	0	0	0	1	2
2313:	0	2	2	0	1	1	1	4
2321:	1	1	0	4	1	2	3	2
2329:	1	1	2	1	1	1	0	2
2337:	2	1	0	2	2	2	1	2
2345:	1	0	1	1	1	2	0	1
2353:	3	3	0	2	0	2	1	3
2361:	1	1	0	0	0	0	2	0
2369:	0	0	2	0	1	1	2	2
2377:	0	0	1	0	2	1	1	0
2385:	1	1	0	2	0	1	1	0
2393:	1	1	2	0	1	0	1	2
2401:	1	1	0	2	1	0	1	1
2409:	1	1	0	1	1	1	0	2
2417:	0	3	4	1	0	0	2	1
2425:	0	1	0	1	0	0	0	1
2433:	1	2	2	2	0	1	1	2
2441:	1	2	2	4	22	63	61	27
2449:	6	4	2	1	1	0	0	0
2457:	2	2	0	0	1	2	0	0
2465:	0	1	0	0	1	0	0	0
2473:	0	1	3	0	0	1	0	0
2481:	0	1	2	1	0	0	0	1
2489:	2	2	1	2	2	1	0	0
2497:	0	1	0	0	0	0	0	0
2505:	0	2	0	0	0	0	0	0
2513:	0	2	0	0	0	0	0	0
2521:	1	2	0	2	0	0	1	0

2529:	0	0	1	1	0	0	1	0

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Channel								
2537:	0	1	1	0	1	1	0	1
2545:	1	0	0	0	0	0	0	0
2553:	0	0	0	0	2	0	1	1
2561:	0	2	0	0	0	0	0	0
2569:	0	1	0	2	1	0	0	2
2577:	0	0	0	0	0	0	1	0
2585:	0	0	1	0	0	0	0	0
2593:	0	0	0	0	1	0	1	0
2601:	0	0	1	1	1	0	0	0
2609:	0	3	1	9	21	12	3	3
2617:	4	1	0	0	0	2	1	0
2625:	1	0	0	1	1	0	1	0
2633:	0	0	1	0	0	1	1	1
2641:	0	1	0	0	1	0	1	0
2649:	0	0	0	0	1	1	1	0
2657:	1	2	0	1	1	0	0	0
2665:	0	0	0	0	0	0	1	0
2673:	0	0	1	0	0	1	0	0
2681:	0	0	0	0	1	0	1	1
2689:	1	1	4	0	3	2	0	2
2697:	0	0	1	1	1	0	0	0
2705:	2	0	0	0	0	0	1	0
2713:	1	0	0	0	1	1	1	2
2721:	0	0	0	0	0	1	5	1
2729:	0	0	1	0	0	0	0	0
2737:	0	0	0	0	1	0	1	0
2745:	0	0	0	0	1	0	0	0
2753:	0	1	1	0	0	0	0	1
2761:	0	0	1	0	0	0	0	1
2769:	1	1	3	1	0	0	0	0
2777:	0	1	0	2	0	1	0	0
2785:	0	0	1	0	0	1	0	1
2793:	0	1	0	1	0	0	1	0
2801:	1	0	0	0	0	0	0	0
2809:	0	0	0	1	0	2	0	0
2817:	0	0	1	0	0	2	0	0
2825:	0	0	0	0	1	0	2	0
2833:	1	0	0	1	2	0	0	0
2841:	0	0	0	0	0	0	1	0
2849:	0	0	0	0	0	0	0	1
2857:	0	0	0	0	1	1	0	0
2865:	0	0	0	0	0	0	0	0
2873:	0	1	0	0	0	0	0	0
2881:	1	0	0	1	0	0	0	0
2889:	0	0	0	0	0	0	0	0
2897:	1	0	0	1	2	0	1	1
2905:	0	1	0	0	0	0	1	1
2913:	0	0	0	0	0	0	0	0
2921:	1	0	0	0	0	0	0	0
2929:	0	0	0	0	1	1	0	0
2937:	1	0	0	0	0	0	0	0
2945:	0	0	0	0	0	0	0	1
2953:	0	0	0	0	0	0	0	0

2961:	0	0	0	0	0	0	0	0

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

3393:	0	0	0	0	0	0	1	0

Sample Title: HTC-A04-S002-1218-01

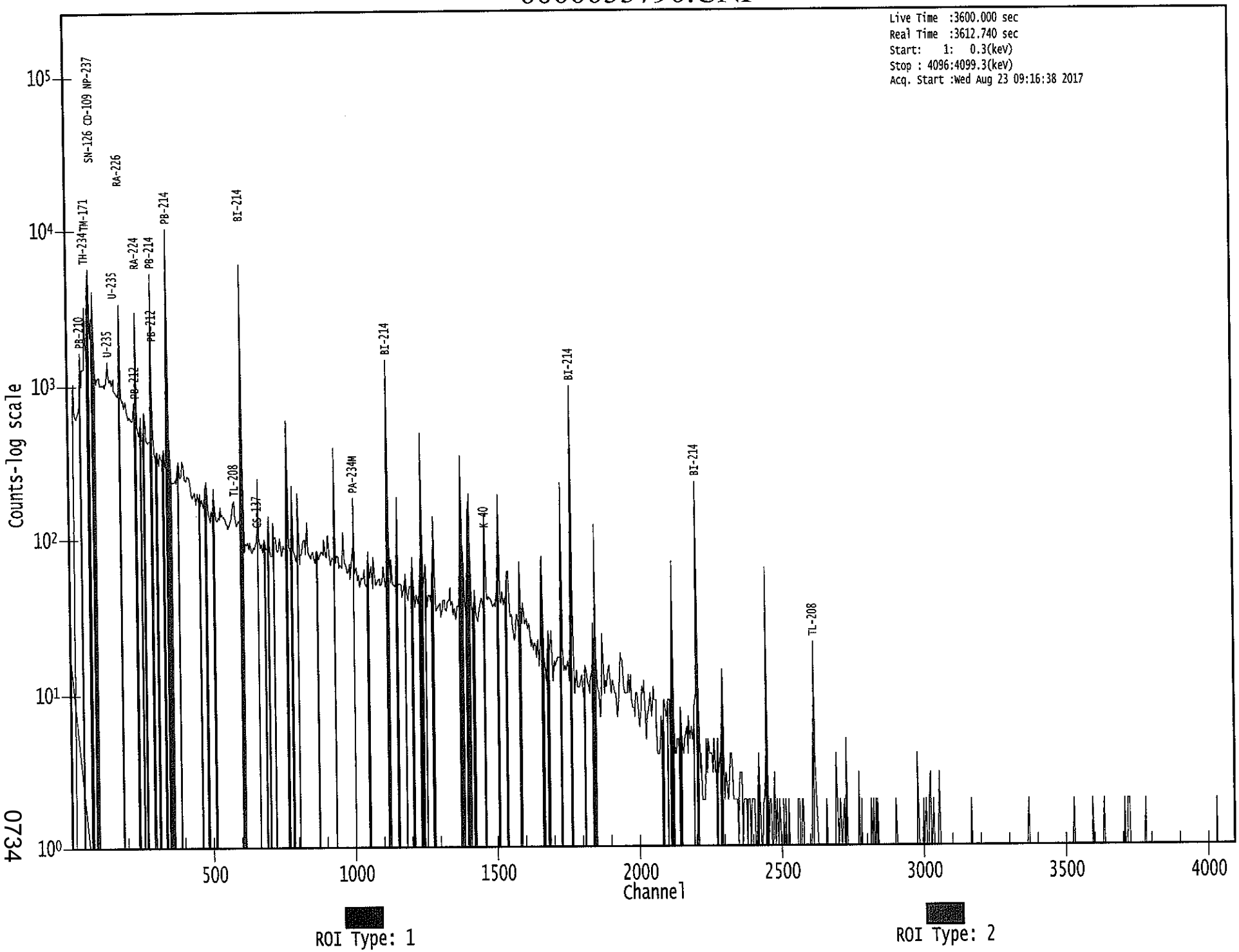
Channel								
3401:	1	0	0	0	0	1	0	0
3409:	0	1	0	0	0	0	0	0
3417:	0	1	1	0	0	0	0	0
3425:	1	0	0	0	1	0	0	0
3433:	0	1	1	0	0	0	1	0
3441:	0	0	1	0	0	1	1	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	1
3473:	0	1	0	0	0	1	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	1
3497:	0	0	0	0	0	0	0	0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

3825:	1	0	0	0	0	0	0	0

Sample Title: HTC-A04-S002-1218-01

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

0000055790.CNF



0734

Apex-Gamma

8/23

Analysis Report for 1707089-11

HTC-A04-S002-1824-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707089-11
Sample Description	: HTC-A04-S002-1824-01
Sample Type	: SOIL
Sample Size	: 7.762E+02 grams
Facility	: Countroom
Sample Taken On	: 5/16/2017 7:17:18AM
Acquisition Started	: 8/23/2017 9:16:44AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE2
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3608.9 seconds
Dead Time	: 0.25 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 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	: 55791

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/23/17

Analysis Report for 1707089-11

HTC-A04-S002-1824-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/23/2017 10:17:37AM
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	46.44	46.79	0.0000	0.00
2	53.26	53.60	0.0000	0.00
3	63.26	63.58	0.0000	0.00
4	76.16	76.47	0.0000	0.00
5	87.14	87.44	0.0000	0.00
6	92.87	93.16	0.0000	0.00
7	112.72	112.99	0.0000	0.00
8	143.77	144.01	0.0000	0.00
9	154.61	154.84	0.0000	0.00
10	163.97	164.19	0.0000	0.00
11	185.94	186.13	0.0000	0.00
12	238.74	238.88	0.0000	0.00
13	241.99	242.12	0.0000	0.00
14	258.99	259.10	0.0000	0.00
15	270.26	270.36	0.0000	0.00
16	291.70	291.78	0.0000	0.00
17	295.21	295.29	0.0000	0.00
18	324.48	324.53	0.0000	0.00
19	338.59	338.62	0.0000	0.00
20	351.89	351.91	0.0000	0.00
21	387.97	387.95	0.0000	0.00
22	455.33	455.24	0.0000	0.00
23	462.53	462.43	0.0000	0.00
24	480.38	480.27	0.0000	0.00
25	487.17	487.04	0.0000	0.00
26	510.93	510.79	0.0000	0.00
27	543.86	543.68	0.0000	0.00
28	580.34	580.13	0.0000	0.00
29	583.38	583.17	0.0000	0.00
30	609.39	609.14	0.0000	0.00
31	665.37	665.07	0.0000	0.00
32	727.33	726.97	0.0000	0.00
33	742.35	741.98	0.0000	0.00
34	768.30	767.90	0.0000	0.00
35	786.16	785.74	0.0000	0.00
36	806.30	805.86	0.0000	0.00
37	839.02	838.55	0.0000	0.00
38	911.87	911.34	0.0000	0.00
39	934.25	933.69	0.0000	0.00
40	963.49	962.90	0.0000	0.00
41	968.92	968.33	0.0000	0.00
42	1001.48	1000.86	0.0000	0.00

Analysis Report for 1707089-11

HTC-A04-S002-1824-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1049.54	1048.88	0.0000	0.00
44	1104.64	1103.93	0.0000	0.00
45	1118.14	1117.42	0.0000	0.00
46	1120.70	1119.97	0.0000	0.00
47	1134.21	1133.47	0.0000	0.00
48	1155.34	1154.58	0.0000	0.00
49	1208.34	1207.53	0.0000	0.00
50	1238.41	1237.58	0.0000	0.00
51	1252.93	1252.08	0.0000	0.00
52	1281.39	1280.52	0.0000	0.00
53	1298.52	1297.63	0.0000	0.00
54	1377.96	1377.00	0.0000	0.00
55	1385.63	1384.67	0.0000	0.00
56	1401.91	1400.94	0.0000	0.00
57	1408.28	1407.30	0.0000	0.00
58	1446.16	1445.14	0.0000	0.00
59	1461.27	1460.24	0.0000	0.00
60	1471.20	1470.16	0.0000	0.00
61	1509.43	1508.37	0.0000	0.00
62	1539.33	1538.24	0.0000	0.00
63	1543.34	1542.24	0.0000	0.00
64	1583.91	1582.78	0.0000	0.00
65	1600.60	1599.46	0.0000	0.00
66	1661.37	1660.18	0.0000	0.00
67	1693.14	1691.93	0.0000	0.00
68	1730.18	1728.94	0.0000	0.00
69	1764.89	1763.62	0.0000	0.00
70	1814.88	1813.57	0.0000	0.00
71	1838.28	1836.95	0.0000	0.00
72	1847.92	1846.58	0.0000	0.00
73	1872.97	1871.62	0.0000	0.00
74	2118.95	2117.41	0.0000	0.00
75	2204.51	2202.91	0.0000	0.00
76	2294.25	2292.60	0.0000	0.00
77	2384.56	2382.85	0.0000	0.00
78	2392.22	2390.50	0.0000	0.00
79	2448.13	2446.37	0.0000	0.00
80	2614.70	2612.83	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707089-11

HTC-A04-S002-1824-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/23/2017 10:17:37AM

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	46.44	44 -	49	46.79	9.68E+02	201.04	7.37E+03	1.17
	2	53.26	52 -	55	53.60	3.17E+02	159.61	6.09E+03	1.56
	3	63.26	61 -	67	63.58	1.63E+03	303.63	1.57E+04	1.48
	4	76.16	72 -	79	76.47	6.42E+03	399.19	2.66E+04	3.51
	5	87.14	86 -	89	87.44	6.04E+02	208.04	1.09E+04	1.53
	6	92.87	91 -	96	93.16	2.71E+03	267.65	1.18E+04	1.21
	7	112.72	111 -	116	112.99	3.78E+02	215.30	8.94E+03	1.55
	8	143.77	141 -	146	144.01	3.55E+02	217.02	9.14E+03	1.30
	9	154.61	153 -	157	154.84	2.99E+02	184.51	7.28E+03	1.90
	10	163.97	163 -	166	164.19	1.34E+02	149.33	5.41E+03	2.15
	11	185.94	182 -	190	186.13	4.00E+03	293.54	1.08E+04	1.49
M	12	238.74	238 -	247	238.88	2.85E+02	80.27	1.88E+03	1.32
m	13	241.99	238 -	247	242.12	3.52E+03	166.53	3.37E+03	1.33
	14	258.99	257 -	261	259.10	1.45E+02	129.91	3.58E+03	1.04
	15	270.26	267 -	273	270.36	4.99E+02	163.61	4.52E+03	3.50
M	16	291.70	290 -	299	291.78	1.61E+02	93.32	1.98E+03	2.07
m	17	295.21	290 -	299	295.29	8.06E+03	201.40	2.13E+03	1.47
	18	324.48	323 -	327	324.53	1.12E+02	101.29	2.18E+03	1.04
	19	338.59	336 -	341	338.62	9.76E+01	119.46	2.77E+03	1.93
	20	351.89	348 -	355	351.91	1.37E+04	272.55	3.22E+03	1.38
	21	387.97	385 -	392	387.95	2.24E+02	131.92	2.77E+03	3.30
	22	455.33	452 -	458	455.24	9.55E+01	98.39	1.68E+03	1.62
	23	462.53	460 -	465	462.43	8.16E+01	84.36	1.36E+03	1.87
	24	480.38	478 -	483	480.27	8.81E+01	81.71	1.27E+03	1.81
	25	487.17	484 -	490	487.04	1.33E+02	91.55	1.42E+03	1.49
	26	510.93	506 -	516	510.79	3.51E+02	127.84	1.99E+03	2.63
	27	543.86	540 -	547	543.68	1.01E+02	93.38	1.39E+03	2.04
M	28	580.34	578 -	587	580.13	7.44E+01	62.62	7.98E+02	1.70
m	29	583.38	578 -	587	583.17	1.63E+02	66.79	7.87E+02	1.82
	30	609.39	604 -	613	609.14	1.06E+04	226.74	1.29E+03	1.77
	31	665.37	660 -	669	665.07	3.17E+02	98.56	1.20E+03	1.99
	32	727.33	723 -	730	726.97	6.94E+01	75.71	8.95E+02	2.58
	33	742.35	740 -	745	741.98	5.16E+01	58.35	6.41E+02	1.98
	34	768.30	763 -	773	767.90	1.03E+03	112.08	1.13E+03	2.05
	35	786.16	782 -	788	785.74	1.87E+02	70.48	7.62E+02	2.14
	36	806.30	802 -	810	805.86	2.63E+02	84.14	9.19E+02	1.73
	37	839.02	835 -	842	838.55	9.42E+01	73.21	8.28E+02	1.81
	38	911.87	907 -	915	911.34	1.08E+02	78.39	8.72E+02	1.81
	39	934.25	929 -	938	933.69	4.70E+02	94.23	1.00E+03	1.92
M	40	963.49	959 -	972	962.90	1.44E+02	65.18	6.14E+02	3.89

Analysis Report for 1707089-11

HTC-A04-S002-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
m	41	968.92	959 -	972	968.33	9.27E+01	71.63	7.25E+02	3.07
	42	1001.48	997 -	1005	1000.86	2.07E+02	69.85	6.18E+02	1.96
	43	1049.54	1041 -	1055	1048.88	1.12E+02	99.61	9.96E+02	9.11
	44	1104.64	1101 -	1107	1103.93	4.52E+01	50.99	4.38E+02	2.72
M	45	1118.14	1114 -	1126	1117.42	1.51E+02	69.89	3.32E+02	3.38
m	46	1120.70	1114 -	1126	1119.97	2.08E+03	104.58	3.62E+02	1.98
	47	1134.21	1132 -	1137	1133.47	3.87E+01	41.68	3.19E+02	1.17
	48	1155.34	1150 -	1159	1154.58	2.66E+02	74.57	6.35E+02	2.31
	49	1208.34	1203 -	1211	1207.53	5.43E+01	59.03	4.99E+02	2.71
	50	1238.41	1233 -	1242	1237.58	7.68E+02	82.30	5.26E+02	2.31
	51	1252.93	1247 -	1256	1252.08	1.13E+02	57.06	4.01E+02	4.76
	52	1281.39	1275 -	1287	1280.52	2.16E+02	77.36	5.97E+02	2.75
	53	1298.52	1296 -	1300	1297.63	2.56E+01	30.34	1.81E+02	1.88
	54	1377.96	1371 -	1380	1377.00	5.59E+02	73.97	4.67E+02	2.73
	55	1385.63	1382 -	1390	1384.67	1.30E+02	54.60	3.80E+02	2.40
M	56	1401.91	1395 -	1412	1400.94	1.69E+02	52.46	3.30E+02	2.84
m	57	1408.28	1395 -	1412	1407.30	2.69E+02	56.32	3.56E+02	2.57
	58	1446.16	1442 -	1449	1445.14	5.47E+01	41.09	2.47E+02	3.20
	59	1461.27	1456 -	1466	1460.24	3.16E+02	73.36	5.46E+02	2.36
	60	1471.20	1467 -	1472	1470.16	3.43E+01	37.03	2.44E+02	2.29
	61	1509.43	1504 -	1512	1508.37	2.30E+02	60.86	4.31E+02	2.42
M	62	1539.33	1534 -	1547	1538.24	8.36E+01	44.36	2.81E+02	2.68
m	63	1543.34	1534 -	1547	1542.24	7.41E+01	45.87	2.48E+02	2.68
	64	1583.91	1578 -	1586	1582.78	9.75E+01	47.54	2.87E+02	2.52
	65	1600.60	1597 -	1602	1599.46	3.88E+01	34.31	2.00E+02	3.53
	66	1661.37	1655 -	1666	1660.18	1.42E+02	45.83	1.91E+02	2.41
	67	1693.14	1688 -	1696	1691.93	4.15E+01	31.35	1.25E+02	3.32
	68	1730.18	1723 -	1734	1728.94	3.62E+02	56.36	2.17E+02	2.56
	69	1764.89	1756 -	1771	1763.62	1.75E+03	96.60	2.30E+02	2.80
	70	1814.88	1808 -	1820	1813.57	2.57E+01	30.43	9.47E+01	1.00
	71	1838.28	1834 -	1840	1836.95	2.85E+01	24.79	9.10E+01	3.31
	72	1847.92	1841 -	1852	1846.58	2.40E+02	43.17	1.10E+02	2.55
	73	1872.97	1866 -	1876	1871.62	2.51E+01	31.10	1.16E+02	7.37
	74	2118.95	2112 -	2122	2117.41	1.19E+02	26.14	2.73E+01	3.35
	75	2204.51	2195 -	2211	2202.91	4.85E+02	50.65	6.01E+01	3.27
	76	2294.25	2284 -	2298	2292.60	2.90E+01	20.02	3.00E+01	11.81
	77	2384.56	2380 -	2386	2382.85	5.50E+00	7.78	7.00E+00	2.85
	78	2392.22	2387 -	2394	2390.50	7.00E+00	8.72	8.00E+00	1.45
	79	2448.13	2438 -	2450	2446.37	1.18E+02	24.26	1.62E+01	2.68
	80	2614.70	2608 -	2616	2612.83	6.00E+01	15.49	0.00E+00	1.79

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 1707089-11

HTC-A04-S002-1824-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/23/2017 10:17:37AM

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	46.44	44 -	49	9.68E+02	201.04	7.37E+03	1.76E+02
	2	53.26	52 -	55	3.17E+02	159.61	6.09E+03	1.28E+02
	3	63.26	61 -	67	1.63E+03	303.63	1.57E+04	2.41E+02
	4	76.16	72 -	79	6.42E+03	399.19	2.66E+04	4.03E+02
	5	87.14	86 -	89	6.04E+02	208.04	1.09E+04	2.09E+02
	6	92.87	91 -	96	2.71E+03	267.65	1.18E+04	2.03E+02
	7	112.72	111 -	116	3.78E+02	215.30	8.94E+03	1.74E+02
	8	143.77	141 -	146	3.55E+02	217.02	9.14E+03	1.76E+02
	9	154.61	153 -	157	2.99E+02	184.51	7.28E+03	1.49E+02
	10	163.97	163 -	166	1.34E+02	149.33	5.41E+03	1.21E+02
	11	185.94	182 -	190	4.00E+03	293.54	1.08E+04	2.18E+02
M	12	238.74	238 -	247	2.85E+02	80.27	1.88E+03	7.14E+01
m	13	241.99	238 -	247	3.52E+03	166.53	3.37E+03	9.54E+01
	14	258.99	257 -	261	1.45E+02	129.91	3.58E+03	1.05E+02
	15	270.26	267 -	273	4.99E+02	163.61	4.52E+03	1.29E+02
M	16	291.70	290 -	299	1.61E+02	93.32	1.98E+03	7.31E+01
m	17	295.21	290 -	299	8.06E+03	201.40	2.13E+03	7.58E+01
	18	324.48	323 -	327	1.12E+02	101.29	2.18E+03	8.14E+01
	19	338.59	336 -	341	9.76E+01	119.46	2.77E+03	9.68E+01
	20	351.89	348 -	355	1.37E+04	272.55	3.22E+03	1.14E+02
	21	387.97	385 -	392	2.24E+02	131.92	2.77E+03	1.06E+02
	22	455.33	452 -	458	9.55E+01	98.39	1.68E+03	7.93E+01
	23	462.53	460 -	465	8.16E+01	84.36	1.36E+03	6.77E+01
	24	480.38	478 -	483	8.81E+01	81.71	1.27E+03	6.54E+01
	25	487.17	484 -	490	1.33E+02	91.55	1.42E+03	7.28E+01
	26	510.93	506 -	516	3.51E+02	127.84	1.99E+03	1.00E+02
	27	543.86	540 -	547	1.01E+02	93.38	1.39E+03	7.50E+01
M	28	580.34	578 -	587	7.44E+01	62.62	7.98E+02	4.64E+01
m	29	583.38	578 -	587	1.63E+02	66.79	7.87E+02	4.61E+01
	30	609.39	604 -	613	1.06E+04	226.74	1.29E+03	7.80E+01
	31	665.37	660 -	669	3.17E+02	98.56	1.20E+03	7.56E+01
	32	727.33	723 -	730	6.94E+01	75.71	8.95E+02	6.07E+01
	33	742.35	740 -	745	5.16E+01	58.35	6.41E+02	4.65E+01
	34	768.30	763 -	773	1.03E+03	112.08	1.13E+03	7.54E+01
	35	786.16	782 -	788	1.87E+02	70.48	7.62E+02	5.34E+01
	36	806.30	802 -	810	2.63E+02	84.14	9.19E+02	6.38E+01
	37	839.02	835 -	842	9.42E+01	73.21	8.28E+02	5.80E+01
	38	911.87	907 -	915	1.08E+02	78.39	8.72E+02	6.21E+01
	39	934.25	929 -	938	4.70E+02	94.23	1.00E+03	6.88E+01
M	40	963.49	959 -	972	1.44E+02	65.18	6.14E+02	4.07E+01
m	41	968.92	959 -	972	9.27E+01	71.63	7.25E+02	4.43E+01

Analysis Report for 1707089-11

HTC-A04-S002-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	42	1001.48	997 -	1005	2.07E+02	69.85	6.18E+02	5.23E+01
	43	1049.54	1041 -	1055	1.12E+02	99.61	9.96E+02	8.00E+01
	44	1104.64	1101 -	1107	4.52E+01	50.99	4.38E+02	4.04E+01
M	45	1118.14	1114 -	1126	1.51E+02	69.89	3.32E+02	2.99E+01
m	46	1120.70	1114 -	1126	2.08E+03	104.58	3.62E+02	3.13E+01
	47	1134.21	1132 -	1137	3.87E+01	41.68	3.19E+02	3.27E+01
	48	1155.34	1150 -	1159	2.66E+02	74.57	6.35E+02	5.51E+01
	49	1208.34	1203 -	1211	5.43E+01	59.03	4.99E+02	4.70E+01
	50	1238.41	1233 -	1242	7.68E+02	82.30	5.26E+02	5.00E+01
	51	1252.93	1247 -	1256	1.13E+02	57.06	4.01E+02	4.35E+01
	52	1281.39	1275 -	1287	2.16E+02	77.36	5.97E+02	5.88E+01
	53	1298.52	1296 -	1300	2.56E+01	30.34	1.81E+02	2.35E+01
	54	1377.96	1371 -	1380	5.59E+02	73.97	4.67E+02	4.68E+01
	55	1385.63	1382 -	1390	1.30E+02	54.60	3.80E+02	4.08E+01
M	56	1401.91	1395 -	1412	1.69E+02	52.46	3.30E+02	2.99E+01
m	57	1408.28	1395 -	1412	2.69E+02	56.32	3.56E+02	3.10E+01
	58	1446.16	1442 -	1449	5.47E+01	41.09	2.47E+02	3.15E+01
	59	1461.27	1456 -	1466	3.16E+02	73.36	5.46E+02	5.27E+01
	60	1471.20	1467 -	1472	3.43E+01	37.03	2.44E+02	2.89E+01
	61	1509.43	1504 -	1512	2.30E+02	60.86	4.31E+02	4.34E+01
M	62	1539.33	1534 -	1547	8.36E+01	44.36	2.81E+02	2.76E+01
m	63	1543.34	1534 -	1547	7.41E+01	45.87	2.48E+02	2.59E+01
	64	1583.91	1578 -	1586	9.75E+01	47.54	2.87E+02	3.55E+01
	65	1600.60	1597 -	1602	3.88E+01	34.31	2.00E+02	2.63E+01
	66	1661.37	1655 -	1666	1.42E+02	45.83	1.91E+02	3.22E+01
	67	1693.14	1688 -	1696	4.15E+01	31.35	1.25E+02	2.35E+01
	68	1730.18	1723 -	1734	3.62E+02	56.36	2.17E+02	3.90E+01
	69	1764.89	1756 -	1771	1.75E+03	96.60	2.30E+02	3.96E+01
	70	1814.88	1808 -	1820	2.57E+01	30.43	9.47E+01	2.36E+01
	71	1838.28	1834 -	1840	2.85E+01	24.79	9.10E+01	1.84E+01
	72	1847.92	1841 -	1852	2.40E+02	43.17	1.10E+02	2.47E+01
	73	1872.97	1866 -	1876	2.51E+01	31.10	1.16E+02	2.42E+01
	74	2118.95	2112 -	2122	1.19E+02	26.14	2.73E+01	1.18E+01
	75	2204.51	2195 -	2211	4.85E+02	50.65	6.01E+01	2.06E+01
	76	2294.25	2284 -	2298	2.90E+01	20.02	3.00E+01	1.39E+01
	77	2384.56	2380 -	2386	5.50E+00	7.78	7.00E+00	5.10E+00
	78	2392.22	2387 -	2394	7.00E+00	8.72	8.00E+00	5.70E+00
	79	2448.13	2438 -	2450	1.18E+02	24.26	1.62E+01	8.89E+00
	80	2614.70	2608 -	2616	6.00E+01	15.49	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 1707089-11

HTC-A04-S002-1824-01

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/23/2017 10:17:37AM

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	46.44	44 -	49	46.79	9.68E+02	201.04	7.37E+03	PB-210
	2	53.26	52 -	55	53.60	3.17E+02	159.61	6.09E+03	.....
	3	63.26	61 -	67	63.58	1.63E+03	303.63	1.57E+04	TH-234
									TH-230
	4	76.16	72 -	79	76.47	6.42E+03	399.19	2.66E+04	.....
	5	87.14	86 -	89	87.44	6.04E+02	208.04	1.09E+04	SN-126
									NP-237
									EU-155
									CD-109
	6	92.87	91 -	96	93.16	2.71E+03	267.65	1.18E+04	GA-67
	7	112.72	111 -	116	112.99	3.78E+02	215.30	8.94E+03	.....
	8	143.77	141 -	146	144.01	3.55E+02	217.02	9.14E+03	U-235
	9	154.61	153 -	157	154.84	2.99E+02	184.51	7.28E+03	.....
	10	163.97	163 -	166	164.19	1.34E+02	149.33	5.41E+03	CS-136
									U-235
	11	185.94	182 -	190	186.13	4.00E+03	293.54	1.08E+04	RA-226
M	12	238.74	238 -	247	238.88	2.85E+02	80.27	1.88E+03	PB-212
m	13	241.99	238 -	247	242.12	3.52E+03	166.53	3.37E+03	.....
	14	258.99	257 -	261	259.10	1.45E+02	129.91	3.58E+03	.....
	15	270.26	267 -	273	270.36	4.99E+02	163.61	4.52E+03	.....
M	16	291.70	290 -	299	291.78	1.61E+02	93.32	1.98E+03	.....
m	17	295.21	290 -	299	295.29	8.06E+03	201.40	2.13E+03	PB-214
	18	324.48	323 -	327	324.53	1.12E+02	101.29	2.18E+03	RA-223
	19	338.59	336 -	341	338.62	9.76E+01	119.46	2.77E+03	AC-228
	20	351.89	348 -	355	351.91	1.37E+04	272.55	3.22E+03	PB-214
	21	387.97	385 -	392	387.95	2.24E+02	131.92	2.77E+03	.....
	22	455.33	452 -	458	455.24	9.55E+01	98.39	1.68E+03	.....
	23	462.53	460 -	465	462.43	8.16E+01	84.36	1.36E+03	SB-125
	24	480.38	478 -	483	480.27	8.81E+01	81.71	1.27E+03	.....
	25	487.17	484 -	490	487.04	1.33E+02	91.55	1.42E+03	LA-140
	26	510.93	506 -	516	510.79	3.51E+02	127.84	1.99E+03	.....
	27	543.86	540 -	547	543.68	1.01E+02	93.38	1.39E+03	.....
M	28	580.34	578 -	587	580.13	7.44E+01	62.62	7.98E+02	.....
m	29	583.38	578 -	587	583.17	1.63E+02	66.79	7.87E+02	TL-208
	30	609.39	604 -	613	609.14	1.06E+04	226.74	1.29E+03	BI-214
	31	665.37	660 -	669	665.07	3.17E+02	98.56	1.20E+03	CE-143
									SB-126
	32	727.33	723 -	730	726.97	6.94E+01	75.71	8.95E+02	BI-212
	33	742.35	740 -	745	741.98	5.16E+01	58.35	6.41E+02	.....
	34	768.30	763 -	773	767.90	1.03E+03	112.08	1.13E+03	.....
	35	786.16	782 -	788	785.74	1.87E+02	70.48	7.62E+02	.....

Analysis Report for 1707089-11

HTC-A04-S002-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	36	806.30	802 -	810	805.86	2.63E+02	84.14	9.19E+02	.....
	37	839.02	835 -	842	838.55	9.42E+01	73.21	8.28E+02	.....
	38	911.87	907 -	915	911.34	1.08E+02	78.39	8.72E+02	TL-204 AC-228
	39	934.25	929 -	938	933.69	4.70E+02	94.23	1.00E+03	.....
M	40	963.49	959 -	972	962.90	1.44E+02	65.18	6.14E+02	EU-152
m	41	968.92	959 -	972	968.33	9.27E+01	71.63	7.25E+02	AC-228
	42	1001.48	997 -	1005	1000.86	2.07E+02	69.85	6.18E+02	PA-234M
	43	1049.54	1041 -	1055	1048.88	1.12E+02	99.61	9.96E+02	.....
	44	1104.64	1101 -	1107	1103.93	4.52E+01	50.99	4.38E+02	.....
M	45	1118.14	1114 -	1126	1117.42	1.51E+02	69.89	3.32E+02	.....
m	46	1120.70	1114 -	1126	1119.97	2.08E+03	104.58	3.62E+02	SC-46 BI-214 TA-182
	47	1134.21	1132 -	1137	1133.47	3.87E+01	41.68	3.19E+02	.....
	48	1155.34	1150 -	1159	1154.58	2.66E+02	74.57	6.35E+02	.....
	49	1208.34	1203 -	1211	1207.53	5.43E+01	59.03	4.99E+02	.....
	50	1238.41	1233 -	1242	1237.58	7.68E+02	82.30	5.26E+02	CO-56
	51	1252.93	1247 -	1256	1252.08	1.13E+02	57.06	4.01E+02	.....
	52	1281.39	1275 -	1287	1280.52	2.16E+02	77.36	5.97E+02	.....
	53	1298.52	1296 -	1300	1297.63	2.56E+01	30.34	1.81E+02	.....
	54	1377.96	1371 -	1380	1377.00	5.59E+02	73.97	4.67E+02	.....
	55	1385.63	1382 -	1390	1384.67	1.30E+02	54.60	3.80E+02	.....
M	56	1401.91	1395 -	1412	1400.94	1.69E+02	52.46	3.30E+02	.....
m	57	1408.28	1395 -	1412	1407.30	2.69E+02	56.32	3.56E+02	EU-152
	58	1446.16	1442 -	1449	1445.14	5.47E+01	41.09	2.47E+02	.....
	59	1461.27	1456 -	1466	1460.24	3.16E+02	73.36	5.46E+02	K-40
	60	1471.20	1467 -	1472	1470.16	3.43E+01	37.03	2.44E+02	.....
	61	1509.43	1504 -	1512	1508.37	2.30E+02	60.86	4.31E+02	.....
M	62	1539.33	1534 -	1547	1538.24	8.36E+01	44.36	2.81E+02	.....
m	63	1543.34	1534 -	1547	1542.24	7.41E+01	45.87	2.48E+02	.....
	64	1583.91	1578 -	1586	1582.78	9.75E+01	47.54	2.87E+02	.....
	65	1600.60	1597 -	1602	1599.46	3.88E+01	34.31	2.00E+02	.....
	66	1661.37	1655 -	1666	1660.18	1.42E+02	45.83	1.91E+02	.....
	67	1693.14	1688 -	1696	1691.93	4.15E+01	31.35	1.25E+02	.....
	68	1730.18	1723 -	1734	1728.94	3.62E+02	56.36	2.17E+02	.....
	69	1764.89	1756 -	1771	1763.62	1.75E+03	96.60	2.30E+02	BI-214
	70	1814.88	1808 -	1820	1813.57	2.57E+01	30.43	9.47E+01	.....
	71	1838.28	1834 -	1840	1836.95	2.85E+01	24.79	9.10E+01	.....
	72	1847.92	1841 -	1852	1846.58	2.40E+02	43.17	1.10E+02	.....
	73	1872.97	1866 -	1876	1871.62	2.51E+01	31.10	1.16E+02	.....
	74	2118.95	2112 -	2122	2117.41	1.19E+02	26.14	2.73E+01	.....
	75	2204.51	2195 -	2211	2202.91	4.85E+02	50.65	6.01E+01	BI-214
	76	2294.25	2284 -	2298	2292.60	2.90E+01	20.02	3.00E+01	.....
	77	2384.56	2380 -	2386	2382.85	5.50E+00	7.78	7.00E+00	.....
	78	2392.22	2387 -	2394	2390.50	7.00E+00	8.72	8.00E+00	.....
	79	2448.13	2438 -	2450	2446.37	1.18E+02	24.26	1.62E+01	.....
	80	2614.70	2608 -	2616	2612.83	6.00E+01	15.49	0.00E+00	TL-208

Analysis Report for 1707089-11

HTC-A04-S002-1824-01

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/23/2017 10:17:37AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.44	9.68E+02	201.04	1.58E-02	1.67E-03
	2	53.26	3.17E+02	159.61	1.98E-02	1.67E-03
	3	63.26	1.63E+03	303.63	2.38E-02	1.77E-03
	4	76.16	6.42E+03	399.19	2.63E-02	2.11E-03
	5	87.14	6.04E+02	208.04	2.70E-02	2.40E-03
	6	92.87	2.71E+03	267.65	2.70E-02	2.33E-03
	7	112.72	3.78E+02	215.30	2.60E-02	1.95E-03
	8	143.77	3.55E+02	217.02	2.35E-02	1.70E-03
	9	154.61	2.99E+02	184.51	2.27E-02	1.66E-03
	10	163.97	1.34E+02	149.33	2.19E-02	1.63E-03
	11	185.94	4.00E+03	293.54	2.03E-02	1.53E-03
M	12	238.74	2.85E+02	80.27	1.72E-02	1.30E-03
m	13	241.99	3.52E+03	166.53	1.71E-02	1.28E-03
	14	258.99	1.45E+02	129.91	1.63E-02	1.21E-03
	15	270.26	4.99E+02	163.61	1.58E-02	1.16E-03
M	16	291.70	1.61E+02	93.32	1.50E-02	1.10E-03
m	17	295.21	8.06E+03	201.40	1.48E-02	1.10E-03
	18	324.48	1.12E+02	101.29	1.39E-02	1.06E-03
	19	338.59	9.76E+01	119.46	1.34E-02	1.04E-03
	20	351.89	1.37E+04	272.55	1.31E-02	1.02E-03
	21	387.97	2.24E+02	131.92	1.22E-02	9.74E-04
	22	455.33	9.55E+01	98.39	1.08E-02	9.13E-04
	23	462.53	8.16E+01	84.36	1.07E-02	9.07E-04
	24	480.38	8.81E+01	81.71	1.04E-02	8.92E-04
	25	487.17	1.33E+02	91.55	1.02E-02	8.86E-04
	26	510.93	3.51E+02	127.84	9.87E-03	8.65E-04
	27	543.86	1.01E+02	93.38	9.40E-03	8.36E-04
M	28	580.34	7.44E+01	62.62	8.94E-03	8.05E-04
m	29	583.38	1.63E+02	66.79	8.90E-03	8.02E-04
	30	609.39	1.06E+04	226.74	8.60E-03	7.79E-04
	31	665.37	3.17E+02	98.56	8.02E-03	7.30E-04
	32	727.33	6.94E+01	75.71	7.47E-03	6.71E-04
	33	742.35	5.16E+01	58.35	7.34E-03	6.56E-04
	34	768.30	1.03E+03	112.08	7.14E-03	6.31E-04

Analysis Report for 1707089-11

HTC-A04-S002-1824-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	35	786.16	1.87E+02	70.48	7.01E-03	6.14E-04
	36	806.30	2.63E+02	84.14	6.87E-03	5.95E-04
	37	839.02	9.42E+01	73.21	6.65E-03	5.63E-04
	38	911.87	1.08E+02	78.39	6.21E-03	5.01E-04
	39	934.25	4.70E+02	94.23	6.08E-03	4.94E-04
M	40	963.49	1.44E+02	65.18	5.93E-03	4.83E-04
m	41	968.92	9.27E+01	71.63	5.90E-03	4.81E-04
	42	1001.48	2.07E+02	69.85	5.75E-03	4.70E-04
	43	1049.54	1.12E+02	99.61	5.53E-03	4.53E-04
	44	1104.64	4.52E+01	50.99	5.30E-03	4.34E-04
M	45	1118.14	1.51E+02	69.89	5.25E-03	4.29E-04
m	46	1120.70	2.08E+03	104.58	5.24E-03	4.28E-04
	47	1134.21	3.87E+01	41.68	5.19E-03	4.24E-04
	48	1155.34	2.66E+02	74.57	5.12E-03	4.16E-04
	49	1208.34	5.43E+01	59.03	4.93E-03	4.13E-04
	50	1238.41	7.68E+02	82.30	4.84E-03	4.16E-04
	51	1252.93	1.13E+02	57.06	4.79E-03	4.17E-04
	52	1281.39	2.16E+02	77.36	4.71E-03	4.20E-04
	53	1298.52	2.56E+01	30.34	4.66E-03	4.22E-04
	54	1377.96	5.59E+02	73.97	4.45E-03	4.12E-04
	55	1385.63	1.30E+02	54.60	4.43E-03	4.09E-04
M	56	1401.91	1.69E+02	52.46	4.40E-03	4.05E-04
m	57	1408.28	2.69E+02	56.32	4.38E-03	4.03E-04
	58	1446.16	5.47E+01	41.09	4.29E-03	3.92E-04
	59	1461.27	3.16E+02	73.36	4.26E-03	3.87E-04
	60	1471.20	3.43E+01	37.03	4.24E-03	3.85E-04
	61	1509.43	2.30E+02	60.86	4.16E-03	3.74E-04
M	62	1539.33	8.36E+01	44.36	4.10E-03	3.65E-04
m	63	1543.34	7.41E+01	45.87	4.10E-03	3.64E-04
	64	1583.91	9.75E+01	47.54	4.02E-03	3.52E-04
	65	1600.60	3.88E+01	34.31	3.99E-03	3.47E-04
	66	1661.37	1.42E+02	45.83	3.89E-03	3.30E-04
	67	1693.14	4.15E+01	31.35	3.85E-03	3.20E-04
	68	1730.18	3.62E+02	56.36	3.79E-03	3.10E-04
	69	1764.89	1.75E+03	96.60	3.75E-03	3.00E-04
	70	1814.88	2.57E+01	30.43	3.68E-03	2.85E-04
	71	1838.28	2.85E+01	24.79	3.65E-03	2.79E-04
	72	1847.92	2.40E+02	43.17	3.64E-03	2.79E-04
	73	1872.97	2.51E+01	31.10	3.62E-03	2.79E-04
	74	2118.95	1.19E+02	26.14	3.40E-03	2.79E-04
	75	2204.51	4.85E+02	50.65	3.34E-03	2.79E-04
	76	2294.25	2.90E+01	20.02	3.29E-03	2.79E-04
	77	2384.56	5.50E+00	7.78	3.25E-03	2.79E-04
	78	2392.22	7.00E+00	8.72	3.25E-03	2.79E-04
	79	2448.13	1.18E+02	24.26	3.23E-03	2.79E-04
	80	2614.70	6.00E+01	15.49	3.20E-03	2.79E-04

Analysis Report for 1707089-11

HTC-A04-S002-1824-01

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/23/2017 10:17:37AM

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	46.44	9.68E+02	201.04	3.74E+01	5.77E+00	9.31E+02	2.01E+02
	2	53.26	3.17E+02	159.61			3.17E+02	1.60E+02
	3	63.26	1.63E+03	303.63	6.29E+01	1.34E+01	1.56E+03	3.04E+02
	4	76.16	6.42E+03	399.19			6.42E+03	3.99E+02
	5	87.14	6.04E+02	208.04			6.04E+02	2.08E+02
	6	92.87	2.71E+03	267.65	4.88E+01	1.30E+00	2.66E+03	2.68E+02
	7	112.72	3.78E+02	215.30			3.78E+02	2.15E+02
	8	143.77	3.55E+02	217.02	1.06E+01	1.02E+01	3.44E+02	2.17E+02
	9	154.61	2.99E+02	184.51			2.99E+02	1.85E+02
	10	163.97	1.34E+02	149.33			1.34E+02	1.49E+02
	11	185.94	4.00E+03	293.54	3.48E+01	7.32E+00	3.97E+03	2.94E+02
M	12	238.74	2.85E+02	80.27	7.09E+00	6.85E+00	2.78E+02	8.06E+01
m	13	241.99	3.52E+03	166.53			3.52E+03	1.67E+02
	14	258.99	1.45E+02	129.91			1.45E+02	1.30E+02
	15	270.26	4.99E+02	163.61			4.99E+02	1.64E+02
M	16	291.70	1.61E+02	93.32			1.61E+02	9.33E+01
m	17	295.21	8.06E+03	201.40			8.06E+03	2.01E+02
	18	324.48	1.12E+02	101.29			1.12E+02	1.01E+02
	19	338.59	9.76E+01	119.46			9.76E+01	1.19E+02
	20	351.89	1.37E+04	272.55	1.04E+01	5.08E+00	1.37E+04	2.73E+02
	21	387.97	2.24E+02	131.92			2.24E+02	1.32E+02
	22	455.33	9.55E+01	98.39			9.55E+01	9.84E+01
	23	462.53	8.16E+01	84.36			8.16E+01	8.44E+01
	24	480.38	8.81E+01	81.71			8.81E+01	8.17E+01
	25	487.17	1.33E+02	91.55			1.33E+02	9.16E+01
	26	510.93	3.51E+02	127.84	7.08E+01	4.94E+00	2.80E+02	1.28E+02
	27	543.86	1.01E+02	93.38			1.01E+02	9.34E+01
M	28	580.34	7.44E+01	62.62			7.44E+01	6.26E+01
m	29	583.38	1.63E+02	66.79	5.65E+00	3.57E+00	1.57E+02	6.69E+01
	30	609.39	1.06E+04	226.74	1.07E+01	3.96E+00	1.06E+04	2.27E+02
	31	665.37	3.17E+02	98.56			3.17E+02	9.86E+01
	32	727.33	6.94E+01	75.71			6.94E+01	7.57E+01
	33	742.35	5.16E+01	58.35			5.16E+01	5.84E+01
	34	768.30	1.03E+03	112.08			1.03E+03	1.12E+02
	35	786.16	1.87E+02	70.48			1.87E+02	7.05E+01

Analysis Report for 1707089-11

HTC-A04-S002-1824-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	36	806.30	2.63E+02	84.14			2.63E+02	8.41E+01
	37	839.02	9.42E+01	73.21			9.42E+01	7.32E+01
	38	911.87	1.08E+02	78.39	2.63E+00	2.49E+00	1.05E+02	7.84E+01
	39	934.25	4.70E+02	94.23			4.70E+02	9.42E+01
M	40	963.49	1.44E+02	65.18			1.44E+02	6.52E+01
m	41	968.92	9.27E+01	71.63			9.27E+01	7.16E+01
	42	1001.48	2.07E+02	69.85	4.07E+00	2.59E+00	2.03E+02	6.99E+01
	43	1049.54	1.12E+02	99.61			1.12E+02	9.96E+01
	44	1104.64	4.52E+01	50.99			4.52E+01	5.10E+01
M	45	1118.14	1.51E+02	69.89			1.51E+02	6.99E+01
m	46	1120.70	2.08E+03	104.58	2.45E+00	2.38E+00	2.08E+03	1.05E+02
	47	1134.21	3.87E+01	41.68			3.87E+01	4.17E+01
	48	1155.34	2.66E+02	74.57			2.66E+02	7.46E+01
	49	1208.34	5.43E+01	59.03			5.43E+01	5.90E+01
	50	1238.41	7.68E+02	82.30			7.68E+02	8.23E+01
	51	1252.93	1.13E+02	57.06			1.13E+02	5.71E+01
	52	1281.39	2.16E+02	77.36			2.16E+02	7.74E+01
	53	1298.52	2.56E+01	30.34			2.56E+01	3.03E+01
	54	1377.96	5.59E+02	73.97			5.59E+02	7.40E+01
	55	1385.63	1.30E+02	54.60			1.30E+02	5.46E+01
M	56	1401.91	1.69E+02	52.46			1.69E+02	5.25E+01
m	57	1408.28	2.69E+02	56.32			2.69E+02	5.63E+01
	58	1446.16	5.47E+01	41.09			5.47E+01	4.11E+01
	59	1461.27	3.16E+02	73.36	5.90E+00	2.63E+00	3.10E+02	7.34E+01
	60	1471.20	3.43E+01	37.03			3.43E+01	3.70E+01
	61	1509.43	2.30E+02	60.86			2.30E+02	6.09E+01
M	62	1539.33	8.36E+01	44.36			8.36E+01	4.44E+01
m	63	1543.34	7.41E+01	45.87			7.41E+01	4.59E+01
	64	1583.91	9.75E+01	47.54			9.75E+01	4.75E+01
	65	1600.60	3.88E+01	34.31			3.88E+01	3.43E+01
	66	1661.37	1.42E+02	45.83			1.42E+02	4.58E+01
	67	1693.14	4.15E+01	31.35			4.15E+01	3.14E+01
	68	1730.18	3.62E+02	56.36			3.62E+02	5.64E+01
	69	1764.89	1.75E+03	96.60	3.33E+00	1.73E+00	1.75E+03	9.66E+01
	70	1814.88	2.57E+01	30.43			2.57E+01	3.04E+01
	71	1838.28	2.85E+01	24.79			2.85E+01	2.48E+01
	72	1847.92	2.40E+02	43.17			2.40E+02	4.32E+01
	73	1872.97	2.51E+01	31.10			2.51E+01	3.11E+01
	74	2118.95	1.19E+02	26.14			1.19E+02	2.61E+01
	75	2204.51	4.85E+02	50.65			4.85E+02	5.07E+01
	76	2294.25	2.90E+01	20.02			2.90E+01	2.00E+01
	77	2384.56	5.50E+00	7.78			5.50E+00	7.78E+00
	78	2392.22	7.00E+00	8.72			7.00E+00	8.72E+00
	79	2448.13	1.18E+02	24.26			1.18E+02	2.43E+01
	80	2614.70	6.00E+01	15.49	4.77E+00	1.52E+00	5.52E+01	1.56E+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 1707089-11

HTC-A04-S002-1824-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/23/2017 10:17:37AM

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	46.44	9.68E+02	201.04	3.74E+01	5.77E+00	9.31E+02	2.01E+02
	2	53.26	3.17E+02	159.61			3.17E+02	1.60E+02
	3	63.26	1.63E+03	303.63	6.29E+01	1.34E+01	1.56E+03	3.04E+02
	4	76.16	6.42E+03	399.19			6.42E+03	3.99E+02
	5	87.14	6.04E+02	208.04			6.04E+02	2.08E+02
	6	92.87	2.71E+03	267.65	4.88E+01	1.30E+00	2.66E+03	2.68E+02
	7	112.72	3.78E+02	215.30			3.78E+02	2.15E+02
	8	143.77	3.55E+02	217.02	1.06E+01	1.02E+01	3.44E+02	2.17E+02
	9	154.61	2.99E+02	184.51			2.99E+02	1.85E+02
	10	163.97	1.34E+02	149.33			1.34E+02	1.49E+02
	11	185.94	4.00E+03	293.54	3.48E+01	7.32E+00	3.97E+03	2.94E+02
M	12	238.74	2.85E+02	80.27	7.09E+00	6.85E+00	2.78E+02	8.06E+01
m	13	241.99	3.52E+03	166.53			3.52E+03	1.67E+02
	14	258.99	1.45E+02	129.91			1.45E+02	1.30E+02
	15	270.26	4.99E+02	163.61			4.99E+02	1.64E+02
M	16	291.70	1.61E+02	93.32			1.61E+02	9.33E+01
m	17	295.21	8.06E+03	201.40			8.06E+03	2.01E+02
	18	324.48	1.12E+02	101.29			1.12E+02	1.01E+02
	19	338.59	9.76E+01	119.46			9.76E+01	1.19E+02
	20	351.89	1.37E+04	272.55	1.04E+01	5.08E+00	1.37E+04	2.73E+02
	21	387.97	2.24E+02	131.92			2.24E+02	1.32E+02
	22	455.33	9.55E+01	98.39			9.55E+01	9.84E+01
	23	462.53	8.16E+01	84.36			8.16E+01	8.44E+01
	24	480.38	8.81E+01	81.71			8.81E+01	8.17E+01
	25	487.17	1.33E+02	91.55			1.33E+02	9.16E+01
	26	510.93	3.51E+02	127.84	7.08E+01	4.94E+00	2.80E+02	1.28E+02
	27	543.86	1.01E+02	93.38			1.01E+02	9.34E+01
M	28	580.34	7.44E+01	62.62			7.44E+01	6.26E+01
m	29	583.38	1.63E+02	66.79	5.65E+00	3.57E+00	1.57E+02	6.69E+01
	30	609.39	1.06E+04	226.74	1.07E+01	3.96E+00	1.06E+04	2.27E+02
	31	665.37	3.17E+02	98.56			3.17E+02	9.86E+01
	32	727.33	6.94E+01	75.71			6.94E+01	7.57E+01
	33	742.35	5.16E+01	58.35			5.16E+01	5.84E+01
	34	768.30	1.03E+03	112.08			1.03E+03	1.12E+02
	35	786.16	1.87E+02	70.48			1.87E+02	7.05E+01
	36	806.30	2.63E+02	84.14			2.63E+02	8.41E+01
	37	839.02	9.42E+01	73.21			9.42E+01	7.32E+01
	38	911.87	1.08E+02	78.39	2.63E+00	2.49E+00	1.05E+02	7.84E+01
	39	934.25	4.70E+02	94.23			4.70E+02	9.42E+01

Analysis Report for 1707089-11

HTC-A04-S002-1824-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	40	963.49	1.44E+02	65.18			1.44E+02	6.52E+01
m	41	968.92	9.27E+01	71.63			9.27E+01	7.16E+01
	42	1001.48	2.07E+02	69.85	4.07E+00	2.59E+00	2.03E+02	6.99E+01
	43	1049.54	1.12E+02	99.61			1.12E+02	9.96E+01
	44	1104.64	4.52E+01	50.99			4.52E+01	5.10E+01
M	45	1118.14	1.51E+02	69.89			1.51E+02	6.99E+01
m	46	1120.70	2.08E+03	104.58	2.45E+00	2.38E+00	2.08E+03	1.05E+02
	47	1134.21	3.87E+01	41.68			3.87E+01	4.17E+01
	48	1155.34	2.66E+02	74.57			2.66E+02	7.46E+01
	49	1208.34	5.43E+01	59.03			5.43E+01	5.90E+01
	50	1238.41	7.68E+02	82.30			7.68E+02	8.23E+01
	51	1252.93	1.13E+02	57.06			1.13E+02	5.71E+01
	52	1281.39	2.16E+02	77.36			2.16E+02	7.74E+01
	53	1298.52	2.56E+01	30.34			2.56E+01	3.03E+01
	54	1377.96	5.59E+02	73.97			5.59E+02	7.40E+01
	55	1385.63	1.30E+02	54.60			1.30E+02	5.46E+01
M	56	1401.91	1.69E+02	52.46			1.69E+02	5.25E+01
m	57	1408.28	2.69E+02	56.32			2.69E+02	5.63E+01
	58	1446.16	5.47E+01	41.09			5.47E+01	4.11E+01
	59	1461.27	3.16E+02	73.36	5.90E+00	2.63E+00	3.10E+02	7.34E+01
	60	1471.20	3.43E+01	37.03			3.43E+01	3.70E+01
	61	1509.43	2.30E+02	60.86			2.30E+02	6.09E+01
M	62	1539.33	8.36E+01	44.36			8.36E+01	4.44E+01
m	63	1543.34	7.41E+01	45.87			7.41E+01	4.59E+01
	64	1583.91	9.75E+01	47.54			9.75E+01	4.75E+01
	65	1600.60	3.88E+01	34.31			3.88E+01	3.43E+01
	66	1661.37	1.42E+02	45.83			1.42E+02	4.58E+01
	67	1693.14	4.15E+01	31.35			4.15E+01	3.14E+01
	68	1730.18	3.62E+02	56.36			3.62E+02	5.64E+01
	69	1764.89	1.75E+03	96.60	3.33E+00	1.73E+00	1.75E+03	9.66E+01
	70	1814.88	2.57E+01	30.43			2.57E+01	3.04E+01
	71	1838.28	2.85E+01	24.79			2.85E+01	2.48E+01
	72	1847.92	2.40E+02	43.17			2.40E+02	4.32E+01
	73	1872.97	2.51E+01	31.10			2.51E+01	3.11E+01
	74	2118.95	1.19E+02	26.14			1.19E+02	2.61E+01
	75	2204.51	4.85E+02	50.65			4.85E+02	5.07E+01
	76	2294.25	2.90E+01	20.02			2.90E+01	2.00E+01
	77	2384.56	5.50E+00	7.78			5.50E+00	7.78E+00
	78	2392.22	7.00E+00	8.72			7.00E+00	8.72E+00
	79	2448.13	1.18E+02	24.26			1.18E+02	2.43E+01
	80	2614.70	6.00E+01	15.49	4.77E+00	1.52E+00	5.52E+01	1.56E+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 1707089-11

HTC-A04-S002-1824-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.967	1460.81	*	10.67	6.59E+00	1.68E+00
CD-109	0.881	88.03	*	3.72	6.75E+00	2.43E+00
SN-126	0.971	87.57	*	37.00	5.85E-01	2.08E-01
EU-155	0.323	86.50	*	30.90	7.28E-01	2.59E-01
		105.30		20.70		
TL-208	0.885	583.14	*	30.22	5.65E-01	2.46E-01
		860.37		4.48		
		2614.66	*	35.85	4.66E-01	1.38E-01
PB-210	0.999	46.50	*	4.25	1.35E+01	3.26E+00
BI-212	0.765	727.17	*	11.80	7.62E-01	8.34E-01
		1620.62		2.75		
PB-212	0.893	238.63	*	44.60	3.50E-01	1.05E-01
		300.09		3.41		
BI-214	0.989	609.31	*	46.30	2.57E+01	2.40E+00
		1120.29	*	15.10	2.54E+01	2.44E+00
		1764.49	*	15.80	2.86E+01	2.78E+00
		2204.22	*	4.98	2.82E+01	3.77E+00
PB-214	1.000	295.21	*	19.19	2.74E+01	2.13E+00
		351.92	*	37.19	2.73E+01	2.20E+00
RA-223	0.942	323.87	*	3.88	2.01E+00	1.83E+00
RA-226	0.988	186.21	*	3.28	5.76E+01	1.06E+02
AC-228	0.946	338.32	*	11.40	6.16E-01	7.56E-01
		911.07	*	27.70	5.93E-01	4.44E-01
		969.11	*	16.60	9.15E-01	7.11E-01
PA-234M	0.968	1001.03	*	0.92	3.71E+01	1.31E+01
TH-234	1.000	63.29	*	3.80	1.67E+01	3.48E+00
U-235	0.634	143.76	*	10.50	1.35E+00	8.80E-01
		163.35	*	4.70	1.26E+00	1.42E+00
		205.31		4.70		
NP-237	0.937	86.50	*	12.60	1.72E+00	6.12E-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

Analysis Report for 1707089-11

HTC-A04-S002-1824-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 10:17:37AM
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	53.26	8.81919E-02	25.14		
	4	76.16	1.78408E+00	3.11		
	6	92.87	7.39787E-01	5.02	Sum	
	7	112.72	1.05019E-01	28.47		
	9	154.61	8.30136E-02	30.87		
m	13	241.99	9.76685E-01	2.37		
	14	258.99	4.03813E-02	44.68		
	15	270.26	1.38577E-01	16.40		
M	16	291.70	4.47470E-02	28.96		
	21	387.97	6.23121E-02	29.40	Sum	
	22	455.33	2.65304E-02	51.51		
	23	462.53	2.26772E-02	51.67		
	24	480.38	2.44671E-02	46.38	Sum	
	25	487.17	3.69682E-02	34.40	Tol.	LA-140
	26	510.93	7.77059E-02	22.87	Sum	
	27	543.86	2.79257E-02	46.44		
M	28	580.34	2.06757E-02	42.06		
	31	665.37	8.79555E-02	15.56	Tol.	SB-126 CE-143
	33	742.35	1.43459E-02	56.49	D-Esc	
	34	768.30	2.87447E-01	5.42		
	35	786.16	5.18760E-02	18.87		
	36	806.30	7.29642E-02	16.02		
	37	839.02	2.61658E-02	38.86		
	39	934.25	1.30556E-01	10.02	Sum	
M	40	963.49	3.98639E-02	22.71		
	43	1049.54	3.11293E-02	44.44		
	44	1104.64	1.25631E-02	56.37		
M	45	1118.14	4.18130E-02	23.21		
	47	1134.21	1.07625E-02	53.78		
	48	1155.34	7.39900E-02	14.00	Sum	
	49	1208.34	1.50749E-02	54.38	Sum	
	50	1238.41	2.13347E-01	5.36		
	51	1252.93	3.15074E-02	25.15	S-Esc	
	52	1281.39	5.98919E-02	17.94		
	53	1298.52	7.12284E-03	59.15		
	54	1377.96	1.55355E-01	6.61		
	55	1385.63	3.60868E-02	21.01		
M	56	1401.91	4.70664E-02	15.48		
m	57	1408.28	7.46646E-02	10.48		
	58	1446.16	1.51810E-02	37.59	Sum	
	60	1471.20	9.51389E-03	54.05		
	61	1509.43	6.38077E-02	13.25		
M	62	1539.33	2.32279E-02	26.53		
m	63	1543.34	2.05701E-02	30.97		

Analysis Report for 1707089-11

HTC-A04-S002-1824-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
64	1583.91	2.70839E-02	24.38	Sum	
65	1600.60	1.07844E-02	44.18		
66	1661.37	3.93671E-02	16.17		
67	1693.14	1.15385E-02	37.74	S-Esc	
68	1730.18	1.00486E-01	7.79	Sum	
70	1814.88	7.12709E-03	59.29		
71	1838.28	7.91667E-03	43.49		
72	1847.92	6.67142E-02	8.99	Sum	
73	1872.97	6.97456E-03	61.93		
74	2118.95	3.31548E-02	10.95		
76	2294.25	8.05556E-03	34.53		
77	2384.56	1.52778E-03	70.71		
78	2392.22	1.94444E-03	62.27		
79	2448.13	3.27491E-02	10.29		

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	6.59E+00	1.68E+00
CD-109	0.88	88.03	*	3.72	6.75E+00	2.43E+00
SN-126	0.97	87.57	*	37.00	5.85E-01	2.08E-01
EU-155	0.32	86.50	*	30.90	7.28E-01	2.59E-01
		105.30		20.70		
TL-208	0.88	583.14	*	30.22	5.65E-01	2.46E-01
		860.37		4.48		
		2614.66	*	35.85	4.66E-01	1.38E-01
PB-210	0.99	46.50	*	4.25	1.35E+01	3.26E+00
BI-212	0.76	727.17	*	11.80	7.62E-01	8.34E-01
		1620.62		2.75		
PB-212	0.89	238.63	*	44.60	3.50E-01	1.05E-01
		300.09		3.41		
BI-214	0.98	609.31	*	46.30	2.57E+01	2.40E+00

Analysis Report for 1707089-11

HTC-A04-S002-1824-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.98	1120.29	*	15.10	2.54E+01	2.44E+00
		1764.49	*	15.80	2.86E+01	2.78E+00
		2204.22	*	4.98	2.82E+01	3.77E+00
PB-214	1.00	295.21	*	19.19	2.74E+01	2.13E+00
		351.92	*	37.19	2.73E+01	2.20E+00
RA-223	0.94	323.87	*	3.88	2.01E+00	1.83E+00
RA-226	0.98	186.21	*	3.28	5.76E+01	1.06E+02
AC-228	0.94	338.32	*	11.40	6.16E-01	7.56E-01
		911.07	*	27.70	5.93E-01	4.44E-01
		969.11	*	16.60	9.15E-01	7.11E-01
PA-234M	0.96	1001.03	*	0.92	3.71E+01	1.31E+01
TH-234	1.00	63.29	*	3.80	1.67E+01	3.48E+00
U-235	0.63	143.76	*	10.50	1.35E+00	8.80E-01
		163.35	*	4.70	1.26E+00	1.42E+00
		205.31		4.70		
NP-237	0.93	86.50	*	12.60	1.72E+00	6.12E-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	0.967	6.59E+00	1.68E+00	
?	CD-109	0.881	6.75E+00	2.43E+00	
?	SN-126	0.971	5.85E-01	2.08E-01	
?	EU-155	0.323	7.28E-01	2.59E-01	
	TL-208	0.885	4.90E-01	1.20E-01	
	PB-210	0.999	1.35E+01	3.26E+00	
	BI-212	0.765	7.62E-01	8.34E-01	
	PB-212	0.893	3.50E-01	1.05E-01	
	BI-214	0.989	2.66E+01	1.36E+00	
	PB-214	1.000	2.73E+01	1.53E+00	
	RA-223	0.942	2.01E+00	1.83E+00	

Analysis Report for 1707089-11

HTC-A04-S002-1824-01

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	RA-226	0.988	5.76E+01	1.06E+02	
	AC-228	0.946	6.70E-01	3.37E-01	
	PA-234M	0.968	3.71E+01	1.31E+01	
	TH-234	1.000	1.67E+01	3.48E+00	
	U-235	0.634	1.32E+00	7.48E-01	
?	NP-237	0.937	1.72E+00	6.12E-01	

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

Errors quoted at 2.000sigma

Analysis Report for 1707089-11

HTC-A04-S002-1824-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 10:17:37AM
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	53.26	8.81919E-02	25.14		
	4	76.16	1.78408E+00	3.11		
	6	92.87	7.39787E-01	5.02	Sum	
	7	112.72	1.05019E-01	28.47		
	9	154.61	8.30136E-02	30.87		
m	13	241.99	9.76685E-01	2.37		
	14	258.99	4.03813E-02	44.68		
	15	270.26	1.38577E-01	16.40		
M	16	291.70	4.47470E-02	28.96		
	21	387.97	6.23121E-02	29.40	Sum	
	22	455.33	2.65304E-02	51.51		
	23	462.53	2.26772E-02	51.67		
	24	480.38	2.44671E-02	46.38	Sum	
	25	487.17	3.69682E-02	34.40	Tol.	LA-140
	26	510.93	7.77059E-02	22.87	Sum	
	27	543.86	2.79257E-02	46.44		
M	28	580.34	2.06757E-02	42.06		
	31	665.37	8.79555E-02	15.56	Tol.	SB-126 CE-143
	33	742.35	1.43459E-02	56.49	D-Esc	
	34	768.30	2.87447E-01	5.42		
	35	786.16	5.18760E-02	18.87		
	36	806.30	7.29642E-02	16.02		
	37	839.02	2.61658E-02	38.86		
	39	934.25	1.30556E-01	10.02	Sum	
M	40	963.49	3.98639E-02	22.71		
	43	1049.54	3.11293E-02	44.44		
	44	1104.64	1.25631E-02	56.37		
M	45	1118.14	4.18130E-02	23.21		
	47	1134.21	1.07625E-02	53.78		
	48	1155.34	7.39900E-02	14.00	Sum	
	49	1208.34	1.50749E-02	54.38	Sum	
	50	1238.41	2.13347E-01	5.36		
	51	1252.93	3.15074E-02	25.15	S-Esc	
	52	1281.39	5.98919E-02	17.94		

Analysis Report for 1707089-11

HTC-A04-S002-1824-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	53	1298.52	7.12284E-03	59.15		
	54	1377.96	1.55355E-01	6.61		
	55	1385.63	3.60868E-02	21.01		
M	56	1401.91	4.70664E-02	15.48		
m	57	1408.28	7.46646E-02	10.48		
	58	1446.16	1.51810E-02	37.59	Sum	
	60	1471.20	9.51389E-03	54.05		
	61	1509.43	6.38077E-02	13.25		
M	62	1539.33	2.32279E-02	26.53		
m	63	1543.34	2.05701E-02	30.97		
	64	1583.91	2.70839E-02	24.38	Sum	
	65	1600.60	1.07844E-02	44.18		
	66	1661.37	3.93671E-02	16.17		
	67	1693.14	1.15385E-02	37.74	S-Esc	
	68	1730.18	1.00486E-01	7.79	Sum	
	70	1814.88	7.12709E-03	59.29		
	71	1838.28	7.91667E-03	43.49		
	72	1847.92	6.67142E-02	8.99	Sum	
	73	1872.97	6.97456E-03	61.93		
	74	2118.95	3.31548E-02	10.95		
	76	2294.25	8.05556E-03	34.53		
	77	2384.56	1.52778E-03	70.71		
	78	2392.22	1.94444E-03	62.27		
	79	2448.13	3.27491E-02	10.29		

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59	10.42	7.98E-02	3.64E+00	3.64E+00
+	NA-22	1274.54	99.94	1.37E-02	1.48E-01	1.48E-01
+	@ NA-24	1368.53	99.99	1.00E+26	1.00E+26	1.00E+26

Analysis Report for 1707089-11

HTC-A04-S002-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	@ NA-24	2754.09		99.86	1.00E+26	1.00E+26	1.00E+26
+	AL-26	1808.65		99.76	5.20E-03	1.01E-01	1.01E-01
+	K-40	1460.81	*	10.67	6.59E+00	2.31E+00	2.31E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	3.55E-03	1.15E-01	1.15E-01
		78.34		96.00	1.46E-01		1.41E-01
+	SC-46	889.25		99.98	-7.35E-02	3.13E-01	3.13E-01
		1120.51		99.99	9.31E+00		9.85E-01
+	V-48	983.52		99.98	-1.59E+00	1.01E+01	1.06E+01
		1312.10		97.50	-5.64E-01		1.01E+01
+	CR-51	320.08		9.83	7.06E+00	1.37E+01	1.37E+01
+	MN-54	834.83		99.97	3.40E-02	1.76E-01	1.76E-01
+	CO-56	846.75		99.96	9.96E-02	3.21E-01	3.21E-01
		1037.75		14.03	9.36E-01		2.30E+00
		1238.25		67.00	5.62E+00		1.05E+00
		1771.40		15.51	-2.40E-01		2.11E+00
		2598.48		16.90	-2.85E-02		4.61E-01
+	CO-57	122.06		85.51	7.50E-02	1.29E-01	1.29E-01
		136.48		10.60	-8.17E-01		1.38E+00
+	CO-58	810.76		99.40	9.64E-03	3.56E-01	3.56E-01
+	FE-59	1099.22		56.50	5.02E-01	1.16E+00	1.16E+00
		1291.56		43.20	8.93E-01		1.44E+00
+	CO-60	1173.22		100.00	1.24E-02	1.39E-01	1.43E-01
		1332.49		100.00	6.23E-03		1.39E-01
+	ZN-65	1115.52		50.75	-6.00E-03	4.74E-01	4.74E-01
+	GA-67	93.31		35.70	3.18E+09	4.79E+08	4.79E+08
		208.95		2.24	3.30E+09		7.66E+09
		300.22		16.00	-1.49E+05		1.02E+09
+	SE-75	121.11		16.70	3.54E-01	3.39E-01	9.06E-01
		136.00		59.20	-3.60E-03		3.41E-01
		264.65		59.80	8.26E-02		3.39E-01
		279.53		25.20	3.53E-01		8.32E-01
		400.65		11.40	1.30E+00		1.92E+00
+	RB-82	776.52		13.00	-4.34E+00	1.40E+01	1.40E+01
+	RB-83	520.41		46.00	-1.20E-02	4.91E-01	4.91E-01
		529.64		30.30	2.55E-02		7.52E-01
		552.65		16.40	-5.73E-01		1.35E+00
+	KR-85	513.99		0.43	-1.38E+01	2.60E+01	2.60E+01
+	SR-85	513.99		99.27	-1.71E-01	3.22E-01	3.22E-01
+	Y-88	898.02		93.40	8.55E-02	2.42E-01	3.00E-01
		1836.01		99.38	-2.66E-02		2.42E-01
+	MO-93	263.06		56.72	5.39E-02	1.25E-01	2.06E-01
		684.67		99.68	-5.65E-03		1.25E-01
		1477.11		99.08	-6.81E-03		1.63E-01
+	NB-93M	16.57		9.43	0.00E+00	5.65E+00	5.65E+00
+	NB-94	702.63		100.00	6.18E-02	1.32E-01	1.32E-01
		871.10		100.00	-3.60E-03		1.41E-01

Analysis Report for 1707089-11

HTC-A04-S002-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	NB-95	765.79		99.81	3.67E+00	1.51E+00	1.51E+00
+	NB-95M	235.69		25.00	-1.72E+07	9.39E+07	9.39E+07
+	ZR-95	724.18		43.70	-2.85E-02	6.95E-01	8.98E-01
		756.72		55.30	3.06E-01		6.95E-01
+	MO-99	181.06		6.20	-2.17E+10	7.10E+10	1.40E+11
		739.58		12.80	-1.65E+09		7.10E+10
		778.00		4.50	3.20E+09		1.94E+11
+	RU-103	497.08		89.00	1.27E-01	6.76E-01	6.76E-01
+	RU-106	621.84		9.80	9.46E-01	1.41E+00	1.41E+00
+	AG-108M	433.93		89.90	-9.56E-02	1.19E-01	1.19E-01
		614.37		90.40	-7.08E-03		1.48E-01
		722.95		90.50	3.02E-02		1.48E-01
+	CD-109	88.03	*	3.72	6.75E+00	4.70E+00	4.70E+00
+	AG-110M	657.75		93.14	3.34E-02	1.65E-01	1.65E-01
		677.61		10.53	-7.89E-01		1.43E+00
		706.67		16.46	4.35E-01		1.06E+00
		763.93		21.98	-4.00E-03		9.78E-01
		884.67		71.63	1.04E-01		2.69E-01
		1384.27		23.94	-2.95E+00		9.52E-01
+	CD-113M	263.70		0.02	2.66E+02	5.07E+02	5.07E+02
+	SN-113	255.12		1.93	7.13E+00	3.23E-01	1.14E+01
		391.69		64.90	2.02E-02		3.23E-01
+	TE123M	159.00		84.10	-3.51E-02	2.56E-01	2.56E-01
+	SB-124	602.71		97.87	-1.34E-01	3.88E-01	3.88E-01
		645.85		7.26	5.64E-01		4.93E+00
		722.78		11.10	1.66E+00		3.79E+00
		1691.02		49.00	3.41E-02		8.30E-01
+	I-125	35.49		6.49	-3.78E+01	1.13E+01	1.13E+01
+	SB-125	176.33		6.89	-1.01E+00	4.34E-01	1.85E+00
		427.89		29.33	6.02E-02		4.34E-01
		463.38		10.35	6.99E-01		1.15E+00
		600.56		17.80	-3.27E-01		7.25E-01
		635.90		11.32	2.38E-01		1.14E+00
+	SB-126	414.70		83.30	3.74E+00	3.09E+01	3.67E+01
		666.33		99.60	9.12E+01		3.92E+01
		695.00		99.60	-9.50E+00		3.09E+01
		720.50		53.80	2.73E+01		6.24E+01
+	SN-126	87.57	*	37.00	5.85E-01	4.08E-01	4.08E-01
+	SB-127	473.00		25.00	9.01E+06	1.93E+07	2.40E+07
		685.20		35.70	-1.69E+06		1.93E+07
		783.80		14.70	6.61E+06		5.91E+07
+	I-129	29.78		57.00	1.06E+00	7.53E-01	7.53E-01
		33.60		13.20	6.31E+00		2.54E+00
		39.58		7.52	1.37E-01		2.28E+00
+	I-131	284.30		6.05	3.84E+03	6.92E+02	1.01E+04
		364.48		81.20	1.26E+02		6.92E+02
		636.97		7.26	3.41E+03		8.53E+03
		722.89		1.80	7.80E+03		3.83E+04

Analysis Report for 1707089-11

HTC-A04-S002-1824-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TE-132	49.72	13.10	2.41E+08	1.95E+08	1.25E+09
		228.16	88.00	-1.63E+07		1.95E+08
+	BA-133	81.00	33.00	5.71E-01	1.86E-01	3.19E-01
		302.84	17.80	-5.68E-02		6.59E-01
		356.01	60.00	1.12E-01		1.86E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	2.39E+05	1.33E+05	1.33E+05
+	CS-134	563.23	8.38	2.40E-01	1.59E-01	1.37E+00
		569.32	15.43	-8.26E-02		7.65E-01
		604.70	97.60	-3.08E-02		1.59E-01
		795.84	85.40	-3.21E-02		1.62E-01
		801.93	8.73	-1.71E-01		1.68E+00
+	CS-135	268.24	16.00	-5.18E-01	7.75E-01	7.75E-01
+	@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41	28.60	1.00E+26		1.00E+26
	@	1678.03	9.54	1.00E+26		1.00E+26
+	CS-136	153.22	7.46	8.74E+01	2.52E+01	3.11E+02
		163.89	4.61	2.60E+02		4.95E+02
		176.55	13.56	-8.85E+01		1.63E+02
		273.65	12.66	1.80E+02		1.82E+02
		340.57	48.50	1.72E+00		4.52E+01
		818.50	99.70	1.79E+01		2.52E+01
		1048.07	79.60	-7.42E+00		3.33E+01
		1235.34	19.70	9.29E+02		2.59E+02
+	CS-137	661.65	85.12	2.08E-02	1.54E-01	1.54E-01
+	LA-138	788.74	34.00	-5.76E-02	2.36E-01	4.58E-01
		1435.80	66.00	8.79E-02		2.36E-01
+	CE-139	165.85	80.35	-5.08E-02	2.50E-01	2.50E-01
+	BA-140	162.64	6.70	-7.19E+01	9.15E+01	3.97E+02
		304.84	4.50	5.98E+01		5.46E+02
		423.70	3.20	-2.43E+01		8.12E+02
		437.55	2.00	-1.40E+02		1.16E+03
		537.32	25.00	2.50E+01		9.15E+01
+	LA-140	328.77	20.50	9.18E+01	3.90E+01	1.21E+02
		487.03	45.50	5.70E+01		5.35E+01
		815.85	23.50	3.91E+01		1.19E+02
		1596.49	95.49	2.31E+00		3.90E+01
+	CE-141	145.44	48.40	-4.37E-01	2.12E+00	2.12E+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	6.11E-02	1.03E+00	1.03E+00
+	PM-144	476.78	42.00	6.60E-03	1.43E-01	3.01E-01
		618.01	98.60	7.60E-02		1.43E-01
		696.49	99.49	2.94E-03		1.49E-01
+	PM-145	36.85	21.70	2.86E-01	5.06E-01	9.72E-01
		37.36	39.70	-2.58E-01		5.06E-01
		42.30	15.10	3.76E-02		9.70E-01
		72.40	2.31	-8.02E+01		4.90E+00

Analysis Report for 1707089-11

HTC-A04-S002-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	PM-146	453.90		39.94	1.75E-01	2.90E-01	2.90E-01
		735.90		14.01	1.14E-01		9.26E-01
		747.13		13.10	2.51E-01		9.97E-01
+	ND-147	91.11		28.90	-1.91E+03	1.92E+02	1.92E+02
		531.02		13.10	4.03E+00		4.12E+02
+	PM-149	285.90		3.10	7.96E+13	1.16E+14	1.16E+14
+	EU-152	121.78		20.50	2.46E-01	4.24E-01	4.24E-01
		244.69		5.40	-2.92E+01		2.57E+00
		344.27		19.13	-2.51E-02		6.13E-01
		778.89		9.20	2.27E-02		1.38E+00
		964.01		10.40	1.04E+00		1.52E+00
		1085.78		7.22	5.05E-01		1.96E+00
		1112.02		9.60	-7.85E-02		1.37E+00
		1407.95		14.94	8.16E-01		1.55E+00
+	GD-153	97.43		31.30	1.95E-01	3.57E-01	3.57E-01
		103.18		22.20	-1.44E-01		4.74E-01
+	EU-154	123.07		40.50	1.91E-02	2.14E-01	2.14E-01
		723.30		19.70	1.42E-01		6.96E-01
		873.19		11.50	4.25E-01		1.23E+00
		996.32		10.30	1.12E-01		1.40E+00
		1004.76		17.90	-1.12E-01		8.85E-01
		1274.45		35.50	3.67E-02		3.97E-01
+	EU-155	86.50	*	30.90	7.28E-01	4.10E-01	5.07E-01
		105.30		20.70	-1.99E-01		4.10E-01
+	EU-156	811.77		10.40	-5.26E+01	1.10E+02	1.10E+02
		1153.47		7.20	5.73E+02		2.55E+02
		1230.71		8.90	2.00E+01		1.43E+02
+	HO-166M	184.41		72.60	2.42E+00	2.26E-01	2.54E-01
		280.45		29.60	-1.49E-01		3.99E-01
		410.94		11.10	-1.44E-01		1.06E+00
		711.69		54.10	-2.61E-02		2.26E-01
+	TM-171	66.72		0.14	4.27E+01	8.61E+01	8.61E+01
+	HF-172	67.35		5.31	6.99E-02	8.21E-01	2.27E+00
		125.81		11.30	-2.53E-01		8.21E-01
+	LU-172	181.53		20.60	-4.53E+01	6.14E+03	1.73E+04
		900.72		29.81	1.11E+00		1.40E+04
		1093.66		62.50	-4.05E+03		6.14E+03
+	LU-173	100.72		5.24	-1.70E+00	7.08E-01	1.72E+00
		272.11		21.20	-1.63E-01		7.08E-01
+	HF-175	343.40		84.00	1.53E-01	3.66E-01	3.66E-01
+	LU-176	88.34		13.30	1.52E+00	1.18E-01	8.52E-01
		201.83		86.00	-5.78E-02		1.43E-01
		306.78		94.00	2.84E-02		1.18E-01
+	HF-181	133.02		41.70	-7.11E-02	6.77E-01	1.07E+00
		345.85		17.20	1.75E+00		3.37E+00
		482.03		82.80	2.94E-01		6.77E-01
+	TA-182	67.75		41.20	1.48E-02	4.80E-01	4.80E-01
		1121.30		34.90	2.06E+01		2.24E+00
		1189.05		16.23	-3.26E-01		1.52E+00

Analysis Report for 1707089-11

HTC-A04-S002-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TA-182	1221.41		26.98	1.53E-02	4.80E-01	9.62E-01
		1231.02		11.44	3.07E-01		2.21E+00
+	IR-192	308.46		29.68	-2.59E-01	5.58E-01	9.42E-01
		468.07		48.10	1.42E-01		5.58E-01
+	HG-203	279.19		77.30	-2.96E-01	6.60E-01	6.60E-01
+	TL-204	374.74		94.11	3.63E-02	1.25E-01	1.25E-01
		899.15		99.16	2.46E-05		1.56E-01
		911.74		91.10	2.00E-01		1.82E-01
+	BI-207	569.67		97.72	-1.20E-02	1.11E-01	1.11E-01
		1063.62		74.90	-7.20E-03		1.86E-01
+	TL-208	583.14	*	30.22	5.65E-01	8.71E-02	5.86E-01
		860.37		4.48	6.73E-01		3.12E+00
		2614.66	*	35.85	4.66E-01		8.71E-02
+	BI-210M	262.00		45.00	5.59E-02	2.58E-01	2.58E-01
		300.00		23.00	-7.36E-05		5.04E-01
+	PB-210	46.50	*	4.25	1.35E+01	5.17E+00	5.17E+00
+	PB-211	404.84		2.90	7.61E-01	4.29E+00	4.29E+00
		831.96		2.90	1.48E+00		4.98E+00
+	BI-212	727.17	*	11.80	7.62E-01	1.36E+00	1.36E+00
		1620.62		2.75	-5.71E-01		5.04E+00
+	PB-212	238.63	*	44.60	3.50E-01	4.47E-01	4.47E-01
		300.09		3.41	-4.97E-04		3.40E+00
+	BI-214	609.31	*	46.30	2.57E+01	3.87E-01	3.87E-01
		1120.29	*	15.10	2.54E+01		1.57E+00
		1764.49	*	15.80	2.86E+01		1.34E+00
		2204.22	*	4.98	2.82E+01		2.55E+00
+	PB-214	295.21	*	19.19	2.74E+01	4.62E-01	9.93E-01
		351.92	*	37.19	2.73E+01		4.62E-01
+	RN-219	401.80		6.50	-4.08E-01	1.92E+00	1.92E+00
+	RA-223	323.87	*	3.88	2.01E+00	2.98E+00	2.98E+00
+	RA-224	240.98		3.95	5.20E+01	5.16E+00	5.16E+00
+	RA-225	40.00		31.00	3.36E+00	5.58E+01	5.58E+01
+	RA-226	186.21	*	3.28	5.76E+01	6.37E+00	6.37E+00
+	TH-227	50.10		8.40	2.59E-01	1.11E+00	1.35E+00
		236.00		11.50	-2.03E-01		1.11E+00
		256.20		6.30	7.42E-01		1.94E+00
+	AC-228	338.32	*	11.40	6.16E-01	7.16E-01	1.24E+00
		911.07	*	27.70	5.93E-01		7.16E-01
		969.11	*	16.60	9.15E-01		1.58E+00
+	TH-230	48.44		16.90	-3.05E+00	7.02E-01	7.02E-01
		62.85		4.60	1.61E+01		2.96E+00
		67.67		0.37	9.05E-01		2.94E+01
+	PA-231	283.67		1.60	2.82E+00	5.01E+00	7.40E+00
		302.67		2.30	-4.31E-01		5.01E+00
+	TH-231	25.64		14.70	0.00E+00	1.01E-01	1.01E-01
		84.21		6.40	5.24E+00		1.65E+00
+	PA-233	311.98		38.60	-7.67E-01	3.67E+00	3.67E+00
+	PA-234	131.20		20.40	2.40E-01	4.40E-01	4.40E-01

Analysis Report for 1707089-11

HTC-A04-S002-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PA-234	733.99		8.80	-1.35E-01	4.40E-01	1.39E+00
		946.00		12.00	-4.55E-02		1.16E+00
+	PA-234M	1001.03	*	0.92	3.71E+01	1.97E+01	1.97E+01
+	TH-234	63.29	*	3.80	1.67E+01	5.20E+00	5.20E+00
+	U-235	143.76	*	10.50	1.35E+00	1.39E+00	1.39E+00
		163.35	*	4.70	1.26E+00		2.30E+00
		205.31		4.70	-7.15E-01		2.63E+00
+	NP-237	86.50	*	12.60	1.72E+00	1.20E+00	1.20E+00
+	NP-239	106.10		22.70	-8.16E+11	1.68E+12	1.68E+12
		228.18		10.70	-4.35E+11		5.22E+12
		277.60		14.10	-2.52E+12		3.89E+12
+	AM-241	59.54		35.90	-1.00E-01	3.07E-01	3.07E-01
+	AM-243	74.67		66.00	-1.59E+00	2.29E-01	2.29E-01
+	CM-243	209.75		3.29	1.26E+00	8.47E-01	3.71E+00
		228.14		10.60	-9.49E-02		1.14E+00
		277.60		14.00	-5.49E-01		8.47E-01

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

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	3.64E+00	3.64E+00	7.98E-02	1.78E+00
	NA-22	1274.54		99.94	1.48E-01	1.48E-01	1.37E-02	7.13E-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	1.01E-01	1.01E-01	5.20E-03	4.70E-02
+	K-40	1460.81	*	10.67	2.31E+00	2.31E+00	6.59E+00	1.13E+00

Analysis Report for 1707089-11

HTC-A04-S002-1824-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
TI-44	67.88	94.40	1.15E-01	1.15E-01	3.55E-03	5.71E-02
	78.34	96.00	1.41E-01		1.46E-01	7.00E-02
SC-46	889.25	99.98	3.13E-01	3.13E-01	-7.35E-02	1.52E-01
	1120.51	99.99	9.85E-01		9.31E+00	4.87E-01
V-48	983.52	99.98	1.06E+01	1.01E+01	-1.59E+00	5.12E+00
	1312.10	97.50	1.01E+01		-5.64E-01	4.84E+00
CR-51	320.08	9.83	1.37E+01	1.37E+01	7.06E+00	6.76E+00
MN-54	834.83	99.97	1.76E-01	1.76E-01	3.40E-02	8.57E-02
CO-56	846.75	99.96	3.21E-01	3.21E-01	9.96E-02	1.56E-01
	1037.75	14.03	2.30E+00		9.36E-01	1.11E+00
	1238.25	67.00	1.05E+00		5.62E+00	5.15E-01
	1771.40	15.51	2.11E+00		-2.40E-01	1.00E+00
	2598.48	16.90	4.61E-01		-2.85E-02	1.73E-01
CO-57	122.06	85.51	1.29E-01	1.29E-01	7.50E-02	6.38E-02
	136.48	10.60	1.38E+00		-8.17E-01	6.84E-01
CO-58	810.76	99.40	3.56E-01	3.56E-01	9.64E-03	1.73E-01
FE-59	1099.22	56.50	1.16E+00	1.16E+00	5.02E-01	5.62E-01
	1291.56	43.20	1.44E+00		8.93E-01	6.88E-01
CO-60	1173.22	100.00	1.43E-01	1.39E-01	1.24E-02	6.88E-02
	1332.49	100.00	1.39E-01		6.23E-03	6.65E-02
ZN-65	1115.52	50.75	4.74E-01	4.74E-01	-6.00E-03	2.30E-01
GA-67	93.31	35.70	4.79E+08	4.79E+08	3.18E+09	2.37E+08
	208.95	2.24	7.66E+09		3.30E+09	3.78E+09
	300.22	16.00	1.02E+09		-1.49E+05	5.02E+08
SE-75	121.11	16.70	9.06E-01	3.39E-01	3.54E-01	4.48E-01
	136.00	59.20	3.41E-01		-3.60E-03	1.69E-01
	264.65	59.80	3.39E-01		8.26E-02	1.67E-01
	279.53	25.20	8.32E-01		3.53E-01	4.10E-01
	400.65	11.40	1.92E+00		1.30E+00	9.43E-01
RB-82	776.52	13.00	1.40E+01	1.40E+01	-4.34E+00	6.77E+00
RB-83	520.41	46.00	4.91E-01	4.91E-01	-1.20E-02	2.39E-01
	529.64	30.30	7.52E-01		2.55E-02	3.66E-01
	552.65	16.40	1.35E+00		-5.73E-01	6.58E-01
KR-85	513.99	0.43	2.60E+01	2.60E+01	-1.38E+01	1.27E+01
SR-85	513.99	99.27	3.22E-01	3.22E-01	-1.71E-01	1.57E-01
Y-88	898.02	93.40	3.00E-01	2.42E-01	8.55E-02	1.46E-01
	1836.01	99.38	2.42E-01		-2.66E-02	1.14E-01
MO-93	263.06	56.72	2.06E-01	1.25E-01	5.39E-02	1.02E-01
	684.67	99.68	1.25E-01		-5.65E-03	6.10E-02
	1477.11	99.08	1.63E-01		-6.81E-03	7.84E-02
NB-93M	16.57	9.43	5.65E+00	5.65E+00	0.00E+00	0.00E+00
NB-94	702.63	100.00	1.32E-01	1.32E-01	6.18E-02	6.45E-02
	871.10	100.00	1.41E-01		-3.60E-03	6.83E-02
NB-95	765.79	99.81	1.51E+00	1.51E+00	3.67E+00	7.40E-01
NB-95M	235.69	25.00	9.39E+07	9.39E+07	-1.72E+07	4.64E+07
ZR-95	724.18	43.70	8.98E-01	6.95E-01	-2.85E-02	4.37E-01
	756.72	55.30	6.95E-01		3.06E-01	3.38E-01
MO-99	181.06	6.20	1.40E+11	7.10E+10	-2.17E+10	6.93E+10
	739.58	12.80	7.10E+10		-1.65E+09	3.45E+10
	778.00	4.50	1.94E+11		3.20E+09	9.44E+10
RU-103	497.08	89.00	6.76E-01	6.76E-01	1.27E-01	3.30E-01
RU-106	621.84	9.80	1.41E+00	1.41E+00	9.46E-01	6.86E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	AG-108M	433.93		89.90	1.19E-01	1.19E-01	-9.56E-02	5.84E-02
		614.37		90.40	1.48E-01		-7.08E-03	7.23E-02
		722.95		90.50	1.48E-01		3.02E-02	7.23E-02
+	CD-109	88.03	*	3.72	4.70E+00	4.70E+00	6.75E+00	2.34E+00
	AG-110M	657.75		93.14	1.65E-01	1.65E-01	3.34E-02	8.01E-02
		677.61		10.53	1.43E+00		-7.89E-01	6.96E-01
		706.67		16.46	1.06E+00		4.35E-01	5.15E-01
		763.93		21.98	9.78E-01		-4.00E-03	4.78E-01
		884.67		71.63	2.69E-01		1.04E-01	1.30E-01
		1384.27		23.94	9.52E-01		-2.95E+00	4.60E-01
	CD-113M	263.70		0.02	5.07E+02	5.07E+02	2.66E+02	2.50E+02
	SN-113	255.12		1.93	1.14E+01	3.23E-01	7.13E+00	5.64E+00
		391.69		64.90	3.23E-01		2.02E-02	1.59E-01
	TE123M	159.00		84.10	2.56E-01	2.56E-01	-3.51E-02	1.27E-01
	SB-124	602.71		97.87	3.88E-01	3.88E-01	-1.34E-01	1.89E-01
		645.85		7.26	4.93E+00		5.64E-01	2.39E+00
		722.78		11.10	3.79E+00		1.66E+00	1.85E+00
		1691.02		49.00	8.30E-01		3.41E-02	3.93E-01
	I-125	35.49		6.49	1.13E+01	1.13E+01	-3.78E+01	5.58E+00
	SB-125	176.33		6.89	1.85E+00	4.34E-01	-1.01E+00	9.17E-01
		427.89		29.33	4.34E-01		6.02E-02	2.13E-01
		463.38		10.35	1.15E+00		6.99E-01	5.60E-01
		600.56		17.80	7.25E-01		-3.27E-01	3.53E-01
		635.90		11.32	1.14E+00		2.38E-01	5.56E-01
	SB-126	414.70		83.30	3.67E+01	3.09E+01	3.74E+00	1.80E+01
		666.33		99.60	3.92E+01		9.12E+01	1.92E+01
		695.00		99.60	3.09E+01		-9.50E+00	1.50E+01
		720.50		53.80	6.24E+01		2.73E+01	3.04E+01
+	SN-126	87.57	*	37.00	4.08E-01	4.08E-01	5.85E-01	2.02E-01
	SB-127	473.00		25.00	2.40E+07	1.93E+07	9.01E+06	1.17E+07
		685.20		35.70	1.93E+07		-1.69E+06	9.39E+06
		783.80		14.70	5.91E+07		6.61E+06	2.88E+07
	I-129	29.78		57.00	7.53E-01	7.53E-01	1.06E+00	3.71E-01
		33.60		13.20	2.54E+00		6.31E+00	1.26E+00
		39.58		7.52	2.28E+00		1.37E-01	1.13E+00
	I-131	284.30		6.05	1.01E+04	6.92E+02	3.84E+03	4.96E+03
		364.48		81.20	6.92E+02		1.26E+02	3.39E+02
		636.97		7.26	8.53E+03		3.41E+03	4.15E+03
		722.89		1.80	3.83E+04		7.80E+03	1.86E+04
	TE-132	49.72		13.10	1.25E+09	1.95E+08	2.41E+08	6.18E+08
		228.16		88.00	1.95E+08		-1.63E+07	9.64E+07
	BA-133	81.00		33.00	3.19E-01	1.86E-01	5.71E-01	1.58E-01
		302.84		17.80	6.59E-01		-5.68E-02	3.25E-01
		356.01		60.00	1.86E-01		1.12E-01	9.12E-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	1.33E+05	1.33E+05	2.39E+05	6.61E+04
	CS-134	563.23		8.38	1.37E+00	1.59E-01	2.40E-01	6.68E-01
		569.32		15.43	7.65E-01		-8.26E-02	3.72E-01
		604.70		97.60	1.59E-01		-3.08E-02	7.76E-02
		795.84		85.40	1.62E-01		-3.21E-02	7.87E-02
		801.93		8.73	1.68E+00		-1.71E-01	8.15E-01
	CS-135	268.24		16.00	7.75E-01	7.75E-01	-5.18E-01	3.82E-01
	@ I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20

Analysis Report for 1707089-11

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@ I-135	1260.41	28.60	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		1.00E+26	1.00E+20
CS-136	153.22	7.46	3.11E+02	2.52E+01	8.74E+01	1.54E+02
	163.89	4.61	4.95E+02		2.60E+02	2.45E+02
	176.55	13.56	1.63E+02		-8.85E+01	8.06E+01
	273.65	12.66	1.82E+02		1.80E+02	8.99E+01
	340.57	48.50	4.52E+01		1.72E+00	2.22E+01
	818.50	99.70	2.52E+01		1.79E+01	1.22E+01
	1048.07	79.60	3.33E+01		-7.42E+00	1.61E+01
	1235.34	19.70	2.59E+02		9.29E+02	1.27E+02
CS-137	661.65	85.12	1.54E-01	1.54E-01	2.08E-02	7.49E-02
LA-138	788.74	34.00	4.58E-01	2.36E-01	-5.76E-02	2.23E-01
	1435.80	66.00	2.36E-01		8.79E-02	1.14E-01
CE-139	165.85	80.35	2.50E-01	2.50E-01	-5.08E-02	1.24E-01
BA-140	162.64	6.70	3.97E+02	9.15E+01	-7.19E+01	1.97E+02
	304.84	4.50	5.46E+02		5.98E+01	2.68E+02
	423.70	3.20	8.12E+02		-2.43E+01	3.98E+02
	437.55	2.00	1.16E+03		-1.40E+02	5.69E+02
	537.32	25.00	9.15E+01		2.50E+01	4.45E+01
LA-140	328.77	20.50	1.21E+02	3.90E+01	9.18E+01	5.93E+01
	487.03	45.50	5.35E+01		5.70E+01	2.61E+01
	815.85	23.50	1.19E+02		3.91E+01	5.79E+01
	1596.49	95.49	3.90E+01		2.31E+00	1.88E+01
CE-141	145.44	48.40	2.12E+00	2.12E+00	-4.37E-01	1.05E+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	1.03E+00	1.03E+00	6.11E-02	5.09E-01
PM-144	476.78	42.00	3.01E-01	1.43E-01	6.60E-03	1.47E-01
	618.01	98.60	1.43E-01		7.60E-02	6.97E-02
	696.49	99.49	1.49E-01		2.94E-03	7.24E-02
PM-145	36.85	21.70	9.72E-01	5.06E-01	2.86E-01	4.79E-01
	37.36	39.70	5.06E-01		-2.58E-01	2.50E-01
	42.30	15.10	9.70E-01		3.76E-02	4.78E-01
	72.40	2.31	4.90E+00		-8.02E+01	2.43E+00
PM-146	453.90	39.94	2.90E-01	2.90E-01	1.75E-01	1.42E-01
	735.90	14.01	9.26E-01		1.14E-01	4.50E-01
	747.13	13.10	9.97E-01		2.51E-01	4.84E-01
ND-147	91.11	28.90	1.92E+02	1.92E+02	-1.91E+03	9.52E+01
	531.02	13.10	4.12E+02		4.03E+00	2.00E+02
PM-149	285.90	3.10	1.16E+14	1.16E+14	7.96E+13	5.72E+13
EU-152	121.78	20.50	4.24E-01	4.24E-01	2.46E-01	2.09E-01
	244.69	5.40	2.57E+00		-2.92E+01	1.27E+00
	344.27	19.13	6.13E-01		-2.51E-02	3.01E-01
	778.89	9.20	1.38E+00		2.27E-02	6.69E-01
	964.01	10.40	1.52E+00		1.04E+00	7.37E-01
	1085.78	7.22	1.96E+00		5.05E-01	9.47E-01
	1112.02	9.60	1.37E+00		-7.85E-02	6.59E-01
	1407.95	14.94	1.55E+00		8.16E-01	7.56E-01
GD-153	97.43	31.30	3.57E-01	3.57E-01	1.95E-01	1.77E-01
	103.18	22.20	4.74E-01		-1.44E-01	2.34E-01
EU-154	123.07	40.50	2.14E-01	2.14E-01	1.91E-02	1.05E-01
	723.30	19.70	6.96E-01		1.42E-01	3.39E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-154	873.19		11.50	1.23E+00	2.14E-01	4.25E-01	5.98E-01
		996.32		10.30	1.40E+00		1.12E-01	6.75E-01
		1004.76		17.90	8.85E-01		-1.12E-01	4.29E-01
		1274.45		35.50	3.97E-01		3.67E-02	1.91E-01
+	EU-155	86.50	*	30.90	5.07E-01	4.10E-01	7.28E-01	2.52E-01
		105.30		20.70	4.10E-01		-1.99E-01	2.02E-01
	EU-156	811.77		10.40	1.10E+02	1.10E+02	-5.26E+01	5.32E+01
		1153.47		7.20	2.55E+02		5.73E+02	1.24E+02
		1230.71		8.90	1.43E+02		2.00E+01	6.89E+01
	HO-166M	184.41		72.60	2.54E-01	2.26E-01	2.42E+00	1.26E-01
		280.45		29.60	3.99E-01		-1.49E-01	1.97E-01
		410.94		11.10	1.06E+00		-1.44E-01	5.20E-01
		711.69		54.10	2.26E-01		-2.61E-02	1.10E-01
	TM-171	66.72		0.14	8.61E+01	8.61E+01	4.27E+01	4.26E+01
	HF-172	67.35		5.31	2.27E+00	8.21E-01	6.99E-02	1.12E+00
		125.81		11.30	8.21E-01		-2.53E-01	4.05E-01
	LU-172	181.53		20.60	1.73E+04	6.14E+03	-4.53E+01	8.57E+03
		900.72		29.81	1.40E+04		1.11E+00	6.80E+03
		1093.66		62.50	6.14E+03		-4.05E+03	2.96E+03
	LU-173	100.72		5.24	1.72E+00	7.08E-01	-1.70E+00	8.48E-01
		272.11		21.20	7.08E-01		-1.63E-01	3.50E-01
	HF-175	343.40		84.00	3.66E-01	3.66E-01	1.53E-01	1.80E-01
	LU-176	88.34		13.30	8.52E-01	1.18E-01	1.52E+00	4.22E-01
		201.83		86.00	1.43E-01		-5.78E-02	7.08E-02
		306.78		94.00	1.18E-01		2.84E-02	5.80E-02
	HF-181	133.02		41.70	1.07E+00	6.77E-01	-7.11E-02	5.28E-01
		345.85		17.20	3.37E+00		1.75E+00	1.66E+00
		482.03		82.80	6.77E-01		2.94E-01	3.31E-01
	TA-182	67.75		41.20	4.80E-01	4.80E-01	1.48E-02	2.38E-01
		1121.30		34.90	2.24E+00		2.06E+01	1.11E+00
		1189.05		16.23	1.52E+00		-3.26E-01	7.31E-01
		1221.41		26.98	9.62E-01		1.53E-02	4.63E-01
		1231.02		11.44	2.21E+00		3.07E-01	1.06E+00
	IR-192	308.46		29.68	9.42E-01	5.58E-01	-2.59E-01	4.63E-01
		468.07		48.10	5.58E-01		1.42E-01	2.72E-01
	HG-203	279.19		77.30	6.60E-01	6.60E-01	-2.96E-01	3.25E-01
	TL-204	374.74		94.11	1.25E-01	1.25E-01	3.63E-02	6.11E-02
		899.15		99.16	1.56E-01		2.46E-05	7.58E-02
		911.74		91.10	1.82E-01		2.00E-01	8.87E-02
	BI-207	569.67		97.72	1.11E-01	1.11E-01	-1.20E-02	5.40E-02
		1063.62		74.90	1.86E-01		-7.20E-03	8.97E-02
+	TL-208	583.14	*	30.22	5.86E-01	8.71E-02	5.65E-01	2.88E-01
		860.37		4.48	3.12E+00		6.73E-01	1.52E+00
		2614.66	*	35.85	8.71E-02		4.66E-01	3.21E-02
	BI-210M	262.00		45.00	2.58E-01	2.58E-01	5.59E-02	1.27E-01
		300.00		23.00	5.04E-01		-7.36E-05	2.48E-01
+	PB-210	46.50	*	4.25	5.17E+00	5.17E+00	1.35E+01	2.57E+00
	PB-211	404.84		2.90	4.29E+00	4.29E+00	7.61E-01	2.11E+00
		831.96		2.90	4.98E+00		1.48E+00	2.42E+00
+	BI-212	727.17	*	11.80	1.36E+00	1.36E+00	7.62E-01	6.67E-01
		1620.62		2.75	5.04E+00		-5.71E-01	2.40E+00
+	PB-212	238.63	*	44.60	4.47E-01	4.47E-01	3.50E-01	2.22E-01
		300.09		3.41	3.40E+00		-4.97E-04	1.67E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
+	BI-214	609.31	*	46.30	3.87E-01	3.87E-01	2.57E+01	1.90E-01
		1120.29	*	15.10	1.57E+00		2.54E+01	7.66E-01
		1764.49	*	15.80	1.34E+00		2.86E+01	6.49E-01
		2204.22	*	4.98	2.55E+00		2.82E+01	1.20E+00
+	PB-214	295.21	*	19.19	9.93E-01	4.62E-01	2.74E+01	4.92E-01
		351.92	*	37.19	4.62E-01		2.73E+01	2.28E-01
	RN-219	401.80		6.50	1.92E+00	1.92E+00	-4.08E-01	9.42E-01
+	RA-223	323.87	*	3.88	2.98E+00	2.98E+00	2.01E+00	1.46E+00
	RA-224	240.98		3.95	5.16E+00	5.16E+00	5.20E+01	2.56E+00
	RA-225	40.00		31.00	5.58E+01	5.58E+01	3.36E+00	2.75E+01
+	RA-226	186.21	*	3.28	6.37E+00	6.37E+00	5.76E+01	3.17E+00
	TH-227	50.10		8.40	1.35E+00	1.11E+00	2.59E-01	6.64E-01
		236.00		11.50	1.11E+00		-2.03E-01	5.49E-01
		256.20		6.30	1.94E+00		7.42E-01	9.56E-01
+	AC-228	338.32	*	11.40	1.24E+00	7.16E-01	6.16E-01	6.12E-01
		911.07	*	27.70	7.16E-01		5.93E-01	3.50E-01
		969.11	*	16.60	1.58E+00		9.15E-01	7.76E-01
	TH-230	48.44		16.90	7.02E-01	7.02E-01	-3.05E+00	3.46E-01
		62.85		4.60	2.96E+00		1.61E+01	1.47E+00
		67.67		0.37	2.94E+01		9.05E-01	1.45E+01
	PA-231	283.67		1.60	7.40E+00	5.01E+00	2.82E+00	3.65E+00
		302.67		2.30	5.01E+00		-4.31E-01	2.47E+00
	TH-231	25.64		14.70	1.01E-01	1.01E-01	0.00E+00	0.00E+00
		84.21		6.40	1.65E+00		5.24E+00	8.19E-01
	PA-233	311.98		38.60	3.67E+00	3.67E+00	-7.67E-01	1.81E+00
	PA-234	131.20		20.40	4.40E-01	4.40E-01	2.40E-01	2.17E-01
		733.99		8.80	1.39E+00		-1.35E-01	6.76E-01
		946.00		12.00	1.16E+00		-4.55E-02	5.61E-01
+	PA-234M	1001.03	*	0.92	1.97E+01	1.97E+01	3.71E+01	9.61E+00
+	TH-234	63.29	*	3.80	5.20E+00	5.20E+00	1.67E+01	2.58E+00
+	U-235	143.76	*	10.50	1.39E+00	1.39E+00	1.35E+00	6.89E-01
		163.35	*	4.70	2.30E+00		1.26E+00	1.14E+00
		205.31		4.70	2.63E+00		-7.15E-01	1.30E+00
+	NP-237	86.50	*	12.60	1.20E+00	1.20E+00	1.72E+00	5.95E-01
	NP-239	106.10		22.70	1.68E+12	1.68E+12	-8.16E+11	8.29E+11
		228.18		10.70	5.22E+12		-4.35E+11	2.58E+12
		277.60		14.10	3.89E+12		-2.52E+12	1.92E+12
	AM-241	59.54		35.90	3.07E-01	3.07E-01	-1.00E-01	1.52E-01
	AM-243	74.67		66.00	2.29E-01	2.29E-01	-1.59E+00	1.14E-01
	CM-243	209.75		3.29	3.71E+00	8.47E-01	1.26E+00	1.83E+00
		228.14		10.60	1.14E+00		-9.49E-02	5.62E-01
		277.60		14.00	8.47E-01		-5.49E-01	4.17E-01

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

Analysis Report for 1707089-11

HTC-A04-S002-1824-01

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A04-S002-1824-01

Elapsed Live time: 3600
Elapsed Real Time: 3609

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	293	496	535	596
33:	569	1148	518	544	543	539	526	580
41:	570	563	562	555	604	804	1452	664
49:	574	732	700	735	891	993	741	833
57:	779	898	954	978	1045	1116	1677	2262
65:	1104	1126	1151	1256	1146	1211	1256	1225
73:	1287	1549	3956	2100	4705	3698	1199	1350
81:	1232	1125	1004	1705	1222	995	1986	1980
89:	1081	1480	1048	1484	2944	1226	1034	853
97:	761	845	861	741	722	655	738	746
105:	742	766	749	810	767	749	785	824
113:	944	811	758	728	733	749	708	722
121:	781	758	733	710	701	711	711	740
129:	784	771	817	760	720	756	717	710
137:	726	751	741	767	746	766	815	1004
145:	820	774	757	708	760	755	746	780
153:	710	885	826	785	735	700	718	709
161:	692	702	727	749	724	638	670	632
169:	692	632	653	628	632	587	573	624
177:	621	618	600	668	603	647	651	685
185:	1023	2940	1607	632	593	604	548	583
193:	560	561	571	621	595	586	560	559
201:	525	559	574	505	567	538	496	543
209:	502	510	494	456	478	515	448	494
217:	432	435	429	505	416	438	420	444
225:	449	418	442	438	441	449	436	439
233:	420	423	413	571	457	513	677	456
241:	787	2887	1119	400	360	357	355	359
249:	337	367	341	328	363	398	358	432
257:	373	368	513	359	320	338	328	338
265:	321	318	301	321	443	484	466	425
273:	317	349	404	343	290	320	315	333
281:	305	320	311	338	292	308	296	274
289:	255	233	292	276	305	818	4941	3005
297:	347	267	262	321	265	270	296	275
305:	245	242	252	251	232	211	261	256
313:	241	237	259	244	235	257	263	257
321:	209	214	216	314	225	252	197	244
329:	250	267	234	230	250	249	233	235
337:	228	282	288	240	211	247	215	233
345:	218	212	236	198	293	356	2969	8951
353:	2195	204	173	201	189	191	160	186
361:	151	195	201	162	192	172	197	165

369:	190	197	179	186	200	181	177	193

Sample Title: HTC-A04-S002-1824-01

Channel								
377:	169	169	155	155	164	193	191	165
385:	157	191	238	227	245	187	186	176
393:	188	188	186	167	189	170	178	197
401:	205	239	203	194	238	203	184	173
409:	190	166	174	192	169	188	192	190
417:	176	172	182	180	170	170	191	158
425:	192	188	188	173	148	161	153	154
433:	118	142	131	133	157	131	131	138
441:	118	131	117	161	135	98	130	120
449:	128	126	126	125	117	139	172	141
457:	126	118	115	106	117	158	146	120
465:	115	116	124	112	112	126	109	108
473:	110	129	135	103	102	104	115	156
481:	137	110	100	115	105	126	167	120
489:	116	94	100	106	91	90	110	113
497:	107	104	93	103	113	103	92	97
505:	97	80	102	96	127	181	204	149
513:	117	102	97	93	92	80	99	105
521:	98	78	97	88	83	107	86	83
529:	99	88	99	81	93	101	92	102
537:	102	96	85	80	90	100	105	132
545:	118	81	90	91	97	86	86	82
553:	80	69	82	89	79	84	83	81
561:	93	95	75	93	76	78	89	92
569:	94	91	81	93	109	90	83	88
577:	86	76	83	124	104	101	172	122
585:	68	92	76	77	77	99	82	72
593:	75	80	90	72	78	78	70	79
601:	69	74	68	76	85	107	228	1561
609:	5667	3158	240	65	59	54	69	69
617:	59	57	74	64	70	51	68	60
625:	53	50	50	60	56	70	66	65
633:	66	84	60	69	70	52	71	63
641:	64	52	65	58	64	55	47	70
649:	52	59	54	41	57	57	45	55
657:	62	62	74	61	62	80	71	104
665:	205	159	65	55	54	53	53	61
673:	55	60	56	41	56	42	66	61
681:	60	70	59	63	57	58	67	59
689:	65	65	76	54	65	56	66	48
697:	55	66	63	51	60	75	98	69
705:	68	59	68	56	61	65	53	62
713:	48	58	61	51	60	54	76	80
721:	58	70	62	60	70	74	79	63
729:	56	53	44	54	65	55	52	42
737:	72	67	48	57	64	77	66	52
745:	56	52	63	67	45	61	54	50
753:	74	69	61	52	54	55	57	52
761:	59	44	54	48	68	120	255	507
769:	314	80	48	53	51	55	45	47
777:	50	50	56	50	65	58	43	64
785:	130	146	83	44	53	53	48	53
793:	52	42	70	50	47	44	55	57

801:	56	57	63	64	115	183	97	40

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Channel								
809:	56	47	47	62	43	37	61	61
817:	50	51	44	53	75	51	53	42
825:	54	62	57	65	61	59	64	76
833:	61	50	58	56	51	86	98	56
841:	56	47	53	51	59	40	49	60
849:	53	46	45	39	63	55	46	48
857:	50	59	49	43	60	65	60	52
865:	61	58	63	58	57	54	57	43
873:	47	67	62	40	40	43	57	59
881:	58	58	55	59	60	56	57	52
889:	44	52	43	50	50	49	63	60
897:	52	54	66	55	46	65	59	56
905:	50	57	51	47	47	74	102	71
913:	61	48	43	45	51	43	36	51
921:	48	50	38	48	54	53	44	56
929:	44	49	47	90	190	286	121	45
937:	48	50	50	45	57	53	44	51
945:	37	50	50	40	43	45	33	45
953:	42	48	46	58	41	37	37	36
961:	64	56	64	71	62	44	46	65
969:	70	47	41	42	41	45	42	40
977:	38	30	49	54	40	36	43	52
985:	57	41	52	57	44	49	42	51
993:	49	47	47	34	41	40	47	88
1001:	124	66	39	33	38	26	41	43
1009:	39	35	45	42	45	37	45	48
1017:	34	34	38	41	40	40	35	42
1025:	35	37	35	39	45	38	38	33
1033:	39	35	42	42	39	41	28	34
1041:	35	26	40	43	46	49	36	44
1049:	28	45	52	52	47	35	32	32
1057:	38	27	39	35	40	37	39	43
1065:	32	38	45	39	39	45	39	44
1073:	45	37	36	34	32	34	40	34
1081:	34	33	39	46	30	39	29	44
1089:	37	32	32	37	35	22	39	43
1097:	48	36	39	28	38	28	44	49
1105:	42	37	26	34	34	27	33	32
1113:	32	22	45	41	89	165	589	1024
1121:	521	76	34	33	40	30	36	33
1129:	39	34	25	25	55	34	32	24
1137:	28	27	36	36	28	28	36	30
1145:	28	29	35	35	44	30	26	53
1153:	61	113	136	71	34	30	30	25
1161:	28	34	43	28	28	24	40	25
1169:	31	30	26	32	40	31	32	27
1177:	32	33	28	39	52	30	33	31
1185:	33	30	29	31	26	28	32	33
1193:	31	22	25	25	30	24	30	26
1201:	26	31	30	28	23	41	48	46
1209:	31	31	26	25	22	32	33	31
1217:	41	36	37	32	32	23	29	33
1225:	27	30	26	22	35	39	28	29

1233:	28	28	45	105	276	336	142	29

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Channel								
1241:	23	19	30	30	26	19	18	22
1249:	24	36	35	47	41	39	30	22
1257:	21	27	29	27	21	21	25	20
1265:	32	25	23	33	29	32	38	21
1273:	28	31	20	33	23	30	58	87
1281:	97	56	25	17	28	23	17	25
1289:	26	21	32	30	22	20	21	17
1297:	32	29	21	17	18	25	27	24
1305:	28	25	21	21	27	26	16	31
1313:	25	27	24	30	22	18	14	31
1321:	24	23	27	23	17	20	22	21
1329:	27	26	28	23	23	19	24	21
1337:	30	19	27	17	19	15	24	13
1345:	22	24	25	22	20	15	23	22
1353:	20	22	26	20	15	23	19	20
1361:	24	21	35	20	29	33	26	14
1369:	28	27	27	28	36	23	61	142
1377:	219	178	60	19	19	22	40	58
1385:	73	41	26	17	23	20	23	30
1393:	23	18	21	22	24	29	37	55
1401:	81	65	28	25	37	54	125	103
1409:	46	31	21	20	27	33	18	25
1417:	16	21	16	22	29	19	28	27
1425:	26	33	28	23	20	22	26	29
1433:	19	18	34	27	18	15	21	26
1441:	13	15	19	28	31	29	20	20
1449:	16	17	32	14	21	28	29	23
1457:	35	38	78	145	109	59	29	25
1465:	22	26	22	17	30	38	34	15
1473:	20	19	25	22	24	22	28	31
1481:	27	21	25	21	29	24	29	33
1489:	28	35	25	32	28	27	20	19
1497:	23	30	33	19	31	28	20	20
1505:	29	26	58	89	114	56	30	23
1513:	32	25	28	22	27	27	27	25
1521:	22	26	16	26	24	21	23	27
1529:	23	23	26	21	20	19	26	19
1537:	29	50	35	27	23	44	40	24
1545:	19	18	8	19	18	17	17	17
1553:	23	10	23	22	16	15	15	21
1561:	22	18	17	17	20	20	15	15
1569:	19	12	19	8	10	17	21	18
1577:	18	16	19	16	31	37	51	33
1585:	25	13	17	19	26	22	23	26
1593:	21	24	26	23	17	28	32	21
1601:	27	14	15	20	19	18	17	17
1609:	11	19	17	20	14	18	12	17
1617:	13	21	16	18	16	10	12	16
1625:	15	12	20	13	17	18	18	14
1633:	3	15	21	16	12	6	7	5
1641:	8	16	11	10	8	9	9	12
1649:	8	13	11	11	5	11	6	15
1657:	15	20	22	39	55	31	12	7

1665:	8	7	8	7	14	6	7	7

Sample Title: HTC-A04-S002-1824-01

Channel								
1673:	6	4	11	9	9	5	8	9
1681:	11	11	13	13	12	14	8	7
1689:	5	16	17	19	13	12	9	6
1697:	7	9	5	9	2	5	1	11
1705:	8	9	4	4	6	5	8	6
1713:	12	3	13	8	6	8	13	4
1721:	9	16	8	13	6	20	38	92
1729:	147	101	27	9	7	2	10	9
1737:	3	7	5	6	6	4	5	8
1745:	5	10	3	8	3	4	12	4
1753:	7	7	7	10	9	12	16	31
1761:	67	181	501	587	352	61	13	10
1769:	5	7	7	5	3	5	5	6
1777:	8	6	7	9	6	7	10	4
1785:	7	9	7	2	4	7	3	5
1793:	8	2	5	3	5	5	5	6
1801:	5	7	5	7	11	6	5	4
1809:	3	13	5	8	7	6	5	4
1817:	1	7	7	3	3	9	5	9
1825:	5	7	3	5	9	7	11	8
1833:	5	8	10	14	11	17	10	4
1841:	9	7	8	17	33	84	65	39
1849:	15	6	8	4	2	6	8	8
1857:	7	5	4	6	4	8	8	6
1865:	6	4	6	13	3	6	7	10
1873:	16	4	11	3	8	5	5	7
1881:	10	5	4	6	5	9	7	9
1889:	8	9	7	10	5	6	11	9
1897:	9	7	7	11	8	4	5	7
1905:	4	8	5	10	7	6	6	4
1913:	8	6	7	5	9	9	4	11
1921:	6	7	7	5	2	3	8	5
1929:	10	7	6	4	8	14	13	9
1937:	9	12	11	6	4	5	2	3
1945:	9	5	6	9	5	5	8	7
1953:	8	4	6	3	5	9	5	6
1961:	1	8	3	7	8	8	3	3
1969:	4	8	8	4	3	3	5	6
1977:	7	8	5	4	5	4	6	5
1985:	4	4	4	5	3	3	4	5
1993:	4	4	4	8	2	5	3	2
2001:	6	4	6	7	4	4	4	9
2009:	8	3	6	3	7	4	3	3
2017:	8	4	3	5	6	4	2	5
2025:	2	3	5	7	4	6	2	6
2033:	8	2	4	6	1	2	3	4
2041:	3	7	7	7	3	2	5	9
2049:	4	5	10	3	5	2	5	6
2057:	0	5	3	1	1	0	7	1
2065:	1	1	1	5	5	5	5	6
2073:	3	4	2	3	5	2	1	3
2081:	4	2	5	3	3	0	0	7
2089:	3	4	4	2	5	2	3	0

2097:	1	2	2	6	4	5	1	6

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Channel								
2105:	6	2	3	5	5	6	1	2
2113:	5	5	8	17	27	34	26	6
2121:	3	0	2	2	5	0	3	2
2129:	3	1	3	2	1	1	2	2
2137:	0	1	2	3	0	0	4	0
2145:	2	3	6	2	2	1	1	0
2153:	2	4	2	1	2	3	0	5
2161:	3	2	1	2	3	5	1	2
2169:	2	1	3	1	3	1	3	1
2177:	2	1	3	3	3	2	3	4
2185:	5	4	3	6	2	1	5	2
2193:	1	1	2	2	3	8	5	18
2201:	42	106	133	131	40	12	3	5
2209:	1	2	2	2	0	2	2	3
2217:	1	1	3	0	2	0	1	3
2225:	1	0	1	3	5	1	2	3
2233:	5	1	1	0	0	2	3	0
2241:	1	2	2	0	2	3	1	4
2249:	2	2	0	1	0	2	2	2
2257:	2	2	1	2	2	4	3	4
2265:	2	2	3	1	4	1	3	0
2273:	0	0	0	1	4	2	1	3
2281:	2	2	3	1	5	1	2	2
2289:	0	2	6	4	6	4	5	4
2297:	2	0	0	2	1	0	1	2
2305:	2	1	2	1	2	2	1	1
2313:	1	1	3	1	0	3	2	1
2321:	0	2	0	0	3	0	3	0
2329:	2	1	2	1	0	1	3	0
2337:	1	1	0	0	1	2	1	1
2345:	1	1	0	3	1	0	0	1
2353:	0	0	2	0	0	0	1	0
2361:	1	0	1	0	1	0	3	1
2369:	0	1	1	0	0	0	4	1
2377:	1	1	1	0	1	3	2	2
2385:	1	0	1	0	1	4	2	2
2393:	1	0	1	0	2	0	2	1
2401:	0	0	0	0	3	2	1	0
2409:	1	0	2	1	1	0	0	1
2417:	0	0	0	0	1	2	1	1
2425:	0	1	0	0	2	1	1	4
2433:	0	0	1	2	1	1	1	2
2441:	3	3	0	9	14	29	37	19
2449:	8	0	0	1	1	2	1	0
2457:	2	3	0	0	0	0	1	1
2465:	0	0	1	1	0	0	1	0
2473:	2	0	0	1	0	1	0	0
2481:	1	0	1	1	1	0	1	1
2489:	1	0	0	2	0	0	1	1
2497:	1	1	0	0	0	2	1	0
2505:	0	1	1	0	0	0	2	1
2513:	2	0	1	0	0	1	1	0
2521:	0	1	0	0	0	1	0	1

2529:	0	0	1	0	0	0	0	0

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Channel								
2537:	0	0	0	0	0	0	0	1
2545:	1	0	1	0	2	0	0	1
2553:	1	0	0	0	0	0	0	0
2561:	0	0	0	1	0	0	1	0
2569:	1	0	1	0	0	0	0	0
2577:	1	1	0	0	0	0	1	0
2585:	2	0	1	0	0	1	0	0
2593:	1	0	0	0	0	1	0	1
2601:	0	0	0	1	0	1	0	0
2609:	1	5	5	6	24	13	6	0
2617:	0	0	0	0	0	1	1	1
2625:	0	0	0	0	0	0	0	0
2633:	1	0	1	0	0	0	0	0
2641:	1	0	0	0	0	0	1	0
2649:	0	0	0	1	0	1	0	0
2657:	0	1	0	0	0	0	0	0
2665:	1	0	0	0	0	0	0	2
2673:	0	0	0	0	0	0	1	1
2681:	2	0	0	0	0	1	0	1
2689:	0	0	0	1	1	1	0	0
2697:	1	0	0	0	0	0	0	0
2705:	0	0	1	1	0	0	0	0
2713:	0	0	0	0	0	0	2	1
2721:	0	0	0	0	0	0	0	0
2729:	0	0	0	0	0	0	1	0
2737:	0	0	0	0	0	1	0	0
2745:	0	0	0	0	2	0	1	0
2753:	0	0	0	0	0	0	1	0
2761:	0	0	0	0	0	1	1	0
2769:	2	0	0	0	0	0	0	1
2777:	0	1	0	0	0	0	0	1
2785:	0	0	0	0	0	0	0	0
2793:	0	0	0	0	0	0	0	0
2801:	0	1	0	2	0	0	0	2
2809:	0	0	0	0	0	0	0	0
2817:	1	0	0	0	1	1	1	0
2825:	0	0	0	0	0	0	0	0
2833:	0	0	0	0	0	0	0	0
2841:	0	0	0	0	0	0	0	0
2849:	1	0	0	1	0	0	0	0
2857:	0	0	1	0	0	0	0	0
2865:	0	0	0	1	0	0	0	0
2873:	0	1	0	1	0	0	1	0
2881:	1	0	0	0	0	0	0	0
2889:	0	0	1	0	0	0	0	0
2897:	0	0	0	1	0	0	0	0
2905:	0	0	0	1	0	0	0	2
2913:	0	0	0	0	0	1	0	1
2921:	0	0	0	0	0	0	0	0
2929:	0	0	0	0	1	0	0	0
2937:	0	0	1	1	1	0	0	1
2945:	0	0	1	0	0	0	0	1
2953:	1	1	1	0	0	0	0	0

2961:	0	0	0	1	0	0	1	0

Sample Title: HTC-A04-S002-1824-01

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

3393:	0	0	1	0	0	0	0	0

Sample Title: HTC-A04-S002-1824-01

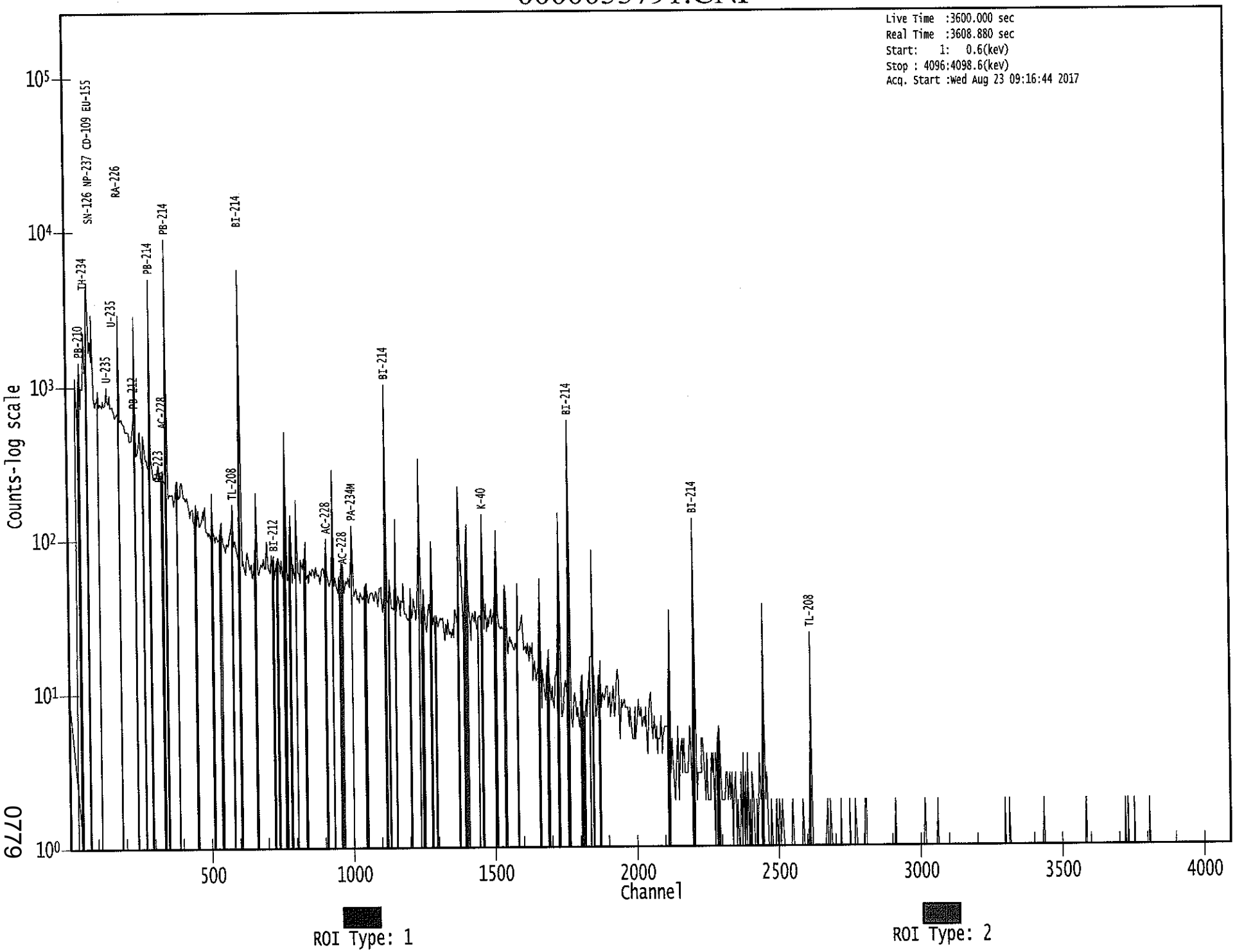
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	1	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	0	1	0
3433:	0	2	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	1	0	1
3473:	0	0	1	0	0	0	0	0
3481:	0	0	0	1	0	0	0	0
3489:	0	0	0	1	0	1	0	0
3497:	0	1	0	0	0	1	0	0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

3825:	0	0	0	0	0	0	1	0

Sample Title: HTC-A04-S002-1824-01

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

0000055791.CNF



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Apex-Gamma

C
8/23

Analysis Report for 1707089-12
HTC-A04-S002-2430-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707089-12
Sample Description	: HTC-A04-S002-2430-01
Sample Type	: SOIL
Sample Size	: 7.372E+02 grams
Facility	: Countroom
Sample Taken On	: 5/16/2017 7:17:46AM
Acquisition Started	: 8/23/2017 9:16:53AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3625.1 seconds
Dead Time	: 0.69 %
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	: 55792

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/23/17

Analysis Report for 1707089-12

HTC-A04-S002-2430-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/23/2017 10:18:53AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	16.46	16.79	0.0000	0.00
2	46.68	46.99	0.0000	0.00
3	53.24	53.55	0.0000	0.00
4	63.34	63.65	0.0000	0.00
5	76.50	76.80	0.0000	0.00
6	84.63	84.93	0.0000	0.00
7	87.67	87.97	0.0000	0.00
8	92.78	93.08	0.0000	0.00
9	113.37	113.66	0.0000	0.00
10	144.05	144.33	0.0000	0.00
11	154.61	154.89	0.0000	0.00
12	164.22	164.49	0.0000	0.00
13	186.17	186.43	0.0000	0.00
14	206.29	206.55	0.0000	0.00
15	236.25	236.50	0.0000	0.00
16	238.77	239.02	0.0000	0.00
17	242.14	242.38	0.0000	0.00
18	257.63	257.87	0.0000	0.00
19	270.34	270.58	0.0000	0.00
20	295.39	295.62	0.0000	0.00
21	322.77	322.99	0.0000	0.00
22	352.04	352.25	0.0000	0.00
23	388.37	388.57	0.0000	0.00
24	401.81	402.01	0.0000	0.00
25	418.41	418.60	0.0000	0.00
26	427.91	428.09	0.0000	0.00
27	480.29	480.46	0.0000	0.00
28	487.35	487.52	0.0000	0.00
29	511.68	511.83	0.0000	0.00
30	609.38	609.50	0.0000	0.00
31	665.07	665.18	0.0000	0.00
32	677.12	677.21	0.0000	0.00
33	702.84	702.93	0.0000	0.00
34	720.14	720.23	0.0000	0.00
35	741.71	741.79	0.0000	0.00
36	768.45	768.52	0.0000	0.00
37	786.01	786.07	0.0000	0.00
38	794.69	794.75	0.0000	0.00
39	806.09	806.15	0.0000	0.00
40	837.43	837.48	0.0000	0.00
41	912.87	912.89	0.0000	0.00
42	933.95	933.96	0.0000	0.00

Analysis Report for 1707089-12

HTC-A04-S002-2430-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	997.00	996.99	0.0000	0.00
44	1001.00	1000.99	0.0000	0.00
45	1051.96	1051.93	0.0000	0.00
46	1068.72	1068.69	0.0000	0.00
47	1078.87	1078.83	0.0000	0.00
48	1094.05	1094.01	0.0000	0.00
49	1120.14	1120.09	0.0000	0.00
50	1155.11	1155.05	0.0000	0.00
51	1182.29	1182.21	0.0000	0.00
52	1207.17	1207.09	0.0000	0.00
53	1218.56	1218.48	0.0000	0.00
54	1238.09	1238.00	0.0000	0.00
55	1280.73	1280.63	0.0000	0.00
56	1377.46	1377.33	0.0000	0.00
57	1385.08	1384.94	0.0000	0.00
58	1401.27	1401.13	0.0000	0.00
59	1407.60	1407.46	0.0000	0.00
60	1460.57	1460.40	0.0000	0.00
61	1508.75	1508.56	0.0000	0.00
62	1583.08	1582.87	0.0000	0.00
63	1598.29	1598.07	0.0000	0.00
64	1660.92	1660.69	0.0000	0.00
65	1683.56	1683.32	0.0000	0.00
66	1692.81	1692.57	0.0000	0.00
67	1713.58	1713.33	0.0000	0.00
68	1729.49	1729.23	0.0000	0.00
69	1764.19	1763.93	0.0000	0.00
70	1813.68	1813.40	0.0000	0.00
71	1838.33	1838.03	0.0000	0.00
72	1847.36	1847.06	0.0000	0.00
73	1936.56	1936.24	0.0000	0.00
74	2016.15	2015.80	0.0000	0.00
75	2023.53	2023.17	0.0000	0.00
76	2108.16	2107.78	0.0000	0.00
77	2118.18	2117.79	0.0000	0.00
78	2146.60	2146.20	0.0000	0.00
79	2167.26	2166.85	0.0000	0.00
80	2173.82	2173.42	0.0000	0.00
81	2203.74	2203.33	0.0000	0.00
82	2294.04	2293.59	0.0000	0.00
83	2398.98	2398.50	0.0000	0.00
84	2447.29	2446.80	0.0000	0.00
85	2614.26	2613.70	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707089-12

HTC-A04-S002-2430-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/23/2017 10:18:53AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	16.46	15 -	19	16.79	2.70E+02	198.93	8.52E+03	1.92
	2	46.68	44 -	49	46.99	1.32E+03	243.68	1.09E+04	1.63
	3	53.24	51 -	56	53.55	3.79E+02	254.78	1.27E+04	1.75
	4	63.34	61 -	66	63.65	2.98E+03	314.61	1.75E+04	1.96
	5	76.50	71 -	82	76.80	1.40E+04	609.38	3.94E+04	3.83
M	6	84.63	83 -	97	84.93	1.25E+03	185.53	9.35E+03	2.45
m	7	87.67	83 -	97	87.97	2.88E+03	353.79	2.05E+04	2.46
m	8	92.78	83 -	97	93.08	5.59E+03	362.38	1.82E+04	2.48
	9	113.37	111 -	116	113.66	2.59E+02	256.03	1.29E+04	2.21
	10	144.05	141 -	147	144.33	5.89E+02	289.54	1.48E+04	1.56
	11	154.61	153 -	158	154.89	2.26E+02	247.94	1.21E+04	1.28
	12	164.22	162 -	167	164.49	3.88E+02	234.83	1.06E+04	1.45
	13	186.17	182 -	191	186.43	5.19E+03	368.97	1.64E+04	2.20
	14	206.29	205 -	209	206.55	1.47E+02	177.54	6.85E+03	1.32
M	15	236.25	233 -	247	236.50	4.35E+02	181.58	6.41E+03	2.16
m	16	238.77	233 -	247	239.02	3.39E+02	189.64	6.27E+03	2.06
m	17	242.14	233 -	247	242.38	4.44E+03	221.46	6.02E+03	2.02
	18	257.63	253 -	264	257.87	5.39E+02	290.26	1.02E+04	4.53
	19	270.34	267 -	274	270.58	3.39E+02	209.34	7.11E+03	2.85
	20	295.39	291 -	299	295.62	9.15E+03	281.72	6.58E+03	2.15
	21	322.77	320 -	327	322.99	2.37E+02	165.92	4.45E+03	4.39
	22	352.04	346 -	357	352.25	1.53E+04	332.96	6.23E+03	2.12
	23	388.37	386 -	393	388.57	2.07E+02	151.16	3.64E+03	2.96
	24	401.81	399 -	406	402.01	1.28E+02	153.10	3.84E+03	1.99
	25	418.41	416 -	421	418.60	1.26E+02	113.15	2.45E+03	2.72
	26	427.91	425 -	431	428.09	1.31E+02	124.63	2.70E+03	1.89
	27	480.29	478 -	483	480.46	1.32E+02	95.64	1.72E+03	2.76
	28	487.35	485 -	491	487.52	1.22E+02	102.11	1.80E+03	2.26
	29	511.68	506 -	518	511.83	3.92E+02	162.59	2.91E+03	3.68
	30	609.38	605 -	614	609.50	1.07E+04	235.88	1.82E+03	2.27
	31	665.07	660 -	670	665.18	3.46E+02	116.65	1.62E+03	2.14
	32	677.12	675 -	680	677.21	5.45E+01	62.56	7.41E+02	2.96
	33	702.84	700 -	706	702.93	8.42E+01	77.42	1.03E+03	1.93
	34	720.14	716 -	724	720.23	1.46E+02	92.48	1.22E+03	1.95
	35	741.71	738 -	745	741.79	1.06E+02	80.62	1.01E+03	2.29
	36	768.45	763 -	775	768.52	1.06E+03	132.26	1.55E+03	2.43
	37	786.01	780 -	791	786.07	3.63E+02	109.31	1.31E+03	2.65
	38	794.69	792 -	799	794.75	7.11E+01	75.23	9.04E+02	2.11
	39	806.09	802 -	810	806.15	2.66E+02	88.94	1.05E+03	2.19
	40	837.43	830 -	843	837.48	2.75E+02	122.56	1.55E+03	2.34

Analysis Report for 1707089-12

HTC-A04-S002-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	912.87	910 -	916	912.89	8.91E+01	67.43	7.48E+02	4.42
	42	933.95	928 -	938	933.96	4.77E+02	109.05	1.33E+03	1.95
M	43	997.00	996 -	1005	996.99	2.65E+01	27.11	2.08E+02	1.88
m	44	1001.00	996 -	1005	1000.99	1.43E+02	68.87	7.77E+02	2.20
	45	1051.96	1049 -	1056	1051.93	5.76E+01	67.94	7.37E+02	3.60
	46	1068.72	1064 -	1074	1068.69	7.99E+01	81.70	8.48E+02	6.44
	47	1078.87	1075 -	1082	1078.83	6.41E+01	61.02	5.74E+02	3.73
	48	1094.05	1091 -	1097	1094.01	4.40E+01	53.54	4.94E+02	4.56
	49	1120.14	1113 -	1127	1120.09	2.21E+03	138.16	1.07E+03	2.61
	50	1155.11	1151 -	1159	1155.05	1.54E+02	75.66	7.83E+02	2.75
	51	1182.29	1178 -	1186	1182.21	5.73E+01	65.13	6.19E+02	3.68
	52	1207.17	1203 -	1212	1207.09	5.94E+01	70.89	6.81E+02	2.98
	53	1218.56	1215 -	1222	1218.48	5.63E+01	54.48	4.59E+02	1.98
	54	1238.09	1233 -	1244	1238.00	7.99E+02	95.31	7.30E+02	2.48
	55	1280.73	1276 -	1285	1280.63	2.07E+02	68.10	5.43E+02	2.84
	56	1377.46	1372 -	1381	1377.33	5.21E+02	78.59	5.85E+02	2.52
	57	1385.08	1382 -	1388	1384.94	9.65E+01	50.84	4.01E+02	2.66
	58	1401.27	1394 -	1404	1401.13	1.12E+02	72.92	6.49E+02	2.22
	59	1407.60	1404 -	1411	1407.46	2.59E+02	61.12	4.53E+02	2.42
	60	1460.57	1454 -	1466	1460.40	1.98E+02	77.73	6.17E+02	2.53
	61	1508.75	1503 -	1514	1508.56	2.71E+02	79.20	6.50E+02	2.61
	62	1583.08	1579 -	1586	1582.87	6.52E+01	47.87	3.36E+02	2.16
	63	1598.29	1590 -	1606	1598.07	1.14E+02	81.86	5.94E+02	7.66
	64	1660.92	1655 -	1665	1660.69	1.71E+02	49.99	2.41E+02	2.69
	65	1683.56	1679 -	1687	1683.32	5.39E+01	32.55	1.28E+02	5.95
	66	1692.81	1688 -	1698	1692.57	6.45E+01	40.85	1.91E+02	5.69
	67	1713.58	1711 -	1716	1713.33	2.04E+01	22.27	8.11E+01	2.79
	68	1729.49	1723 -	1735	1729.23	3.40E+02	59.68	2.56E+02	2.43
	69	1764.19	1758 -	1770	1763.93	1.68E+03	89.00	1.42E+02	2.79
	70	1813.68	1807 -	1819	1813.40	4.09E+01	34.01	1.16E+02	8.86
M	71	1838.33	1833 -	1851	1838.03	3.12E+01	26.00	1.30E+02	2.72
m	72	1847.36	1833 -	1851	1847.06	2.19E+02	37.79	8.35E+01	2.72
	73	1936.56	1932 -	1939	1936.24	3.04E+01	24.90	8.12E+01	3.30
M	74	2016.15	2012 -	2029	2015.80	2.19E+01	18.74	5.10E+01	3.70
m	75	2023.53	2012 -	2029	2023.17	1.83E+01	25.56	6.41E+01	3.70
	76	2108.16	2103 -	2112	2107.78	1.96E+01	17.97	3.48E+01	3.53
	77	2118.18	2113 -	2123	2117.79	1.15E+02	29.50	5.50E+01	2.20
	78	2146.60	2143 -	2148	2146.20	1.11E+01	10.82	1.38E+01	1.79
M	79	2167.26	2164 -	2176	2166.85	1.46E+01	8.83	6.00E+00	3.45
m	80	2173.82	2164 -	2176	2173.42	1.62E+01	9.82	7.00E+00	3.75
	81	2203.74	2199 -	2208	2203.33	4.26E+02	46.49	6.69E+01	3.02
	82	2294.04	2287 -	2299	2293.59	2.10E+01	21.53	4.19E+01	2.97
	83	2398.98	2394 -	2402	2398.50	8.00E+00	5.66	0.00E+00	2.98
	84	2447.29	2440 -	2451	2446.80	1.39E+02	25.53	1.20E+01	2.99
	85	2614.26	2609 -	2617	2613.70	2.07E+01	10.59	4.61E+00	1.76

Analysis Report for 1707089-12

HTC-A04-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 ANALYSIS REPORT

Peak Analysis Performed on : 8/23/2017 10:18:53AM

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	16.46	15 -	19	2.70E+02	198.93	8.52E+03	1.61E+02
	2	46.68	44 -	49	1.32E+03	243.68	1.09E+04	1.91E+02
	3	53.24	51 -	56	3.79E+02	254.78	1.27E+04	2.07E+02
	4	63.34	61 -	66	2.98E+03	314.61	1.75E+04	2.43E+02
	5	76.50	71 -	82	1.40E+04	609.38	3.94E+04	4.62E+02
M	6	84.63	83 -	97	1.25E+03	185.53	9.35E+03	1.59E+02
m	7	87.67	83 -	97	2.88E+03	353.79	2.05E+04	2.36E+02
m	8	92.78	83 -	97	5.59E+03	362.38	1.82E+04	2.22E+02
	9	113.37	111 -	116	2.59E+02	256.03	1.29E+04	2.09E+02
	10	144.05	141 -	147	5.89E+02	289.54	1.48E+04	2.35E+02
	11	154.61	153 -	158	2.26E+02	247.94	1.21E+04	2.02E+02
	12	164.22	162 -	167	3.88E+02	234.83	1.06E+04	1.90E+02
	13	186.17	182 -	191	5.19E+03	368.97	1.64E+04	2.79E+02
	14	206.29	205 -	209	1.47E+02	177.54	6.85E+03	1.45E+02
M	15	236.25	233 -	247	4.35E+02	181.58	6.41E+03	1.32E+02
m	16	238.77	233 -	247	3.39E+02	189.64	6.27E+03	1.30E+02
m	17	242.14	233 -	247	4.44E+03	221.46	6.02E+03	1.28E+02
	18	257.63	253 -	264	5.39E+02	290.26	1.02E+04	2.36E+02
	19	270.34	267 -	274	3.39E+02	209.34	7.11E+03	1.69E+02
	20	295.39	291 -	299	9.15E+03	281.72	6.58E+03	1.70E+02
	21	322.77	320 -	327	2.37E+02	165.92	4.45E+03	1.34E+02
	22	352.04	346 -	357	1.53E+04	332.96	6.23E+03	1.83E+02
	23	388.37	386 -	393	2.07E+02	151.16	3.64E+03	1.22E+02
	24	401.81	399 -	406	1.28E+02	153.10	3.84E+03	1.24E+02
	25	418.41	416 -	421	1.26E+02	113.15	2.45E+03	9.12E+01
	26	427.91	425 -	431	1.31E+02	124.63	2.70E+03	1.01E+02
	27	480.29	478 -	483	1.32E+02	95.64	1.72E+03	7.63E+01
	28	487.35	485 -	491	1.22E+02	102.11	1.80E+03	8.19E+01
	29	511.68	506 -	518	3.92E+02	162.59	2.91E+03	1.30E+02
	30	609.38	605 -	614	1.07E+04	235.88	1.82E+03	9.31E+01
	31	665.07	660 -	670	3.46E+02	116.65	1.62E+03	4.11E+01

Analysis Report for 1707089-12

HTC-A04-S002-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	32	677.12	675 -	680	5.45E+01	62.56	7.41E+02	5.00E+01
	33	702.84	700 -	706	8.42E+01	77.42	1.03E+03	6.18E+01
	34	720.14	716 -	724	1.46E+02	92.48	1.22E+03	7.34E+01
	35	741.71	738 -	745	1.06E+02	80.62	1.01E+03	6.41E+01
	36	768.45	763 -	775	1.06E+03	132.26	1.55E+03	9.46E+01
	37	786.01	780 -	791	3.63E+02	109.31	1.31E+03	8.42E+01
	38	794.69	792 -	799	7.11E+01	75.23	9.04E+02	6.03E+01
	39	806.09	802 -	810	2.66E+02	88.94	1.05E+03	6.80E+01
	40	837.43	830 -	843	2.75E+02	122.56	1.55E+03	9.70E+01
	41	912.87	910 -	916	8.91E+01	67.43	7.48E+02	5.32E+01
	42	933.95	928 -	938	4.77E+02	109.05	1.33E+03	8.21E+01
M	43	997.00	996 -	1005	2.65E+01	27.11	2.08E+02	2.37E+01
m	44	1001.00	996 -	1005	1.43E+02	68.87	7.77E+02	4.58E+01
	45	1051.96	1049 -	1056	5.76E+01	67.94	7.37E+02	5.44E+01
	46	1068.72	1064 -	1074	7.99E+01	81.70	8.48E+02	6.55E+01
	47	1078.87	1075 -	1082	6.41E+01	61.02	5.74E+02	4.84E+01
	48	1094.05	1091 -	1097	4.40E+01	53.54	4.94E+02	4.26E+01
	49	1120.14	1113 -	1127	2.21E+03	138.16	1.07E+03	8.32E+01
	50	1155.11	1151 -	1159	1.54E+02	75.66	7.83E+02	5.88E+01
	51	1182.29	1178 -	1186	5.73E+01	65.13	6.19E+02	5.21E+01
	52	1207.17	1203 -	1212	5.94E+01	70.89	6.81E+02	5.69E+01
	53	1218.56	1215 -	1222	5.63E+01	54.48	4.59E+02	4.31E+01
	54	1238.09	1233 -	1244	7.99E+02	95.31	7.30E+02	6.31E+01
	55	1280.73	1276 -	1285	2.07E+02	68.10	5.43E+02	5.07E+01
	56	1377.46	1372 -	1381	5.21E+02	78.59	5.85E+02	5.26E+01
	57	1385.08	1382 -	1388	9.65E+01	50.84	4.01E+02	3.85E+01
	58	1401.27	1394 -	1404	1.12E+02	72.92	6.49E+02	5.74E+01
	59	1407.60	1404 -	1411	2.59E+02	61.12	4.53E+02	4.27E+01
	60	1460.57	1454 -	1466	1.98E+02	77.73	6.17E+02	5.95E+01
	61	1508.75	1503 -	1514	2.71E+02	79.20	6.50E+02	5.92E+01
	62	1583.08	1579 -	1586	6.52E+01	47.87	3.36E+02	3.70E+01
	63	1598.29	1590 -	1606	1.14E+02	81.86	5.94E+02	6.50E+01
	64	1660.92	1655 -	1665	1.71E+02	49.99	2.41E+02	3.50E+01
	65	1683.56	1679 -	1687	5.39E+01	32.55	1.28E+02	2.39E+01
	66	1692.81	1688 -	1698	6.45E+01	40.85	1.91E+02	3.09E+01
	67	1713.58	1711 -	1716	2.04E+01	22.27	8.11E+01	1.67E+01
	68	1729.49	1723 -	1735	3.40E+02	59.68	2.56E+02	3.86E+01
	69	1764.19	1758 -	1770	1.68E+03	89.00	1.42E+02	2.86E+01
	70	1813.68	1807 -	1819	4.09E+01	34.01	1.16E+02	2.59E+01
M	71	1838.33	1833 -	1851	3.12E+01	26.00	1.30E+02	1.88E+01
m	72	1847.36	1833 -	1851	2.19E+02	37.79	8.35E+01	1.50E+01
	73	1936.56	1932 -	1939	3.04E+01	24.90	8.12E+01	1.84E+01
M	74	2016.15	2012 -	2029	2.19E+01	18.74	5.10E+01	1.17E+01
m	75	2023.53	2012 -	2029	1.83E+01	25.56	6.41E+01	1.32E+01
	76	2108.16	2103 -	2112	1.96E+01	17.97	3.48E+01	1.29E+01
	77	2118.18	2113 -	2123	1.15E+02	29.50	5.50E+01	1.67E+01
	78	2146.60	2143 -	2148	1.11E+01	10.82	1.38E+01	7.01E+00
M	79	2167.26	2164 -	2176	1.46E+01	8.83	6.00E+00	4.03E+00
m	80	2173.82	2164 -	2176	1.62E+01	9.82	7.00E+00	4.35E+00
	81	2203.74	2199 -	2208	4.26E+02	46.49	6.69E+01	1.76E+01
	82	2294.04	2287 -	2299	2.10E+01	21.53	4.19E+01	1.60E+01

Analysis Report for 1707089-12

HTC-A04-S002-2430-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
83	2398.98	2394 -	2402	8.00E+00	5.66	0.00E+00	0.00E+00
84	2447.29	2440 -	2451	1.39E+02	25.53	1.20E+01	8.05E+00
85	2614.26	2609 -	2617	2.07E+01	10.59	4.61E+00	4.46E+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 : 8/23/2017 10:18:53AM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	16.46	15 -	19	16.79	2.70E+02	198.93	8.52E+03	NB-93M
	2	46.68	44 -	49	46.99	1.32E+03	243.68	1.09E+04	PB-210
	3	53.24	51 -	56	53.55	3.79E+02	254.78	1.27E+04	.....
	4	63.34	61 -	66	63.65	2.98E+03	314.61	1.75E+04	TH-234
									TH-230
	5	76.50	71 -	82	76.80	1.40E+04	609.38	3.94E+04	.....
M	6	84.63	83 -	97	84.93	1.25E+03	185.53	9.35E+03	TH-231
m	7	87.67	83 -	97	87.97	2.88E+03	353.79	2.05E+04	SN-126
									CD-109
									LU-176
m	8	92.78	83 -	97	93.08	5.59E+03	362.38	1.82E+04	GA-67
	9	113.37	111 -	116	113.66	2.59E+02	256.03	1.29E+04	.....
	10	144.05	141 -	147	144.33	5.89E+02	289.54	1.48E+04	U-235
	11	154.61	153 -	158	154.89	2.26E+02	247.94	1.21E+04	.....
	12	164.22	162 -	167	164.49	3.88E+02	234.83	1.06E+04	CS-136
									U-235
	13	186.17	182 -	191	186.43	5.19E+03	368.97	1.64E+04	RA-226
	14	206.29	205 -	209	206.55	1.47E+02	177.54	6.85E+03	U-235
M	15	236.25	233 -	247	236.50	4.35E+02	181.58	6.41E+03	TH-227
									NB-95M
m	16	238.77	233 -	247	239.02	3.39E+02	189.64	6.27E+03	PB-212
m	17	242.14	233 -	247	242.38	4.44E+03	221.46	6.02E+03	.....
	18	257.63	253 -	264	257.87	5.39E+02	290.26	1.02E+04	.....

Analysis Report for 1707089-12

HTC-A04-S002-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	19	270.34	267 -	274	270.58	3.39E+02	209.34	7.11E+03	.....
	20	295.39	291 -	299	295.62	9.15E+03	281.72	6.58E+03	PB-214
	21	322.77	320 -	327	322.99	2.37E+02	165.92	4.45E+03	.....
	22	352.04	346 -	357	352.25	1.53E+04	332.96	6.23E+03	PB-214
	23	388.37	386 -	393	388.57	2.07E+02	151.16	3.64E+03	.....
	24	401.81	399 -	406	402.01	1.28E+02	153.10	3.84E+03	RN-219
	25	418.41	416 -	421	418.60	1.26E+02	113.15	2.45E+03	.....
	26	427.91	425 -	431	428.09	1.31E+02	124.63	2.70E+03	SB-125
	27	480.29	478 -	483	480.46	1.32E+02	95.64	1.72E+03	.....
	28	487.35	485 -	491	487.52	1.22E+02	102.11	1.80E+03	LA-140
	29	511.68	506 -	518	511.83	3.92E+02	162.59	2.91E+03	.....
	30	609.38	605 -	614	609.50	1.07E+04	235.88	1.82E+03	BI-214
	31	665.07	660 -	670	665.18	3.46E+02	116.65	1.62E+03	CE-143
	32	677.12	675 -	680	677.21	5.45E+01	62.56	7.41E+02	AG-110M
	33	702.84	700 -	706	702.93	8.42E+01	77.42	1.03E+03	NB-94
	34	720.14	716 -	724	720.23	1.46E+02	92.48	1.22E+03	SB-126
	35	741.71	738 -	745	741.79	1.06E+02	80.62	1.01E+03	.....
	36	768.45	763 -	775	768.52	1.06E+03	132.26	1.55E+03	.....
	37	786.01	780 -	791	786.07	3.63E+02	109.31	1.31E+03	.....
	38	794.69	792 -	799	794.75	7.11E+01	75.23	9.04E+02	.....
	39	806.09	802 -	810	806.15	2.66E+02	88.94	1.05E+03	.....
	40	837.43	830 -	843	837.48	2.75E+02	122.56	1.55E+03	.....
	41	912.87	910 -	916	912.89	8.91E+01	67.43	7.48E+02	.....
	42	933.95	928 -	938	933.96	4.77E+02	109.05	1.33E+03	.....
M	43	997.00	996 -	1005	996.99	2.65E+01	27.11	2.08E+02	EU-154
m	44	1001.00	996 -	1005	1000.99	1.43E+02	68.87	7.77E+02	PA-234M
	45	1051.96	1049 -	1056	1051.93	5.76E+01	67.94	7.37E+02	.....
	46	1068.72	1064 -	1074	1068.69	7.99E+01	81.70	8.48E+02	.....
	47	1078.87	1075 -	1082	1078.83	6.41E+01	61.02	5.74E+02	.....
	48	1094.05	1091 -	1097	1094.01	4.40E+01	53.54	4.94E+02	LU-172
	49	1120.14	1113 -	1127	1120.09	2.21E+03	138.16	1.07E+03	BI-214 SC-46
	50	1155.11	1151 -	1159	1155.05	1.54E+02	75.66	7.83E+02	.....
	51	1182.29	1178 -	1186	1182.21	5.73E+01	65.13	6.19E+02	.....
	52	1207.17	1203 -	1212	1207.09	5.94E+01	70.89	6.81E+02	.....
	53	1218.56	1215 -	1222	1218.48	5.63E+01	54.48	4.59E+02	.....
	54	1238.09	1233 -	1244	1238.00	7.99E+02	95.31	7.30E+02	CO-56
	55	1280.73	1276 -	1285	1280.63	2.07E+02	68.10	5.43E+02	.....
	56	1377.46	1372 -	1381	1377.33	5.21E+02	78.59	5.85E+02	.....
	57	1385.08	1382 -	1388	1384.94	9.65E+01	50.84	4.01E+02	AG-110M
	58	1401.27	1394 -	1404	1401.13	1.12E+02	72.92	6.49E+02	.....
	59	1407.60	1404 -	1411	1407.46	2.59E+02	61.12	4.53E+02	EU-152
	60	1460.57	1454 -	1466	1460.40	1.98E+02	77.73	6.17E+02	K-40
	61	1508.75	1503 -	1514	1508.56	2.71E+02	79.20	6.50E+02	.....
	62	1583.08	1579 -	1586	1582.87	6.52E+01	47.87	3.36E+02	.....
	63	1598.29	1590 -	1606	1598.07	1.14E+02	81.86	5.94E+02	.....
	64	1660.92	1655 -	1665	1660.69	1.71E+02	49.99	2.41E+02	.....
	65	1683.56	1679 -	1687	1683.32	5.39E+01	32.55	1.28E+02	.....
	66	1692.81	1688 -	1698	1692.57	6.45E+01	40.85	1.91E+02	.....
	67	1713.58	1711 -	1716	1713.33	2.04E+01	22.27	8.11E+01	.....
	68	1729.49	1723 -	1735	1729.23	3.40E+02	59.68	2.56E+02	.....
	69	1764.19	1758 -	1770	1763.93	1.68E+03	89.00	1.42E+02	BI-214
	70	1813.68	1807 -	1819	1813.40	4.09E+01	34.01	1.16E+02	.....
M	71	1838.33	1833 -	1851	1838.03	3.12E+01	26.00	1.30E+02	.....

Analysis Report for 1707089-12

HTC-A04-S002-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
m	72	1847.36	1833 -	1851	1847.06	2.19E+02	37.79	8.35E+01	.....
	73	1936.56	1932 -	1939	1936.24	3.04E+01	24.90	8.12E+01	.....
M	74	2016.15	2012 -	2029	2015.80	2.19E+01	18.74	5.10E+01	.....
m	75	2023.53	2012 -	2029	2023.17	1.83E+01	25.56	6.41E+01	.....
	76	2108.16	2103 -	2112	2107.78	1.96E+01	17.97	3.48E+01	.....
	77	2118.18	2113 -	2123	2117.79	1.15E+02	29.50	5.50E+01	.....
	78	2146.60	2143 -	2148	2146.20	1.11E+01	10.82	1.38E+01	.....
M	79	2167.26	2164 -	2176	2166.85	1.46E+01	8.83	6.00E+00	.....
m	80	2173.82	2164 -	2176	2173.42	1.62E+01	9.82	7.00E+00	.....
	81	2203.74	2199 -	2208	2203.33	4.26E+02	46.49	6.69E+01	BI-214
	82	2294.04	2287 -	2299	2293.59	2.10E+01	21.53	4.19E+01	.....
	83	2398.98	2394 -	2402	2398.50	8.00E+00	5.66	0.00E+00	.....
	84	2447.29	2440 -	2451	2446.80	1.39E+02	25.53	1.20E+01	.....
	85	2614.26	2609 -	2617	2613.70	2.07E+01	10.59	4.61E+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 : 8/23/2017 10:18:53AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	16.46	2.70E+02	198.93	1.90E-04	1.73E-03
	2	46.68	1.32E+03	243.68	1.73E-02	1.73E-03
	3	53.24	3.79E+02	254.78	2.08E-02	1.73E-03
	4	63.34	2.98E+03	314.61	2.44E-02	1.80E-03
	5	76.50	1.40E+04	609.38	2.67E-02	2.04E-03
M	6	84.63	1.25E+03	185.53	2.71E-02	2.20E-03
m	7	87.67	2.88E+03	353.79	2.72E-02	2.25E-03
m	8	92.78	5.59E+03	362.38	2.71E-02	2.24E-03
	9	113.37	2.59E+02	256.03	2.59E-02	2.16E-03
	10	144.05	5.89E+02	289.54	2.32E-02	1.87E-03
	11	154.61	2.26E+02	247.94	2.22E-02	1.75E-03
	12	164.22	3.88E+02	234.83	2.14E-02	1.65E-03
	13	186.17	5.19E+03	368.97	1.96E-02	1.55E-03
	14	206.29	1.47E+02	177.54	1.81E-02	1.47E-03
M	15	236.25	4.35E+02	181.58	1.63E-02	1.35E-03
m	16	238.77	3.39E+02	189.64	1.61E-02	1.34E-03

Analysis Report for 1707089-12

HTC-A04-S002-2430-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	17	242.14	4.44E+03	221.46	1.59E-02	1.33E-03
	18	257.63	5.39E+02	290.26	1.51E-02	1.26E-03
	19	270.34	3.39E+02	209.34	1.45E-02	1.21E-03
	20	295.39	9.15E+03	281.72	1.35E-02	1.15E-03
	21	322.77	2.37E+02	165.92	1.25E-02	1.09E-03
	22	352.04	1.53E+04	332.96	1.15E-02	1.03E-03
	23	388.37	2.07E+02	151.16	1.06E-02	9.59E-04
	24	401.81	1.28E+02	153.10	1.03E-02	9.39E-04
	25	418.41	1.26E+02	113.15	9.88E-03	9.17E-04
	26	427.91	1.31E+02	124.63	9.69E-03	9.04E-04
	27	480.29	1.32E+02	95.64	8.73E-03	8.35E-04
	28	487.35	1.22E+02	102.11	8.61E-03	8.26E-04
	29	511.68	3.92E+02	162.59	8.24E-03	7.93E-04
	30	609.38	1.07E+04	235.88	7.04E-03	6.64E-04
	31	665.07	3.46E+02	116.65	6.51E-03	5.92E-04
	32	677.12	5.45E+01	62.56	6.40E-03	5.81E-04
	33	702.84	8.42E+01	77.42	6.19E-03	5.58E-04
	34	720.14	1.46E+02	92.48	6.06E-03	5.43E-04
	35	741.71	1.06E+02	80.62	5.90E-03	5.24E-04
	36	768.45	1.06E+03	132.26	5.72E-03	5.00E-04
	37	786.01	3.63E+02	109.31	5.61E-03	4.85E-04
	38	794.69	7.11E+01	75.23	5.55E-03	4.77E-04
	39	806.09	2.66E+02	88.94	5.48E-03	4.67E-04
	40	837.43	2.75E+02	122.56	5.30E-03	4.40E-04
	41	912.87	8.91E+01	67.43	4.91E-03	3.84E-04
	42	933.95	4.77E+02	109.05	4.82E-03	3.80E-04
M	43	997.00	2.65E+01	27.11	4.55E-03	3.70E-04
m	44	1001.00	1.43E+02	68.87	4.53E-03	3.69E-04
	45	1051.96	5.76E+01	67.94	4.34E-03	3.61E-04
	46	1068.72	7.99E+01	81.70	4.29E-03	3.58E-04
	47	1078.87	6.41E+01	61.02	4.25E-03	3.56E-04
	48	1094.05	4.40E+01	53.54	4.20E-03	3.54E-04
	49	1120.14	2.21E+03	138.16	4.12E-03	3.50E-04
	50	1155.11	1.54E+02	75.66	4.01E-03	3.44E-04
	51	1182.29	5.73E+01	65.13	3.93E-03	3.38E-04
	52	1207.17	5.94E+01	70.89	3.87E-03	3.31E-04
	53	1218.56	5.63E+01	54.48	3.84E-03	3.28E-04
	54	1238.09	7.99E+02	95.31	3.79E-03	3.22E-04
	55	1280.73	2.07E+02	68.10	3.68E-03	3.10E-04
	56	1377.46	5.21E+02	78.59	3.47E-03	2.88E-04
	57	1385.08	9.65E+01	50.84	3.45E-03	2.87E-04
	58	1401.27	1.12E+02	72.92	3.42E-03	2.85E-04
	59	1407.60	2.59E+02	61.12	3.41E-03	2.84E-04
	60	1460.57	1.98E+02	77.73	3.31E-03	2.75E-04
	61	1508.75	2.71E+02	79.20	3.23E-03	2.67E-04
	62	1583.08	6.52E+01	47.87	3.11E-03	2.55E-04
	63	1598.29	1.14E+02	81.86	3.09E-03	2.53E-04
	64	1660.92	1.71E+02	49.99	3.00E-03	2.43E-04
	65	1683.56	5.39E+01	32.55	2.97E-03	2.39E-04
	66	1692.81	6.45E+01	40.85	2.95E-03	2.38E-04
	67	1713.58	2.04E+01	22.27	2.93E-03	2.35E-04
	68	1729.49	3.40E+02	59.68	2.91E-03	2.32E-04
	69	1764.19	1.68E+03	89.00	2.87E-03	2.27E-04

Analysis Report for 1707089-12

HTC-A04-S002-2430-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	70	1813.68	4.09E+01	34.01	2.81E-03	2.19E-04
M	71	1838.33	3.12E+01	26.00	2.78E-03	2.15E-04
m	72	1847.36	2.19E+02	37.79	2.77E-03	2.15E-04
	73	1936.56	3.04E+01	24.90	2.68E-03	2.15E-04
M	74	2016.15	2.19E+01	18.74	2.61E-03	2.15E-04
m	75	2023.53	1.83E+01	25.56	2.60E-03	2.15E-04
	76	2108.16	1.96E+01	17.97	2.53E-03	2.15E-04
	77	2118.18	1.15E+02	29.50	2.53E-03	2.15E-04
	78	2146.60	1.11E+01	10.82	2.51E-03	2.15E-04
M	79	2167.26	1.46E+01	8.83	2.49E-03	2.15E-04
m	80	2173.82	1.62E+01	9.82	2.49E-03	2.15E-04
	81	2203.74	4.26E+02	46.49	2.46E-03	2.15E-04
	82	2294.04	2.10E+01	21.53	2.41E-03	2.15E-04
	83	2398.98	8.00E+00	5.66	2.34E-03	2.15E-04
	84	2447.29	1.39E+02	25.53	2.32E-03	2.15E-04
	85	2614.26	2.07E+01	10.59	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 : 8/23/2017 10:18:53AM

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	16.46	2.70E+02	198.93			2.70E+02	1.99E+02
	2	46.68	1.32E+03	243.68	4.47E+01	1.09E+01	1.28E+03	2.44E+02
	3	53.24	3.79E+02	254.78			3.79E+02	2.55E+02
	4	63.34	2.98E+03	314.61	4.12E+01	5.67E+00	2.93E+03	3.15E+02
	5	76.50	1.40E+04	609.38			1.40E+04	6.09E+02
M	6	84.63	1.25E+03	185.53	5.71E+00	6.69E+00	1.24E+03	1.86E+02
m	7	87.67	2.88E+03	353.79			2.88E+03	3.54E+02
m	8	92.78	5.59E+03	362.38	7.98E+01	7.31E+00	5.51E+03	3.62E+02
	9	113.37	2.59E+02	256.03			2.59E+02	2.56E+02
	10	144.05	5.89E+02	289.54			5.89E+02	2.90E+02
	11	154.61	2.26E+02	247.94			2.26E+02	2.48E+02
	12	164.22	3.88E+02	234.83			3.88E+02	2.35E+02
	13	186.17	5.19E+03	368.97	3.06E+01	5.82E+00	5.16E+03	3.69E+02
	14	206.29	1.47E+02	177.54			1.47E+02	1.78E+02

Analysis Report for 1707089-12

HTC-A04-S002-2430-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	15	236.25	4.35E+02	181.58			4.35E+02	1.82E+02
m	16	238.77	3.39E+02	189.64	1.40E+01	2.71E+00	3.25E+02	1.90E+02
m	17	242.14	4.44E+03	221.46			4.44E+03	2.21E+02
	18	257.63	5.39E+02	290.26			5.39E+02	2.90E+02
	19	270.34	3.39E+02	209.34			3.39E+02	2.09E+02
	20	295.39	9.15E+03	281.72			9.15E+03	2.82E+02
	21	322.77	2.37E+02	165.92			2.37E+02	1.66E+02
	22	352.04	1.53E+04	332.96	6.53E+00	4.43E+00	1.53E+04	3.33E+02
	23	388.37	2.07E+02	151.16			2.07E+02	1.51E+02
	24	401.81	1.28E+02	153.10			1.28E+02	1.53E+02
	25	418.41	1.26E+02	113.15			1.26E+02	1.13E+02
	26	427.91	1.31E+02	124.63			1.31E+02	1.25E+02
	27	480.29	1.32E+02	95.64			1.32E+02	9.56E+01
	28	487.35	1.22E+02	102.11			1.22E+02	1.02E+02
	29	511.68	3.92E+02	162.59	5.21E+01	4.74E+00	3.40E+02	1.63E+02
	30	609.38	1.07E+04	235.88	3.25E+00	2.97E+00	1.07E+04	2.36E+02
	31	665.07	3.46E+02	116.65			3.46E+02	1.17E+02
	32	677.12	5.45E+01	62.56			5.45E+01	6.26E+01
	33	702.84	8.42E+01	77.42			8.42E+01	7.74E+01
	34	720.14	1.46E+02	92.48			1.46E+02	9.25E+01
	35	741.71	1.06E+02	80.62			1.06E+02	8.06E+01
	36	768.45	1.06E+03	132.26			1.06E+03	1.32E+02
	37	786.01	3.63E+02	109.31			3.63E+02	1.09E+02
	38	794.69	7.11E+01	75.23	0.00E+00	0.00E+00	7.11E+01	7.52E+01
	39	806.09	2.66E+02	88.94			2.66E+02	8.89E+01
	40	837.43	2.75E+02	122.56			2.75E+02	1.23E+02
	41	912.87	8.91E+01	67.43			8.91E+01	6.74E+01
	42	933.95	4.77E+02	109.05			4.77E+02	1.09E+02
M	43	997.00	2.65E+01	27.11			2.65E+01	2.71E+01
m	44	1001.00	1.43E+02	68.87			1.43E+02	6.89E+01
	45	1051.96	5.76E+01	67.94			5.76E+01	6.79E+01
	46	1068.72	7.99E+01	81.70			7.99E+01	8.17E+01
	47	1078.87	6.41E+01	61.02			6.41E+01	6.10E+01
	48	1094.05	4.40E+01	53.54			4.40E+01	5.35E+01
	49	1120.14	2.21E+03	138.16			2.21E+03	1.38E+02
	50	1155.11	1.54E+02	75.66			1.54E+02	7.57E+01
	51	1182.29	5.73E+01	65.13			5.73E+01	6.51E+01
	52	1207.17	5.94E+01	70.89			5.94E+01	7.09E+01
	53	1218.56	5.63E+01	54.48			5.63E+01	5.45E+01
	54	1238.09	7.99E+02	95.31			7.99E+02	9.53E+01
	55	1280.73	2.07E+02	68.10			2.07E+02	6.81E+01
	56	1377.46	5.21E+02	78.59			5.21E+02	7.86E+01
	57	1385.08	9.65E+01	50.84			9.65E+01	5.08E+01
	58	1401.27	1.12E+02	72.92			1.12E+02	7.29E+01
	59	1407.60	2.59E+02	61.12			2.59E+02	6.11E+01
	60	1460.57	1.98E+02	77.73	1.00E+00	1.77E+00	1.97E+02	7.77E+01
	61	1508.75	2.71E+02	79.20			2.71E+02	7.92E+01
	62	1583.08	6.52E+01	47.87			6.52E+01	4.79E+01
	63	1598.29	1.14E+02	81.86			1.14E+02	8.19E+01
	64	1660.92	1.71E+02	49.99			1.71E+02	5.00E+01
	65	1683.56	5.39E+01	32.55			5.39E+01	3.25E+01
	66	1692.81	6.45E+01	40.85			6.45E+01	4.08E+01
	67	1713.58	2.04E+01	22.27			2.04E+01	2.23E+01
	68	1729.49	3.40E+02	59.68			3.40E+02	5.97E+01

Analysis Report for 1707089-12

HTC-A04-S002-2430-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	69	1764.19	1.68E+03	89.00			1.68E+03	8.90E+01
	70	1813.68	4.09E+01	34.01			4.09E+01	3.40E+01
M	71	1838.33	3.12E+01	26.00			3.12E+01	2.60E+01
m	72	1847.36	2.19E+02	37.79			2.19E+02	3.78E+01
	73	1936.56	3.04E+01	24.90			3.04E+01	2.49E+01
M	74	2016.15	2.19E+01	18.74			2.19E+01	1.87E+01
m	75	2023.53	1.83E+01	25.56			1.83E+01	2.56E+01
	76	2108.16	1.96E+01	17.97			1.96E+01	1.80E+01
	77	2118.18	1.15E+02	29.50			1.15E+02	2.95E+01
	78	2146.60	1.11E+01	10.82			1.11E+01	1.08E+01
M	79	2167.26	1.46E+01	8.83			1.46E+01	8.83E+00
m	80	2173.82	1.62E+01	9.82			1.62E+01	9.82E+00
	81	2203.74	4.26E+02	46.49			4.26E+02	4.65E+01
	82	2294.04	2.10E+01	21.53			2.10E+01	2.15E+01
	83	2398.98	8.00E+00	5.66			8.00E+00	5.66E+00
	84	2447.29	1.39E+02	25.53			1.39E+02	2.55E+01
	85	2614.26	2.07E+01	10.59	1.86E+00	1.12E+00	1.88E+01	1.07E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/23/2017 10:18:53AM

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	16.46	2.70E+02	198.93			2.70E+02	1.99E+02
	2	46.68	1.32E+03	243.68	4.47E+01	1.09E+01	1.28E+03	2.44E+02
	3	53.24	3.79E+02	254.78			3.79E+02	2.55E+02
	4	63.34	2.98E+03	314.61	4.12E+01	5.67E+00	2.93E+03	3.15E+02
	5	76.50	1.40E+04	609.38			1.40E+04	6.09E+02
M	6	84.63	1.25E+03	185.53	5.71E+00	6.69E+00	1.24E+03	1.86E+02
m	7	87.67	2.88E+03	353.79			2.88E+03	3.54E+02
m	8	92.78	5.59E+03	362.38	7.98E+01	7.31E+00	5.51E+03	3.62E+02
	9	113.37	2.59E+02	256.03			2.59E+02	2.56E+02
	10	144.05	5.89E+02	289.54			5.89E+02	2.90E+02
	11	154.61	2.26E+02	247.94			2.26E+02	2.48E+02

Analysis Report for 1707089-12

HTC-A04-S002-2430-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	12	164.22	3.88E+02	234.83			3.88E+02	2.35E+02
	13	186.17	5.19E+03	368.97	3.06E+01	5.82E+00	5.16E+03	3.69E+02
	14	206.29	1.47E+02	177.54			1.47E+02	1.78E+02
M	15	236.25	4.35E+02	181.58			4.35E+02	1.82E+02
m	16	238.77	3.39E+02	189.64	1.40E+01	2.71E+00	3.25E+02	1.90E+02
m	17	242.14	4.44E+03	221.46			4.44E+03	2.21E+02
	18	257.63	5.39E+02	290.26			5.39E+02	2.90E+02
	19	270.34	3.39E+02	209.34			3.39E+02	2.09E+02
	20	295.39	9.15E+03	281.72			9.15E+03	2.82E+02
	21	322.77	2.37E+02	165.92			2.37E+02	1.66E+02
	22	352.04	1.53E+04	332.96	6.53E+00	4.43E+00	1.53E+04	3.33E+02
	23	388.37	2.07E+02	151.16			2.07E+02	1.51E+02
	24	401.81	1.28E+02	153.10			1.28E+02	1.53E+02
	25	418.41	1.26E+02	113.15			1.26E+02	1.13E+02
	26	427.91	1.31E+02	124.63			1.31E+02	1.25E+02
	27	480.29	1.32E+02	95.64			1.32E+02	9.56E+01
	28	487.35	1.22E+02	102.11			1.22E+02	1.02E+02
	29	511.68	3.92E+02	162.59	5.21E+01	4.74E+00	3.40E+02	1.63E+02
	30	609.38	1.07E+04	235.88	3.25E+00	2.97E+00	1.07E+04	2.36E+02
	31	665.07	3.46E+02	116.65			3.46E+02	1.17E+02
	32	677.12	5.45E+01	62.56			5.45E+01	6.26E+01
	33	702.84	8.42E+01	77.42			8.42E+01	7.74E+01
	34	720.14	1.46E+02	92.48			1.46E+02	9.25E+01
	35	741.71	1.06E+02	80.62			1.06E+02	8.06E+01
	36	768.45	1.06E+03	132.26			1.06E+03	1.32E+02
	37	786.01	3.63E+02	109.31			3.63E+02	1.09E+02
	38	794.69	7.11E+01	75.23	0.00E+00	0.00E+00	7.11E+01	7.52E+01
	39	806.09	2.66E+02	88.94			2.66E+02	8.89E+01
	40	837.43	2.75E+02	122.56			2.75E+02	1.23E+02
	41	912.87	8.91E+01	67.43			8.91E+01	6.74E+01
	42	933.95	4.77E+02	109.05			4.77E+02	1.09E+02
M	43	997.00	2.65E+01	27.11			2.65E+01	2.71E+01
m	44	1001.00	1.43E+02	68.87			1.43E+02	6.89E+01
	45	1051.96	5.76E+01	67.94			5.76E+01	6.79E+01
	46	1068.72	7.99E+01	81.70			7.99E+01	8.17E+01
	47	1078.87	6.41E+01	61.02			6.41E+01	6.10E+01
	48	1094.05	4.40E+01	53.54			4.40E+01	5.35E+01
	49	1120.14	2.21E+03	138.16			2.21E+03	1.38E+02
	50	1155.11	1.54E+02	75.66			1.54E+02	7.57E+01
	51	1182.29	5.73E+01	65.13			5.73E+01	6.51E+01
	52	1207.17	5.94E+01	70.89			5.94E+01	7.09E+01
	53	1218.56	5.63E+01	54.48			5.63E+01	5.45E+01
	54	1238.09	7.99E+02	95.31			7.99E+02	9.53E+01
	55	1280.73	2.07E+02	68.10			2.07E+02	6.81E+01
	56	1377.46	5.21E+02	78.59			5.21E+02	7.86E+01
	57	1385.08	9.65E+01	50.84			9.65E+01	5.08E+01
	58	1401.27	1.12E+02	72.92			1.12E+02	7.29E+01
	59	1407.60	2.59E+02	61.12			2.59E+02	6.11E+01
	60	1460.57	1.98E+02	77.73	1.00E+00	1.77E+00	1.97E+02	7.77E+01
	61	1508.75	2.71E+02	79.20			2.71E+02	7.92E+01
	62	1583.08	6.52E+01	47.87			6.52E+01	4.79E+01
	63	1598.29	1.14E+02	81.86			1.14E+02	8.19E+01
	64	1660.92	1.71E+02	49.99			1.71E+02	5.00E+01
	65	1683.56	5.39E+01	32.55			5.39E+01	3.25E+01

Analysis Report for 1707089-12

HTC-A04-S002-2430-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	66	1692.81	6.45E+01	40.85			6.45E+01	4.08E+01
	67	1713.58	2.04E+01	22.27			2.04E+01	2.23E+01
	68	1729.49	3.40E+02	59.68			3.40E+02	5.97E+01
	69	1764.19	1.68E+03	89.00			1.68E+03	8.90E+01
	70	1813.68	4.09E+01	34.01			4.09E+01	3.40E+01
M	71	1838.33	3.12E+01	26.00			3.12E+01	2.60E+01
m	72	1847.36	2.19E+02	37.79			2.19E+02	3.78E+01
	73	1936.56	3.04E+01	24.90			3.04E+01	2.49E+01
M	74	2016.15	2.19E+01	18.74			2.19E+01	1.87E+01
m	75	2023.53	1.83E+01	25.56			1.83E+01	2.56E+01
	76	2108.16	1.96E+01	17.97			1.96E+01	1.80E+01
	77	2118.18	1.15E+02	29.50			1.15E+02	2.95E+01
	78	2146.60	1.11E+01	10.82			1.11E+01	1.08E+01
M	79	2167.26	1.46E+01	8.83			1.46E+01	8.83E+00
m	80	2173.82	1.62E+01	9.82			1.62E+01	9.82E+00
	81	2203.74	4.26E+02	46.49			4.26E+02	4.65E+01
	82	2294.04	2.10E+01	21.53			2.10E+01	2.15E+01
	83	2398.98	8.00E+00	5.66			8.00E+00	5.66E+00
	84	2447.29	1.39E+02	25.53			1.39E+02	2.55E+01
	85	2614.26	2.07E+01	10.59	1.86E+00	1.12E+00	1.88E+01	1.07E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.990	1460.81	*	10.67	5.69E+00	2.29E+00
NB-93M	0.998	16.57	*	9.43	1.56E+02	1.42E+03
CD-109	0.979	88.03	*	3.72	3.37E+01	5.38E+00
SN-126	0.998	87.57	*	37.00	2.92E+00	4.33E-01
PB-210	0.995	46.50	*	4.25	1.78E+01	3.83E+00
PB-212	0.893	238.63	*	44.60	4.60E-01	2.71E-01
		300.09		3.41		
BI-214	0.994	609.31	*	46.30	3.34E+01	3.24E+00
		1120.29	*	15.10	3.62E+01	3.82E+00
		1764.49	*	15.80	3.77E+01	3.59E+00
		2204.22	*	4.98	3.53E+01	4.94E+00

Analysis Report for 1707089-12

HTC-A04-S002-2430-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PB-214	0.997	295.21	*	19.19	3.61E+01	3.27E+00
		351.92	*	37.19	3.62E+01	3.34E+00
RN-219	1.000	401.80	*	6.50	1.96E+00	2.35E+00
RA-226	1.000	186.21	*	3.28	8.18E+01	1.50E+02
TH-231	0.300	25.64		14.70		
		84.21	*	6.40	7.30E+00	1.24E+00
PA-234M	1.000	1001.03	*	0.92	3.49E+01	1.70E+01
TH-234	1.000	63.29	*	3.80	3.22E+01	4.19E+00
U-235	0.931	143.76	*	10.50	2.46E+00	1.28E+00
		163.35	*	4.70	3.93E+00	2.49E+00
		205.31	*	4.70	1.76E+00	2.15E+00

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 10:18:53AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	53.24	1.05243E-01	33.62		
	5	76.50	3.88211E+00	2.18		
m	8	92.78	1.53007E+00	3.29	Sum	
	9	113.37	7.18815E-02	49.47		
	11	154.61	6.27650E-02	54.86		
M	15	236.25	1.20955E-01	20.85	Tol.	NB-95M TH-227
m	17	242.14	1.23365E+00	2.49		
	18	257.63	1.49683E-01	26.93		
	19	270.34	9.42478E-02	30.85	Sum	
	21	322.77	6.57991E-02	35.02	Sum	
	23	388.37	5.74792E-02	36.52		
	25	418.41	3.49462E-02	44.97	Sum	
	26	427.91	3.65118E-02	47.41	Tol.	SB-125
	27	480.29	3.66213E-02	36.27		
	28	487.35	3.40196E-02	41.69	Sum	
	29	511.68	9.44250E-02	23.93		
	31	665.07	9.61014E-02	16.86	Tol.	CE-143

Analysis Report for 1707089-12

HTC-A04-S002-2430-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	32	677.12	1.51497E-02	57.36	Tol.	AG-110M
	33	702.84	2.33844E-02	45.98	Tol.	NB-94
	34	720.14	4.04387E-02	31.76	Tol.	SB-126
	35	741.71	2.94299E-02	38.05	D-Esc	
	36	768.45	2.95727E-01	6.21		
	37	786.01	1.00875E-01	15.05		
	38	794.69	1.97581E-02	52.88	Sum	
	39	806.09	7.39089E-02	16.71		
	40	837.43	7.64940E-02	22.25		
	41	912.87	2.47417E-02	37.85		
	42	933.95	1.32631E-01	11.42		
M	43	997.00	7.37060E-03	51.09	Tol.	EU-154
	45	1051.96	1.60074E-02	58.95		
	46	1068.72	2.22002E-02	51.11		
	47	1078.87	1.77932E-02	47.63		
	48	1094.05	1.22136E-02	60.89	Tol.	LU-172
	50	1155.11	4.27008E-02	24.61		
	51	1182.29	1.59155E-02	56.84	D-Esc	
	52	1207.17	1.65021E-02	59.66	Sum	
	53	1218.56	1.56371E-02	48.39	Sum	
	54	1238.09	2.21972E-01	5.96		
	55	1280.73	5.74117E-02	16.47		
	56	1377.46	1.44601E-01	7.55		
	57	1385.08	2.68018E-02	26.34	Tol.	AG-110M
	58	1401.27	3.12192E-02	32.44		
	59	1407.60	7.20645E-02	11.78		
	61	1508.75	7.52214E-02	14.62		
	62	1583.08	1.81009E-02	36.73		
	63	1598.29	3.16998E-02	35.87		
	64	1660.92	4.75799E-02	14.59		
	65	1683.56	1.49706E-02	30.19		
	66	1692.81	1.79253E-02	31.65	S-Esc	
	67	1713.58	5.67851E-03	54.47		
	68	1729.49	9.44539E-02	8.78	Sum	
	70	1813.68	1.13749E-02	41.52		
M	71	1838.33	8.66964E-03	41.65		
m	72	1847.36	6.09523E-02	8.61		
	73	1936.56	8.43897E-03	40.98		
M	74	2016.15	6.07114E-03	42.88		
m	75	2023.53	5.07300E-03	69.97		
	76	2108.16	5.43919E-03	45.89		
	77	2118.18	3.18056E-02	12.88		
	78	2146.60	3.07870E-03	48.80		
M	79	2167.26	4.06269E-03	30.19		
m	80	2173.82	4.49064E-03	30.38		
	82	2294.04	5.84325E-03	51.19		
	83	2398.98	2.22222E-03	35.36		
	84	2447.29	3.86111E-02	9.18		
	85	2614.26	5.23267E-03	28.28	Tol.	TL-208

Analysis Report for 1707089-12

HTC-A04-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 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	5.69E+00	2.29E+00
NB-93M	0.99	16.57	*	9.43	1.56E+02	1.42E+03
CD-109	0.97	88.03	*	3.72	3.37E+01	5.38E+00
SN-126	0.99	87.57	*	37.00	2.92E+00	4.33E-01
PB-210	0.99	46.50	*	4.25	1.78E+01	3.83E+00
PB-212	0.89	238.63	*	44.60	4.60E-01	2.71E-01
		300.09		3.41		
BI-214	0.99	609.31	*	46.30	3.34E+01	3.24E+00
		1120.29	*	15.10	3.62E+01	3.82E+00
		1764.49	*	15.80	3.77E+01	3.59E+00
		2204.22	*	4.98	3.53E+01	4.94E+00
PB-214	0.99	295.21	*	19.19	3.61E+01	3.27E+00
		351.92	*	37.19	3.62E+01	3.34E+00
RN-219	1.00	401.80	*	6.50	1.96E+00	2.35E+00
RA-226	1.00	186.21	*	3.28	8.18E+01	1.50E+02
TH-231	0.30	25.64		14.70		
		84.21	*	6.40	7.30E+00	1.24E+00
PA-234M	1.00	1001.03	*	0.92	3.49E+01	1.70E+01
TH-234	1.00	63.29	*	3.80	3.22E+01	4.19E+00
U-235	0.93	143.76	*	10.50	2.46E+00	1.28E+00
		163.35	*	4.70	3.93E+00	2.49E+00
		205.31	*	4.70	1.76E+00	2.15E+00

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

Analysis Report for 1707089-12

HTC-A04-S002-2430-01

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.990	5.69E+00	2.29E+00	
	NB-93M	0.998	1.56E+02	1.42E+03	
?	CD-109	0.979	3.37E+01	5.38E+00	
?	SN-126	0.998	2.92E+00	4.33E-01	
	PB-210	0.995	1.78E+01	3.83E+00	
	PB-212	0.893	4.60E-01	2.71E-01	
	BI-214	0.994	3.56E+01	1.88E+00	
	PB-214	0.997	3.62E+01	2.33E+00	
	RN-219	1.000	1.96E+00	2.35E+00	
	RA-226	1.000	8.18E+01	1.50E+02	
	TH-231	0.300	7.30E+00	1.24E+00	
	PA-234M	1.000	3.49E+01	1.70E+01	
	TH-234	1.000	3.22E+01	4.19E+00	
	U-235	0.931	2.55E+00	1.01E+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 1707089-12

HTC-A04-S002-2430-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 10:18:53AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	53.24	1.05243E-01	33.62		
	5	76.50	3.88211E+00	2.18		
m	8	92.78	1.53007E+00	3.29	Sum	
	9	113.37	7.18815E-02	49.47		
	11	154.61	6.27650E-02	54.86		
M	15	236.25	1.20955E-01	20.85	Tol.	NB-95M TH-227
m	17	242.14	1.23365E+00	2.49		
	18	257.63	1.49683E-01	26.93		
	19	270.34	9.42478E-02	30.85	Sum	
	21	322.77	6.57991E-02	35.02	Sum	
	23	388.37	5.74792E-02	36.52		
	25	418.41	3.49462E-02	44.97	Sum	
	26	427.91	3.65118E-02	47.41	Tol.	SB-125
	27	480.29	3.66213E-02	36.27		
	28	487.35	3.40196E-02	41.69	Sum	
	29	511.68	9.44250E-02	23.93		
	31	665.07	9.61014E-02	16.86	Tol.	CE-143
	32	677.12	1.51497E-02	57.36	Tol.	AG-110M
	33	702.84	2.33844E-02	45.98	Tol.	NB-94
	34	720.14	4.04387E-02	31.76	Tol.	SB-126
	35	741.71	2.94299E-02	38.05	D-Esc	
	36	768.45	2.95727E-01	6.21		
	37	786.01	1.00875E-01	15.05		
	38	794.69	1.97581E-02	52.88	Sum	
	39	806.09	7.39089E-02	16.71		
	40	837.43	7.64940E-02	22.25		
	41	912.87	2.47417E-02	37.85		
	42	933.95	1.32631E-01	11.42		
M	43	997.00	7.37060E-03	51.09	Tol.	EU-154
	45	1051.96	1.60074E-02	58.95		
	46	1068.72	2.22002E-02	51.11		
	47	1078.87	1.77932E-02	47.63		
	48	1094.05	1.22136E-02	60.89	Tol.	LU-172
	50	1155.11	4.27008E-02	24.61		

Analysis Report for 1707089-12

HTC-A04-S002-2430-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	51	1182.29	1.59155E-02	56.84	D-Esc	
	52	1207.17	1.65021E-02	59.66	Sum	
	53	1218.56	1.56371E-02	48.39	Sum	
	54	1238.09	2.21972E-01	5.96		
	55	1280.73	5.74117E-02	16.47		
	56	1377.46	1.44601E-01	7.55		
	57	1385.08	2.68018E-02	26.34	Tol.	AG-110M
	58	1401.27	3.12192E-02	32.44		
	59	1407.60	7.20645E-02	11.78		
	61	1508.75	7.52214E-02	14.62		
	62	1583.08	1.81009E-02	36.73		
	63	1598.29	3.16998E-02	35.87		
	64	1660.92	4.75799E-02	14.59		
	65	1683.56	1.49706E-02	30.19		
	66	1692.81	1.79253E-02	31.65	S-Esc	
	67	1713.58	5.67851E-03	54.47		
	68	1729.49	9.44539E-02	8.78	Sum	
	70	1813.68	1.13749E-02	41.52		
M	71	1838.33	8.66964E-03	41.65		
m	72	1847.36	6.09523E-02	8.61		
	73	1936.56	8.43897E-03	40.98		
M	74	2016.15	6.07114E-03	42.88		
m	75	2023.53	5.07300E-03	69.97		
	76	2108.16	5.43919E-03	45.89		
	77	2118.18	3.18056E-02	12.88		
	78	2146.60	3.07870E-03	48.80		
M	79	2167.26	4.06269E-03	30.19		
m	80	2173.82	4.49064E-03	30.38		
	82	2294.04	5.84325E-03	51.19		
	83	2398.98	2.22222E-03	35.36		
	84	2447.29	3.86111E-02	9.18		
	85	2614.26	5.23267E-03	28.28	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 1707089-12

HTC-A04-S002-2430-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	-2.10E+00	6.39E+00	6.39E+00
+		NA-22	1274.54		99.94	9.03E-02	2.20E-01	2.20E-01
+	@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@		2754.09		99.86	1.00E+26		1.00E+26
+		AL-26	1808.65		99.76	-9.17E-03	1.45E-01	1.45E-01
+		K-40	1460.81	*	10.67	5.69E+00	3.52E+00	3.52E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	2.06E-02	1.79E-01	1.79E-01
			78.34		96.00	2.12E+00		2.39E-01
+		SC-46	889.25		99.98	9.11E-02	4.96E-01	4.96E-01
			1120.51		99.99	1.17E+01		1.30E+00
+		V-48	983.52		99.98	-4.49E+00	1.48E+01	1.48E+01
			1312.10		97.50	-2.71E+00		1.48E+01
+		CR-51	320.08		9.83	2.34E+00	2.15E+01	2.15E+01
+		MN-54	834.83		99.97	-3.61E-01	2.54E-01	2.54E-01
+		CO-56	846.75		99.96	-3.03E-01	4.58E-01	4.58E-01
			1037.75		14.03	-2.19E+00		3.22E+00
			1238.25		67.00	7.69E+00		1.45E+00
			1771.40		15.51	1.65E-01		2.33E+00
			2598.48		16.90	-8.56E-02		6.91E-01
+		CO-57	122.06		85.51	4.79E-02	2.07E-01	2.07E-01
			136.48		10.60	-7.54E-01		1.74E+00
+		CO-58	810.76		99.40	2.34E-02	5.00E-01	5.00E-01
+		FE-59	1099.22		56.50	-3.19E-01	1.69E+00	1.69E+00
			1291.56		43.20	-2.39E-01		2.07E+00
+		CO-60	1173.22		100.00	8.83E-03	2.03E-01	2.03E-01
			1332.49		100.00	3.74E-02		2.09E-01
+		ZN-65	1115.52		50.75	-1.25E+01	6.23E-01	6.23E-01
+		GA-67	93.31		35.70	6.99E+09	7.47E+08	7.47E+08
			208.95		2.24	1.02E+09		1.16E+10
			300.22		16.00	3.92E+08		1.95E+09
+		SE-75	121.11		16.70	-4.79E-02	4.26E-01	1.44E+00
			136.00		59.20	-1.89E-01		4.26E-01
			264.65		59.80	6.14E-02		5.14E-01
			279.53		25.20	-1.61E+00		1.25E+00
			400.65		11.40	1.62E+00		3.06E+00
+		RB-82	776.52		13.00	2.91E+00	2.03E+01	2.03E+01
+		RB-83	520.41		46.00	2.42E-01	8.20E-01	8.20E-01
			529.64		30.30	-5.76E-01		1.29E+00
			552.65		16.40	3.36E-01		2.38E+00
+		KR-85	513.99		0.43	4.51E+01	4.44E+01	4.44E+01
+		SR-85	513.99		99.27	5.59E-01	5.51E-01	5.51E-01
+		Y-88	898.02		93.40	-2.21E-01	3.23E-01	4.23E-01
			1836.01		99.38	2.64E-01		3.23E-01
+		MO-93	263.06		56.72	3.69E-02	1.81E-01	3.16E-01
			684.67		99.68	1.56E-01		1.81E-01
			1477.11		99.08	8.83E-02		2.55E-01

Analysis Report for 1707089-12

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	NB-93M	16.57	*	9.43	1.56E+02	1.87E+02	1.87E+02
+	NB-94	702.63		100.00	5.76E-02	1.92E-01	1.92E-01
		871.10		100.00	4.76E-02		2.07E-01
+	NB-95	765.79		99.81	8.68E+00	2.18E+00	2.18E+00
+	NB-95M	235.69		25.00	-2.91E+08	1.42E+08	1.42E+08
+	ZR-95	724.18		43.70	-7.55E-02	9.74E-01	1.21E+00
		756.72		55.30	-3.69E-01		9.74E-01
+	MO-99	181.06		6.20	-2.81E+10	1.06E+11	1.77E+11
		739.58		12.80	9.76E+10		1.06E+11
		778.00		4.50	4.01E+10		2.74E+11
+	RU-103	497.08		89.00	2.68E-01	1.11E+00	1.11E+00
+	RU-106	621.84		9.80	-1.65E-01	2.01E+00	2.01E+00
+	AG-108M	433.93		89.90	2.76E-02	2.02E-01	2.02E-01
		614.37		90.40	-1.46E-02		3.26E-01
		722.95		90.50	-3.83E-02		2.12E-01
+	CD-109	88.03	*	3.72	3.37E+01	1.15E+01	1.15E+01
+	AG-110M	657.75		93.14	2.74E-02	2.40E-01	2.40E-01
		677.61		10.53	-3.72E-01		2.09E+00
		706.67		16.46	2.60E-01		1.49E+00
		763.93		21.98	3.59E-01		1.30E+00
		884.67		71.63	-2.44E-01		3.88E-01
		1384.27		23.94	-2.73E-01		1.33E+00
+	CD-113M	263.70		0.02	9.09E+01	7.63E+02	7.63E+02
+	SN-113	255.12		1.93	-1.43E+01	5.24E-01	1.71E+01
		391.69		64.90	3.09E-02		5.24E-01
+	TE123M	159.00		84.10	4.74E-02	3.21E-01	3.21E-01
+	SB-124	602.71		97.87	3.21E-02	5.98E-01	5.98E-01
		645.85		7.26	-9.07E-01		7.18E+00
		722.78		11.10	-9.76E-01		5.40E+00
		1691.02		49.00	-3.19E-01		1.20E+00
+	I-125	35.49		6.49	1.05E+01	1.48E+01	1.48E+01
+	SB-125	176.33		6.89	-4.85E-01	6.97E-01	2.37E+00
		427.89		29.33	1.27E-01		6.97E-01
		463.38		10.35	1.49E+00		1.93E+00
		600.56		17.80	-1.18E-01		1.12E+00
		635.90		11.32	-6.42E-01		1.53E+00
+	SB-126	414.70		83.30	7.65E+00	4.48E+01	5.89E+01
		666.33		99.60	1.23E+02		5.50E+01
		695.00		99.60	9.77E+00		4.48E+01
		720.50		53.80	1.26E+02		9.37E+01
+	SN-126	87.57	*	37.00	2.92E+00	9.93E-01	9.93E-01
+	SB-127	473.00		25.00	1.04E+07	2.79E+07	4.04E+07
		685.20		35.70	2.40E+07		2.79E+07
		783.80		14.70	1.47E+08		8.69E+07
+	I-129	29.78		57.00	-1.50E-01	9.15E-01	9.15E-01
		33.60		13.20	6.25E-01		2.68E+00
		39.58		7.52	-2.27E+00		3.09E+00
+	I-131	284.30		6.05	2.88E+03	1.08E+03	1.54E+04

Analysis Report for 1707089-12

HTC-A04-S002-2430-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	I-131	364.48	81.20	-1.75E+02	1.08E+03	1.08E+03
		636.97	7.26	-3.10E+03		1.16E+04
		722.89	1.80	-9.88E+03		5.46E+04
+	TE-132	49.72	13.10	-1.02E+10	2.92E+08	1.98E+09
		228.16	88.00	5.31E+07		2.92E+08
+	BA-133	81.00	33.00	-7.25E+00	5.27E-01	5.27E-01
		302.84	17.80	5.43E-01		1.04E+00
		356.01	60.00	7.77E-03		6.17E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-3.03E+06	2.20E+05	2.20E+05
+	CS-134	563.23	8.38	-6.82E-01	2.42E-01	2.24E+00
		569.32	15.43	-3.06E-01		1.28E+00
		604.70	97.60	-2.74E-02		3.39E-01
		795.84	85.40	1.18E-01		2.42E-01
		801.93	8.73	2.96E-01		2.43E+00
+	CS-135	268.24	16.00	1.31E-01	1.18E+00	1.18E+00
+	@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41	28.60	1.00E+26		1.00E+26
	@	1678.03	9.54	1.00E+26		1.00E+26
+	CS-136	153.22	7.46	6.70E+01	3.69E+01	3.92E+02
		163.89	4.61	8.15E+02		6.24E+02
		176.55	13.56	-4.26E+01		2.09E+02
		273.65	12.66	1.70E+02		2.81E+02
		340.57	48.50	5.08E+01		7.17E+01
		818.50	99.70	1.73E+01		3.69E+01
		1048.07	79.60	-1.36E+01		4.61E+01
		1235.34	19.70	8.03E+02		3.38E+02
+	CS-137	661.65	85.12	-1.61E-01	2.36E-01	2.36E-01
+	LA-138	788.74	34.00	5.36E-01	3.12E-01	6.33E-01
		1435.80	66.00	7.40E-02		3.12E-01
+	CE-139	165.85	80.35	1.46E-01	3.15E-01	3.15E-01
+	BA-140	162.64	6.70	4.28E+02	1.54E+02	4.99E+02
		304.84	4.50	-6.85E+02		8.40E+02
		423.70	3.20	3.22E+02		1.29E+03
		437.55	2.00	-5.51E+01		1.94E+03
		537.32	25.00	4.74E+01		1.54E+02
+	LA-140	328.77	20.50	2.13E+00	5.65E+01	1.86E+02
		487.03	45.50	6.16E+01		8.53E+01
		815.85	23.50	-1.22E+02		1.72E+02
		1596.49	95.49	4.90E+01		5.65E+01
+	CE-141	145.44	48.40	3.98E+00	2.70E+00	2.70E+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	-1.74E-01	1.66E+00	1.66E+00
+	PM-144	476.78	42.00	-1.01E-01	2.07E-01	5.21E-01
		618.01	98.60	5.41E-02		2.07E-01
		696.49	99.49	-2.93E-02		2.12E-01
+	PM-145	36.85	21.70	-7.34E-02	6.82E-01	1.29E+00

Analysis Report for 1707089-12

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PM-145	37.36	39.70	8.24E-03	6.82E-01	6.82E-01
		42.30	15.10	-6.37E-01		1.40E+00
		72.40	2.31	-6.72E+01		8.53E+00
+	PM-146	453.90	39.94	2.83E-01	4.73E-01	4.73E-01
		735.90	14.01	3.76E-01		1.33E+00
		747.13	13.10	4.05E-01		1.44E+00
+	ND-147	91.11	28.90	1.25E+02	3.42E+02	3.42E+02
		531.02	13.10	5.45E+02		7.20E+02
+	PM-149	285.90	3.10	3.98E+13	1.80E+14	1.80E+14
+	EU-152	121.78	20.50	1.57E-01	6.77E-01	6.77E-01
		244.69	5.40	4.22E+01		4.83E+00
		344.27	19.13	1.48E-01		9.73E-01
		778.89	9.20	2.84E-01		1.99E+00
		964.01	10.40	1.51E-01		2.04E+00
		1085.78	7.22	1.14E+00		2.65E+00
		1112.02	9.60	-1.76E-01		2.15E+00
		1407.95	14.94	5.65E+00		2.09E+00
+	GD-153	97.43	31.30	4.15E-01	5.77E-01	5.77E-01
		103.18	22.20	-8.68E-01		7.68E-01
+	EU-154	123.07	40.50	1.96E-01	3.48E-01	3.48E-01
		723.30	19.70	-1.80E-01		9.93E-01
		873.19	11.50	-4.08E-01		1.80E+00
		996.32	10.30	-3.55E-01		2.13E+00
		1004.76	17.90	4.79E-02		1.24E+00
		1274.45	35.50	2.42E-01		5.89E-01
+	EU-155	86.50	30.90	1.84E+00	6.04E-01	6.04E-01
		105.30	20.70	-1.63E-01		6.55E-01
+	EU-156	811.77	10.40	3.56E+01	1.66E+02	1.66E+02
		1153.47	7.20	4.57E+02		3.33E+02
		1230.71	8.90	6.11E+01		2.05E+02
+	HO-166M	184.41	72.60	3.00E+00	3.15E-01	3.15E-01
		280.45	29.60	-1.42E-01		6.04E-01
		410.94	11.10	-4.88E-01		1.71E+00
		711.69	54.10	-1.05E-01		3.27E-01
+	TM-171	66.72	0.14	6.32E+01	1.36E+02	1.36E+02
+	HF-172	67.35	5.31	4.06E-01	1.35E+00	3.52E+00
		125.81	11.30	1.19E-01		1.35E+00
+	LU-172	181.53	20.60	-1.09E+03	9.03E+03	2.17E+04
		900.72	29.81	1.08E+04		2.02E+04
		1093.66	62.50	9.94E+02		9.03E+03
+	LU-173	100.72	5.24	3.30E-01	1.07E+00	2.87E+00
		272.11	21.20	2.24E+00		1.07E+00
+	HF-175	343.40	84.00	8.83E-02	5.81E-01	5.81E-01
+	LU-176	88.34	13.30	-6.95E+00	1.80E-01	1.35E+00
		201.83	86.00	-1.22E-01		1.80E-01
		306.78	94.00	1.40E-04		1.86E-01
+	HF-181	133.02	41.70	-2.95E-01	1.13E+00	1.71E+00
		345.85	17.20	1.96E+00		5.49E+00
		482.03	82.80	-8.22E-02		1.13E+00

Analysis Report for 1707089-12

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TA-182	67.75		41.20	8.60E-02	7.45E-01	7.45E-01
		1121.30		34.90	2.70E+01		2.98E+00
		1189.05		16.23	6.66E-01		2.22E+00
		1221.41		26.98	8.17E-02		1.40E+00
		1231.02		11.44	9.41E-01		3.16E+00
+	IR-192	308.46		29.68	-5.22E-01	9.64E-01	1.48E+00
		468.07		48.10	1.42E-01		9.64E-01
+	HG-203	279.19		77.30	-4.88E-01	1.02E+00	1.02E+00
+	TL-204	374.74		94.11	7.39E-03	1.97E-01	1.97E-01
		899.15		99.16	-1.16E-01		2.21E-01
		911.74		91.10	1.98E-01		2.51E-01
+	BI-207	569.67		97.72	7.15E-03	1.87E-01	1.87E-01
		1063.62		74.90	-2.54E-02		2.62E-01
+	TL-208	583.14		30.22	1.34E-01	3.18E-01	6.26E-01
		860.37		4.48	6.81E-01		4.46E+00
		2614.66		35.85	2.16E-01		3.18E-01
+	BI-210M	262.00		45.00	7.36E-02	4.01E-01	4.01E-01
		300.00		23.00	1.94E-01		9.62E-01
+	PB-210	46.50	*	4.25	1.78E+01	5.38E+00	5.38E+00
+	PB-211	404.84		2.90	9.05E-01	6.86E+00	6.91E+00
		831.96		2.90	2.87E+00		6.86E+00
+	BI-212	727.17		11.80	-3.32E-01	1.48E+00	1.48E+00
		1620.62		2.75	-1.30E+00		7.19E+00
+	PB-212	238.63	*	44.60	4.60E-01	8.34E-01	8.34E-01
		300.09		3.41	1.31E+00		6.49E+00
+	BI-214	609.31	*	46.30	3.34E+01	5.91E-01	5.91E-01
		1120.29	*	15.10	3.62E+01		2.77E+00
		1764.49	*	15.80	3.77E+01		1.35E+00
		2204.22	*	4.98	3.53E+01		3.15E+00
+	PB-214	295.21	*	19.19	3.61E+01	8.78E-01	1.35E+00
		351.92	*	37.19	3.62E+01		8.78E-01
+	RN-219	401.80	*	6.50	1.96E+00	3.85E+00	3.85E+00
+	RA-223	323.87		3.88	4.61E+00	4.67E+00	4.67E+00
+	RA-224	240.98		3.95	6.58E+01	6.88E+00	6.88E+00
+	RA-225	40.00		31.00	-5.59E+01	7.60E+01	7.60E+01
+	RA-226	186.21	*	3.28	8.18E+01	8.91E+00	8.91E+00
+	TH-227	50.10		8.40	-1.10E+01	1.68E+00	2.13E+00
		236.00		11.50	-3.45E+00		1.68E+00
		256.20		6.30	2.02E+00		2.95E+00
+	AC-228	338.32		11.40	-2.85E-01	7.83E-01	1.63E+00
		911.07		27.70	6.70E-02		7.83E-01
		969.11		16.60	-3.05E-02		1.23E+00
+	TH-230	48.44		16.90	1.65E+00	1.18E+00	1.18E+00
		62.85		4.60	2.88E+01		4.31E+00
		67.67		0.37	5.26E+00		4.55E+01
+	PA-231	283.67		1.60	5.09E+00	7.87E+00	1.14E+01
		302.67		2.30	4.13E+00		7.87E+00
+	TH-231	25.64		14.70	3.02E+00	5.56E+00	6.74E+00

Analysis Report for 1707089-12

HTC-A04-S002-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TH-231	84.21	*	6.40	7.30E+00	5.56E+00	5.56E+00
+	PA-233	311.98		38.60	-2.23E+00	5.79E+00	5.79E+00
+	PA-234	131.20		20.40	-1.06E-01	6.86E-01	6.86E-01
		733.99		8.80	8.61E-01		2.07E+00
		946.00		12.00	2.75E-01		1.70E+00
+	PA-234M	1001.03	*	0.92	3.49E+01	3.43E+01	3.43E+01
+	TH-234	63.29	*	3.80	3.22E+01	5.36E+00	5.36E+00
+	U-235	143.76	*	10.50	2.46E+00	1.98E+00	1.98E+00
		163.35	*	4.70	3.93E+00		3.89E+00
		205.31	*	4.70	1.76E+00		3.49E+00
+	NP-237	86.50		12.60	4.35E+00	1.43E+00	1.43E+00
+	NP-239	106.10		22.70	-6.66E+11	2.68E+12	2.68E+12
		228.18		10.70	1.42E+12		7.81E+12
		277.60		14.10	2.00E+12		6.02E+12
+	AM-241	59.54		35.90	-1.78E-01	4.68E-01	4.68E-01
+	AM-243	74.67		66.00	1.61E+00	3.56E-01	3.56E-01
+	CM-243	209.75		3.29	1.25E+00	1.31E+00	5.60E+00
		228.14		10.60	3.10E-01		1.70E+00
		277.60		14.00	4.36E-01		1.31E+00

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

NUCLIDE MDA REPORT

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

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	6.39E+00	6.39E+00	-2.10E+00	3.14E+00
NA-22	1274.54	99.94	2.20E-01	2.20E-01	9.03E-02	1.06E-01
@ NA-24	1368.53	99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20

Analysis Report for 1707089-12

HTC-A04-S002-2430-01

	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	1.45E-01	1.45E-01	-9.17E-03	6.75E-02
+	K-40	1460.81	*	10.67	3.52E+00	3.52E+00	5.69E+00	1.72E+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	1.79E-01	1.79E-01	2.06E-02	8.88E-02
		78.34		96.00	2.39E-01		2.12E+00	1.19E-01
	SC-46	889.25		99.98	4.96E-01	4.96E-01	9.11E-02	2.42E-01
		1120.51		99.99	1.30E+00		1.17E+01	6.41E-01
	V-48	983.52		99.98	1.48E+01	1.48E+01	-4.49E+00	7.18E+00
		1312.10		97.50	1.48E+01		-2.71E+00	7.13E+00
	CR-51	320.08		9.83	2.15E+01	2.15E+01	2.34E+00	1.06E+01
	MN-54	834.83		99.97	2.54E-01	2.54E-01	-3.61E-01	1.24E-01
	CO-56	846.75		99.96	4.58E-01	4.58E-01	-3.03E-01	2.23E-01
		1037.75		14.03	3.22E+00		-2.19E+00	1.55E+00
		1238.25		67.00	1.45E+00		7.69E+00	7.12E-01
		1771.40		15.51	2.33E+00		1.65E-01	1.09E+00
		2598.48		16.90	6.91E-01		-8.56E-02	2.59E-01
	CO-57	122.06		85.51	2.07E-01	2.07E-01	4.79E-02	1.03E-01
		136.48		10.60	1.74E+00		-7.54E-01	8.61E-01
	CO-58	810.76		99.40	5.00E-01	5.00E-01	2.34E-02	2.43E-01
	FE-59	1099.22		56.50	1.69E+00	1.69E+00	-3.19E-01	8.18E-01
		1291.56		43.20	2.07E+00		-2.39E-01	9.94E-01
	CO-60	1173.22		100.00	2.03E-01	2.03E-01	8.83E-03	9.80E-02
		1332.49		100.00	2.09E-01		3.74E-02	1.01E-01
	ZN-65	1115.52		50.75	6.23E-01	6.23E-01	-1.25E+01	3.03E-01
	GA-67	93.31		35.70	7.47E+08	7.47E+08	6.99E+09	3.71E+08
		208.95		2.24	1.16E+10		1.02E+09	5.76E+09
		300.22		16.00	1.95E+09		3.92E+08	9.64E+08
	SE-75	121.11		16.70	1.44E+00	4.26E-01	-4.79E-02	7.16E-01
		136.00		59.20	4.26E-01		-1.89E-01	2.11E-01
		264.65		59.80	5.14E-01		6.14E-02	2.54E-01
		279.53		25.20	1.25E+00		-1.61E+00	6.18E-01
		400.65		11.40	3.06E+00		1.62E+00	1.51E+00
	RB-82	776.52		13.00	2.03E+01	2.03E+01	2.91E+00	9.87E+00
	RB-83	520.41		46.00	8.20E-01	8.20E-01	2.42E-01	4.02E-01
		529.64		30.30	1.29E+00		-5.76E-01	6.31E-01
		552.65		16.40	2.38E+00		3.36E-01	1.17E+00
	KR-85	513.99		0.43	4.44E+01	4.44E+01	4.51E+01	2.18E+01
	SR-85	513.99		99.27	5.51E-01	5.51E-01	5.59E-01	2.70E-01
	Y-88	898.02		93.40	4.23E-01	3.23E-01	-2.21E-01	2.06E-01
		1836.01		99.38	3.23E-01		2.64E-01	1.52E-01
	MO-93	263.06		56.72	3.16E-01	1.81E-01	3.69E-02	1.57E-01
		684.67		99.68	1.81E-01		1.56E-01	8.83E-02
		1477.11		99.08	2.55E-01		8.83E-02	1.23E-01
+	NB-93M	16.57	*	9.43	1.87E+02	1.87E+02	1.56E+02	9.30E+01
	NB-94	702.63		100.00	1.92E-01	1.92E-01	5.76E-02	9.37E-02
		871.10		100.00	2.07E-01		4.76E-02	1.01E-01
	NB-95	765.79		99.81	2.18E+00	2.18E+00	8.68E+00	1.07E+00
	NB-95M	235.69		25.00	1.42E+08	1.42E+08	-2.91E+08	7.04E+07
	ZR-95	724.18		43.70	1.21E+00	9.74E-01	-7.55E-02	5.91E-01
		756.72		55.30	9.74E-01		-3.69E-01	4.74E-01
	MO-99	181.06		6.20	1.77E+11	1.06E+11	-2.81E+10	8.79E+10
		739.58		12.80	1.06E+11		9.76E+10	5.17E+10

Analysis Report for 1707089-12

HTC-A04-S002-2430-01

	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	2.74E+11	1.06E+11	4.01E+10	1.33E+11
	RU-103	497.08		89.00	1.11E+00	1.11E+00	2.68E-01	5.43E-01
	RU-106	621.84		9.80	2.01E+00	2.01E+00	-1.65E-01	9.79E-01
	AG-108M	433.93		89.90	2.02E-01	2.02E-01	2.76E-02	9.95E-02
		614.37		90.40	3.26E-01		-1.46E-02	1.61E-01
		722.95		90.50	2.12E-01		-3.83E-02	1.03E-01
+	CD-109	88.03	*	3.72	1.15E+01	1.15E+01	3.37E+01	5.71E+00
	AG-110M	657.75		93.14	2.40E-01	2.40E-01	2.74E-02	1.17E-01
		677.61		10.53	2.09E+00		-3.72E-01	1.02E+00
		706.67		16.46	1.49E+00		2.60E-01	7.25E-01
		763.93		21.98	1.30E+00		3.59E-01	6.35E-01
		884.67		71.63	3.88E-01		-2.44E-01	1.89E-01
		1384.27		23.94	1.33E+00		-2.73E-01	6.41E-01
	CD-113M	263.70		0.02	7.63E+02	7.63E+02	9.09E+01	3.77E+02
	SN-113	255.12		1.93	1.71E+01	5.24E-01	-1.43E+01	8.47E+00
		391.69		64.90	5.24E-01		3.09E-02	2.58E-01
	TE123M	159.00		84.10	3.21E-01	3.21E-01	4.74E-02	1.59E-01
	SB-124	602.71		97.87	5.98E-01	5.98E-01	3.21E-02	2.93E-01
		645.85		7.26	7.18E+00		-9.07E-01	3.50E+00
		722.78		11.10	5.40E+00		-9.76E-01	2.63E+00
		1691.02		49.00	1.20E+00		-3.19E-01	5.72E-01
	I-125	35.49		6.49	1.48E+01	1.48E+01	1.05E+01	7.31E+00
	SB-125	176.33		6.89	2.37E+00	6.97E-01	-4.85E-01	1.18E+00
		427.89		29.33	6.97E-01		1.27E-01	3.43E-01
		463.38		10.35	1.93E+00		1.49E+00	9.49E-01
		600.56		17.80	1.12E+00		-1.18E-01	5.49E-01
		635.90		11.32	1.53E+00		-6.42E-01	7.47E-01
	SB-126	414.70		83.30	5.89E+01	4.48E+01	7.65E+00	2.90E+01
		666.33		99.60	5.50E+01		1.23E+02	2.70E+01
		695.00		99.60	4.48E+01		9.77E+00	2.18E+01
		720.50		53.80	9.37E+01		1.26E+02	4.58E+01
+	SN-126	87.57	*	37.00	9.93E-01	9.93E-01	2.92E+00	4.95E-01
	SB-127	473.00		25.00	4.04E+07	2.79E+07	1.04E+07	1.98E+07
		685.20		35.70	2.79E+07		2.40E+07	1.36E+07
		783.80		14.70	8.69E+07		1.47E+08	4.25E+07
	I-129	29.78		57.00	9.15E-01	9.15E-01	-1.50E-01	4.53E-01
		33.60		13.20	2.68E+00		6.25E-01	1.33E+00
		39.58		7.52	3.09E+00		-2.27E+00	1.53E+00
	I-131	284.30		6.05	1.54E+04	1.08E+03	2.88E+03	7.60E+03
		364.48		81.20	1.08E+03		-1.75E+02	5.33E+02
		636.97		7.26	1.16E+04		-3.10E+03	5.64E+03
		722.89		1.80	5.46E+04		-9.88E+03	2.66E+04
	TE-132	49.72		13.10	1.98E+09	2.92E+08	-1.02E+10	9.81E+08
		228.16		88.00	2.92E+08		5.31E+07	1.45E+08
	BA-133	81.00		33.00	5.27E-01	5.27E-01	-7.25E+00	2.62E-01
		302.84		17.80	1.04E+00		5.43E-01	5.12E-01
		356.01		60.00	6.17E-01		7.77E-03	3.06E-01
	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	XE-133	81.00		38.00	2.20E+05	2.20E+05	-3.03E+06	1.09E+05
	CS-134	563.23		8.38	2.24E+00	2.42E-01	-6.82E-01	1.10E+00
		569.32		15.43	1.28E+00		-3.06E-01	6.28E-01
		604.70		97.60	3.39E-01		-2.74E-02	1.68E-01
		795.84		85.40	2.42E-01		1.18E-01	1.18E-01

Analysis Report for 1707089-12

HTC-A04-S002-2430-01

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	2.43E+00	2.42E-01	2.96E-01	1.18E+00
CS-135	268.24	16.00	1.18E+00	1.18E+00	1.31E-01	5.86E-01
@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41	28.60	1.00E+26		1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		1.00E+26	1.00E+20
CS-136	153.22	7.46	3.92E+02	3.69E+01	6.70E+01	1.95E+02
	163.89	4.61	6.24E+02		8.15E+02	3.10E+02
	176.55	13.56	2.09E+02		-4.26E+01	1.03E+02
	273.65	12.66	2.81E+02		1.70E+02	1.39E+02
	340.57	48.50	7.17E+01		5.08E+01	3.54E+01
	818.50	99.70	3.69E+01		1.73E+01	1.80E+01
	1048.07	79.60	4.61E+01		-1.36E+01	2.23E+01
	1235.34	19.70	3.38E+02		8.03E+02	1.66E+02
CS-137	661.65	85.12	2.36E-01	2.36E-01	-1.61E-01	1.16E-01
LA-138	788.74	34.00	6.33E-01	3.12E-01	5.36E-01	3.09E-01
	1435.80	66.00	3.12E-01		7.40E-02	1.50E-01
CE-139	165.85	80.35	3.15E-01	3.15E-01	1.46E-01	1.56E-01
BA-140	162.64	6.70	4.99E+02	1.54E+02	4.28E+02	2.47E+02
	304.84	4.50	8.40E+02		-6.85E+02	4.15E+02
	423.70	3.20	1.29E+03		3.22E+02	6.34E+02
	437.55	2.00	1.94E+03		-5.51E+01	9.54E+02
	537.32	25.00	1.54E+02		4.74E+01	7.55E+01
LA-140	328.77	20.50	1.86E+02	5.65E+01	2.13E+00	9.20E+01
	487.03	45.50	8.53E+01		6.16E+01	4.19E+01
	815.85	23.50	1.72E+02		-1.22E+02	8.36E+01
	1596.49	95.49	5.65E+01		4.90E+01	2.73E+01
CE-141	145.44	48.40	2.70E+00	2.70E+00	3.98E+00	1.34E+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	1.66E+00	1.66E+00	-1.74E-01	8.24E-01
PM-144	476.78	42.00	5.21E-01	2.07E-01	-1.01E-01	2.56E-01
	618.01	98.60	2.07E-01		5.41E-02	1.01E-01
	696.49	99.49	2.12E-01		-2.93E-02	1.03E-01
PM-145	36.85	21.70	1.29E+00	6.82E-01	-7.34E-02	6.37E-01
	37.36	39.70	6.82E-01		8.24E-03	3.38E-01
	42.30	15.10	1.40E+00		-6.37E-01	6.94E-01
	72.40	2.31	8.53E+00		-6.72E+01	4.24E+00
PM-146	453.90	39.94	4.73E-01	4.73E-01	2.83E-01	2.33E-01
	735.90	14.01	1.33E+00		3.76E-01	6.45E-01
	747.13	13.10	1.44E+00		4.05E-01	7.03E-01
ND-147	91.11	28.90	3.42E+02	3.42E+02	1.25E+02	1.70E+02
	531.02	13.10	7.20E+02		5.45E+02	3.53E+02
PM-149	285.90	3.10	1.80E+14	1.80E+14	3.98E+13	8.91E+13
EU-152	121.78	20.50	6.77E-01	6.77E-01	1.57E-01	3.36E-01
	244.69	5.40	4.83E+00		4.22E+01	2.40E+00
	344.27	19.13	9.73E-01		1.48E-01	4.80E-01
	778.89	9.20	1.99E+00		2.84E-01	9.67E-01
	964.01	10.40	2.04E+00		1.51E-01	9.90E-01
	1085.78	7.22	2.65E+00		1.14E+00	1.28E+00
	1112.02	9.60	2.15E+00		-1.76E-01	1.04E+00
	1407.95	14.94	2.09E+00		5.65E+00	1.02E+00
GD-153	97.43	31.30	5.77E-01	5.77E-01	4.15E-01	2.86E-01

Analysis Report for 1707089-12

HTC-A04-S002-2430-01

	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	7.68E-01	5.77E-01	-8.68E-01	3.81E-01
	EU-154	123.07		40.50	3.48E-01	3.48E-01	1.96E-01	1.72E-01
		723.30		19.70	9.93E-01		-1.80E-01	4.85E-01
		873.19		11.50	1.80E+00		-4.08E-01	8.75E-01
		996.32		10.30	2.13E+00		-3.55E-01	1.04E+00
		1004.76		17.90	1.24E+00		4.79E-02	6.05E-01
		1274.45		35.50	5.89E-01		2.42E-01	2.84E-01
	EU-155	86.50		30.90	6.04E-01	6.04E-01	1.84E+00	3.00E-01
		105.30		20.70	6.55E-01		-1.63E-01	3.25E-01
	EU-156	811.77		10.40	1.66E+02	1.66E+02	3.56E+01	8.06E+01
		1153.47		7.20	3.33E+02		4.57E+02	1.62E+02
		1230.71		8.90	2.05E+02		6.11E+01	9.89E+01
	HO-166M	184.41		72.60	3.15E-01	3.15E-01	3.00E+00	1.56E-01
		280.45		29.60	6.04E-01		-1.42E-01	2.99E-01
		410.94		11.10	1.71E+00		-4.88E-01	8.42E-01
		711.69		54.10	3.27E-01		-1.05E-01	1.60E-01
	TM-171	66.72		0.14	1.36E+02	1.36E+02	6.32E+01	6.74E+01
	HF-172	67.35		5.31	3.52E+00	1.35E+00	4.06E-01	1.75E+00
		125.81		11.30	1.35E+00		1.19E-01	6.72E-01
	LU-172	181.53		20.60	2.17E+04	9.03E+03	-1.09E+03	1.08E+04
		900.72		29.81	2.02E+04		1.08E+04	9.85E+03
		1093.66		62.50	9.03E+03		9.94E+02	4.36E+03
	LU-173	100.72		5.24	2.87E+00	1.07E+00	3.30E-01	1.42E+00
		272.11		21.20	1.07E+00		2.24E+00	5.29E-01
	HF-175	343.40		84.00	5.81E-01	5.81E-01	8.83E-02	2.87E-01
	LU-176	88.34		13.30	1.35E+00	1.80E-01	-6.95E+00	6.73E-01
		201.83		86.00	1.80E-01		-1.22E-01	8.90E-02
		306.78		94.00	1.86E-01		1.40E-04	9.21E-02
	HF-181	133.02		41.70	1.71E+00	1.13E+00	-2.95E-01	8.48E-01
		345.85		17.20	5.49E+00		1.96E+00	2.71E+00
		482.03		82.80	1.13E+00		-8.22E-02	5.56E-01
	TA-182	67.75		41.20	7.45E-01	7.45E-01	8.60E-02	3.70E-01
		1121.30		34.90	2.98E+00		2.70E+01	1.47E+00
		1189.05		16.23	2.22E+00		6.66E-01	1.07E+00
		1221.41		26.98	1.40E+00		8.17E-02	6.75E-01
		1231.02		11.44	3.16E+00		9.41E-01	1.52E+00
	IR-192	308.46		29.68	1.48E+00	9.64E-01	-5.22E-01	7.31E-01
		468.07		48.10	9.64E-01		1.42E-01	4.74E-01
	HG-203	279.19		77.30	1.02E+00	1.02E+00	-4.88E-01	5.04E-01
	TL-204	374.74		94.11	1.97E-01	1.97E-01	7.39E-03	9.72E-02
		899.15		99.16	2.21E-01		-1.16E-01	1.08E-01
		911.74		91.10	2.51E-01		1.98E-01	1.22E-01
	BI-207	569.67		97.72	1.87E-01	1.87E-01	7.15E-03	9.18E-02
		1063.62		74.90	2.62E-01		-2.54E-02	1.27E-01
	TL-208	583.14		30.22	6.26E-01	3.18E-01	1.34E-01	3.07E-01
		860.37		4.48	4.46E+00		6.81E-01	2.17E+00
		2614.66		35.85	3.18E-01		2.16E-01	1.42E-01
	BI-210M	262.00		45.00	4.01E-01	4.01E-01	7.36E-02	1.99E-01
		300.00		23.00	9.62E-01		1.94E-01	4.76E-01
+	PB-210	46.50	*	4.25	5.38E+00	5.38E+00	1.78E+01	2.67E+00
	PB-211	404.84		2.90	6.91E+00	6.86E+00	9.05E-01	3.41E+00
		831.96		2.90	6.86E+00		2.87E+00	3.34E+00
	BI-212	727.17		11.80	1.48E+00	1.48E+00	-3.32E-01	7.19E-01

Analysis Report for 1707089-12

HTC-A04-S002-2430-01

	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	7.19E+00	1.48E+00	-1.30E+00	3.43E+00
+	PB-212	238.63	*	44.60	8.34E-01	8.34E-01	4.60E-01	4.15E-01
		300.09		3.41	6.49E+00		1.31E+00	3.21E+00
+	BI-214	609.31	*	46.30	5.91E-01	5.91E-01	3.34E+01	2.91E-01
		1120.29	*	15.10	2.77E+00		3.62E+01	1.36E+00
		1764.49	*	15.80	1.35E+00		3.77E+01	6.44E-01
		2204.22	*	4.98	3.15E+00		3.53E+01	1.46E+00
+	PB-214	295.21	*	19.19	1.35E+00	8.78E-01	3.61E+01	6.71E-01
		351.92	*	37.19	8.78E-01		3.62E+01	4.36E-01
+	RN-219	401.80	*	6.50	3.85E+00	3.85E+00	1.96E+00	1.90E+00
	RA-223	323.87		3.88	4.67E+00	4.67E+00	4.61E+00	2.30E+00
	RA-224	240.98		3.95	6.88E+00	6.88E+00	6.58E+01	3.42E+00
	RA-225	40.00		31.00	7.60E+01	7.60E+01	-5.59E+01	3.76E+01
+	RA-226	186.21	*	3.28	8.91E+00	8.91E+00	8.18E+01	4.43E+00
	TH-227	50.10		8.40	2.13E+00	1.68E+00	-1.10E+01	1.06E+00
		236.00		11.50	1.68E+00		-3.45E+00	8.34E-01
		256.20		6.30	2.95E+00		2.02E+00	1.46E+00
	AC-228	338.32		11.40	1.63E+00	7.83E-01	-2.85E-01	8.07E-01
		911.07		27.70	7.83E-01		6.70E-02	3.82E-01
		969.11		16.60	1.23E+00		-3.05E-02	5.99E-01
	TH-230	48.44		16.90	1.18E+00	1.18E+00	1.65E+00	5.86E-01
		62.85		4.60	4.31E+00		2.88E+01	2.14E+00
		67.67		0.37	4.55E+01		5.26E+00	2.26E+01
	PA-231	283.67		1.60	1.14E+01	7.87E+00	5.09E+00	5.62E+00
		302.67		2.30	7.87E+00		4.13E+00	3.89E+00
+	TH-231	25.64		14.70	6.74E+00	5.56E+00	3.02E+00	3.34E+00
		84.21	*	6.40	5.56E+00		7.30E+00	2.77E+00
	PA-233	311.98		38.60	5.79E+00	5.79E+00	-2.23E+00	2.86E+00
	PA-234	131.20		20.40	6.86E-01	6.86E-01	-1.06E-01	3.40E-01
		733.99		8.80	2.07E+00		8.61E-01	1.01E+00
		946.00		12.00	1.70E+00		2.75E-01	8.27E-01
+	PA-234M	1001.03	*	0.92	3.43E+01	3.43E+01	3.49E+01	1.68E+01
+	TH-234	63.29	*	3.80	5.36E+00	5.36E+00	3.22E+01	2.67E+00
+	U-235	143.76	*	10.50	1.98E+00	1.98E+00	2.46E+00	9.82E-01
		163.35	*	4.70	3.89E+00		3.93E+00	1.93E+00
		205.31	*	4.70	3.49E+00		1.76E+00	1.73E+00
	NP-237	86.50		12.60	1.43E+00	1.43E+00	4.35E+00	7.09E-01
	NP-239	106.10		22.70	2.68E+12	2.68E+12	-6.66E+11	1.33E+12
		228.18		10.70	7.81E+12		1.42E+12	3.87E+12
		277.60		14.10	6.02E+12		2.00E+12	2.98E+12
	AM-241	59.54		35.90	4.68E-01	4.68E-01	-1.78E-01	2.33E-01
	AM-243	74.67		66.00	3.56E-01	3.56E-01	1.61E+00	1.77E-01
	CM-243	209.75		3.29	5.60E+00	1.31E+00	1.25E+00	2.78E+00
		228.14		10.60	1.70E+00		3.10E-01	8.44E-01
		277.60		14.00	1.31E+00		4.36E-01	6.48E-01

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

Analysis Report for 1707089-12

HTC-A04-S002-2430-01

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A04-S002-2430-01

Elapsed Live time: 3600
Elapsed Real Time: 3625

Channel								
1:	0	0	0	0	0	0	0	0
9:	81	946	941	943	928	906	871	982
17:	972	853	851	805	748	809	790	749
25:	744	793	754	739	690	722	700	732
33:	707	730	735	784	741	780	717	771
41:	773	729	833	851	862	1198	1697	1235
49:	913	998	1061	1017	1202	1285	1102	1066
57:	1095	1121	1273	1330	1396	1617	2412	2939
65:	1876	1486	1574	1743	1630	1632	1721	1685
73:	1748	2391	3959	3905	5083	5387	2621	1812
81:	1696	1663	1558	1980	1952	1652	2330	2663
89:	1880	1871	1785	2401	3710	2708	1512	1257
97:	1089	1229	1244	1059	1049	1057	986	1000
105:	1034	1078	1058	1090	1091	1112	1128	1113
113:	1161	1131	1075	1076	997	1069	981	1026
121:	1060	1016	1093	1040	1041	1030	1004	1078
129:	984	1052	1028	1003	1031	1014	1031	1005
137:	1081	945	1033	1093	1037	1029	1125	1428
145:	1234	1056	1083	1021	1071	1026	1076	1093
153:	1025	1089	1202	1013	987	935	999	938
161:	969	934	963	1084	946	936	848	838
169:	870	874	890	822	833	893	813	900
177:	877	811	838	867	850	880	880	846
185:	1406	2930	2862	1258	798	762	776	796
193:	766	781	748	820	767	790	720	743
201:	706	725	669	700	712	770	709	714
209:	669	675	642	642	646	594	604	615
217:	594	614	609	612	567	535	587	550
225:	615	571	573	584	533	532	533	573
233:	519	549	549	699	709	641	678	621
241:	1066	2418	2042	860	495	506	483	459
249:	442	441	452	452	451	467	495	524
257:	516	456	583	545	430	406	391	381
265:	429	419	419	414	509	549	606	533
273:	425	437	491	463	393	387	369	402
281:	415	404	370	412	401	365	429	383
289:	381	365	364	382	412	994	3705	4287
297:	1526	427	343	390	387	343	357	357
305:	318	323	329	275	345	319	297	312
313:	316	317	303	340	353	313	257	264
321:	317	315	326	340	315	289	296	288
329:	310	299	297	280	290	301	336	304
337:	300	327	341	303	281	299	321	298
345:	286	269	270	312	328	516	2559	7005
353:	5184	1214	264	226	236	246	215	221
361:	233	230	236	247	225	193	240	214

369:	232	235	242	227	204	235	221	227

Sample Title: HTC-A04-S002-2430-01

Channel								
377:	253	239	238	203	231	220	239	246
385:	255	234	290	284	331	272	212	211
393:	194	238	212	238	211	218	228	252
401:	247	278	295	251	247	250	257	228
409:	238	209	226	208	230	232	222	210
417:	223	272	224	236	184	207	243	223
425:	212	205	237	253	204	197	171	179
433:	197	194	202	163	194	169	200	171
441:	165	172	170	155	184	167	138	177
449:	186	154	171	170	168	185	196	184
457:	140	151	152	156	167	193	181	177
465:	169	162	171	169	146	182	155	165
473:	132	174	152	131	143	147	178	164
481:	208	162	134	151	123	161	184	157
489:	145	120	130	114	133	115	124	140
497:	133	139	124	132	129	122	133	106
505:	119	125	131	120	137	191	202	170
513:	158	130	130	140	110	101	106	110
521:	133	104	144	117	118	117	113	118
529:	125	127	114	122	125	160	117	102
537:	119	137	115	103	116	105	97	116
545:	116	115	118	112	100	102	121	119
553:	127	100	114	100	116	107	103	102
561:	101	85	105	113	107	103	116	104
569:	130	108	97	122	117	124	113	122
577:	99	106	130	139	138	107	131	122
585:	104	82	116	105	90	100	101	99
593:	84	90	83	106	122	115	99	105
601:	125	113	86	113	94	120	200	1270
609:	4108	4234	1261	163	81	79	82	92
617:	81	86	98	82	63	83	74	61
625:	79	76	74	79	66	82	70	78
633:	70	77	78	71	70	74	71	78
641:	89	74	75	70	75	77	73	78
649:	77	83	64	54	78	63	71	61
657:	86	75	85	76	74	101	96	103
665:	193	205	102	70	68	68	68	74
673:	63	65	55	89	62	86	68	65
681:	61	86	70	75	71	75	84	75
689:	61	65	74	82	63	76	62	74
697:	62	89	71	67	86	90	109	91
705:	89	69	86	77	81	63	69	67
713:	84	61	73	71	73	64	101	136
721:	101	71	75	64	65	55	74	67
729:	64	74	67	75	81	71	70	66
737:	69	55	69	74	85	109	97	67
745:	57	72	77	79	69	64	70	68
753:	77	65	73	67	77	74	71	55
761:	86	66	62	54	72	117	206	416
769:	404	161	77	68	72	73	56	56
777:	71	60	63	56	55	77	70	88
785:	115	163	130	82	78	62	40	60
793:	65	57	78	80	64	61	58	65

801:	66	50	68	80	92	161	145	76

Sample Title: HTC-A04-S002-2430-01

Channel								
809:	68	53	65	62	71	50	70	52
817:	65	60	69	82	77	85	60	71
825:	78	75	69	54	64	50	74	79
833:	77	70	62	55	69	86	123	108
841:	65	73	57	50	54	69	48	78
849:	53	74	74	75	72	68	50	75
857:	66	69	58	62	67	70	59	64
865:	60	67	58	84	73	57	71	66
873:	63	62	66	66	60	59	72	81
881:	56	74	77	79	51	71	67	61
889:	74	95	75	69	75	74	66	67
897:	65	85	53	54	62	69	72	77
905:	64	45	73	70	69	58	76	87
913:	68	54	71	49	44	54	70	57
921:	60	50	61	60	65	60	68	50
929:	52	66	69	82	147	289	193	79
937:	55	61	63	61	47	52	61	58
945:	47	62	51	64	55	59	58	63
953:	50	50	81	64	45	56	57	52
961:	59	60	63	60	53	61	47	56
969:	60	60	52	47	53	55	57	55
977:	44	47	59	52	53	48	52	55
985:	54	42	53	45	64	51	51	57
993:	63	58	47	55	74	49	57	94
1001:	118	91	51	55	57	60	49	46
1009:	48	48	37	51	50	57	40	43
1017:	57	42	55	48	42	46	59	52
1025:	41	50	43	56	36	50	48	36
1033:	63	38	36	35	48	52	40	36
1041:	39	45	50	45	35	49	34	47
1049:	35	60	52	60	78	51	44	46
1057:	54	55	47	39	38	43	39	37
1065:	48	43	47	51	53	58	54	41
1073:	38	34	44	40	37	57	51	42
1081:	50	30	37	43	37	42	32	33
1089:	41	32	24	44	38	49	48	50
1097:	38	45	42	41	45	46	49	49
1105:	52	43	37	58	46	39	40	39
1113:	41	39	52	58	54	127	511	846
1121:	651	171	48	38	42	34	35	29
1129:	39	34	49	39	45	58	42	45
1137:	46	38	40	43	42	37	37	39
1145:	31	38	30	44	48	51	41	48
1153:	47	91	103	82	56	36	41	42
1161:	31	41	44	31	52	34	43	40
1169:	38	40	36	36	34	32	32	40
1177:	36	29	34	39	48	56	44	52
1185:	33	32	40	36	31	34	51	24
1193:	35	29	29	31	43	27	25	42
1201:	27	32	40	29	27	57	53	48
1209:	45	35	33	33	32	22	31	29
1217:	31	49	45	33	37	31	30	36
1225:	28	31	33	36	39	32	32	37

1233:	29	31	35	89	232	345	210	80

Sample Title: HTC-A04-S002-2430-01

Channel								
1241:	24	26	36	27	30	26	37	32
1249:	38	35	30	46	43	47	34	38
1257:	32	27	25	37	34	28	27	22
1265:	23	28	28	39	31	33	38	29
1273:	39	41	33	24	33	31	54	88
1281:	96	65	35	28	24	28	24	30
1289:	22	33	37	25	22	33	39	27
1297:	28	32	31	30	36	24	42	30
1305:	21	29	31	26	27	29	28	22
1313:	35	30	35	36	31	20	30	24
1321:	34	30	26	27	25	22	31	24
1329:	32	24	33	34	21	37	32	38
1337:	21	31	32	35	23	25	24	29
1345:	24	32	24	27	29	26	18	21
1353:	30	21	20	28	28	28	25	31
1361:	34	19	31	21	23	32	32	26
1369:	25	34	36	26	36	32	42	117
1377:	217	206	81	36	20	35	30	48
1385:	62	61	33	28	31	28	29	26
1393:	30	30	27	28	25	25	30	57
1401:	90	75	28	22	36	58	115	127
1409:	67	31	30	32	23	28	32	37
1417:	24	25	19	31	29	23	22	32
1425:	25	32	26	31	31	32	27	25
1433:	38	28	25	29	22	26	28	25
1441:	26	29	23	34	24	33	31	27
1449:	32	27	34	18	28	20	34	23
1457:	39	36	46	69	72	39	35	34
1465:	33	27	20	30	30	24	32	24
1473:	32	24	24	25	36	24	33	39
1481:	38	23	31	36	28	24	23	33
1489:	24	33	37	20	36	33	31	28
1497:	26	27	25	23	33	27	24	30
1505:	38	42	43	88	119	86	39	32
1513:	28	27	30	37	33	28	21	26
1521:	28	20	23	31	28	34	33	31
1529:	26	23	27	33	35	36	26	27
1537:	34	43	34	33	32	40	39	27
1545:	34	22	23	19	20	16	22	20
1553:	20	24	17	26	22	22	28	21
1561:	25	18	15	18	21	30	25	25
1569:	21	19	26	21	16	25	29	18
1577:	13	27	20	20	28	47	47	26
1585:	30	15	23	20	17	19	18	19
1593:	31	35	24	19	22	25	40	34
1601:	24	20	22	26	20	13	21	18
1609:	21	20	24	21	16	29	12	23
1617:	17	13	13	20	11	17	22	12
1625:	11	20	13	12	9	22	15	10
1633:	18	10	11	16	18	19	16	20
1641:	23	7	16	11	12	14	13	17
1649:	10	8	17	15	11	14	10	14
1657:	12	21	27	57	67	42	15	16

1665:	11	9	17	8	9	9	13	6

Sample Title: HTC-A04-S002-2430-01

Channel								
1673:	16	16	10	11	13	11	6	15
1681:	11	16	16	18	19	12	5	7
1689:	13	11	19	18	23	16	13	18
1697:	13	9	13	12	9	6	12	11
1705:	8	15	9	7	8	9	7	14
1713:	11	17	8	4	8	6	15	12
1721:	10	16	8	12	11	19	25	71
1729:	139	109	40	12	12	7	3	13
1737:	14	9	7	6	8	9	5	10
1745:	8	9	8	11	7	3	8	8
1753:	6	9	11	9	6	6	10	8
1761:	25	145	435	584	377	113	25	10
1769:	5	5	5	7	7	5	4	3
1777:	7	6	13	6	4	5	7	4
1785:	5	6	1	7	4	10	4	9
1793:	8	8	4	5	3	8	10	9
1801:	2	11	13	6	6	5	5	3
1809:	6	12	12	9	7	8	9	11
1817:	4	10	3	5	5	3	6	6
1825:	9	10	6	8	4	6	6	9
1833:	9	5	6	8	13	20	14	3
1841:	4	6	5	7	22	63	77	55
1849:	26	6	2	4	8	7	5	10
1857:	4	4	6	7	8	6	9	7
1865:	1	13	9	8	7	8	10	17
1873:	8	10	11	11	7	7	8	7
1881:	13	7	4	7	7	3	6	9
1889:	11	9	10	6	14	14	12	13
1897:	5	10	9	5	8	9	9	6
1905:	8	9	5	4	3	10	7	6
1913:	8	7	8	5	3	9	5	11
1921:	2	7	5	7	5	6	3	10
1929:	5	5	9	5	9	6	15	6
1937:	17	10	3	4	4	12	10	8
1945:	7	8	6	6	7	3	7	4
1953:	8	4	5	3	8	13	9	9
1961:	4	4	9	2	6	4	11	12
1969:	4	7	7	9	6	9	11	3
1977:	10	5	6	7	5	3	4	2
1985:	4	4	5	4	5	6	5	3
1993:	1	4	6	4	4	2	6	2
2001:	7	5	5	3	5	2	8	3
2009:	10	3	5	3	7	7	8	12
2017:	8	3	7	4	10	8	6	7
2025:	6	5	5	4	2	3	1	7
2033:	7	5	5	8	7	8	4	2
2041:	7	5	5	3	2	4	6	3
2049:	3	4	4	2	4	7	9	4
2057:	7	3	5	3	3	3	3	4
2065:	4	5	5	2	2	2	2	4
2073:	6	5	4	4	5	3	9	2
2081:	2	4	3	2	3	2	3	3
2089:	6	4	0	3	1	6	1	2

2097:	1	4	4	3	3	0	2	2

Sample Title: HTC-A04-S002-2430-01

Channel								
2105:	1	4	6	4	8	4	3	3
2113:	2	4	3	12	38	46	16	14
2121:	3	2	2	3	2	5	2	1
2129:	2	1	2	2	3	4	3	2
2137:	3	1	2	3	3	1	0	2
2145:	0	7	7	2	2	4	3	2
2153:	4	4	6	2	2	1	3	1
2161:	2	3	0	1	0	4	4	5
2169:	1	1	2	3	4	5	3	0
2177:	1	2	1	2	3	1	2	3
2185:	5	3	2	1	1	5	1	5
2193:	2	2	0	2	4	4	1	3
2201:	22	89	137	131	54	17	3	2
2209:	6	2	3	4	1	1	2	3
2217:	0	1	0	0	0	3	1	3
2225:	0	2	3	1	0	1	3	2
2233:	3	2	0	3	1	2	3	1
2241:	2	0	0	2	0	0	2	3
2249:	1	3	4	2	1	4	0	1
2257:	0	1	0	0	1	0	1	1
2265:	0	3	2	1	1	1	0	1
2273:	1	2	1	0	0	0	1	0
2281:	2	2	1	1	1	4	2	2
2289:	0	2	4	9	8	7	1	3
2297:	2	2	0	1	3	2	4	0
2305:	3	1	1	0	0	1	1	2
2313:	0	1	2	1	1	1	1	0
2321:	0	1	1	0	2	2	0	1
2329:	1	1	0	0	1	2	1	1
2337:	2	0	3	1	0	2	0	0
2345:	0	0	0	1	0	1	0	1
2353:	1	1	2	2	2	0	1	2
2361:	4	0	0	1	0	1	0	0
2369:	1	2	2	1	1	0	0	1
2377:	2	4	0	2	0	0	0	1
2385:	3	1	1	0	1	1	1	0
2393:	0	0	0	0	3	1	2	1
2401:	1	0	0	1	0	1	0	0
2409:	1	1	0	0	0	0	1	1
2417:	1	1	0	1	0	3	1	0
2425:	0	1	0	1	0	2	2	0
2433:	2	0	1	0	0	0	1	0
2441:	2	2	1	3	15	34	44	28
2449:	13	3	0	1	2	0	0	2
2457:	2	2	1	0	0	0	0	1
2465:	0	0	1	2	0	2	0	0
2473:	0	0	2	0	1	1	3	0
2481:	0	2	1	0	1	1	0	0
2489:	0	1	0	0	1	0	0	1
2497:	0	2	2	0	0	1	2	0
2505:	0	1	1	1	1	3	0	1
2513:	0	1	0	0	0	0	0	0
2521:	0	0	0	0	0	0	0	1

2529:	0	1	0	0	1	0	0	0

Sample Title: HTC-A04-S002-2430-01

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

2961:	0	0	0	0	0	0	0	0

Sample Title: HTC-A04-S002-2430-01

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

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A04-S002-2430-01

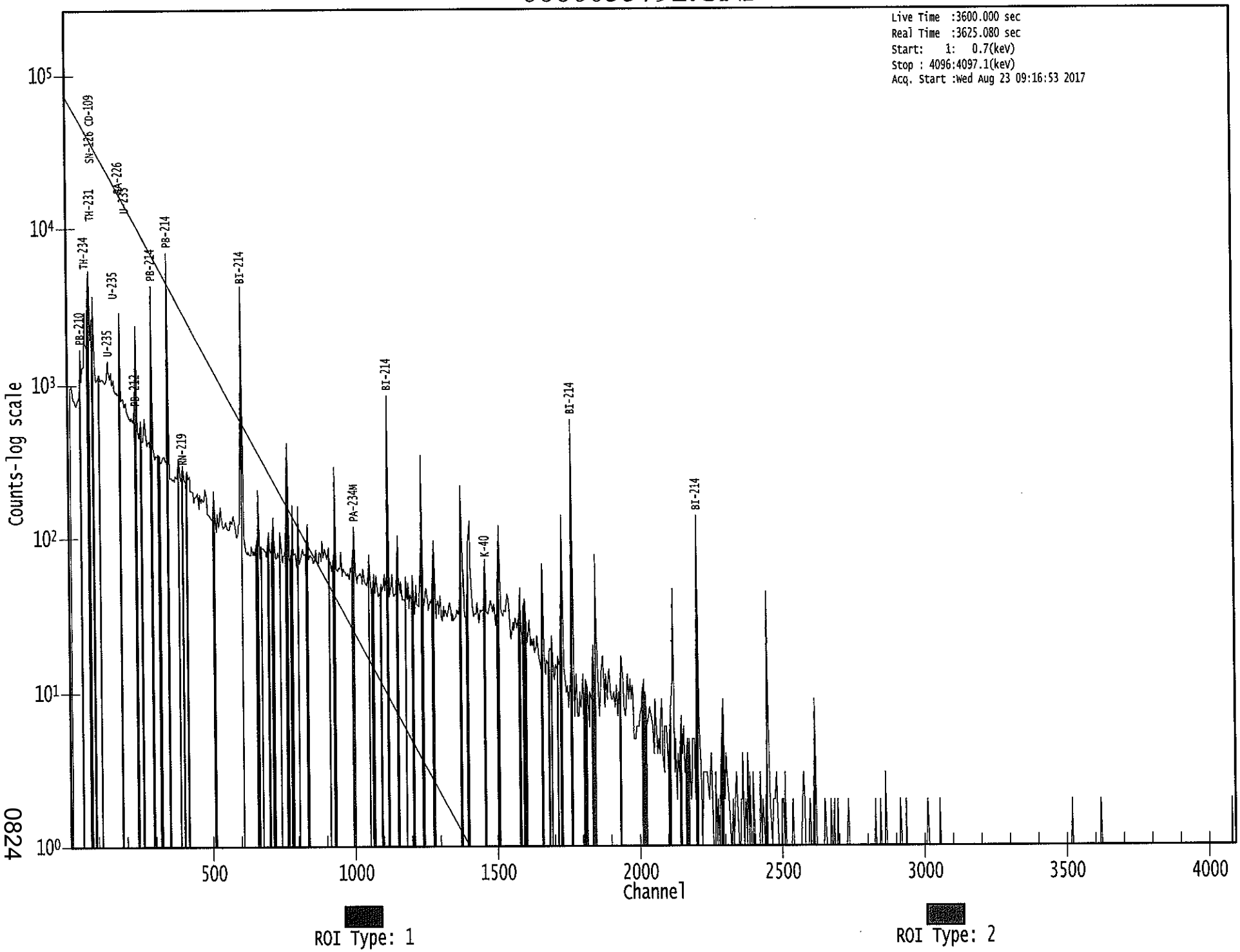
Channel								
3401:	0	0	0	0	1	0	1	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	1	1	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	1	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	1	0
3465:	0	0	1	1	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	1	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	1	1	0	0	0	0	0

Sample Title: HTC-A04-S002-2430-01

Channel								
3833:	0	0	0	0	0	1	0	0
3841:	1	0	0	0	0	0	0	0
3849:	0	0	1	0	0	0	0	0
3857:	0	0	0	1	0	0	0	1
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	1	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	1
3921:	0	0	0	0	0	1	0	0
3929:	0	0	0	0	0	0	0	0
3937:	0	0	0	0	0	0	0	0
3945:	0	0	0	0	0	0	0	0
3953:	0	0	0	0	0	0	0	0
3961:	0	0	0	0	0	0	0	0
3969:	0	0	0	0	0	1	0	0
3977:	0	0	0	0	1	0	0	0
3985:	0	0	0	0	0	0	0	0
3993:	0	0	0	0	0	0	0	1
4001:	0	0	0	0	1	0	0	1
4009:	0	0	0	1	0	0	0	0
4017:	0	0	0	0	0	0	0	0
4025:	0	0	1	1	0	0	0	0
4033:	0	0	0	0	0	1	0	0
4041:	0	1	0	0	0	0	0	0
4049:	0	1	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	2
4081:	0	0	0	0	0	1	0	0
4089:	0	0	0	0	0	0	0	0

0000055792.CNF



0824

Apex-Gamma

8/23

Analysis Report for 1707089-13

HTC-A04-S002-3036-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707089-13
Sample Description	: HTC-A04-S002-3036-01
Sample Type	: SOIL
Sample Size	: 7.480E+02 grams
Facility	: Countroom
Sample Taken On	: 5/16/2017 7:18:13AM
Acquisition Started	: 8/23/2017 9:17:03AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3615.3 seconds
Dead Time	: 0.42 %
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	: 55793

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/23/17

Analysis Report for 1707089-13

HTC-A04-S002-3036-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/23/2017 10:18:17AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	25.20	24.24	0.0000	0.00
2	46.48	45.53	0.0000	0.00
3	53.29	52.34	0.0000	0.00
4	63.15	62.20	0.0000	0.00
5	76.16	75.22	0.0000	0.00
6	83.85	82.91	0.0000	0.00
7	87.55	86.61	0.0000	0.00
8	92.60	91.66	0.0000	0.00
9	113.00	112.07	0.0000	0.00
10	143.72	142.80	0.0000	0.00
11	155.00	154.09	0.0000	0.00
12	186.01	185.10	0.0000	0.00
13	205.36	204.45	0.0000	0.00
14	241.94	241.05	0.0000	0.00
15	257.98	257.10	0.0000	0.00
16	269.93	269.05	0.0000	0.00
17	295.23	294.36	0.0000	0.00
18	351.96	351.10	0.0000	0.00
19	387.81	386.97	0.0000	0.00
20	402.77	401.93	0.0000	0.00
21	474.59	473.78	0.0000	0.00
22	480.05	479.24	0.0000	0.00
23	487.31	486.51	0.0000	0.00
24	510.85	510.05	0.0000	0.00
25	609.23	608.47	0.0000	0.00
26	665.25	664.51	0.0000	0.00
27	669.24	668.51	0.0000	0.00
28	704.11	703.38	0.0000	0.00
29	768.24	767.54	0.0000	0.00
30	786.21	785.52	0.0000	0.00
31	805.77	805.08	0.0000	0.00
32	839.73	839.07	0.0000	0.00
33	890.96	890.31	0.0000	0.00
34	910.57	909.94	0.0000	0.00
35	933.90	933.28	0.0000	0.00
36	938.07	937.44	0.0000	0.00
37	1000.94	1000.34	0.0000	0.00
38	1064.82	1064.25	0.0000	0.00
39	1069.82	1069.25	0.0000	0.00
40	1120.13	1119.59	0.0000	0.00
41	1154.96	1154.43	0.0000	0.00
42	1182.62	1182.11	0.0000	0.00

Analysis Report for 1707089-13

HTC-A04-S002-3036-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1237.72	1237.23	0.0000	0.00
44	1280.18	1279.71	0.0000	0.00
45	1329.95	1329.51	0.0000	0.00
46	1377.06	1376.64	0.0000	0.00
47	1385.40	1384.99	0.0000	0.00
48	1401.02	1400.61	0.0000	0.00
49	1407.69	1407.29	0.0000	0.00
50	1460.43	1460.05	0.0000	0.00
51	1509.46	1509.11	0.0000	0.00
52	1537.98	1537.64	0.0000	0.00
53	1543.60	1543.26	0.0000	0.00
54	1582.17	1581.86	0.0000	0.00
55	1661.30	1661.03	0.0000	0.00
56	1718.47	1718.23	0.0000	0.00
57	1729.23	1729.00	0.0000	0.00
58	1763.98	1763.76	0.0000	0.00
59	1838.41	1838.23	0.0000	0.00
60	1847.25	1847.08	0.0000	0.00
61	1871.22	1871.06	0.0000	0.00
62	1958.50	1958.40	0.0000	0.00
63	2118.05	2118.04	0.0000	0.00
64	2203.68	2203.72	0.0000	0.00
65	2447.01	2447.22	0.0000	0.00
66	2613.52	2613.83	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707089-13

HTC-A04-S002-3036-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/23/2017 10:18:17AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	25.20	22 -	27	24.24	1.92E+02	199.16	7.77E+03	1.24
	2	46.48	42 -	48	45.53	9.45E+02	253.56	1.11E+04	2.05
	3	53.29	50 -	55	52.34	3.88E+02	236.79	1.10E+04	1.96
	4	63.15	59 -	65	62.20	2.08E+03	325.22	1.78E+04	2.30
	5	76.16	69 -	81	75.22	1.21E+04	591.50	3.55E+04	3.87
M	6	83.85	81 -	96	82.91	5.66E+02	203.14	1.03E+04	1.46
m	7	87.55	81 -	96	86.61	2.43E+03	354.23	1.89E+04	2.64
m	8	92.60	81 -	96	91.66	3.67E+03	353.06	1.67E+04	2.65
	9	113.00	109 -	115	112.07	4.17E+02	258.83	1.18E+04	4.89
	10	143.72	140 -	146	142.80	4.71E+02	261.20	1.20E+04	2.84
	11	155.00	152 -	157	154.09	2.29E+02	225.99	9.97E+03	2.17
	12	186.01	180 -	190	185.10	3.99E+03	354.96	1.46E+04	2.25
	13	205.36	202 -	207	204.45	1.68E+02	183.71	6.58E+03	2.60
	14	241.94	236 -	246	241.05	3.38E+03	294.96	9.67E+03	2.12
	15	257.98	253 -	262	257.10	4.25E+02	224.73	6.95E+03	2.34
	16	269.93	265 -	273	269.05	3.16E+02	205.17	6.31E+03	3.25
	17	295.23	289 -	298	294.36	6.91E+03	266.79	6.22E+03	2.30
	18	351.96	345 -	357	351.10	1.15E+04	301.11	5.22E+03	2.37
	19	387.81	383 -	390	386.97	1.86E+02	135.22	2.92E+03	4.53
	20	402.77	398 -	406	401.93	1.79E+02	149.55	3.32E+03	3.94
	21	474.59	472 -	476	473.78	9.48E+01	68.79	9.54E+02	2.92
	22	480.05	477 -	483	479.24	9.07E+01	91.27	1.47E+03	2.42
	23	487.31	483 -	490	486.51	1.62E+02	103.50	1.67E+03	2.65
	24	510.85	503 -	516	510.05	3.46E+02	150.98	2.38E+03	3.72
	25	609.23	603 -	614	608.47	7.68E+03	209.49	1.64E+03	2.48
M	26	665.25	658 -	672	664.51	2.84E+02	78.10	8.22E+02	2.83
m	27	669.24	658 -	672	668.51	6.57E+01	77.05	7.69E+02	2.83
	28	704.11	701 -	706	703.38	7.39E+01	58.62	6.16E+02	3.93
	29	768.24	761 -	774	767.54	7.70E+02	127.14	1.45E+03	2.78
	30	786.21	781 -	789	785.52	1.90E+02	79.70	8.52E+02	2.85
	31	805.77	799 -	810	805.08	1.58E+02	102.47	1.23E+03	2.28
	32	839.73	837 -	842	839.07	7.45E+01	56.52	5.75E+02	2.60
	33	890.96	886 -	893	890.31	7.10E+01	69.94	7.52E+02	4.04
	34	910.57	906 -	914	909.94	6.49E+01	76.87	8.70E+02	2.48
M	35	933.90	927 -	939	933.28	4.22E+02	76.26	6.22E+02	2.97
m	36	938.07	927 -	939	937.44	3.90E+01	37.52	2.48E+02	1.38
	37	1000.94	994 -	1004	1000.34	1.51E+02	82.40	8.24E+02	2.08
M	38	1064.82	1063 -	1073	1064.25	6.12E+01	25.36	1.60E+02	2.25
m	39	1069.82	1063 -	1073	1069.25	7.48E+01	53.48	3.96E+02	2.74
	40	1120.13	1114 -	1125	1119.59	1.50E+03	105.98	6.50E+02	2.76

Analysis Report for 1707089-13

HTC-A04-S002-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1154.96	1149 -	1159	1154.43	2.49E+02	71.53	5.49E+02	2.57
	42	1182.62	1179 -	1187	1182.11	5.36E+01	54.70	4.27E+02	3.64
	43	1237.72	1231 -	1242	1237.23	5.60E+02	82.46	5.69E+02	2.87
	44	1280.18	1274 -	1284	1279.71	1.06E+02	66.53	5.35E+02	2.02
	45	1329.95	1325 -	1333	1329.51	4.34E+01	48.65	3.37E+02	4.74
	46	1377.06	1371 -	1382	1376.64	3.52E+02	76.05	5.50E+02	2.95
	47	1385.40	1382 -	1390	1384.99	6.42E+01	53.95	4.06E+02	3.34
M	48	1401.02	1395 -	1412	1400.61	1.33E+02	57.73	3.80E+02	3.45
m	49	1407.69	1395 -	1412	1407.29	2.09E+02	49.32	2.97E+02	2.17
	50	1460.43	1452 -	1467	1460.05	1.88E+02	82.61	6.04E+02	3.07
	51	1509.46	1504 -	1515	1509.11	1.80E+02	64.65	4.33E+02	2.28
M	52	1537.98	1534 -	1549	1537.64	3.91E+01	40.79	3.21E+02	3.54
m	53	1543.60	1534 -	1549	1543.26	8.20E+01	50.87	3.14E+02	2.89
	54	1582.17	1578 -	1586	1581.86	9.08E+01	41.42	2.10E+02	3.25
	55	1661.30	1656 -	1665	1661.03	7.39E+01	37.96	1.60E+02	2.00
M	56	1718.47	1714 -	1738	1718.23	2.29E+01	28.39	1.23E+02	2.94
m	57	1729.23	1714 -	1738	1729.00	2.18E+02	40.03	1.09E+02	2.93
	58	1763.98	1756 -	1771	1763.76	1.16E+03	77.05	1.27E+02	2.81
M	59	1838.41	1832 -	1856	1838.23	3.49E+01	25.77	8.54E+01	2.98
m	60	1847.25	1832 -	1856	1847.08	1.48E+02	33.41	7.28E+01	2.98
	61	1871.22	1863 -	1877	1871.06	6.59E+01	32.29	8.02E+01	8.64
	62	1958.50	1955 -	1961	1958.40	1.40E+01	17.41	4.40E+01	2.84
	63	2118.05	2113 -	2123	2118.04	9.82E+01	25.33	3.36E+01	2.15
	64	2203.68	2197 -	2209	2203.72	2.26E+02	37.42	5.86E+01	3.23
	65	2447.01	2442 -	2451	2447.22	8.30E+01	18.22	0.00E+00	3.08
	66	2613.52	2608 -	2618	2613.83	3.00E+01	10.95	0.00E+00	2.95

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 : 8/23/2017 10:18:17AM

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

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
1	25.20	22 -	27	1.92E+02	199.16	7.77E+03	1.62E+02
2	46.48	42 -	48	9.45E+02	253.56	1.11E+04	2.02E+02

Analysis Report for 1707089-13

HTC-A04-S002-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	3	53.29	50 -	55	3.88E+02	236.79	1.10E+04	1.92E+02
	4	63.15	59 -	65	2.08E+03	325.22	1.78E+04	2.57E+02
	5	76.16	69 -	81	1.21E+04	591.50	3.55E+04	4.51E+02
M	6	83.85	81 -	96	5.66E+02	203.14	1.03E+04	1.67E+02
m	7	87.55	81 -	96	2.43E+03	354.23	1.89E+04	2.26E+02
m	8	92.60	81 -	96	3.67E+03	353.06	1.67E+04	2.12E+02
	9	113.00	109 -	115	4.17E+02	258.83	1.18E+04	2.10E+02
	10	143.72	140 -	146	4.71E+02	261.20	1.20E+04	2.12E+02
	11	155.00	152 -	157	2.29E+02	225.99	9.97E+03	1.84E+02
	12	186.01	180 -	190	3.99E+03	354.96	1.46E+04	2.73E+02
	13	205.36	202 -	207	1.68E+02	183.71	6.58E+03	1.50E+02
	14	241.94	236 -	246	3.38E+03	294.96	9.67E+03	2.23E+02
	15	257.98	253 -	262	4.25E+02	224.73	6.95E+03	1.82E+02
	16	269.93	265 -	273	3.16E+02	205.17	6.31E+03	1.66E+02
	17	295.23	289 -	298	6.91E+03	266.79	6.22E+03	1.72E+02
	18	351.96	345 -	357	1.15E+04	301.11	5.22E+03	1.74E+02
	19	387.81	383 -	390	1.86E+02	135.22	2.92E+03	1.09E+02
	20	402.77	398 -	406	1.79E+02	149.55	3.32E+03	1.21E+02
	21	474.59	472 -	476	9.48E+01	68.79	9.54E+02	5.42E+01
	22	480.05	477 -	483	9.07E+01	91.27	1.47E+03	7.34E+01
	23	487.31	483 -	490	1.62E+02	103.50	1.67E+03	8.25E+01
	24	510.85	503 -	516	3.46E+02	150.98	2.38E+03	1.20E+02
	25	609.23	603 -	614	7.68E+03	209.49	1.64E+03	9.44E+01
M	26	665.25	658 -	672	2.84E+02	78.10	8.22E+02	4.71E+01
m	27	669.24	658 -	672	6.57E+01	77.05	7.69E+02	4.56E+01
	28	704.11	701 -	706	7.39E+01	58.62	6.16E+02	4.61E+01
	29	768.24	761 -	774	7.70E+02	127.14	1.45E+03	9.40E+01
	30	786.21	781 -	789	1.90E+02	79.70	8.52E+02	6.15E+01
	31	805.77	799 -	810	1.58E+02	102.47	1.23E+03	8.17E+01
	32	839.73	837 -	842	7.45E+01	56.52	5.75E+02	4.42E+01
	33	890.96	886 -	893	7.10E+01	69.94	7.52E+02	5.58E+01
	34	910.57	906 -	914	6.49E+01	76.87	8.70E+02	6.18E+01
M	35	933.90	927 -	939	4.22E+02	76.26	6.22E+02	4.10E+01
m	36	938.07	927 -	939	3.90E+01	37.52	2.48E+02	2.59E+01
	37	1000.94	994 -	1004	1.51E+02	82.40	8.24E+02	6.46E+01
M	38	1064.82	1063 -	1073	6.12E+01	25.36	1.60E+02	2.08E+01
m	39	1069.82	1063 -	1073	7.48E+01	53.48	3.96E+02	3.27E+01
	40	1120.13	1114 -	1125	1.50E+03	105.98	6.50E+02	5.94E+01
	41	1154.96	1149 -	1159	2.49E+02	71.53	5.49E+02	5.28E+01
	42	1182.62	1179 -	1187	5.36E+01	54.70	4.27E+02	4.33E+01
	43	1237.72	1231 -	1242	5.60E+02	82.46	5.69E+02	5.55E+01
	44	1280.18	1274 -	1284	1.06E+02	66.53	5.35E+02	5.20E+01
	45	1329.95	1325 -	1333	4.34E+01	48.65	3.37E+02	3.85E+01
	46	1377.06	1371 -	1382	3.52E+02	76.05	5.50E+02	5.44E+01
	47	1385.40	1382 -	1390	6.42E+01	53.95	4.06E+02	4.23E+01
M	48	1401.02	1395 -	1412	1.33E+02	57.73	3.80E+02	3.21E+01
m	49	1407.69	1395 -	1412	2.09E+02	49.32	2.97E+02	2.83E+01
	50	1460.43	1452 -	1467	1.88E+02	82.61	6.04E+02	6.41E+01
	51	1509.46	1504 -	1515	1.80E+02	64.65	4.33E+02	4.83E+01
M	52	1537.98	1534 -	1549	3.91E+01	40.79	3.21E+02	2.95E+01
m	53	1543.60	1534 -	1549	8.20E+01	50.87	3.14E+02	2.91E+01

Analysis Report for 1707089-13

HTC-A04-S002-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	54	1582.17	1578 -	1586	9.08E+01	41.42	2.10E+02	3.02E+01
	55	1661.30	1656 -	1665	7.39E+01	37.96	1.60E+02	2.78E+01
M	56	1718.47	1714 -	1738	2.29E+01	28.39	1.23E+02	1.82E+01
m	57	1729.23	1714 -	1738	2.18E+02	40.03	1.09E+02	1.72E+01
	58	1763.98	1756 -	1771	1.16E+03	77.05	1.27E+02	2.94E+01
M	59	1838.41	1832 -	1856	3.49E+01	25.77	8.54E+01	1.52E+01
m	60	1847.25	1832 -	1856	1.48E+02	33.41	7.28E+01	1.40E+01
	61	1871.22	1863 -	1877	6.59E+01	32.29	8.02E+01	2.29E+01
	62	1958.50	1955 -	1961	1.40E+01	17.41	4.40E+01	1.29E+01
	63	2118.05	2113 -	2123	9.82E+01	25.33	3.36E+01	1.30E+01
	64	2203.68	2197 -	2209	2.26E+02	37.42	5.86E+01	1.83E+01
	65	2447.01	2442 -	2451	8.30E+01	18.22	0.00E+00	0.00E+00
	66	2613.52	2608 -	2618	3.00E+01	10.95	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 : 8/23/2017 10:18:17AM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	25.20	22 -	27	24.24	1.92E+02	199.16	7.77E+03	TH-231
	2	46.48	42 -	48	45.53	9.45E+02	253.56	1.11E+04	PB-210
	3	53.29	50 -	55	52.34	3.88E+02	236.79	1.10E+04	.....
	4	63.15	59 -	65	62.20	2.08E+03	325.22	1.78E+04	TH-234
									TH-230
	5	76.16	69 -	81	75.22	1.21E+04	591.50	3.55E+04	.....
M	6	83.85	81 -	96	82.91	5.66E+02	203.14	1.03E+04	TH-231
m	7	87.55	81 -	96	86.61	2.43E+03	354.23	1.89E+04	SN-126
									CD-109
									LU-176
m	8	92.60	81 -	96	91.66	3.67E+03	353.06	1.67E+04	GA-67
	9	113.00	109 -	115	112.07	4.17E+02	258.83	1.18E+04	.....

Analysis Report for 1707089-13

HTC-A04-S002-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	10	143.72	140 -	146	142.80	4.71E+02	261.20	1.20E+04	U-235
	11	155.00	152 -	157	154.09	2.29E+02	225.99	9.97E+03	.....
	12	186.01	180 -	190	185.10	3.99E+03	354.96	1.46E+04	RA-226
	13	205.36	202 -	207	204.45	1.68E+02	183.71	6.58E+03	U-235
	14	241.94	236 -	246	241.05	3.38E+03	294.96	9.67E+03	RA-224
	15	257.98	253 -	262	257.10	4.25E+02	224.73	6.95E+03	.....
	16	269.93	265 -	273	269.05	3.16E+02	205.17	6.31E+03	.....
	17	295.23	289 -	298	294.36	6.91E+03	266.79	6.22E+03	PB-214
	18	351.96	345 -	357	351.10	1.15E+04	301.11	5.22E+03	PB-214
	19	387.81	383 -	390	386.97	1.86E+02	135.22	2.92E+03	.....
	20	402.77	398 -	406	401.93	1.79E+02	149.55	3.32E+03	RN-219
	21	474.59	472 -	476	473.78	9.48E+01	68.79	9.54E+02	.....
	22	480.05	477 -	483	479.24	9.07E+01	91.27	1.47E+03	.....
	23	487.31	483 -	490	486.51	1.62E+02	103.50	1.67E+03	LA-140
	24	510.85	503 -	516	510.05	3.46E+02	150.98	2.38E+03	.....
	25	609.23	603 -	614	608.47	7.68E+03	209.49	1.64E+03	BI-214
M	26	665.25	658 -	672	664.51	2.84E+02	78.10	8.22E+02	CE-143
m	27	669.24	658 -	672	668.51	6.57E+01	77.05	7.69E+02	.....
	28	704.11	701 -	706	703.38	7.39E+01	58.62	6.16E+02	.....
	29	768.24	761 -	774	767.54	7.70E+02	127.14	1.45E+03	.....
	30	786.21	781 -	789	785.52	1.90E+02	79.70	8.52E+02	.....
	31	805.77	799 -	810	805.08	1.58E+02	102.47	1.23E+03	.....
	32	839.73	837 -	842	839.07	7.45E+01	56.52	5.75E+02	.....
	33	890.96	886 -	893	890.31	7.10E+01	69.94	7.52E+02	.....
	34	910.57	906 -	914	909.94	6.49E+01	76.87	8.70E+02	AC-228
M	35	933.90	927 -	939	933.28	4.22E+02	76.26	6.22E+02	.....
m	36	938.07	927 -	939	937.44	3.90E+01	37.52	2.48E+02	.....
	37	1000.94	994 -	1004	1000.34	1.51E+02	82.40	8.24E+02	PA-234M
M	38	1064.82	1063 -	1073	1064.25	6.12E+01	25.36	1.60E+02	.....
m	39	1069.82	1063 -	1073	1069.25	7.48E+01	53.48	3.96E+02	.....
	40	1120.13	1114 -	1125	1119.59	1.50E+03	105.98	6.50E+02	BI-214 SC-46
	41	1154.96	1149 -	1159	1154.43	2.49E+02	71.53	5.49E+02	.....
	42	1182.62	1179 -	1187	1182.11	5.36E+01	54.70	4.27E+02	.....
	43	1237.72	1231 -	1242	1237.23	5.60E+02	82.46	5.69E+02	CO-56
	44	1280.18	1274 -	1284	1279.71	1.06E+02	66.53	5.35E+02	.....
	45	1329.95	1325 -	1333	1329.51	4.34E+01	48.65	3.37E+02	.....
	46	1377.06	1371 -	1382	1376.64	3.52E+02	76.05	5.50E+02	.....
	47	1385.40	1382 -	1390	1384.99	6.42E+01	53.95	4.06E+02	.....
M	48	1401.02	1395 -	1412	1400.61	1.33E+02	57.73	3.80E+02	.....
m	49	1407.69	1395 -	1412	1407.29	2.09E+02	49.32	2.97E+02	EU-152
	50	1460.43	1452 -	1467	1460.05	1.88E+02	82.61	6.04E+02	K-40
	51	1509.46	1504 -	1515	1509.11	1.80E+02	64.65	4.33E+02	.....
M	52	1537.98	1534 -	1549	1537.64	3.91E+01	40.79	3.21E+02	.....
m	53	1543.60	1534 -	1549	1543.26	8.20E+01	50.87	3.14E+02	.....
	54	1582.17	1578 -	1586	1581.86	9.08E+01	41.42	2.10E+02	.....
	55	1661.30	1656 -	1665	1661.03	7.39E+01	37.96	1.60E+02	.....
M	56	1718.47	1714 -	1738	1718.23	2.29E+01	28.39	1.23E+02	.....
m	57	1729.23	1714 -	1738	1729.00	2.18E+02	40.03	1.09E+02	.....
	58	1763.98	1756 -	1771	1763.76	1.16E+03	77.05	1.27E+02	BI-214
M	59	1838.41	1832 -	1856	1838.23	3.49E+01	25.77	8.54E+01	.....
m	60	1847.25	1832 -	1856	1847.08	1.48E+02	33.41	7.28E+01	.....
	61	1871.22	1863 -	1877	1871.06	6.59E+01	32.29	8.02E+01	.....
	62	1958.50	1955 -	1961	1958.40	1.40E+01	17.41	4.40E+01	.....

Analysis Report for 1707089-13

HTC-A04-S002-3036-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
63	2118.05	2113 -	2123	2118.04	9.82E+01	25.33	3.36E+01	.....
64	2203.68	2197 -	2209	2203.72	2.26E+02	37.42	5.86E+01	BI-214
65	2447.01	2442 -	2451	2447.22	8.30E+01	18.22	0.00E+00	.....
66	2613.52	2608 -	2618	2613.83	3.00E+01	10.95	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 : 8/23/2017 10:18:17AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	25.20	1.92E+02	199.16	5.28E-03	1.56E-03
	2	46.48	9.45E+02	253.56	1.64E-02	1.56E-03
	3	53.29	3.88E+02	236.79	1.90E-02	1.56E-03
	4	63.15	2.08E+03	325.22	2.15E-02	1.64E-03
	5	76.16	1.21E+04	591.50	2.32E-02	1.91E-03
M	6	83.85	5.66E+02	203.14	2.36E-02	2.08E-03
m	7	87.55	2.43E+03	354.23	2.37E-02	2.16E-03
m	8	92.60	3.67E+03	353.06	2.37E-02	2.10E-03
	9	113.00	4.17E+02	258.83	2.27E-02	1.79E-03
	10	143.72	4.71E+02	261.20	2.03E-02	1.57E-03
	11	155.00	2.29E+02	225.99	1.94E-02	1.53E-03
	12	186.01	3.99E+03	354.96	1.69E-02	1.40E-03
	13	205.36	1.68E+02	183.71	1.56E-02	1.30E-03
	14	241.94	3.38E+03	294.96	1.34E-02	1.13E-03
	15	257.98	4.25E+02	224.73	1.26E-02	1.05E-03
	16	269.93	3.16E+02	205.17	1.21E-02	9.92E-04
	17	295.23	6.91E+03	266.79	1.10E-02	9.13E-04
	18	351.96	1.15E+04	301.11	9.22E-03	7.94E-04
	19	387.81	1.86E+02	135.22	8.34E-03	7.19E-04
	20	402.77	1.79E+02	149.55	8.02E-03	7.06E-04
	21	474.59	9.48E+01	68.79	6.77E-03	6.76E-04
	22	480.05	9.07E+01	91.27	6.69E-03	6.74E-04
	23	487.31	1.62E+02	103.50	6.59E-03	6.71E-04
	24	510.85	3.46E+02	150.98	6.28E-03	6.61E-04
	25	609.23	7.68E+03	209.49	5.27E-03	6.20E-04
M	26	665.25	2.84E+02	78.10	4.84E-03	5.94E-04

Analysis Report for 1707089-13

HTC-A04-S002-3036-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	27	669.24	6.57E+01	77.05	4.82E-03	5.89E-04
	28	704.11	7.39E+01	58.62	4.59E-03	5.45E-04
	29	768.24	7.70E+02	127.14	4.23E-03	4.65E-04
	30	786.21	1.90E+02	79.70	4.14E-03	4.42E-04
	31	805.77	1.58E+02	102.47	4.05E-03	4.18E-04
	32	839.73	7.45E+01	56.52	3.90E-03	3.75E-04
	33	890.96	7.10E+01	69.94	3.69E-03	3.11E-04
	34	910.57	6.49E+01	76.87	3.62E-03	2.99E-04
M	35	933.90	4.22E+02	76.26	3.54E-03	2.94E-04
m	36	938.07	3.90E+01	37.52	3.53E-03	2.93E-04
	37	1000.94	1.51E+02	82.40	3.33E-03	2.78E-04
M	38	1064.82	6.12E+01	25.36	3.15E-03	2.63E-04
m	39	1069.82	7.48E+01	53.48	3.14E-03	2.62E-04
	40	1120.13	1.50E+03	105.98	3.02E-03	2.50E-04
	41	1154.96	2.49E+02	71.53	2.94E-03	2.42E-04
	42	1182.62	5.36E+01	54.70	2.88E-03	2.37E-04
	43	1237.72	5.60E+02	82.46	2.76E-03	2.33E-04
	44	1280.18	1.06E+02	66.53	2.68E-03	2.31E-04
	45	1329.95	4.34E+01	48.65	2.59E-03	2.27E-04
	46	1377.06	3.52E+02	76.05	2.51E-03	2.20E-04
	47	1385.40	6.42E+01	53.95	2.50E-03	2.19E-04
M	48	1401.02	1.33E+02	57.73	2.48E-03	2.17E-04
m	49	1407.69	2.09E+02	49.32	2.47E-03	2.16E-04
	50	1460.43	1.88E+02	82.61	2.39E-03	2.08E-04
	51	1509.46	1.80E+02	64.65	2.31E-03	2.00E-04
M	52	1537.98	3.91E+01	40.79	2.28E-03	1.96E-04
m	53	1543.60	8.20E+01	50.87	2.27E-03	1.95E-04
	54	1582.17	9.08E+01	41.42	2.22E-03	1.89E-04
	55	1661.30	7.39E+01	37.96	2.12E-03	1.78E-04
M	56	1718.47	2.29E+01	28.39	2.05E-03	1.69E-04
m	57	1729.23	2.18E+02	40.03	2.04E-03	1.67E-04
	58	1763.98	1.16E+03	77.05	2.00E-03	1.62E-04
M	59	1838.41	3.49E+01	25.77	1.92E-03	1.51E-04
m	60	1847.25	1.48E+02	33.41	1.91E-03	1.51E-04
	61	1871.22	6.59E+01	32.29	1.89E-03	1.51E-04
	62	1958.50	1.40E+01	17.41	1.80E-03	1.51E-04
	63	2118.05	9.82E+01	25.33	1.65E-03	1.51E-04
	64	2203.68	2.26E+02	37.42	1.58E-03	1.51E-04
	65	2447.01	8.30E+01	18.22	1.39E-03	1.51E-04
	66	2613.52	3.00E+01	10.95	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 1707089-13

HTC-A04-S002-3036-01

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/23/2017 10:18:17AM

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	25.20	1.92E+02	199.16			1.92E+02	1.99E+02
	2	46.48	9.45E+02	253.56	2.81E+01	8.29E+00	9.17E+02	2.54E+02
	3	53.29	3.88E+02	236.79			3.88E+02	2.37E+02
	4	63.15	2.08E+03	325.22	5.67E+01	8.57E+00	2.02E+03	3.25E+02
	5	76.16	1.21E+04	591.50			1.21E+04	5.92E+02
M	6	83.85	5.66E+02	203.14			5.66E+02	2.03E+02
m	7	87.55	2.43E+03	354.23			2.43E+03	3.54E+02
m	8	92.60	3.67E+03	353.06	5.99E+01	8.61E+00	3.61E+03	3.53E+02
	9	113.00	4.17E+02	258.83			4.17E+02	2.59E+02
	10	143.72	4.71E+02	261.20			4.71E+02	2.61E+02
	11	155.00	2.29E+02	225.99			2.29E+02	2.26E+02
	12	186.01	3.99E+03	354.96	2.43E+01	7.50E+00	3.97E+03	3.55E+02
	13	205.36	1.68E+02	183.71			1.68E+02	1.84E+02
	14	241.94	3.38E+03	294.96			3.38E+03	2.95E+02
	15	257.98	4.25E+02	224.73			4.25E+02	2.25E+02
	16	269.93	3.16E+02	205.17			3.16E+02	2.05E+02
	17	295.23	6.91E+03	266.79			6.91E+03	2.67E+02
	18	351.96	1.15E+04	301.11			1.15E+04	3.01E+02
	19	387.81	1.86E+02	135.22			1.86E+02	1.35E+02
	20	402.77	1.79E+02	149.55			1.79E+02	1.50E+02
	21	474.59	9.48E+01	68.79			9.48E+01	6.88E+01
	22	480.05	9.07E+01	91.27			9.07E+01	9.13E+01
	23	487.31	1.62E+02	103.50			1.62E+02	1.03E+02
	24	510.85	3.46E+02	150.98	4.55E+01	4.99E+00	3.00E+02	1.51E+02
	25	609.23	7.68E+03	209.49			7.68E+03	2.09E+02
M	26	665.25	2.84E+02	78.10			2.84E+02	7.81E+01
m	27	669.24	6.57E+01	77.05			6.57E+01	7.70E+01
	28	704.11	7.39E+01	58.62			7.39E+01	5.86E+01
	29	768.24	7.70E+02	127.14			7.70E+02	1.27E+02
	30	786.21	1.90E+02	79.70			1.90E+02	7.97E+01
	31	805.77	1.58E+02	102.47			1.58E+02	1.02E+02
	32	839.73	7.45E+01	56.52			7.45E+01	5.65E+01
	33	890.96	7.10E+01	69.94			7.10E+01	6.99E+01
	34	910.57	6.49E+01	76.87			6.49E+01	7.69E+01
M	35	933.90	4.22E+02	76.26			4.22E+02	7.63E+01
m	36	938.07	3.90E+01	37.52			3.90E+01	3.75E+01
	37	1000.94	1.51E+02	82.40			1.51E+02	8.24E+01
M	38	1064.82	6.12E+01	25.36			6.12E+01	2.54E+01
m	39	1069.82	7.48E+01	53.48			7.48E+01	5.35E+01
	40	1120.13	1.50E+03	105.98			1.50E+03	1.06E+02
	41	1154.96	2.49E+02	71.53			2.49E+02	7.15E+01
	42	1182.62	5.36E+01	54.70			5.36E+01	5.47E+01
	43	1237.72	5.60E+02	82.46			5.60E+02	8.25E+01
	44	1280.18	1.06E+02	66.53			1.06E+02	6.65E+01

Analysis Report for 1707089-13

HTC-A04-S002-3036-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	45	1329.95	4.34E+01	48.65			4.34E+01	4.86E+01
	46	1377.06	3.52E+02	76.05			3.52E+02	7.61E+01
	47	1385.40	6.42E+01	53.95			6.42E+01	5.40E+01
M	48	1401.02	1.33E+02	57.73			1.33E+02	5.77E+01
m	49	1407.69	2.09E+02	49.32			2.09E+02	4.93E+01
	50	1460.43	1.88E+02	82.61			1.88E+02	8.26E+01
	51	1509.46	1.80E+02	64.65			1.80E+02	6.47E+01
M	52	1537.98	3.91E+01	40.79			3.91E+01	4.08E+01
m	53	1543.60	8.20E+01	50.87			8.20E+01	5.09E+01
	54	1582.17	9.08E+01	41.42			9.08E+01	4.14E+01
	55	1661.30	7.39E+01	37.96			7.39E+01	3.80E+01
M	56	1718.47	2.29E+01	28.39			2.29E+01	2.84E+01
m	57	1729.23	2.18E+02	40.03			2.18E+02	4.00E+01
	58	1763.98	1.16E+03	77.05			1.16E+03	7.70E+01
M	59	1838.41	3.49E+01	25.77			3.49E+01	2.58E+01
m	60	1847.25	1.48E+02	33.41			1.48E+02	3.34E+01
	61	1871.22	6.59E+01	32.29			6.59E+01	3.23E+01
	62	1958.50	1.40E+01	17.41			1.40E+01	1.74E+01
	63	2118.05	9.82E+01	25.33			9.82E+01	2.53E+01
	64	2203.68	2.26E+02	37.42			2.26E+02	3.74E+01
	65	2447.01	8.30E+01	18.22			8.30E+01	1.82E+01
	66	2613.52	3.00E+01	10.95			3.00E+01	1.10E+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 : 8/23/2017 10:18:17AM

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	25.20	1.92E+02	199.16			1.92E+02	1.99E+02
	2	46.48	9.45E+02	253.56	2.81E+01	8.29E+00	9.17E+02	2.54E+02
	3	53.29	3.88E+02	236.79			3.88E+02	2.37E+02
	4	63.15	2.08E+03	325.22	5.67E+01	8.57E+00	2.02E+03	3.25E+02
	5	76.16	1.21E+04	591.50			1.21E+04	5.92E+02
M	6	83.85	5.66E+02	203.14			5.66E+02	2.03E+02

Analysis Report for 1707089-13

HTC-A04-S002-3036-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
m	7	87.55	2.43E+03	354.23			2.43E+03	3.54E+02
m	8	92.60	3.67E+03	353.06	5.99E+01	8.61E+00	3.61E+03	3.53E+02
	9	113.00	4.17E+02	258.83			4.17E+02	2.59E+02
	10	143.72	4.71E+02	261.20			4.71E+02	2.61E+02
	11	155.00	2.29E+02	225.99			2.29E+02	2.26E+02
	12	186.01	3.99E+03	354.96	2.43E+01	7.50E+00	3.97E+03	3.55E+02
	13	205.36	1.68E+02	183.71			1.68E+02	1.84E+02
	14	241.94	3.38E+03	294.96			3.38E+03	2.95E+02
	15	257.98	4.25E+02	224.73			4.25E+02	2.25E+02
	16	269.93	3.16E+02	205.17			3.16E+02	2.05E+02
	17	295.23	6.91E+03	266.79			6.91E+03	2.67E+02
	18	351.96	1.15E+04	301.11			1.15E+04	3.01E+02
	19	387.81	1.86E+02	135.22			1.86E+02	1.35E+02
	20	402.77	1.79E+02	149.55			1.79E+02	1.50E+02
	21	474.59	9.48E+01	68.79			9.48E+01	6.88E+01
	22	480.05	9.07E+01	91.27			9.07E+01	9.13E+01
	23	487.31	1.62E+02	103.50			1.62E+02	1.03E+02
	24	510.85	3.46E+02	150.98	4.55E+01	4.99E+00	3.00E+02	1.51E+02
	25	609.23	7.68E+03	209.49			7.68E+03	2.09E+02
M	26	665.25	2.84E+02	78.10			2.84E+02	7.81E+01
m	27	669.24	6.57E+01	77.05			6.57E+01	7.70E+01
	28	704.11	7.39E+01	58.62			7.39E+01	5.86E+01
	29	768.24	7.70E+02	127.14			7.70E+02	1.27E+02
	30	786.21	1.90E+02	79.70			1.90E+02	7.97E+01
	31	805.77	1.58E+02	102.47			1.58E+02	1.02E+02
	32	839.73	7.45E+01	56.52			7.45E+01	5.65E+01
	33	890.96	7.10E+01	69.94			7.10E+01	6.99E+01
	34	910.57	6.49E+01	76.87			6.49E+01	7.69E+01
M	35	933.90	4.22E+02	76.26			4.22E+02	7.63E+01
m	36	938.07	3.90E+01	37.52			3.90E+01	3.75E+01
	37	1000.94	1.51E+02	82.40			1.51E+02	8.24E+01
M	38	1064.82	6.12E+01	25.36			6.12E+01	2.54E+01
m	39	1069.82	7.48E+01	53.48			7.48E+01	5.35E+01
	40	1120.13	1.50E+03	105.98			1.50E+03	1.06E+02
	41	1154.96	2.49E+02	71.53			2.49E+02	7.15E+01
	42	1182.62	5.36E+01	54.70			5.36E+01	5.47E+01
	43	1237.72	5.60E+02	82.46			5.60E+02	8.25E+01
	44	1280.18	1.06E+02	66.53			1.06E+02	6.65E+01
	45	1329.95	4.34E+01	48.65			4.34E+01	4.86E+01
	46	1377.06	3.52E+02	76.05			3.52E+02	7.61E+01
	47	1385.40	6.42E+01	53.95			6.42E+01	5.40E+01
M	48	1401.02	1.33E+02	57.73			1.33E+02	5.77E+01
m	49	1407.69	2.09E+02	49.32			2.09E+02	4.93E+01
	50	1460.43	1.88E+02	82.61			1.88E+02	8.26E+01
	51	1509.46	1.80E+02	64.65			1.80E+02	6.47E+01
M	52	1537.98	3.91E+01	40.79			3.91E+01	4.08E+01
m	53	1543.60	8.20E+01	50.87			8.20E+01	5.09E+01
	54	1582.17	9.08E+01	41.42			9.08E+01	4.14E+01
	55	1661.30	7.39E+01	37.96			7.39E+01	3.80E+01
M	56	1718.47	2.29E+01	28.39			2.29E+01	2.84E+01
m	57	1729.23	2.18E+02	40.03			2.18E+02	4.00E+01
	58	1763.98	1.16E+03	77.05			1.16E+03	7.70E+01
M	59	1838.41	3.49E+01	25.77			3.49E+01	2.58E+01
m	60	1847.25	1.48E+02	33.41			1.48E+02	3.34E+01

Analysis Report for 1707089-13

HTC-A04-S002-3036-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
61	1871.22	6.59E+01	32.29			6.59E+01	3.23E+01
62	1958.50	1.40E+01	17.41			1.40E+01	1.74E+01
63	2118.05	9.82E+01	25.33			9.82E+01	2.53E+01
64	2203.68	2.26E+02	37.42			2.26E+02	3.74E+01
65	2447.01	8.30E+01	18.22			8.30E+01	1.82E+01
66	2613.52	3.00E+01	10.95			3.00E+01	1.10E+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	0.977	1460.81	*	10.67	7.41E+00	3.32E+00
CD-109	0.963	88.03	*	3.72	3.21E+01	5.83E+00
SN-126	1.000	87.57	*	37.00	2.78E+00	4.78E-01
PB-210	1.000	46.50	*	4.25	1.33E+01	3.89E+00
BI-214	0.988	609.31	*	46.30	3.16E+01	3.81E+00
		1120.29	*	15.10	3.31E+01	3.60E+00
		1764.49	*	15.80	3.70E+01	3.87E+00
		2204.22	*	4.98	2.88E+01	5.50E+00
PB-214	1.000	295.21	*	19.19	3.28E+01	2.99E+00
		351.92	*	37.19	3.36E+01	3.03E+00
RN-219	0.861	401.80	*	6.50	3.44E+00	2.90E+00
RA-224	0.864	240.98	*	3.95	6.40E+01	7.76E+00
RA-226	0.994	186.21	*	3.28	7.18E+01	1.32E+02
TH-231	0.972	25.64	*	14.70	2.48E+00	2.68E+00
		84.21	*	6.40	3.76E+00	1.39E+00
PA-234M	0.999	1001.03	*	0.92	4.95E+01	2.73E+01
TH-234	0.997	63.29	*	3.80	2.48E+01	4.42E+00
U-235	0.623	143.76	*	10.50	2.21E+00	1.29E+00
		163.35		4.70		
		205.31	*	4.70	2.30E+00	2.56E+00

Analysis Report for 1707089-13

HTC-A04-S002-3036-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 10:18:17AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	53.29	1.07753E-01	30.52		
	5	76.16	3.35015E+00	2.45		
m	8	92.60	1.00254E+00	4.89	Sum	
	9	113.00	1.15830E-01	31.04	Sum	
	11	155.00	6.36475E-02	49.32		
	15	257.98	1.18157E-01	26.42		
	16	269.93	8.77873E-02	32.46	Sum	
	19	387.81	5.16908E-02	36.33		
	21	474.59	2.63323E-02	36.28		
	22	480.05	2.51869E-02	50.33		
	23	487.31	4.49332E-02	31.99	Sum	
	24	510.85	8.33332E-02	25.18		
M	26	665.25	7.90143E-02	13.73	Tol.	CE-143
m	27	669.24	1.82594E-02	58.60		
	28	704.11	2.05156E-02	39.68	Sum	
	29	768.24	2.13753E-01	8.26		
	30	786.21	5.27128E-02	21.00		
	31	805.77	4.38359E-02	32.47	Sum	
	32	839.73	2.06891E-02	37.94		
	33	890.96	1.97166E-02	49.27		
	34	910.57	1.80406E-02	59.18	Tol.	AC-228
M	35	933.90	1.17299E-01	9.03		
m	36	938.07	1.08262E-02	48.14		
M	38	1064.82	1.70134E-02	20.70	Sum	
m	39	1069.82	2.07890E-02	35.73		
	41	1154.96	6.90774E-02	14.38		
	42	1182.62	1.48856E-02	51.03	D-Esc	
	43	1237.72	1.55632E-01	7.36		
	44	1280.18	2.93398E-02	31.49		
	45	1329.95	1.20670E-02	55.99		
	46	1377.06	9.77186E-02	10.81		
	47	1385.40	1.78314E-02	42.02		
M	48	1401.02	3.70020E-02	21.67		
m	49	1407.69	5.80121E-02	11.81	Tol.	EU-152

Analysis Report for 1707089-13

HTC-A04-S002-3036-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	51	1509.46	5.01119E-02	17.92		
M	52	1537.98	1.08626E-02	52.15		
m	53	1543.60	2.27678E-02	31.03	Sum	
	54	1582.17	2.52197E-02	22.81		
	55	1661.30	2.05186E-02	25.70		
M	56	1718.47	6.37113E-03	61.90		
m	57	1729.23	6.06700E-02	9.16	Sum	
M	59	1838.41	9.68679E-03	36.95		
m	60	1847.25	4.10793E-02	11.30	Sum	
	61	1871.22	1.83071E-02	24.50		
	62	1958.50	3.88889E-03	62.19		
	63	2118.05	2.72778E-02	12.90		
	65	2447.01	2.30556E-02	10.98		
	66	2613.52	8.33333E-03	18.26		

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	7.41E+00	3.32E+00
CD-109	0.96	88.03	*	3.72	3.21E+01	5.83E+00
SN-126	1.00	87.57	*	37.00	2.78E+00	4.78E-01
PB-210	1.00	46.50	*	4.25	1.33E+01	3.89E+00
BI-214	0.98	609.31	*	46.30	3.16E+01	3.81E+00
		1120.29	*	15.10	3.31E+01	3.60E+00
		1764.49	*	15.80	3.70E+01	3.87E+00
		2204.22	*	4.98	2.88E+01	5.50E+00
PB-214	1.00	295.21	*	19.19	3.28E+01	2.99E+00
		351.92	*	37.19	3.36E+01	3.03E+00
RN-219	0.86	401.80	*	6.50	3.44E+00	2.90E+00
RA-224	0.86	240.98	*	3.95	6.40E+01	7.76E+00
RA-226	0.99	186.21	*	3.28	7.18E+01	1.32E+02
TH-231	0.97	25.64	*	14.70	2.48E+00	2.68E+00

Analysis Report for 1707089-13

HTC-A04-S002-3036-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
TH-231	0.97	84.21	*	6.40	3.76E+00	1.39E+00
PA-234M	0.99	1001.03	*	0.92	4.95E+01	2.73E+01
TH-234	0.99	63.29	*	3.80	2.48E+01	4.42E+00
U-235	0.62	143.76	*	10.50	2.21E+00	1.29E+00
		163.35		4.70		
		205.31	*	4.70	2.30E+00	2.56E+00

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.977	7.41E+00	3.32E+00	
?	CD-109	0.963	3.21E+01	5.83E+00	
?	SN-126	1.000	2.78E+00	4.78E-01	
	PB-210	1.000	1.33E+01	3.89E+00	
	BI-214	0.988	3.31E+01	2.02E+00	
	PB-214	1.000	3.32E+01	2.13E+00	
	RN-219	0.861	3.44E+00	2.90E+00	
	RA-224	0.864	6.40E+01	7.76E+00	
	RA-226	0.994	7.18E+01	1.32E+02	
	TH-231	0.972	3.49E+00	1.23E+00	
	PA-234M	0.999	4.95E+01	2.73E+01	
	TH-234	0.997	2.48E+01	4.42E+00	
	U-235	0.623	2.23E+00	1.15E+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 1707089-13

HTC-A04-S002-3036-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 10:18:17AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	53.29	1.07753E-01	30.52		
	5	76.16	3.35015E+00	2.45		
m	8	92.60	1.00254E+00	4.89	Sum	
	9	113.00	1.15830E-01	31.04	Sum	
	11	155.00	6.36475E-02	49.32		
	15	257.98	1.18157E-01	26.42		
	16	269.93	8.77873E-02	32.46	Sum	
	19	387.81	5.16908E-02	36.33		
	21	474.59	2.63323E-02	36.28		
	22	480.05	2.51869E-02	50.33		
	23	487.31	4.49332E-02	31.99	Sum	
	24	510.85	8.33332E-02	25.18		
M	26	665.25	7.90143E-02	13.73	Tol.	CE-143
m	27	669.24	1.82594E-02	58.60		
	28	704.11	2.05156E-02	39.68	Sum	
	29	768.24	2.13753E-01	8.26		
	30	786.21	5.27128E-02	21.00		
	31	805.77	4.38359E-02	32.47	Sum	
	32	839.73	2.06891E-02	37.94		
	33	890.96	1.97166E-02	49.27		
	34	910.57	1.80406E-02	59.18	Tol.	AC-228
M	35	933.90	1.17299E-01	9.03		
m	36	938.07	1.08262E-02	48.14		
M	38	1064.82	1.70134E-02	20.70	Sum	
m	39	1069.82	2.07890E-02	35.73		
	41	1154.96	6.90774E-02	14.38		
	42	1182.62	1.48856E-02	51.03	D-Esc	
	43	1237.72	1.55632E-01	7.36		
	44	1280.18	2.93398E-02	31.49		
	45	1329.95	1.20670E-02	55.99		
	46	1377.06	9.77186E-02	10.81		
	47	1385.40	1.78314E-02	42.02		
M	48	1401.02	3.70020E-02	21.67		
m	49	1407.69	5.80121E-02	11.81	Tol.	EU-152
	51	1509.46	5.01119E-02	17.92		

Analysis Report for 1707089-13

HTC-A04-S002-3036-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	52	1537.98	1.08626E-02	52.15		
m	53	1543.60	2.27678E-02	31.03	Sum	
	54	1582.17	2.52197E-02	22.81		
	55	1661.30	2.05186E-02	25.70		
M	56	1718.47	6.37113E-03	61.90		
m	57	1729.23	6.06700E-02	9.16	Sum	
M	59	1838.41	9.68679E-03	36.95		
m	60	1847.25	4.10793E-02	11.30	Sum	
	61	1871.22	1.83071E-02	24.50		
	62	1958.50	3.88889E-03	62.19		
	63	2118.05	2.72778E-02	12.90		
	65	2447.01	2.30556E-02	10.98		
	66	2613.52	8.33333E-03	18.26		

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	-2.87E-02	7.03E+00	7.03E+00
+	NA-22	1274.54		99.94	-4.99E-02	2.76E-01	2.76E-01
+	@ NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@	2754.09		99.86	1.00E+26		1.00E+26
+	AL-26	1808.65		99.76	1.15E-01	1.94E-01	1.94E-01
+	K-40	1460.81	*	10.67	7.41E+00	5.16E+00	5.16E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-1.27E-03	2.20E-01	2.20E-01
		78.34		96.00	3.73E+00		2.95E-01
+	SC-46	889.25		99.98	2.37E-01	6.68E-01	6.68E-01
		1120.51		99.99	1.14E+01		1.49E+00
+	V-48	983.52		99.98	-3.82E+00	1.94E+01	1.94E+01
		1312.10		97.50	1.11E+01		2.21E+01
+	CR-51	320.08		9.83	6.65E+00	2.37E+01	2.37E+01
+	MN-54	834.83		99.97	-1.07E-01	3.54E-01	3.54E-01

Analysis Report for 1707089-13

HTC-A04-S002-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CO-56	846.75		99.96	1.15E-01	6.58E-01	6.58E-01
		1037.75		14.03	3.19E-01		4.48E+00
		1238.25		67.00	6.62E+00		1.70E+00
		1771.40		15.51	-5.66E-01		2.61E+00
		2598.48		16.90	1.10E-01		8.10E-01
+	CO-57	122.06		85.51	1.57E-01	2.47E-01	2.47E-01
		136.48		10.60	-7.85E-01		2.10E+00
+	CO-58	810.76		99.40	1.14E-02	7.12E-01	7.12E-01
+	FE-59	1099.22		56.50	-9.87E-01	2.16E+00	2.16E+00
		1291.56		43.20	9.06E-01		2.98E+00
+	CO-60	1173.22		100.00	-7.18E-03	2.72E-01	2.72E-01
		1332.49		100.00	-1.09E-02		2.86E-01
+	ZN-65	1115.52		50.75	1.91E-02	1.28E+00	1.28E+00
+	GA-67	93.31		35.70	4.22E+09	8.34E+08	8.34E+08
		208.95		2.24	4.06E+08		1.18E+10
		300.22		16.00	4.18E+08		1.99E+09
+	SE-75	121.11		16.70	6.68E-01	5.14E-01	1.74E+00
		136.00		59.20	-1.10E-01		5.14E-01
		264.65		59.80	-4.09E-02		5.55E-01
		279.53		25.20	-1.01E+00		1.33E+00
		400.65		11.40	1.31E+00		3.47E+00
+	RB-82	776.52		13.00	-3.36E+00	2.72E+01	2.72E+01
+	RB-83	520.41		46.00	6.64E-04	9.39E-01	9.39E-01
		529.64		30.30	-1.61E-01		1.52E+00
		552.65		16.40	9.78E-01		2.83E+00
+	KR-85	513.99		0.43	2.95E+01	5.06E+01	5.06E+01
+	SR-85	513.99		99.27	3.65E-01	6.26E-01	6.26E-01
+	Y-88	898.02		93.40	2.71E-01	4.30E-01	5.89E-01
		1836.01		99.38	1.72E-01		4.30E-01
+	MO-93	263.06		56.72	-2.46E-02	2.37E-01	3.37E-01
		684.67		99.68	-7.92E-02		2.37E-01
		1477.11		99.08	2.26E-02		3.04E-01
+	NB-93M	16.57		9.43	8.94E+01	1.88E+01	1.88E+01
+	NB-94	702.63		100.00	-4.60E-02	2.47E-01	2.47E-01
		871.10		100.00	-1.28E-02		2.73E-01
+	NB-95	765.79		99.81	1.05E+01	2.75E+00	2.75E+00
+	NB-95M	235.69		25.00	1.98E+06	1.50E+08	1.50E+08
+	ZR-95	724.18		43.70	-2.71E-01	1.25E+00	1.69E+00
		756.72		55.30	-4.62E-01		1.25E+00
+	MO-99	181.06		6.20	-7.43E+10	1.41E+11	2.16E+11
		739.58		12.80	4.46E+10		1.41E+11
		778.00		4.50	-4.63E+10		3.75E+11
+	RU-103	497.08		89.00	4.32E-01	1.28E+00	1.28E+00
+	RU-106	621.84		9.80	-7.98E-01	2.41E+00	2.41E+00
+	AG-108M	433.93		89.90	5.13E-02	2.32E-01	2.32E-01
		614.37		90.40	-1.09E-02		2.41E-01
		722.95		90.50	-1.66E-02		2.81E-01
+	CD-109	88.03	*	3.72	3.21E+01	1.25E+01	1.25E+01

Analysis Report for 1707089-13

HTC-A04-S002-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	AG-110M	657.75		93.14	-1.08E-01	3.17E-01	3.17E-01
		677.61		10.53	-1.01E-01		2.75E+00
		706.67		16.46	2.83E-01		1.98E+00
		763.93		21.98	1.51E-02		1.98E+00
		884.67		71.63	1.38E-01		5.33E-01
		1384.27		23.94	-4.65E+00		1.77E+00
+	CD-113M	263.70		0.02	-6.05E+01	8.25E+02	8.25E+02
+	SN-113	255.12		1.93	-3.23E+00	5.96E-01	1.82E+01
		391.69		64.90	-6.16E-02		5.96E-01
+	TE123M	159.00		84.10	-1.61E-01	3.93E-01	3.93E-01
+	SB-124	602.71		97.87	1.69E-01	6.91E-01	6.91E-01
		645.85		7.26	-1.59E+00		8.44E+00
		722.78		11.10	-4.23E-01		7.17E+00
		1691.02		49.00	4.86E-01		1.44E+00
+	I-125	35.49		6.49	-8.84E+00	1.36E+01	1.36E+01
+	SB-125	176.33		6.89	-2.56E-01	7.97E-01	2.89E+00
		427.89		29.33	-7.69E-02		7.97E-01
		463.38		10.35	3.26E-01		2.12E+00
		600.56		17.80	4.72E-01		1.29E+00
		635.90		11.32	5.06E-01		1.89E+00
+	SB-126	414.70		83.30	6.97E+00	6.13E+01	6.76E+01
		666.33		99.60	1.61E+02		7.08E+01
		695.00		99.60	5.52E+00		6.13E+01
		720.50		53.80	3.56E+01		1.21E+02
+	SN-126	87.57	*	37.00	2.78E+00	1.09E+00	1.09E+00
+	SB-127	473.00		25.00	-2.18E+06	3.64E+07	4.59E+07
		685.20		35.70	-1.22E+07		3.64E+07
		783.80		14.70	9.16E+06		1.10E+08
+	I-129	29.78		57.00	-1.18E-01	6.98E-01	6.98E-01
		33.60		13.20	-6.49E-01		2.34E+00
		39.58		7.52	-5.37E-01		3.25E+00
+	I-131	284.30		6.05	-2.85E+02	1.25E+03	1.62E+04
		364.48		81.20	1.77E+02		1.25E+03
		636.97		7.26	2.17E+03		1.39E+04
		722.89		1.80	-4.29E+03		7.26E+04
+	TE-132	49.72		13.10	-1.71E+09	3.08E+08	2.39E+09
		228.16		88.00	1.21E+08		3.08E+08
+	BA-133	81.00		33.00	-5.65E+00	6.20E-01	6.89E-01
		302.84		17.80	-4.91E-02		1.10E+00
		356.01		60.00	6.98E-01		6.20E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-2.36E+06	2.88E+05	2.88E+05
+	CS-134	563.23		8.38	-1.45E-01	3.23E-01	2.73E+00
		569.32		15.43	3.59E-01		1.49E+00
		604.70		97.60	-6.89E-03		4.14E-01
		795.84		85.40	6.85E-02		3.23E-01
		801.93		8.73	2.62E-01		3.55E+00
+	CS-135	268.24		16.00	7.45E-01	1.26E+00	1.26E+00
+	@ I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26

Analysis Report for 1707089-13

HTC-A04-S002-3036-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
@	I-135	1260.41	28.60	1.00E+26	1.00E+26	1.00E+26
@		1678.03	9.54	1.00E+26		1.00E+26
+	CS-136	153.22	7.46	1.10E+02	4.93E+01	4.74E+02
		163.89	4.61	4.72E+02		7.52E+02
		176.55	13.56	-8.07E+01		2.53E+02
		273.65	12.66	1.03E+02		2.97E+02
		340.57	48.50	-9.33E+00		7.74E+01
		818.50	99.70	-1.02E+01		4.93E+01
		1048.07	79.60	1.39E+01		6.42E+01
		1235.34	19.70	1.79E+03		4.49E+02
+	CS-137	661.65	85.12	3.05E-01	3.16E-01	3.16E-01
+	LA-138	788.74	34.00	-2.07E-01	4.38E-01	8.24E-01
		1435.80	66.00	-4.86E-02		4.38E-01
+	CE-139	165.85	80.35	1.51E-01	3.83E-01	3.83E-01
+	BA-140	162.64	6.70	4.02E+02	1.83E+02	6.01E+02
		304.84	4.50	1.70E+02		9.18E+02
		423.70	3.20	1.03E+03		1.54E+03
		437.55	2.00	6.85E+02		2.23E+03
		537.32	25.00	7.24E+01		1.83E+02
+	LA-140	328.77	20.50	1.37E+02	6.84E+01	2.11E+02
		487.03	45.50	1.09E+02		1.02E+02
		815.85	23.50	-4.18E+01		2.35E+02
		1596.49	95.49	4.05E+01		6.84E+01
+	CE-141	145.44	48.40	-8.81E-01	3.19E+00	3.19E+00
+ @	CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26
@		293.26	42.00	1.00E+26		1.00E+26
@		664.55	5.20	1.00E+26		1.00E+26
+	CE-144	133.54	10.80	-1.04E+00	1.99E+00	1.99E+00
+	PM-144	476.78	42.00	-1.46E-01	2.46E-01	5.78E-01
		618.01	98.60	9.67E-02		2.46E-01
		696.49	99.49	-1.43E-01		2.89E-01
+	PM-145	36.85	21.70	-2.61E-01	6.62E-01	1.24E+00
		37.36	39.70	-1.39E-01		6.62E-01
		42.30	15.10	-3.52E-01		1.53E+00
		72.40	2.31	-1.06E+02		1.04E+01
+	PM-146	453.90	39.94	2.66E-01	5.40E-01	5.40E-01
		735.90	14.01	-1.09E+00		1.84E+00
		747.13	13.10	-3.22E-01		2.00E+00
+	ND-147	91.11	28.90	2.28E+03	4.04E+02	4.04E+02
		531.02	13.10	-4.04E+02		8.26E+02
+	PM-149	285.90	3.10	-8.54E+12	1.92E+14	1.92E+14
+	EU-152	121.78	20.50	5.16E-01	8.11E-01	8.11E-01
		244.69	5.40	2.82E+01		4.88E+00
		344.27	19.13	-3.94E-01		1.07E+00
		778.89	9.20	-3.28E-01		2.66E+00
		964.01	10.40	-4.90E-02		2.85E+00
		1085.78	7.22	-1.16E+00		3.71E+00
		1112.02	9.60	-2.87E-01		2.83E+00
		1407.95	14.94	3.20E+00		2.64E+00

Analysis Report for 1707089-13

HTC-A04-S002-3036-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	GD-153	97.43	31.30	3.35E-01	7.36E-01	7.36E-01
		103.18	22.20	-5.44E-01		9.41E-01
+	EU-154	123.07	40.50	-1.09E-01	4.14E-01	4.14E-01
		723.30	19.70	-2.09E-01		1.31E+00
		873.19	11.50	-4.98E-01		2.41E+00
		996.32	10.30	-1.03E-02		2.92E+00
		1004.76	17.90	1.17E-01		1.77E+00
		1274.45	35.50	-1.33E-01		7.38E-01
+	EU-155	86.50	30.90	4.46E-01	7.19E-01	7.19E-01
		105.30	20.70	-6.32E-01		7.86E-01
+	EU-156	811.77	10.40	1.32E+01	2.26E+02	2.26E+02
		1153.47	7.20	1.01E+03		4.54E+02
		1230.71	8.90	-1.14E+00		2.86E+02
+	HO-166M	184.41	72.60	3.24E+00	3.54E-01	3.54E-01
		280.45	29.60	-2.65E-01		6.35E-01
		410.94	11.10	4.86E-01		2.00E+00
		711.69	54.10	-8.10E-02		4.45E-01
+	TM-171	66.72	0.14	-9.50E-01	1.70E+02	1.70E+02
+	HF-172	67.35	5.31	-2.50E-02	1.63E+00	4.48E+00
		125.81	11.30	6.97E-01		1.63E+00
+	LU-172	181.53	20.60	-4.34E+03	1.20E+04	2.83E+04
		900.72	29.81	2.02E+04		2.83E+04
		1093.66	62.50	3.01E+03		1.20E+04
+	LU-173	100.72	5.24	9.55E-01	1.14E+00	3.49E+00
		272.11	21.20	2.34E+00		1.14E+00
+	HF-175	343.40	84.00	-2.36E-01	6.38E-01	6.38E-01
+	LU-176	88.34	13.30	-7.19E+00	2.01E-01	1.60E+00
		201.83	86.00	5.12E-02		2.24E-01
		306.78	94.00	-2.69E-02		2.01E-01
+	HF-181	133.02	41.70	-1.73E+00	1.28E+00	2.04E+00
		345.85	17.20	-1.41E+00		5.98E+00
		482.03	82.80	3.57E-01		1.28E+00
+	TA-182	67.75	41.20	-5.30E-03	9.18E-01	9.18E-01
		1121.30	34.90	2.59E+01		3.42E+00
		1189.05	16.23	5.07E-01		2.94E+00
		1221.41	26.98	7.53E-02		1.84E+00
		1231.02	11.44	-2.40E-01		4.54E+00
+	IR-192	308.46	29.68	-2.59E-01	1.07E+00	1.61E+00
		468.07	48.10	3.70E-01		1.07E+00
+	HG-203	279.19	77.30	-7.71E-01	1.07E+00	1.07E+00
+	TL-204	374.74	94.11	-5.15E-02	2.15E-01	2.15E-01
		899.15	99.16	3.42E-01		3.16E-01
		911.74	91.10	3.05E-01		3.43E-01
+	BI-207	569.67	97.72	5.21E-02	2.16E-01	2.16E-01
		1063.62	74.90	-1.22E-01		3.60E-01
+	TL-208	583.14	30.22	5.03E-01	5.98E-01	7.64E-01
		860.37	4.48	1.17E+00		6.16E+00
		2614.66	35.85	5.24E-01		5.98E-01
+	BI-210M	262.00	45.00	-3.03E-02	4.27E-01	4.27E-01

Analysis Report for 1707089-13

HTC-A04-S002-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	BI-210M	300.00		23.00	2.07E-01	4.27E-01	9.83E-01
+	PB-210	46.50	*	4.25	1.33E+01	5.91E+00	5.91E+00
+	PB-211	404.84		2.90	8.96E-01	7.74E+00	7.74E+00
		831.96		2.90	1.56E+00		9.43E+00
+	BI-212	727.17		11.80	2.77E-01	2.10E+00	2.10E+00
		1620.62		2.75	2.47E+00		9.21E+00
+	PB-212	238.63		44.60	1.37E+00	5.84E-01	5.84E-01
		300.09		3.41	1.39E+00		6.64E+00
+	BI-214	609.31	*	46.30	3.16E+01	7.88E-01	7.88E-01
		1120.29	*	15.10	3.31E+01		2.68E+00
		1764.49	*	15.80	3.70E+01		1.96E+00
		2204.22	*	4.98	2.88E+01		5.02E+00
+	PB-214	295.21	*	19.19	3.28E+01	1.03E+00	1.64E+00
		351.92	*	37.19	3.36E+01		1.03E+00
+	RN-219	401.80	*	6.50	3.44E+00	4.71E+00	4.71E+00
+	RA-223	323.87		3.88	-4.01E+00	4.96E+00	4.96E+00
+	RA-224	240.98	*	3.95	6.40E+01	8.50E+00	8.50E+00
+	RA-225	40.00		31.00	-1.33E+01	8.06E+01	8.06E+01
+	RA-226	186.21	*	3.28	7.18E+01	9.92E+00	9.92E+00
+	TH-227	50.10		8.40	-1.85E+00	1.77E+00	2.58E+00
		236.00		11.50	2.35E-02		1.77E+00
		256.20		6.30	2.50E+00		3.13E+00
+	AC-228	338.32		11.40	1.53E+00	1.07E+00	1.81E+00
		911.07		27.70	6.01E-01		1.07E+00
		969.11		16.60	8.22E-01		1.78E+00
+	TH-230	48.44		16.90	1.42E+00	1.33E+00	1.33E+00
		62.85		4.60	2.11E+01		4.99E+00
		67.67		0.37	-3.24E-01		5.61E+01
+	PA-231	283.67		1.60	-2.09E-01	8.37E+00	1.19E+01
		302.67		2.30	-3.73E-01		8.37E+00
+	TH-231	25.64	*	14.70	2.48E+00	4.23E+00	4.23E+00
		84.21	*	6.40	3.76E+00		6.13E+00
+	PA-233	311.98		38.60	4.22E-01	6.26E+00	6.26E+00
+	PA-234	131.20		20.40	5.03E-01	8.32E-01	8.32E-01
		733.99		8.80	-4.42E-01		2.81E+00
		946.00		12.00	9.14E-01		2.25E+00
+	PA-234M	1001.03	*	0.92	4.95E+01	4.33E+01	4.33E+01
+	TH-234	63.29	*	3.80	2.48E+01	6.35E+00	6.35E+00
+	U-235	143.76	*	10.50	2.21E+00	2.01E+00	2.01E+00
		163.35		4.70	2.67E+00		3.99E+00
		205.31	*	4.70	2.30E+00		4.14E+00
+	NP-237	86.50		12.60	1.05E+00	1.70E+00	1.70E+00
+	NP-239	106.10		22.70	-1.90E+12	3.23E+12	3.23E+12
		228.18		10.70	3.24E+12		8.24E+12
		277.60		14.10	-4.02E+11		6.34E+12
+	AM-241	59.54		35.90	-2.97E-01	6.10E-01	6.10E-01
+	AM-243	74.67		66.00	6.88E+00	4.46E-01	4.46E-01

Analysis Report for 1707089-13

HTC-A04-S002-3036-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CM-243	209.75	3.29	7.49E-01	1.38E+00	5.70E+00
		228.14	10.60	7.08E-01		1.80E+00
		277.60	14.00	-8.76E-02		1.38E+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	7.03E+00	7.03E+00	-2.87E-02	3.44E+00
	NA-22	1274.54		99.94	2.76E-01	2.76E-01	-4.99E-02	1.33E-01
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	1.94E-01	1.94E-01	1.15E-01	8.98E-02
+	K-40	1460.81	*	10.67	5.16E+00	5.16E+00	7.41E+00	2.53E+00
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	2.20E-01	2.20E-01	-1.27E-03	1.09E-01
		78.34		96.00	2.95E-01		3.73E+00	1.47E-01
	SC-46	889.25		99.98	6.68E-01	6.68E-01	2.37E-01	3.25E-01
		1120.51		99.99	1.49E+00		1.14E+01	7.35E-01
	V-48	983.52		99.98	1.94E+01	1.94E+01	-3.82E+00	9.39E+00
		1312.10		97.50	2.21E+01		1.11E+01	1.06E+01
	CR-51	320.08		9.83	2.37E+01	2.37E+01	6.65E+00	1.17E+01
	MN-54	834.83		99.97	3.54E-01	3.54E-01	-1.07E-01	1.73E-01
	CO-56	846.75		99.96	6.58E-01	6.58E-01	1.15E-01	3.21E-01
		1037.75		14.03	4.48E+00		3.19E-01	2.17E+00
		1238.25		67.00	1.70E+00		6.62E+00	8.32E-01
		1771.40		15.51	2.61E+00		-5.66E-01	1.20E+00
		2598.48		16.90	8.10E-01		1.10E-01	2.56E-01

Analysis Report for 1707089-13

HTC-A04-S002-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CO-57	122.06		85.51	2.47E-01	2.47E-01	1.57E-01	1.23E-01
		136.48		10.60	2.10E+00		-7.85E-01	1.04E+00
	CO-58	810.76		99.40	7.12E-01	7.12E-01	1.14E-02	3.47E-01
	FE-59	1099.22		56.50	2.16E+00	2.16E+00	-9.87E-01	1.05E+00
		1291.56		43.20	2.98E+00		9.06E-01	1.44E+00
	CO-60	1173.22		100.00	2.72E-01	2.72E-01	-7.18E-03	1.31E-01
		1332.49		100.00	2.86E-01		-1.09E-02	1.38E-01
	ZN-65	1115.52		50.75	1.28E+00	1.28E+00	1.91E-02	6.29E-01
	GA-67	93.31		35.70	8.34E+08	8.34E+08	4.22E+09	4.15E+08
		208.95		2.24	1.18E+10		4.06E+08	5.85E+09
		300.22		16.00	1.99E+09		4.18E+08	9.85E+08
	SE-75	121.11		16.70	1.74E+00	5.14E-01	6.68E-01	8.61E-01
		136.00		59.20	5.14E-01		-1.10E-01	2.55E-01
		264.65		59.80	5.55E-01		-4.09E-02	2.74E-01
		279.53		25.20	1.33E+00		-1.01E+00	6.55E-01
		400.65		11.40	3.47E+00		1.31E+00	1.71E+00
	RB-82	776.52		13.00	2.72E+01	2.72E+01	-3.36E+00	1.33E+01
	RB-83	520.41		46.00	9.39E-01	9.39E-01	6.64E-04	4.59E-01
		529.64		30.30	1.52E+00		-1.61E-01	7.45E-01
		552.65		16.40	2.83E+00		9.78E-01	1.39E+00
	KR-85	513.99		0.43	5.06E+01	5.06E+01	2.95E+01	2.48E+01
	SR-85	513.99		99.27	6.26E-01	6.26E-01	3.65E-01	3.07E-01
	Y-88	898.02		93.40	5.89E-01	4.30E-01	2.71E-01	2.87E-01
		1836.01		99.38	4.30E-01		1.72E-01	2.02E-01
	MO-93	263.06		56.72	3.37E-01	2.37E-01	-2.46E-02	1.67E-01
		684.67		99.68	2.37E-01		-7.92E-02	1.15E-01
		1477.11		99.08	3.04E-01		2.26E-02	1.46E-01
	NB-93M	16.57		9.43	1.88E+01	1.88E+01	8.94E+01	9.28E+00
	NB-94	702.63		100.00	2.47E-01	2.47E-01	-4.60E-02	1.21E-01
		871.10		100.00	2.73E-01		-1.28E-02	1.33E-01
	NB-95	765.79		99.81	2.75E+00	2.75E+00	1.05E+01	1.35E+00
	NB-95M	235.69		25.00	1.50E+08	1.50E+08	1.98E+06	7.41E+07
	ZR-95	724.18		43.70	1.69E+00	1.25E+00	-2.71E-01	8.25E-01
		756.72		55.30	1.25E+00		-4.62E-01	6.07E-01
	MO-99	181.06		6.20	2.16E+11	1.41E+11	-7.43E+10	1.07E+11
		739.58		12.80	1.41E+11		4.46E+10	6.88E+10
		778.00		4.50	3.75E+11		-4.63E+10	1.83E+11
	RU-103	497.08		89.00	1.28E+00	1.28E+00	4.32E-01	6.27E-01
	RU-106	621.84		9.80	2.41E+00	2.41E+00	-7.98E-01	1.17E+00
	AG-108M	433.93		89.90	2.32E-01	2.32E-01	5.13E-02	1.14E-01
		614.37		90.40	2.41E-01		-1.09E-02	1.18E-01
		722.95		90.50	2.81E-01		-1.66E-02	1.37E-01
+	CD-109	88.03	*	3.72	1.25E+01	1.25E+01	3.21E+01	6.24E+00
	AG-110M	657.75		93.14	3.17E-01	3.17E-01	-1.08E-01	1.55E-01
		677.61		10.53	2.75E+00		-1.01E-01	1.34E+00
		706.67		16.46	1.98E+00		2.83E-01	9.66E-01
		763.93		21.98	1.98E+00		1.51E-02	9.70E-01
		884.67		71.63	5.33E-01		1.38E-01	2.60E-01
		1384.27		23.94	1.77E+00		-4.65E+00	8.54E-01
	CD-113M	263.70		0.02	8.25E+02	8.25E+02	-6.05E+01	4.08E+02
	SN-113	255.12		1.93	1.82E+01	5.96E-01	-3.23E+00	9.00E+00
		391.69		64.90	5.96E-01		-6.16E-02	2.93E-01
	TE123M	159.00		84.10	3.93E-01	3.93E-01	-1.61E-01	1.95E-01

Analysis Report for 1707089-13

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	SB-124	602.71		97.87	6.91E-01	6.91E-01	1.69E-01	3.37E-01
		645.85		7.26	8.44E+00		-1.59E+00	4.10E+00
		722.78		11.10	7.17E+00		-4.23E-01	3.50E+00
		1691.02		49.00	1.44E+00		4.86E-01	6.79E-01
	I-125	35.49		6.49	1.36E+01	1.36E+01	-8.84E+00	6.73E+00
	SB-125	176.33		6.89	2.89E+00	7.97E-01	-2.56E-01	1.43E+00
		427.89		29.33	7.97E-01		-7.69E-02	3.92E-01
		463.38		10.35	2.12E+00		3.26E-01	1.04E+00
		600.56		17.80	1.29E+00		4.72E-01	6.30E-01
		635.90		11.32	1.89E+00		5.06E-01	9.17E-01
	SB-126	414.70		83.30	6.76E+01	6.13E+01	6.97E+00	3.32E+01
		666.33		99.60	7.08E+01		1.61E+02	3.47E+01
		695.00		99.60	6.13E+01		5.52E+00	2.99E+01
		720.50		53.80	1.21E+02		3.56E+01	5.89E+01
+	SN-126	87.57	*	37.00	1.09E+00	1.09E+00	2.78E+00	5.41E-01
	SB-127	473.00		25.00	4.59E+07	3.64E+07	-2.18E+06	2.25E+07
		685.20		35.70	3.64E+07		-1.22E+07	1.78E+07
		783.80		14.70	1.10E+08		9.16E+06	5.37E+07
	I-129	29.78		57.00	6.98E-01	6.98E-01	-1.18E-01	3.46E-01
		33.60		13.20	2.34E+00		-6.49E-01	1.16E+00
		39.58		7.52	3.25E+00		-5.37E-01	1.61E+00
	I-131	284.30		6.05	1.62E+04	1.25E+03	-2.85E+02	8.00E+03
		364.48		81.20	1.25E+03		1.77E+02	6.14E+02
		636.97		7.26	1.39E+04		2.17E+03	6.77E+03
		722.89		1.80	7.26E+04		-4.29E+03	3.54E+04
	TE-132	49.72		13.10	2.39E+09	3.08E+08	-1.71E+09	1.19E+09
		228.16		88.00	3.08E+08		1.21E+08	1.52E+08
	BA-133	81.00		33.00	6.89E-01	6.20E-01	-5.65E+00	3.43E-01
		302.84		17.80	1.10E+00		-4.91E-02	5.44E-01
		356.01		60.00	6.20E-01		6.98E-01	3.08E-01
@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	XE-133	81.00		38.00	2.88E+05	2.88E+05	-2.36E+06	1.43E+05
	CS-134	563.23		8.38	2.73E+00	3.23E-01	-1.45E-01	1.33E+00
		569.32		15.43	1.49E+00		3.59E-01	7.26E-01
		604.70		97.60	4.14E-01		-6.89E-03	2.04E-01
		795.84		85.40	3.23E-01		6.85E-02	1.57E-01
		801.93		8.73	3.55E+00		2.62E-01	1.73E+00
	CS-135	268.24		16.00	1.26E+00	1.26E+00	7.45E-01	6.23E-01
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	4.74E+02	4.93E+01	1.10E+02	2.35E+02
		163.89		4.61	7.52E+02		4.72E+02	3.73E+02
		176.55		13.56	2.53E+02		-8.07E+01	1.25E+02
		273.65		12.66	2.97E+02		1.03E+02	1.47E+02
		340.57		48.50	7.74E+01		-9.33E+00	3.82E+01
		818.50		99.70	4.93E+01		-1.02E+01	2.40E+01
		1048.07		79.60	6.42E+01		1.39E+01	3.11E+01
		1235.34		19.70	4.49E+02		1.79E+03	2.20E+02
	CS-137	661.65		85.12	3.16E-01	3.16E-01	3.05E-01	1.55E-01
	LA-138	788.74		34.00	8.24E-01	4.38E-01	-2.07E-01	4.03E-01
		1435.80		66.00	4.38E-01		-4.86E-02	2.11E-01
	CE-139	165.85		80.35	3.83E-01	3.83E-01	1.51E-01	1.90E-01

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BA-140	162.64	6.70	6.01E+02	1.83E+02	4.02E+02	2.98E+02
	304.84	4.50	9.18E+02		1.70E+02	4.53E+02
	423.70	3.20	1.54E+03		1.03E+03	7.57E+02
	437.55	2.00	2.23E+03		6.85E+02	1.09E+03
	537.32	25.00	1.83E+02		7.24E+01	8.96E+01
LA-140	328.77	20.50	2.11E+02	6.84E+01	1.37E+02	1.04E+02
	487.03	45.50	1.02E+02		1.09E+02	5.00E+01
	815.85	23.50	2.35E+02		-4.18E+01	1.14E+02
	1596.49	95.49	6.84E+01		4.05E+01	3.28E+01
CE-141	145.44	48.40	3.19E+00	3.19E+00	-8.81E-01	1.58E+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	1.99E+00	1.99E+00	-1.04E+00	9.89E-01
PM-144	476.78	42.00	5.78E-01	2.46E-01	-1.46E-01	2.83E-01
	618.01	98.60	2.46E-01		9.67E-02	1.20E-01
	696.49	99.49	2.89E-01		-1.43E-01	1.41E-01
PM-145	36.85	21.70	1.24E+00	6.62E-01	-2.61E-01	6.15E-01
	37.36	39.70	6.62E-01		-1.39E-01	3.28E-01
	42.30	15.10	1.53E+00		-3.52E-01	7.59E-01
	72.40	2.31	1.04E+01		-1.06E+02	5.17E+00
PM-146	453.90	39.94	5.40E-01	5.40E-01	2.66E-01	2.65E-01
	735.90	14.01	1.84E+00		-1.09E+00	8.95E-01
	747.13	13.10	2.00E+00		-3.22E-01	9.77E-01
ND-147	91.11	28.90	4.04E+02	4.04E+02	2.28E+03	2.01E+02
	531.02	13.10	8.26E+02		-4.04E+02	4.04E+02
PM-149	285.90	3.10	1.92E+14	1.92E+14	-8.54E+12	9.47E+13
EU-152	121.78	20.50	8.11E-01	8.11E-01	5.16E-01	4.02E-01
	244.69	5.40	4.88E+00		2.82E+01	2.42E+00
	344.27	19.13	1.07E+00		-3.94E-01	5.26E-01
	778.89	9.20	2.66E+00		-3.28E-01	1.29E+00
	964.01	10.40	2.85E+00		-4.90E-02	1.39E+00
	1085.78	7.22	3.71E+00		-1.16E+00	1.79E+00
	1112.02	9.60	2.83E+00		-2.87E-01	1.37E+00
	1407.95	14.94	2.64E+00		3.20E+00	1.28E+00
GD-153	97.43	31.30	7.36E-01	7.36E-01	3.35E-01	3.66E-01
	103.18	22.20	9.41E-01		-5.44E-01	4.67E-01
EU-154	123.07	40.50	4.14E-01	4.14E-01	-1.09E-01	2.05E-01
	723.30	19.70	1.31E+00		-2.09E-01	6.38E-01
	873.19	11.50	2.41E+00		-4.98E-01	1.18E+00
	996.32	10.30	2.92E+00		-1.03E-02	1.42E+00
	1004.76	17.90	1.77E+00		1.17E-01	8.60E-01
	1274.45	35.50	7.38E-01		-1.33E-01	3.55E-01
EU-155	86.50	30.90	7.19E-01	7.19E-01	4.46E-01	3.57E-01
	105.30	20.70	7.86E-01		-6.32E-01	3.90E-01
EU-156	811.77	10.40	2.26E+02	2.26E+02	1.32E+01	1.10E+02
	1153.47	7.20	4.54E+02		1.01E+03	2.21E+02
	1230.71	8.90	2.86E+02		-1.14E+00	1.38E+02
HO-166M	184.41	72.60	3.54E-01	3.54E-01	3.24E+00	1.76E-01
	280.45	29.60	6.35E-01		-2.65E-01	3.14E-01
	410.94	11.10	2.00E+00		4.86E-01	9.83E-01
	711.69	54.10	4.45E-01		-8.10E-02	2.17E-01
TM-171	66.72	0.14	1.70E+02	1.70E+02	-9.50E-01	8.46E+01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	HF-172	67.35		5.31	4.48E+00	1.63E+00	-2.50E-02	2.23E+00
		125.81		11.30	1.63E+00		6.97E-01	8.10E-01
	LU-172	181.53		20.60	2.83E+04	1.20E+04	-4.34E+03	1.41E+04
		900.72		29.81	2.83E+04		2.02E+04	1.38E+04
		1093.66		62.50	1.20E+04		3.01E+03	5.82E+03
	LU-173	100.72		5.24	3.49E+00	1.14E+00	9.55E-01	1.73E+00
		272.11		21.20	1.14E+00		2.34E+00	5.64E-01
	HF-175	343.40		84.00	6.38E-01	6.38E-01	-2.36E-01	3.14E-01
	LU-176	88.34		13.30	1.60E+00	2.01E-01	-7.19E+00	7.95E-01
		201.83		86.00	2.24E-01		5.12E-02	1.11E-01
		306.78		94.00	2.01E-01		-2.69E-02	9.93E-02
	HF-181	133.02		41.70	2.04E+00	1.28E+00	-1.73E+00	1.01E+00
		345.85		17.20	5.98E+00		-1.41E+00	2.95E+00
		482.03		82.80	1.28E+00		3.57E-01	6.26E-01
	TA-182	67.75		41.20	9.18E-01	9.18E-01	-5.30E-03	4.56E-01
		1121.30		34.90	3.42E+00		2.59E+01	1.69E+00
		1189.05		16.23	2.94E+00		5.07E-01	1.42E+00
		1221.41		26.98	1.84E+00		7.53E-02	8.87E-01
		1231.02		11.44	4.54E+00		-2.40E-01	2.19E+00
	IR-192	308.46		29.68	1.61E+00	1.07E+00	-2.59E-01	7.92E-01
		468.07		48.10	1.07E+00		3.70E-01	5.27E-01
	HG-203	279.19		77.30	1.07E+00	1.07E+00	-7.71E-01	5.27E-01
	TL-204	374.74		94.11	2.15E-01	2.15E-01	-5.15E-02	1.06E-01
		899.15		99.16	3.16E-01		3.42E-01	1.54E-01
		911.74		91.10	3.43E-01		3.05E-01	1.67E-01
	BI-207	569.67		97.72	2.16E-01	2.16E-01	5.21E-02	1.05E-01
		1063.62		74.90	3.60E-01		-1.22E-01	1.74E-01
	TL-208	583.14		30.22	7.64E-01	5.98E-01	5.03E-01	3.74E-01
		860.37		4.48	6.16E+00		1.17E+00	3.00E+00
		2614.66		35.85	5.98E-01		5.24E-01	2.69E-01
	BI-210M	262.00		45.00	4.27E-01	4.27E-01	-3.03E-02	2.11E-01
		300.00		23.00	9.83E-01		2.07E-01	4.86E-01
+	PB-210	46.50	*	4.25	5.91E+00	5.91E+00	1.33E+01	2.94E+00
	PB-211	404.84		2.90	7.74E+00	7.74E+00	8.96E-01	3.81E+00
		831.96		2.90	9.43E+00		1.56E+00	4.60E+00
	BI-212	727.17		11.80	2.10E+00	2.10E+00	2.77E-01	1.03E+00
		1620.62		2.75	9.21E+00		2.47E+00	4.38E+00
	PB-212	238.63		44.60	5.84E-01	5.84E-01	1.37E+00	2.90E-01
		300.09		3.41	6.64E+00		1.39E+00	3.28E+00
+	BI-214	609.31	*	46.30	7.88E-01	7.88E-01	3.16E+01	3.88E-01
		1120.29	*	15.10	2.68E+00		3.31E+01	1.31E+00
		1764.49	*	15.80	1.96E+00		3.70E+01	9.35E-01
		2204.22	*	4.98	5.02E+00		2.88E+01	2.34E+00
+	PB-214	295.21	*	19.19	1.64E+00	1.03E+00	3.28E+01	8.14E-01
		351.92	*	37.19	1.03E+00		3.36E+01	5.10E-01
+	RN-219	401.80	*	6.50	4.71E+00	4.71E+00	3.44E+00	2.33E+00
	RA-223	323.87		3.88	4.96E+00	4.96E+00	-4.01E+00	2.44E+00
+	RA-224	240.98	*	3.95	8.50E+00	8.50E+00	6.40E+01	4.22E+00
	RA-225	40.00		31.00	8.06E+01	8.06E+01	-1.33E+01	3.99E+01
+	RA-226	186.21	*	3.28	9.92E+00	9.92E+00	7.18E+01	4.94E+00
	TH-227	50.10		8.40	2.58E+00	1.77E+00	-1.85E+00	1.28E+00
		236.00		11.50	1.77E+00		2.35E-02	8.78E-01
		256.20		6.30	3.13E+00		2.50E+00	1.55E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	AC-228	338.32		11.40	1.81E+00	1.07E+00	1.53E+00	8.93E-01
		911.07		27.70	1.07E+00		6.01E-01	5.21E-01
		969.11		16.60	1.78E+00		8.22E-01	8.66E-01
	TH-230	48.44		16.90	1.33E+00	1.33E+00	1.42E+00	6.59E-01
		62.85		4.60	4.99E+00		2.11E+01	2.48E+00
		67.67		0.37	5.61E+01		-3.24E-01	2.79E+01
	PA-231	283.67		1.60	1.19E+01	8.37E+00	-2.09E-01	5.88E+00
		302.67		2.30	8.37E+00		-3.73E-01	4.13E+00
+	TH-231	25.64	*	14.70	4.23E+00	4.23E+00	2.48E+00	2.10E+00
		84.21	*	6.40	6.13E+00		3.76E+00	3.05E+00
	PA-233	311.98		38.60	6.26E+00	6.26E+00	4.22E-01	3.09E+00
	PA-234	131.20		20.40	8.32E-01	8.32E-01	5.03E-01	4.13E-01
		733.99		8.80	2.81E+00		-4.42E-01	1.37E+00
		946.00		12.00	2.25E+00		9.14E-01	1.09E+00
+	PA-234M	1001.03	*	0.92	4.33E+01	4.33E+01	4.95E+01	2.12E+01
+	TH-234	63.29	*	3.80	6.35E+00	6.35E+00	2.48E+01	3.16E+00
+	U-235	143.76	*	10.50	2.01E+00	2.01E+00	2.21E+00	9.96E-01
		163.35		4.70	3.99E+00		2.67E+00	1.98E+00
		205.31	*	4.70	4.14E+00		2.30E+00	2.05E+00
	NP-237	86.50		12.60	1.70E+00	1.70E+00	1.05E+00	8.44E-01
	NP-239	106.10		22.70	3.23E+12	3.23E+12	-1.90E+12	1.60E+12
		228.18		10.70	8.24E+12		3.24E+12	4.08E+12
		277.60		14.10	6.34E+12		-4.02E+11	3.13E+12
	AM-241	59.54		35.90	6.10E-01	6.10E-01	-2.97E-01	3.03E-01
	AM-243	74.67		66.00	4.46E-01	4.46E-01	6.88E+00	2.22E-01
	CM-243	209.75		3.29	5.70E+00	1.38E+00	7.49E-01	2.82E+00
		228.14		10.60	1.80E+00		7.08E-01	8.89E-01
		277.60		14.00	1.38E+00		-8.76E-02	6.82E-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

Analysis Report for 1707089-13

HTC-A04-S002-3036-01

No Data Review Comments Entered.

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

Sample Title: HTC-A04-S002-3036-01

Elapsed Live time: 3600
Elapsed Real Time: 3615

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	1	132	726
17:	731	716	750	708	690	629	753	693
25:	664	674	662	615	577	652	565	619
33:	583	580	637	640	655	632	707	656
41:	711	717	734	842	1172	1260	914	836
49:	870	860	942	1119	1068	960	914	980
57:	1031	1159	1167	1303	1576	2109	2067	1442
65:	1321	1400	1432	1329	1387	1395	1490	1779
73:	2628	3400	3675	4581	3508	1840	1449	1403
81:	1273	1470	1597	1411	1519	2095	1952	1548
89:	1493	1494	2107	2465	1676	1173	947	914
97:	975	940	918	896	823	872	862	854
105:	846	839	868	868	899	923	931	941
113:	893	894	852	782	814	875	887	841
121:	816	839	850	831	835	822	908	883
129:	850	814	807	842	833	828	789	872
137:	818	868	884	864	914	1005	1030	971
145:	852	858	843	851	881	946	884	882
153:	896	934	885	822	796	795	806	806
161:	766	837	846	765	730	760	709	738
169:	738	711	720	690	691	701	733	696
177:	667	683	662	710	701	697	797	1448
185:	2328	1747	953	659	644	630	667	617
193:	662	654	653	576	605	647	608	575
201:	572	580	578	617	603	570	512	548
209:	524	503	488	504	491	476	501	451
217:	465	491	463	467	459	438	460	503
225:	482	454	421	457	459	456	434	456
233:	471	479	543	487	539	553	576	1069
241:	1897	1366	570	387	390	380	380	369
249:	371	382	369	354	368	403	387	399
257:	445	464	372	375	353	335	339	320
265:	326	346	352	443	438	457	395	375
273:	340	407	323	325	326	292	298	300
281:	308	303	304	309	316	299	307	322
289:	314	315	291	427	1314	3086	2706	974
297:	298	294	314	246	297	280	241	273
305:	265	250	270	228	272	233	247	267
313:	246	253	230	246	256	260	270	235
321:	233	254	242	245	239	213	262	249
329:	294	240	264	232	218	250	254	246
337:	247	253	272	228	258	196	217	246
345:	227	233	231	275	707	2714	4864	3243
353:	781	227	195	215	167	173	199	188
361:	215	183	200	207	203	182	175	178

369:	202	172	178	205	186	190	158	149

Sample Title: HTC-A04-S002-3036-01

Channel								
377:	166	177	179	193	191	197	171	174
385:	239	216	217	243	220	167	196	185
393:	175	186	175	201	184	198	168	227
401:	233	213	215	202	202	182	177	198
409:	207	197	203	192	172	183	181	192
417:	190	172	173	206	184	189	204	189
425:	192	182	180	176	129	152	172	145
433:	144	158	142	148	142	143	149	146
441:	140	134	113	149	151	126	133	128
449:	132	135	113	127	161	144	150	135
457:	120	131	122	121	145	137	124	124
465:	114	126	119	126	130	130	103	111
473:	136	121	121	83	94	116	137	146
481:	114	109	108	126	126	148	146	120
489:	118	106	97	107	107	112	91	105
497:	109	102	101	109	80	95	79	95
505:	90	94	116	121	141	156	147	110
513:	98	98	99	90	76	96	97	98
521:	69	105	91	75	99	113	114	102
529:	84	92	92	100	107	116	101	105
537:	104	92	80	111	85	90	100	97
545:	100	76	99	92	86	74	106	107
553:	97	94	85	79	81	87	91	96
561:	88	82	88	78	97	87	100	92
569:	92	83	73	83	90	70	74	92
577:	89	102	116	98	83	117	104	106
585:	85	85	85	89	68	84	88	68
593:	98	66	91	75	79	90	89	96
601:	77	77	68	80	93	232	1086	2756
609:	2736	1082	172	57	71	63	67	76
617:	61	81	61	65	50	66	58	63
625:	74	62	67	69	59	57	56	65
633:	58	65	50	65	66	73	52	71
641:	45	57	76	52	51	60	51	65
649:	72	56	61	77	52	56	65	63
657:	54	58	68	51	60	73	101	137
665:	142	94	55	64	74	50	56	50
673:	41	40	56	62	60	63	47	59
681:	50	61	47	53	76	59	54	61
689:	63	72	51	56	51	62	49	63
697:	69	68	53	60	61	75	70	67
705:	66	43	48	74	55	62	56	57
713:	54	56	59	67	62	80	77	64
721:	51	53	56	62	56	67	70	56
729:	60	52	55	60	59	70	48	56
737:	60	60	54	62	83	71	63	55
745:	49	66	61	63	46	55	45	59
753:	47	50	37	54	37	53	51	57
761:	55	58	49	63	92	163	281	274
769:	156	89	63	50	52	48	48	43
777:	49	42	51	58	50	52	63	80
785:	108	91	72	61	39	45	43	46
793:	62	51	40	55	53	60	52	56

801:	60	62	58	70	106	101	62	55

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Channel								
809:	43	46	48	42	49	61	53	53
817:	53	58	42	71	49	49	69	62
825:	55	60	52	54	49	68	53	63
833:	49	61	54	53	49	90	58	69
841:	59	37	55	67	53	59	53	58
849:	61	49	60	59	59	51	44	47
857:	54	58	50	53	55	61	47	57
865:	53	56	54	42	46	63	44	54
873:	54	47	45	53	48	54	59	51
881:	52	60	59	54	69	49	51	62
889:	67	61	61	64	32	44	57	56
897:	56	49	58	67	69	50	57	55
905:	45	50	54	51	58	71	65	57
913:	51	43	55	41	47	52	56	58
921:	61	42	50	42	54	38	42	51
929:	37	51	65	92	172	155	75	43
937:	55	39	23	37	32	31	49	48
945:	48	40	44	53	42	44	49	46
953:	43	43	39	51	41	35	41	56
961:	37	46	56	60	56	40	47	68
969:	48	47	41	38	40	39	53	39
977:	40	37	31	36	45	40	39	38
985:	35	33	42	41	40	47	47	33
993:	45	34	38	43	42	46	55	84
1001:	94	42	45	40	31	41	36	45
1009:	32	33	38	36	38	45	33	46
1017:	31	33	35	40	36	32	44	52
1025:	38	38	44	31	41	45	40	37
1033:	40	36	28	39	31	35	35	39
1041:	26	26	34	44	32	30	39	31
1049:	46	41	39	51	35	33	30	36
1057:	50	40	42	27	31	32	23	52
1065:	29	37	34	46	52	33	44	36
1073:	15	31	34	41	31	29	31	39
1081:	32	32	49	25	28	32	35	30
1089:	24	32	37	27	24	44	41	26
1097:	31	28	26	33	29	21	42	35
1105:	36	41	32	33	35	30	39	28
1113:	29	30	27	35	76	239	473	513
1121:	264	76	38	34	22	28	25	25
1129:	39	27	31	41	43	38	29	29
1137:	34	28	33	40	29	29	28	25
1145:	23	35	25	26	26	28	35	34
1153:	54	98	103	59	36	26	24	24
1161:	37	28	30	30	31	28	30	25
1169:	25	39	30	32	21	25	20	27
1177:	28	31	17	35	40	37	37	26
1185:	28	27	20	27	26	20	29	32
1193:	30	25	28	23	26	18	30	24
1201:	30	23	26	23	38	38	38	30
1209:	27	27	27	26	35	27	29	27
1217:	27	30	22	27	39	28	26	29
1225:	19	29	19	32	30	24	26	34

1233:	25	33	44	127	204	185	92	39

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Channel								
1241:	19	17	28	25	29	32	27	13
1249:	25	22	29	30	29	32	23	25
1257:	23	25	19	26	19	23	22	22
1265:	27	14	23	23	28	22	21	18
1273:	21	19	23	27	22	29	43	74
1281:	57	28	27	24	33	16	26	19
1289:	32	24	15	24	33	29	28	18
1297:	24	24	17	34	25	22	24	35
1305:	33	22	23	21	33	19	26	34
1313:	25	34	28	30	12	25	27	16
1321:	16	28	15	20	18	22	18	31
1329:	25	31	21	27	19	18	22	23
1337:	19	24	22	21	25	24	21	16
1345:	25	26	23	22	28	19	24	23
1353:	21	22	22	19	22	28	28	14
1361:	16	28	26	19	20	23	30	21
1369:	18	14	24	19	20	36	61	111
1377:	139	103	38	28	28	20	33	43
1385:	40	35	29	21	24	22	21	23
1393:	32	23	13	15	23	25	40	56
1401:	51	48	31	25	20	62	103	89
1409:	41	20	20	17	28	17	25	19
1417:	21	14	14	20	26	18	18	23
1425:	19	21	25	25	28	34	23	19
1433:	27	22	35	15	20	24	23	15
1441:	20	25	13	18	19	14	24	30
1449:	19	24	28	15	34	23	18	21
1457:	19	28	62	69	64	27	24	28
1465:	18	22	18	15	23	27	24	18
1473:	24	25	18	34	23	22	20	22
1481:	19	18	28	20	29	31	24	23
1489:	18	21	12	24	17	26	22	25
1497:	29	25	24	21	16	31	21	14
1505:	21	23	35	59	82	47	23	22
1513:	21	31	19	18	25	34	22	30
1521:	24	33	26	21	21	17	27	31
1529:	22	18	15	19	31	21	17	20
1537:	41	30	20	28	21	41	42	25
1545:	29	21	25	16	11	15	17	27
1553:	20	18	16	12	19	19	17	18
1561:	11	23	18	17	19	8	12	13
1569:	18	18	11	16	14	17	10	18
1577:	12	6	18	18	35	27	43	22
1585:	15	12	16	16	14	20	25	19
1593:	21	21	22	20	23	24	21	17
1601:	13	11	18	13	12	14	14	10
1609:	11	25	10	9	10	17	12	15
1617:	11	9	15	20	23	9	10	13
1625:	14	10	11	15	9	11	11	7
1633:	12	15	12	20	16	11	21	11
1641:	11	15	9	14	12	18	12	16
1649:	9	7	8	10	9	10	11	10
1657:	8	11	15	31	37	12	11	15

1665:	4	8	10	8	9	6	6	6

Sample Title: HTC-A04-S002-3036-01

Channel								
1673:	10	8	10	5	9	11	8	3
1681:	9	12	12	16	11	8	9	9
1689:	10	13	10	11	16	7	5	4
1697:	5	8	8	7	8	10	10	8
1705:	3	10	7	6	14	5	11	4
1713:	7	7	5	9	9	15	11	4
1721:	9	6	13	14	5	10	27	52
1729:	84	51	23	12	10	6	5	4
1737:	7	2	9	7	5	7	7	7
1745:	9	9	9	9	5	10	11	9
1753:	8	7	3	6	8	6	10	11
1761:	32	113	307	390	240	75	11	7
1769:	6	3	3	4	4	3	3	2
1777:	8	8	7	5	7	4	7	8
1785:	5	3	4	4	7	5	4	0
1793:	5	8	4	10	6	8	4	5
1801:	2	8	4	7	6	7	5	5
1809:	5	8	7	6	4	3	2	4
1817:	5	4	7	6	5	8	3	2
1825:	10	5	6	8	6	6	4	6
1833:	5	4	3	6	17	17	11	6
1841:	8	8	7	10	14	36	56	36
1849:	22	7	5	5	3	10	5	4
1857:	3	7	7	3	3	8	1	8
1865:	7	11	5	4	7	8	6	10
1873:	16	12	6	5	0	2	4	8
1881:	5	7	3	10	12	4	7	4
1889:	7	7	7	6	10	5	6	5
1897:	5	8	8	5	6	6	4	9
1905:	6	5	12	5	3	5	2	4
1913:	6	3	3	4	5	7	2	3
1921:	3	3	10	7	6	14	4	3
1929:	7	5	8	7	5	7	9	13
1937:	3	6	6	5	4	8	12	5
1945:	2	5	1	6	2	6	3	3
1953:	5	3	5	5	2	10	3	9
1961:	2	3	5	4	10	5	3	7
1969:	6	7	4	2	7	6	2	3
1977:	10	5	5	3	3	4	2	6
1985:	4	8	6	10	3	9	7	2
1993:	8	5	6	3	7	7	1	2
2001:	1	2	3	5	4	2	10	5
2009:	3	1	2	2	6	3	8	5
2017:	4	8	5	6	3	5	4	3
2025:	1	4	3	6	3	2	4	5
2033:	0	1	2	3	6	5	4	1
2041:	2	6	2	3	2	4	3	3
2049:	2	7	4	3	8	4	2	4
2057:	2	2	5	6	3	1	3	5
2065:	4	3	3	4	5	0	1	6
2073:	3	2	2	6	3	2	3	5
2081:	3	1	0	1	5	3	4	0
2089:	5	2	2	1	2	1	5	2

2097:	3	2	4	3	1	3	6	3

Sample Title: HTC-A04-S002-3036-01

Channel								
2105:	5	1	5	0	4	4	2	2
2113:	0	1	3	11	15	40	30	8
2121:	3	2	2	2	2	3	3	1
2129:	1	1	1	3	0	1	5	3
2137:	1	3	1	4	0	1	0	2
2145:	2	1	3	3	3	1	2	2
2153:	0	2	2	1	3	6	1	0
2161:	2	4	2	1	1	0	3	4
2169:	0	2	3	1	0	1	1	4
2177:	1	1	4	0	1	4	1	3
2185:	1	1	0	3	0	2	3	2
2193:	4	1	2	3	2	3	2	4
2201:	11	30	60	69	49	18	4	2
2209:	1	3	7	0	0	2	3	0
2217:	2	0	0	2	0	1	0	1
2225:	2	0	3	0	1	1	1	1
2233:	0	3	0	1	1	4	0	0
2241:	3	0	1	1	2	1	1	1
2249:	3	0	2	0	2	1	1	1
2257:	3	0	2	1	2	2	1	4
2265:	1	0	4	3	2	1	1	1
2273:	1	1	2	1	1	3	1	1
2281:	0	1	0	0	1	2	3	2
2289:	2	0	4	3	2	3	5	2
2297:	0	1	0	0	0	2	0	3
2305:	1	1	1	2	2	2	1	1
2313:	0	0	0	0	1	3	0	0
2321:	1	2	2	1	1	2	1	2
2329:	3	0	0	2	1	0	0	2
2337:	0	0	0	1	1	1	0	0
2345:	1	0	1	0	1	1	0	2
2353:	2	0	0	0	1	1	2	0
2361:	1	0	0	0	1	1	2	2
2369:	2	0	1	1	1	1	1	0
2377:	0	0	1	1	1	0	0	0
2385:	0	0	1	0	1	0	0	1
2393:	0	0	1	1	0	0	0	1
2401:	1	0	0	0	1	0	0	1
2409:	2	0	1	1	1	0	1	0
2417:	0	1	1	2	0	2	0	2
2425:	0	0	1	0	0	1	0	0
2433:	0	2	0	2	0	0	1	0
2441:	0	0	1	4	4	13	26	18
2449:	14	3	0	0	2	0	0	0
2457:	1	0	0	0	0	0	1	0
2465:	1	1	0	1	1	1	1	0
2473:	2	0	0	0	0	0	1	0
2481:	1	1	0	0	0	0	1	1
2489:	0	0	1	0	0	0	0	0
2497:	0	1	2	2	1	2	0	0
2505:	1	0	0	1	1	0	0	0
2513:	1	0	0	2	0	0	0	0
2521:	0	0	0	0	1	0	0	0

2529:	0	0	0	0	0	0	0	0

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Channel								
2537:	0	0	0	0	0	1	1	2
2545:	1	0	0	0	0	0	0	0
2553:	1	0	1	1	0	1	0	0
2561:	0	1	1	0	0	0	0	0
2569:	0	0	0	1	0	0	0	1
2577:	0	0	0	1	0	0	0	0
2585:	1	0	0	0	0	0	0	0
2593:	0	0	0	0	0	1	0	0
2601:	0	0	0	0	0	0	0	0
2609:	1	1	0	2	8	5	11	1
2617:	1	0	0	0	0	1	0	0
2625:	0	1	0	0	0	0	2	0
2633:	0	0	1	0	0	0	1	0
2641:	1	0	0	0	0	0	0	0
2649:	1	0	0	1	0	0	0	1
2657:	0	0	0	0	0	0	0	0
2665:	1	1	0	0	0	3	0	1
2673:	0	0	0	0	0	0	0	0
2681:	0	0	0	0	0	1	0	0
2689:	0	1	0	0	0	0	1	0
2697:	0	0	0	0	0	0	0	1
2705:	0	0	0	0	1	1	0	0
2713:	0	1	0	0	0	0	1	1
2721:	1	1	0	0	0	0	1	0
2729:	0	0	0	1	0	0	0	0
2737:	1	0	0	0	0	0	1	0
2745:	1	0	0	0	1	0	1	0
2753:	0	0	0	0	1	0	0	0
2761:	0	0	0	0	0	0	1	0
2769:	0	0	1	1	0	0	0	0
2777:	0	0	1	0	0	1	0	0
2785:	0	0	0	0	0	1	0	0
2793:	0	0	0	0	0	0	0	0
2801:	0	0	0	0	1	0	0	0
2809:	0	0	1	0	1	0	1	0
2817:	0	0	0	0	0	0	0	2
2825:	0	0	0	1	1	0	1	0
2833:	0	0	0	0	0	0	0	0
2841:	0	1	0	0	0	0	0	0
2849:	0	0	0	0	0	0	0	0
2857:	0	0	0	0	0	0	0	0
2865:	0	1	0	0	1	1	0	0
2873:	0	0	1	2	0	0	1	0
2881:	1	0	1	0	0	0	0	0
2889:	0	0	0	0	0	0	0	0
2897:	0	0	0	0	0	1	0	0
2905:	0	0	2	0	0	0	0	0
2913:	0	0	1	0	0	1	0	0
2921:	0	1	0	2	0	0	0	0
2929:	0	0	0	0	1	0	0	0
2937:	0	0	0	0	0	0	0	0
2945:	0	0	1	0	0	0	0	0
2953:	0	0	0	1	0	0	0	1

2961:	0	0	1	1	0	0	0	0

Sample Title: HTC-A04-S002-3036-01

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

3393:	0	0	1	0	0	0	0	0

Sample Title: HTC-A04-S002-3036-01

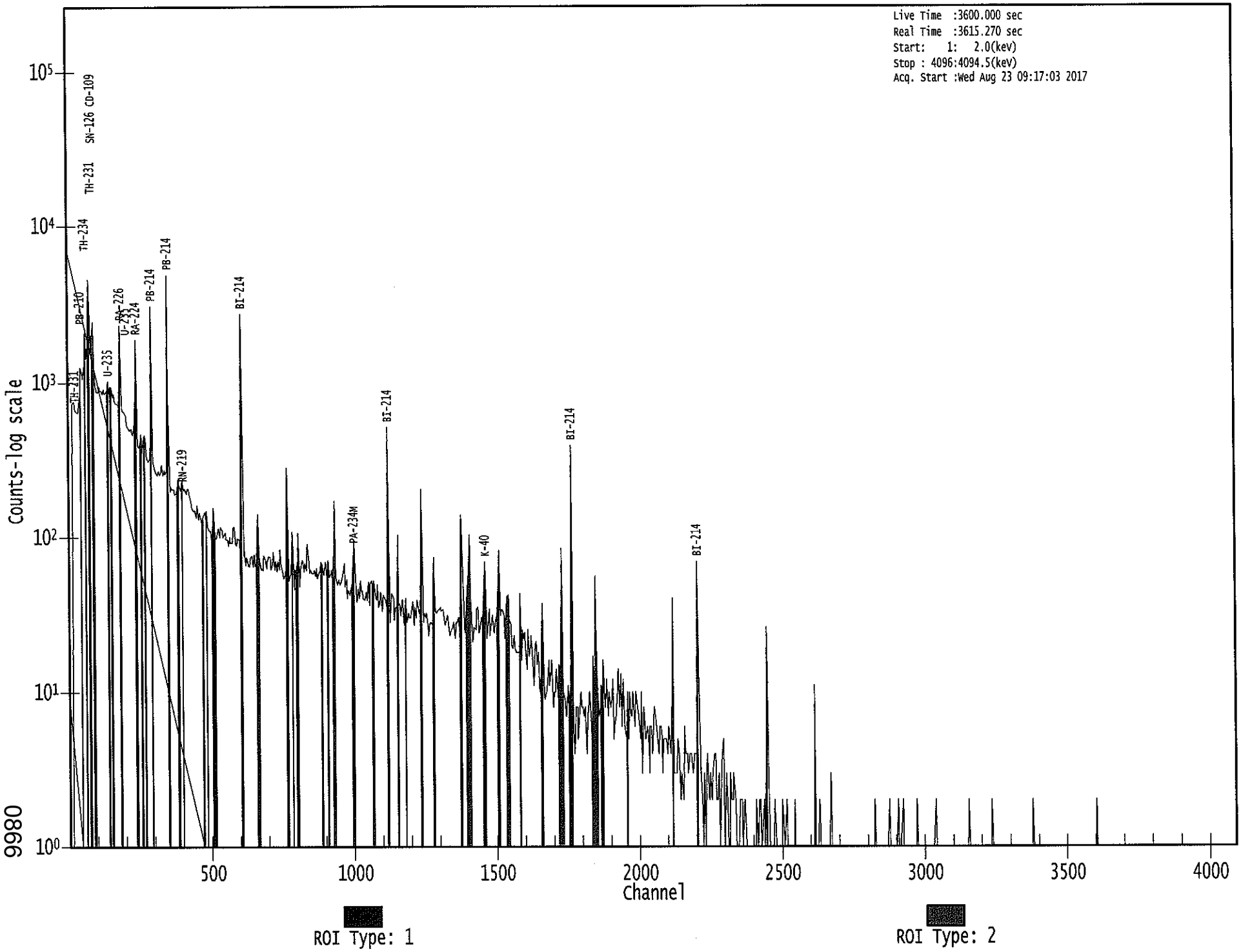
Channel								
3401:	0	0	0	0	1	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	1	0	0	0	0	0	0	1
3425:	1	0	1	0	0	0	0	0
3433:	0	0	0	0	0	0	1	0
3441:	0	0	0	0	0	1	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	1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

3825:	0	0	0	0	0	0	0	1

Sample Title: HTC-A04-S002-3036-01

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

0000055793.CNF



9980

VB 8/23/17

Apex-Gamma

Analysis Report for 1707089-14

HTC-A04-S002-3642-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707089-14
Sample Description	: HTC-A04-S002-3642-01
Sample Type	: SOIL
Sample Size	: 8.295E+02 grams
Facility	: Countroom
Sample Taken On	: 5/16/2017 7:18:37AM
Acquisition Started	: 8/23/2017 10:17:07AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3609.7 seconds
Dead Time	: 0.27 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 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	: 55794

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/23/17

Analysis Report for 1707089-14

HTC-A04-S002-3642-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/23/2017 11:17:20AM
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	46.22	46.84	0.0000	0.00
2	53.12	53.74	0.0000	0.00
3	63.14	63.75	0.0000	0.00
4	76.29	76.88	0.0000	0.00
5	87.57	88.15	0.0000	0.00
6	92.33	92.91	0.0000	0.00
7	143.43	143.95	0.0000	0.00
8	154.48	154.99	0.0000	0.00
9	185.92	186.40	0.0000	0.00
10	238.89	239.31	0.0000	0.00
11	241.90	242.32	0.0000	0.00
12	255.91	256.32	0.0000	0.00
13	259.14	259.55	0.0000	0.00
14	270.07	270.47	0.0000	0.00
15	295.20	295.57	0.0000	0.00
16	299.96	300.32	0.0000	0.00
17	338.49	338.81	0.0000	0.00
18	351.91	352.22	0.0000	0.00
19	356.12	356.43	0.0000	0.00
20	387.85	388.13	0.0000	0.00
21	453.68	453.89	0.0000	0.00
22	486.69	486.87	0.0000	0.00
23	510.83	510.98	0.0000	0.00
24	582.53	582.61	0.0000	0.00
25	596.24	596.30	0.0000	0.00
26	609.42	609.47	0.0000	0.00
27	613.59	613.63	0.0000	0.00
28	665.39	665.39	0.0000	0.00
29	674.62	674.60	0.0000	0.00
30	703.41	703.37	0.0000	0.00
31	720.30	720.24	0.0000	0.00
32	728.68	728.62	0.0000	0.00
33	768.65	768.54	0.0000	0.00
34	786.29	786.16	0.0000	0.00
35	806.24	806.10	0.0000	0.00
36	820.63	820.47	0.0000	0.00
37	839.34	839.16	0.0000	0.00
38	861.90	861.70	0.0000	0.00
39	916.10	915.84	0.0000	0.00
40	934.34	934.07	0.0000	0.00
41	964.29	963.98	0.0000	0.00
42	1001.64	1001.30	0.0000	0.00

Analysis Report for 1707089-14

HTC-A04-S002-3642-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1070.59	1070.18	0.0000	0.00
44	1120.59	1120.13	0.0000	0.00
45	1155.51	1155.01	0.0000	0.00
46	1207.19	1206.65	0.0000	0.00
47	1238.49	1237.92	0.0000	0.00
48	1281.27	1280.65	0.0000	0.00
49	1378.19	1377.48	0.0000	0.00
50	1385.65	1384.93	0.0000	0.00
51	1401.85	1401.11	0.0000	0.00
52	1408.57	1407.83	0.0000	0.00
53	1437.53	1436.75	0.0000	0.00
54	1461.40	1460.61	0.0000	0.00
55	1509.29	1508.45	0.0000	0.00
56	1538.54	1537.67	0.0000	0.00
57	1543.53	1542.65	0.0000	0.00
58	1582.99	1582.08	0.0000	0.00
59	1597.86	1596.93	0.0000	0.00
60	1658.41	1657.43	0.0000	0.00
61	1662.00	1661.01	0.0000	0.00
62	1693.39	1692.37	0.0000	0.00
63	1730.37	1729.31	0.0000	0.00
64	1765.09	1764.00	0.0000	0.00
65	1769.71	1768.61	0.0000	0.00
66	1838.84	1837.67	0.0000	0.00
67	1847.99	1846.82	0.0000	0.00
68	1874.23	1873.04	0.0000	0.00
69	1896.07	1894.85	0.0000	0.00
70	2063.40	2062.01	0.0000	0.00
71	2091.33	2089.92	0.0000	0.00
72	2104.35	2102.93	0.0000	0.00
73	2119.24	2117.80	0.0000	0.00
74	2193.70	2192.19	0.0000	0.00
75	2204.64	2203.13	0.0000	0.00
76	2233.29	2231.74	0.0000	0.00
77	2448.53	2446.78	0.0000	0.00
78	2615.11	2613.20	0.0000	0.00
79	2852.70	2850.57	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707089-14

HTC-A04-S002-3642-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/23/2017 11:17:20AM

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	46.22	44 -	49	46.84	9.41E+02	203.22	7.55E+03	1.27
	2	53.12	52 -	57	53.74	1.98E+02	224.58	9.99E+03	1.10
	3	63.14	61 -	66	63.75	1.75E+03	275.28	1.38E+04	1.47
	4	76.29	71 -	82	76.88	1.07E+04	528.47	2.95E+04	3.70
M	5	87.57	83 -	97	88.15	2.07E+03	237.46	1.06E+04	1.67
m	6	92.33	83 -	97	92.91	2.92E+03	244.00	9.61E+03	1.67
	7	143.43	141 -	147	143.95	5.08E+02	251.38	1.11E+04	1.90
	8	154.48	152 -	158	154.99	3.53E+02	244.02	1.06E+04	2.04
	9	185.92	182 -	189	186.40	3.60E+03	272.77	9.99E+03	2.03
M	10	238.89	238 -	245	239.31	4.18E+02	81.55	1.93E+03	1.34
m	11	241.90	238 -	245	242.32	3.27E+03	183.52	4.44E+03	1.55
M	12	255.91	253 -	262	256.32	1.89E+02	166.68	4.83E+03	2.22
m	13	259.14	253 -	262	259.55	3.10E+02	147.80	4.02E+03	1.93
	14	270.07	267 -	273	270.47	4.03E+02	165.84	4.72E+03	2.39
M	15	295.20	290 -	303	295.57	7.67E+03	209.90	2.89E+03	1.64
m	16	299.96	290 -	303	300.32	3.76E+02	143.93	3.32E+03	2.04
	17	338.49	336 -	341	338.81	1.32E+02	120.36	2.77E+03	1.65
M	18	351.91	346 -	360	352.22	1.32E+04	250.24	2.11E+03	1.69
m	19	356.12	346 -	360	356.43	4.49E+02	187.10	2.59E+03	2.31
	20	387.85	385 -	392	388.13	2.87E+02	132.47	2.74E+03	3.60
	21	453.68	450 -	458	453.89	1.45E+02	121.11	2.16E+03	2.12
	22	486.69	484 -	490	486.87	1.23E+02	92.70	1.47E+03	2.03
	23	510.83	507 -	515	510.98	2.99E+02	112.40	1.77E+03	2.69
	24	582.53	578 -	586	582.61	1.89E+02	103.74	1.54E+03	2.15
	25	596.24	592 -	600	596.30	8.42E+01	96.69	1.39E+03	2.79
M	26	609.42	603 -	618	609.47	1.03E+04	214.17	8.47E+02	1.86
m	27	613.59	603 -	618	613.63	3.72E+02	168.55	1.09E+03	2.65
	28	665.39	660 -	670	665.39	3.98E+02	105.45	1.27E+03	2.11
	29	674.62	672 -	677	674.60	6.38E+01	57.89	6.16E+02	3.93
	30	703.41	700 -	706	703.37	1.03E+02	73.49	9.09E+02	1.64
	31	720.30	717 -	725	720.24	1.12E+02	78.90	8.93E+02	2.19
	32	728.68	725 -	732	728.62	7.27E+01	73.13	8.41E+02	2.83
	33	768.65	763 -	773	768.54	1.10E+03	111.01	1.05E+03	2.22
	34	786.29	782 -	790	786.16	1.85E+02	87.79	1.06E+03	1.61
	35	806.24	802 -	810	806.10	2.03E+02	84.39	9.67E+02	2.02
	36	820.63	818 -	823	820.47	6.05E+01	56.16	5.83E+02	2.46
	37	839.34	835 -	843	839.16	1.99E+02	81.38	8.89E+02	1.86
	38	861.90	857 -	866	861.70	8.60E+01	84.05	9.60E+02	4.62
	39	916.10	914 -	919	915.84	4.32E+01	54.02	5.54E+02	1.11
	40	934.34	930 -	938	934.07	5.06E+02	86.69	8.43E+02	2.22

Analysis Report for 1707089-14

HTC-A04-S002-3642-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	964.29	961	966	963.98	7.42E+01	55.66	5.64E+02	2.36
	42	1001.64	996	1005	1001.30	1.42E+02	80.26	8.24E+02	2.19
	43	1070.59	1067	1075	1070.18	6.99E+01	66.05	6.24E+02	4.10
	44	1120.59	1114	1125	1120.13	2.20E+03	129.34	9.84E+02	1.97
	45	1155.51	1150	1159	1155.01	2.43E+02	76.17	6.90E+02	2.18
	46	1207.19	1202	1210	1206.65	8.80E+01	59.25	4.86E+02	2.18
	47	1238.49	1233	1243	1237.92	7.27E+02	93.27	7.78E+02	1.83
	48	1281.27	1276	1284	1280.65	1.74E+02	61.37	4.71E+02	2.25
M	49	1378.19	1373	1389	1377.48	5.47E+02	61.31	3.05E+02	2.14
m	50	1385.65	1373	1389	1384.93	6.83E+01	53.63	4.71E+02	2.54
M	51	1401.85	1396	1417	1401.11	1.52E+02	48.77	3.43E+02	2.38
m	52	1408.57	1396	1417	1407.83	3.15E+02	54.54	3.10E+02	2.28
	53	1437.53	1434	1440	1436.75	3.74E+01	41.43	2.87E+02	3.03
	54	1461.40	1454	1467	1460.61	3.87E+02	88.61	7.01E+02	2.22
	55	1509.29	1502	1514	1508.45	2.91E+02	74.34	5.13E+02	2.33
M	56	1538.54	1532	1548	1537.67	7.74E+01	56.13	3.93E+02	3.48
m	57	1543.53	1532	1548	1542.65	4.57E+01	47.50	3.18E+02	2.55
	58	1582.99	1576	1585	1582.08	1.09E+02	51.69	3.19E+02	2.55
	59	1597.86	1590	1605	1596.93	9.15E+01	69.54	4.43E+02	8.02
M	60	1658.41	1656	1666	1657.43	1.84E+01	15.26	4.91E+01	2.29
m	61	1662.00	1656	1666	1661.01	1.32E+02	38.11	1.44E+02	2.68
	62	1693.39	1688	1696	1692.37	3.30E+01	34.42	1.62E+02	3.00
	63	1730.37	1725	1735	1729.31	4.03E+02	53.32	1.63E+02	2.41
M	64	1765.09	1757	1774	1764.00	1.83E+03	88.81	9.54E+01	2.37
m	65	1769.71	1757	1774	1768.61	4.70E+01	90.32	1.09E+02	3.66
	66	1838.84	1833	1843	1837.67	4.47E+01	32.30	1.15E+02	3.30
	67	1847.99	1843	1852	1846.82	2.47E+02	42.99	1.30E+02	2.65
	68	1874.23	1869	1877	1873.04	2.72E+01	25.71	8.35E+01	3.01
	69	1896.07	1883	1903	1894.85	7.55E+01	50.34	1.79E+02	10.66
	70	2063.40	2058	2068	2062.01	2.07E+01	18.26	3.46E+01	3.25
	71	2091.33	2087	2094	2089.92	1.32E+01	16.49	3.77E+01	3.91
	72	2104.35	2098	2107	2102.93	1.74E+01	21.24	5.32E+01	5.47
	73	2119.24	2113	2125	2117.80	1.40E+02	31.53	4.87E+01	3.00
	74	2193.70	2190	2195	2192.19	1.13E+01	8.83	7.33E+00	1.51
	75	2204.64	2196	2209	2203.13	4.87E+02	51.96	8.22E+01	2.66
	76	2233.29	2230	2234	2231.74	6.14E+00	5.85	1.71E+00	2.08
	77	2448.53	2443	2454	2446.78	1.42E+02	26.76	2.01E+01	3.14
	78	2615.11	2608	2617	2613.20	7.56E+01	18.36	4.77E+00	1.74
	79	2852.70	2847	2853	2850.57	7.00E+00	5.29	0.00E+00	3.00

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 1707089-14

HTC-A04-S002-3642-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/23/2017 11:17:20AM

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	46.22	44 -	49	9.41E+02	203.22	7.55E+03	1.59E+02
	2	53.12	52 -	57	1.98E+02	224.58	9.99E+03	1.83E+02
	3	63.14	61 -	66	1.75E+03	275.28	1.38E+04	2.16E+02
	4	76.29	71 -	82	1.07E+04	528.47	2.95E+04	4.00E+02
M	5	87.57	83 -	97	2.07E+03	237.46	1.06E+04	1.69E+02
m	6	92.33	83 -	97	2.92E+03	244.00	9.61E+03	1.61E+02
	7	143.43	141 -	147	5.08E+02	251.38	1.11E+04	2.03E+02
	8	154.48	152 -	158	3.53E+02	244.02	1.06E+04	1.98E+02
	9	185.92	182 -	189	3.60E+03	272.77	9.99E+03	2.01E+02
M	10	238.89	238 -	245	4.18E+02	81.55	1.93E+03	7.22E+01
m	11	241.90	238 -	245	3.27E+03	183.52	4.44E+03	1.10E+02
M	12	255.91	253 -	262	1.89E+02	166.68	4.83E+03	1.14E+02
m	13	259.14	253 -	262	3.10E+02	147.80	4.02E+03	1.04E+02
	14	270.07	267 -	273	4.03E+02	165.84	4.72E+03	1.32E+02
M	15	295.20	290 -	303	7.67E+03	209.90	2.89E+03	8.84E+01
m	16	299.96	290 -	303	3.76E+02	143.93	3.32E+03	9.47E+01
	17	338.49	336 -	341	1.32E+02	120.36	2.77E+03	9.71E+01
M	18	351.91	346 -	360	1.32E+04	250.24	2.11E+03	7.56E+01
m	19	356.12	346 -	360	4.49E+02	187.10	2.59E+03	8.36E+01
	20	387.85	385 -	392	2.87E+02	132.47	2.74E+03	1.05E+02
	21	453.68	450 -	458	1.45E+02	121.11	2.16E+03	9.76E+01
	22	486.69	484 -	490	1.23E+02	92.70	1.47E+03	7.40E+01
	23	510.83	507 -	515	2.99E+02	112.40	1.77E+03	8.79E+01
	24	582.53	578 -	586	1.89E+02	103.74	1.54E+03	8.22E+01
	25	596.24	592 -	600	8.42E+01	96.69	1.39E+03	7.80E+01
M	26	609.42	603 -	618	1.03E+04	214.17	8.47E+02	4.79E+01
m	27	613.59	603 -	618	3.72E+02	168.55	1.09E+03	5.43E+01
	28	665.39	660 -	670	3.98E+02	105.45	1.27E+03	8.02E+01
	29	674.62	672 -	677	6.38E+01	57.89	6.16E+02	4.57E+01
	30	703.41	700 -	706	1.03E+02	73.49	9.09E+02	5.81E+01
	31	720.30	717 -	725	1.12E+02	78.90	8.93E+02	6.25E+01
	32	728.68	725 -	732	7.27E+01	73.13	8.41E+02	5.85E+01
	33	768.65	763 -	773	1.10E+03	111.01	1.05E+03	7.31E+01
	34	786.29	782 -	790	1.85E+02	87.79	1.06E+03	6.86E+01
	35	806.24	802 -	810	2.03E+02	84.39	9.67E+02	6.53E+01
	36	820.63	818 -	823	6.05E+01	56.16	5.83E+02	4.44E+01
	37	839.34	835 -	843	1.99E+02	81.38	8.89E+02	6.28E+01
	38	861.90	857 -	866	8.60E+01	84.05	9.60E+02	6.74E+01
	39	916.10	914 -	919	4.32E+01	54.02	5.54E+02	4.31E+01
	40	934.34	930 -	938	5.06E+02	86.69	8.43E+02	6.09E+01
	41	964.29	961 -	966	7.42E+01	55.66	5.64E+02	4.35E+01

Analysis Report for 1707089-14

HTC-A04-S002-3642-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	42	1001.64	996 -	1005	1.42E+02	80.26	8.24E+02	6.30E+01
	43	1070.59	1067 -	1075	6.99E+01	66.05	6.24E+02	5.25E+01
	44	1120.59	1114 -	1125	2.20E+03	129.34	9.84E+02	7.31E+01
	45	1155.51	1150 -	1159	2.43E+02	76.17	6.90E+02	5.71E+01
	46	1207.19	1202 -	1210	8.80E+01	59.25	4.86E+02	4.62E+01
	47	1238.49	1233 -	1243	7.27E+02	93.27	7.78E+02	6.26E+01
	48	1281.27	1276 -	1284	1.74E+02	61.37	4.71E+02	4.55E+01
M	49	1378.19	1373 -	1389	5.47E+02	61.31	3.05E+02	2.87E+01
m	50	1385.65	1373 -	1389	6.83E+01	53.63	4.71E+02	3.57E+01
M	51	1401.85	1396 -	1417	1.52E+02	48.77	3.43E+02	3.05E+01
m	52	1408.57	1396 -	1417	3.15E+02	54.54	3.10E+02	2.90E+01
	53	1437.53	1434 -	1440	3.74E+01	41.43	2.87E+02	3.25E+01
	54	1461.40	1454 -	1467	3.87E+02	88.61	7.01E+02	6.53E+01
	55	1509.29	1502 -	1514	2.91E+02	74.34	5.13E+02	5.43E+01
M	56	1538.54	1532 -	1548	7.74E+01	56.13	3.93E+02	3.26E+01
m	57	1543.53	1532 -	1548	4.57E+01	47.50	3.18E+02	2.93E+01
	58	1582.99	1576 -	1585	1.09E+02	51.69	3.19E+02	3.89E+01
	59	1597.86	1590 -	1605	9.15E+01	69.54	4.43E+02	5.50E+01
M	60	1658.41	1656 -	1666	1.84E+01	15.26	4.91E+01	1.15E+01
m	61	1662.00	1656 -	1666	1.32E+02	38.11	1.44E+02	1.97E+01
	62	1693.39	1688 -	1696	3.30E+01	34.42	1.62E+02	2.67E+01
	63	1730.37	1725 -	1735	4.03E+02	53.32	1.63E+02	2.89E+01
M	64	1765.09	1757 -	1774	1.83E+03	88.81	9.54E+01	1.61E+01
m	65	1769.71	1757 -	1774	4.70E+01	90.32	1.09E+02	1.72E+01
	66	1838.84	1833 -	1843	4.47E+01	32.30	1.15E+02	2.42E+01
	67	1847.99	1843 -	1852	2.47E+02	42.99	1.30E+02	2.41E+01
	68	1874.23	1869 -	1877	2.72E+01	25.71	8.35E+01	1.93E+01
	69	1896.07	1883 -	1903	7.55E+01	50.34	1.79E+02	3.88E+01
	70	2063.40	2058 -	2068	2.07E+01	18.26	3.46E+01	1.30E+01
	71	2091.33	2087 -	2094	1.32E+01	16.49	3.77E+01	1.22E+01
	72	2104.35	2098 -	2107	1.74E+01	21.24	5.32E+01	8.32E+00
	73	2119.24	2113 -	2125	1.40E+02	31.53	4.87E+01	1.72E+01
	74	2193.70	2190 -	2195	1.13E+01	8.83	7.33E+00	4.70E+00
	75	2204.64	2196 -	2209	4.87E+02	51.96	8.22E+01	2.25E+01
	76	2233.29	2230 -	2234	6.14E+00	5.85	1.71E+00	2.56E+00
	77	2448.53	2443 -	2454	1.42E+02	26.76	2.01E+01	1.00E+01
	78	2615.11	2608 -	2617	7.56E+01	18.36	4.77E+00	4.83E+00
	79	2852.70	2847 -	2853	7.00E+00	5.29	0.00E+00	0.00E+00

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

Analysis Report for 1707089-14

HTC-A04-S002-3642-01

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/23/2017 11:17:20AM

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	46.22	44 -	49	46.84	9.41E+02	203.22	7.55E+03	PB-210
	2	53.12	52 -	57	53.74	1.98E+02	224.58	9.99E+03	.....
	3	63.14	61 -	66	63.75	1.75E+03	275.28	1.38E+04	TH-234
									TH-230
	4	76.29	71 -	82	76.88	1.07E+04	528.47	2.95E+04	.....
M	5	87.57	83 -	97	88.15	2.07E+03	237.46	1.06E+04	SN-126
									CD-109
									LU-176
m	6	92.33	83 -	97	92.91	2.92E+03	244.00	9.61E+03	GA-67
	7	143.43	141 -	147	143.95	5.08E+02	251.38	1.11E+04	U-235
	8	154.48	152 -	158	154.99	3.53E+02	244.02	1.06E+04	.....
	9	185.92	182 -	189	186.40	3.60E+03	272.77	9.99E+03	RA-226
M	10	238.89	238 -	245	239.31	4.18E+02	81.55	1.93E+03	PB-212
m	11	241.90	238 -	245	242.32	3.27E+03	183.52	4.44E+03	RA-224
M	12	255.91	253 -	262	256.32	1.89E+02	166.68	4.83E+03	TH-227
									SN-113
m	13	259.14	253 -	262	259.55	3.10E+02	147.80	4.02E+03	.....
	14	270.07	267 -	273	270.47	4.03E+02	165.84	4.72E+03	.....
M	15	295.20	290 -	303	295.57	7.67E+03	209.90	2.89E+03	PB-214
m	16	299.96	290 -	303	300.32	3.76E+02	143.93	3.32E+03	BI-210M
									PB-212
									GA-67
	17	338.49	336 -	341	338.81	1.32E+02	120.36	2.77E+03	AC-228
M	18	351.91	346 -	360	352.22	1.32E+04	250.24	2.11E+03	PB-214
m	19	356.12	346 -	360	356.43	4.49E+02	187.10	2.59E+03	BA-133
	20	387.85	385 -	392	388.13	2.87E+02	132.47	2.74E+03	.....
	21	453.68	450 -	458	453.89	1.45E+02	121.11	2.16E+03	PM-146
	22	486.69	484 -	490	486.87	1.23E+02	92.70	1.47E+03	LA-140
	23	510.83	507 -	515	510.98	2.99E+02	112.40	1.77E+03	.....
	24	582.53	578 -	586	582.61	1.89E+02	103.74	1.54E+03	TL-208
	25	596.24	592 -	600	596.30	8.42E+01	96.69	1.39E+03	.....
M	26	609.42	603 -	618	609.47	1.03E+04	214.17	8.47E+02	BI-214
m	27	613.59	603 -	618	613.63	3.72E+02	168.55	1.09E+03	AG-108M
	28	665.39	660 -	670	665.39	3.98E+02	105.45	1.27E+03	CE-143
									SB-126
	29	674.62	672 -	677	674.60	6.38E+01	57.89	6.16E+02	.....
	30	703.41	700 -	706	703.37	1.03E+02	73.49	9.09E+02	NB-94
	31	720.30	717 -	725	720.24	1.12E+02	78.90	8.93E+02	SB-126
	32	728.68	725 -	732	728.62	7.27E+01	73.13	8.41E+02	.....
	33	768.65	763 -	773	768.54	1.10E+03	111.01	1.05E+03	.....
	34	786.29	782 -	790	786.16	1.85E+02	87.79	1.06E+03	.....

Analysis Report for 1707089-14

HTC-A04-S002-3642-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	35	806.24	802 -	810	806.10	2.03E+02	84.39	9.67E+02	.....
	36	820.63	818 -	823	820.47	6.05E+01	56.16	5.83E+02	.....
	37	839.34	835 -	843	839.16	1.99E+02	81.38	8.89E+02	.....
	38	861.90	857 -	866	861.70	8.60E+01	84.05	9.60E+02	.....
	39	916.10	914 -	919	915.84	4.32E+01	54.02	5.54E+02	.....
	40	934.34	930 -	938	934.07	5.06E+02	86.69	8.43E+02	.....
	41	964.29	961 -	966	963.98	7.42E+01	55.66	5.64E+02	EU-152
	42	1001.64	996 -	1005	1001.30	1.42E+02	80.26	8.24E+02	PA-234M
	43	1070.59	1067 -	1075	1070.18	6.99E+01	66.05	6.24E+02	.....
	44	1120.59	1114 -	1125	1120.13	2.20E+03	129.34	9.84E+02	SC-46 BI-214 TA-182
	45	1155.51	1150 -	1159	1155.01	2.43E+02	76.17	6.90E+02	.....
	46	1207.19	1202 -	1210	1206.65	8.80E+01	59.25	4.86E+02	.....
	47	1238.49	1233 -	1243	1237.92	7.27E+02	93.27	7.78E+02	CO-56
	48	1281.27	1276 -	1284	1280.65	1.74E+02	61.37	4.71E+02	.....
M	49	1378.19	1373 -	1389	1377.48	5.47E+02	61.31	3.05E+02	.....
m	50	1385.65	1373 -	1389	1384.93	6.83E+01	53.63	4.71E+02	.....
M	51	1401.85	1396 -	1417	1401.11	1.52E+02	48.77	3.43E+02	.....
m	52	1408.57	1396 -	1417	1407.83	3.15E+02	54.54	3.10E+02	EU-152
	53	1437.53	1434 -	1440	1436.75	3.74E+01	41.43	2.87E+02	.....
	54	1461.40	1454 -	1467	1460.61	3.87E+02	88.61	7.01E+02	K-40
	55	1509.29	1502 -	1514	1508.45	2.91E+02	74.34	5.13E+02	.....
M	56	1538.54	1532 -	1548	1537.67	7.74E+01	56.13	3.93E+02	.....
m	57	1543.53	1532 -	1548	1542.65	4.57E+01	47.50	3.18E+02	.....
	58	1582.99	1576 -	1585	1582.08	1.09E+02	51.69	3.19E+02	.....
	59	1597.86	1590 -	1605	1596.93	9.15E+01	69.54	4.43E+02	.....
M	60	1658.41	1656 -	1666	1657.43	1.84E+01	15.26	4.91E+01	.....
m	61	1662.00	1656 -	1666	1661.01	1.32E+02	38.11	1.44E+02	.....
	62	1693.39	1688 -	1696	1692.37	3.30E+01	34.42	1.62E+02	.....
	63	1730.37	1725 -	1735	1729.31	4.03E+02	53.32	1.63E+02	.....
M	64	1765.09	1757 -	1774	1764.00	1.83E+03	88.81	9.54E+01	BI-214
m	65	1769.71	1757 -	1774	1768.61	4.70E+01	90.32	1.09E+02	.....
	66	1838.84	1833 -	1843	1837.67	4.47E+01	32.30	1.15E+02	.....
	67	1847.99	1843 -	1852	1846.82	2.47E+02	42.99	1.30E+02	.....
	68	1874.23	1869 -	1877	1873.04	2.72E+01	25.71	8.35E+01	.....
	69	1896.07	1883 -	1903	1894.85	7.55E+01	50.34	1.79E+02	.....
	70	2063.40	2058 -	2068	2062.01	2.07E+01	18.26	3.46E+01	.....
	71	2091.33	2087 -	2094	2089.92	1.32E+01	16.49	3.77E+01	.....
	72	2104.35	2098 -	2107	2102.93	1.74E+01	21.24	5.32E+01	.....
	73	2119.24	2113 -	2125	2117.80	1.40E+02	31.53	4.87E+01	.....
	74	2193.70	2190 -	2195	2192.19	1.13E+01	8.83	7.33E+00	.....
	75	2204.64	2196 -	2209	2203.13	4.87E+02	51.96	8.22E+01	BI-214
	76	2233.29	2230 -	2234	2231.74	6.14E+00	5.85	1.71E+00	.....
	77	2448.53	2443 -	2454	2446.78	1.42E+02	26.76	2.01E+01	.....
	78	2615.11	2608 -	2617	2613.20	7.56E+01	18.36	4.77E+00	TL-208
	79	2852.70	2847 -	2853	2850.57	7.00E+00	5.29	0.00E+00	.....

Analysis Report for 1707089-14

HTC-A04-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 EFFICIENCY REPORT

Peak Analysis Performed on : 8/23/2017 11:17:20AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.22	9.41E+02	203.22	2.46E-02	2.22E-03
	2	53.12	1.98E+02	224.58	2.59E-02	2.22E-03
	3	63.14	1.75E+03	275.28	2.70E-02	2.26E-03
	4	76.29	1.07E+04	528.47	2.75E-02	2.40E-03
M	5	87.57	2.07E+03	237.46	2.74E-02	2.52E-03
m	6	92.33	2.92E+03	244.00	2.73E-02	2.45E-03
	7	143.43	5.08E+02	251.38	2.44E-02	1.86E-03
	8	154.48	3.53E+02	244.02	2.37E-02	1.80E-03
	9	185.92	3.60E+03	272.77	2.17E-02	1.68E-03
M	10	238.89	4.18E+02	81.55	1.88E-02	1.53E-03
m	11	241.90	3.27E+03	183.52	1.87E-02	1.52E-03
M	12	255.91	1.89E+02	166.68	1.81E-02	1.48E-03
m	13	259.14	3.10E+02	147.80	1.79E-02	1.47E-03
	14	270.07	4.03E+02	165.84	1.74E-02	1.43E-03
M	15	295.20	7.67E+03	209.90	1.64E-02	1.37E-03
m	16	299.96	3.76E+02	143.93	1.63E-02	1.36E-03
	17	338.49	1.32E+02	120.36	1.50E-02	1.27E-03
M	18	351.91	1.32E+04	250.24	1.45E-02	1.24E-03
m	19	356.12	4.49E+02	187.10	1.44E-02	1.23E-03
	20	387.85	2.87E+02	132.47	1.36E-02	1.15E-03
	21	453.68	1.45E+02	121.11	1.21E-02	1.11E-03
	22	486.69	1.23E+02	92.70	1.14E-02	1.08E-03
	23	510.83	2.99E+02	112.40	1.10E-02	1.07E-03
	24	582.53	1.89E+02	103.74	9.97E-03	1.02E-03
	25	596.24	8.42E+01	96.69	9.80E-03	1.01E-03
M	26	609.42	1.03E+04	214.17	9.63E-03	1.01E-03
m	27	613.59	3.72E+02	168.55	9.58E-03	1.00E-03
	28	665.39	3.98E+02	105.45	9.00E-03	9.66E-04
	29	674.62	6.38E+01	57.89	8.91E-03	9.51E-04
	30	703.41	1.03E+02	73.49	8.63E-03	9.06E-04
	31	720.30	1.12E+02	78.90	8.47E-03	8.79E-04
	32	728.68	7.27E+01	73.13	8.40E-03	8.65E-04
	33	768.65	1.10E+03	111.01	8.06E-03	8.02E-04
	34	786.29	1.85E+02	87.79	7.92E-03	7.74E-04

Analysis Report for 1707089-14

HTC-A04-S002-3642-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	35	806.24	2.03E+02	84.39	7.77E-03	7.42E-04
	36	820.63	6.05E+01	56.16	7.67E-03	7.19E-04
	37	839.34	1.99E+02	81.38	7.54E-03	6.90E-04
	38	861.90	8.60E+01	84.05	7.39E-03	6.54E-04
	39	916.10	4.32E+01	54.02	7.06E-03	5.90E-04
	40	934.34	5.06E+02	86.69	6.95E-03	5.83E-04
	41	964.29	7.42E+01	55.66	6.79E-03	5.71E-04
	42	1001.64	1.42E+02	80.26	6.60E-03	5.57E-04
	43	1070.59	6.99E+01	66.05	6.28E-03	5.30E-04
	44	1120.59	2.20E+03	129.34	6.07E-03	5.11E-04
	45	1155.51	2.43E+02	76.17	5.94E-03	4.98E-04
	46	1207.19	8.80E+01	59.25	5.75E-03	4.83E-04
	47	1238.49	7.27E+02	93.27	5.64E-03	4.76E-04
	48	1281.27	1.74E+02	61.37	5.50E-03	4.66E-04
M	49	1378.19	5.47E+02	61.31	5.22E-03	4.44E-04
m	50	1385.65	6.83E+01	53.63	5.20E-03	4.42E-04
M	51	1401.85	1.52E+02	48.77	5.16E-03	4.38E-04
m	52	1408.57	3.15E+02	54.54	5.14E-03	4.37E-04
	53	1437.53	3.74E+01	41.43	5.06E-03	4.30E-04
	54	1461.40	3.87E+02	88.61	5.00E-03	4.25E-04
	55	1509.29	2.91E+02	74.34	4.89E-03	4.14E-04
M	56	1538.54	7.74E+01	56.13	4.82E-03	4.07E-04
m	57	1543.53	4.57E+01	47.50	4.81E-03	4.06E-04
	58	1582.99	1.09E+02	51.69	4.73E-03	3.96E-04
	59	1597.86	9.15E+01	69.54	4.69E-03	3.93E-04
M	60	1658.41	1.84E+01	15.26	4.57E-03	3.79E-04
m	61	1662.00	1.32E+02	38.11	4.56E-03	3.78E-04
	62	1693.39	3.30E+01	34.42	4.50E-03	3.71E-04
	63	1730.37	4.03E+02	53.32	4.44E-03	3.62E-04
M	64	1765.09	1.83E+03	88.81	4.37E-03	3.54E-04
m	65	1769.71	4.70E+01	90.32	4.37E-03	3.53E-04
	66	1838.84	4.47E+01	32.30	4.25E-03	3.38E-04
	67	1847.99	2.47E+02	42.99	4.23E-03	3.38E-04
	68	1874.23	2.72E+01	25.71	4.19E-03	3.38E-04
	69	1896.07	7.55E+01	50.34	4.16E-03	3.38E-04
	70	2063.40	2.07E+01	18.26	3.92E-03	3.38E-04
	71	2091.33	1.32E+01	16.49	3.88E-03	3.38E-04
	72	2104.35	1.74E+01	21.24	3.86E-03	3.38E-04
	73	2119.24	1.40E+02	31.53	3.84E-03	3.38E-04
	74	2193.70	1.13E+01	8.83	3.75E-03	3.38E-04
	75	2204.64	4.87E+02	51.96	3.74E-03	3.38E-04
	76	2233.29	6.14E+00	5.85	3.70E-03	3.38E-04
	77	2448.53	1.42E+02	26.76	3.47E-03	3.38E-04
	78	2615.11	7.56E+01	18.36	3.31E-03	3.38E-04
	79	2852.70	7.00E+00	5.29	3.10E-03	3.38E-04

Analysis Report for 1707089-14

HTC-A04-S002-3642-01

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/23/2017 11:17:20AM

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	46.22	9.41E+02	203.22	3.67E+01	8.40E+00	9.04E+02	2.03E+02
	2	53.12	1.98E+02	224.58			1.98E+02	2.25E+02
	3	63.14	1.75E+03	275.28	8.94E+01	1.41E+01	1.66E+03	2.76E+02
	4	76.29	1.07E+04	528.47			1.07E+04	5.28E+02
M	5	87.57	2.07E+03	237.46			2.07E+03	2.37E+02
m	6	92.33	2.92E+03	244.00	1.38E+02	1.72E+01	2.78E+03	2.45E+02
	7	143.43	5.08E+02	251.38	1.21E+01	4.29E+01	4.95E+02	2.55E+02
	8	154.48	3.53E+02	244.02			3.53E+02	2.44E+02
	9	185.92	3.60E+03	272.77	5.22E+01	7.59E+00	3.55E+03	2.73E+02
M	10	238.89	4.18E+02	81.55	2.13E+01	6.33E+00	3.96E+02	8.18E+01
m	11	241.90	3.27E+03	183.52			3.27E+03	1.84E+02
M	12	255.91	1.89E+02	166.68			1.89E+02	1.67E+02
m	13	259.14	3.10E+02	147.80			3.10E+02	1.48E+02
	14	270.07	4.03E+02	165.84	1.23E+00	4.98E+00	4.02E+02	1.66E+02
M	15	295.20	7.67E+03	209.90			7.67E+03	2.10E+02
m	16	299.96	3.76E+02	143.93			3.76E+02	1.44E+02
	17	338.49	1.32E+02	120.36			1.32E+02	1.20E+02
M	18	351.91	1.32E+04	250.24	5.79E+00	4.49E+00	1.32E+04	2.50E+02
m	19	356.12	4.49E+02	187.10			4.49E+02	1.87E+02
	20	387.85	2.87E+02	132.47			2.87E+02	1.32E+02
	21	453.68	1.45E+02	121.11			1.45E+02	1.21E+02
	22	486.69	1.23E+02	92.70			1.23E+02	9.27E+01
	23	510.83	2.99E+02	112.40	7.28E+01	5.30E+00	2.26E+02	1.13E+02
	24	582.53	1.89E+02	103.74			1.89E+02	1.04E+02
	25	596.24	8.42E+01	96.69			8.42E+01	9.67E+01
M	26	609.42	1.03E+04	214.17	6.35E+00	4.02E+00	1.03E+04	2.14E+02
m	27	613.59	3.72E+02	168.55			3.72E+02	1.69E+02
	28	665.39	3.98E+02	105.45			3.98E+02	1.05E+02
	29	674.62	6.38E+01	57.89			6.38E+01	5.79E+01
	30	703.41	1.03E+02	73.49			1.03E+02	7.35E+01
	31	720.30	1.12E+02	78.90			1.12E+02	7.89E+01
	32	728.68	7.27E+01	73.13			7.27E+01	7.31E+01
	33	768.65	1.10E+03	111.01			1.10E+03	1.11E+02
	34	786.29	1.85E+02	87.79			1.85E+02	8.78E+01
	35	806.24	2.03E+02	84.39			2.03E+02	8.44E+01

Analysis Report for 1707089-14

HTC-A04-S002-3642-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	36	820.63	6.05E+01	56.16			6.05E+01	5.62E+01
	37	839.34	1.99E+02	81.38			1.99E+02	8.14E+01
	38	861.90	8.60E+01	84.05			8.60E+01	8.40E+01
	39	916.10	4.32E+01	54.02			4.32E+01	5.40E+01
	40	934.34	5.06E+02	86.69			5.06E+02	8.67E+01
	41	964.29	7.42E+01	55.66			7.42E+01	5.57E+01
	42	1001.64	1.42E+02	80.26	4.92E+00	2.75E+00	1.37E+02	8.03E+01
	43	1070.59	6.99E+01	66.05			6.99E+01	6.61E+01
	44	1120.59	2.20E+03	129.34			2.20E+03	1.29E+02
	45	1155.51	2.43E+02	76.17			2.43E+02	7.62E+01
	46	1207.19	8.80E+01	59.25			8.80E+01	5.93E+01
	47	1238.49	7.27E+02	93.27			7.27E+02	9.33E+01
	48	1281.27	1.74E+02	61.37			1.74E+02	6.14E+01
M	49	1378.19	5.47E+02	61.31			5.47E+02	6.13E+01
m	50	1385.65	6.83E+01	53.63			6.83E+01	5.36E+01
M	51	1401.85	1.52E+02	48.77			1.52E+02	4.88E+01
m	52	1408.57	3.15E+02	54.54			3.15E+02	5.45E+01
	53	1437.53	3.74E+01	41.43			3.74E+01	4.14E+01
	54	1461.40	3.87E+02	88.61	8.09E+00	2.23E+00	3.79E+02	8.86E+01
	55	1509.29	2.91E+02	74.34			2.91E+02	7.43E+01
M	56	1538.54	7.74E+01	56.13			7.74E+01	5.61E+01
m	57	1543.53	4.57E+01	47.50			4.57E+01	4.75E+01
	58	1582.99	1.09E+02	51.69			1.09E+02	5.17E+01
	59	1597.86	9.15E+01	69.54			9.15E+01	6.95E+01
M	60	1658.41	1.84E+01	15.26			1.84E+01	1.53E+01
m	61	1662.00	1.32E+02	38.11			1.32E+02	3.81E+01
	62	1693.39	3.30E+01	34.42			3.30E+01	3.44E+01
	63	1730.37	4.03E+02	53.32			4.03E+02	5.33E+01
M	64	1765.09	1.83E+03	88.81			1.83E+03	8.88E+01
m	65	1769.71	4.70E+01	90.32			4.70E+01	9.03E+01
	66	1838.84	4.47E+01	32.30			4.47E+01	3.23E+01
	67	1847.99	2.47E+02	42.99			2.47E+02	4.30E+01
	68	1874.23	2.72E+01	25.71			2.72E+01	2.57E+01
	69	1896.07	7.55E+01	50.34			7.55E+01	5.03E+01
	70	2063.40	2.07E+01	18.26			2.07E+01	1.83E+01
	71	2091.33	1.32E+01	16.49			1.32E+01	1.65E+01
	72	2104.35	1.74E+01	21.24			1.74E+01	2.12E+01
	73	2119.24	1.40E+02	31.53			1.40E+02	3.15E+01
	74	2193.70	1.13E+01	8.83			1.13E+01	8.83E+00
	75	2204.64	4.87E+02	51.96			4.87E+02	5.20E+01
	76	2233.29	6.14E+00	5.85			6.14E+00	5.85E+00
	77	2448.53	1.42E+02	26.76			1.42E+02	2.68E+01
	78	2615.11	7.56E+01	18.36	5.63E+00	1.38E+00	7.00E+01	1.84E+01
	79	2852.70	7.00E+00	5.29			7.00E+00	5.29E+00

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

Analysis Report for 1707089-14

HTC-A04-S002-3642-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/23/2017 11:17:20AM

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	46.22	9.41E+02	203.22	3.67E+01	8.40E+00	9.04E+02	2.03E+02
	2	53.12	1.98E+02	224.58			1.98E+02	2.25E+02
	3	63.14	1.75E+03	275.28	8.94E+01	1.41E+01	1.66E+03	2.76E+02
	4	76.29	1.07E+04	528.47			1.07E+04	5.28E+02
M	5	87.57	2.07E+03	237.46			2.07E+03	2.37E+02
m	6	92.33	2.92E+03	244.00	1.38E+02	1.72E+01	2.78E+03	2.45E+02
	7	143.43	5.08E+02	251.38	1.21E+01	4.29E+01	4.95E+02	2.55E+02
	8	154.48	3.53E+02	244.02			3.53E+02	2.44E+02
	9	185.92	3.60E+03	272.77	5.22E+01	7.59E+00	3.55E+03	2.73E+02
M	10	238.89	4.18E+02	81.55	2.13E+01	6.33E+00	3.96E+02	8.18E+01
m	11	241.90	3.27E+03	183.52			3.27E+03	1.84E+02
M	12	255.91	1.89E+02	166.68			1.89E+02	1.67E+02
m	13	259.14	3.10E+02	147.80			3.10E+02	1.48E+02
	14	270.07	4.03E+02	165.84	1.23E+00	4.98E+00	4.02E+02	1.66E+02
M	15	295.20	7.67E+03	209.90			7.67E+03	2.10E+02
m	16	299.96	3.76E+02	143.93			3.76E+02	1.44E+02
	17	338.49	1.32E+02	120.36			1.32E+02	1.20E+02
M	18	351.91	1.32E+04	250.24	5.79E+00	4.49E+00	1.32E+04	2.50E+02
m	19	356.12	4.49E+02	187.10			4.49E+02	1.87E+02
	20	387.85	2.87E+02	132.47			2.87E+02	1.32E+02
	21	453.68	1.45E+02	121.11			1.45E+02	1.21E+02
	22	486.69	1.23E+02	92.70			1.23E+02	9.27E+01
	23	510.83	2.99E+02	112.40	7.28E+01	5.30E+00	2.26E+02	1.13E+02
	24	582.53	1.89E+02	103.74			1.89E+02	1.04E+02
	25	596.24	8.42E+01	96.69			8.42E+01	9.67E+01
M	26	609.42	1.03E+04	214.17	6.35E+00	4.02E+00	1.03E+04	2.14E+02
m	27	613.59	3.72E+02	168.55			3.72E+02	1.69E+02
	28	665.39	3.98E+02	105.45			3.98E+02	1.05E+02
	29	674.62	6.38E+01	57.89			6.38E+01	5.79E+01
	30	703.41	1.03E+02	73.49			1.03E+02	7.35E+01
	31	720.30	1.12E+02	78.90			1.12E+02	7.89E+01
	32	728.68	7.27E+01	73.13			7.27E+01	7.31E+01
	33	768.65	1.10E+03	111.01			1.10E+03	1.11E+02
	34	786.29	1.85E+02	87.79			1.85E+02	8.78E+01
	35	806.24	2.03E+02	84.39			2.03E+02	8.44E+01
	36	820.63	6.05E+01	56.16			6.05E+01	5.62E+01
	37	839.34	1.99E+02	81.38			1.99E+02	8.14E+01
	38	861.90	8.60E+01	84.05			8.60E+01	8.40E+01
	39	916.10	4.32E+01	54.02			4.32E+01	5.40E+01
	40	934.34	5.06E+02	86.69			5.06E+02	8.67E+01
	41	964.29	7.42E+01	55.66			7.42E+01	5.57E+01

Analysis Report for 1707089-14

HTC-A04-S002-3642-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	42	1001.64	1.42E+02	80.26	4.92E+00	2.75E+00	1.37E+02	8.03E+01
	43	1070.59	6.99E+01	66.05			6.99E+01	6.61E+01
	44	1120.59	2.20E+03	129.34			2.20E+03	1.29E+02
	45	1155.51	2.43E+02	76.17			2.43E+02	7.62E+01
	46	1207.19	8.80E+01	59.25			8.80E+01	5.93E+01
	47	1238.49	7.27E+02	93.27			7.27E+02	9.33E+01
	48	1281.27	1.74E+02	61.37			1.74E+02	6.14E+01
M	49	1378.19	5.47E+02	61.31			5.47E+02	6.13E+01
m	50	1385.65	6.83E+01	53.63			6.83E+01	5.36E+01
M	51	1401.85	1.52E+02	48.77			1.52E+02	4.88E+01
m	52	1408.57	3.15E+02	54.54			3.15E+02	5.45E+01
	53	1437.53	3.74E+01	41.43			3.74E+01	4.14E+01
	54	1461.40	3.87E+02	88.61	8.09E+00	2.23E+00	3.79E+02	8.86E+01
	55	1509.29	2.91E+02	74.34			2.91E+02	7.43E+01
M	56	1538.54	7.74E+01	56.13			7.74E+01	5.61E+01
m	57	1543.53	4.57E+01	47.50			4.57E+01	4.75E+01
	58	1582.99	1.09E+02	51.69			1.09E+02	5.17E+01
	59	1597.86	9.15E+01	69.54			9.15E+01	6.95E+01
M	60	1658.41	1.84E+01	15.26			1.84E+01	1.53E+01
m	61	1662.00	1.32E+02	38.11			1.32E+02	3.81E+01
	62	1693.39	3.30E+01	34.42			3.30E+01	3.44E+01
	63	1730.37	4.03E+02	53.32			4.03E+02	5.33E+01
M	64	1765.09	1.83E+03	88.81			1.83E+03	8.88E+01
m	65	1769.71	4.70E+01	90.32			4.70E+01	9.03E+01
	66	1838.84	4.47E+01	32.30			4.47E+01	3.23E+01
	67	1847.99	2.47E+02	42.99			2.47E+02	4.30E+01
	68	1874.23	2.72E+01	25.71			2.72E+01	2.57E+01
	69	1896.07	7.55E+01	50.34			7.55E+01	5.03E+01
	70	2063.40	2.07E+01	18.26			2.07E+01	1.83E+01
	71	2091.33	1.32E+01	16.49			1.32E+01	1.65E+01
	72	2104.35	1.74E+01	21.24			1.74E+01	2.12E+01
	73	2119.24	1.40E+02	31.53			1.40E+02	3.15E+01
	74	2193.70	1.13E+01	8.83			1.13E+01	8.83E+00
	75	2204.64	4.87E+02	51.96			4.87E+02	5.20E+01
	76	2233.29	6.14E+00	5.85			6.14E+00	5.85E+00
	77	2448.53	1.42E+02	26.76			1.42E+02	2.68E+01
	78	2615.11	7.56E+01	18.36	5.63E+00	1.38E+00	7.00E+01	1.84E+01
	79	2852.70	7.00E+00	5.29			7.00E+00	5.29E+00

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Analysis Report for 1707089-14

HTC-A04-S002-3642-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.945	1460.81	*	10.67	6.43E+00	1.60E+00
CD-109	0.966	88.03	*	3.72	2.13E+01	3.37E+00
SN-126	1.000	87.57	*	37.00	1.85E+00	2.71E-01
PM-146	0.419	453.90	*	39.94	2.81E-01	2.37E-01
		735.90		14.01		
		747.13		13.10		
TL-208	0.846	583.14	*	30.22	5.68E-01	3.17E-01
		860.37		4.48		
		2614.66	*	35.85	5.35E-01	1.51E-01
PB-210	0.987	46.50	*	4.25	7.89E+00	1.91E+00
PB-212	0.990	238.63	*	44.60	4.27E-01	9.46E-02
		300.09	*	3.41	6.14E+00	2.40E+00
BI-214	0.984	609.31	*	46.30	2.09E+01	2.23E+00
		1120.29	*	15.10	2.18E+01	2.23E+00
		1764.49	*	15.80	2.39E+01	2.26E+00
		2204.22	*	4.98	2.37E+01	3.31E+00
PB-214	1.000	295.21	*	19.19	2.20E+01	1.93E+00
		351.92	*	37.19	2.21E+01	1.92E+00
RA-224	0.874	240.98	*	3.95	4.01E+01	3.95E+00
RA-226	0.986	186.21	*	3.28	4.51E+01	8.26E+01
PA-234M	0.943	1001.03	*	0.92	2.04E+01	1.21E+01
TH-234	0.997	63.29	*	3.80	1.47E+01	2.73E+00

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 11:17:20AM
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	53.12	5.50012E-02	56.71		
	4	76.29	2.96840E+00	2.47		
m	6	92.33	7.73028E-01	4.39	Sum	
	7	143.43	1.37626E-01	25.73	Tol.	U-235

Analysis Report for 1707089-14

HTC-A04-S002-3642-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	8	154.48	9.81467E-02	34.53		
M	12	255.91	5.24719E-02	44.12	Tol.	SN-113 TH-227
m	13	259.14	8.59972E-02	23.87		
	14	270.07	1.11572E-01	20.65		
	17	338.49	3.66610E-02	45.60	Tol.	AC-228
m	19	356.12	1.24678E-01	20.84	Tol.	BA-133
	20	387.85	7.97585E-02	23.07	Sum	
	22	486.69	3.40355E-02	37.83	Sum	
	23	510.83	6.27799E-02	24.89		
	25	596.24	2.33797E-02	57.44		
m	27	613.59	1.03243E-01	22.67	Tol.	AG-108M
	28	665.39	1.10632E-01	13.24	Tol.	SB-126 CE-143
	29	674.62	1.77117E-02	45.39		
	30	703.41	2.85358E-02	35.77	Sum	
	31	720.30	3.12468E-02	35.07	Tol.	SB-126
	32	728.68	2.02034E-02	50.27		
	33	768.65	3.06555E-01	5.03	Sum	
	34	786.29	5.14869E-02	23.68		
	35	806.24	5.65136E-02	20.74	Sum	
	36	820.63	1.68063E-02	46.41	Sum	
	37	839.34	5.51598E-02	20.49		
	38	861.90	2.38889E-02	48.86		
	39	916.10	1.19931E-02	62.56		
	40	934.34	1.40426E-01	8.57	Sum	
	41	964.29	2.06149E-02	37.50	Tol.	EU-152
	43	1070.59	1.94052E-02	47.28		
	45	1155.51	6.75642E-02	15.66		
	46	1207.19	2.44444E-02	33.67	Sum	
	47	1238.49	2.01904E-01	6.42	Tol.	CO-56
	48	1281.27	4.84621E-02	17.59		
M	49	1378.19	1.52061E-01	5.60		
m	50	1385.65	1.89802E-02	39.24		
M	51	1401.85	4.22919E-02	16.02		
m	52	1408.57	8.76007E-02	8.65	Tol.	EU-152
	53	1437.53	1.03952E-02	55.35		
	55	1509.29	8.07191E-02	12.79		
M	56	1538.54	2.15067E-02	36.25		
m	57	1543.53	1.26920E-02	51.98		
	58	1582.99	3.01990E-02	23.77		
	59	1597.86	2.54251E-02	37.99		
M	60	1658.41	5.09820E-03	41.58		
m	61	1662.00	3.66189E-02	14.45		
	62	1693.39	9.16667E-03	52.16	S-Esc	
	63	1730.37	1.11833E-01	6.62	Sum	
m	65	1769.71	1.30490E-02	96.14		
	66	1838.84	1.24101E-02	36.15		
	67	1847.99	6.85470E-02	8.71		
	68	1874.23	7.56642E-03	47.18		
	69	1896.07	2.09638E-02	33.35		
	70	2063.40	5.75292E-03	44.09		
	71	2091.33	3.65451E-03	62.68		
	72	2104.35	4.82955E-03	61.07	S-Esc	

Analysis Report for 1707089-14

HTC-A04-S002-3642-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
73	2119.24	3.87923E-02	11.29		
74	2193.70	3.14815E-03	38.96		
76	2233.29	1.70635E-03	47.64		
77	2448.53	3.94316E-02	9.42		
79	2852.70	1.94444E-03	37.80		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.94	1460.81	*	10.67	6.43E+00	1.60E+00
CD-109	0.96	88.03	*	3.72	2.13E+01	3.37E+00
SN-126	1.00	87.57	*	37.00	1.85E+00	2.71E-01
PM-146	0.41	453.90	*	39.94	2.81E-01	2.37E-01
		735.90		14.01		
		747.13		13.10		
TL-208	0.84	583.14	*	30.22	5.68E-01	3.17E-01
		860.37		4.48		
		2614.66	*	35.85	5.35E-01	1.51E-01
PB-210	0.98	46.50	*	4.25	7.89E+00	1.91E+00
PB-212	0.99	238.63	*	44.60	4.27E-01	9.46E-02
		300.09	*	3.41	6.14E+00	2.40E+00
BI-214	0.98	609.31	*	46.30	2.09E+01	2.23E+00
		1120.29	*	15.10	2.18E+01	2.23E+00
		1764.49	*	15.80	2.39E+01	2.26E+00
		2204.22	*	4.98	2.37E+01	3.31E+00
PB-214	1.00	295.21	*	19.19	2.20E+01	1.93E+00
		351.92	*	37.19	2.21E+01	1.92E+00
RA-224	0.87	240.98	*	3.95	4.01E+01	3.95E+00
RA-226	0.98	186.21	*	3.28	4.51E+01	8.26E+01
PA-234M	0.94	1001.03	*	0.92	2.04E+01	1.21E+01
TH-234	0.99	63.29	*	3.80	1.47E+01	2.73E+00

Analysis Report for 1707089-14

HTC-A04-S002-3642-01

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.945	6.43E+00	1.60E+00	
?	CD-109	0.966	2.13E+01	3.37E+00	
?	SN-126	1.000	1.85E+00	2.71E-01	
	PM-146	0.419	2.81E-01	2.37E-01	
	TL-208	0.846	5.41E-01	1.36E-01	
	PB-210	0.987	7.89E+00	1.91E+00	
	PB-212	0.990	4.36E-01	9.45E-02	
	BI-214	0.984	2.24E+01	1.20E+00	
	PB-214	1.000	2.20E+01	1.36E+00	
	RA-224	0.874	4.01E+01	3.95E+00	
	RA-226	0.986	4.51E+01	8.26E+01	
	PA-234M	0.943	2.04E+01	1.21E+01	
	TH-234	0.997	1.47E+01	2.73E+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 1707089-14

HTC-A04-S002-3642-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 11:17:20AM
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	53.12	5.50012E-02	56.71		
	4	76.29	2.96840E+00	2.47		
m	6	92.33	7.73028E-01	4.39	Sum	
	7	143.43	1.37626E-01	25.73	Tol.	U-235
	8	154.48	9.81467E-02	34.53		
M	12	255.91	5.24719E-02	44.12	Tol.	SN-113 TH-227
m	13	259.14	8.59972E-02	23.87		
	14	270.07	1.11572E-01	20.65		
	17	338.49	3.66610E-02	45.60	Tol.	AC-228
m	19	356.12	1.24678E-01	20.84	Tol.	BA-133
	20	387.85	7.97585E-02	23.07	Sum	
	22	486.69	3.40355E-02	37.83	Sum	
	23	510.83	6.27799E-02	24.89		
	25	596.24	2.33797E-02	57.44		
m	27	613.59	1.03243E-01	22.67	Tol.	AG-108M
	28	665.39	1.10632E-01	13.24	Tol.	SB-126 CE-143
	29	674.62	1.77117E-02	45.39		
	30	703.41	2.85358E-02	35.77	Sum	
	31	720.30	3.12468E-02	35.07	Tol.	SB-126
	32	728.68	2.02034E-02	50.27		
	33	768.65	3.06555E-01	5.03	Sum	
	34	786.29	5.14869E-02	23.68		
	35	806.24	5.65136E-02	20.74	Sum	
	36	820.63	1.68063E-02	46.41	Sum	
	37	839.34	5.51598E-02	20.49		
	38	861.90	2.38889E-02	48.86		
	39	916.10	1.19931E-02	62.56		
	40	934.34	1.40426E-01	8.57	Sum	
	41	964.29	2.06149E-02	37.50	Tol.	EU-152
	43	1070.59	1.94052E-02	47.28		
	45	1155.51	6.75642E-02	15.66		
	46	1207.19	2.44444E-02	33.67	Sum	
	47	1238.49	2.01904E-01	6.42	Tol.	CO-56

Analysis Report for 1707089-14

HTC-A04-S002-3642-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	48	1281.27	4.84621E-02	17.59		
M	49	1378.19	1.52061E-01	5.60		
m	50	1385.65	1.89802E-02	39.24		
M	51	1401.85	4.22919E-02	16.02		
m	52	1408.57	8.76007E-02	8.65	Tol.	EU-152
	53	1437.53	1.03952E-02	55.35		
	55	1509.29	8.07191E-02	12.79		
M	56	1538.54	2.15067E-02	36.25		
m	57	1543.53	1.26920E-02	51.98		
	58	1582.99	3.01990E-02	23.77		
	59	1597.86	2.54251E-02	37.99		
M	60	1658.41	5.09820E-03	41.58		
m	61	1662.00	3.66189E-02	14.45		
	62	1693.39	9.16667E-03	52.16	S-Esc	
	63	1730.37	1.11833E-01	6.62	Sum	
m	65	1769.71	1.30490E-02	96.14		
	66	1838.84	1.24101E-02	36.15		
	67	1847.99	6.85470E-02	8.71		
	68	1874.23	7.56642E-03	47.18		
	69	1896.07	2.09638E-02	33.35		
	70	2063.40	5.75292E-03	44.09		
	71	2091.33	3.65451E-03	62.68		
	72	2104.35	4.82955E-03	61.07	S-Esc	
	73	2119.24	3.87923E-02	11.29		
	74	2193.70	3.14815E-03	38.96		
	76	2233.29	1.70635E-03	47.64		
	77	2448.53	3.94316E-02	9.42		
	79	2852.70	1.94444E-03	37.80		

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

NUCLIDE MDA REPORT

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

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

Analysis Report for 1707089-14

HTC-A04-S002-3642-01

+		BE-7	477.59		10.42	-6.26E-02	3.71E+00	3.71E+00
+		NA-22	1274.54		99.94	-1.85E-02	1.16E-01	1.16E-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	-1.50E-02	6.21E-02	6.21E-02
+		K-40	1460.81	*	10.67	6.43E+00	2.27E+00	2.27E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	3.72E-02	1.32E-01	1.32E-01
			78.34		96.00	1.43E+00		1.80E-01
+		SC-46	889.25		99.98	-9.25E-02	2.60E-01	2.60E-01
			1120.51		99.99	7.41E+00		7.96E-01
+		V-48	983.52		99.98	2.29E-01	7.65E+00	8.16E+00
			1312.10		97.50	-4.73E+00		7.65E+00
+		CR-51	320.08		9.83	-4.82E+00	1.36E+01	1.36E+01
+		MN-54	834.83		99.97	1.24E-02	1.51E-01	1.51E-01
+		CO-56	846.75		99.96	-7.23E-02	2.59E-01	2.59E-01
			1037.75		14.03	1.39E+00		2.04E+00
			1238.25		67.00	4.44E+00		8.56E-01
			1771.40		15.51	-1.65E+01		1.57E+00
			2598.48		16.90	-1.04E-01		5.06E-01
+		CO-57	122.06		85.51	9.23E-03	1.53E-01	1.53E-01
			136.48		10.60	-1.24E-01		1.29E+00
+		CO-58	810.76		99.40	-6.56E-02	2.83E-01	2.83E-01
+		FE-59	1099.22		56.50	6.63E-02	9.48E-01	9.48E-01
			1291.56		43.20	-4.00E-01		1.16E+00
+		CO-60	1173.22		100.00	-1.93E-02	1.09E-01	1.09E-01
			1332.49		100.00	-3.42E-02		1.14E-01
+		ZN-65	1115.52		50.75	-4.63E-03	3.22E-01	3.22E-01
+		GA-67	93.31		35.70	3.41E+09	5.44E+08	5.44E+08
			208.95		2.24	-3.50E+09		6.64E+09
			300.22		16.00	-2.73E+10		1.12E+09
+		SE-75	121.11		16.70	2.13E-01	3.18E-01	1.08E+00
			136.00		59.20	-3.05E-02		3.18E-01
			264.65		59.80	4.47E-02		3.41E-01
			279.53		25.20	-7.62E-01		8.20E-01
			400.65		11.40	-7.01E-01		1.86E+00
+		RB-82	776.52		13.00	-4.90E+00	1.16E+01	1.16E+01
+		RB-83	520.41		46.00	-1.10E-01	4.95E-01	4.95E-01
			529.64		30.30	-5.78E-01		7.55E-01
			552.65		16.40	-2.18E-01		1.39E+00
+		KR-85	513.99		0.43	8.29E+00	2.81E+01	2.81E+01
+		SR-85	513.99		99.27	1.03E-01	3.48E-01	3.48E-01
+		Y-88	898.02		93.40	2.06E-01	1.75E-01	2.52E-01
			1836.01		99.38	6.12E-02		1.75E-01
+		MO-93	263.06		56.72	2.69E-02	9.89E-02	2.14E-01
			684.67		99.68	-3.83E-02		9.89E-02
			1477.11		99.08	8.50E-03		1.18E-01
+		NB-93M	16.57		9.43	-1.49E+00	8.76E-01	8.76E-01
+		NB-94	702.63		100.00	1.02E-01	1.15E-01	1.18E-01
			871.10		100.00	4.81E-02		1.15E-01
+		NB-95	765.79		99.81	6.10E+00	1.35E+00	1.35E+00

Analysis Report for 1707089-14

HTC-A04-S002-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	NB-95M	235.69		25.00	-7.17E+07	8.20E+07	8.20E+07
+	ZR-95	724.18		43.70	-8.34E-01	5.42E-01	7.01E-01
		756.72		55.30	-1.87E-01		5.42E-01
+	MO-99	181.06		6.20	-1.19E+10	6.21E+10	1.25E+11
		739.58		12.80	3.32E+10		6.21E+10
		778.00		4.50	1.27E+10		1.67E+11
+	RU-103	497.08		89.00	-2.46E-01	6.52E-01	6.52E-01
+	RU-106	621.84		9.80	-4.70E-01	1.13E+00	1.13E+00
+	AG-108M	433.93		89.90	-1.94E-02	1.17E-01	1.20E-01
		614.37		90.40	-5.75E+00		1.98E-01
		722.95		90.50	-9.67E-02		1.17E-01
+	CD-109	88.03	*	3.72	2.13E+01	8.52E+00	8.52E+00
+	AG-110M	657.75		93.14	6.06E-02	1.41E-01	1.41E-01
		677.61		10.53	-2.17E-01		1.22E+00
		706.67		16.46	-1.28E-01		8.86E-01
		763.93		21.98	9.28E-02		7.38E-01
		884.67		71.63	-5.57E-02		2.07E-01
		1384.27		23.94	-2.90E-01		7.49E-01
+	CD-113M	263.70		0.02	6.62E+01	5.12E+02	5.12E+02
+	SN-113	255.12		1.93	-5.81E+00	3.31E-01	9.82E+00
		391.69		64.90	4.17E-02		3.31E-01
+	TE123M	159.00		84.10	-1.11E-01	2.31E-01	2.31E-01
+	SB-124	602.71		97.87	-1.21E-01	3.50E-01	3.50E-01
		645.85		7.26	2.00E-01		4.03E+00
		722.78		11.10	-2.47E+00		2.98E+00
		1691.02		49.00	6.48E-02		5.98E-01
+	I-125	35.49		6.49	-2.47E+00	4.71E+00	4.71E+00
+	SB-125	176.33		6.89	-4.63E-01	4.33E-01	1.65E+00
		427.89		29.33	3.51E-01		4.33E-01
		463.38		10.35	1.06E+00		1.14E+00
		600.56		17.80	-2.26E-01		6.32E-01
		635.90		11.32	5.13E-01		9.44E-01
+	SB-126	414.70		83.30	5.71E+00	2.62E+01	3.69E+01
		666.33		99.60	8.65E+01		3.41E+01
		695.00		99.60	4.32E-01		2.62E+01
		720.50		53.80	4.24E+01		5.14E+01
+	SN-126	87.57	*	37.00	1.85E+00	7.39E-01	7.39E-01
+	SB-127	473.00		25.00	4.52E+06	1.54E+07	2.39E+07
		685.20		35.70	-5.94E+06		1.54E+07
		783.80		14.70	8.34E+07		5.11E+07
+	I-129	29.78		57.00	1.04E-01	1.92E-01	1.92E-01
		33.60		13.20	1.18E-02		7.66E-01
		39.58		7.52	-7.64E-01		1.25E+00
+	I-131	284.30		6.05	4.22E+03	6.79E+02	1.02E+04
		364.48		81.20	-8.55E+01		6.79E+02
		636.97		7.26	4.88E+03		7.07E+03
		722.89		1.80	-2.50E+04		3.02E+04
+	TE-132	49.72		13.10	-3.62E+08	1.70E+08	1.12E+09

Analysis Report for 1707089-14

HTC-A04-S002-3642-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		TE-132	228.16		88.00	-1.06E+07	1.70E+08	1.70E+08
+		BA-133	81.00		33.00	-3.12E+00	3.88E-01	3.88E-01
			302.84		17.80	3.88E-02		7.13E-01
			356.01		60.00	9.68E-01		3.91E-01
+	@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+		XE-133	81.00		38.00	-1.31E+06	1.63E+05	1.63E+05
+		CS-134	563.23		8.38	6.30E-01	1.32E-01	1.37E+00
			569.32		15.43	9.57E-02		7.47E-01
			604.70		97.60	-8.86E+00		1.95E-01
			795.84		85.40	-7.17E-02		1.32E-01
			801.93		8.73	2.97E-01		1.46E+00
+		CS-135	268.24		16.00	1.34E+00	8.00E-01	8.00E-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	1.99E+02	2.09E+01	2.84E+02
			163.89		4.61	1.54E+02		4.40E+02
			176.55		13.56	-4.08E+01		1.46E+02
			273.65		12.66	9.81E+01		1.85E+02
			340.57		48.50	-4.71E+00		4.56E+01
			818.50		99.70	-6.43E-01		2.09E+01
			1048.07		79.60	-9.41E+00		2.62E+01
			1235.34		19.70	6.31E+02		2.03E+02
+		CS-137	661.65		85.12	-1.47E-01	1.39E-01	1.39E-01
+		LA-138	788.74		34.00	-3.61E-02	1.73E-01	3.74E-01
			1435.80		66.00	-3.34E-02		1.73E-01
+		CE-139	165.85		80.35	9.85E-02	2.23E-01	2.23E-01
+		BA-140	162.64		6.70	-9.95E+00	9.51E+01	3.50E+02
			304.84		4.50	-1.65E+01		5.51E+02
			423.70		3.20	1.50E+02		8.07E+02
			437.55		2.00	1.10E+02		1.15E+03
			537.32		25.00	6.09E+01		9.51E+01
+		LA-140	328.77		20.50	-3.01E+01	2.65E+01	1.24E+02
			487.03		45.50	2.38E+01		5.22E+01
			815.85		23.50	1.07E+01		9.88E+01
			1596.49		95.49	6.08E+00		2.65E+01
+		CE-141	145.44		48.40	2.24E+00	1.99E+00	1.99E+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	-5.38E-01	1.24E+00	1.24E+00
+		PM-144	476.78		42.00	-6.95E-02	1.25E-01	3.07E-01
			618.01		98.60	-9.05E-03		1.28E-01
			696.49		99.49	1.44E-03		1.25E-01
+		PM-145	36.85		21.70	-2.37E-01	2.47E-01	4.49E-01
			37.36		39.70	3.65E-02		2.47E-01
			42.30		15.10	-1.39E-01		6.36E-01
			72.40		2.31	-1.96E+01		6.34E+00
+		PM-146	453.90	*	39.94	2.81E-01	3.85E-01	3.85E-01

Analysis Report for 1707089-14

HTC-A04-S002-3642-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PM-146	735.90	14.01	-3.37E-01	3.85E-01	7.49E-01
		747.13	13.10	-8.49E-01		8.31E-01
+	ND-147	91.11	28.90	1.12E+03	2.58E+02	2.58E+02
		531.02	13.10	-9.55E+01		4.21E+02
+	PM-149	285.90	3.10	5.92E+13	1.21E+14	1.21E+14
+	EU-152	121.78	20.50	9.92E-02	5.04E-01	5.04E-01
		244.69	5.40	4.34E-01		2.48E+00
		344.27	19.13	1.32E-01		6.24E-01
		778.89	9.20	-4.42E-01		1.17E+00
		964.01	10.40	3.14E-01		1.26E+00
		1085.78	7.22	-4.09E-01		1.55E+00
		1112.02	9.60	2.42E-01		1.12E+00
		1407.95	14.94	2.57E+00		1.23E+00
+	GD-153	97.43	31.30	3.65E-01	4.40E-01	4.40E-01
		103.18	22.20	-3.39E-02		5.88E-01
+	EU-154	123.07	40.50	-6.18E-02	2.57E-01	2.57E-01
		723.30	19.70	-4.53E-01		5.47E-01
		873.19	11.50	-2.19E-01		1.01E+00
		996.32	10.30	5.33E-02		1.14E+00
		1004.76	17.90	2.23E-03		7.36E-01
		1274.45	35.50	-4.96E-02		3.10E-01
+	EU-155	86.50	30.90	1.26E+00	4.56E-01	4.56E-01
		105.30	20.70	-3.15E-01		4.93E-01
+	EU-156	811.77	10.40	1.66E+01	9.56E+01	9.56E+01
		1153.47	7.20	4.40E+02		2.04E+02
		1230.71	8.90	3.22E+01		1.16E+02
+	HO-166M	184.41	72.60	1.88E+00	1.92E-01	2.18E-01
		280.45	29.60	-8.35E-02		3.97E-01
		410.94	11.10	-2.94E-01		1.08E+00
		711.69	54.10	8.89E-02		1.92E-01
+	TM-171	66.72	0.14	4.85E+01	9.84E+01	9.84E+01
+	HF-172	67.35	5.31	7.30E-01	1.00E+00	2.58E+00
		125.81	11.30	-2.00E-01		1.00E+00
+	LU-172	181.53	20.60	-1.44E+03	5.24E+03	1.52E+04
		900.72	29.81	-6.22E+03		1.14E+04
		1093.66	62.50	1.47E+03		5.24E+03
+	LU-173	100.72	5.24	2.59E-01	7.11E-01	2.20E+00
		272.11	21.20	4.83E-01		7.11E-01
+	HF-175	343.40	84.00	7.87E-02	3.69E-01	3.69E-01
+	LU-176	88.34	13.30	-2.15E+00	1.20E-01	1.04E+00
		201.83	86.00	-7.19E-02		1.24E-01
		306.78	94.00	5.30E-03		1.20E-01
+	HF-181	133.02	41.70	-5.53E-01	6.67E-01	1.27E+00
		345.85	17.20	4.64E-01		3.54E+00
		482.03	82.80	2.57E-01		6.67E-01
+	TA-182	67.75	41.20	1.55E-01	5.49E-01	5.49E-01
		1121.30	34.90	1.68E+01		1.83E+00
		1189.05	16.23	-4.75E-01		1.24E+00
		1221.41	26.98	5.53E-02		7.49E-01

Analysis Report for 1707089-14

HTC-A04-S002-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TA-182	1231.02		11.44	4.95E-01	5.49E-01	1.78E+00
+	IR-192	308.46		29.68	-6.33E-01	5.72E-01	9.42E-01
		468.07		48.10	3.54E-01		5.72E-01
+	HG-203	279.19		77.30	-6.11E-01	6.58E-01	6.58E-01
+	TL-204	374.74		94.11	-1.49E-02	1.20E-01	1.20E-01
		899.15		99.16	1.89E-02		1.28E-01
		911.74		91.10	1.11E-01		1.46E-01
+	BI-207	569.67		97.72	-3.27E-02	1.08E-01	1.08E-01
		1063.62		74.90	-5.79E-02		1.46E-01
+	TL-208	583.14	*	30.22	5.68E-01	1.17E-01	5.02E-01
		860.37		4.48	1.37E+00		2.65E+00
		2614.66	*	35.85	5.35E-01		1.17E-01
+	BI-210M	262.00		45.00	2.37E-02	2.71E-01	2.71E-01
		300.00		23.00	-1.81E+01		6.10E-01
+	PB-210	46.50	*	4.25	7.89E+00	2.81E+00	2.81E+00
+	PB-211	404.84		2.90	1.41E+00	3.98E+00	4.25E+00
		831.96		2.90	-5.38E-01		3.98E+00
+	BI-212	727.17		11.80	2.20E-01	9.11E-01	9.11E-01
		1620.62		2.75	2.45E+00		3.66E+00
+	PB-212	238.63	*	44.60	4.27E-01	3.24E-01	3.24E-01
		300.09	*	3.41	6.14E+00		6.79E+00
+	BI-214	609.31	*	46.30	2.09E+01	4.77E-01	4.77E-01
		1120.29	*	15.10	2.18E+01		1.47E+00
		1764.49	*	15.80	2.39E+01		1.07E+00
		2204.22	*	4.98	2.37E+01		2.33E+00
+	PB-214	295.21	*	19.19	2.20E+01	6.35E-01	1.19E+00
		351.92	*	37.19	2.21E+01		6.35E-01
+	RN-219	401.80		6.50	4.94E-01	1.87E+00	1.87E+00
+	RA-223	323.87		3.88	-5.96E-01	2.94E+00	2.94E+00
+	RA-224	240.98	*	3.95	4.01E+01	3.95E+00	3.95E+00
+	RA-225	40.00		31.00	1.30E+01	3.22E+01	3.22E+01
+	RA-226	186.21	*	3.28	4.51E+01	5.17E+00	5.17E+00
+	TH-227	50.10		8.40	-3.90E-01	9.64E-01	1.22E+00
		236.00		11.50	-8.43E-01		9.64E-01
		256.20		6.30	3.56E+00		2.01E+00
+	AC-228	338.32		11.40	4.53E-01	4.57E-01	1.05E+00
		911.07		27.70	3.48E-01		4.57E-01
		969.11		16.60	1.91E-01		7.50E-01
+	TH-230	48.44		16.90	-1.96E-01	6.48E-01	6.48E-01
		62.85		4.60	1.34E+01		2.96E+00
		67.67		0.37	9.47E+00		3.35E+01
+	PA-231	283.67		1.60	2.95E+00	5.41E+00	7.49E+00
		302.67		2.30	2.95E-01		5.41E+00
+	TH-231	25.64		14.70	-2.65E+00	8.62E-01	8.62E-01
		84.21		6.40	-5.79E+00		1.98E+00
+	PA-233	311.98		38.60	2.44E-01	3.68E+00	3.68E+00
+	PA-234	131.20		20.40	2.07E-01	5.16E-01	5.16E-01
		733.99		8.80	-1.27E-01		1.16E+00

Analysis Report for 1707089-14

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PA-234	946.00		12.00	-7.54E-02	5.16E-01	9.22E-01
+	PA-234M	1001.03	*	0.92	2.04E+01	1.92E+01	1.92E+01
+	TH-234	63.29	*	3.80	1.47E+01	3.85E+00	3.85E+00
+	U-235	143.76		10.50	1.56E+00	1.10E+00	1.10E+00
		163.35		4.70	8.16E-01		2.32E+00
		205.31		4.70	6.23E-01		2.29E+00
+	NP-237	86.50		12.60	2.98E+00	1.08E+00	1.08E+00
+	NP-239	106.10		22.70	-1.47E+12	2.05E+12	2.05E+12
		228.18		10.70	-2.86E+11		4.57E+12
		277.60		14.10	-1.07E+11		3.99E+12
+	AM-241	59.54		35.90	-1.12E-01	3.18E-01	3.18E-01
+	AM-243	74.67		66.00	-9.23E-01	2.63E-01	2.63E-01
+	CM-243	209.75		3.29	3.94E-01	8.58E-01	3.20E+00
		228.14		10.60	-6.16E-02		9.85E-01
		277.60		14.00	-2.31E-02		8.58E-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

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	3.71E+00	3.71E+00	-6.26E-02	1.82E+00
	NA-22	1274.54		99.94	1.16E-01	1.16E-01	-1.85E-02	5.56E-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	6.21E-02	6.21E-02	-1.50E-02	2.82E-02
+	K-40	1460.81	*	10.67	2.27E+00	2.27E+00	6.43E+00	1.11E+00
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
TI-44	67.88	94.40	1.32E-01	1.32E-01	3.72E-02	6.54E-02
	78.34	96.00	1.80E-01		1.43E+00	8.96E-02
SC-46	889.25	99.98	2.60E-01	2.60E-01	-9.25E-02	1.26E-01
	1120.51	99.99	7.96E-01		7.41E+00	3.93E-01
V-48	983.52	99.98	8.16E+00	7.65E+00	2.29E-01	3.94E+00
	1312.10	97.50	7.65E+00		-4.73E+00	3.65E+00
CR-51	320.08	9.83	1.36E+01	1.36E+01	-4.82E+00	6.68E+00
MN-54	834.83	99.97	1.51E-01	1.51E-01	1.24E-02	7.36E-02
CO-56	846.75	99.96	2.59E-01	2.59E-01	-7.23E-02	1.26E-01
	1037.75	14.03	2.04E+00		1.39E+00	9.87E-01
	1238.25	67.00	8.56E-01		4.44E+00	4.20E-01
	1771.40	15.51	1.57E+00		-1.65E+01	7.41E-01
	2598.48	16.90	5.06E-01		-1.04E-01	2.01E-01
CO-57	122.06	85.51	1.53E-01	1.53E-01	9.23E-03	7.59E-02
	136.48	10.60	1.29E+00		-1.24E-01	6.40E-01
CO-58	810.76	99.40	2.83E-01	2.83E-01	-6.56E-02	1.37E-01
FE-59	1099.22	56.50	9.48E-01	9.48E-01	6.63E-02	4.58E-01
	1291.56	43.20	1.16E+00		-4.00E-01	5.54E-01
CO-60	1173.22	100.00	1.09E-01	1.09E-01	-1.93E-02	5.24E-02
	1332.49	100.00	1.14E-01		-3.42E-02	5.47E-02
ZN-65	1115.52	50.75	3.22E-01	3.22E-01	-4.63E-03	1.56E-01
GA-67	93.31	35.70	5.44E+08	5.44E+08	3.41E+09	2.70E+08
	208.95	2.24	6.64E+09		-3.50E+09	3.28E+09
	300.22	16.00	1.12E+09		-2.73E+10	5.55E+08
SE-75	121.11	16.70	1.08E+00	3.18E-01	2.13E-01	5.36E-01
	136.00	59.20	3.18E-01		-3.05E-02	1.58E-01
	264.65	59.80	3.41E-01		4.47E-02	1.68E-01
	279.53	25.20	8.20E-01		-7.62E-01	4.05E-01
	400.65	11.40	1.86E+00		-7.01E-01	9.16E-01
RB-82	776.52	13.00	1.16E+01	1.16E+01	-4.90E+00	5.63E+00
RB-83	520.41	46.00	4.95E-01	4.95E-01	-1.10E-01	2.42E-01
	529.64	30.30	7.55E-01		-5.78E-01	3.69E-01
	552.65	16.40	1.39E+00		-2.18E-01	6.78E-01
KR-85	513.99	0.43	2.81E+01	2.81E+01	8.29E+00	1.38E+01
SR-85	513.99	99.27	3.48E-01	3.48E-01	1.03E-01	1.71E-01
Y-88	898.02	93.40	2.52E-01	1.75E-01	2.06E-01	1.22E-01
	1836.01	99.38	1.75E-01		6.12E-02	8.22E-02
MO-93	263.06	56.72	2.14E-01	9.89E-02	2.69E-02	1.06E-01
	684.67	99.68	9.89E-02		-3.83E-02	4.81E-02
	1477.11	99.08	1.18E-01		8.50E-03	5.63E-02
NB-93M	16.57	9.43	8.76E-01	8.76E-01	-1.49E+00	4.26E-01
NB-94	702.63	100.00	1.18E-01	1.15E-01	1.02E-01	5.75E-02
	871.10	100.00	1.15E-01		4.81E-02	5.61E-02
NB-95	765.79	99.81	1.35E+00	1.35E+00	6.10E+00	6.64E-01
NB-95M	235.69	25.00	8.20E+07	8.20E+07	-7.17E+07	4.05E+07
ZR-95	724.18	43.70	7.01E-01	5.42E-01	-8.34E-01	3.41E-01
	756.72	55.30	5.42E-01		-1.87E-01	2.63E-01
MO-99	181.06	6.20	1.25E+11	6.21E+10	-1.19E+10	6.18E+10
	739.58	12.80	6.21E+10		3.32E+10	3.03E+10
	778.00	4.50	1.67E+11		1.27E+10	8.12E+10
RU-103	497.08	89.00	6.52E-01	6.52E-01	-2.46E-01	3.19E-01
RU-106	621.84	9.80	1.13E+00	1.13E+00	-4.70E-01	5.50E-01
AG-108M	433.93	89.90	1.20E-01	1.17E-01	-1.94E-02	5.90E-02

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	AG-108M	614.37		90.40	1.98E-01	1.17E-01	-5.75E+00	9.74E-02
		722.95		90.50	1.17E-01		-9.67E-02	5.68E-02
+	CD-109	88.03	*	3.72	8.52E+00	8.52E+00	2.13E+01	4.25E+00
	AG-110M	657.75		93.14	1.41E-01	1.41E-01	6.06E-02	6.87E-02
		677.61		10.53	1.22E+00		-2.17E-01	5.95E-01
		706.67		16.46	8.86E-01		-1.28E-01	4.31E-01
		763.93		21.98	7.38E-01		9.28E-02	3.60E-01
		884.67		71.63	2.07E-01		-5.57E-02	1.00E-01
		1384.27		23.94	7.49E-01		-2.90E-01	3.62E-01
	CD-113M	263.70		0.02	5.12E+02	5.12E+02	6.62E+01	2.53E+02
	SN-113	255.12		1.93	9.82E+00	3.31E-01	-5.81E+00	4.84E+00
		391.69		64.90	3.31E-01		4.17E-02	1.63E-01
	TE123M	159.00		84.10	2.31E-01	2.31E-01	-1.11E-01	1.14E-01
	SB-124	602.71		97.87	3.50E-01	3.50E-01	-1.21E-01	1.71E-01
		645.85		7.26	4.03E+00		2.00E-01	1.96E+00
		722.78		11.10	2.98E+00		-2.47E+00	1.45E+00
		1691.02		49.00	5.98E-01		6.48E-02	2.82E-01
	I-125	35.49		6.49	4.71E+00	4.71E+00	-2.47E+00	2.33E+00
	SB-125	176.33		6.89	1.65E+00	4.33E-01	-4.63E-01	8.18E-01
		427.89		29.33	4.33E-01		3.51E-01	2.13E-01
		463.38		10.35	1.14E+00		1.06E+00	5.60E-01
		600.56		17.80	6.32E-01		-2.26E-01	3.08E-01
		635.90		11.32	9.44E-01		5.13E-01	4.59E-01
	SB-126	414.70		83.30	3.69E+01	2.62E+01	5.71E+00	1.82E+01
		666.33		99.60	3.41E+01		8.65E+01	1.67E+01
		695.00		99.60	2.62E+01		4.32E-01	1.27E+01
		720.50		53.80	5.14E+01		4.24E+01	2.50E+01
+	SN-126	87.57	*	37.00	7.39E-01	7.39E-01	1.85E+00	3.68E-01
	SB-127	473.00		25.00	2.39E+07	1.54E+07	4.52E+06	1.17E+07
		685.20		35.70	1.54E+07		-5.94E+06	7.46E+06
		783.80		14.70	5.11E+07		8.34E+07	2.50E+07
	I-129	29.78		57.00	1.92E-01	1.92E-01	1.04E-01	9.48E-02
		33.60		13.20	7.66E-01		1.18E-02	3.78E-01
		39.58		7.52	1.25E+00		-7.64E-01	6.19E-01
	I-131	284.30		6.05	1.02E+04	6.79E+02	4.22E+03	5.04E+03
		364.48		81.20	6.79E+02		-8.55E+01	3.34E+02
		636.97		7.26	7.07E+03		4.88E+03	3.44E+03
		722.89		1.80	3.02E+04		-2.50E+04	1.47E+04
	TE-132	49.72		13.10	1.12E+09	1.70E+08	-3.62E+08	5.56E+08
		228.16		88.00	1.70E+08		-1.06E+07	8.41E+07
	BA-133	81.00		33.00	3.88E-01	3.88E-01	-3.12E+00	1.92E-01
		302.84		17.80	7.13E-01		3.88E-02	3.52E-01
		356.01		60.00	3.91E-01		9.68E-01	1.94E-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	1.63E+05	1.63E+05	-1.31E+06	8.08E+04
	CS-134	563.23		8.38	1.37E+00	1.32E-01	6.30E-01	6.71E-01
		569.32		15.43	7.47E-01		9.57E-02	3.65E-01
		604.70		97.60	1.95E-01		-8.86E+00	9.61E-02
		795.84		85.40	1.32E-01		-7.17E-02	6.40E-02
		801.93		8.73	1.46E+00		2.97E-01	7.08E-01
	CS-135	268.24		16.00	8.00E-01	8.00E-01	1.34E+00	3.96E-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

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@	I-135	1678.03		9.54	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	CS-136	153.22		7.46	2.84E+02	2.09E+01	1.99E+02	1.41E+02
		163.89		4.61	4.40E+02		1.54E+02	2.18E+02
		176.55		13.56	1.46E+02		-4.08E+01	7.20E+01
		273.65		12.66	1.85E+02		9.81E+01	9.16E+01
		340.57		48.50	4.56E+01		-4.71E+00	2.25E+01
		818.50		99.70	2.09E+01		-6.43E-01	1.02E+01
		1048.07		79.60	2.62E+01		-9.41E+00	1.26E+01
		1235.34		19.70	2.03E+02		6.31E+02	9.95E+01
	CS-137	661.65		85.12	1.39E-01	1.39E-01	-1.47E-01	6.78E-02
	LA-138	788.74		34.00	3.74E-01	1.73E-01	-3.61E-02	1.82E-01
		1435.80		66.00	1.73E-01		-3.34E-02	8.30E-02
	CE-139	165.85		80.35	2.23E-01	2.23E-01	9.85E-02	1.11E-01
	BA-140	162.64		6.70	3.50E+02	9.51E+01	-9.95E+00	1.73E+02
		304.84		4.50	5.51E+02		-1.65E+01	2.72E+02
		423.70		3.20	8.07E+02		1.50E+02	3.97E+02
		437.55		2.00	1.15E+03		1.10E+02	5.65E+02
		537.32		25.00	9.51E+01		6.09E+01	4.65E+01
	LA-140	328.77		20.50	1.24E+02	2.65E+01	-3.01E+01	6.11E+01
		487.03		45.50	5.22E+01		2.38E+01	2.56E+01
		815.85		23.50	9.88E+01		1.07E+01	4.80E+01
		1596.49		95.49	2.65E+01		6.08E+00	1.27E+01
	CE-141	145.44		48.40	1.99E+00	1.99E+00	2.24E+00	9.85E-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	1.24E+00	1.24E+00	-5.38E-01	6.14E-01
	PM-144	476.78		42.00	3.07E-01	1.25E-01	-6.95E-02	1.51E-01
		618.01		98.60	1.28E-01		-9.05E-03	6.24E-02
		696.49		99.49	1.25E-01		1.44E-03	6.09E-02
	PM-145	36.85		21.70	4.49E-01	2.47E-01	-2.37E-01	2.22E-01
		37.36		39.70	2.47E-01		3.65E-02	1.22E-01
		42.30		15.10	6.36E-01		-1.39E-01	3.15E-01
		72.40		2.31	6.34E+00		-1.96E+01	3.15E+00
+	PM-146	453.90	*	39.94	3.85E-01	3.85E-01	2.81E-01	1.90E-01
		735.90		14.01	7.49E-01		-3.37E-01	3.64E-01
		747.13		13.10	8.31E-01		-8.49E-01	4.04E-01
	ND-147	91.11		28.90	2.58E+02	2.58E+02	1.12E+03	1.28E+02
		531.02		13.10	4.21E+02		-9.55E+01	2.06E+02
	PM-149	285.90		3.10	1.21E+14	1.21E+14	5.92E+13	5.99E+13
	EU-152	121.78		20.50	5.04E-01	5.04E-01	9.92E-02	2.50E-01
		244.69		5.40	2.48E+00		4.34E-01	1.23E+00
		344.27		19.13	6.24E-01		1.32E-01	3.08E-01
		778.89		9.20	1.17E+00		-4.42E-01	5.69E-01
		964.01		10.40	1.26E+00		3.14E-01	6.13E-01
		1085.78		7.22	1.55E+00		-4.09E-01	7.49E-01
		1112.02		9.60	1.12E+00		2.42E-01	5.40E-01
		1407.95		14.94	1.23E+00		2.57E+00	5.99E-01
	GD-153	97.43		31.30	4.40E-01	4.40E-01	3.65E-01	2.18E-01
		103.18		22.20	5.88E-01		-3.39E-02	2.91E-01
	EU-154	123.07		40.50	2.57E-01	2.57E-01	-6.18E-02	1.27E-01
		723.30		19.70	5.47E-01		-4.53E-01	2.66E-01
		873.19		11.50	1.01E+00		-2.19E-01	4.90E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-154	996.32		10.30	1.14E+00	2.57E-01	5.33E-02	5.51E-01
		1004.76		17.90	7.36E-01		2.23E-03	3.57E-01
		1274.45		35.50	3.10E-01		-4.96E-02	1.49E-01
	EU-155	86.50		30.90	4.56E-01	4.56E-01	1.26E+00	2.27E-01
		105.30		20.70	4.93E-01		-3.15E-01	2.44E-01
	EU-156	811.77		10.40	9.56E+01	9.56E+01	1.66E+01	4.64E+01
		1153.47		7.20	2.04E+02		4.40E+02	9.92E+01
		1230.71		8.90	1.16E+02		3.22E+01	5.56E+01
	HO-166M	184.41		72.60	2.18E-01	1.92E-01	1.88E+00	1.08E-01
		280.45		29.60	3.97E-01		-8.35E-02	1.96E-01
		410.94		11.10	1.08E+00		-2.94E-01	5.33E-01
		711.69		54.10	1.92E-01		8.89E-02	9.33E-02
	TM-171	66.72		0.14	9.84E+01	9.84E+01	4.85E+01	4.88E+01
	HF-172	67.35		5.31	2.58E+00	1.00E+00	7.30E-01	1.28E+00
		125.81		11.30	1.00E+00		-2.00E-01	4.98E-01
	LU-172	181.53		20.60	1.52E+04	5.24E+03	-1.44E+03	7.50E+03
		900.72		29.81	1.14E+04		-6.22E+03	5.52E+03
		1093.66		62.50	5.24E+03		1.47E+03	2.53E+03
	LU-173	100.72		5.24	2.20E+00	7.11E-01	2.59E-01	1.09E+00
		272.11		21.20	7.11E-01		4.83E-01	3.52E-01
	HF-175	343.40		84.00	3.69E-01	3.69E-01	7.87E-02	1.82E-01
	LU-176	88.34		13.30	1.04E+00	1.20E-01	-2.15E+00	5.15E-01
		201.83		86.00	1.24E-01		-7.19E-02	6.15E-02
		306.78		94.00	1.20E-01		5.30E-03	5.91E-02
	HF-181	133.02		41.70	1.27E+00	6.67E-01	-5.53E-01	6.31E-01
		345.85		17.20	3.54E+00		4.64E-01	1.75E+00
		482.03		82.80	6.67E-01		2.57E-01	3.27E-01
	TA-182	67.75		41.20	5.49E-01	5.49E-01	1.55E-01	2.72E-01
		1121.30		34.90	1.83E+00		1.68E+01	9.06E-01
		1189.05		16.23	1.24E+00		-4.75E-01	5.94E-01
		1221.41		26.98	7.49E-01		5.53E-02	3.60E-01
		1231.02		11.44	1.78E+00		4.95E-01	8.56E-01
	IR-192	308.46		29.68	9.42E-01	5.72E-01	-6.33E-01	4.64E-01
		468.07		48.10	5.72E-01		3.54E-01	2.80E-01
	HG-203	279.19		77.30	6.58E-01	6.58E-01	-6.11E-01	3.25E-01
	TL-204	374.74		94.11	1.20E-01	1.20E-01	-1.49E-02	5.93E-02
		899.15		99.16	1.28E-01		1.89E-02	6.23E-02
		911.74		91.10	1.46E-01		1.11E-01	7.11E-02
	BI-207	569.67		97.72	1.08E-01	1.08E-01	-3.27E-02	5.26E-02
		1063.62		74.90	1.46E-01		-5.79E-02	7.04E-02
+	TL-208	583.14	*	30.22	5.02E-01	1.17E-01	5.68E-01	2.47E-01
		860.37		4.48	2.65E+00		1.37E+00	1.29E+00
		2614.66	*	35.85	1.17E-01		5.35E-01	4.82E-02
	BI-210M	262.00		45.00	2.71E-01	2.71E-01	2.37E-02	1.34E-01
		300.00		23.00	6.10E-01		-1.81E+01	3.02E-01
+	PB-210	46.50	*	4.25	2.81E+00	2.81E+00	7.89E+00	1.40E+00
	PB-211	404.84		2.90	4.25E+00	3.98E+00	1.41E+00	2.09E+00
		831.96		2.90	3.98E+00		-5.38E-01	1.93E+00
	BI-212	727.17		11.80	9.11E-01	9.11E-01	2.20E-01	4.43E-01
		1620.62		2.75	3.66E+00		2.45E+00	1.74E+00
+	PB-212	238.63	*	44.60	3.24E-01	3.24E-01	4.27E-01	1.61E-01
		300.09	*	3.41	6.79E+00		6.14E+00	3.37E+00
+	BI-214	609.31	*	46.30	4.77E-01	4.77E-01	2.09E+01	2.36E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BI-214	1120.29	*	15.10	1.47E+00	4.77E-01	2.18E+01	7.22E-01
		1764.49	*	15.80	1.07E+00		2.39E+01	5.16E-01
		2204.22	*	4.98	2.33E+00		2.37E+01	1.10E+00
+	PB-214	295.21	*	19.19	1.19E+00	6.35E-01	2.20E+01	5.89E-01
		351.92	*	37.19	6.35E-01		2.21E+01	3.15E-01
	RN-219	401.80		6.50	1.87E+00	1.87E+00	4.94E-01	9.20E-01
	RA-223	323.87		3.88	2.94E+00	2.94E+00	-5.96E-01	1.45E+00
+	RA-224	240.98	*	3.95	3.95E+00	3.95E+00	4.01E+01	1.96E+00
	RA-225	40.00		31.00	3.22E+01	3.22E+01	1.30E+01	1.59E+01
+	RA-226	186.21	*	3.28	5.17E+00	5.17E+00	4.51E+01	2.57E+00
	TH-227	50.10		8.40	1.22E+00	9.64E-01	-3.90E-01	6.06E-01
		236.00		11.50	9.64E-01		-8.43E-01	4.77E-01
		256.20		6.30	2.01E+00		3.56E+00	9.92E-01
	AC-228	338.32		11.40	1.05E+00	4.57E-01	4.53E-01	5.19E-01
		911.07		27.70	4.57E-01		3.48E-01	2.22E-01
		969.11		16.60	7.50E-01		1.91E-01	3.64E-01
	TH-230	48.44		16.90	6.48E-01	6.48E-01	-1.96E-01	3.21E-01
		62.85		4.60	2.96E+00		1.34E+01	1.47E+00
		67.67		0.37	3.35E+01		9.47E+00	1.66E+01
	PA-231	283.67		1.60	7.49E+00	5.41E+00	2.95E+00	3.70E+00
		302.67		2.30	5.41E+00		2.95E-01	2.67E+00
	TH-231	25.64		14.70	8.62E-01	8.62E-01	-2.65E+00	4.26E-01
		84.21		6.40	1.98E+00		-5.79E+00	9.82E-01
	PA-233	311.98		38.60	3.68E+00	3.68E+00	2.44E-01	1.81E+00
	PA-234	131.20		20.40	5.16E-01	5.16E-01	2.07E-01	2.56E-01
		733.99		8.80	1.16E+00		-1.27E-01	5.62E-01
		946.00		12.00	9.22E-01		-7.54E-02	4.46E-01
+	PA-234M	1001.03	*	0.92	1.92E+01	1.92E+01	2.04E+01	9.42E+00
+	TH-234	63.29	*	3.80	3.85E+00	3.85E+00	1.47E+01	1.91E+00
	U-235	143.76		10.50	1.10E+00	1.10E+00	1.56E+00	5.47E-01
		163.35		4.70	2.32E+00		8.16E-01	1.15E+00
		205.31		4.70	2.29E+00		6.23E-01	1.13E+00
	NP-237	86.50		12.60	1.08E+00	1.08E+00	2.98E+00	5.35E-01
	NP-239	106.10		22.70	2.05E+12	2.05E+12	-1.47E+12	1.02E+12
		228.18		10.70	4.57E+12		-2.86E+11	2.26E+12
		277.60		14.10	3.99E+12		-1.07E+11	1.97E+12
	AM-241	59.54		35.90	3.18E-01	3.18E-01	-1.12E-01	1.58E-01
	AM-243	74.67		66.00	2.63E-01	2.63E-01	-9.23E-01	1.31E-01
	CM-243	209.75		3.29	3.20E+00	8.58E-01	3.94E-01	1.58E+00
		228.14		10.60	9.85E-01		-6.16E-02	4.86E-01
		277.60		14.00	8.58E-01		-2.31E-02	4.24E-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 1707089-14

HTC-A04-S002-3642-01

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A04-S002-3642-01

Elapsed Live time: 3600
Elapsed Real Time: 3610

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	6	404	567	465	553	949	570
25:	486	508	442	478	451	483	467	485
33:	452	486	470	508	488	450	539	536
41:	516	509	574	559	625	801	1314	754
49:	665	694	750	804	850	1028	827	833
57:	849	894	967	1045	1094	1136	1639	2278
65:	1327	1191	1239	1357	1297	1259	1304	1295
73:	1362	1697	3150	2786	3670	4448	1616	1491
81:	1319	1303	1065	1457	1399	1088	1710	2259
89:	1264	1377	1338	1395	2711	1664	1050	896
97:	821	906	931	806	794	737	790	762
105:	774	777	754	750	806	844	835	844
113:	862	845	803	764	777	774	712	763
121:	774	781	782	725	740	781	758	803
129:	745	789	772	789	798	757	767	726
137:	785	816	767	725	831	820	818	1006
145:	974	805	823	795	799	811	739	793
153:	788	814	874	814	777	771	719	777
161:	657	689	713	742	711	673	674	657
169:	646	645	652	611	665	654	599	657
177:	641	620	594	592	652	633	656	675
185:	907	2232	2124	783	587	629	609	629
193:	571	564	615	634	574	559	588	537
201:	566	518	567	539	583	565	531	480
209:	528	504	475	514	484	433	471	470
217:	472	507	444	470	458	482	454	430
225:	454	469	471	440	424	447	439	441
233:	434	425	474	562	492	489	721	561
241:	729	2184	1631	487	398	431	374	380
249:	339	374	350	365	345	361	376	428
257:	403	387	456	459	379	299	359	350
265:	297	327	320	317	400	525	456	427
273:	318	378	413	351	299	301	308	308
281:	319	305	328	324	287	345	346	310
289:	311	295	308	305	383	662	3422	3946
297:	800	292	349	452	399	293	285	262
305:	278	260	249	250	248	238	231	226
313:	256	256	251	225	247	224	222	260
321:	227	242	226	260	241	248	247	239
329:	265	285	256	233	274	261	259	238
337:	248	274	315	250	193	245	226	224
345:	260	233	233	236	314	381	1850	7284
353:	4285	519	290	294	353	212	180	192
361:	170	168	201	189	182	160	185	169

369:	182	184	167	169	184	183	181	155

Sample Title: HTC-A04-S002-3642-01

Channel								
377:	172	182	179	181	186	192	189	183
385:	155	203	264	215	253	211	185	169
393:	176	200	189	191	175	187	179	162
401:	222	232	191	193	226	217	192	181
409:	195	203	168	182	215	187	194	188
417:	181	174	188	181	166	185	178	179
425:	167	181	206	183	155	162	164	144
433:	132	134	138	147	126	135	133	138
441:	136	129	141	148	143	145	141	134
449:	121	124	143	129	134	165	165	124
457:	117	126	111	107	126	158	125	127
465:	139	118	139	110	125	134	124	114
473:	98	131	114	115	105	121	102	146
481:	131	143	104	107	124	123	159	147
489:	100	99	111	102	95	110	96	107
497:	94	99	102	93	113	113	113	100
505:	114	82	94	95	104	173	210	174
513:	129	100	105	109	112	87	82	103
521:	93	98	98	110	91	91	93	84
529:	96	100	85	90	111	122	119	103
537:	90	101	90	114	85	93	115	94
545:	88	82	108	107	90	91	80	88
553:	82	80	89	100	87	79	84	105
561:	80	84	80	89	87	98	90	72
569:	83	95	89	86	91	76	106	94
577:	85	85	90	106	114	102	140	145
585:	96	81	91	81	78	84	68	84
593:	71	73	106	91	97	84	87	85
601:	71	62	86	88	92	124	173	927
609:	4412	4369	798	149	164	204	127	86
617:	69	77	59	56	57	54	53	62
625:	65	53	60	66	67	54	71	57
633:	63	62	60	68	72	64	74	59
641:	48	56	58	46	44	69	56	65
649:	56	70	47	52	49	37	64	54
657:	52	83	62	55	70	74	62	96
665:	187	209	84	65	74	57	57	51
673:	71	63	68	67	52	47	60	63
681:	46	58	57	62	51	51	66	43
689:	73	57	55	62	56	59	59	52
697:	65	70	67	60	66	73	123	96
705:	77	62	70	57	67	56	68	61
713:	58	55	55	44	49	57	82	84
721:	57	57	64	58	51	53	76	72
729:	69	57	59	56	46	53	57	53
737:	61	57	53	60	65	80	90	63
745:	61	53	68	54	47	54	63	60
753:	62	58	43	57	58	56	40	59
761:	48	62	47	48	62	100	167	455
769:	406	140	80	77	47	36	69	47
777:	49	49	60	47	63	68	58	50
785:	100	164	98	62	66	51	57	43
793:	56	53	44	46	46	46	55	59

801:	63	50	61	60	90	149	114	56

Sample Title: HTC-A04-S002-3642-01

Channel								
809:	54	53	50	43	54	52	63	49
817:	43	53	52	69	70	59	49	49
825:	59	61	47	57	56	37	61	77
833:	68	46	64	67	51	78	122	86
841:	58	70	47	43	61	46	60	43
849:	51	44	40	59	50	53	53	45
857:	51	57	51	51	72	58	72	47
865:	61	46	50	64	48	43	61	64
873:	54	47	48	51	58	52	62	48
881:	42	49	42	68	49	44	59	60
889:	46	49	54	51	61	49	58	61
897:	54	66	63	54	61	40	46	66
905:	62	48	60	57	46	78	96	70
913:	49	34	72	55	59	52	48	51
921:	47	50	50	59	45	44	34	57
929:	51	46	53	60	167	269	171	72
937:	51	38	53	41	55	46	40	38
945:	41	59	49	40	40	43	38	36
953:	51	42	39	30	46	48	44	42
961:	43	45	68	83	71	46	55	65
969:	65	47	52	47	46	47	38	44
977:	39	49	40	53	41	40	35	34
985:	40	44	42	34	51	44	48	44
993:	47	39	53	54	35	34	44	78
1001:	111	79	46	43	30	32	42	32
1009:	42	45	40	49	38	49	33	44
1017:	34	56	38	52	42	33	40	53
1025:	34	44	32	46	27	35	34	37
1033:	40	35	43	55	39	39	45	56
1041:	36	33	31	30	50	32	31	37
1049:	41	36	44	57	47	41	42	42
1057:	42	39	30	41	36	29	23	39
1065:	40	39	35	52	41	51	58	44
1073:	33	35	33	33	35	42	28	43
1081:	33	35	36	32	38	33	38	36
1089:	32	45	35	30	40	37	36	43
1097:	40	31	44	29	35	41	41	33
1105:	35	46	27	38	34	40	31	26
1113:	33	30	26	39	51	93	413	1070
1121:	654	154	61	54	52	50	45	24
1129:	30	36	24	35	50	38	42	30
1137:	32	32	37	42	37	42	42	46
1145:	30	38	24	34	39	31	29	45
1153:	41	85	142	105	37	34	39	29
1161:	36	33	23	31	28	27	30	33
1169:	36	31	30	27	28	28	24	31
1177:	28	26	25	42	35	41	35	35
1185:	41	29	33	33	27	23	36	32
1193:	34	29	26	36	35	42	28	27
1201:	29	25	33	38	30	39	54	60
1209:	31	21	33	37	25	23	35	20
1217:	30	37	33	31	34	20	30	23
1225:	34	29	39	34	25	25	25	39

1233:	22	29	37	61	212	406	192	58

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Channel								
1241:	28	32	39	40	26	23	18	26
1249:	30	17	31	25	39	32	32	23
1257:	25	26	29	21	28	24	27	23
1265:	23	24	29	19	31	26	23	25
1273:	32	24	25	30	25	29	44	76
1281:	99	56	30	21	29	30	29	25
1289:	21	33	26	29	23	21	31	25
1297:	15	26	29	25	21	23	35	32
1305:	21	24	16	25	29	24	19	23
1313:	22	11	27	36	22	23	21	23
1321:	31	29	20	21	21	27	29	28
1329:	23	22	25	28	25	30	27	26
1337:	31	29	26	21	28	16	26	21
1345:	20	29	23	34	21	27	17	20
1353:	24	31	25	17	24	17	18	21
1361:	34	26	20	18	19	32	20	20
1369:	21	33	18	27	19	28	31	85
1377:	239	232	84	38	28	29	29	50
1385:	59	40	29	27	25	36	23	36
1393:	25	31	31	21	24	23	26	63
1401:	81	67	33	23	25	49	106	156
1409:	81	25	18	25	27	30	33	20
1417:	16	23	25	21	20	24	21	24
1425:	28	26	21	27	21	35	21	20
1433:	15	22	23	31	27	36	23	19
1441:	25	28	28	20	20	20	13	21
1449:	35	27	19	16	29	19	23	30
1457:	28	25	59	173	167	68	27	29
1465:	35	27	28	24	17	24	24	23
1473:	30	25	19	24	22	19	28	19
1481:	27	22	18	21	17	21	18	23
1489:	25	38	21	27	24	29	23	29
1497:	17	29	16	28	16	14	21	28
1505:	21	25	32	107	124	67	29	24
1513:	32	23	26	31	24	26	23	30
1521:	30	21	25	27	22	22	20	35
1529:	23	26	22	17	27	25	31	29
1537:	32	39	44	18	32	30	44	24
1545:	22	34	18	14	26	13	25	23
1553:	12	19	22	18	16	14	13	17
1561:	19	23	15	18	16	16	15	17
1569:	22	17	15	14	9	14	16	13
1577:	21	15	26	25	14	43	54	44
1585:	13	22	16	20	18	13	17	25
1593:	22	28	20	23	16	16	32	22
1601:	18	19	17	13	12	13	14	18
1609:	18	12	22	24	15	17	8	12
1617:	21	20	13	14	17	13	13	11
1625:	12	15	14	13	15	8	20	11
1633:	10	13	12	8	12	14	8	10
1641:	8	11	8	15	14	12	12	9
1649:	11	7	6	9	12	10	10	6
1657:	20	12	21	42	46	49	19	10

1665:	16	7	13	4	12	11	6	11

Sample Title: HTC-A04-S002-3642-01

Channel								
1673:	10	11	14	10	9	7	5	8
1681:	9	7	16	16	12	9	10	8
1689:	10	11	13	22	15	18	9	8
1697:	10	8	12	11	11	9	4	10
1705:	9	10	15	5	5	3	2	11
1713:	7	5	8	5	5	9	10	8
1721:	13	11	8	11	5	12	21	82
1729:	160	127	33	16	12	11	5	9
1737:	9	4	8	6	10	10	5	2
1745:	7	11	5	11	10	8	4	6
1753:	16	9	9	9	8	7	9	17
1761:	20	111	437	751	443	113	22	21
1769:	18	20	3	8	7	3	6	5
1777:	4	6	7	2	4	12	6	6
1785:	10	2	8	7	3	7	6	4
1793:	3	8	5	5	6	8	6	8
1801:	11	6	7	5	4	4	4	6
1809:	5	4	6	4	7	10	6	6
1817:	2	8	8	3	5	9	2	3
1825:	3	7	4	9	8	6	6	7
1833:	4	5	8	15	14	22	14	10
1841:	4	4	2	8	21	78	99	62
1849:	18	10	6	8	10	6	10	6
1857:	8	9	5	5	8	3	6	4
1865:	12	5	7	7	4	9	6	9
1873:	15	9	11	2	4	4	5	7
1881:	8	7	4	6	7	1	4	10
1889:	13	8	8	6	8	10	13	7
1897:	14	14	8	7	7	6	4	2
1905:	8	3	11	5	9	5	8	6
1913:	8	7	6	3	4	9	8	4
1921:	5	2	4	6	11	3	6	6
1929:	13	6	4	7	9	8	10	11
1937:	12	5	10	5	5	5	6	3
1945:	9	5	4	3	6	4	4	5
1953:	9	5	6	7	7	9	8	4
1961:	7	9	12	6	7	5	11	5
1969:	10	10	2	11	8	9	4	6
1977:	7	6	6	6	4	4	5	4
1985:	2	2	6	6	2	2	5	4
1993:	7	9	3	6	4	2	5	8
2001:	4	2	1	2	6	7	9	8
2009:	6	7	7	5	6	2	4	9
2017:	8	9	8	3	1	7	4	6
2025:	4	1	3	2	2	3	3	4
2033:	6	5	6	2	3	2	4	2
2041:	6	5	2	1	6	5	3	3
2049:	5	3	5	8	5	8	3	2
2057:	2	0	3	7	5	6	3	3
2065:	4	2	4	1	3	5	2	1
2073:	7	3	2	1	5	4	1	1
2081:	3	1	5	4	4	3	0	6
2089:	6	3	8	4	4	1	5	0

2097:	4	3	2	7	3	5	9	5

Sample Title: HTC-A04-S002-3642-01

Channel								
2105:	7	2	1	3	6	3	4	4
2113:	1	6	5	21	39	45	27	7
2121:	2	4	5	2	0	3	0	3
2129:	4	0	3	3	1	0	2	2
2137:	2	1	4	0	1	2	0	3
2145:	4	2	2	3	1	3	0	4
2153:	2	2	1	4	3	2	4	2
2161:	2	4	3	4	1	6	4	3
2169:	2	1	1	2	3	2	3	4
2177:	3	5	1	2	2	2	2	4
2185:	2	1	4	3	0	0	3	7
2193:	2	3	0	2	4	3	2	9
2201:	23	101	174	130	49	10	9	9
2209:	3	7	3	3	3	1	3	1
2217:	1	0	0	0	0	3	2	1
2225:	1	2	2	1	1	0	3	3
2233:	1	0	0	1	1	0	1	1
2241:	1	2	4	0	2	1	1	3
2249:	1	3	3	1	1	2	0	2
2257:	1	1	0	4	0	1	0	1
2265:	2	0	1	2	0	0	1	2
2273:	1	1	0	1	2	1	3	0
2281:	2	2	3	1	1	2	1	1
2289:	1	0	9	13	8	8	1	1
2297:	7	1	1	2	2	1	2	0
2305:	2	1	2	1	3	0	0	3
2313:	2	1	1	1	1	1	2	1
2321:	0	0	0	0	2	3	1	2
2329:	2	1	1	2	2	1	2	2
2337:	0	2	1	3	2	1	2	2
2345:	2	2	3	2	1	0	0	0
2353:	1	0	1	1	1	2	1	0
2361:	0	2	1	2	0	0	1	1
2369:	1	1	1	0	1	0	2	1
2377:	0	0	1	1	0	0	0	1
2385:	2	1	1	0	0	2	2	1
2393:	0	0	0	0	0	1	0	1
2401:	0	3	1	1	1	0	0	0
2409:	2	4	3	1	5	0	2	0
2417:	3	1	0	1	2	0	2	1
2425:	1	1	1	1	0	1	0	0
2433:	0	1	1	0	0	1	0	1
2441:	0	1	0	4	23	41	42	24
2449:	7	4	2	3	2	0	2	0
2457:	1	0	0	1	2	1	1	0
2465:	0	0	1	0	0	0	1	0
2473:	0	0	1	0	1	0	0	0
2481:	3	2	1	1	0	1	0	0
2489:	0	1	0	0	1	1	0	1
2497:	0	1	0	1	1	0	0	1
2505:	1	1	1	0	0	0	1	0
2513:	0	3	1	0	0	0	1	1
2521:	0	2	0	0	1	1	0	0

2529:	1	1	0	0	0	0	0	0

Sample Title: HTC-A04-S002-3642-01

Channel								
2537:	1	2	1	0	1	0	0	1
2545:	1	0	0	0	0	1	3	0
2553:	1	1	0	1	0	1	0	1
2561:	1	1	1	0	1	0	0	3
2569:	0	0	0	1	1	0	0	0
2577:	1	0	1	0	0	0	0	0
2585:	1	1	0	0	0	0	1	0
2593:	2	0	1	1	0	0	0	0
2601:	1	0	2	0	2	0	0	0
2609:	1	0	3	9	37	20	7	1
2617:	0	1	1	0	1	1	1	1
2625:	0	1	0	0	0	0	1	1
2633:	0	0	0	1	0	0	0	1
2641:	1	0	0	0	0	0	0	0
2649:	1	2	0	0	0	1	0	0
2657:	1	1	1	1	0	0	2	0
2665:	0	1	0	0	0	0	1	0
2673:	0	0	1	0	0	0	1	0
2681:	0	0	0	1	0	0	2	0
2689:	0	1	3	0	1	1	0	0
2697:	0	0	1	0	1	0	2	0
2705:	0	0	0	0	0	0	0	0
2713:	0	1	0	0	0	0	0	0
2721:	0	0	0	1	0	1	0	0
2729:	0	0	1	0	0	0	0	0
2737:	0	0	0	0	0	0	0	0
2745:	0	1	1	0	0	1	0	0
2753:	0	0	0	1	2	0	0	0
2761:	1	0	1	0	0	0	2	2
2769:	1	1	0	2	0	0	1	0
2777:	0	0	0	1	0	0	0	2
2785:	0	0	0	0	1	0	0	0
2793:	1	0	0	0	0	0	1	0
2801:	1	0	0	0	0	0	0	0
2809:	1	0	0	0	0	0	1	1
2817:	0	0	0	0	0	0	0	0
2825:	0	0	0	0	1	0	0	0
2833:	0	0	0	1	0	1	0	0
2841:	0	0	0	0	0	0	0	0
2849:	1	3	1	2	0	0	0	0
2857:	0	0	0	0	0	0	0	1
2865:	0	0	0	0	0	1	0	0
2873:	0	0	0	0	0	1	0	0
2881:	0	1	0	1	0	0	0	0
2889:	2	0	0	0	1	0	0	0
2897:	0	1	0	0	0	1	0	0
2905:	1	1	1	1	0	0	0	0
2913:	0	1	0	0	0	1	0	1
2921:	0	0	0	0	2	0	0	0
2929:	0	0	0	0	0	0	0	0
2937:	0	0	0	1	1	0	0	0
2945:	0	0	0	0	0	1	0	0
2953:	0	0	0	0	0	0	0	0

2961:	0	0	1	0	0	0	0	1

Sample Title: HTC-A04-S002-3642-01

Channel								
2969:	0	0	1	0	0	0	0	0
2977:	0	0	0	0	1	0	0	0
2985:	1	0	0	0	0	0	0	0
2993:	0	0	1	0	2	2	0	0
3001:	0	0	0	0	0	0	0	0
3009:	0	1	0	0	0	1	0	0
3017:	0	0	0	0	0	0	0	0
3025:	1	0	1	1	1	0	0	0
3033:	0	0	1	0	1	1	0	0
3041:	1	0	0	0	0	0	0	0
3049:	2	0	1	2	0	0	0	1
3057:	0	0	0	0	0	0	0	1
3065:	0	0	0	0	1	0	0	1
3073:	0	0	0	0	0	1	0	1
3081:	0	3	0	0	0	0	0	0
3089:	0	1	0	0	0	1	0	0
3097:	0	0	1	0	0	0	0	0
3105:	0	0	0	0	0	1	0	1
3113:	0	0	0	0	0	0	0	0
3121:	0	0	0	0	1	0	0	0
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	1
3153:	0	0	0	1	0	0	0	0
3161:	0	1	0	0	1	0	0	0
3169:	0	0	1	0	0	0	0	0
3177:	0	1	0	0	0	0	0	0
3185:	0	0	0	0	0	1	0	0
3193:	0	0	0	1	0	0	0	1
3201:	0	0	0	0	0	0	0	0
3209:	0	0	0	0	0	0	1	0
3217:	0	1	0	0	1	0	0	0
3225:	0	1	2	0	0	0	0	0
3233:	0	0	0	0	0	0	0	0
3241:	0	0	0	0	0	0	0	0
3249:	0	0	0	0	0	0	0	0
3257:	0	0	0	0	0	0	0	0
3265:	0	0	1	0	0	0	0	0
3273:	0	0	0	0	0	0	0	0
3281:	1	0	1	1	0	0	1	0
3289:	0	0	0	0	1	0	0	1
3297:	0	1	0	0	0	0	0	0
3305:	0	0	0	1	0	0	0	0
3313:	0	1	0	0	0	0	0	2
3321:	0	0	1	0	0	0	0	0
3329:	0	0	0	0	1	0	0	1
3337:	1	0	0	0	0	1	0	0
3345:	0	0	1	0	1	0	0	0
3353:	0	0	0	0	0	0	0	0
3361:	0	0	0	0	1	0	0	1
3369:	0	0	1	0	0	0	1	1
3377:	0	0	0	0	1	0	0	0
3385:	0	0	0	0	0	0	0	0

3393:	0	0	1	0	0	1	1	0

Sample Title: HTC-A04-S002-3642-01

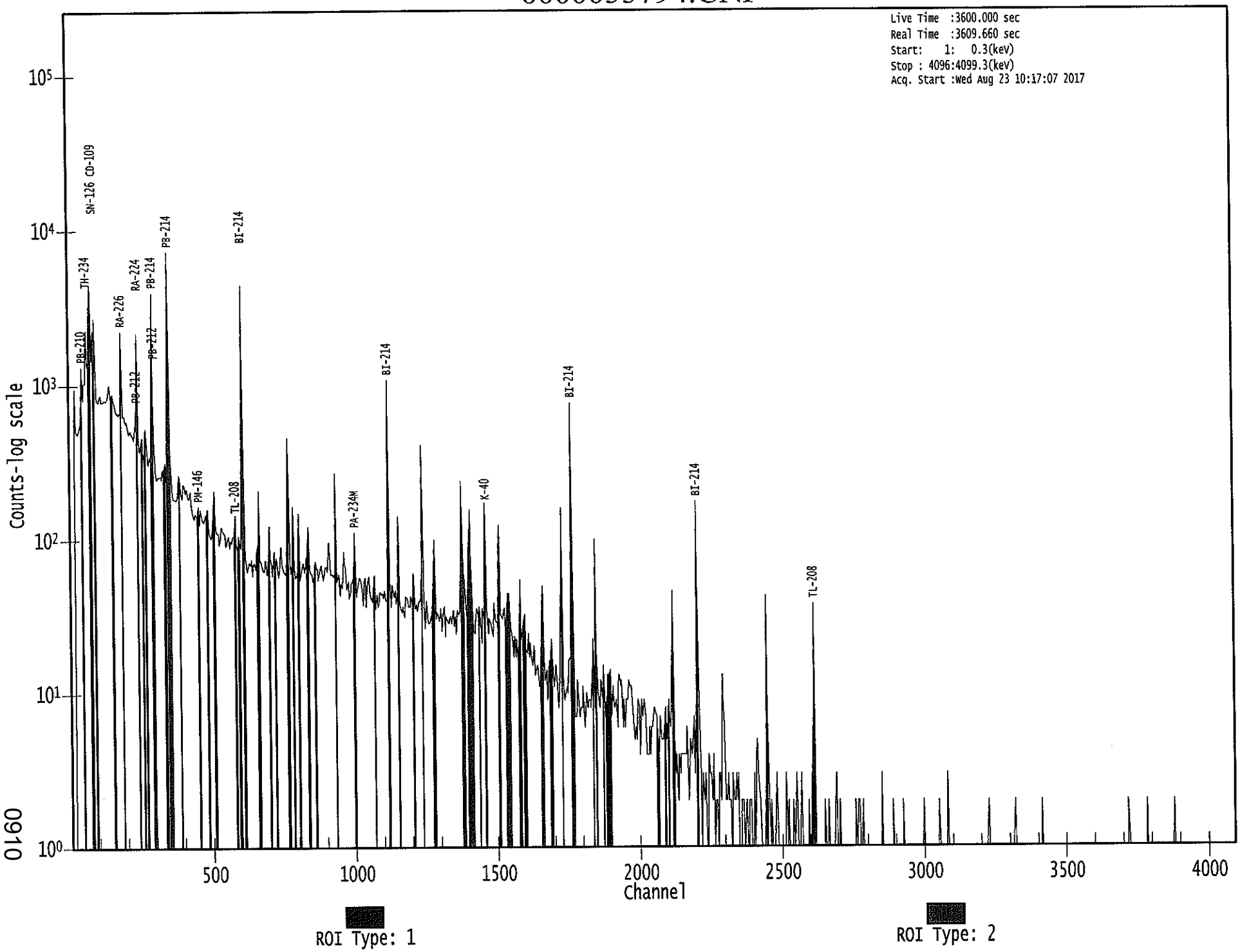
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	2	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	1	0	0	0	0
3433:	1	0	0	1	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	1	0	0	0	0
3473:	0	0	0	1	1	0	1	0
3481:	0	0	0	1	0	0	0	0
3489:	0	1	0	1	1	0	0	0
3497:	0	0	0	0	0	0	0	0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

Sample Title: HTC-A04-S002-3642-01

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

0000055794.CNF



0910

 CB 8/23/17

Apex-Gamma

Analysis Report for 1707089-15

HTC-A04-S002-4248-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707089-15
Sample Description	: HTC-A04-S002-4248-01
Sample Type	: SOIL
Sample Size	: 6.625E+02 grams
Facility	: Countroom
Sample Taken On	: 5/16/2017 7:19:05AM
Acquisition Started	: 8/23/2017 10:17:17AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE2
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3605.2 seconds
Dead Time	: 0.15 %
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	: 55795

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/23/17

Analysis Report for 1707089-15

HTC-A04-S002-4248-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/23/2017 11:17:59AM
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	46.50	46.85	0.0000	0.00
2	53.32	53.65	0.0000	0.00
3	63.15	63.48	0.0000	0.00
4	76.24	76.55	0.0000	0.00
5	83.99	84.30	0.0000	0.00
6	87.80	88.10	0.0000	0.00
7	92.58	92.88	0.0000	0.00
8	98.29	98.58	0.0000	0.00
9	143.89	144.13	0.0000	0.00
10	185.99	186.18	0.0000	0.00
11	195.19	195.37	0.0000	0.00
12	209.58	209.75	0.0000	0.00
13	238.76	238.90	0.0000	0.00
14	241.99	242.12	0.0000	0.00
15	258.04	258.16	0.0000	0.00
16	270.17	270.27	0.0000	0.00
17	295.23	295.31	0.0000	0.00
18	338.76	338.79	0.0000	0.00
19	351.91	351.93	0.0000	0.00
20	388.30	388.28	0.0000	0.00
21	468.92	468.81	0.0000	0.00
22	480.22	480.11	0.0000	0.00
23	487.50	487.38	0.0000	0.00
24	510.96	510.82	0.0000	0.00
25	583.11	582.90	0.0000	0.00
26	609.40	609.15	0.0000	0.00
27	665.47	665.17	0.0000	0.00
28	703.44	703.11	0.0000	0.00
29	720.15	719.80	0.0000	0.00
30	726.98	726.62	0.0000	0.00
31	768.28	767.87	0.0000	0.00
32	786.15	785.74	0.0000	0.00
33	806.02	805.58	0.0000	0.00
34	820.35	819.90	0.0000	0.00
35	837.00	836.53	0.0000	0.00
36	839.61	839.14	0.0000	0.00
37	911.69	911.16	0.0000	0.00
38	934.41	933.85	0.0000	0.00
39	969.13	968.54	0.0000	0.00
40	997.09	996.48	0.0000	0.00
41	1001.59	1000.97	0.0000	0.00
42	1120.53	1119.80	0.0000	0.00

Analysis Report for 1707089-15

HTC-A04-S002-4248-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1133.93	1133.19	0.0000	0.00
44	1155.16	1154.40	0.0000	0.00
45	1238.58	1237.75	0.0000	0.00
46	1253.38	1252.54	0.0000	0.00
47	1281.39	1280.52	0.0000	0.00
48	1304.00	1303.11	0.0000	0.00
49	1338.23	1337.31	0.0000	0.00
50	1378.10	1377.14	0.0000	0.00
51	1386.08	1385.12	0.0000	0.00
52	1402.00	1401.03	0.0000	0.00
53	1408.31	1407.33	0.0000	0.00
54	1461.31	1460.29	0.0000	0.00
55	1467.03	1466.00	0.0000	0.00
56	1490.83	1489.78	0.0000	0.00
57	1509.55	1508.49	0.0000	0.00
58	1583.93	1582.80	0.0000	0.00
59	1661.02	1659.84	0.0000	0.00
60	1684.56	1683.36	0.0000	0.00
61	1730.01	1728.76	0.0000	0.00
62	1764.96	1763.68	0.0000	0.00
63	1801.95	1800.65	0.0000	0.00
64	1823.28	1821.96	0.0000	0.00
65	1848.13	1846.80	0.0000	0.00
66	1873.74	1872.38	0.0000	0.00
67	1897.99	1896.61	0.0000	0.00
68	1936.28	1934.88	0.0000	0.00
69	2119.31	2117.77	0.0000	0.00
70	2204.76	2203.17	0.0000	0.00
71	2214.96	2213.36	0.0000	0.00
72	2293.77	2292.12	0.0000	0.00
73	2300.37	2298.71	0.0000	0.00
74	2413.63	2411.89	0.0000	0.00
75	2448.43	2446.67	0.0000	0.00
76	2614.64	2612.78	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707089-15

HTC-A04-S002-4248-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/23/2017 11:17:59AM

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	46.50	44 -	50	46.85	5.40E+02	180.02	5.55E+03	1.12
	2	53.32	52 -	55	53.65	2.72E+02	122.16	3.46E+03	1.51
	3	63.15	60 -	67	63.48	1.08E+03	256.87	1.04E+04	1.55
	4	76.24	72 -	83	76.55	5.57E+03	403.44	1.76E+04	3.69
M	5	83.99	83 -	97	84.30	5.99E+02	116.23	3.38E+03	0.99
m	6	87.80	83 -	97	88.10	9.81E+02	149.18	4.26E+03	1.33
m	7	92.58	83 -	97	92.88	1.73E+03	156.13	3.88E+03	1.33
	8	98.29	98 -	101	98.58	1.32E+02	119.13	3.39E+03	2.37
	9	143.89	142 -	146	144.13	2.41E+02	141.18	4.21E+03	1.20
	10	185.99	182 -	190	186.18	2.30E+03	218.62	5.94E+03	1.49
	11	195.19	194 -	198	195.37	1.11E+02	119.79	3.08E+03	1.84
	12	209.58	208 -	212	209.75	1.48E+02	110.73	2.57E+03	3.20
M	13	238.76	238 -	246	238.90	3.69E+02	67.81	1.19E+03	1.32
m	14	241.99	238 -	246	242.12	1.91E+03	127.00	1.98E+03	1.33
	15	258.04	255 -	262	258.16	1.80E+02	138.67	3.07E+03	3.56
	16	270.17	267 -	273	270.27	2.53E+02	122.13	2.54E+03	2.66
	17	295.23	291 -	299	295.31	4.57E+03	192.90	2.91E+03	1.67
	18	338.76	335 -	342	338.79	1.34E+02	115.95	2.15E+03	1.87
	19	351.91	347 -	356	351.93	8.02E+03	219.72	2.31E+03	1.41
	20	388.30	383 -	393	388.28	2.50E+02	128.33	2.06E+03	3.76
	21	468.92	466 -	472	468.81	6.40E+01	71.18	8.80E+02	3.68
	22	480.22	476 -	484	480.11	7.60E+01	88.61	1.16E+03	2.65
	23	487.50	485 -	490	487.38	5.62E+01	63.08	7.48E+02	1.71
	24	510.96	505 -	516	510.82	3.34E+02	103.19	1.16E+03	2.90
	25	583.11	578 -	587	582.90	1.67E+02	88.09	1.01E+03	1.67
	26	609.40	603 -	614	609.15	5.89E+03	181.82	1.19E+03	1.81
m	27	665.47	660 -	670	665.17	1.87E+02	53.87	4.38E+02	1.91
	28	703.44	700 -	706	703.11	8.05E+01	52.84	4.45E+02	2.22
	29	720.15	716 -	723	719.80	7.20E+01	56.92	4.84E+02	3.02
	30	726.98	724 -	730	726.62	5.65E+01	51.10	4.39E+02	3.30
	31	768.28	763 -	771	767.87	5.83E+02	76.80	5.48E+02	1.90
	32	786.15	781 -	790	785.74	1.51E+02	69.04	5.95E+02	2.11
	33	806.02	802 -	809	805.58	1.24E+02	57.55	4.72E+02	1.32
	34	820.35	817 -	823	819.90	3.94E+01	46.10	3.59E+02	1.77
M	35	837.00	835 -	842	836.53	3.73E+01	24.71	1.40E+02	1.64
m	36	839.61	835 -	842	839.14	1.03E+02	53.67	3.99E+02	2.53
	37	911.69	907 -	916	911.16	1.42E+02	65.15	5.26E+02	2.26
	38	934.41	929 -	939	933.85	3.24E+02	74.09	5.55E+02	2.00
	39	969.13	967 -	972	968.54	4.23E+01	44.27	3.55E+02	1.79
M	40	997.09	994 -	1004	996.48	3.11E+01	33.30	2.20E+02	2.44

Analysis Report for 1707089-15

HTC-A04-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	1001.59	994	1004	1000.97	9.24E+01	51.30	3.70E+02	2.62
	42	1120.53	1114	1125	1119.80	1.29E+03	95.87	5.03E+02	2.13
	43	1133.93	1131	1135	1133.19	2.46E+01	30.54	1.83E+02	1.19
	44	1155.16	1149	1159	1154.40	1.59E+02	62.77	4.42E+02	2.25
	45	1238.58	1233	1243	1237.75	4.07E+02	71.39	4.63E+02	2.17
	46	1253.38	1249	1256	1252.54	4.87E+01	40.74	2.45E+02	3.17
	47	1281.39	1276	1285	1280.52	8.43E+01	53.21	3.59E+02	2.51
	48	1304.00	1296	1308	1303.11	5.64E+01	53.04	3.01E+02	2.90
	49	1338.23	1335	1341	1337.31	2.38E+01	29.15	1.38E+02	1.81
M	50	1378.10	1372	1389	1377.14	3.07E+02	51.42	2.18E+02	2.56
m	51	1386.08	1372	1389	1385.12	5.60E+01	39.04	2.10E+02	2.57
M	52	1402.00	1397	1418	1401.03	9.23E+01	38.83	1.74E+02	2.63
m	53	1408.31	1397	1418	1407.33	1.67E+02	43.08	2.07E+02	2.54
M	54	1461.31	1455	1471	1460.29	5.00E+02	53.92	1.65E+02	2.49
m	55	1467.03	1455	1471	1466.00	2.86E+01	33.52	1.11E+02	2.39
	56	1490.83	1485	1494	1489.78	5.33E+01	37.51	1.59E+02	5.76
	57	1509.55	1504	1513	1508.49	1.40E+02	50.89	2.89E+02	3.53
	58	1583.93	1579	1589	1582.80	4.47E+01	41.27	2.03E+02	3.90
	59	1661.02	1654	1666	1659.84	6.10E+01	38.23	1.44E+02	2.49
	60	1684.56	1679	1686	1683.36	1.88E+01	22.45	7.04E+01	1.84
	61	1730.01	1723	1734	1728.76	2.07E+02	39.95	9.54E+01	2.01
	62	1764.96	1756	1771	1763.68	9.63E+02	74.35	1.66E+02	2.84
	63	1801.95	1797	1804	1800.65	1.32E+01	16.25	3.36E+01	4.79
	64	1823.28	1819	1826	1821.96	1.96E+01	12.17	1.09E+01	2.46
	65	1848.13	1840	1854	1846.80	1.33E+02	40.00	1.12E+02	2.75
	66	1873.74	1870	1875	1872.38	1.29E+01	13.60	2.62E+01	1.82
	67	1897.99	1893	1901	1896.61	1.91E+01	18.39	3.97E+01	1.84
	68	1936.28	1930	1940	1934.88	3.06E+01	21.31	4.48E+01	6.00
	69	2119.31	2111	2126	2117.77	9.36E+01	24.74	2.27E+01	3.27
	70	2204.76	2197	2208	2203.17	2.64E+02	36.00	3.02E+01	2.82
	71	2214.96	2209	2220	2213.36	1.93E+01	11.31	7.35E+00	9.78
	72	2293.77	2287	2296	2292.12	1.55E+01	12.92	1.49E+01	1.33
	73	2300.37	2296	2301	2298.71	5.63E+00	7.07	4.75E+00	2.03
	74	2413.63	2407	2415	2411.89	9.00E+00	6.00	0.00E+00	3.32
	75	2448.43	2441	2452	2446.67	7.85E+01	20.20	1.10E+01	1.38
	76	2614.64	2607	2617	2612.78	5.15E+01	16.99	1.10E+01	2.09

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 1707089-15

HTC-A04-S002-4248-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/23/2017 11:17:59AM

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	46.50	44 -	50	5.40E+02	180.02	5.55E+03	1.43E+02
	2	53.32	52 -	55	2.72E+02	122.16	3.46E+03	9.67E+01
	3	63.15	60 -	67	1.08E+03	256.87	1.04E+04	2.04E+02
	4	76.24	72 -	83	5.57E+03	403.44	1.76E+04	3.08E+02
M	5	83.99	83 -	97	5.99E+02	116.23	3.38E+03	9.56E+01
m	6	87.80	83 -	97	9.81E+02	149.18	4.26E+03	1.07E+02
m	7	92.58	83 -	97	1.73E+03	156.13	3.88E+03	1.02E+02
	8	98.29	98 -	101	1.32E+02	119.13	3.39E+03	9.61E+01
	9	143.89	142 -	146	2.41E+02	141.18	4.21E+03	1.13E+02
	10	185.99	182 -	190	2.30E+03	218.62	5.94E+03	1.61E+02
	11	195.19	194 -	198	1.11E+02	119.79	3.08E+03	9.69E+01
	12	209.58	208 -	212	1.48E+02	110.73	2.57E+03	8.88E+01
M	13	238.76	238 -	246	3.69E+02	67.81	1.19E+03	5.68E+01
m	14	241.99	238 -	246	1.91E+03	127.00	1.98E+03	7.32E+01
	15	258.04	255 -	262	1.80E+02	138.67	3.07E+03	1.12E+02
	16	270.17	267 -	273	2.53E+02	122.13	2.54E+03	9.69E+01
	17	295.23	291 -	299	4.57E+03	192.90	2.91E+03	1.13E+02
	18	338.76	335 -	342	1.34E+02	115.95	2.15E+03	9.34E+01
	19	351.91	347 -	356	8.02E+03	219.72	2.31E+03	1.05E+02
	20	388.30	383 -	393	2.50E+02	128.33	2.06E+03	1.02E+02
	21	468.92	466 -	472	6.40E+01	71.18	8.80E+02	5.70E+01
	22	480.22	476 -	484	7.60E+01	88.61	1.16E+03	7.14E+01
	23	487.50	485 -	490	5.62E+01	63.08	7.48E+02	5.04E+01
	24	510.96	505 -	516	3.34E+02	103.19	1.16E+03	7.93E+01
	25	583.11	578 -	587	1.67E+02	88.09	1.01E+03	6.92E+01
	26	609.40	603 -	614	5.89E+03	181.82	1.19E+03	8.01E+01
m	27	665.47	660 -	670	1.87E+02	53.87	4.38E+02	3.44E+01
	28	703.44	700 -	706	8.05E+01	52.84	4.45E+02	4.09E+01
	29	720.15	716 -	723	7.20E+01	56.92	4.84E+02	4.47E+01
	30	726.98	724 -	730	5.65E+01	51.10	4.39E+02	4.01E+01
	31	768.28	763 -	771	5.83E+02	76.80	5.48E+02	4.91E+01
	32	786.15	781 -	790	1.51E+02	69.04	5.95E+02	5.30E+01
	33	806.02	802 -	809	1.24E+02	57.55	4.72E+02	4.36E+01
	34	820.35	817 -	823	3.94E+01	46.10	3.59E+02	3.65E+01
M	35	837.00	835 -	842	3.73E+01	24.71	1.40E+02	1.94E+01
m	36	839.61	835 -	842	1.03E+02	53.67	3.99E+02	3.28E+01
	37	911.69	907 -	916	1.42E+02	65.15	5.26E+02	4.98E+01
	38	934.41	929 -	939	3.24E+02	74.09	5.55E+02	5.32E+01
	39	969.13	967 -	972	4.23E+01	44.27	3.55E+02	3.48E+01
M	40	997.09	994 -	1004	3.11E+01	33.30	2.20E+02	2.44E+01
m	41	1001.59	994 -	1004	9.24E+01	51.30	3.70E+02	3.16E+01

Analysis Report for 1707089-15

HTC-A04-S002-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	42	1120.53	1114 -	1125	1.29E+03	95.87	5.03E+02	5.22E+01
	43	1133.93	1131 -	1135	2.46E+01	30.54	1.83E+02	2.37E+01
	44	1155.16	1149 -	1159	1.59E+02	62.77	4.42E+02	4.72E+01
	45	1238.58	1233 -	1243	4.07E+02	71.39	4.63E+02	4.84E+01
	46	1253.38	1249 -	1256	4.87E+01	40.74	2.45E+02	3.15E+01
	47	1281.39	1276 -	1285	8.43E+01	53.21	3.59E+02	4.10E+01
	48	1304.00	1296 -	1308	5.64E+01	53.04	3.01E+02	4.18E+01
	49	1338.23	1335 -	1341	2.38E+01	29.15	1.38E+02	2.26E+01
M	50	1378.10	1372 -	1389	3.07E+02	51.42	2.18E+02	2.43E+01
m	51	1386.08	1372 -	1389	5.60E+01	39.04	2.10E+02	2.38E+01
M	52	1402.00	1397 -	1418	9.23E+01	38.83	1.74E+02	2.17E+01
m	53	1408.31	1397 -	1418	1.67E+02	43.08	2.07E+02	2.37E+01
M	54	1461.31	1455 -	1471	5.00E+02	53.92	1.65E+02	2.11E+01
m	55	1467.03	1455 -	1471	2.86E+01	33.52	1.11E+02	1.73E+01
	56	1490.83	1485 -	1494	5.33E+01	37.51	1.59E+02	2.84E+01
	57	1509.55	1504 -	1513	1.40E+02	50.89	2.89E+02	3.70E+01
	58	1583.93	1579 -	1589	4.47E+01	41.27	2.03E+02	3.21E+01
	59	1661.02	1654 -	1666	6.10E+01	38.23	1.44E+02	2.87E+01
	60	1684.56	1679 -	1686	1.88E+01	22.45	7.04E+01	1.70E+01
	61	1730.01	1723 -	1734	2.07E+02	39.95	9.54E+01	2.28E+01
	62	1764.96	1756 -	1771	9.63E+02	74.35	1.66E+02	3.37E+01
	63	1801.95	1797 -	1804	1.32E+01	16.25	3.36E+01	1.19E+01
	64	1823.28	1819 -	1826	1.96E+01	12.17	1.09E+01	6.87E+00
	65	1848.13	1840 -	1854	1.33E+02	40.00	1.12E+02	2.69E+01
	66	1873.74	1870 -	1875	1.29E+01	13.60	2.62E+01	9.49E+00
	67	1897.99	1893 -	1901	1.91E+01	18.39	3.97E+01	1.33E+01
	68	1936.28	1930 -	1940	3.06E+01	21.31	4.48E+01	1.50E+01
	69	2119.31	2111 -	2126	9.36E+01	24.74	2.27E+01	1.27E+01
	70	2204.76	2197 -	2208	2.64E+02	36.00	3.02E+01	1.27E+01
	71	2214.96	2209 -	2220	1.93E+01	11.31	7.35E+00	5.85E+00
	72	2293.77	2287 -	2296	1.55E+01	12.92	1.49E+01	8.42E+00
	73	2300.37	2296 -	2301	5.63E+00	7.07	4.75E+00	4.31E+00
	74	2413.63	2407 -	2415	9.00E+00	6.00	0.00E+00	0.00E+00
	75	2448.43	2441 -	2452	7.85E+01	20.20	1.10E+01	7.97E+00
	76	2614.64	2607 -	2617	5.15E+01	16.99	1.10E+01	7.47E+00

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

Analysis Report for 1707089-15

HTC-A04-S002-4248-01

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/23/2017 11:17:59AM

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	46.50	44 -	50	46.85	5.40E+02	180.02	5.55E+03	PB-210
	2	53.32	52 -	55	53.65	2.72E+02	122.16	3.46E+03	.....
	3	63.15	60 -	67	63.48	1.08E+03	256.87	1.04E+04	TH-234
									TH-230
	4	76.24	72 -	83	76.55	5.57E+03	403.44	1.76E+04	.....
M	5	83.99	83 -	97	84.30	5.99E+02	116.23	3.38E+03	TH-231
m	6	87.80	83 -	97	88.10	9.81E+02	149.18	4.26E+03	CD-109
									SN-126
									LU-176
m	7	92.58	83 -	97	92.88	1.73E+03	156.13	3.88E+03	GA-67
	8	98.29	98 -	101	98.58	1.32E+02	119.13	3.39E+03	GD-153
	9	143.89	142 -	146	144.13	2.41E+02	141.18	4.21E+03	U-235
	10	185.99	182 -	190	186.18	2.30E+03	218.62	5.94E+03	RA-226
	11	195.19	194 -	198	195.37	1.11E+02	119.79	3.08E+03	.....
	12	209.58	208 -	212	209.75	1.48E+02	110.73	2.57E+03	CM-243
									GA-67
M	13	238.76	238 -	246	238.90	3.69E+02	67.81	1.19E+03	PB-212
m	14	241.99	238 -	246	242.12	1.91E+03	127.00	1.98E+03	.....
	15	258.04	255 -	262	258.16	1.80E+02	138.67	3.07E+03	.....
	16	270.17	267 -	273	270.27	2.53E+02	122.13	2.54E+03	.....
	17	295.23	291 -	299	295.31	4.57E+03	192.90	2.91E+03	PB-214
	18	338.76	335 -	342	338.79	1.34E+02	115.95	2.15E+03	AC-228
	19	351.91	347 -	356	351.93	8.02E+03	219.72	2.31E+03	PB-214
	20	388.30	383 -	393	388.28	2.50E+02	128.33	2.06E+03	.....
	21	468.92	466 -	472	468.81	6.40E+01	71.18	8.80E+02	IR-192
	22	480.22	476 -	484	480.11	7.60E+01	88.61	1.16E+03	.....
	23	487.50	485 -	490	487.38	5.62E+01	63.08	7.48E+02	LA-140
	24	510.96	505 -	516	510.82	3.34E+02	103.19	1.16E+03	.....
	25	583.11	578 -	587	582.90	1.67E+02	88.09	1.01E+03	TL-208
	26	609.40	603 -	614	609.15	5.89E+03	181.82	1.19E+03	BI-214
m	27	665.47	660 -	670	665.17	1.87E+02	53.87	4.38E+02	SB-126
									CE-143
	28	703.44	700 -	706	703.11	8.05E+01	52.84	4.45E+02	NB-94
	29	720.15	716 -	723	719.80	7.20E+01	56.92	4.84E+02	SB-126
	30	726.98	724 -	730	726.62	5.65E+01	51.10	4.39E+02	BI-212
	31	768.28	763 -	771	767.87	5.83E+02	76.80	5.48E+02	.....
	32	786.15	781 -	790	785.74	1.51E+02	69.04	5.95E+02	.....
	33	806.02	802 -	809	805.58	1.24E+02	57.55	4.72E+02	.....
	34	820.35	817 -	823	819.90	3.94E+01	46.10	3.59E+02	.....
M	35	837.00	835 -	842	836.53	3.73E+01	24.71	1.40E+02	.....
m	36	839.61	835 -	842	839.14	1.03E+02	53.67	3.99E+02	.....

Analysis Report for 1707089-15

HTC-A04-S002-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	37	911.69	907 -	916	911.16	1.42E+02	65.15	5.26E+02	TL-204 AC-228
	38	934.41	929 -	939	933.85	3.24E+02	74.09	5.55E+02	.....
	39	969.13	967 -	972	968.54	4.23E+01	44.27	3.55E+02	AC-228
M	40	997.09	994 -	1004	996.48	3.11E+01	33.30	2.20E+02	EU-154
m	41	1001.59	994 -	1004	1000.97	9.24E+01	51.30	3.70E+02	PA-234M
	42	1120.53	1114 -	1125	1119.80	1.29E+03	95.87	5.03E+02	SC-46 BI-214 TA-182
	43	1133.93	1131 -	1135	1133.19	2.46E+01	30.54	1.83E+02	.....
	44	1155.16	1149 -	1159	1154.40	1.59E+02	62.77	4.42E+02	.....
	45	1238.58	1233 -	1243	1237.75	4.07E+02	71.39	4.63E+02	CO-56
	46	1253.38	1249 -	1256	1252.54	4.87E+01	40.74	2.45E+02	.....
	47	1281.39	1276 -	1285	1280.52	8.43E+01	53.21	3.59E+02	.....
	48	1304.00	1296 -	1308	1303.11	5.64E+01	53.04	3.01E+02	.....
	49	1338.23	1335 -	1341	1337.31	2.38E+01	29.15	1.38E+02	.....
M	50	1378.10	1372 -	1389	1377.14	3.07E+02	51.42	2.18E+02	.....
m	51	1386.08	1372 -	1389	1385.12	5.60E+01	39.04	2.10E+02	.....
M	52	1402.00	1397 -	1418	1401.03	9.23E+01	38.83	1.74E+02	.....
m	53	1408.31	1397 -	1418	1407.33	1.67E+02	43.08	2.07E+02	EU-152
M	54	1461.31	1455 -	1471	1460.29	5.00E+02	53.92	1.65E+02	K-40
m	55	1467.03	1455 -	1471	1466.00	2.86E+01	33.52	1.11E+02	.....
	56	1490.83	1485 -	1494	1489.78	5.33E+01	37.51	1.59E+02	.....
	57	1509.55	1504 -	1513	1508.49	1.40E+02	50.89	2.89E+02	.....
	58	1583.93	1579 -	1589	1582.80	4.47E+01	41.27	2.03E+02	.....
	59	1661.02	1654 -	1666	1659.84	6.10E+01	38.23	1.44E+02	.....
	60	1684.56	1679 -	1686	1683.36	1.88E+01	22.45	7.04E+01	.....
	61	1730.01	1723 -	1734	1728.76	2.07E+02	39.95	9.54E+01	.....
	62	1764.96	1756 -	1771	1763.68	9.63E+02	74.35	1.66E+02	BI-214
	63	1801.95	1797 -	1804	1800.65	1.32E+01	16.25	3.36E+01	.....
	64	1823.28	1819 -	1826	1821.96	1.96E+01	12.17	1.09E+01	.....
	65	1848.13	1840 -	1854	1846.80	1.33E+02	40.00	1.12E+02	.....
	66	1873.74	1870 -	1875	1872.38	1.29E+01	13.60	2.62E+01	.....
	67	1897.99	1893 -	1901	1896.61	1.91E+01	18.39	3.97E+01	.....
	68	1936.28	1930 -	1940	1934.88	3.06E+01	21.31	4.48E+01	.....
	69	2119.31	2111 -	2126	2117.77	9.36E+01	24.74	2.27E+01	.....
	70	2204.76	2197 -	2208	2203.17	2.64E+02	36.00	3.02E+01	BI-214
	71	2214.96	2209 -	2220	2213.36	1.93E+01	11.31	7.35E+00	.....
	72	2293.77	2287 -	2296	2292.12	1.55E+01	12.92	1.49E+01	.....
	73	2300.37	2296 -	2301	2298.71	5.63E+00	7.07	4.75E+00	.....
	74	2413.63	2407 -	2415	2411.89	9.00E+00	6.00	0.00E+00	.....
	75	2448.43	2441 -	2452	2446.67	7.85E+01	20.20	1.10E+01	.....
	76	2614.64	2607 -	2617	2612.78	5.15E+01	16.99	1.10E+01	TL-208

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

Analysis Report for 1707089-15

HTC-A04-S002-4248-01

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/23/2017 11:17:59AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.50	5.40E+02	180.02	1.58E-02	1.67E-03
	2	53.32	2.72E+02	122.16	1.98E-02	1.67E-03
	3	63.15	1.08E+03	256.87	2.38E-02	1.77E-03
	4	76.24	5.57E+03	403.44	2.63E-02	2.11E-03
M	5	83.99	5.99E+02	116.23	2.69E-02	2.32E-03
m	6	87.80	9.81E+02	149.18	2.70E-02	2.42E-03
m	7	92.58	1.73E+03	156.13	2.70E-02	2.34E-03
	8	98.29	1.32E+02	119.13	2.68E-02	2.23E-03
	9	143.89	2.41E+02	141.18	2.35E-02	1.70E-03
	10	185.99	2.30E+03	218.62	2.03E-02	1.53E-03
	11	195.19	1.11E+02	119.79	1.97E-02	1.49E-03
	12	209.58	1.48E+02	110.73	1.88E-02	1.43E-03
M	13	238.76	3.69E+02	67.81	1.72E-02	1.30E-03
m	14	241.99	1.91E+03	127.00	1.71E-02	1.28E-03
	15	258.04	1.80E+02	138.67	1.63E-02	1.21E-03
	16	270.17	2.53E+02	122.13	1.58E-02	1.16E-03
	17	295.23	4.57E+03	192.90	1.48E-02	1.10E-03
	18	338.76	1.34E+02	115.95	1.34E-02	1.04E-03
	19	351.91	8.02E+03	219.72	1.31E-02	1.02E-03
	20	388.30	2.50E+02	128.33	1.22E-02	9.73E-04
	21	468.92	6.40E+01	71.18	1.05E-02	9.02E-04
	22	480.22	7.60E+01	88.61	1.04E-02	8.92E-04
	23	487.50	5.62E+01	63.08	1.02E-02	8.85E-04
	24	510.96	3.34E+02	103.19	9.87E-03	8.65E-04
	25	583.11	1.67E+02	88.09	8.91E-03	8.02E-04
	26	609.40	5.89E+03	181.82	8.60E-03	7.79E-04
m	27	665.47	1.87E+02	53.87	8.02E-03	7.30E-04
	28	703.44	8.05E+01	52.84	7.67E-03	6.94E-04
	29	720.15	7.20E+01	56.92	7.53E-03	6.78E-04
	30	726.98	5.65E+01	51.10	7.47E-03	6.71E-04
	31	768.28	5.83E+02	76.80	7.14E-03	6.31E-04
	32	786.15	1.51E+02	69.04	7.01E-03	6.14E-04
	33	806.02	1.24E+02	57.55	6.87E-03	5.95E-04
	34	820.35	3.94E+01	46.10	6.77E-03	5.81E-04
M	35	837.00	3.73E+01	24.71	6.66E-03	5.65E-04
m	36	839.61	1.03E+02	53.67	6.64E-03	5.62E-04
	37	911.69	1.42E+02	65.15	6.21E-03	5.01E-04
	38	934.41	3.24E+02	74.09	6.08E-03	4.93E-04
	39	969.13	4.23E+01	44.27	5.90E-03	4.81E-04
M	40	997.09	3.11E+01	33.30	5.77E-03	4.72E-04
m	41	1001.59	9.24E+01	51.30	5.75E-03	4.70E-04
	42	1120.53	1.29E+03	95.87	5.24E-03	4.29E-04
	43	1133.93	2.46E+01	30.54	5.19E-03	4.24E-04
	44	1155.16	1.59E+02	62.77	5.12E-03	4.16E-04
	45	1238.58	4.07E+02	71.39	4.84E-03	4.16E-04

Analysis Report for 1707089-15

HTC-A04-S002-4248-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	46	1253.38	4.87E+01	40.74	4.79E-03	4.17E-04
	47	1281.39	8.43E+01	53.21	4.71E-03	4.20E-04
	48	1304.00	5.64E+01	53.04	4.65E-03	4.22E-04
	49	1338.23	2.38E+01	29.15	4.55E-03	4.23E-04
M	50	1378.10	3.07E+02	51.42	4.45E-03	4.12E-04
m	51	1386.08	5.60E+01	39.04	4.43E-03	4.09E-04
M	52	1402.00	9.23E+01	38.83	4.40E-03	4.05E-04
m	53	1408.31	1.67E+02	43.08	4.38E-03	4.03E-04
M	54	1461.31	5.00E+02	53.92	4.26E-03	3.87E-04
m	55	1467.03	2.86E+01	33.52	4.25E-03	3.86E-04
	56	1490.83	5.33E+01	37.51	4.20E-03	3.79E-04
	57	1509.55	1.40E+02	50.89	4.16E-03	3.74E-04
	58	1583.93	4.47E+01	41.27	4.02E-03	3.52E-04
	59	1661.02	6.10E+01	38.23	3.89E-03	3.30E-04
	60	1684.56	1.88E+01	22.45	3.86E-03	3.23E-04
	61	1730.01	2.07E+02	39.95	3.79E-03	3.10E-04
	62	1764.96	9.63E+02	74.35	3.75E-03	3.00E-04
	63	1801.95	1.32E+01	16.25	3.70E-03	2.89E-04
	64	1823.28	1.96E+01	12.17	3.67E-03	2.83E-04
	65	1848.13	1.33E+02	40.00	3.64E-03	2.79E-04
	66	1873.74	1.29E+01	13.60	3.61E-03	2.79E-04
	67	1897.99	1.91E+01	18.39	3.59E-03	2.79E-04
	68	1936.28	3.06E+01	21.31	3.55E-03	2.79E-04
	69	2119.31	9.36E+01	24.74	3.40E-03	2.79E-04
	70	2204.76	2.64E+02	36.00	3.34E-03	2.79E-04
	71	2214.96	1.93E+01	11.31	3.33E-03	2.79E-04
	72	2293.77	1.55E+01	12.92	3.29E-03	2.79E-04
	73	2300.37	5.63E+00	7.07	3.29E-03	2.79E-04
	74	2413.63	9.00E+00	6.00	3.24E-03	2.79E-04
	75	2448.43	7.85E+01	20.20	3.23E-03	2.79E-04
	76	2614.64	5.15E+01	16.99	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 : 8/23/2017 11:17:59AM

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

Analysis Report for 1707089-15

HTC-A04-S002-4248-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.50	5.40E+02	180.02	3.74E+01	5.77E+00	5.03E+02	1.80E+02
	2	53.32	2.72E+02	122.16			2.72E+02	1.22E+02
	3	63.15	1.08E+03	256.87	6.29E+01	1.34E+01	1.01E+03	2.57E+02
	4	76.24	5.57E+03	403.44			5.57E+03	4.03E+02
M	5	83.99	5.99E+02	116.23	2.45E+00	5.90E+00	5.96E+02	1.16E+02
m	6	87.80	9.81E+02	149.18			9.81E+02	1.49E+02
m	7	92.58	1.73E+03	156.13	4.88E+01	1.30E+00	1.68E+03	1.56E+02
	8	98.29	1.32E+02	119.13			1.32E+02	1.19E+02
	9	143.89	2.41E+02	141.18	1.06E+01	1.02E+01	2.30E+02	1.42E+02
	10	185.99	2.30E+03	218.62	3.48E+01	7.32E+00	2.27E+03	2.19E+02
	11	195.19	1.11E+02	119.79			1.11E+02	1.20E+02
	12	209.58	1.48E+02	110.73			1.48E+02	1.11E+02
M	13	238.76	3.69E+02	67.81	7.09E+00	6.85E+00	3.62E+02	6.82E+01
m	14	241.99	1.91E+03	127.00			1.91E+03	1.27E+02
	15	258.04	1.80E+02	138.67			1.80E+02	1.39E+02
	16	270.17	2.53E+02	122.13			2.53E+02	1.22E+02
	17	295.23	4.57E+03	192.90			4.57E+03	1.93E+02
	18	338.76	1.34E+02	115.95			1.34E+02	1.16E+02
	19	351.91	8.02E+03	219.72	1.04E+01	5.08E+00	8.01E+03	2.20E+02
	20	388.30	2.50E+02	128.33			2.50E+02	1.28E+02
	21	468.92	6.40E+01	71.18			6.40E+01	7.12E+01
	22	480.22	7.60E+01	88.61			7.60E+01	8.86E+01
	23	487.50	5.62E+01	63.08			5.62E+01	6.31E+01
	24	510.96	3.34E+02	103.19	7.08E+01	4.94E+00	2.63E+02	1.03E+02
	25	583.11	1.67E+02	88.09	5.65E+00	3.57E+00	1.61E+02	8.82E+01
	26	609.40	5.89E+03	181.82	1.07E+01	3.96E+00	5.88E+03	1.82E+02
m	27	665.47	1.87E+02	53.87			1.87E+02	5.39E+01
	28	703.44	8.05E+01	52.84			8.05E+01	5.28E+01
	29	720.15	7.20E+01	56.92			7.20E+01	5.69E+01
	30	726.98	5.65E+01	51.10			5.65E+01	5.11E+01
	31	768.28	5.83E+02	76.80			5.83E+02	7.68E+01
	32	786.15	1.51E+02	69.04			1.51E+02	6.90E+01
	33	806.02	1.24E+02	57.55			1.24E+02	5.75E+01
	34	820.35	3.94E+01	46.10			3.94E+01	4.61E+01
M	35	837.00	3.73E+01	24.71			3.73E+01	2.47E+01
m	36	839.61	1.03E+02	53.67			1.03E+02	5.37E+01
	37	911.69	1.42E+02	65.15	2.63E+00	2.49E+00	1.40E+02	6.52E+01
	38	934.41	3.24E+02	74.09			3.24E+02	7.41E+01
	39	969.13	4.23E+01	44.27			4.23E+01	4.43E+01
M	40	997.09	3.11E+01	33.30			3.11E+01	3.33E+01
m	41	1001.59	9.24E+01	51.30	4.07E+00	2.59E+00	8.83E+01	5.14E+01
	42	1120.53	1.29E+03	95.87	2.45E+00	2.38E+00	1.29E+03	9.59E+01
	43	1133.93	2.46E+01	30.54			2.46E+01	3.05E+01
	44	1155.16	1.59E+02	62.77			1.59E+02	6.28E+01
	45	1238.58	4.07E+02	71.39			4.07E+02	7.14E+01
	46	1253.38	4.87E+01	40.74			4.87E+01	4.07E+01
	47	1281.39	8.43E+01	53.21			8.43E+01	5.32E+01
	48	1304.00	5.64E+01	53.04			5.64E+01	5.30E+01
	49	1338.23	2.38E+01	29.15			2.38E+01	2.92E+01
M	50	1378.10	3.07E+02	51.42			3.07E+02	5.14E+01
m	51	1386.08	5.60E+01	39.04			5.60E+01	3.90E+01
M	52	1402.00	9.23E+01	38.83			9.23E+01	3.88E+01
m	53	1408.31	1.67E+02	43.08			1.67E+02	4.31E+01
M	54	1461.31	5.00E+02	53.92	5.90E+00	2.63E+00	4.94E+02	5.40E+01

Analysis Report for 1707089-15

HTC-A04-S002-4248-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	55	1467.03	2.86E+01	33.52			2.86E+01	3.35E+01
	56	1490.83	5.33E+01	37.51			5.33E+01	3.75E+01
	57	1509.55	1.40E+02	50.89			1.40E+02	5.09E+01
	58	1583.93	4.47E+01	41.27			4.47E+01	4.13E+01
	59	1661.02	6.10E+01	38.23			6.10E+01	3.82E+01
	60	1684.56	1.88E+01	22.45			1.88E+01	2.24E+01
	61	1730.01	2.07E+02	39.95			2.07E+02	3.99E+01
	62	1764.96	9.63E+02	74.35	3.33E+00	1.73E+00	9.60E+02	7.44E+01
	63	1801.95	1.32E+01	16.25			1.32E+01	1.62E+01
	64	1823.28	1.96E+01	12.17			1.96E+01	1.22E+01
	65	1848.13	1.33E+02	40.00			1.33E+02	4.00E+01
	66	1873.74	1.29E+01	13.60			1.29E+01	1.36E+01
	67	1897.99	1.91E+01	18.39			1.91E+01	1.84E+01
	68	1936.28	3.06E+01	21.31			3.06E+01	2.13E+01
	69	2119.31	9.36E+01	24.74			9.36E+01	2.47E+01
	70	2204.76	2.64E+02	36.00			2.64E+02	3.60E+01
	71	2214.96	1.93E+01	11.31			1.93E+01	1.13E+01
	72	2293.77	1.55E+01	12.92			1.55E+01	1.29E+01
	73	2300.37	5.63E+00	7.07			5.63E+00	7.07E+00
	74	2413.63	9.00E+00	6.00			9.00E+00	6.00E+00
	75	2448.43	7.85E+01	20.20			7.85E+01	2.02E+01
	76	2614.64	5.15E+01	16.99	4.77E+00	1.52E+00	4.67E+01	1.71E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/23/2017 11:17:59AM

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	46.50	5.40E+02	180.02	3.74E+01	5.77E+00	5.03E+02	1.80E+02
	2	53.32	2.72E+02	122.16			2.72E+02	1.22E+02
	3	63.15	1.08E+03	256.87	6.29E+01	1.34E+01	1.01E+03	2.57E+02
	4	76.24	5.57E+03	403.44			5.57E+03	4.03E+02
M	5	83.99	5.99E+02	116.23	2.45E+00	5.90E+00	5.96E+02	1.16E+02
m	6	87.80	9.81E+02	149.18			9.81E+02	1.49E+02

Analysis Report for 1707089-15

HTC-A04-S002-4248-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
m	7	92.58	1.73E+03	156.13	4.88E+01	1.30E+00	1.68E+03	1.56E+02
	8	98.29	1.32E+02	119.13			1.32E+02	1.19E+02
	9	143.89	2.41E+02	141.18	1.06E+01	1.02E+01	2.30E+02	1.42E+02
	10	185.99	2.30E+03	218.62	3.48E+01	7.32E+00	2.27E+03	2.19E+02
	11	195.19	1.11E+02	119.79			1.11E+02	1.20E+02
	12	209.58	1.48E+02	110.73			1.48E+02	1.11E+02
M	13	238.76	3.69E+02	67.81	7.09E+00	6.85E+00	3.62E+02	6.82E+01
m	14	241.99	1.91E+03	127.00			1.91E+03	1.27E+02
	15	258.04	1.80E+02	138.67			1.80E+02	1.39E+02
	16	270.17	2.53E+02	122.13			2.53E+02	1.22E+02
	17	295.23	4.57E+03	192.90			4.57E+03	1.93E+02
	18	338.76	1.34E+02	115.95			1.34E+02	1.16E+02
	19	351.91	8.02E+03	219.72	1.04E+01	5.08E+00	8.01E+03	2.20E+02
	20	388.30	2.50E+02	128.33			2.50E+02	1.28E+02
	21	468.92	6.40E+01	71.18			6.40E+01	7.12E+01
	22	480.22	7.60E+01	88.61			7.60E+01	8.86E+01
	23	487.50	5.62E+01	63.08			5.62E+01	6.31E+01
	24	510.96	3.34E+02	103.19	7.08E+01	4.94E+00	2.63E+02	1.03E+02
	25	583.11	1.67E+02	88.09	5.65E+00	3.57E+00	1.61E+02	8.82E+01
	26	609.40	5.89E+03	181.82	1.07E+01	3.96E+00	5.88E+03	1.82E+02
m	27	665.47	1.87E+02	53.87			1.87E+02	5.39E+01
	28	703.44	8.05E+01	52.84			8.05E+01	5.28E+01
	29	720.15	7.20E+01	56.92			7.20E+01	5.69E+01
	30	726.98	5.65E+01	51.10			5.65E+01	5.11E+01
	31	768.28	5.83E+02	76.80			5.83E+02	7.68E+01
	32	786.15	1.51E+02	69.04			1.51E+02	6.90E+01
	33	806.02	1.24E+02	57.55			1.24E+02	5.75E+01
	34	820.35	3.94E+01	46.10			3.94E+01	4.61E+01
M	35	837.00	3.73E+01	24.71			3.73E+01	2.47E+01
m	36	839.61	1.03E+02	53.67			1.03E+02	5.37E+01
	37	911.69	1.42E+02	65.15	2.63E+00	2.49E+00	1.40E+02	6.52E+01
	38	934.41	3.24E+02	74.09			3.24E+02	7.41E+01
	39	969.13	4.23E+01	44.27			4.23E+01	4.43E+01
M	40	997.09	3.11E+01	33.30			3.11E+01	3.33E+01
m	41	1001.59	9.24E+01	51.30	4.07E+00	2.59E+00	8.83E+01	5.14E+01
	42	1120.53	1.29E+03	95.87	2.45E+00	2.38E+00	1.29E+03	9.59E+01
	43	1133.93	2.46E+01	30.54			2.46E+01	3.05E+01
	44	1155.16	1.59E+02	62.77			1.59E+02	6.28E+01
	45	1238.58	4.07E+02	71.39			4.07E+02	7.14E+01
	46	1253.38	4.87E+01	40.74			4.87E+01	4.07E+01
	47	1281.39	8.43E+01	53.21			8.43E+01	5.32E+01
	48	1304.00	5.64E+01	53.04			5.64E+01	5.30E+01
	49	1338.23	2.38E+01	29.15			2.38E+01	2.92E+01
M	50	1378.10	3.07E+02	51.42			3.07E+02	5.14E+01
m	51	1386.08	5.60E+01	39.04			5.60E+01	3.90E+01
M	52	1402.00	9.23E+01	38.83			9.23E+01	3.88E+01
m	53	1408.31	1.67E+02	43.08			1.67E+02	4.31E+01
M	54	1461.31	5.00E+02	53.92	5.90E+00	2.63E+00	4.94E+02	5.40E+01
m	55	1467.03	2.86E+01	33.52			2.86E+01	3.35E+01
	56	1490.83	5.33E+01	37.51			5.33E+01	3.75E+01
	57	1509.55	1.40E+02	50.89			1.40E+02	5.09E+01
	58	1583.93	4.47E+01	41.27			4.47E+01	4.13E+01
	59	1661.02	6.10E+01	38.23			6.10E+01	3.82E+01
	60	1684.56	1.88E+01	22.45			1.88E+01	2.24E+01

Analysis Report for 1707089-15

HTC-A04-S002-4248-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
61	1730.01	2.07E+02	39.95			2.07E+02	3.99E+01
62	1764.96	9.63E+02	74.35	3.33E+00	1.73E+00	9.60E+02	7.44E+01
63	1801.95	1.32E+01	16.25			1.32E+01	1.62E+01
64	1823.28	1.96E+01	12.17			1.96E+01	1.22E+01
65	1848.13	1.33E+02	40.00			1.33E+02	4.00E+01
66	1873.74	1.29E+01	13.60			1.29E+01	1.36E+01
67	1897.99	1.91E+01	18.39			1.91E+01	1.84E+01
68	1936.28	3.06E+01	21.31			3.06E+01	2.13E+01
69	2119.31	9.36E+01	24.74			9.36E+01	2.47E+01
70	2204.76	2.64E+02	36.00			2.64E+02	3.60E+01
71	2214.96	1.93E+01	11.31			1.93E+01	1.13E+01
72	2293.77	1.55E+01	12.92			1.55E+01	1.29E+01
73	2300.37	5.63E+00	7.07			5.63E+00	7.07E+00
74	2413.63	9.00E+00	6.00			9.00E+00	6.00E+00
75	2448.43	7.85E+01	20.20			7.85E+01	2.02E+01
76	2614.64	5.15E+01	16.99	4.77E+00	1.52E+00	4.67E+01	1.71E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.961	1460.81	*	10.67	1.23E+01	1.77E+00
CD-109	0.992	88.03	*	3.72	1.28E+01	2.39E+00
SN-126	0.991	87.57	*	37.00	1.11E+00	1.97E-01
TL-208	0.890	583.14	*	30.22	6.78E-01	3.76E-01
		860.37		4.48		
		2614.66	*	35.85	4.62E-01	1.73E-01
PB-210	1.000	46.50	*	4.25	8.54E+00	3.19E+00
BI-212	0.763	727.17	*	11.80	7.26E-01	6.60E-01
		1620.62		2.75		
PB-212	0.892	238.63	*	44.60	5.34E-01	1.08E-01
		300.09		3.41		
BI-214	0.988	609.31	*	46.30	1.67E+01	1.60E+00
		1120.29	*	15.10	1.84E+01	2.04E+00
		1764.49	*	15.80	1.84E+01	2.05E+00
		2204.22	*	4.98	1.80E+01	2.88E+00

Analysis Report for 1707089-15

HTC-A04-S002-4248-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PB-214	1.000	295.21	*	19.19	1.82E+01	1.55E+00
		351.92	*	37.19	1.87E+01	1.55E+00
RA-226	0.992	186.21	*	3.28	3.86E+01	7.07E+01
AC-228	0.963	338.32	*	11.40	9.94E-01	8.61E-01
		911.07	*	27.70	9.20E-01	4.36E-01
		969.11	*	16.60	4.90E-01	5.14E-01
TH-231	0.998	25.64		14.70		
		84.21	*	6.40	3.93E+00	8.38E-01
PA-234M	0.951	1001.03	*	0.92	1.89E+01	1.11E+01
TH-234	0.997	63.29	*	3.80	1.27E+01	3.37E+00

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 11:17:59AM
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	53.32	7.55128E-02	22.47		
	4	76.24	1.54627E+00	3.62		
m	7	92.58	4.65744E-01	4.66	Sum	
	8	98.29	3.66867E-02	45.10	D-Esc	
	9	143.89	6.39876E-02	30.72	Tol.	U-235
	11	195.19	3.08608E-02	53.91		
	12	209.58	4.11582E-02	37.37	Tol.	CM-243
m	14	241.99	5.30318E-01	3.33		
	15	258.04	5.00555E-02	38.48		
	16	270.17	7.03760E-02	24.10	Sum	
	20	388.30	6.95729E-02	25.62		
	21	468.92	1.77778E-02	55.61	Tol.	IR-192
	22	480.22	2.11145E-02	58.29	Sum	
	23	487.50	1.56053E-02	56.14	Tol.	LA-140
	24	510.96	7.30062E-02	19.65		
m	27	665.47	5.18671E-02	14.43	Tol.	SB-126
	28	703.44	2.23552E-02	32.83	Sum	

Analysis Report for 1707089-15

HTC-A04-S002-4248-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	29	720.15	1.99876E-02	39.55	Tol.	SB-126
	31	768.28	1.61892E-01	6.59	Sum	
	32	786.15	4.18685E-02	22.90		
	33	806.02	3.44383E-02	23.21		
	34	820.35	1.09469E-02	58.49		
M	35	837.00	1.03515E-02	33.16		
m	36	839.61	2.87275E-02	25.95		
	38	934.41	8.99140E-02	11.44	Sum	
M	40	997.09	8.63699E-03	53.55	Tol.	EU-154
	43	1133.93	6.83788E-03	62.03		
	44	1155.16	4.42251E-02	19.71	Sum	
	45	1238.58	1.13144E-01	8.76	Tol.	CO-56
	46	1253.38	1.35380E-02	41.80	S-Esc	
	47	1281.39	2.34196E-02	31.55		
	48	1304.00	1.56703E-02	47.01		
	49	1338.23	6.60842E-03	61.27		
M	50	1378.10	8.53518E-02	8.37		
m	51	1386.08	1.55433E-02	34.88		
M	52	1402.00	2.56314E-02	21.04		
m	53	1408.31	4.62515E-02	12.94	Tol.	EU-152
m	55	1467.03	7.93513E-03	58.67		
	56	1490.83	1.48047E-02	35.19		
	57	1509.55	3.90214E-02	18.11		
	58	1583.93	1.24210E-02	46.15	Sum	
	59	1661.02	1.69549E-02	31.32		
	60	1684.56	5.21605E-03	59.78		
	61	1730.01	5.75828E-02	9.64	Sum	
	63	1801.95	3.66667E-03	61.55		
	64	1823.28	5.43333E-03	31.10	Sum	
	65	1848.13	3.69702E-02	15.03	Sum	
	66	1873.74	3.58440E-03	52.70		
	67	1897.99	5.31695E-03	48.04		
	68	1936.28	8.50367E-03	34.80		
	69	2119.31	2.60106E-02	13.21		
	71	2214.96	5.36836E-03	29.27		
	72	2293.77	4.31763E-03	41.57		
	73	2300.37	1.56250E-03	62.85		
	74	2413.63	2.50000E-03	33.33		
	75	2448.43	2.18023E-02	12.87		

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 1707089-15

HTC-A04-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	0.96	1460.81	*	10.67	1.23E+01	1.77E+00
CD-109	0.99	88.03	*	3.72	1.28E+01	2.39E+00
SN-126	0.99	87.57	*	37.00	1.11E+00	1.97E-01
TL-208	0.89	583.14	*	30.22	6.78E-01	3.76E-01
		860.37		4.48		
		2614.66	*	35.85	4.62E-01	1.73E-01
PB-210	1.00	46.50	*	4.25	8.54E+00	3.19E+00
BI-212	0.76	727.17	*	11.80	7.26E-01	6.60E-01
		1620.62		2.75		
PB-212	0.89	238.63	*	44.60	5.34E-01	1.08E-01
		300.09		3.41		
BI-214	0.98	609.31	*	46.30	1.67E+01	1.60E+00
		1120.29	*	15.10	1.84E+01	2.04E+00
		1764.49	*	15.80	1.84E+01	2.05E+00
		2204.22	*	4.98	1.80E+01	2.88E+00
PB-214	1.00	295.21	*	19.19	1.82E+01	1.55E+00
		351.92	*	37.19	1.87E+01	1.55E+00
RA-226	0.99	186.21	*	3.28	3.86E+01	7.07E+01
AC-228	0.96	338.32	*	11.40	9.94E-01	8.61E-01
		911.07	*	27.70	9.20E-01	4.36E-01
		969.11	*	16.60	4.90E-01	5.14E-01
TH-231	0.99	25.64		14.70		
		84.21	*	6.40	3.93E+00	8.38E-01
PA-234M	0.95	1001.03	*	0.92	1.89E+01	1.11E+01
TH-234	0.99	63.29	*	3.80	1.27E+01	3.37E+00

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

Analysis Report for 1707089-15

HTC-A04-S002-4248-01

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.961	1.23E+01	1.77E+00	
?	CD-109	0.992	1.28E+01	2.39E+00	
?	SN-126	0.991	1.11E+00	1.97E-01	
	TL-208	0.890	5.00E-01	1.58E-01	
	PB-210	1.000	8.54E+00	3.19E+00	
	BI-212	0.763	7.26E-01	6.60E-01	
	PB-212	0.892	5.34E-01	1.08E-01	
	BI-214	0.988	1.77E+01	1.01E+00	
	PB-214	1.000	1.84E+01	1.09E+00	
	RA-226	0.992	3.86E+01	7.07E+01	
	AC-228	0.963	7.73E-01	3.10E-01	
	TH-231	0.998	3.93E+00	8.38E-01	
	PA-234M	0.951	1.89E+01	1.11E+01	
	TH-234	0.997	1.27E+01	3.37E+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 1707089-15

HTC-A04-S002-4248-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 11:17:59AM
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	53.32	7.55128E-02	22.47		
	4	76.24	1.54627E+00	3.62		
m	7	92.58	4.65744E-01	4.66	Sum	
	8	98.29	3.66867E-02	45.10	D-Esc	
	9	143.89	6.39876E-02	30.72	Tol.	U-235
	11	195.19	3.08608E-02	53.91		
	12	209.58	4.11582E-02	37.37	Tol.	CM-243
m	14	241.99	5.30318E-01	3.33		
	15	258.04	5.00555E-02	38.48		
	16	270.17	7.03760E-02	24.10	Sum	
	20	388.30	6.95729E-02	25.62		
	21	468.92	1.77778E-02	55.61	Tol.	IR-192
	22	480.22	2.11145E-02	58.29	Sum	
	23	487.50	1.56053E-02	56.14	Tol.	LA-140
	24	510.96	7.30062E-02	19.65		
m	27	665.47	5.18671E-02	14.43	Tol.	SB-126
	28	703.44	2.23552E-02	32.83	Sum	
	29	720.15	1.99876E-02	39.55	Tol.	SB-126
	31	768.28	1.61892E-01	6.59	Sum	
	32	786.15	4.18685E-02	22.90		
	33	806.02	3.44383E-02	23.21		
	34	820.35	1.09469E-02	58.49		
M	35	837.00	1.03515E-02	33.16		
m	36	839.61	2.87275E-02	25.95		
	38	934.41	8.99140E-02	11.44	Sum	
M	40	997.09	8.63699E-03	53.55	Tol.	EU-154
	43	1133.93	6.83788E-03	62.03		
	44	1155.16	4.42251E-02	19.71	Sum	
	45	1238.58	1.13144E-01	8.76	Tol.	CO-56
	46	1253.38	1.35380E-02	41.80	S-Esc	
	47	1281.39	2.34196E-02	31.55		
	48	1304.00	1.56703E-02	47.01		
	49	1338.23	6.60842E-03	61.27		

Analysis Report for 1707089-15

HTC-A04-S002-4248-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	50	1378.10	8.53518E-02	8.37		
m	51	1386.08	1.55433E-02	34.88		
M	52	1402.00	2.56314E-02	21.04		
m	53	1408.31	4.62515E-02	12.94	Tol.	EU-152
m	55	1467.03	7.93513E-03	58.67		
	56	1490.83	1.48047E-02	35.19		
	57	1509.55	3.90214E-02	18.11		
	58	1583.93	1.24210E-02	46.15	Sum	
	59	1661.02	1.69549E-02	31.32		
	60	1684.56	5.21605E-03	59.78		
	61	1730.01	5.75828E-02	9.64	Sum	
	63	1801.95	3.66667E-03	61.55		
	64	1823.28	5.43333E-03	31.10	Sum	
	65	1848.13	3.69702E-02	15.03	Sum	
	66	1873.74	3.58440E-03	52.70		
	67	1897.99	5.31695E-03	48.04		
	68	1936.28	8.50367E-03	34.80		
	69	2119.31	2.60106E-02	13.21		
	71	2214.96	5.36836E-03	29.27		
	72	2293.77	4.31763E-03	41.57		
	73	2300.37	1.56250E-03	62.85		
	74	2413.63	2.50000E-03	33.33		
	75	2448.43	2.18023E-02	12.87		

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59	10.42	-1.78E+00	3.38E+00	3.38E+00
+	NA-22	1274.54	99.94	-3.17E-02	1.25E-01	1.25E-01
+	@ NA-24	1368.53	99.99	1.00E+26	1.00E+26	1.00E+26
	@	2754.09	99.86	0.00E+00		1.00E+26

Analysis Report for 1707089-15

HTC-A04-S002-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	AL-26	1808.65		99.76	-1.02E-02	7.85E-02	7.85E-02
+	K-40	1460.81	*	10.67	1.23E+01	2.58E+00	2.58E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	4.75E-02	1.04E-01	1.04E-01
		78.34		96.00	2.47E-01		1.30E-01
+	SC-46	889.25		99.98	-1.42E-01	2.91E-01	2.91E-01
		1120.51		99.99	6.06E+00		8.71E-01
+	V-48	983.52		99.98	-3.65E-01	9.32E+00	9.51E+00
		1312.10		97.50	-9.53E-01		9.32E+00
+	CR-51	320.08		9.83	-3.59E-01	1.20E+01	1.20E+01
+	MN-54	834.83		99.97	2.12E-03	1.53E-01	1.53E-01
+	CO-56	846.75		99.96	-1.80E-01	2.98E-01	2.98E-01
		1037.75		14.03	-1.92E-01		2.00E+00
		1238.25		67.00	3.64E+00		9.44E-01
		1771.40		15.51	3.18E-01		1.99E+00
		2598.48		16.90	-1.00E-01		5.40E-01
+	CO-57	122.06		85.51	-1.86E-02	1.12E-01	1.12E-01
		136.48		10.60	-2.25E-01		1.23E+00
+	CO-58	810.76		99.40	4.19E-02	3.25E-01	3.25E-01
+	FE-59	1099.22		56.50	-3.98E-01	1.01E+00	1.01E+00
		1291.56		43.20	-7.92E-01		1.24E+00
+	CO-60	1173.22		100.00	7.81E-03	1.23E-01	1.33E-01
		1332.49		100.00	1.96E-02		1.23E-01
+	ZN-65	1115.52		50.75	-9.46E-02	4.35E-01	4.35E-01
+	GA-67	93.31		35.70	2.65E+09	4.42E+08	4.42E+08
		208.95		2.24	4.59E+09		6.88E+09
		300.22		16.00	3.98E+08		9.19E+08
+	SE-75	121.11		16.70	5.58E-01	2.95E-01	7.97E-01
		136.00		59.20	8.22E-02		3.02E-01
		264.65		59.80	7.39E-02		2.95E-01
		279.53		25.20	3.64E-01		7.48E-01
		400.65		11.40	6.28E-01		1.65E+00
+	RB-82	776.52		13.00	4.84E+00	1.36E+01	1.36E+01
+	RB-83	520.41		46.00	1.49E-01	4.54E-01	4.54E-01
		529.64		30.30	6.93E-02		7.07E-01
		552.65		16.40	3.63E-01		1.34E+00
+	KR-85	513.99		0.43	-6.02E+00	2.46E+01	2.46E+01
+	SR-85	513.99		99.27	-7.46E-02	3.05E-01	3.05E-01
+	Y-88	898.02		93.40	2.67E-02	1.99E-01	2.77E-01
		1836.01		99.38	4.73E-02		1.99E-01
+	MO-93	263.06		56.72	-1.89E-02	1.10E-01	1.82E-01
		684.67		99.68	3.77E-02		1.10E-01
		1477.11		99.08	1.24E-01		1.54E-01
+	NB-93M	16.57		9.43	0.00E+00	6.62E+00	6.62E+00
+	NB-94	702.63		100.00	1.34E-01	1.26E-01	1.26E-01
		871.10		100.00	5.65E-03		1.30E-01
+	NB-95	765.79		99.81	2.45E+00	1.35E+00	1.35E+00

Analysis Report for 1707089-15

HTC-A04-S002-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	NB-95M	235.69		25.00	-1.56E+07	8.91E+07	8.91E+07
+	ZR-95	724.18		43.70	-5.17E-01	5.97E-01	7.97E-01
		756.72		55.30	-3.83E-02		5.97E-01
+	MO-99	181.06		6.20	-1.00E+10	6.20E+10	1.21E+11
		739.58		12.80	-2.64E+10		6.20E+10
		778.00		4.50	1.84E+10		1.87E+11
+	RU-103	497.08		89.00	-1.85E-01	5.92E-01	5.92E-01
+	RU-106	621.84		9.80	-3.14E-01	1.24E+00	1.24E+00
+	AG-108M	433.93		89.90	-1.20E-02	1.09E-01	1.09E-01
		614.37		90.40	3.72E-02		1.45E-01
		722.95		90.50	-7.72E-02		1.31E-01
+	CD-109	88.03	*	3.72	1.28E+01	7.63E+00	7.63E+00
+	AG-110M	657.75		93.14	-4.54E-02	1.52E-01	1.52E-01
		677.61		10.53	2.07E-02		1.32E+00
		706.67		16.46	-1.02E-01		9.80E-01
		763.93		21.98	-1.22E-01		8.57E-01
		884.67		71.63	2.32E-02		2.42E-01
		1384.27		23.94	-2.50E+00		8.36E-01
+	CD-113M	263.70		0.02	1.09E+02	4.42E+02	4.42E+02
+	SN-113	255.12		1.93	-9.21E-02	2.86E-01	9.97E+00
		391.69		64.90	-1.89E-01		2.86E-01
+	TE123M	159.00		84.10	-5.32E-02	2.26E-01	2.26E-01
+	SB-124	602.71		97.87	-9.48E-02	3.66E-01	3.66E-01
		645.85		7.26	4.28E-01		4.42E+00
		722.78		11.10	-8.68E-01		3.42E+00
		1691.02		49.00	1.20E-01		7.18E-01
+	I-125	35.49		6.49	-3.85E+01	1.04E+01	1.04E+01
+	SB-125	176.33		6.89	-7.27E-01	3.88E-01	1.64E+00
		427.89		29.33	1.89E-01		3.88E-01
		463.38		10.35	4.07E-01		1.02E+00
		600.56		17.80	-2.19E-01		6.81E-01
		635.90		11.32	1.12E-01		9.85E-01
+	SB-126	414.70		83.30	7.90E+00	2.77E+01	3.22E+01
		666.33		99.60	4.86E+01		3.57E+01
		695.00		99.60	3.36E+00		2.77E+01
		720.50		53.80	2.75E+01		5.78E+01
+	SN-126	87.57	*	37.00	1.11E+00	6.62E-01	6.62E-01
+	SB-127	473.00		25.00	1.82E+06	1.70E+07	2.14E+07
		685.20		35.70	5.55E+06		1.70E+07
		783.80		14.70	3.46E+07		5.42E+07
+	I-129	29.78		57.00	8.96E-01	6.87E-01	6.87E-01
		33.60		13.20	8.00E+00		2.54E+00
		39.58		7.52	1.03E+00		2.15E+00
+	I-131	284.30		6.05	-6.00E+03	6.09E+02	8.77E+03
		364.48		81.20	-2.23E+02		6.09E+02
		636.97		7.26	2.06E+02		7.26E+03
		722.89		1.80	-2.00E+04		3.40E+04
+	TE-132	49.72		13.10	-1.16E+07	1.73E+08	1.17E+09

Analysis Report for 1707089-15

HTC-A04-S002-4248-01

		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		TE-132	228.16	88.00	-6.06E+07	1.73E+08	1.73E+08
+		BA-133	81.00	33.00	5.14E-01	1.63E-01	2.83E-01
			302.84	17.80	-2.36E-01		5.83E-01
			356.01	60.00	5.58E-03		1.63E-01
+	@	I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+		XE-133	81.00	38.00	2.16E+05	1.19E+05	1.19E+05
+		CS-134	563.23	8.38	-4.08E-01	1.49E-01	1.17E+00
			569.32	15.43	2.54E-02		6.92E-01
			604.70	97.60	-8.53E-03		1.50E-01
			795.84	85.40	-2.20E-02		1.49E-01
			801.93	8.73	2.73E-01		1.49E+00
+		CS-135	268.24	16.00	-2.66E-01	6.83E-01	6.83E-01
+	@	I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@		1260.41	28.60	1.00E+26		1.00E+26
	@		1678.03	9.54	1.00E+26		1.00E+26
+		CS-136	153.22	7.46	1.88E+02	2.24E+01	2.75E+02
			163.89	4.61	6.81E+01		4.37E+02
			176.55	13.56	-6.40E+01		1.45E+02
			273.65	12.66	1.43E+02		1.61E+02
			340.57	48.50	-1.81E+01		4.15E+01
			818.50	99.70	-3.84E-01		2.24E+01
			1048.07	79.60	-1.63E+01		3.07E+01
			1235.34	19.70	6.01E+02		2.32E+02
+		CS-137	661.65	85.12	-1.41E-02	1.37E-01	1.37E-01
+		LA-138	788.74	34.00	5.99E-01	2.22E-01	4.23E-01
			1435.80	66.00	1.84E-02		2.22E-01
+		CE-139	165.85	80.35	5.73E-02	2.20E-01	2.20E-01
+		BA-140	162.64	6.70	3.78E+02	8.27E+01	3.53E+02
			304.84	4.50	-1.69E+02		4.84E+02
			423.70	3.20	2.70E+02		7.30E+02
			437.55	2.00	1.73E+02		1.04E+03
			537.32	25.00	-6.47E+00		8.27E+01
+		LA-140	328.77	20.50	1.26E+02	3.21E+01	1.10E+02
			487.03	45.50	3.27E+01		4.86E+01
			815.85	23.50	2.31E+00		1.04E+02
			1596.49	95.49	1.92E+01		3.21E+01
+		CE-141	145.44	48.40	4.10E-01	1.89E+00	1.89E+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	-3.11E-01	8.97E-01	8.97E-01
+		PM-144	476.78	42.00	-1.47E-01	1.30E-01	2.80E-01
			618.01	98.60	-3.51E-02		1.30E-01
			696.49	99.49	6.13E-02		1.35E-01
+		PM-145	36.85	21.70	-6.36E-01	4.72E-01	8.84E-01
			37.36	39.70	-1.51E-01		4.72E-01
			42.30	15.10	-1.91E-01		8.95E-01
			72.40	2.31	-5.04E+01		4.44E+00
+		PM-146	453.90	39.94	1.37E-01	2.62E-01	2.62E-01

Analysis Report for 1707089-15

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PM-146	735.90	14.01	-1.79E-01	2.62E-01	8.17E-01
		747.13	13.10	1.29E-01		9.56E-01
+	ND-147	91.11	28.90	-1.46E+03	1.74E+02	1.74E+02
		531.02	13.10	-2.16E+02		3.77E+02
+	PM-149	285.90	3.10	2.10E+13	1.04E+14	1.04E+14
+	EU-152	121.78	20.50	-6.09E-02	3.66E-01	3.66E-01
		244.69	5.40	-1.67E+01		2.30E+00
		344.27	19.13	-9.99E-02		5.56E-01
		778.89	9.20	1.29E-01		1.32E+00
		964.01	10.40	-6.46E-01		1.36E+00
		1085.78	7.22	-1.44E-01		1.71E+00
		1112.02	9.60	2.80E-01		1.45E+00
		1407.95	14.94	6.46E-01		1.42E+00
+	GD-153	97.43	31.30	3.45E-01	3.20E-01	3.20E-01
		103.18	22.20	3.49E-02		4.25E-01
+	EU-154	123.07	40.50	-9.11E-03	1.86E-01	1.86E-01
		723.30	19.70	-3.62E-01		6.16E-01
		873.19	11.50	-3.14E-01		1.13E+00
		996.32	10.30	-1.14E+00		1.34E+00
		1004.76	17.90	6.77E-02		8.32E-01
		1274.45	35.50	-8.47E-02		3.35E-01
+	EU-155	86.50	30.90	1.31E+00	3.57E-01	3.57E-01
		105.30	20.70	5.45E-02		3.58E-01
+	EU-156	811.77	10.40	1.16E+01	1.04E+02	1.04E+02
		1153.47	7.20	4.90E+02		2.37E+02
		1230.71	8.90	1.98E+01		1.35E+02
+	HO-166M	184.41	72.60	1.72E+00	2.23E-01	2.24E-01
		280.45	29.60	1.29E-02		3.55E-01
		410.94	11.10	4.28E-01		9.78E-01
		711.69	54.10	1.35E-01		2.23E-01
+	TM-171	66.72	0.14	2.72E+01	7.74E+01	7.74E+01
+	HF-172	67.35	5.31	9.35E-01	7.37E-01	2.05E+00
		125.81	11.30	4.43E-02		7.37E-01
+	LU-172	181.53	20.60	1.20E+03	5.63E+03	1.48E+04
		900.72	29.81	-3.04E+03		1.27E+04
		1093.66	62.50	-9.45E+01		5.63E+03
+	LU-173	100.72	5.24	-1.22E+00	6.23E-01	1.53E+00
		272.11	21.20	-1.24E-01		6.23E-01
+	HF-175	343.40	84.00	6.73E-02	3.37E-01	3.37E-01
+	LU-176	88.34	13.30	1.21E+00	1.09E-01	7.78E-01
		201.83	86.00	-9.25E-02		1.24E-01
		306.78	94.00	1.68E-03		1.09E-01
+	HF-181	133.02	41.70	-2.93E-01	6.24E-01	9.20E-01
		345.85	17.20	4.68E-01		3.08E+00
		482.03	82.80	2.28E-01		6.24E-01
+	TA-182	67.75	41.20	1.98E-01	4.33E-01	4.33E-01
		1121.30	34.90	1.40E+01		2.00E+00
		1189.05	16.23	2.11E-02		1.41E+00
		1221.41	26.98	6.35E-01		9.64E-01

Analysis Report for 1707089-15

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TA-182	1231.02		11.44	3.05E-01	4.33E-01	2.08E+00
+	IR-192	308.46		29.68	3.04E-01	5.24E-01	8.63E-01
		468.07		48.10	3.33E-01		5.24E-01
+	HG-203	279.19		77.30	-1.13E-01	5.96E-01	5.96E-01
+	TL-204	374.74		94.11	-5.40E-02	1.06E-01	1.06E-01
		899.15		99.16	-4.18E-02		1.43E-01
		911.74		91.10	2.61E-01		1.81E-01
+	BI-207	569.67		97.72	3.69E-03	1.00E-01	1.00E-01
		1063.62		74.90	-2.90E-02		1.68E-01
+	TL-208	583.14	*	30.22	6.78E-01	1.93E-01	5.96E-01
		860.37		4.48	1.01E+00		3.00E+00
		2614.66	*	35.85	4.62E-01		1.93E-01
+	BI-210M	262.00		45.00	3.51E-02	2.27E-01	2.27E-01
		300.00		23.00	1.95E-01		4.50E-01
+	PB-210	46.50	*	4.25	8.54E+00	4.92E+00	4.92E+00
+	PB-211	404.84		2.90	-4.63E-01	3.75E+00	3.75E+00
		831.96		2.90	-1.01E+00		4.25E+00
+	BI-212	727.17	*	11.80	7.26E-01	1.07E+00	1.07E+00
		1620.62		2.75	6.14E-01		4.67E+00
+	PB-212	238.63	*	44.60	5.34E-01	3.72E-01	3.72E-01
		300.09		3.41	1.32E+00		3.04E+00
+	BI-214	609.31	*	46.30	1.67E+01	4.66E-01	4.66E-01
		1120.29	*	15.10	1.84E+01		1.54E+00
		1764.49	*	15.80	1.84E+01		1.35E+00
		2204.22	*	4.98	1.80E+01		1.92E+00
+	PB-214	295.21	*	19.19	1.82E+01	4.96E-01	9.11E-01
		351.92	*	37.19	1.87E+01		4.96E-01
+	RN-219	401.80		6.50	-9.02E-01	1.64E+00	1.64E+00
+	RA-223	323.87		3.88	-1.08E-01	2.62E+00	2.62E+00
+	RA-224	240.98		3.95	3.75E+01	4.71E+00	4.71E+00
+	RA-225	40.00		31.00	2.53E+01	5.28E+01	5.28E+01
+	RA-226	186.21	*	3.28	3.86E+01	5.56E+00	5.56E+00
+	TH-227	50.10		8.40	-1.23E-02	1.05E+00	1.24E+00
		236.00		11.50	-1.84E-01		1.05E+00
		256.20		6.30	-9.29E-01		1.71E+00
+	AC-228	338.32	*	11.40	9.94E-01	6.77E-01	1.40E+00
		911.07	*	27.70	9.20E-01		6.77E-01
		969.11	*	16.60	4.90E-01		8.36E-01
+	TH-230	48.44		16.90	-2.45E+00	6.47E-01	6.47E-01
		62.85		4.60	1.25E+01		2.72E+00
		67.67		0.37	1.21E+01		2.65E+01
+	PA-231	283.67		1.60	-4.39E+00	4.43E+00	6.42E+00
		302.67		2.30	-1.79E+00		4.43E+00
+	TH-231	25.64		14.70	0.00E+00	1.18E-01	1.18E-01
		84.21	*	6.40	3.93E+00		3.81E+00
+	PA-233	311.98		38.60	-1.78E+00	3.24E+00	3.24E+00
+	PA-234	131.20		20.40	2.67E-01	3.81E-01	3.81E-01
		733.99		8.80	2.74E-01		1.30E+00

Analysis Report for 1707089-15

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PA-234	946.00		12.00	-1.58E-01	3.81E-01	9.91E-01
+	PA-234M	1001.03	*	0.92	1.89E+01	2.15E+01	2.15E+01
+	TH-234	63.29	*	3.80	1.27E+01	5.18E+00	5.18E+00
+	U-235	143.76		10.50	1.01E+00	1.05E+00	1.05E+00
		163.35		4.70	3.60E-01		2.31E+00
		205.31		4.70	-1.68E-01		2.30E+00
+	NP-237	86.50		12.60	3.09E+00	8.43E-01	8.43E-01
+	NP-239	106.10		22.70	2.26E+11	1.48E+12	1.48E+12
		228.18		10.70	-1.62E+12		4.64E+12
		277.60		14.10	-2.92E+12		3.53E+12
+	AM-241	59.54		35.90	1.93E-02	2.80E-01	2.80E-01
+	AM-243	74.67		66.00	-1.15E+00	2.05E-01	2.05E-01
+	CM-243	209.75		3.29	2.90E+00	7.59E-01	3.30E+00
		228.14		10.60	-3.50E-01		1.00E+00
		277.60		14.00	-6.28E-01		7.59E-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	3.38E+00	3.38E+00	-1.78E+00	1.64E+00
	NA-22	1274.54		99.94	1.25E-01	1.25E-01	-3.17E-02	5.90E-02
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		0.00E+00	1.00E+20
	AL-26	1808.65		99.76	7.85E-02	7.85E-02	-1.02E-02	3.51E-02
+	K-40	1460.81	*	10.67	2.58E+00	2.58E+00	1.23E+01	1.26E+00
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20

Analysis Report for 1707089-15

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
TI-44	67.88	94.40	1.04E-01	1.04E-01	4.75E-02	5.13E-02
	78.34	96.00	1.30E-01		2.47E-01	6.44E-02
SC-46	889.25	99.98	2.91E-01	2.91E-01	-1.42E-01	1.40E-01
	1120.51	99.99	8.71E-01		6.06E+00	4.29E-01
V-48	983.52	99.98	9.51E+00	9.32E+00	-3.65E-01	4.56E+00
	1312.10	97.50	9.32E+00		-9.53E-01	4.41E+00
CR-51	320.08	9.83	1.20E+01	1.20E+01	-3.59E-01	5.89E+00
MN-54	834.83	99.97	1.53E-01	1.53E-01	2.12E-03	7.35E-02
CO-56	846.75	99.96	2.98E-01	2.98E-01	-1.80E-01	1.43E-01
	1037.75	14.03	2.00E+00		-1.92E-01	9.53E-01
	1238.25	67.00	9.44E-01		3.64E+00	4.61E-01
	1771.40	15.51	1.99E+00		3.18E-01	9.30E-01
	2598.48	16.90	5.40E-01		-1.00E-01	2.02E-01
CO-57	122.06	85.51	1.12E-01	1.12E-01	-1.86E-02	5.49E-02
	136.48	10.60	1.23E+00		-2.25E-01	6.09E-01
CO-58	810.76	99.40	3.25E-01	3.25E-01	4.19E-02	1.56E-01
FE-59	1099.22	56.50	1.01E+00	1.01E+00	-3.98E-01	4.80E-01
	1291.56	43.20	1.24E+00		-7.92E-01	5.86E-01
CO-60	1173.22	100.00	1.33E-01	1.23E-01	7.81E-03	6.33E-02
	1332.49	100.00	1.23E-01		1.96E-02	5.80E-02
ZN-65	1115.52	50.75	4.35E-01	4.35E-01	-9.46E-02	2.10E-01
GA-67	93.31	35.70	4.42E+08	4.42E+08	2.65E+09	2.19E+08
	208.95	2.24	6.88E+09		4.59E+09	3.39E+09
	300.22	16.00	9.19E+08		3.98E+08	4.50E+08
SE-75	121.11	16.70	7.97E-01	2.95E-01	5.58E-01	3.92E-01
	136.00	59.20	3.02E-01		8.22E-02	1.49E-01
	264.65	59.80	2.95E-01		7.39E-02	1.45E-01
	279.53	25.20	7.48E-01		3.64E-01	3.67E-01
	400.65	11.40	1.65E+00		6.28E-01	8.07E-01
RB-82	776.52	13.00	1.36E+01	1.36E+01	4.84E+00	6.58E+00
RB-83	520.41	46.00	4.54E-01	4.54E-01	1.49E-01	2.19E-01
	529.64	30.30	7.07E-01		6.93E-02	3.42E-01
	552.65	16.40	1.34E+00		3.63E-01	6.46E-01
KR-85	513.99	0.43	2.46E+01	2.46E+01	-6.02E+00	1.19E+01
SR-85	513.99	99.27	3.05E-01	3.05E-01	-7.46E-02	1.48E-01
Y-88	898.02	93.40	2.77E-01	1.99E-01	2.67E-02	1.34E-01
	1836.01	99.38	1.99E-01		4.73E-02	9.17E-02
MO-93	263.06	56.72	1.82E-01	1.10E-01	-1.89E-02	8.92E-02
	684.67	99.68	1.10E-01		3.77E-02	5.30E-02
	1477.11	99.08	1.54E-01		1.24E-01	7.33E-02
NB-93M	16.57	9.43	6.62E+00	6.62E+00	0.00E+00	0.00E+00
NB-94	702.63	100.00	1.26E-01	1.26E-01	1.34E-01	6.11E-02
	871.10	100.00	1.30E-01		5.65E-03	6.29E-02
NB-95	765.79	99.81	1.35E+00	1.35E+00	2.45E+00	6.58E-01
NB-95M	235.69	25.00	8.91E+07	8.91E+07	-1.56E+07	4.39E+07
ZR-95	724.18	43.70	7.97E-01	5.97E-01	-5.17E-01	3.85E-01
	756.72	55.30	5.97E-01		-3.83E-02	2.87E-01
MO-99	181.06	6.20	1.21E+11	6.20E+10	-1.00E+10	5.98E+10
	739.58	12.80	6.20E+10		-2.64E+10	2.99E+10
	778.00	4.50	1.87E+11		1.84E+10	9.03E+10
RU-103	497.08	89.00	5.92E-01	5.92E-01	-1.85E-01	2.86E-01
RU-106	621.84	9.80	1.24E+00	1.24E+00	-3.14E-01	5.98E-01
AG-108M	433.93	89.90	1.09E-01	1.09E-01	-1.20E-02	5.29E-02

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	AG-108M	614.37		90.40	1.45E-01	1.09E-01	3.72E-02	7.05E-02
		722.95		90.50	1.31E-01		-7.72E-02	6.34E-02
+	CD-109	88.03	*	3.72	7.63E+00	7.63E+00	1.28E+01	3.80E+00
	AG-110M	657.75		93.14	1.52E-01	1.52E-01	-4.54E-02	7.35E-02
		677.61		10.53	1.32E+00		2.07E-02	6.34E-01
		706.67		16.46	9.80E-01		-1.02E-01	4.74E-01
		763.93		21.98	8.57E-01		-1.22E-01	4.16E-01
		884.67		71.63	2.42E-01		2.32E-02	1.17E-01
		1384.27		23.94	8.36E-01		-2.50E+00	3.99E-01
	CD-113M	263.70		0.02	4.42E+02	4.42E+02	1.09E+02	2.17E+02
	SN-113	255.12		1.93	9.97E+00	2.86E-01	-9.21E-02	4.90E+00
		391.69		64.90	2.86E-01		-1.89E-01	1.40E-01
	TE123M	159.00		84.10	2.26E-01	2.26E-01	-5.32E-02	1.11E-01
	SB-124	602.71		97.87	3.66E-01	3.66E-01	-9.48E-02	1.77E-01
		645.85		7.26	4.42E+00		4.28E-01	2.13E+00
		722.78		11.10	3.42E+00		-8.68E-01	1.65E+00
		1691.02		49.00	7.18E-01		1.20E-01	3.33E-01
	I-125	35.49		6.49	1.04E+01	1.04E+01	-3.85E+01	5.12E+00
	SB-125	176.33		6.89	1.64E+00	3.88E-01	-7.27E-01	8.10E-01
		427.89		29.33	3.88E-01		1.89E-01	1.89E-01
		463.38		10.35	1.02E+00		4.07E-01	4.96E-01
		600.56		17.80	6.81E-01		-2.19E-01	3.30E-01
		635.90		11.32	9.85E-01		1.12E-01	4.75E-01
	SB-126	414.70		83.30	3.22E+01	2.77E+01	7.90E+00	1.57E+01
		666.33		99.60	3.57E+01		4.86E+01	1.74E+01
		695.00		99.60	2.77E+01		3.36E+00	1.33E+01
		720.50		53.80	5.78E+01		2.75E+01	2.79E+01
+	SN-126	87.57	*	37.00	6.62E-01	6.62E-01	1.11E+00	3.29E-01
	SB-127	473.00		25.00	2.14E+07	1.70E+07	1.82E+06	1.04E+07
		685.20		35.70	1.70E+07		5.55E+06	8.20E+06
		783.80		14.70	5.42E+07		3.46E+07	2.62E+07
	I-129	29.78		57.00	6.87E-01	6.87E-01	8.96E-01	3.36E-01
		33.60		13.20	2.54E+00		8.00E+00	1.25E+00
		39.58		7.52	2.15E+00		1.03E+00	1.06E+00
	I-131	284.30		6.05	8.77E+03	6.09E+02	-6.00E+03	4.30E+03
		364.48		81.20	6.09E+02		-2.23E+02	2.97E+02
		636.97		7.26	7.26E+03		2.06E+02	3.50E+03
		722.89		1.80	3.40E+04		-2.00E+04	1.64E+04
	TE-132	49.72		13.10	1.17E+09	1.73E+08	-1.16E+07	5.74E+08
		228.16		88.00	1.73E+08		-6.06E+07	8.50E+07
	BA-133	81.00		33.00	2.83E-01	1.63E-01	5.14E-01	1.40E-01
		302.84		17.80	5.83E-01		-2.36E-01	2.85E-01
		356.01		60.00	1.63E-01		5.58E-03	7.96E-02
	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	XE-133	81.00		38.00	1.19E+05	1.19E+05	2.16E+05	5.88E+04
	CS-134	563.23		8.38	1.17E+00	1.49E-01	-4.08E-01	5.62E-01
		569.32		15.43	6.92E-01		2.54E-02	3.34E-01
		604.70		97.60	1.50E-01		-8.53E-03	7.28E-02
		795.84		85.40	1.49E-01		-2.20E-02	7.16E-02
		801.93		8.73	1.49E+00		2.73E-01	7.18E-01
	CS-135	268.24		16.00	6.83E-01	6.83E-01	-2.66E-01	3.35E-01
	@ I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	@	1260.41		28.60	1.00E+26		1.00E+26	1.00E+20

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@ I-135	1678.03	9.54	1.00E+26	1.00E+26	1.00E+26	1.00E+20
CS-136	153.22	7.46	2.75E+02	2.24E+01	1.88E+02	1.36E+02
	163.89	4.61	4.37E+02		6.81E+01	2.16E+02
	176.55	13.56	1.45E+02		-6.40E+01	7.13E+01
	273.65	12.66	1.61E+02		1.43E+02	7.91E+01
	340.57	48.50	4.15E+01		-1.81E+01	2.03E+01
	818.50	99.70	2.24E+01		-3.84E-01	1.08E+01
	1048.07	79.60	3.07E+01		-1.63E+01	1.47E+01
	1235.34	19.70	2.32E+02		6.01E+02	1.13E+02
CS-137	661.65	85.12	1.37E-01	1.37E-01	-1.41E-02	6.64E-02
LA-138	788.74	34.00	4.23E-01	2.22E-01	5.99E-01	2.05E-01
	1435.80	66.00	2.22E-01		1.84E-02	1.05E-01
CE-139	165.85	80.35	2.20E-01	2.20E-01	5.73E-02	1.09E-01
BA-140	162.64	6.70	3.53E+02	8.27E+01	3.78E+02	1.74E+02
	304.84	4.50	4.84E+02		-1.69E+02	2.37E+02
	423.70	3.20	7.30E+02		2.70E+02	3.56E+02
	437.55	2.00	1.04E+03		1.73E+02	5.06E+02
	537.32	25.00	8.27E+01		-6.47E+00	3.99E+01
LA-140	328.77	20.50	1.10E+02	3.21E+01	1.26E+02	5.40E+01
	487.03	45.50	4.86E+01		3.27E+01	2.36E+01
	815.85	23.50	1.04E+02		2.31E+00	4.99E+01
	1596.49	95.49	3.21E+01		1.92E+01	1.52E+01
CE-141	145.44	48.40	1.89E+00	1.89E+00	4.10E-01	9.36E-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	8.97E-01	8.97E-01	-3.11E-01	4.41E-01
PM-144	476.78	42.00	2.80E-01	1.30E-01	-1.47E-01	1.36E-01
	618.01	98.60	1.30E-01		-3.51E-02	6.28E-02
	696.49	99.49	1.35E-01		6.13E-02	6.52E-02
PM-145	36.85	21.70	8.84E-01	4.72E-01	-6.36E-01	4.34E-01
	37.36	39.70	4.72E-01		-1.51E-01	2.32E-01
	42.30	15.10	8.95E-01		-1.91E-01	4.39E-01
	72.40	2.31	4.44E+00		-5.04E+01	2.19E+00
PM-146	453.90	39.94	2.62E-01	2.62E-01	1.37E-01	1.27E-01
	735.90	14.01	8.17E-01		-1.79E-01	3.93E-01
	747.13	13.10	9.56E-01		1.29E-01	4.61E-01
ND-147	91.11	28.90	1.74E+02	1.74E+02	-1.46E+03	8.61E+01
	531.02	13.10	3.77E+02		-2.16E+02	1.82E+02
PM-149	285.90	3.10	1.04E+14	1.04E+14	2.10E+13	5.12E+13
EU-152	121.78	20.50	3.66E-01	3.66E-01	-6.09E-02	1.80E-01
	244.69	5.40	2.30E+00		-1.67E+01	1.13E+00
	344.27	19.13	5.56E-01		-9.99E-02	2.72E-01
	778.89	9.20	1.32E+00		1.29E-01	6.34E-01
	964.01	10.40	1.36E+00		-6.46E-01	6.55E-01
	1085.78	7.22	1.71E+00		-1.44E-01	8.14E-01
	1112.02	9.60	1.45E+00		2.80E-01	6.94E-01
	1407.95	14.94	1.42E+00		6.46E-01	6.85E-01
GD-153	97.43	31.30	3.20E-01	3.20E-01	3.45E-01	1.58E-01
	103.18	22.20	4.25E-01		3.49E-02	2.09E-01
EU-154	123.07	40.50	1.86E-01	1.86E-01	-9.11E-03	9.17E-02
	723.30	19.70	6.16E-01		-3.62E-01	2.97E-01
	873.19	11.50	1.13E+00		-3.14E-01	5.44E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-154	996.32		10.30	1.34E+00	1.86E-01	-1.14E+00	6.42E-01
		1004.76		17.90	8.32E-01		6.77E-02	4.01E-01
		1274.45		35.50	3.35E-01		-8.47E-02	1.58E-01
	EU-155	86.50		30.90	3.57E-01	3.57E-01	1.31E+00	1.77E-01
		105.30		20.70	3.58E-01		5.45E-02	1.76E-01
	EU-156	811.77		10.40	1.04E+02	1.04E+02	1.16E+01	5.02E+01
		1153.47		7.20	2.37E+02		4.90E+02	1.15E+02
		1230.71		8.90	1.35E+02		1.98E+01	6.43E+01
	HO-166M	184.41		72.60	2.24E-01	2.23E-01	1.72E+00	1.11E-01
		280.45		29.60	3.55E-01		1.29E-02	1.74E-01
		410.94		11.10	9.78E-01		4.28E-01	4.77E-01
		711.69		54.10	2.23E-01		1.35E-01	1.08E-01
	TM-171	66.72		0.14	7.74E+01	7.74E+01	2.72E+01	3.82E+01
	HF-172	67.35		5.31	2.05E+00	7.37E-01	9.35E-01	1.01E+00
		125.81		11.30	7.37E-01		4.43E-02	3.62E-01
	LU-172	181.53		20.60	1.48E+04	5.63E+03	1.20E+03	7.31E+03
		900.72		29.81	1.27E+04		-3.04E+03	6.12E+03
		1093.66		62.50	5.63E+03		-9.45E+01	2.69E+03
	LU-173	100.72		5.24	1.53E+00	6.23E-01	-1.22E+00	7.51E-01
		272.11		21.20	6.23E-01		-1.24E-01	3.06E-01
	HF-175	343.40		84.00	3.37E-01	3.37E-01	6.73E-02	1.65E-01
	LU-176	88.34		13.30	7.78E-01	1.09E-01	1.21E+00	3.85E-01
		201.83		86.00	1.24E-01		-9.25E-02	6.12E-02
		306.78		94.00	1.09E-01		1.68E-03	5.33E-02
	HF-181	133.02		41.70	9.20E-01	6.24E-01	-2.93E-01	4.53E-01
		345.85		17.20	3.08E+00		4.68E-01	1.51E+00
		482.03		82.80	6.24E-01		2.28E-01	3.03E-01
	TA-182	67.75		41.20	4.33E-01	4.33E-01	1.98E-01	2.14E-01
		1121.30		34.90	2.00E+00		1.40E+01	9.85E-01
		1189.05		16.23	1.41E+00		2.11E-02	6.70E-01
		1221.41		26.98	9.64E-01		6.35E-01	4.61E-01
		1231.02		11.44	2.08E+00		3.05E-01	9.89E-01
	IR-192	308.46		29.68	8.63E-01	5.24E-01	3.04E-01	4.22E-01
		468.07		48.10	5.24E-01		3.33E-01	2.54E-01
	HG-203	279.19		77.30	5.96E-01	5.96E-01	-1.13E-01	2.92E-01
	TL-204	374.74		94.11	1.06E-01	1.06E-01	-5.40E-02	5.15E-02
		899.15		99.16	1.43E-01		-4.18E-02	6.87E-02
		911.74		91.10	1.81E-01		2.61E-01	8.77E-02
	BI-207	569.67		97.72	1.00E-01	1.00E-01	3.69E-03	4.84E-02
		1063.62		74.90	1.68E-01		-2.90E-02	8.00E-02
+	TL-208	583.14	*	30.22	5.96E-01	1.93E-01	6.78E-01	2.92E-01
		860.37		4.48	3.00E+00		1.01E+00	1.45E+00
		2614.66	*	35.85	1.93E-01		4.62E-01	8.29E-02
	BI-210M	262.00		45.00	2.27E-01	2.27E-01	3.51E-02	1.12E-01
		300.00		23.00	4.50E-01		1.95E-01	2.21E-01
+	PB-210	46.50	*	4.25	4.92E+00	4.92E+00	8.54E+00	2.44E+00
	PB-211	404.84		2.90	3.75E+00	3.75E+00	-4.63E-01	1.83E+00
		831.96		2.90	4.25E+00		-1.01E+00	2.05E+00
+	BI-212	727.17	*	11.80	1.07E+00	1.07E+00	7.26E-01	5.17E-01
		1620.62		2.75	4.67E+00		6.14E-01	2.19E+00
+	PB-212	238.63	*	44.60	3.72E-01	3.72E-01	5.34E-01	1.84E-01
		300.09		3.41	3.04E+00		1.32E+00	1.49E+00
+	BI-214	609.31	*	46.30	4.66E-01	4.66E-01	1.67E+01	2.29E-01

Analysis Report for 1707089-15

HTC-A04-S002-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BI-214	1120.29	*	15.10	1.54E+00	4.66E-01	1.84E+01	7.49E-01
		1764.49	*	15.80	1.35E+00		1.84E+01	6.48E-01
		2204.22	*	4.98	1.92E+00		1.80E+01	8.69E-01
+	PB-214	295.21	*	19.19	9.11E-01	4.96E-01	1.82E+01	4.50E-01
		351.92	*	37.19	4.96E-01		1.87E+01	2.45E-01
	RN-219	401.80		6.50	1.64E+00	1.64E+00	-9.02E-01	8.01E-01
	RA-223	323.87		3.88	2.62E+00	2.62E+00	-1.08E-01	1.28E+00
	RA-224	240.98		3.95	4.71E+00	4.71E+00	3.75E+01	2.33E+00
	RA-225	40.00		31.00	5.28E+01	5.28E+01	2.53E+01	2.59E+01
+	RA-226	186.21	*	3.28	5.56E+00	5.56E+00	3.86E+01	2.76E+00
	TH-227	50.10		8.40	1.24E+00	1.05E+00	-1.23E-02	6.12E-01
		236.00		11.50	1.05E+00		-1.84E-01	5.16E-01
		256.20		6.30	1.71E+00		-9.29E-01	8.39E-01
+	AC-228	338.32	*	11.40	1.40E+00	6.77E-01	9.94E-01	6.91E-01
		911.07	*	27.70	6.77E-01		9.20E-01	3.29E-01
		969.11	*	16.60	8.36E-01		4.90E-01	4.02E-01
	TH-230	48.44		16.90	6.47E-01	6.47E-01	-2.45E+00	3.18E-01
		62.85		4.60	2.72E+00		1.25E+01	1.35E+00
		67.67		0.37	2.65E+01		1.21E+01	1.31E+01
	PA-231	283.67		1.60	6.42E+00	4.43E+00	-4.39E+00	3.15E+00
		302.67		2.30	4.43E+00		-1.79E+00	2.17E+00
+	TH-231	25.64		14.70	1.18E-01	1.18E-01	0.00E+00	0.00E+00
		84.21	*	6.40	3.81E+00		3.93E+00	1.90E+00
	PA-233	311.98		38.60	3.24E+00	3.24E+00	-1.78E+00	1.59E+00
	PA-234	131.20		20.40	3.81E-01	3.81E-01	2.67E-01	1.88E-01
		733.99		8.80	1.30E+00		2.74E-01	6.28E-01
		946.00		12.00	9.91E-01		-1.58E-01	4.74E-01
+	PA-234M	1001.03	*	0.92	2.15E+01	2.15E+01	1.89E+01	1.05E+01
+	TH-234	63.29	*	3.80	5.18E+00	5.18E+00	1.27E+01	2.57E+00
	U-235	143.76		10.50	1.05E+00	1.05E+00	1.01E+00	5.17E-01
		163.35		4.70	2.31E+00		3.60E-01	1.14E+00
		205.31		4.70	2.30E+00		-1.68E-01	1.13E+00
	NP-237	86.50		12.60	8.43E-01	8.43E-01	3.09E+00	4.17E-01
	NP-239	106.10		22.70	1.48E+12	1.48E+12	2.26E+11	7.29E+11
		228.18		10.70	4.64E+12		-1.62E+12	2.28E+12
		277.60		14.10	3.53E+12		-2.92E+12	1.73E+12
	AM-241	59.54		35.90	2.80E-01	2.80E-01	1.93E-02	1.38E-01
	AM-243	74.67		66.00	2.05E-01	2.05E-01	-1.15E+00	1.02E-01
	CM-243	209.75		3.29	3.30E+00	7.59E-01	2.90E+00	1.62E+00
		228.14		10.60	1.00E+00		-3.50E-01	4.92E-01
		277.60		14.00	7.59E-01		-6.28E-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

Analysis Report for 1707089-15

HTC-A04-S002-4248-01

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A04-S002-4248-01

Elapsed Live time: 3600
Elapsed Real Time: 3605

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	151	297	346	353
33:	375	899	336	330	318	322	370	365
41:	346	342	334	357	338	475	933	421
49:	370	421	451	411	534	625	432	435
57:	509	522	543	608	639	630	1058	1407
65:	628	659	627	782	684	701	697	717
73:	767	927	2235	1259	2781	2364	698	792
81:	687	637	519	990	709	541	1129	1218
89:	615	909	642	823	1816	752	597	449
97:	391	514	528	393	391	426	405	412
105:	419	451	371	402	398	409	427	443
113:	506	416	432	403	426	397	370	427
121:	426	411	388	413	397	441	397	406
129:	391	447	411	415	382	398	418	420
137:	449	397	420	449	418	431	427	609
145:	472	408	430	434	407	409	404	454
153:	424	459	491	421	410	407	393	371
161:	408	399	419	442	373	357	381	365
169:	344	345	369	326	379	376	322	370
177:	362	348	322	353	325	334	351	346
185:	548	1712	949	329	372	330	330	345
193:	299	330	348	367	307	301	308	285
201:	304	314	303	277	334	309	264	291
209:	322	272	310	239	250	282	272	247
217:	243	254	246	219	253	253	223	245
225:	247	238	251	232	256	242	261	236
233:	264	267	263	367	296	334	562	263
241:	463	1595	697	205	216	212	172	202
249:	186	163	192	225	177	218	188	240
257:	231	204	271	192	206	183	184	182
265:	168	183	163	181	235	284	265	216
273:	177	198	234	206	163	201	179	180
281:	194	177	178	167	158	171	186	174
289:	157	167	156	166	157	412	2867	1749
297:	212	163	145	179	155	155	143	152
305:	156	152	136	158	151	149	136	127
313:	131	132	147	124	139	128	127	130
321:	128	149	129	174	131	105	145	139
329:	124	152	155	120	125	133	139	131
337:	134	198	184	144	134	145	121	133
345:	152	117	131	129	146	232	1687	5115
353:	1417	113	106	100	115	98	106	104
361:	100	99	99	102	110	101	117	105

369:	121	87	108	94	95	95	91	86

Sample Title: HTC-A04-S002-4248-01

Channel								
377:	109	114	111	103	107	91	98	94
385:	104	135	148	117	162	99	116	120
393:	88	98	91	121	108	104	96	91
401:	116	131	111	98	139	111	104	105
409:	94	121	121	99	112	96	105	100
417:	93	94	128	99	103	77	122	121
425:	94	106	91	115	91	91	85	82
433:	102	77	68	76	82	83	83	74
441:	75	78	68	78	81	70	64	82
449:	64	63	84	77	72	94	89	74
457:	70	69	71	68	73	83	96	68
465:	55	61	72	74	84	84	70	59
473:	74	64	66	62	70	72	76	89
481:	82	75	70	61	69	62	91	97
489:	56	55	66	61	66	54	50	56
497:	58	67	58	69	61	51	67	44
505:	52	56	72	67	74	108	128	97
513:	70	68	78	46	52	56	63	48
521:	53	62	49	56	52	61	65	61
529:	48	45	70	55	57	63	67	58
537:	46	62	45	58	52	53	45	54
545:	58	54	51	52	53	59	57	56
553:	54	57	54	50	49	53	48	50
561:	52	43	55	38	35	48	52	47
569:	53	56	54	54	64	49	44	52
577:	58	50	50	63	66	65	137	97
585:	49	50	44	51	57	45	37	43
593:	52	44	51	52	43	57	47	41
601:	41	52	47	56	48	62	147	869
609:	3133	1830	151	45	45	50	49	44
617:	42	36	27	36	39	37	40	35
625:	30	33	40	29	31	34	34	40
633:	46	34	38	32	32	38	31	36
641:	30	25	28	30	34	38	33	32
649:	41	38	36	36	42	33	31	45
657:	38	37	39	32	53	43	33	58
665:	134	83	46	37	34	38	37	34
673:	30	25	34	35	37	33	32	35
681:	27	40	39	27	44	30	31	26
689:	30	30	26	29	34	34	34	31
697:	28	44	43	28	38	57	64	44
705:	42	30	28	40	47	40	49	34
713:	39	32	40	32	44	29	53	49
721:	52	33	22	30	38	42	50	44
729:	38	34	37	40	36	23	38	40
737:	27	31	28	30	32	40	44	40
745:	41	41	31	33	32	44	31	32
753:	41	22	42	27	26	26	38	34
761:	32	24	34	34	37	66	130	306
769:	187	37	26	38	33	33	27	33
777:	37	45	35	30	30	37	33	37
785:	75	89	49	28	42	28	31	30
793:	28	30	40	30	29	29	32	37

801:	32	20	38	36	52	106	44	30

Sample Title: HTC-A04-S002-4248-01

Channel								
809:	34	31	30	35	29	26	28	25
817:	24	30	34	46	35	29	21	32
825:	41	43	43	31	38	32	29	33
833:	36	28	17	41	39	48	66	48
841:	41	24	30	47	33	28	34	24
849:	28	41	43	33	32	28	38	28
857:	41	23	35	49	34	30	45	29
865:	37	33	38	31	45	28	23	32
873:	35	42	29	34	31	33	37	24
881:	30	37	42	38	27	32	29	39
889:	29	32	27	31	33	45	31	42
897:	33	33	34	26	33	37	36	37
905:	33	26	26	28	34	60	82	55
913:	28	33	33	26	27	29	29	27
921:	28	35	28	28	18	33	29	34
929:	22	33	35	37	119	167	72	35
937:	32	26	23	23	38	23	29	19
945:	32	20	20	26	22	22	20	28
953:	24	23	32	15	37	34	32	31
961:	21	20	36	53	37	30	33	50
969:	55	28	25	29	28	21	30	32
977:	14	28	27	21	33	28	22	31
985:	20	31	30	23	15	32	26	18
993:	22	21	21	39	25	29	44	45
1001:	58	45	28	20	28	26	28	30
1009:	22	19	21	22	25	18	32	23
1017:	19	17	22	31	21	27	22	26
1025:	29	27	26	17	21	21	15	20
1033:	21	22	19	18	29	16	17	19
1041:	24	18	22	20	26	27	27	22
1049:	27	27	37	39	27	22	23	17
1057:	32	35	22	21	22	22	24	22
1065:	20	22	20	19	31	26	22	23
1073:	28	24	19	26	16	33	23	22
1081:	20	22	28	17	20	22	16	15
1089:	25	16	25	16	26	21	21	18
1097:	19	23	12	25	19	22	26	23
1105:	22	18	19	19	30	30	32	19
1113:	17	26	24	30	33	108	343	579
1121:	284	47	19	25	24	17	13	18
1129:	23	24	18	20	40	23	15	18
1137:	20	16	16	18	16	18	19	17
1145:	22	19	12	18	18	22	13	29
1153:	32	73	87	46	19	19	22	22
1161:	18	17	19	16	21	22	16	15
1169:	22	21	22	21	16	17	18	25
1177:	18	25	15	25	26	21	13	20
1185:	19	18	20	10	16	24	21	19
1193:	20	18	20	17	19	22	19	14
1201:	17	17	11	22	25	23	39	26
1209:	19	15	24	23	15	18	25	16
1217:	21	19	29	21	24	22	27	18
1225:	17	15	18	19	15	17	21	21

1233:	20	16	23	55	150	205	90	22

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Channel								
1241:	17	14	27	16	20	17	15	15
1249:	15	14	29	29	30	21	21	12
1257:	19	15	15	12	14	15	14	12
1265:	24	12	12	21	19	34	16	18
1273:	11	14	15	12	11	20	26	47
1281:	56	38	21	17	16	28	17	18
1289:	9	9	16	17	10	14	15	13
1297:	19	13	12	13	13	26	23	21
1305:	14	14	15	11	8	23	13	15
1313:	18	16	16	22	16	16	14	9
1321:	11	12	18	17	13	17	14	14
1329:	18	13	13	23	9	10	8	17
1337:	21	12	13	13	9	12	14	10
1345:	17	10	14	12	14	14	18	10
1353:	15	11	17	10	19	6	16	17
1361:	17	5	17	11	14	11	14	18
1369:	22	18	15	13	17	24	28	82
1377:	125	111	40	18	13	15	20	18
1385:	36	29	19	15	11	15	21	14
1393:	14	18	21	13	7	10	16	28
1401:	50	38	17	11	18	37	72	66
1409:	35	11	14	13	12	13	23	16
1417:	14	13	17	12	9	12	15	15
1425:	9	13	10	20	18	14	16	12
1433:	7	15	11	18	17	14	20	9
1441:	15	19	12	15	12	11	9	20
1449:	19	13	19	12	15	24	9	17
1457:	22	35	87	210	157	53	19	12
1465:	9	19	13	12	11	10	6	8
1473:	19	11	12	16	19	12	17	17
1481:	13	9	15	10	16	14	9	19
1489:	15	20	12	6	18	4	5	22
1497:	6	18	13	16	20	15	20	10
1505:	15	23	42	53	55	39	19	13
1513:	16	12	11	18	18	12	20	14
1521:	17	9	13	13	18	16	14	13
1529:	12	12	8	17	17	13	17	21
1537:	16	29	22	16	20	27	17	11
1545:	13	11	11	14	13	13	11	10
1553:	12	12	7	7	9	14	6	7
1561:	12	8	10	8	9	4	14	13
1569:	8	4	6	4	5	6	7	9
1577:	8	14	5	18	12	24	22	16
1585:	8	13	12	10	6	12	8	9
1593:	12	13	14	10	10	15	13	6
1601:	9	13	9	5	10	9	17	10
1609:	11	12	12	6	12	9	11	10
1617:	12	9	5	8	11	8	8	2
1625:	12	7	9	13	6	15	10	10
1633:	7	8	9	5	7	3	6	9
1641:	7	3	4	6	6	6	2	12
1649:	5	3	5	6	8	2	6	12
1657:	3	7	16	29	28	12	5	4

1665:	3	6	6	4	3	5	4	6

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Channel								
1673:	3	7	3	4	6	3	8	4
1681:	3	5	10	15	8	1	6	5
1689:	10	5	7	12	10	2	9	2
1697:	4	8	4	3	10	10	3	6
1705:	4	11	5	4	3	7	2	6
1713:	4	7	4	1	5	4	3	7
1721:	5	6	3	3	7	12	26	48
1729:	87	41	14	7	4	3	4	5
1737:	5	6	2	3	6	2	4	4
1745:	3	3	3	3	5	3	5	3
1753:	5	6	10	3	9	7	11	13
1761:	50	105	233	328	225	40	13	2
1769:	2	2	3	5	2	4	0	2
1777:	1	4	4	4	9	4	3	1
1785:	3	6	3	1	3	2	4	3
1793:	3	4	2	4	2	5	3	6
1801:	6	5	3	0	3	1	7	3
1809:	3	2	2	2	4	6	3	5
1817:	4	0	2	4	4	7	4	1
1825:	3	0	1	4	2	5	2	5
1833:	6	4	4	5	6	6	6	2
1841:	8	3	3	7	19	36	51	33
1849:	10	1	2	3	7	4	3	2
1857:	6	2	3	2	2	5	2	2
1865:	6	2	6	3	2	3	2	10
1873:	9	2	0	4	3	1	6	4
1881:	5	5	7	5	4	1	6	5
1889:	9	4	9	2	3	3	7	9
1897:	3	4	3	5	2	2	2	4
1905:	5	6	1	3	3	4	4	2
1913:	4	1	3	2	4	3	2	5
1921:	3	2	3	2	4	1	5	6
1929:	0	3	3	5	4	5	8	7
1937:	8	5	2	3	2	4	3	4
1945:	1	4	6	3	2	5	8	4
1953:	6	6	3	3	4	1	3	6
1961:	5	5	5	5	11	2	4	8
1969:	5	5	1	3	3	2	7	1
1977:	0	4	4	2	6	3	2	3
1985:	3	3	2	0	1	1	0	2
1993:	2	4	3	5	3	2	3	1
2001:	1	7	3	1	0	4	1	6
2009:	3	7	2	4	5	0	2	2
2017:	5	3	4	4	3	7	2	6
2025:	2	5	1	3	4	2	2	2
2033:	3	3	3	1	2	2	1	1
2041:	3	0	4	3	0	2	1	1
2049:	1	0	3	1	3	2	2	1
2057:	2	2	1	1	1	2	1	3
2065:	1	1	3	1	3	3	3	2
2073:	0	1	3	2	2	0	0	1
2081:	4	3	3	3	3	4	2	2
2089:	3	4	0	2	1	1	3	0

2097:	2	2	3	3	3	2	4	3

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Channel								
2105:	2	3	0	5	1	0	2	3
2113:	1	4	7	16	16	25	12	5
2121:	3	3	1	5	1	1	0	1
2129:	1	2	2	1	1	1	4	1
2137:	1	1	1	1	3	4	2	0
2145:	2	2	1	1	1	2	0	2
2153:	3	0	4	0	1	2	0	1
2161:	2	0	2	1	2	2	1	1
2169:	1	1	3	2	1	1	1	0
2177:	1	3	2	2	0	0	2	0
2185:	2	4	1	0	1	2	4	1
2193:	3	2	0	5	0	3	3	9
2201:	23	47	83	75	28	6	2	0
2209:	0	4	4	4	2	1	1	1
2217:	1	1	4	0	1	1	1	3
2225:	2	1	0	1	1	1	1	1
2233:	1	2	3	0	0	2	1	1
2241:	1	0	0	0	0	0	1	1
2249:	3	3	0	2	2	0	1	1
2257:	3	5	0	3	0	2	1	3
2265:	2	0	0	1	1	1	0	2
2273:	3	2	0	1	2	0	2	1
2281:	0	1	0	0	0	2	0	2
2289:	2	1	2	8	3	3	1	1
2297:	0	3	3	1	0	0	1	4
2305:	2	2	1	0	3	1	1	2
2313:	2	0	1	1	1	1	1	2
2321:	1	2	1	1	0	1	1	0
2329:	0	0	3	3	1	0	3	1
2337:	0	0	1	2	0	1	0	1
2345:	1	0	1	0	2	1	1	1
2353:	1	1	1	1	2	1	1	3
2361:	1	2	1	2	0	0	1	2
2369:	0	1	0	1	1	2	1	0
2377:	1	0	1	0	0	0	1	1
2385:	1	0	1	0	2	1	1	2
2393:	1	0	3	0	0	2	1	1
2401:	0	1	1	0	0	0	0	1
2409:	0	1	1	2	2	2	0	0
2417:	0	1	0	0	1	2	0	0
2425:	0	3	1	0	1	0	0	0
2433:	2	1	1	1	1	1	1	1
2441:	1	0	2	5	13	10	37	11
2449:	3	1	1	0	0	2	0	1
2457:	0	1	1	0	0	0	1	1
2465:	0	0	0	0	1	0	1	0
2473:	1	0	0	1	0	1	2	2
2481:	0	1	0	0	0	0	2	1
2489:	0	0	1	0	0	0	1	0
2497:	3	1	0	0	0	0	0	0
2505:	0	1	0	1	0	0	0	1
2513:	1	0	1	0	0	0	1	0
2521:	1	0	0	2	0	0	1	1

2529:	0	1	0	1	0	0	0	0

Sample Title: HTC-A04-S002-4248-01

Channel								
2537:	0	1	0	0	0	3	1	0
2545:	0	1	1	0	0	0	1	0
2553:	0	0	0	1	0	0	0	0
2561:	0	0	0	0	0	1	0	0
2569:	0	0	1	0	1	1	1	0
2577:	0	0	1	0	0	0	0	0
2585:	0	1	0	0	0	0	2	1
2593:	0	0	0	0	1	0	1	0
2601:	0	0	0	1	0	0	1	1
2609:	5	3	2	5	19	14	5	2
2617:	0	1	1	0	0	0	0	1
2625:	0	1	0	1	0	1	0	0
2633:	1	1	0	0	0	1	1	0
2641:	0	1	1	0	0	0	1	1
2649:	0	0	0	0	0	1	0	0
2657:	1	0	0	1	0	0	0	0
2665:	0	0	1	0	0	1	0	1
2673:	0	0	0	0	1	0	0	0
2681:	1	0	0	0	0	0	0	0
2689:	0	1	0	1	0	1	1	0
2697:	0	0	0	0	1	0	0	0
2705:	0	1	0	0	0	0	0	0
2713:	0	0	0	0	0	0	1	0
2721:	0	1	1	0	2	0	0	0
2729:	0	0	1	0	0	0	0	0
2737:	0	0	1	0	0	1	0	0
2745:	0	1	0	0	0	1	0	0
2753:	0	0	0	0	0	0	0	0
2761:	0	1	1	0	1	1	0	1
2769:	0	0	0	0	0	1	0	0
2777:	0	0	1	0	0	1	0	0
2785:	0	1	0	0	0	1	0	0
2793:	0	0	0	0	0	1	1	0
2801:	0	0	0	0	0	0	0	0
2809:	0	0	0	0	0	0	1	0
2817:	0	0	0	0	0	0	0	0
2825:	1	0	0	1	0	1	0	0
2833:	1	0	0	0	0	2	0	0
2841:	0	0	1	0	0	0	0	0
2849:	1	0	0	1	0	0	1	0
2857:	2	0	1	0	0	0	0	0
2865:	0	0	0	0	0	1	0	0
2873:	1	0	1	1	0	0	0	0
2881:	0	0	0	0	0	1	0	1
2889:	1	0	0	1	0	0	0	0
2897:	1	0	0	0	1	1	0	0
2905:	0	0	1	0	2	1	0	0
2913:	0	0	0	0	0	0	0	0
2921:	0	1	0	0	1	0	0	0
2929:	0	0	1	0	1	0	0	1
2937:	0	0	0	0	0	0	0	0
2945:	1	0	0	0	1	0	0	0
2953:	1	0	1	0	0	1	0	0

2961:	0	0	0	0	0	1	0	0

Sample Title: HTC-A04-S002-4248-01

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

3393:	1	0	1	0	0	0	0	0

Sample Title: HTC-A04-S002-4248-01

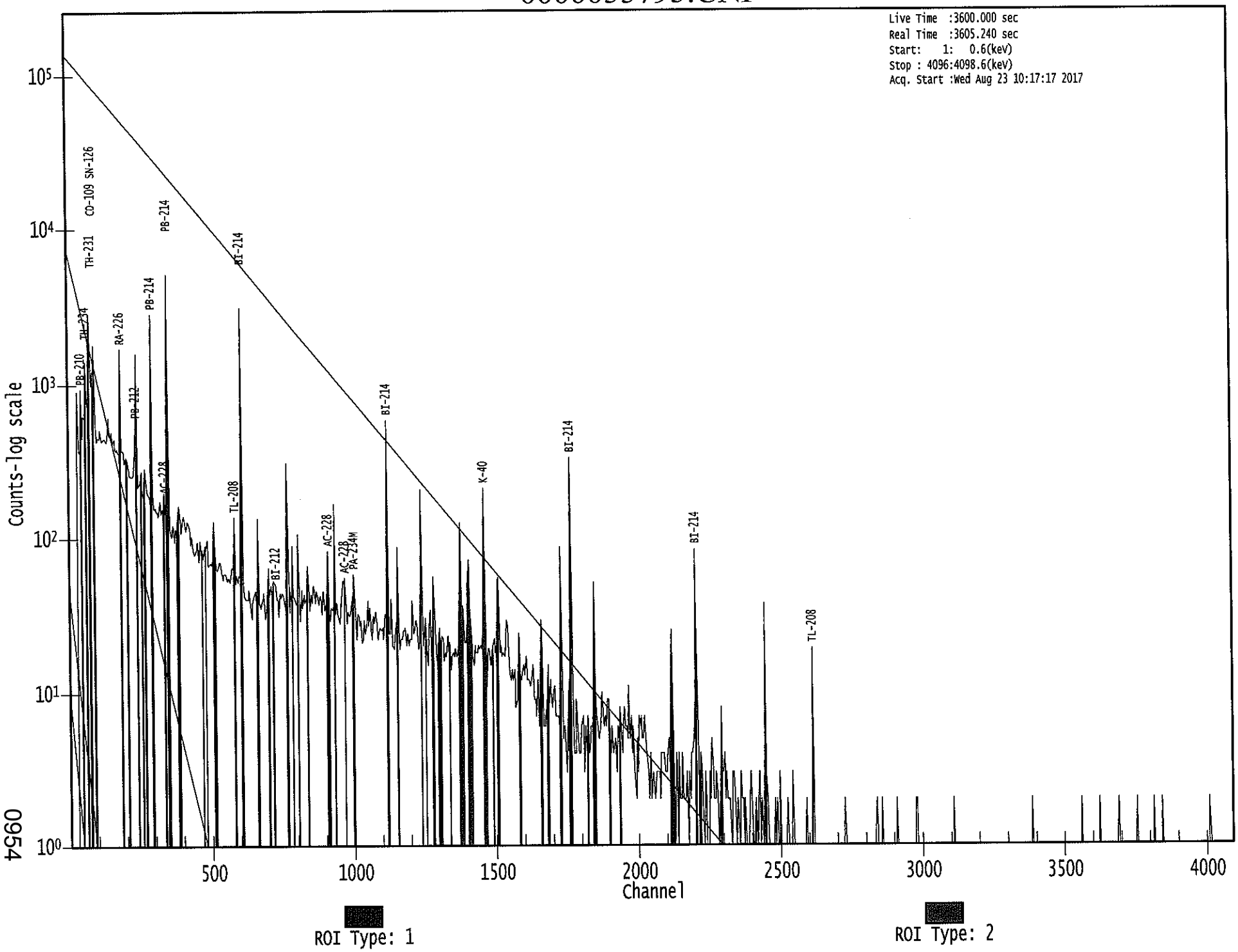
Channel								
3401:	0	0	0	0	1	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	0	1	0
3441:	0	0	0	0	0	0	0	0
3449:	0	1	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	1	0	0	0	1	0	1
3481:	0	0	1	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	1	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A04-S002-4248-01

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

0000055795.CNF



0954

KB 8/23/17

Apex-Gamma

Analysis Report for 1707089-16

HTC-A06-S001-0006-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707089-16
Sample Description	: HTC-A06-S001-0006-01
Sample Type	: SOIL
Sample Size	: 7.311E+02 grams
Facility	: Countroom
Sample Taken On	: 5/16/2017 7:19:31AM
Acquisition Started	: 8/23/2017 10:17:34AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3628.6 seconds
Dead Time	: 0.79 %
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	: 55796

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/23/17

Analysis Report for 1707089-16

HTC-A06-S001-0006-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/23/2017 11:19:17AM
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	46.55	46.86	0.0000	0.00
2	53.28	53.59	0.0000	0.00
3	63.40	63.70	0.0000	0.00
4	76.51	76.81	0.0000	0.00
5	84.33	84.63	0.0000	0.00
6	87.63	87.93	0.0000	0.00
7	92.72	93.01	0.0000	0.00
8	113.03	113.32	0.0000	0.00
9	144.48	144.76	0.0000	0.00
10	154.14	154.42	0.0000	0.00
11	163.64	163.91	0.0000	0.00
12	182.35	182.61	0.0000	0.00
13	186.23	186.49	0.0000	0.00
14	236.10	236.35	0.0000	0.00
15	238.90	239.15	0.0000	0.00
16	242.18	242.43	0.0000	0.00
17	257.79	258.03	0.0000	0.00
18	269.85	270.09	0.0000	0.00
19	275.32	275.55	0.0000	0.00
20	295.41	295.64	0.0000	0.00
21	323.58	323.79	0.0000	0.00
22	329.74	329.96	0.0000	0.00
23	339.13	339.34	0.0000	0.00
24	352.06	352.27	0.0000	0.00
25	389.03	389.23	0.0000	0.00
26	403.37	403.56	0.0000	0.00
27	455.48	455.65	0.0000	0.00
28	461.98	462.15	0.0000	0.00
29	480.23	480.39	0.0000	0.00
30	486.64	486.80	0.0000	0.00
31	510.88	511.03	0.0000	0.00
32	533.91	534.06	0.0000	0.00
33	609.36	609.48	0.0000	0.00
34	665.45	665.55	0.0000	0.00
35	703.44	703.53	0.0000	0.00
36	742.71	742.79	0.0000	0.00
37	768.18	768.24	0.0000	0.00
38	782.79	782.86	0.0000	0.00
39	786.00	786.06	0.0000	0.00
40	803.34	803.39	0.0000	0.00
41	806.21	806.26	0.0000	0.00
42	821.45	821.50	0.0000	0.00

Analysis Report for 1707089-16

HTC-A06-S001-0006-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	826.57	826.62	0.0000	0.00
44	836.35	836.39	0.0000	0.00
45	839.22	839.26	0.0000	0.00
46	934.00	934.02	0.0000	0.00
47	1001.06	1001.05	0.0000	0.00
48	1120.14	1120.09	0.0000	0.00
49	1155.10	1155.03	0.0000	0.00
50	1207.83	1207.75	0.0000	0.00
51	1237.92	1237.83	0.0000	0.00
52	1245.87	1245.77	0.0000	0.00
53	1252.34	1252.25	0.0000	0.00
54	1265.12	1265.02	0.0000	0.00
55	1280.64	1280.53	0.0000	0.00
56	1295.82	1295.71	0.0000	0.00
57	1302.88	1302.77	0.0000	0.00
58	1377.56	1377.43	0.0000	0.00
59	1385.00	1384.86	0.0000	0.00
60	1401.31	1401.16	0.0000	0.00
61	1407.79	1407.64	0.0000	0.00
62	1460.18	1460.02	0.0000	0.00
63	1492.04	1491.86	0.0000	0.00
64	1508.92	1508.74	0.0000	0.00
65	1524.35	1524.16	0.0000	0.00
66	1543.89	1543.70	0.0000	0.00
67	1554.73	1554.53	0.0000	0.00
68	1562.03	1561.83	0.0000	0.00
69	1581.54	1581.33	0.0000	0.00
70	1661.52	1661.28	0.0000	0.00
71	1692.22	1691.98	0.0000	0.00
72	1729.26	1729.00	0.0000	0.00
73	1764.19	1763.92	0.0000	0.00
74	1834.54	1834.25	0.0000	0.00
75	1838.05	1837.75	0.0000	0.00
76	1847.22	1846.92	0.0000	0.00
77	1891.38	1891.06	0.0000	0.00
78	2118.21	2117.82	0.0000	0.00
79	2171.65	2171.24	0.0000	0.00
80	2185.18	2184.77	0.0000	0.00
81	2203.60	2203.18	0.0000	0.00
82	2267.98	2267.54	0.0000	0.00
83	2292.28	2291.83	0.0000	0.00
84	2447.18	2446.68	0.0000	0.00
85	2600.55	2600.00	0.0000	0.00
86	2613.84	2613.29	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707089-16

HTC-A06-S001-0006-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/23/2017 11:19:17AM

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	46.55	44 -	49	46.86	1.63E+03	261.31	1.24E+04	1.65
	2	53.28	51 -	56	53.59	4.33E+02	274.49	1.48E+04	1.86
	3	63.40	61 -	66	63.70	2.70E+03	341.62	2.13E+04	1.91
	4	76.51	71 -	82	76.81	1.71E+04	658.05	4.55E+04	3.82
M	5	84.33	83 -	97	84.63	1.10E+03	197.52	1.08E+04	2.45
m	6	87.63	83 -	97	87.93	3.46E+03	379.25	2.36E+04	2.46
m	7	92.72	83 -	97	93.01	5.20E+03	382.81	2.09E+04	2.48
	8	113.03	111 -	116	113.32	4.00E+02	273.31	1.46E+04	2.07
	9	144.48	142 -	148	144.76	8.87E+02	307.03	1.65E+04	2.50
	10	154.14	151 -	157	154.42	4.62E+02	304.22	1.65E+04	3.86
	11	163.64	162 -	166	163.91	2.17E+02	225.13	1.10E+04	1.88
M	12	182.35	181 -	191	182.61	1.85E+02	141.88	5.68E+03	1.66
m	13	186.23	181 -	191	186.49	5.83E+03	282.66	1.13E+04	2.10
M	14	236.10	231 -	247	236.35	5.11E+02	223.39	8.68E+03	2.26
m	15	238.90	231 -	247	239.15	5.63E+02	205.21	7.27E+03	2.06
m	16	242.18	231 -	247	242.43	5.42E+03	241.78	6.91E+03	1.99
	17	257.79	254 -	261	258.03	5.21E+02	228.99	8.39E+03	3.61
	18	269.85	267 -	274	270.09	4.63E+02	226.14	8.27E+03	2.77
	19	275.32	274 -	278	275.55	1.53E+02	152.43	4.99E+03	2.04
	20	295.41	292 -	299	295.64	1.10E+04	293.88	7.04E+03	2.10
	21	323.58	321 -	327	323.79	1.65E+02	159.91	4.52E+03	2.83
	22	329.74	328 -	333	329.96	1.45E+02	144.24	4.06E+03	1.92
	23	339.13	337 -	342	339.34	1.56E+02	146.70	4.16E+03	3.50
	24	352.06	346 -	357	352.27	1.86E+04	366.25	7.45E+03	2.14
	25	389.03	386 -	393	389.23	2.63E+02	163.39	4.26E+03	1.98
	26	403.37	399 -	407	403.56	2.18E+02	181.67	4.96E+03	4.97
	27	455.48	453 -	459	455.65	1.02E+02	120.48	2.56E+03	2.43
	28	461.98	459 -	465	462.15	1.76E+02	116.83	2.35E+03	4.30
	29	480.23	478 -	483	480.39	1.43E+02	102.59	1.99E+03	2.40
	30	486.64	484 -	490	486.80	1.58E+02	113.81	2.23E+03	1.78
	31	510.88	507 -	515	511.03	3.97E+02	129.48	2.32E+03	3.50
	32	533.91	531 -	537	534.06	1.12E+02	104.54	1.90E+03	2.06
	33	609.36	603 -	614	609.48	1.30E+04	269.27	2.58E+03	2.27
	34	665.45	662 -	669	665.55	3.00E+02	99.72	1.46E+03	2.08
	35	703.44	701 -	708	703.53	1.33E+02	92.02	1.32E+03	2.58
	36	742.71	739 -	747	742.79	1.65E+02	96.43	1.32E+03	4.54
	37	768.18	762 -	774	768.24	1.32E+03	141.36	1.73E+03	2.58
M	38	782.79	780 -	790	782.86	8.65E+01	59.64	6.95E+02	2.26
m	39	786.00	780 -	790	786.06	2.80E+02	83.93	1.04E+03	2.26
M	40	803.34	802 -	810	803.39	3.94E+01	40.39	4.26E+02	1.67

Analysis Report for 1707089-16

HTC-A06-S001-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
m	41	806.21	802 -	810	806.26	2.67E+02	74.79	8.79E+02	2.12
	42	821.45	819 -	824	821.50	5.90E+01	69.04	9.06E+02	2.38
	43	826.57	825 -	829	826.62	5.04E+01	59.05	7.27E+02	1.89
M	44	836.35	835 -	843	836.39	7.10E+01	40.36	3.89E+02	1.68
m	45	839.22	835 -	843	839.26	1.88E+02	86.81	1.08E+03	2.52
	46	934.00	930 -	938	934.02	6.05E+02	102.55	1.24E+03	2.41
	47	1001.06	997 -	1005	1001.05	1.15E+02	89.17	1.15E+03	1.75
	48	1120.14	1114 -	1125	1120.09	2.50E+03	137.45	1.11E+03	2.33
	49	1155.10	1151 -	1161	1155.03	2.72E+02	91.89	9.85E+02	2.47
	50	1207.83	1202 -	1213	1207.75	1.54E+02	86.16	8.48E+02	3.25
M	51	1237.92	1232 -	1248	1237.83	9.88E+02	78.92	3.77E+02	2.48
m	52	1245.87	1232 -	1248	1245.77	5.77E+01	48.82	4.39E+02	2.48
	53	1252.34	1249 -	1256	1252.25	7.02E+01	62.64	6.14E+02	1.74
	54	1265.12	1261 -	1268	1265.02	5.93E+01	55.46	4.67E+02	2.00
	55	1280.64	1274 -	1285	1280.53	1.91E+02	90.86	9.37E+02	2.93
	56	1295.82	1293 -	1299	1295.71	5.47E+01	45.96	3.41E+02	4.36
	57	1302.88	1300 -	1306	1302.77	6.15E+01	47.35	3.67E+02	1.45
	58	1377.56	1374 -	1381	1377.43	6.63E+02	77.82	5.67E+02	2.60
	59	1385.00	1382 -	1388	1384.86	9.62E+01	54.57	4.70E+02	1.97
M	60	1401.31	1397 -	1412	1401.16	2.14E+02	60.79	4.61E+02	2.80
m	61	1407.79	1397 -	1412	1407.64	3.46E+02	65.82	4.71E+02	2.81
	62	1460.18	1456 -	1463	1460.02	1.34E+02	59.90	5.10E+02	2.15
	63	1492.04	1488 -	1495	1491.86	5.37E+01	55.39	4.75E+02	4.02
	64	1508.92	1504 -	1513	1508.74	3.20E+02	78.85	7.05E+02	2.52
	65	1524.35	1521 -	1527	1524.16	5.40E+01	48.16	3.84E+02	4.11
	66	1543.89	1541 -	1548	1543.70	7.33E+01	56.50	4.73E+02	2.90
	67	1554.73	1552 -	1557	1554.53	4.24E+01	36.06	2.23E+02	3.63
	68	1562.03	1558 -	1568	1561.83	5.71E+01	58.09	4.24E+02	3.00
	69	1581.54	1576 -	1586	1581.33	1.09E+02	67.25	5.47E+02	2.23
	70	1661.52	1657 -	1666	1661.28	1.20E+02	48.18	2.58E+02	2.20
	71	1692.22	1688 -	1695	1691.98	3.47E+01	32.31	1.49E+02	2.97
	72	1729.26	1723 -	1734	1729.00	4.35E+02	60.10	2.34E+02	2.60
	73	1764.19	1757 -	1770	1763.92	1.98E+03	103.07	2.99E+02	2.74
M	74	1834.54	1831 -	1851	1834.25	1.66E+01	22.89	9.08E+01	2.72
m	75	1838.05	1831 -	1851	1837.75	5.00E+01	31.05	1.23E+02	2.72
m	76	1847.22	1831 -	1851	1846.92	2.65E+02	42.43	1.31E+02	2.72
	77	1891.38	1889 -	1893	1891.06	1.61E+01	18.83	6.37E+01	2.69
	78	2118.21	2114 -	2123	2117.82	1.44E+02	27.37	2.38E+01	2.45
	79	2171.65	2167 -	2175	2171.24	1.42E+01	16.05	2.96E+01	1.69
	80	2185.18	2176 -	2193	2184.77	3.80E+01	27.31	5.40E+01	14.64
	81	2203.60	2196 -	2209	2203.18	5.34E+02	53.17	7.58E+01	2.56
	82	2267.98	2264 -	2271	2267.54	1.06E+01	12.49	1.68E+01	1.23
	83	2292.28	2287 -	2296	2291.83	2.64E+01	20.52	4.53E+01	1.71
	84	2447.18	2441 -	2450	2446.68	1.16E+02	23.19	1.12E+01	3.08
	85	2600.55	2594 -	2605	2600.00	1.20E+01	6.93	0.00E+00	1.96
	86	2613.84	2609 -	2617	2613.29	3.71E+01	15.39	1.37E+01	3.72

Analysis Report for 1707089-16

HTC-A06-S001-0006-01

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/23/2017 11:19:17AM

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	46.55	44 -	49	1.63E+03	261.31	1.24E+04	2.04E+02
	2	53.28	51 -	56	4.33E+02	274.49	1.48E+04	2.23E+02
	3	63.40	61 -	66	2.70E+03	341.62	2.13E+04	2.67E+02
	4	76.51	71 -	82	1.71E+04	658.05	4.55E+04	4.96E+02
M	5	84.33	83 -	97	1.10E+03	197.52	1.08E+04	1.71E+02
m	6	87.63	83 -	97	3.46E+03	379.25	2.36E+04	2.52E+02
m	7	92.72	83 -	97	5.20E+03	382.81	2.09E+04	2.38E+02
	8	113.03	111 -	116	4.00E+02	273.31	1.46E+04	2.22E+02
	9	144.48	142 -	148	8.87E+02	307.03	1.65E+04	2.48E+02
	10	154.14	151 -	157	4.62E+02	304.22	1.65E+04	2.48E+02
	11	163.64	162 -	166	2.17E+02	225.13	1.10E+04	1.83E+02
M	12	182.35	181 -	191	1.85E+02	141.88	5.68E+03	1.24E+02
m	13	186.23	181 -	191	5.83E+03	282.66	1.13E+04	1.75E+02
M	14	236.10	231 -	247	5.11E+02	223.39	8.68E+03	1.53E+02
m	15	238.90	231 -	247	5.63E+02	205.21	7.27E+03	1.40E+02
m	16	242.18	231 -	247	5.42E+03	241.78	6.91E+03	1.37E+02
	17	257.79	254 -	261	5.21E+02	228.99	8.39E+03	1.84E+02
	18	269.85	267 -	274	4.63E+02	226.14	8.27E+03	1.82E+02
	19	275.32	274 -	278	1.53E+02	152.43	4.99E+03	1.24E+02
	20	295.41	292 -	299	1.10E+04	293.88	7.04E+03	1.69E+02
	21	323.58	321 -	327	1.65E+02	159.91	4.52E+03	1.30E+02
	22	329.74	328 -	333	1.45E+02	144.24	4.06E+03	1.17E+02
	23	339.13	337 -	342	1.56E+02	146.70	4.16E+03	1.19E+02
	24	352.06	346 -	357	1.86E+04	366.25	7.45E+03	2.01E+02
	25	389.03	386 -	393	2.63E+02	163.39	4.26E+03	1.32E+02
	26	403.37	399 -	407	2.18E+02	181.67	4.96E+03	1.47E+02
	27	455.48	453 -	459	1.02E+02	120.48	2.56E+03	9.76E+01
	28	461.98	459 -	465	1.76E+02	116.83	2.35E+03	9.35E+01
	29	480.23	478 -	483	1.43E+02	102.59	1.99E+03	8.20E+01
	30	486.64	484 -	490	1.58E+02	113.81	2.23E+03	9.12E+01
	31	510.88	507 -	515	3.97E+02	129.48	2.32E+03	1.01E+02

Analysis Report for 1707089-16

HTC-A06-S001-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	32	533.91	531 -	537	1.12E+02	104.54	1.90E+03	8.42E+01
	33	609.36	603 -	614	1.30E+04	269.27	2.58E+03	1.18E+02
	34	665.45	662 -	669	3.00E+02	99.72	1.46E+03	7.69E+01
	35	703.44	701 -	708	1.33E+02	92.02	1.32E+03	7.32E+01
	36	742.71	739 -	747	1.65E+02	96.43	1.32E+03	7.64E+01
	37	768.18	762 -	774	1.32E+03	141.36	1.73E+03	9.96E+01
M	38	782.79	780 -	790	8.65E+01	59.64	6.95E+02	4.33E+01
m	39	786.00	780 -	790	2.80E+02	83.93	1.04E+03	5.31E+01
M	40	803.34	802 -	810	3.94E+01	40.39	4.26E+02	3.39E+01
m	41	806.21	802 -	810	2.67E+02	74.79	8.79E+02	4.87E+01
	42	821.45	819 -	824	5.90E+01	69.04	9.06E+02	5.53E+01
	43	826.57	825 -	829	5.04E+01	59.05	7.27E+02	4.71E+01
M	44	836.35	835 -	843	7.10E+01	40.36	3.89E+02	3.24E+01
m	45	839.22	835 -	843	1.88E+02	86.81	1.08E+03	5.39E+01
	46	934.00	930 -	938	6.05E+02	102.55	1.24E+03	7.40E+01
	47	1001.06	997 -	1005	1.15E+02	89.17	1.15E+03	7.11E+01
	48	1120.14	1114 -	1125	2.50E+03	137.45	1.11E+03	7.75E+01
	49	1155.10	1151 -	1161	2.72E+02	91.89	9.85E+02	7.05E+01
	50	1207.83	1202 -	1213	1.54E+02	86.16	8.48E+02	6.78E+01
M	51	1237.92	1232 -	1248	9.88E+02	78.92	3.77E+02	3.19E+01
m	52	1245.87	1232 -	1248	5.77E+01	48.82	4.39E+02	3.45E+01
	53	1252.34	1249 -	1256	7.02E+01	62.64	6.14E+02	4.96E+01
	54	1265.12	1261 -	1268	5.93E+01	55.46	4.67E+02	4.38E+01
	55	1280.64	1274 -	1285	1.91E+02	90.86	9.37E+02	7.11E+01
	56	1295.82	1293 -	1299	5.47E+01	45.96	3.41E+02	3.58E+01
	57	1302.88	1300 -	1306	6.15E+01	47.35	3.67E+02	3.67E+01
	58	1377.56	1374 -	1381	6.63E+02	77.82	5.67E+02	4.80E+01
	59	1385.00	1382 -	1388	9.62E+01	54.57	4.70E+02	4.19E+01
M	60	1401.31	1397 -	1412	2.14E+02	60.79	4.61E+02	3.53E+01
m	61	1407.79	1397 -	1412	3.46E+02	65.82	4.71E+02	3.57E+01
	62	1460.18	1456 -	1463	1.34E+02	59.90	5.10E+02	4.54E+01
	63	1492.04	1488 -	1495	5.37E+01	55.39	4.75E+02	4.39E+01
	64	1508.92	1504 -	1513	3.20E+02	78.85	7.05E+02	5.78E+01
	65	1524.35	1521 -	1527	5.40E+01	48.16	3.84E+02	3.77E+01
	66	1543.89	1541 -	1548	7.33E+01	56.50	4.73E+02	4.43E+01
	67	1554.73	1552 -	1557	4.24E+01	36.06	2.23E+02	2.76E+01
	68	1562.03	1558 -	1568	5.71E+01	58.09	4.24E+02	4.61E+01
	69	1581.54	1576 -	1586	1.09E+02	67.25	5.47E+02	5.26E+01
	70	1661.52	1657 -	1666	1.20E+02	48.18	2.58E+02	3.53E+01
	71	1692.22	1688 -	1695	3.47E+01	32.31	1.49E+02	2.47E+01
	72	1729.26	1723 -	1734	4.35E+02	60.10	2.34E+02	3.56E+01
	73	1764.19	1757 -	1770	1.98E+03	103.07	2.99E+02	4.28E+01
M	74	1834.54	1831 -	1851	1.66E+01	22.89	9.08E+01	1.57E+01
m	75	1838.05	1831 -	1851	5.00E+01	31.05	1.23E+02	1.82E+01
m	76	1847.22	1831 -	1851	2.65E+02	42.43	1.31E+02	1.88E+01
	77	1891.38	1889 -	1893	1.61E+01	18.83	6.37E+01	1.40E+01
	78	2118.21	2114 -	2123	1.44E+02	27.37	2.38E+01	1.08E+01
	79	2171.65	2167 -	2175	1.42E+01	16.05	2.96E+01	1.17E+01
	80	2185.18	2176 -	2193	3.80E+01	27.31	5.40E+01	2.00E+01
	81	2203.60	2196 -	2209	5.34E+02	53.17	7.58E+01	2.16E+01
	82	2267.98	2264 -	2271	1.06E+01	12.49	1.68E+01	8.76E+00

Analysis Report for 1707089-16

HTC-A06-S001-0006-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
83	2292.28	2287 -	2296	2.64E+01	20.52	4.53E+01	1.46E+01
84	2447.18	2441 -	2450	1.16E+02	23.19	1.12E+01	6.99E+00
85	2600.55	2594 -	2605	1.20E+01	6.93	0.00E+00	0.00E+00
86	2613.84	2609 -	2617	3.71E+01	15.39	1.37E+01	7.72E+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 : 8/23/2017 11:19:17AM

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	46.55	44 -	49	46.86	1.63E+03	261.31	1.24E+04	PB-210
	2	53.28	51 -	56	53.59	4.33E+02	274.49	1.48E+04	.....
	3	63.40	61 -	66	63.70	2.70E+03	341.62	2.13E+04	TH-234
									TH-230
	4	76.51	71 -	82	76.81	1.71E+04	658.05	4.55E+04	.....
M	5	84.33	83 -	97	84.63	1.10E+03	197.52	1.08E+04	TH-231
m	6	87.63	83 -	97	87.93	3.46E+03	379.25	2.36E+04	SN-126
									CD-109
									LU-176
m	7	92.72	83 -	97	93.01	5.20E+03	382.81	2.09E+04	GA-67
	8	113.03	111 -	116	113.32	4.00E+02	273.31	1.46E+04	.....
	9	144.48	142 -	148	144.76	8.87E+02	307.03	1.65E+04	U-235
									CE-141
	10	154.14	151 -	157	154.42	4.62E+02	304.22	1.65E+04	CS-136
	11	163.64	162 -	166	163.91	2.17E+02	225.13	1.10E+04	CS-136
									U-235
M	12	182.35	181 -	191	182.61	1.85E+02	141.88	5.68E+03	LU-172
m	13	186.23	181 -	191	186.49	5.83E+03	282.66	1.13E+04	RA-226
M	14	236.10	231 -	247	236.35	5.11E+02	223.39	8.68E+03	TH-227
									NB-95M
m	15	238.90	231 -	247	239.15	5.63E+02	205.21	7.27E+03	PB-212
m	16	242.18	231 -	247	242.43	5.42E+03	241.78	6.91E+03	.....

Analysis Report for 1707089-16

HTC-A06-S001-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	17	257.79	254 -	261	258.03	5.21E+02	228.99	8.39E+03	.....
	18	269.85	267 -	274	270.09	4.63E+02	226.14	8.27E+03	.....
	19	275.32	274 -	278	275.55	1.53E+02	152.43	4.99E+03	.....
	20	295.41	292 -	299	295.64	1.10E+04	293.88	7.04E+03	PB-214
	21	323.58	321 -	327	323.79	1.65E+02	159.91	4.52E+03	RA-223
	22	329.74	328 -	333	329.96	1.45E+02	144.24	4.06E+03	LA-140
	23	339.13	337 -	342	339.34	1.56E+02	146.70	4.16E+03	AC-228
	24	352.06	346 -	357	352.27	1.86E+04	366.25	7.45E+03	PB-214
	25	389.03	386 -	393	389.23	2.63E+02	163.39	4.26E+03	.....
	26	403.37	399 -	407	403.56	2.18E+02	181.67	4.96E+03	.....
	27	455.48	453 -	459	455.65	1.02E+02	120.48	2.56E+03	.....
	28	461.98	459 -	465	462.15	1.76E+02	116.83	2.35E+03	.....
	29	480.23	478 -	483	480.39	1.43E+02	102.59	1.99E+03	.....
	30	486.64	484 -	490	486.80	1.58E+02	113.81	2.23E+03	LA-140
	31	510.88	507 -	515	511.03	3.97E+02	129.48	2.32E+03	.....
	32	533.91	531 -	537	534.06	1.12E+02	104.54	1.90E+03	.....
	33	609.36	603 -	614	609.48	1.30E+04	269.27	2.58E+03	BI-214
	34	665.45	662 -	669	665.55	3.00E+02	99.72	1.46E+03	SB-126 CE-143
	35	703.44	701 -	708	703.53	1.33E+02	92.02	1.32E+03	NB-94
	36	742.71	739 -	747	742.79	1.65E+02	96.43	1.32E+03	.....
	37	768.18	762 -	774	768.24	1.32E+03	141.36	1.73E+03	.....
M	38	782.79	780 -	790	782.86	8.65E+01	59.64	6.95E+02	.....
m	39	786.00	780 -	790	786.06	2.80E+02	83.93	1.04E+03	.....
M	40	803.34	802 -	810	803.39	3.94E+01	40.39	4.26E+02	.....
m	41	806.21	802 -	810	806.26	2.67E+02	74.79	8.79E+02	.....
	42	821.45	819 -	824	821.50	5.90E+01	69.04	9.06E+02	.....
	43	826.57	825 -	829	826.62	5.04E+01	59.05	7.27E+02	.....
M	44	836.35	835 -	843	836.39	7.10E+01	40.36	3.89E+02	.....
m	45	839.22	835 -	843	839.26	1.88E+02	86.81	1.08E+03	.....
	46	934.00	930 -	938	934.02	6.05E+02	102.55	1.24E+03	.....
	47	1001.06	997 -	1005	1001.05	1.15E+02	89.17	1.15E+03	PA-234M
	48	1120.14	1114 -	1125	1120.09	2.50E+03	137.45	1.11E+03	BI-214 SC-46
	49	1155.10	1151 -	1161	1155.03	2.72E+02	91.89	9.85E+02	.....
	50	1207.83	1202 -	1213	1207.75	1.54E+02	86.16	8.48E+02	.....
M	51	1237.92	1232 -	1248	1237.83	9.88E+02	78.92	3.77E+02	CO-56
m	52	1245.87	1232 -	1248	1245.77	5.77E+01	48.82	4.39E+02	.....
	53	1252.34	1249 -	1256	1252.25	7.02E+01	62.64	6.14E+02	.....
	54	1265.12	1261 -	1268	1265.02	5.93E+01	55.46	4.67E+02	.....
	55	1280.64	1274 -	1285	1280.53	1.91E+02	90.86	9.37E+02	.....
	56	1295.82	1293 -	1299	1295.71	5.47E+01	45.96	3.41E+02	.....
	57	1302.88	1300 -	1306	1302.77	6.15E+01	47.35	3.67E+02	.....
	58	1377.56	1374 -	1381	1377.43	6.63E+02	77.82	5.67E+02	.....
	59	1385.00	1382 -	1388	1384.86	9.62E+01	54.57	4.70E+02	AG-110M
M	60	1401.31	1397 -	1412	1401.16	2.14E+02	60.79	4.61E+02	.....
m	61	1407.79	1397 -	1412	1407.64	3.46E+02	65.82	4.71E+02	EU-152
	62	1460.18	1456 -	1463	1460.02	1.34E+02	59.90	5.10E+02	K-40
	63	1492.04	1488 -	1495	1491.86	5.37E+01	55.39	4.75E+02	.....
	64	1508.92	1504 -	1513	1508.74	3.20E+02	78.85	7.05E+02	.....
	65	1524.35	1521 -	1527	1524.16	5.40E+01	48.16	3.84E+02	.....
	66	1543.89	1541 -	1548	1543.70	7.33E+01	56.50	4.73E+02	.....
	67	1554.73	1552 -	1557	1554.53	4.24E+01	36.06	2.23E+02	.....
	68	1562.03	1558 -	1568	1561.83	5.71E+01	58.09	4.24E+02	.....

Analysis Report for 1707089-16

HTC-A06-S001-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	69	1581.54	1576 -	1586	1581.33	1.09E+02	67.25	5.47E+02	.....
	70	1661.52	1657 -	1666	1661.28	1.20E+02	48.18	2.58E+02	.....
	71	1692.22	1688 -	1695	1691.98	3.47E+01	32.31	1.49E+02	.....
	72	1729.26	1723 -	1734	1729.00	4.35E+02	60.10	2.34E+02	.....
	73	1764.19	1757 -	1770	1763.92	1.98E+03	103.07	2.99E+02	BI-214
M	74	1834.54	1831 -	1851	1834.25	1.66E+01	22.89	9.08E+01	.....
m	75	1838.05	1831 -	1851	1837.75	5.00E+01	31.05	1.23E+02	.....
m	76	1847.22	1831 -	1851	1846.92	2.65E+02	42.43	1.31E+02	.....
	77	1891.38	1889 -	1893	1891.06	1.61E+01	18.83	6.37E+01	.....
	78	2118.21	2114 -	2123	2117.82	1.44E+02	27.37	2.38E+01	.....
	79	2171.65	2167 -	2175	2171.24	1.42E+01	16.05	2.96E+01	.....
	80	2185.18	2176 -	2193	2184.77	3.80E+01	27.31	5.40E+01	.....
	81	2203.60	2196 -	2209	2203.18	5.34E+02	53.17	7.58E+01	BI-214
	82	2267.98	2264 -	2271	2267.54	1.06E+01	12.49	1.68E+01	.....
	83	2292.28	2287 -	2296	2291.83	2.64E+01	20.52	4.53E+01	.....
	84	2447.18	2441 -	2450	2446.68	1.16E+02	23.19	1.12E+01	.....
	85	2600.55	2594 -	2605	2600.00	1.20E+01	6.93	0.00E+00	.....
	86	2613.84	2609 -	2617	2613.29	3.71E+01	15.39	1.37E+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 : 8/23/2017 11:19:17AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.55	1.63E+03	261.31	1.73E-02	1.73E-03
	2	53.28	4.33E+02	274.49	2.08E-02	1.73E-03
	3	63.40	2.70E+03	341.62	2.44E-02	1.80E-03
	4	76.51	1.71E+04	658.05	2.67E-02	2.04E-03
M	5	84.33	1.10E+03	197.52	2.71E-02	2.19E-03
m	6	87.63	3.46E+03	379.25	2.72E-02	2.25E-03
m	7	92.72	5.20E+03	382.81	2.71E-02	2.24E-03
	8	113.03	4.00E+02	273.31	2.60E-02	2.16E-03
	9	144.48	8.87E+02	307.03	2.31E-02	1.87E-03
	10	154.14	4.62E+02	304.22	2.23E-02	1.76E-03
	11	163.64	2.17E+02	225.13	2.14E-02	1.65E-03
M	12	182.35	1.85E+02	141.88	1.99E-02	1.56E-03

Analysis Report for 1707089-16

HTC-A06-S001-0006-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	13	186.23	5.83E+03	282.66	1.96E-02	1.55E-03
M	14	236.10	5.11E+02	223.39	1.63E-02	1.35E-03
m	15	238.90	5.63E+02	205.21	1.61E-02	1.34E-03
m	16	242.18	5.42E+03	241.78	1.59E-02	1.33E-03
	17	257.79	5.21E+02	228.99	1.51E-02	1.26E-03
	18	269.85	4.63E+02	226.14	1.46E-02	1.22E-03
	19	275.32	1.53E+02	152.43	1.43E-02	1.19E-03
	20	295.41	1.10E+04	293.88	1.35E-02	1.15E-03
	21	323.58	1.65E+02	159.91	1.24E-02	1.09E-03
	22	329.74	1.45E+02	144.24	1.22E-02	1.08E-03
	23	339.13	1.56E+02	146.70	1.19E-02	1.06E-03
	24	352.06	1.86E+04	366.25	1.15E-02	1.03E-03
	25	389.03	2.63E+02	163.39	1.06E-02	9.58E-04
	26	403.37	2.18E+02	181.67	1.02E-02	9.37E-04
	27	455.48	1.02E+02	120.48	9.16E-03	8.68E-04
	28	461.98	1.76E+02	116.83	9.04E-03	8.59E-04
	29	480.23	1.43E+02	102.59	8.73E-03	8.35E-04
	30	486.64	1.58E+02	113.81	8.63E-03	8.27E-04
	31	510.88	3.97E+02	129.48	8.26E-03	7.94E-04
	32	533.91	1.12E+02	104.54	7.93E-03	7.64E-04
	33	609.36	1.30E+04	269.27	7.04E-03	6.64E-04
	34	665.45	3.00E+02	99.72	6.51E-03	5.91E-04
	35	703.44	1.33E+02	92.02	6.19E-03	5.58E-04
	36	742.71	1.65E+02	96.43	5.90E-03	5.23E-04
	37	768.18	1.32E+03	141.36	5.72E-03	5.01E-04
M	38	782.79	8.65E+01	59.64	5.63E-03	4.88E-04
m	39	786.00	2.80E+02	83.93	5.61E-03	4.85E-04
M	40	803.34	3.94E+01	40.39	5.50E-03	4.70E-04
m	41	806.21	2.67E+02	74.79	5.48E-03	4.67E-04
	42	821.45	5.90E+01	69.04	5.39E-03	4.54E-04
	43	826.57	5.04E+01	59.05	5.36E-03	4.49E-04
M	44	836.35	7.10E+01	40.36	5.31E-03	4.40E-04
m	45	839.22	1.88E+02	86.81	5.29E-03	4.38E-04
	46	934.00	6.05E+02	102.55	4.82E-03	3.80E-04
	47	1001.06	1.15E+02	89.17	4.53E-03	3.69E-04
	48	1120.14	2.50E+03	137.45	4.12E-03	3.50E-04
	49	1155.10	2.72E+02	91.89	4.01E-03	3.44E-04
	50	1207.83	1.54E+02	86.16	3.86E-03	3.31E-04
M	51	1237.92	9.88E+02	78.92	3.79E-03	3.23E-04
m	52	1245.87	5.77E+01	48.82	3.77E-03	3.20E-04
	53	1252.34	7.02E+01	62.64	3.75E-03	3.18E-04
	54	1265.12	5.93E+01	55.46	3.72E-03	3.15E-04
	55	1280.64	1.91E+02	90.86	3.68E-03	3.10E-04
	56	1295.82	5.47E+01	45.96	3.65E-03	3.06E-04
	57	1302.88	6.15E+01	47.35	3.63E-03	3.04E-04
	58	1377.56	6.63E+02	77.82	3.47E-03	2.88E-04
	59	1385.00	9.62E+01	54.57	3.45E-03	2.87E-04
M	60	1401.31	2.14E+02	60.79	3.42E-03	2.85E-04
m	61	1407.79	3.46E+02	65.82	3.41E-03	2.84E-04
	62	1460.18	1.34E+02	59.90	3.31E-03	2.75E-04
	63	1492.04	5.37E+01	55.39	3.25E-03	2.70E-04
	64	1508.92	3.20E+02	78.85	3.23E-03	2.67E-04
	65	1524.35	5.40E+01	48.16	3.20E-03	2.65E-04

Analysis Report for 1707089-16

HTC-A06-S001-0006-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	66	1543.89	7.33E+01	56.50	3.17E-03	2.62E-04
	67	1554.73	4.24E+01	36.06	3.15E-03	2.60E-04
	68	1562.03	5.71E+01	58.09	3.14E-03	2.59E-04
	69	1581.54	1.09E+02	67.25	3.11E-03	2.56E-04
	70	1661.52	1.20E+02	48.18	3.00E-03	2.43E-04
	71	1692.22	3.47E+01	32.31	2.95E-03	2.38E-04
	72	1729.26	4.35E+02	60.10	2.91E-03	2.32E-04
	73	1764.19	1.98E+03	103.07	2.87E-03	2.27E-04
M	74	1834.54	1.66E+01	22.89	2.79E-03	2.15E-04
m	75	1838.05	5.00E+01	31.05	2.78E-03	2.15E-04
m	76	1847.22	2.65E+02	42.43	2.77E-03	2.15E-04
	77	1891.38	1.61E+01	18.83	2.73E-03	2.15E-04
	78	2118.21	1.44E+02	27.37	2.53E-03	2.15E-04
	79	2171.65	1.42E+01	16.05	2.49E-03	2.15E-04
	80	2185.18	3.80E+01	27.31	2.48E-03	2.15E-04
	81	2203.60	5.34E+02	53.17	2.46E-03	2.15E-04
	82	2267.98	1.06E+01	12.49	2.42E-03	2.15E-04
	83	2292.28	2.64E+01	20.52	2.41E-03	2.15E-04
	84	2447.18	1.16E+02	23.19	2.32E-03	2.15E-04
	85	2600.55	1.20E+01	6.93	2.24E-03	2.15E-04
	86	2613.84	3.71E+01	15.39	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 : 8/23/2017 11:19:17AM

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	46.55	1.63E+03	261.31	4.47E+01	1.09E+01	1.58E+03	2.62E+02
	2	53.28	4.33E+02	274.49			4.33E+02	2.74E+02
	3	63.40	2.70E+03	341.62	4.12E+01	5.67E+00	2.66E+03	3.42E+02
	4	76.51	1.71E+04	658.05			1.71E+04	6.58E+02
M	5	84.33	1.10E+03	197.52	5.71E+00	6.69E+00	1.09E+03	1.98E+02
m	6	87.63	3.46E+03	379.25			3.46E+03	3.79E+02
m	7	92.72	5.20E+03	382.81	7.98E+01	7.31E+00	5.12E+03	3.83E+02
	8	113.03	4.00E+02	273.31			4.00E+02	2.73E+02
	9	144.48	8.87E+02	307.03			8.87E+02	3.07E+02

Analysis Report for 1707089-16

HTC-A06-S001-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	10	154.14	4.62E+02	304.22			4.62E+02	3.04E+02
	11	163.64	2.17E+02	225.13			2.17E+02	2.25E+02
M	12	182.35	1.85E+02	141.88			1.85E+02	1.42E+02
m	13	186.23	5.83E+03	282.66	3.06E+01	5.82E+00	5.80E+03	2.83E+02
M	14	236.10	5.11E+02	223.39			5.11E+02	2.23E+02
m	15	238.90	5.63E+02	205.21	1.40E+01	2.71E+00	5.49E+02	2.05E+02
m	16	242.18	5.42E+03	241.78			5.42E+03	2.42E+02
	17	257.79	5.21E+02	228.99			5.21E+02	2.29E+02
	18	269.85	4.63E+02	226.14			4.63E+02	2.26E+02
	19	275.32	1.53E+02	152.43			1.53E+02	1.52E+02
	20	295.41	1.10E+04	293.88			1.10E+04	2.94E+02
	21	323.58	1.65E+02	159.91			1.65E+02	1.60E+02
	22	329.74	1.45E+02	144.24			1.45E+02	1.44E+02
	23	339.13	1.56E+02	146.70			1.56E+02	1.47E+02
	24	352.06	1.86E+04	366.25	6.53E+00	4.43E+00	1.86E+04	3.66E+02
	25	389.03	2.63E+02	163.39			2.63E+02	1.63E+02
	26	403.37	2.18E+02	181.67			2.18E+02	1.82E+02
	27	455.48	1.02E+02	120.48			1.02E+02	1.20E+02
	28	461.98	1.76E+02	116.83			1.76E+02	1.17E+02
	29	480.23	1.43E+02	102.59			1.43E+02	1.03E+02
	30	486.64	1.58E+02	113.81			1.58E+02	1.14E+02
	31	510.88	3.97E+02	129.48	5.21E+01	4.74E+00	3.44E+02	1.30E+02
	32	533.91	1.12E+02	104.54			1.12E+02	1.05E+02
	33	609.36	1.30E+04	269.27	3.25E+00	2.97E+00	1.30E+04	2.69E+02
	34	665.45	3.00E+02	99.72			3.00E+02	9.97E+01
	35	703.44	1.33E+02	92.02			1.33E+02	9.20E+01
	36	742.71	1.65E+02	96.43			1.65E+02	9.64E+01
	37	768.18	1.32E+03	141.36			1.32E+03	1.41E+02
M	38	782.79	8.65E+01	59.64			8.65E+01	5.96E+01
m	39	786.00	2.80E+02	83.93			2.80E+02	8.39E+01
M	40	803.34	3.94E+01	40.39			3.94E+01	4.04E+01
m	41	806.21	2.67E+02	74.79			2.67E+02	7.48E+01
	42	821.45	5.90E+01	69.04			5.90E+01	6.90E+01
	43	826.57	5.04E+01	59.05			5.04E+01	5.91E+01
M	44	836.35	7.10E+01	40.36			7.10E+01	4.04E+01
m	45	839.22	1.88E+02	86.81			1.88E+02	8.68E+01
	46	934.00	6.05E+02	102.55			6.05E+02	1.03E+02
	47	1001.06	1.15E+02	89.17			1.15E+02	8.92E+01
	48	1120.14	2.50E+03	137.45			2.50E+03	1.37E+02
	49	1155.10	2.72E+02	91.89			2.72E+02	9.19E+01
	50	1207.83	1.54E+02	86.16			1.54E+02	8.62E+01
M	51	1237.92	9.88E+02	78.92			9.88E+02	7.89E+01
m	52	1245.87	5.77E+01	48.82			5.77E+01	4.88E+01
	53	1252.34	7.02E+01	62.64			7.02E+01	6.26E+01
	54	1265.12	5.93E+01	55.46			5.93E+01	5.55E+01
	55	1280.64	1.91E+02	90.86			1.91E+02	9.09E+01
	56	1295.82	5.47E+01	45.96			5.47E+01	4.60E+01
	57	1302.88	6.15E+01	47.35			6.15E+01	4.73E+01
	58	1377.56	6.63E+02	77.82			6.63E+02	7.78E+01
	59	1385.00	9.62E+01	54.57			9.62E+01	5.46E+01
M	60	1401.31	2.14E+02	60.79			2.14E+02	6.08E+01
m	61	1407.79	3.46E+02	65.82			3.46E+02	6.58E+01
	62	1460.18	1.34E+02	59.90	1.00E+00	1.77E+00	1.33E+02	5.99E+01
	63	1492.04	5.37E+01	55.39			5.37E+01	5.54E+01

Analysis Report for 1707089-16

HTC-A06-S001-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	64	1508.92	3.20E+02	78.85			3.20E+02	7.88E+01
	65	1524.35	5.40E+01	48.16			5.40E+01	4.82E+01
	66	1543.89	7.33E+01	56.50			7.33E+01	5.65E+01
	67	1554.73	4.24E+01	36.06			4.24E+01	3.61E+01
	68	1562.03	5.71E+01	58.09			5.71E+01	5.81E+01
	69	1581.54	1.09E+02	67.25			1.09E+02	6.73E+01
	70	1661.52	1.20E+02	48.18			1.20E+02	4.82E+01
	71	1692.22	3.47E+01	32.31			3.47E+01	3.23E+01
	72	1729.26	4.35E+02	60.10			4.35E+02	6.01E+01
	73	1764.19	1.98E+03	103.07			1.98E+03	1.03E+02
M	74	1834.54	1.66E+01	22.89			1.66E+01	2.29E+01
m	75	1838.05	5.00E+01	31.05			5.00E+01	3.10E+01
m	76	1847.22	2.65E+02	42.43			2.65E+02	4.24E+01
	77	1891.38	1.61E+01	18.83			1.61E+01	1.88E+01
	78	2118.21	1.44E+02	27.37			1.44E+02	2.74E+01
	79	2171.65	1.42E+01	16.05			1.42E+01	1.61E+01
	80	2185.18	3.80E+01	27.31			3.80E+01	2.73E+01
	81	2203.60	5.34E+02	53.17			5.34E+02	5.32E+01
	82	2267.98	1.06E+01	12.49			1.06E+01	1.25E+01
	83	2292.28	2.64E+01	20.52			2.64E+01	2.05E+01
	84	2447.18	1.16E+02	23.19			1.16E+02	2.32E+01
	85	2600.55	1.20E+01	6.93			1.20E+01	6.93E+00
	86	2613.84	3.71E+01	15.39	1.86E+00	1.12E+00	3.53E+01	1.54E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/23/2017 11:19:17AM

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	46.55	1.63E+03	261.31	4.47E+01	1.09E+01	1.58E+03	2.62E+02
	2	53.28	4.33E+02	274.49			4.33E+02	2.74E+02
	3	63.40	2.70E+03	341.62	4.12E+01	5.67E+00	2.66E+03	3.42E+02
	4	76.51	1.71E+04	658.05			1.71E+04	6.58E+02
M	5	84.33	1.10E+03	197.52	5.71E+00	6.69E+00	1.09E+03	1.98E+02

Analysis Report for 1707089-16

HTC-A06-S001-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
m	6	87.63	3.46E+03	379.25			3.46E+03	3.79E+02
m	7	92.72	5.20E+03	382.81	7.98E+01	7.31E+00	5.12E+03	3.83E+02
	8	113.03	4.00E+02	273.31			4.00E+02	2.73E+02
	9	144.48	8.87E+02	307.03			8.87E+02	3.07E+02
	10	154.14	4.62E+02	304.22			4.62E+02	3.04E+02
	11	163.64	2.17E+02	225.13			2.17E+02	2.25E+02
M	12	182.35	1.85E+02	141.88			1.85E+02	1.42E+02
m	13	186.23	5.83E+03	282.66	3.06E+01	5.82E+00	5.80E+03	2.83E+02
M	14	236.10	5.11E+02	223.39			5.11E+02	2.23E+02
m	15	238.90	5.63E+02	205.21	1.40E+01	2.71E+00	5.49E+02	2.05E+02
m	16	242.18	5.42E+03	241.78			5.42E+03	2.42E+02
	17	257.79	5.21E+02	228.99			5.21E+02	2.29E+02
	18	269.85	4.63E+02	226.14			4.63E+02	2.26E+02
	19	275.32	1.53E+02	152.43			1.53E+02	1.52E+02
	20	295.41	1.10E+04	293.88			1.10E+04	2.94E+02
	21	323.58	1.65E+02	159.91			1.65E+02	1.60E+02
	22	329.74	1.45E+02	144.24			1.45E+02	1.44E+02
	23	339.13	1.56E+02	146.70			1.56E+02	1.47E+02
	24	352.06	1.86E+04	366.25	6.53E+00	4.43E+00	1.86E+04	3.66E+02
	25	389.03	2.63E+02	163.39			2.63E+02	1.63E+02
	26	403.37	2.18E+02	181.67			2.18E+02	1.82E+02
	27	455.48	1.02E+02	120.48			1.02E+02	1.20E+02
	28	461.98	1.76E+02	116.83			1.76E+02	1.17E+02
	29	480.23	1.43E+02	102.59			1.43E+02	1.03E+02
	30	486.64	1.58E+02	113.81			1.58E+02	1.14E+02
	31	510.88	3.97E+02	129.48	5.21E+01	4.74E+00	3.44E+02	1.30E+02
	32	533.91	1.12E+02	104.54			1.12E+02	1.05E+02
	33	609.36	1.30E+04	269.27	3.25E+00	2.97E+00	1.30E+04	2.69E+02
	34	665.45	3.00E+02	99.72			3.00E+02	9.97E+01
	35	703.44	1.33E+02	92.02			1.33E+02	9.20E+01
	36	742.71	1.65E+02	96.43			1.65E+02	9.64E+01
	37	768.18	1.32E+03	141.36			1.32E+03	1.41E+02
M	38	782.79	8.65E+01	59.64			8.65E+01	5.96E+01
m	39	786.00	2.80E+02	83.93			2.80E+02	8.39E+01
M	40	803.34	3.94E+01	40.39			3.94E+01	4.04E+01
m	41	806.21	2.67E+02	74.79			2.67E+02	7.48E+01
	42	821.45	5.90E+01	69.04			5.90E+01	6.90E+01
	43	826.57	5.04E+01	59.05			5.04E+01	5.91E+01
M	44	836.35	7.10E+01	40.36			7.10E+01	4.04E+01
m	45	839.22	1.88E+02	86.81			1.88E+02	8.68E+01
	46	934.00	6.05E+02	102.55			6.05E+02	1.03E+02
	47	1001.06	1.15E+02	89.17			1.15E+02	8.92E+01
	48	1120.14	2.50E+03	137.45			2.50E+03	1.37E+02
	49	1155.10	2.72E+02	91.89			2.72E+02	9.19E+01
	50	1207.83	1.54E+02	86.16			1.54E+02	8.62E+01
M	51	1237.92	9.88E+02	78.92			9.88E+02	7.89E+01
m	52	1245.87	5.77E+01	48.82			5.77E+01	4.88E+01
	53	1252.34	7.02E+01	62.64			7.02E+01	6.26E+01
	54	1265.12	5.93E+01	55.46			5.93E+01	5.55E+01
	55	1280.64	1.91E+02	90.86			1.91E+02	9.09E+01
	56	1295.82	5.47E+01	45.96			5.47E+01	4.60E+01
	57	1302.88	6.15E+01	47.35			6.15E+01	4.73E+01
	58	1377.56	6.63E+02	77.82			6.63E+02	7.78E+01
	59	1385.00	9.62E+01	54.57			9.62E+01	5.46E+01

Analysis Report for 1707089-16

HTC-A06-S001-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	60	1401.31	2.14E+02	60.79			2.14E+02	6.08E+01
m	61	1407.79	3.46E+02	65.82			3.46E+02	6.58E+01
	62	1460.18	1.34E+02	59.90	1.00E+00	1.77E+00	1.33E+02	5.99E+01
	63	1492.04	5.37E+01	55.39			5.37E+01	5.54E+01
	64	1508.92	3.20E+02	78.85			3.20E+02	7.88E+01
	65	1524.35	5.40E+01	48.16			5.40E+01	4.82E+01
	66	1543.89	7.33E+01	56.50			7.33E+01	5.65E+01
	67	1554.73	4.24E+01	36.06			4.24E+01	3.61E+01
	68	1562.03	5.71E+01	58.09			5.71E+01	5.81E+01
	69	1581.54	1.09E+02	67.25			1.09E+02	6.73E+01
	70	1661.52	1.20E+02	48.18			1.20E+02	4.82E+01
	71	1692.22	3.47E+01	32.31			3.47E+01	3.23E+01
	72	1729.26	4.35E+02	60.10			4.35E+02	6.01E+01
	73	1764.19	1.98E+03	103.07			1.98E+03	1.03E+02
M	74	1834.54	1.66E+01	22.89			1.66E+01	2.29E+01
m	75	1838.05	5.00E+01	31.05			5.00E+01	3.10E+01
m	76	1847.22	2.65E+02	42.43			2.65E+02	4.24E+01
	77	1891.38	1.61E+01	18.83			1.61E+01	1.88E+01
	78	2118.21	1.44E+02	27.37			1.44E+02	2.74E+01
	79	2171.65	1.42E+01	16.05			1.42E+01	1.61E+01
	80	2185.18	3.80E+01	27.31			3.80E+01	2.73E+01
	81	2203.60	5.34E+02	53.17			5.34E+02	5.32E+01
	82	2267.98	1.06E+01	12.49			1.06E+01	1.25E+01
	83	2292.28	2.64E+01	20.52			2.64E+01	2.05E+01
	84	2447.18	1.16E+02	23.19			1.16E+02	2.32E+01
	85	2600.55	1.20E+01	6.93			1.20E+01	6.93E+00
	86	2613.84	3.71E+01	15.39	1.86E+00	1.12E+00	3.53E+01	1.54E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.939	1460.81	*	10.67	3.87E+00	1.77E+00
CD-109	0.974	88.03	*	3.72	4.08E+01	6.11E+00
SN-126	0.999	87.57	*	37.00	3.54E+00	4.86E-01
PB-210	1.000	46.50	*	4.25	2.23E+01	4.31E+00

Analysis Report for 1707089-16

HTC-A06-S001-0006-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PB-212	0.886	238.63	*	44.60	7.84E-01	3.00E-01
		300.09		3.41		
BI-214	0.993	609.31	*	46.30	4.09E+01	3.95E+00
		1120.29	*	15.10	4.13E+01	4.18E+00
		1764.49	*	15.80	4.49E+01	4.25E+00
		2204.22	*	4.98	4.47E+01	5.92E+00
PB-214	0.996	295.21	*	19.19	4.37E+01	3.90E+00
		351.92	*	37.19	4.46E+01	4.09E+00
RA-223	0.986	323.87	*	3.88	3.51E+00	3.42E+00
RA-226	1.000	186.21	*	3.28	9.28E+01	1.70E+02
TH-231	0.308	25.64		14.70		
		84.21	*	6.40	6.48E+00	1.28E+00
PA-234M	1.000	1001.03	*	0.92	2.83E+01	2.21E+01
TH-234	0.998	63.29	*	3.80	2.94E+01	4.35E+00
U-235	0.607	143.76	*	10.50	3.75E+00	1.45E+00
		163.35	*	4.70	2.22E+00	2.33E+00
		205.31		4.70		

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 11:19:17AM
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	53.28	1.20239E-01	31.71		
	4	76.51	4.74531E+00	1.93		
m	7	92.72	1.42096E+00	3.74	Sum	
	8	113.03	1.11219E-01	34.13		
	10	154.14	1.28274E-01	32.94	Tol.	CS-136
M	12	182.35	5.15164E-02	38.25	Tol.	LU-172
M	14	236.10	1.41980E-01	21.85	Tol.	NB-95M
						TH-227
m	16	242.18	1.50642E+00	2.23		
	17	257.79	1.44722E-01	21.98		
	18	269.85	1.28594E-01	24.42	Sum	
	19	275.32	4.24260E-02	49.90		

Analysis Report for 1707089-16

HTC-A06-S001-0006-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	22	329.74	4.02839E-02	49.73	Sum	
	23	339.13	4.33699E-02	46.98	Tol.	AC-228
	25	389.03	7.30692E-02	31.06		
	26	403.37	6.05841E-02	41.65	Sum	
	27	455.48	2.82728E-02	59.19		
	28	461.98	4.89583E-02	33.14		
	29	480.23	3.96174E-02	35.96		
	30	486.64	4.39296E-02	35.98	Sum	
	31	510.88	9.56564E-02	18.81		
	32	533.91	3.09781E-02	46.87	Sum	
	34	665.45	8.33549E-02	16.62	Tol.	SB-126
	35	703.44	3.70571E-02	34.49	Sum	
	36	742.71	4.58084E-02	29.24	D-Esc	
	37	768.18	3.67510E-01	5.34		
M	38	782.79	2.40384E-02	34.46		
m	39	786.00	7.77575E-02	14.99		
M	40	803.34	1.09314E-02	51.32		
m	41	806.21	7.40891E-02	14.02		
	42	821.45	1.63889E-02	58.51		
	43	826.57	1.39885E-02	58.63		
M	44	836.35	1.97146E-02	28.44		
m	45	839.22	5.23449E-02	23.03		
	46	934.00	1.68181E-01	8.47		
	49	1155.10	7.56934E-02	16.86		
	50	1207.83	4.27662E-02	27.98	Sum	
M	51	1237.92	2.74449E-01	3.99	Tol.	CO-56
m	52	1245.87	1.60400E-02	42.28		
	53	1252.34	1.94945E-02	44.63	S-Esc	
	54	1265.12	1.64652E-02	46.78	Sum	
	55	1280.64	5.31919E-02	23.73		
	56	1295.82	1.52056E-02	41.98	Sum	
	57	1302.88	1.70907E-02	38.48		
	58	1377.56	1.84047E-01	5.87		
	59	1385.00	2.67170E-02	28.37	Tol.	AG-110M
M	60	1401.31	5.95442E-02	14.18		
m	61	1407.79	9.62234E-02	9.50	Tol.	EU-152
	63	1492.04	1.49227E-02	51.55		
	64	1508.92	8.89735E-02	12.31		
	65	1524.35	1.50073E-02	44.57	Sum	
	66	1543.89	2.03477E-02	38.56	Sum	
	67	1554.73	1.17785E-02	42.52		
	68	1562.03	1.58586E-02	50.88		
	69	1581.54	3.01542E-02	30.98		
	70	1661.52	3.32848E-02	20.10		
	71	1692.22	9.63303E-03	46.59	S-Esc	
	72	1729.26	1.20849E-01	6.91	Sum	
M	74	1834.54	4.60972E-03	68.97		
m	75	1838.05	1.38773E-02	31.07		
m	76	1847.22	7.36920E-02	8.00		
	77	1891.38	4.48495E-03	58.31		
	78	2118.21	4.00249E-02	9.50		
	79	2171.65	3.94636E-03	56.50		
	80	2185.18	1.05598E-02	35.92		

Analysis Report for 1707089-16

HTC-A06-S001-0006-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
82	2267.98	2.93860E-03	59.03	Sum	
83	2292.28	7.32143E-03	38.92		
84	2447.18	3.23383E-02	9.96		
85	2600.55	3.33333E-03	28.87		
86	2613.84	9.80269E-03	21.86	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	0.93	1460.81	*	10.67	3.87E+00	1.77E+00
CD-109	0.97	88.03	*	3.72	4.08E+01	6.11E+00
SN-126	0.99	87.57	*	37.00	3.54E+00	4.86E-01
PB-210	1.00	46.50	*	4.25	2.23E+01	4.31E+00
PB-212	0.88	238.63	*	44.60	7.84E-01	3.00E-01
		300.09		3.41		
BI-214	0.99	609.31	*	46.30	4.09E+01	3.95E+00
		1120.29	*	15.10	4.13E+01	4.18E+00
		1764.49	*	15.80	4.49E+01	4.25E+00
		2204.22	*	4.98	4.47E+01	5.92E+00
PB-214	0.99	295.21	*	19.19	4.37E+01	3.90E+00
		351.92	*	37.19	4.46E+01	4.09E+00
RA-223	0.98	323.87	*	3.88	3.51E+00	3.42E+00
RA-226	1.00	186.21	*	3.28	9.28E+01	1.70E+02
TH-231	0.30	25.64		14.70		
		84.21	*	6.40	6.48E+00	1.28E+00
PA-234M	1.00	1001.03	*	0.92	2.83E+01	2.21E+01
TH-234	0.99	63.29	*	3.80	2.94E+01	4.35E+00
U-235	0.60	143.76	*	10.50	3.75E+00	1.45E+00
		163.35	*	4.70	2.22E+00	2.33E+00
		205.31		4.70		

Analysis Report for 1707089-16

HTC-A06-S001-0006-01

* = 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	3.87E+00	1.77E+00	
?	CD-109	0.974	4.08E+01	6.11E+00	
?	SN-126	0.999	3.54E+00	4.86E-01	
X	CE-141	0.824			
	PB-210	1.000	2.23E+01	4.31E+00	
	PB-212	0.886	7.84E-01	3.00E-01	
	BI-214	0.993	4.26E+01	2.21E+00	
	PB-214	0.996	4.42E+01	2.82E+00	
	RA-223	0.986	3.51E+00	3.42E+00	
	RA-226	1.000	9.28E+01	1.70E+02	
	TH-231	0.308	6.48E+00	1.28E+00	
	PA-234M	1.000	2.83E+01	2.21E+01	
	TH-234	0.998	2.94E+01	4.35E+00	
	U-235	0.607	3.32E+00	1.23E+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 1707089-16

HTC-A06-S001-0006-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 11:19:17AM
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	53.28	1.20239E-01	31.71		
	4	76.51	4.74531E+00	1.93		
m	7	92.72	1.42096E+00	3.74	Sum	
	8	113.03	1.11219E-01	34.13		
	10	154.14	1.28274E-01	32.94	Tol.	CS-136
M	12	182.35	5.15164E-02	38.25	Tol.	LU-172
M	14	236.10	1.41980E-01	21.85	Tol.	NB-95M
						TH-227
m	16	242.18	1.50642E+00	2.23		
	17	257.79	1.44722E-01	21.98		
	18	269.85	1.28594E-01	24.42	Sum	
	19	275.32	4.24260E-02	49.90		
	22	329.74	4.02839E-02	49.73	Sum	
	23	339.13	4.33699E-02	46.98	Tol.	AC-228
	25	389.03	7.30692E-02	31.06		
	26	403.37	6.05841E-02	41.65	Sum	
	27	455.48	2.82728E-02	59.19		
	28	461.98	4.89583E-02	33.14		
	29	480.23	3.96174E-02	35.96		
	30	486.64	4.39296E-02	35.98	Sum	
	31	510.88	9.56564E-02	18.81		
	32	533.91	3.09781E-02	46.87	Sum	
	34	665.45	8.33549E-02	16.62	Tol.	SB-126
	35	703.44	3.70571E-02	34.49	Sum	
	36	742.71	4.58084E-02	29.24	D-Esc	
	37	768.18	3.67510E-01	5.34		
M	38	782.79	2.40384E-02	34.46		
m	39	786.00	7.77575E-02	14.99		
M	40	803.34	1.09314E-02	51.32		
m	41	806.21	7.40891E-02	14.02		
	42	821.45	1.63889E-02	58.51		
	43	826.57	1.39885E-02	58.63		
M	44	836.35	1.97146E-02	28.44		
m	45	839.22	5.23449E-02	23.03		

Analysis Report for 1707089-16

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	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	46	934.00	1.68181E-01	8.47		
	49	1155.10	7.56934E-02	16.86		
	50	1207.83	4.27662E-02	27.98	Sum	
M	51	1237.92	2.74449E-01	3.99	Tol.	CO-56
m	52	1245.87	1.60400E-02	42.28		
	53	1252.34	1.94945E-02	44.63	S-Esc	
	54	1265.12	1.64652E-02	46.78	Sum	
	55	1280.64	5.31919E-02	23.73		
	56	1295.82	1.52056E-02	41.98	Sum	
	57	1302.88	1.70907E-02	38.48		
	58	1377.56	1.84047E-01	5.87		
	59	1385.00	2.67170E-02	28.37	Tol.	AG-110M
M	60	1401.31	5.95442E-02	14.18		
m	61	1407.79	9.62234E-02	9.50	Tol.	EU-152
	63	1492.04	1.49227E-02	51.55		
	64	1508.92	8.89735E-02	12.31		
	65	1524.35	1.50073E-02	44.57	Sum	
	66	1543.89	2.03477E-02	38.56	Sum	
	67	1554.73	1.17785E-02	42.52		
	68	1562.03	1.58586E-02	50.88		
	69	1581.54	3.01542E-02	30.98		
	70	1661.52	3.32848E-02	20.10		
	71	1692.22	9.63303E-03	46.59	S-Esc	
	72	1729.26	1.20849E-01	6.91	Sum	
M	74	1834.54	4.60972E-03	68.97		
m	75	1838.05	1.38773E-02	31.07		
m	76	1847.22	7.36920E-02	8.00		
	77	1891.38	4.48495E-03	58.31		
	78	2118.21	4.00249E-02	9.50		
	79	2171.65	3.94636E-03	56.50		
	80	2185.18	1.05598E-02	35.92		
	82	2267.98	2.93860E-03	59.03	Sum	
	83	2292.28	7.32143E-03	38.92		
	84	2447.18	3.23383E-02	9.96		
	85	2600.55	3.33333E-03	28.87		
	86	2613.84	9.80269E-03	21.86	Tol.	TL-208

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

Analysis Report for 1707089-16

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NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	2.39E-01	7.05E+00	7.05E+00
+		NA-22	1274.54		99.94	4.16E-03	2.33E-01	2.33E-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	2.60E-02	1.46E-01	1.46E-01
+		K-40	1460.81	*	10.67	3.87E+00	2.72E+00	2.72E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	1.03E-01	1.97E-01	1.97E-01
			78.34		96.00	2.61E+00		2.62E-01
+		SC-46	889.25		99.98	-6.72E-02	5.15E-01	5.15E-01
			1120.51		99.99	1.43E+01		1.42E+00
+		V-48	983.52		99.98	-1.32E+00	1.66E+01	1.66E+01
			1312.10		97.50	7.27E+00		1.72E+01
+		CR-51	320.08		9.83	1.79E+00	2.31E+01	2.31E+01
+		MN-54	834.83		99.97	6.11E-02	2.87E-01	2.87E-01
+		CO-56	846.75		99.96	-1.04E-01	5.22E-01	5.22E-01
			1037.75		14.03	1.19E+00		3.82E+00
			1238.25		67.00	9.31E+00		1.60E+00
			1771.40		15.51	3.66E-01		2.53E+00
			2598.48		16.90	4.88E-01		1.13E+00
+		CO-57	122.06		85.51	1.57E-01	2.26E-01	2.26E-01
			136.48		10.60	-6.85E-01		1.88E+00
+		CO-58	810.76		99.40	4.83E-02	5.55E-01	5.55E-01
+		FE-59	1099.22		56.50	-7.22E-01	1.81E+00	1.81E+00
			1291.56		43.20	2.26E-01		2.29E+00
+		CO-60	1173.22		100.00	-2.74E-03	2.20E-01	2.23E-01
			1332.49		100.00	-1.53E-01		2.20E-01
+		ZN-65	1115.52		50.75	-4.61E-02	6.55E-01	6.55E-01
+		GA-67	93.31		35.70	6.22E+09	7.75E+08	7.75E+08
			208.95		2.24	2.72E+09		1.26E+10
			300.22		16.00	3.51E+08		2.14E+09
+		SE-75	121.11		16.70	2.99E-01	4.63E-01	1.58E+00
			136.00		59.20	-2.35E-01		4.63E-01
			264.65		59.80	-1.09E-01		5.76E-01
			279.53		25.20	-1.10E-03		1.37E+00
			400.65		11.40	-1.05E+00		3.30E+00
+		RB-82	776.52		13.00	-6.16E+00	2.15E+01	2.15E+01
+		RB-83	520.41		46.00	2.59E-02	8.94E-01	8.94E-01
			529.64		30.30	9.06E-03		1.40E+00
			552.65		16.40	-7.01E-01		2.56E+00
+		KR-85	513.99		0.43	-3.33E+00	4.71E+01	4.71E+01
+		SR-85	513.99		99.27	-4.13E-02	5.84E-01	5.84E-01

Analysis Report for 1707089-16

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	Y-88	898.02		93.40	5.30E-02	3.83E-01	4.78E-01
		1836.01		99.38	3.54E-01		3.83E-01
+	MO-93	263.06		56.72	-6.58E-02	1.88E-01	3.53E-01
		684.67		99.68	-1.34E-02		1.88E-01
		1477.11		99.08	-7.29E-02		2.74E-01
+	NB-93M	16.57		9.43	2.03E+01	1.83E+02	1.83E+02
+	NB-94	702.63		100.00	2.38E-01	2.14E-01	2.14E-01
		871.10		100.00	-4.14E-02		2.17E-01
+	NB-95	765.79		99.81	1.12E+01	2.39E+00	2.39E+00
+	NB-95M	235.69		25.00	-2.62E+08	1.58E+08	1.58E+08
+	ZR-95	724.18		43.70	-1.05E+00	1.05E+00	1.37E+00
		756.72		55.30	-1.84E-01		1.05E+00
+	MO-99	181.06		6.20	-1.25E+10	1.17E+11	1.92E+11
		739.58		12.80	4.07E+09		1.17E+11
		778.00		4.50	-8.56E+10		3.03E+11
+	RU-103	497.08		89.00	4.06E-01	1.23E+00	1.23E+00
+	RU-106	621.84		9.80	7.51E-01	2.21E+00	2.21E+00
+	AG-108M	433.93		89.90	9.51E-02	2.24E-01	2.24E-01
		614.37		90.40	4.73E-02		3.58E-01
		722.95		90.50	-5.53E-02		2.30E-01
+	CD-109	88.03	*	3.72	4.08E+01	1.24E+01	1.24E+01
+	AG-110M	657.75		93.14	9.26E-02	2.63E-01	2.63E-01
		677.61		10.53	3.65E-01		2.26E+00
		706.67		16.46	9.24E-02		1.62E+00
		763.93		21.98	-1.02E+01		1.43E+00
		884.67		71.63	-9.04E-02		4.07E-01
		1384.27		23.94	-1.25E+00		1.42E+00
+	CD-113M	263.70		0.02	-1.62E+02	8.52E+02	8.52E+02
+	SN-113	255.12		1.93	-1.38E+00	5.83E-01	1.87E+01
		391.69		64.90	-4.26E-02		5.83E-01
+	TE123M	159.00		84.10	-1.55E-01	3.54E-01	3.54E-01
+	SB-124	602.71		97.87	-1.04E-01	6.37E-01	6.37E-01
		645.85		7.26	7.99E-01		8.12E+00
		722.78		11.10	-1.41E+00		5.88E+00
		1691.02		49.00	2.28E-01		1.19E+00
+	I-125	35.49		6.49	-3.86E+00	1.58E+01	1.58E+01
+	SB-125	176.33		6.89	7.43E-01	7.68E-01	2.59E+00
		427.89		29.33	1.87E-01		7.68E-01
		463.38		10.35	-5.61E-02		2.03E+00
		600.56		17.80	1.84E-01		1.20E+00
		635.90		11.32	-1.46E-01		1.72E+00
+	SB-126	414.70		83.30	-1.56E+00	4.90E+01	6.47E+01
		666.33		99.60	1.30E+02		5.91E+01
		695.00		99.60	-2.00E+01		4.90E+01
		720.50		53.80	2.26E+01		9.95E+01
+	SN-126	87.57	*	37.00	3.54E+00	1.07E+00	1.07E+00
+	SB-127	473.00		25.00	1.72E+07	2.92E+07	4.35E+07
		685.20		35.70	-2.08E+06		2.92E+07

Analysis Report for 1707089-16

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		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		SB-127	783.80		14.70	2.35E+08	2.92E+07	9.77E+07
+		I-129	29.78		57.00	-3.74E-01	1.01E+00	1.01E+00
			33.60		13.20	-6.16E-01		2.88E+00
			39.58		7.52	1.44E+00		3.43E+00
+		I-131	284.30		6.05	7.71E+03	1.17E+03	1.68E+04
			364.48		81.20	1.39E+01		1.17E+03
			636.97		7.26	5.59E+03		1.31E+04
			722.89		1.80	-1.43E+04		5.96E+04
+		TE-132	49.72		13.10	-1.33E+10	3.21E+08	2.15E+09
			228.16		88.00	-2.98E+07		3.21E+08
+		BA-133	81.00		33.00	-8.19E+00	5.75E-01	5.75E-01
			302.84		17.80	3.48E-01		1.13E+00
			356.01		60.00	8.67E-04		6.89E-01
+	@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+		XE-133	81.00		38.00	-3.44E+06	2.42E+05	2.42E+05
+		CS-134	563.23		8.38	-1.30E-01	2.67E-01	2.54E+00
			569.32		15.43	-1.94E-01		1.39E+00
			604.70		97.60	-1.44E+01		3.74E-01
			795.84		85.40	4.53E-02		2.67E-01
			801.93		8.73	3.71E-01		2.73E+00
+		CS-135	268.24		16.00	-9.50E-02	1.29E+00	1.29E+00
+	@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26
	@		1260.41		28.60	1.00E+26		1.00E+26
	@		1678.03		9.54	1.00E+26		1.00E+26
+		CS-136	153.22		7.46	2.11E+02	4.05E+01	4.23E+02
			163.89		4.61	5.05E+02		6.84E+02
			176.55		13.56	6.55E+01		2.28E+02
			273.65		12.66	1.36E+02		3.09E+02
			340.57		48.50	-3.08E-01		7.89E+01
			818.50		99.70	-3.19E+00		4.05E+01
			1048.07		79.60	-3.15E+01		4.93E+01
			1235.34		19.70	1.17E+03		3.73E+02
+		CS-137	661.65		85.12	-5.38E-03	2.43E-01	2.43E-01
+		LA-138	788.74		34.00	-1.06E-01	3.40E-01	7.00E-01
			1435.80		66.00	-1.18E-01		3.40E-01
+		CE-139	165.85		80.35	1.81E-02	3.45E-01	3.45E-01
+		BA-140	162.64		6.70	5.47E+02	1.71E+02	5.51E+02
			304.84		4.50	-2.57E+02		9.19E+02
			423.70		3.20	-2.87E+02		1.43E+03
			437.55		2.00	2.40E+02		2.11E+03
			537.32		25.00	2.59E+01		1.71E+02
+		LA-140	328.77		20.50	-5.44E+01	5.96E+01	2.06E+02
			487.03		45.50	8.63E+01		9.53E+01
			815.85		23.50	-2.65E+01		1.90E+02
			1596.49		95.49	5.60E+01		5.96E+01
+		CE-141	145.44	*	48.40	6.73E+00	3.78E+00	3.78E+00
+	@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26
	@		293.26		42.00	1.00E+26		1.00E+26
	@		664.55		5.20	1.00E+26		1.00E+26

Analysis Report for 1707089-16

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CE-144	133.54	10.80	-7.13E-01	1.81E+00	1.81E+00
+	PM-144	476.78	42.00	1.77E-01	2.22E-01	5.76E-01
		618.01	98.60	-3.74E-03		2.22E-01
		696.49	99.49	-2.14E-02		2.36E-01
+	PM-145	36.85	21.70	1.11E-01	7.44E-01	1.39E+00
		37.36	39.70	4.61E-02		7.44E-01
		42.30	15.10	-4.75E-01		1.53E+00
		72.40	2.31	-8.67E+01		9.29E+00
+	PM-146	453.90	39.94	1.19E-02	5.16E-01	5.16E-01
		735.90	14.01	1.75E-01		1.43E+00
		747.13	13.10	-2.89E-01		1.56E+00
+	ND-147	91.11	28.90	-1.57E+01	3.60E+02	3.60E+02
		531.02	13.10	1.33E+02		7.89E+02
+	PM-149	285.90	3.10	-4.59E+13	1.98E+14	1.98E+14
+	EU-152	121.78	20.50	5.16E-01	7.40E-01	7.40E-01
		244.69	5.40	5.24E+01		5.32E+00
		344.27	19.13	-1.08E-01		1.07E+00
		778.89	9.20	1.24E-02		2.16E+00
		964.01	10.40	4.90E-01		2.32E+00
		1085.78	7.22	1.68E+00		3.01E+00
		1112.02	9.60	-3.56E-01		2.36E+00
		1407.95	14.94	6.28E+00		2.31E+00
+	GD-153	97.43	31.30	5.86E-01	6.24E-01	6.24E-01
		103.18	22.20	-8.80E-01		8.32E-01
+	EU-154	123.07	40.50	1.74E-01	3.78E-01	3.78E-01
		723.30	19.70	-2.59E-01		1.08E+00
		873.19	11.50	-7.78E-01		1.95E+00
		996.32	10.30	4.33E-01		2.24E+00
		1004.76	17.90	-5.19E-02		1.33E+00
		1274.45	35.50	1.11E-02		6.24E-01
+	EU-155	86.50	30.90	2.13E+00	6.53E-01	6.53E-01
		105.30	20.70	-1.47E-01		7.05E-01
+	EU-156	811.77	10.40	3.51E+01	1.84E+02	1.84E+02
		1153.47	7.20	6.53E+02		3.70E+02
		1230.71	8.90	4.28E+01		2.10E+02
+	HO-166M	184.41	72.60	3.16E+00	3.36E-01	3.36E-01
		280.45	29.60	-4.48E-02		6.57E-01
		410.94	11.10	-7.28E-01		1.90E+00
		711.69	54.10	1.74E-02		3.65E-01
+	TM-171	66.72	0.14	1.16E+02	1.49E+02	1.49E+02
+	HF-172	67.35	5.31	2.02E+00	1.46E+00	3.88E+00
		125.81	11.30	-9.95E-01		1.46E+00
+	LU-172	181.53	20.60	-2.86E+05	9.85E+03	2.35E+04
		900.72	29.81	-1.23E+04		2.22E+04
		1093.66	62.50	2.94E+03		9.85E+03
+	LU-173	100.72	5.24	-1.18E-01	1.17E+00	3.10E+00
		272.11	21.20	2.15E+00		1.17E+00
+	HF-175	343.40	84.00	-6.48E-02	6.38E-01	6.38E-01
+	LU-176	88.34	13.30	-3.40E+00	1.98E-01	1.47E+00

Analysis Report for 1707089-16

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LU-176	201.83		86.00	-9.96E-02	1.98E-01	1.98E-01
		306.78		94.00	-1.43E-01		2.01E-01
+	HF-181	133.02		41.70	2.31E-01	1.25E+00	1.87E+00
		345.85		17.20	-6.04E-01		5.99E+00
		482.03		82.80	3.10E-01		1.25E+00
+	TA-182	67.75		41.20	4.29E-01	8.22E-01	8.22E-01
		1121.30		34.90	3.25E+01		3.25E+00
		1189.05		16.23	-9.57E-01		2.40E+00
		1221.41		26.98	-2.44E-01		1.42E+00
		1231.02		11.44	6.58E-01		3.22E+00
+	IR-192	308.46		29.68	-5.62E-01	9.87E-01	1.60E+00
		468.07		48.10	7.20E-02		9.87E-01
+	HG-203	279.19		77.30	1.48E-02	1.12E+00	1.12E+00
+	TL-204	374.74		94.11	-1.16E-01	2.09E-01	2.09E-01
		899.15		99.16	-1.67E-02		2.49E-01
		911.74		91.10	3.56E-02		2.64E-01
+	BI-207	569.67		97.72	4.20E-02	2.04E-01	2.04E-01
		1063.62		74.90	-1.81E-01		2.86E-01
+	TL-208	583.14		30.22	9.07E-01	4.43E-01	7.09E-01
		860.37		4.48	9.34E-01		5.06E+00
		2614.66		35.85	5.41E-01		4.43E-01
+	BI-210M	262.00		45.00	1.03E-01	4.48E-01	4.48E-01
		300.00		23.00	1.72E-01		1.05E+00
+	PB-210	46.50	*	4.25	2.23E+01	5.82E+00	5.82E+00
+	PB-211	404.84		2.90	9.40E+00	7.47E+00	7.65E+00
		831.96		2.90	2.50E+00		7.47E+00
+	BI-212	727.17		11.80	1.23E+00	1.74E+00	1.74E+00
		1620.62		2.75	1.73E+00		7.92E+00
+	PB-212	238.63	*	44.60	7.84E-01	1.02E+00	1.02E+00
		300.09		3.41	1.16E+00		7.07E+00
+	BI-214	609.31	*	46.30	4.09E+01	7.52E-01	7.52E-01
		1120.29	*	15.10	4.13E+01		2.60E+00
		1764.49	*	15.80	4.49E+01		2.00E+00
		2204.22	*	4.98	4.47E+01		3.84E+00
+	PB-214	295.21	*	19.19	4.37E+01	9.68E-01	1.36E+00
		351.92	*	37.19	4.46E+01		9.68E-01
+	RN-219	401.80		6.50	1.94E-01	3.30E+00	3.30E+00
+	RA-223	323.87	*	3.88	3.51E+00	5.59E+00	5.59E+00
+	RA-224	240.98		3.95	8.30E+01	7.61E+00	7.61E+00
+	RA-225	40.00		31.00	3.56E+01	8.45E+01	8.45E+01
+	RA-226	186.21	*	3.28	9.28E+01	9.76E+00	9.76E+00
+	TH-227	50.10		8.40	-1.42E+01	1.86E+00	2.30E+00
		236.00		11.50	-3.09E+00		1.86E+00
		256.20		6.30	2.84E+00		3.23E+00
+	AC-228	338.32		11.40	1.16E+00	8.47E-01	1.82E+00
		911.07		27.70	4.60E-01		8.47E-01
		969.11		16.60	-1.18E+00		1.38E+00
+	TH-230	48.44		16.90	1.23E+00	1.27E+00	1.27E+00

Analysis Report for 1707089-16

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TH-230	62.85		4.60	2.67E+01	1.27E+00	4.62E+00
		67.67		0.37	2.62E+01		5.03E+01
+	PA-231	283.67		1.60	-3.51E-01	8.56E+00	1.22E+01
		302.67		2.30	2.64E+00		8.56E+00
+	TH-231	25.64		14.70	2.44E+00	6.02E+00	7.29E+00
		84.21	*	6.40	6.48E+00		6.02E+00
+	PA-233	311.98		38.60	3.18E+00	6.30E+00	6.30E+00
+	PA-234	131.20		20.40	1.77E-01	7.53E-01	7.53E-01
		733.99		8.80	-4.62E-01		2.17E+00
		946.00		12.00	6.53E-01		1.89E+00
+	PA-234M	1001.03	*	0.92	2.83E+01	3.57E+01	3.57E+01
+	TH-234	63.29	*	3.80	2.94E+01	5.95E+00	5.95E+00
+	U-235	143.76	*	10.50	3.75E+00	2.11E+00	2.11E+00
		163.35	*	4.70	2.22E+00		3.77E+00
		205.31		4.70	1.07E+00		4.27E+00
+	NP-237	86.50		12.60	5.02E+00	1.54E+00	1.54E+00
+	NP-239	106.10		22.70	-6.10E+11	2.92E+12	2.92E+12
		228.18		10.70	-7.99E+11		8.62E+12
		277.60		14.10	-9.39E+11		6.70E+12
+	AM-241	59.54		35.90	-2.00E-01	5.16E-01	5.16E-01
+	AM-243	74.67		66.00	1.77E+00	3.90E-01	3.90E-01
+	CM-243	209.75		3.29	-2.61E+00	1.44E+00	6.04E+00
		228.14		10.60	-1.72E-01		1.86E+00
		277.60		14.00	-2.02E-01		1.44E+00

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

NUCLIDE MDA REPORT

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

Analysis Report for 1707089-16

HTC-A06-S001-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	7.05E+00	7.05E+00	2.39E-01	3.47E+00
	NA-22	1274.54		99.94	2.33E-01	2.33E-01	4.16E-03	1.13E-01
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	1.46E-01	1.46E-01	2.60E-02	6.81E-02
+	K-40	1460.81	*	10.67	2.72E+00	2.72E+00	3.87E+00	1.32E+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	1.97E-01	1.97E-01	1.03E-01	9.81E-02
		78.34		96.00	2.62E-01		2.61E+00	1.31E-01
	SC-46	889.25		99.98	5.15E-01	5.15E-01	-6.72E-02	2.51E-01
		1120.51		99.99	1.42E+00		1.43E+01	7.01E-01
	V-48	983.52		99.98	1.66E+01	1.66E+01	-1.32E+00	8.07E+00
		1312.10		97.50	1.72E+01		7.27E+00	8.31E+00
	CR-51	320.08		9.83	2.31E+01	2.31E+01	1.79E+00	1.14E+01
	MN-54	834.83		99.97	2.87E-01	2.87E-01	6.11E-02	1.40E-01
	CO-56	846.75		99.96	5.22E-01	5.22E-01	-1.04E-01	2.55E-01
		1037.75		14.03	3.82E+00		1.19E+00	1.86E+00
		1238.25		67.00	1.60E+00		9.31E+00	7.85E-01
		1771.40		15.51	2.53E+00		3.66E-01	1.19E+00
		2598.48		16.90	1.13E+00		4.88E-01	4.76E-01
	CO-57	122.06		85.51	2.26E-01	2.26E-01	1.57E-01	1.12E-01
		136.48		10.60	1.88E+00		-6.85E-01	9.33E-01
	CO-58	810.76		99.40	5.55E-01	5.55E-01	4.83E-02	2.71E-01
	FE-59	1099.22		56.50	1.81E+00	1.81E+00	-7.22E-01	8.79E-01
		1291.56		43.20	2.29E+00		2.26E-01	1.10E+00
	CO-60	1173.22		100.00	2.23E-01	2.20E-01	-2.74E-03	1.08E-01
		1332.49		100.00	2.20E-01		-1.53E-01	1.06E-01
	ZN-65	1115.52		50.75	6.55E-01	6.55E-01	-4.61E-02	3.19E-01
	GA-67	93.31		35.70	7.75E+08	7.75E+08	6.22E+09	3.86E+08
		208.95		2.24	1.26E+10		2.72E+09	6.27E+09
		300.22		16.00	2.14E+09		3.51E+08	1.06E+09
	SE-75	121.11		16.70	1.58E+00	4.63E-01	2.99E-01	7.84E-01
		136.00		59.20	4.63E-01		-2.35E-01	2.30E-01
		264.65		59.80	5.76E-01		-1.09E-01	2.85E-01
		279.53		25.20	1.37E+00		-1.10E-03	6.80E-01
		400.65		11.40	3.30E+00		-1.05E+00	1.63E+00
	RB-82	776.52		13.00	2.15E+01	2.15E+01	-6.16E+00	1.05E+01
	RB-83	520.41		46.00	8.94E-01	8.94E-01	2.59E-02	4.39E-01
		529.64		30.30	1.40E+00		9.06E-03	6.88E-01
		552.65		16.40	2.56E+00		-7.01E-01	1.25E+00
	KR-85	513.99		0.43	4.71E+01	4.71E+01	-3.33E+00	2.32E+01
	SR-85	513.99		99.27	5.84E-01	5.84E-01	-4.13E-02	2.87E-01
	Y-88	898.02		93.40	4.78E-01	3.83E-01	5.30E-02	2.33E-01
		1836.01		99.38	3.83E-01		3.54E-01	1.82E-01
	MO-93	263.06		56.72	3.53E-01	1.88E-01	-6.58E-02	1.75E-01
		684.67		99.68	1.88E-01		-1.34E-02	9.20E-02
		1477.11		99.08	2.74E-01		-7.29E-02	1.33E-01
	NB-93M	16.57		9.43	1.83E+02	1.83E+02	2.03E+01	9.08E+01
	NB-94	702.63		100.00	2.14E-01	2.14E-01	2.38E-01	1.05E-01
		871.10		100.00	2.17E-01		-4.14E-02	1.06E-01
	NB-95	765.79		99.81	2.39E+00	2.39E+00	1.12E+01	1.18E+00
	NB-95M	235.69		25.00	1.58E+08	1.58E+08	-2.62E+08	7.86E+07
	ZR-95	724.18		43.70	1.37E+00	1.05E+00	-1.05E+00	6.70E-01

Analysis Report for 1707089-16

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	ZR-95	756.72		55.30	1.05E+00	1.05E+00	-1.84E-01	5.13E-01
	MO-99	181.06		6.20	1.92E+11	1.17E+11	-1.25E+10	9.50E+10
		739.58		12.80	1.17E+11		4.07E+09	5.71E+10
		778.00		4.50	3.03E+11		-8.56E+10	1.48E+11
	RU-103	497.08		89.00	1.23E+00	1.23E+00	4.06E-01	6.04E-01
	RU-106	621.84		9.80	2.21E+00	2.21E+00	7.51E-01	1.08E+00
	AG-108M	433.93		89.90	2.24E-01	2.24E-01	9.51E-02	1.11E-01
		614.37		90.40	3.58E-01		4.73E-02	1.77E-01
		722.95		90.50	2.30E-01		-5.53E-02	1.13E-01
+	CD-109	88.03	*	3.72	1.24E+01	1.24E+01	4.08E+01	6.18E+00
	AG-110M	657.75		93.14	2.63E-01	2.63E-01	9.26E-02	1.29E-01
		677.61		10.53	2.26E+00		3.65E-01	1.10E+00
		706.67		16.46	1.62E+00		9.24E-02	7.93E-01
		763.93		21.98	1.43E+00		-1.02E+01	7.02E-01
		884.67		71.63	4.07E-01		-9.04E-02	1.99E-01
		1384.27		23.94	1.42E+00		-1.25E+00	6.88E-01
	CD-113M	263.70		0.02	8.52E+02	8.52E+02	-1.62E+02	4.22E+02
	SN-113	255.12		1.93	1.87E+01	5.83E-01	-1.38E+00	9.28E+00
		391.69		64.90	5.83E-01		-4.26E-02	2.88E-01
	TE123M	159.00		84.10	3.54E-01	3.54E-01	-1.55E-01	1.76E-01
	SB-124	602.71		97.87	6.37E-01	6.37E-01	-1.04E-01	3.12E-01
		645.85		7.26	8.12E+00		7.99E-01	3.97E+00
		722.78		11.10	5.88E+00		-1.41E+00	2.87E+00
		1691.02		49.00	1.19E+00		2.28E-01	5.63E-01
	I-125	35.49		6.49	1.58E+01	1.58E+01	-3.86E+00	7.85E+00
	SB-125	176.33		6.89	2.59E+00	7.68E-01	7.43E-01	1.28E+00
		427.89		29.33	7.68E-01		1.87E-01	3.79E-01
		463.38		10.35	2.03E+00		-5.61E-02	9.99E-01
		600.56		17.80	1.20E+00		1.84E-01	5.86E-01
		635.90		11.32	1.72E+00		-1.46E-01	8.41E-01
	SB-126	414.70		83.30	6.47E+01	4.90E+01	-1.56E+00	3.19E+01
		666.33		99.60	5.91E+01		1.30E+02	2.90E+01
		695.00		99.60	4.90E+01		-2.00E+01	2.39E+01
		720.50		53.80	9.95E+01		2.26E+01	4.87E+01
+	SN-126	87.57	*	37.00	1.07E+00	1.07E+00	3.54E+00	5.36E-01
	SB-127	473.00		25.00	4.35E+07	2.92E+07	1.72E+07	2.14E+07
		685.20		35.70	2.92E+07		-2.08E+06	1.43E+07
		783.80		14.70	9.77E+07		2.35E+08	4.79E+07
	I-129	29.78		57.00	1.01E+00	1.01E+00	-3.74E-01	4.99E-01
		33.60		13.20	2.88E+00		-6.16E-01	1.43E+00
		39.58		7.52	3.43E+00		1.44E+00	1.70E+00
	I-131	284.30		6.05	1.68E+04	1.17E+03	7.71E+03	8.31E+03
		364.48		81.20	1.17E+03		1.39E+01	5.76E+02
		636.97		7.26	1.31E+04		5.59E+03	6.40E+03
		722.89		1.80	5.96E+04		-1.43E+04	2.92E+04
	TE-132	49.72		13.10	2.15E+09	3.21E+08	-1.33E+10	1.07E+09
		228.16		88.00	3.21E+08		-2.98E+07	1.59E+08
	BA-133	81.00		33.00	5.75E-01	5.75E-01	-8.19E+00	2.86E-01
		302.84		17.80	1.13E+00		3.48E-01	5.58E-01
		356.01		60.00	6.89E-01		8.67E-04	3.42E-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	2.42E+05	2.42E+05	-3.44E+06	1.20E+05
	CS-134	563.23		8.38	2.54E+00	2.67E-01	-1.30E-01	1.25E+00

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-134	569.32	15.43	1.39E+00	2.67E-01	-1.94E-01	6.82E-01
	604.70	97.60	3.74E-01		-1.44E+01	1.85E-01
	795.84	85.40	2.67E-01		4.53E-02	1.30E-01
	801.93	8.73	2.73E+00		3.71E-01	1.34E+00
CS-135	268.24	16.00	1.29E+00	1.29E+00	-9.50E-02	6.40E-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	4.23E+02	4.05E+01	2.11E+02	2.10E+02
	163.89	4.61	6.84E+02		5.05E+02	3.40E+02
	176.55	13.56	2.28E+02		6.55E+01	1.13E+02
	273.65	12.66	3.09E+02		1.36E+02	1.53E+02
	340.57	48.50	7.89E+01		-3.08E-01	3.90E+01
	818.50	99.70	4.05E+01		-3.19E+00	1.98E+01
	1048.07	79.60	4.93E+01		-3.15E+01	2.39E+01
	1235.34	19.70	3.73E+02		1.17E+03	1.83E+02
CS-137	661.65	85.12	2.43E-01	2.43E-01	-5.38E-03	1.19E-01
LA-138	788.74	34.00	7.00E-01	3.40E-01	-1.06E-01	3.43E-01
	1435.80	66.00	3.40E-01		-1.18E-01	1.64E-01
CE-139	165.85	80.35	3.45E-01	3.45E-01	1.81E-02	1.71E-01
BA-140	162.64	6.70	5.51E+02	1.71E+02	5.47E+02	2.73E+02
	304.84	4.50	9.19E+02		-2.57E+02	4.54E+02
	423.70	3.20	1.43E+03		-2.87E+02	7.06E+02
	437.55	2.00	2.11E+03		2.40E+02	1.04E+03
	537.32	25.00	1.71E+02		2.59E+01	8.39E+01
LA-140	328.77	20.50	2.06E+02	5.96E+01	-5.44E+01	1.02E+02
	487.03	45.50	9.53E+01		8.63E+01	4.69E+01
	815.85	23.50	1.90E+02		-2.65E+01	9.26E+01
	1596.49	95.49	5.96E+01		5.60E+01	2.88E+01
CE-141	145.44 *	48.40	3.78E+00	3.78E+00	6.73E+00	1.88E+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	1.81E+00	1.81E+00	-7.13E-01	8.96E-01
PM-144	476.78	42.00	5.76E-01	2.22E-01	1.77E-01	2.84E-01
	618.01	98.60	2.22E-01		-3.74E-03	1.09E-01
	696.49	99.49	2.36E-01		-2.14E-02	1.16E-01
PM-145	36.85	21.70	1.39E+00	7.44E-01	1.11E-01	6.91E-01
	37.36	39.70	7.44E-01		4.61E-02	3.69E-01
	42.30	15.10	1.53E+00		-4.75E-01	7.60E-01
	72.40	2.31	9.29E+00		-8.67E+01	4.62E+00
PM-146	453.90	39.94	5.16E-01	5.16E-01	1.19E-02	2.54E-01
	735.90	14.01	1.43E+00		1.75E-01	6.96E-01
	747.13	13.10	1.56E+00		-2.89E-01	7.62E-01
ND-147	91.11	28.90	3.60E+02	3.60E+02	-1.57E+01	1.79E+02
	531.02	13.10	7.89E+02		1.33E+02	3.88E+02
PM-149	285.90	3.10	1.98E+14	1.98E+14	-4.59E+13	9.81E+13
EU-152	121.78	20.50	7.40E-01	7.40E-01	5.16E-01	3.67E-01
	244.69	5.40	5.32E+00		5.24E+01	2.64E+00
	344.27	19.13	1.07E+00		-1.08E-01	5.27E-01
	778.89	9.20	2.16E+00		1.24E-02	1.05E+00
	964.01	10.40	2.32E+00		4.90E-01	1.13E+00
	1085.78	7.22	3.01E+00		1.68E+00	1.46E+00

Analysis Report for 1707089-16

HTC-A06-S001-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-152	1112.02		9.60	2.36E+00	7.40E-01	-3.56E-01	1.14E+00
		1407.95		14.94	2.31E+00		6.28E+00	1.13E+00
	GD-153	97.43		31.30	6.24E-01	6.24E-01	5.86E-01	3.10E-01
		103.18		22.20	8.32E-01		-8.80E-01	4.13E-01
	EU-154	123.07		40.50	3.78E-01	3.78E-01	1.74E-01	1.88E-01
		723.30		19.70	1.08E+00		-2.59E-01	5.28E-01
		873.19		11.50	1.95E+00		-7.78E-01	9.52E-01
		996.32		10.30	2.24E+00		4.33E-01	1.09E+00
		1004.76		17.90	1.33E+00		-5.19E-02	6.48E-01
		1274.45		35.50	6.24E-01		1.11E-02	3.01E-01
	EU-155	86.50		30.90	6.53E-01	6.53E-01	2.13E+00	3.25E-01
		105.30		20.70	7.05E-01		-1.47E-01	3.50E-01
	EU-156	811.77		10.40	1.84E+02	1.84E+02	3.51E+01	8.95E+01
		1153.47		7.20	3.70E+02		6.53E+02	1.80E+02
		1230.71		8.90	2.10E+02		4.28E+01	1.01E+02
	HO-166M	184.41		72.60	3.36E-01	3.36E-01	3.16E+00	1.67E-01
		280.45		29.60	6.57E-01		-4.48E-02	3.25E-01
		410.94		11.10	1.90E+00		-7.28E-01	9.35E-01
		711.69		54.10	3.65E-01		1.74E-02	1.78E-01
	TM-171	66.72		0.14	1.49E+02	1.49E+02	1.16E+02	7.43E+01
	HF-172	67.35		5.31	3.88E+00	1.46E+00	2.02E+00	1.93E+00
		125.81		11.30	1.46E+00		-9.95E-01	7.25E-01
	LU-172	181.53		20.60	2.35E+04	9.85E+03	-2.86E+05	1.17E+04
		900.72		29.81	2.22E+04		-1.23E+04	1.08E+04
		1093.66		62.50	9.85E+03		2.94E+03	4.78E+03
	LU-173	100.72		5.24	3.10E+00	1.17E+00	-1.18E-01	1.54E+00
		272.11		21.20	1.17E+00		2.15E+00	5.79E-01
	HF-175	343.40		84.00	6.38E-01	6.38E-01	-6.48E-02	3.15E-01
	LU-176	88.34		13.30	1.47E+00	1.98E-01	-3.40E+00	7.33E-01
		201.83		86.00	1.98E-01		-9.96E-02	9.81E-02
		306.78		94.00	2.01E-01		-1.43E-01	9.92E-02
	HF-181	133.02		41.70	1.87E+00	1.25E+00	2.31E-01	9.26E-01
		345.85		17.20	5.99E+00		-6.04E-01	2.96E+00
		482.03		82.80	1.25E+00		3.10E-01	6.13E-01
	TA-182	67.75		41.20	8.22E-01	8.22E-01	4.29E-01	4.09E-01
		1121.30		34.90	3.25E+00		3.25E+01	1.61E+00
		1189.05		16.23	2.40E+00		-9.57E-01	1.16E+00
		1221.41		26.98	1.42E+00		-2.44E-01	6.88E-01
		1231.02		11.44	3.22E+00		6.58E-01	1.55E+00
	IR-192	308.46		29.68	1.60E+00	9.87E-01	-5.62E-01	7.93E-01
		468.07		48.10	9.87E-01		7.20E-02	4.85E-01
	HG-203	279.19		77.30	1.12E+00	1.12E+00	1.48E-02	5.56E-01
	TL-204	374.74		94.11	2.09E-01	2.09E-01	-1.16E-01	1.03E-01
		899.15		99.16	2.49E-01		-1.67E-02	1.21E-01
		911.74		91.10	2.64E-01		3.56E-02	1.29E-01
	BI-207	569.67		97.72	2.04E-01	2.04E-01	4.20E-02	1.00E-01
		1063.62		74.90	2.86E-01		-1.81E-01	1.39E-01
	TL-208	583.14		30.22	7.09E-01	4.43E-01	9.07E-01	3.48E-01
		860.37		4.48	5.06E+00		9.34E-01	2.47E+00
		2614.66		35.85	4.43E-01		5.41E-01	2.04E-01
	BI-210M	262.00		45.00	4.48E-01	4.48E-01	1.03E-01	2.22E-01
		300.00		23.00	1.05E+00		1.72E-01	5.19E-01
+	PB-210	46.50	*	4.25	5.82E+00	5.82E+00	2.23E+01	2.89E+00

Analysis Report for 1707089-16

HTC-A06-S001-0006-01

	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	7.65E+00	7.47E+00	9.40E+00	3.78E+00
		831.96		2.90	7.47E+00		2.50E+00	3.64E+00
	BI-212	727.17		11.80	1.74E+00	1.74E+00	1.23E+00	8.52E-01
		1620.62		2.75	7.92E+00		1.73E+00	3.80E+00
+	PB-212	238.63	*	44.60	1.02E+00	1.02E+00	7.84E-01	5.06E-01
		300.09		3.41	7.07E+00		1.16E+00	3.50E+00
+	BI-214	609.31	*	46.30	7.52E-01	7.52E-01	4.09E+01	3.72E-01
		1120.29	*	15.10	2.60E+00		4.13E+01	1.28E+00
		1764.49	*	15.80	2.00E+00		4.49E+01	9.70E-01
		2204.22	*	4.98	3.84E+00		4.47E+01	1.81E+00
+	PB-214	295.21	*	19.19	1.36E+00	9.68E-01	4.37E+01	6.73E-01
		351.92	*	37.19	9.68E-01		4.46E+01	4.81E-01
	RN-219	401.80		6.50	3.30E+00	3.30E+00	1.94E-01	1.63E+00
+	RA-223	323.87	*	3.88	5.59E+00	5.59E+00	3.51E+00	2.76E+00
	RA-224	240.98		3.95	7.61E+00	7.61E+00	8.30E+01	3.78E+00
	RA-225	40.00		31.00	8.45E+01	8.45E+01	3.56E+01	4.19E+01
+	RA-226	186.21	*	3.28	9.76E+00	9.76E+00	9.28E+01	4.86E+00
	TH-227	50.10		8.40	2.30E+00	1.86E+00	-1.42E+01	1.14E+00
		236.00		11.50	1.86E+00		-3.09E+00	9.23E-01
		256.20		6.30	3.23E+00		2.84E+00	1.60E+00
	AC-228	338.32		11.40	1.82E+00	8.47E-01	1.16E+00	8.99E-01
		911.07		27.70	8.47E-01		4.60E-01	4.13E-01
		969.11		16.60	1.38E+00		-1.18E+00	6.72E-01
	TH-230	48.44		16.90	1.27E+00	1.27E+00	1.23E+00	6.32E-01
		62.85		4.60	4.62E+00		2.67E+01	2.30E+00
		67.67		0.37	5.03E+01		2.62E+01	2.50E+01
	PA-231	283.67		1.60	1.22E+01	8.56E+00	-3.51E-01	6.06E+00
		302.67		2.30	8.56E+00		2.64E+00	4.24E+00
+	TH-231	25.64		14.70	7.29E+00	6.02E+00	2.44E+00	3.61E+00
		84.21	*	6.40	6.02E+00		6.48E+00	3.00E+00
	PA-233	311.98		38.60	6.30E+00	6.30E+00	3.18E+00	3.11E+00
	PA-234	131.20		20.40	7.53E-01	7.53E-01	1.77E-01	3.74E-01
		733.99		8.80	2.17E+00		-4.62E-01	1.06E+00
		946.00		12.00	1.89E+00		6.53E-01	9.19E-01
+	PA-234M	1001.03	*	0.92	3.57E+01	3.57E+01	2.83E+01	1.75E+01
+	TH-234	63.29	*	3.80	5.95E+00	5.95E+00	2.94E+01	2.96E+00
+	U-235	143.76	*	10.50	2.11E+00	2.11E+00	3.75E+00	1.05E+00
		163.35	*	4.70	3.77E+00		2.22E+00	1.87E+00
		205.31		4.70	4.27E+00		1.07E+00	2.12E+00
	NP-237	86.50		12.60	1.54E+00	1.54E+00	5.02E+00	7.67E-01
	NP-239	106.10		22.70	2.92E+12	2.92E+12	-6.10E+11	1.45E+12
		228.18		10.70	8.62E+12		-7.99E+11	4.27E+12
		277.60		14.10	6.70E+12		-9.39E+11	3.32E+12
	AM-241	59.54		35.90	5.16E-01	5.16E-01	-2.00E-01	2.56E-01
	AM-243	74.67		66.00	3.90E-01	3.90E-01	1.77E+00	1.94E-01
	CM-243	209.75		3.29	6.04E+00	1.44E+00	-2.61E+00	2.99E+00
		228.14		10.60	1.86E+00		-1.72E-01	9.21E-01
		277.60		14.00	1.44E+00		-2.02E-01	7.14E-01

Analysis Report for 1707089-16

HTC-A06-S001-0006-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A06-S001-0006-01

Elapsed Live time: 3600
Elapsed Real Time: 3629

Channel								
1:	0	0	0	0	0	0	0	0
9:	73	1061	1126	1063	1064	1158	1044	1061
17:	1042	916	941	890	902	853	888	849
25:	868	874	875	890	825	852	849	848
33:	876	790	814	876	857	936	865	916
41:	935	925	910	977	1024	1432	1971	1380
49:	1057	1158	1189	1194	1434	1488	1275	1242
57:	1306	1382	1517	1639	1709	1806	2691	3180
65:	2155	1795	1897	2096	1983	1910	1981	2032
73:	2085	2666	4667	4781	5971	6501	3194	2107
81:	1946	1919	1791	2263	2114	1871	2695	3138
89:	2236	2117	2108	2448	3756	2728	1719	1433
97:	1276	1389	1434	1242	1199	1156	1181	1196
105:	1187	1167	1249	1195	1251	1238	1272	1287
113:	1338	1381	1232	1178	1195	1206	1173	1232
121:	1196	1238	1255	1232	1184	1161	1193	1180
129:	1162	1307	1206	1229	1149	1180	1216	1129
137:	1182	1174	1187	1270	1190	1188	1271	1501
145:	1455	1323	1181	1208	1129	1245	1134	1212
153:	1293	1316	1288	1261	1197	1138	1150	1136
161:	1168	1138	1185	1225	1133	1046	1092	1018
169:	1014	1050	1094	1043	987	1024	1013	1012
177:	1013	945	965	965	931	1018	969	1085
185:	1568	3206	3171	1517	1043	955	926	937
193:	890	963	898	920	922	903	893	833
201:	881	882	840	802	862	869	791	769
209:	820	743	769	755	726	750	716	731
217:	661	700	732	705	747	672	693	694
225:	695	684	628	696	614	655	643	654
233:	665	648	671	819	824	720	889	786
241:	1171	2876	2571	1002	579	564	535	531
249:	504	522	555	515	535	514	556	566
257:	646	629	677	605	524	525	523	525
265:	509	471	464	523	607	691	664	579
273:	537	532	580	573	500	463	491	434
281:	443	484	442	459	429	467	480	471
289:	441	456	474	447	488	1231	4382	5301
297:	1737	545	389	458	443	413	421	394
305:	395	366	351	362	370	345	384	369
313:	345	378	375	337	351	367	333	347
321:	308	369	354	402	349	345	300	340
329:	367	397	356	370	347	357	382	391
337:	341	419	386	390	379	320	346	337
345:	331	348	340	364	369	609	3116	8469
353:	6401	1453	329	281	295	266	274	274
361:	253	270	249	283	282	253	242	229

369:	245	263	255	241	232	248	237	274

Sample Title: HTC-A06-S001-0006-01

Channel								
377:	279	266	279	277	267	266	290	275
385:	266	285	310	294	335	353	266	280
393:	271	248	286	284	265	271	247	263
401:	292	347	295	316	308	333	296	283
409:	272	266	272	258	281	274	253	268
417:	284	270	260	283	271	256	258	263
425:	262	249	281	281	252	230	216	228
433:	244	229	192	243	229	202	187	220
441:	192	194	175	213	238	195	186	178
449:	195	193	181	203	173	204	231	232
457:	198	189	154	204	193	227	201	202
465:	170	160	177	160	171	170	183	147
473:	163	193	202	174	168	167	193	218
481:	225	178	156	173	192	161	232	214
489:	156	147	165	146	171	153	163	145
497:	180	171	143	148	149	139	151	131
505:	148	148	126	175	171	210	227	187
513:	172	170	121	125	151	134	152	138
521:	146	123	135	128	149	120	124	146
529:	135	145	132	146	159	189	170	129
537:	138	130	128	147	117	131	165	165
545:	129	143	144	152	123	133	151	124
553:	123	114	104	142	134	125	148	133
561:	131	147	119	115	121	144	128	126
569:	128	144	109	127	164	121	128	128
577:	137	140	135	183	142	143	165	162
585:	145	100	111	108	116	134	114	127
593:	113	110	105	105	111	132	123	111
601:	122	116	113	131	135	117	219	1558
609:	5072	5045	1475	219	100	90	109	86
617:	106	90	87	93	96	96	96	88
625:	89	76	79	107	89	92	82	90
633:	84	91	86	106	75	95	100	98
641:	97	72	101	108	96	85	88	94
649:	91	104	94	94	88	78	103	81
657:	101	84	83	80	95	83	85	116
665:	218	239	123	79	87	99	81	105
673:	85	82	83	73	86	76	73	80
681:	88	68	77	96	83	92	79	77
689:	95	69	91	87	96	94	87	84
697:	66	85	102	100	69	108	136	139
705:	104	81	83	73	89	86	79	93
713:	81	87	96	93	93	85	114	116
721:	99	83	91	89	103	82	92	105
729:	88	80	71	76	70	79	82	81
737:	82	83	73	87	102	117	112	97
745:	102	65	71	69	87	70	87	92
753:	108	93	69	73	77	80	68	95
761:	63	74	76	90	99	127	266	487
769:	442	203	100	72	81	69	60	71
777:	70	78	66	68	82	76	111	96
785:	139	205	150	96	70	77	81	65
793:	80	91	94	76	77	57	80	81

801:	77	63	92	88	121	183	164	91

Sample Title: HTC-A06-S001-0006-01

Channel								
809:	77	68	85	72	70	79	79	71
817:	75	80	71	85	99	98	81	78
825:	73	101	94	78	68	74	85	93
833:	109	64	63	98	95	106	147	120
841:	94	85	70	72	72	86	77	74
849:	92	73	73	95	71	70	95	85
857:	78	84	82	88	86	76	81	72
865:	70	71	75	65	83	85	78	78
873:	67	59	67	91	82	91	79	85
881:	79	77	58	88	69	84	72	74
889:	81	69	84	79	75	86	89	83
897:	86	72	80	81	79	88	70	87
905:	100	83	56	104	82	73	78	78
913:	76	65	76	67	70	74	64	59
921:	73	58	70	68	60	81	70	76
929:	71	71	54	98	215	329	243	86
937:	65	66	69	75	67	55	62	76
945:	66	62	69	77	71	68	64	76
953:	54	61	73	60	62	52	67	75
961:	58	65	71	90	101	66	67	75
969:	66	79	59	62	78	61	77	71
977:	79	68	72	67	52	68	58	61
985:	59	72	72	55	65	59	51	61
993:	50	72	62	63	63	52	76	87
1001:	125	93	78	59	59	71	55	47
1009:	55	63	63	59	66	68	60	72
1017:	51	58	53	63	57	60	57	54
1025:	65	57	61	60	59	62	64	53
1033:	63	63	44	70	66	50	49	52
1041:	71	45	46	40	44	52	39	53
1049:	44	44	75	69	74	53	42	49
1057:	56	45	53	43	55	44	58	50
1065:	47	47	46	65	64	70	60	51
1073:	48	61	49	54	54	48	39	40
1081:	35	52	63	45	46	45	52	46
1089:	40	36	43	38	41	62	54	48
1097:	54	51	50	54	46	45	54	51
1105:	62	51	56	53	46	50	57	43
1113:	54	43	60	43	58	145	585	1077
1121:	700	200	69	39	39	49	45	52
1129:	47	54	61	42	78	55	46	48
1137:	41	50	50	37	41	54	52	42
1145:	37	47	55	63	44	49	36	54
1153:	65	113	145	99	50	49	49	50
1161:	55	38	48	46	47	37	44	40
1169:	39	38	41	37	52	45	46	40
1177:	47	44	49	56	51	59	44	56
1185:	35	40	41	43	26	42	43	51
1193:	54	37	48	47	22	52	38	39
1201:	38	37	33	43	52	57	63	75
1209:	55	51	34	40	38	29	38	48
1217:	33	48	35	29	43	34	35	42
1225:	37	42	33	35	45	37	26	21

1233:	37	40	39	104	320	396	232	86

Sample Title: HTC-A06-S001-0006-01

Channel								
1241:	37	26	43	26	35	56	39	31
1249:	33	45	45	64	52	52	47	39
1257:	48	40	40	33	34	31	41	34
1265:	49	52	30	22	30	47	35	37
1273:	39	32	39	40	40	43	66	89
1281:	106	83	30	51	41	44	37	39
1289:	40	35	37	31	23	40	44	34
1297:	31	34	19	26	36	37	38	53
1305:	30	25	33	39	39	32	42	38
1313:	35	48	40	36	30	33	39	28
1321:	44	28	26	34	35	33	36	50
1329:	36	33	28	38	23	28	46	42
1337:	35	39	30	32	39	30	31	25
1345:	40	36	41	37	40	40	30	34
1353:	31	51	34	24	34	43	27	33
1361:	33	35	33	28	37	35	39	17
1369:	32	33	42	44	36	36	54	136
1377:	274	239	134	41	32	38	38	60
1385:	76	48	35	36	29	36	34	31
1393:	27	30	35	30	27	34	43	71
1401:	107	83	54	37	44	77	126	150
1409:	88	39	36	35	25	46	39	28
1417:	29	30	36	30	36	30	35	43
1425:	35	44	27	27	30	29	43	37
1433:	33	31	28	42	51	21	24	34
1441:	34	27	26	25	36	32	30	33
1449:	32	41	36	36	31	45	30	31
1457:	30	45	54	89	72	40	28	38
1465:	37	33	42	23	31	41	37	32
1473:	34	35	36	36	26	34	45	33
1481:	36	38	42	27	35	43	35	26
1489:	32	41	42	46	46	36	22	36
1497:	34	24	32	31	38	38	35	35
1505:	37	33	71	125	160	99	44	37
1513:	32	39	31	43	41	32	35	31
1521:	20	33	41	44	39	42	27	31
1529:	36	37	40	28	34	39	35	39
1537:	40	49	51	28	41	39	60	41
1545:	51	20	33	25	28	28	29	14
1553:	31	34	28	30	17	16	33	25
1561:	33	21	22	23	25	25	26	20
1569:	23	23	23	29	28	27	25	19
1577:	29	33	31	30	39	61	52	33
1585:	29	26	29	34	24	21	18	23
1593:	34	33	26	23	40	28	34	31
1601:	26	22	30	21	20	21	31	19
1609:	20	19	24	22	17	22	19	23
1617:	21	18	17	25	19	22	17	16
1625:	21	12	24	14	15	18	20	26
1633:	13	24	13	16	16	15	19	17
1641:	23	18	13	18	14	15	16	19
1649:	21	12	8	19	15	16	12	17
1657:	14	12	22	41	61	37	19	15

1665:	18	10	12	15	12	14	15	9

Sample Title: HTC-A06-S001-0006-01

Channel								
1673:	14	16	10	12	9	16	11	16
1681:	11	18	25	19	21	7	10	12
1689:	11	15	14	22	12	17	6	10
1697:	11	6	11	18	16	8	7	6
1705:	8	11	9	9	23	9	10	11
1713:	13	9	10	16	12	13	11	6
1721:	9	12	8	11	9	17	43	104
1729:	170	120	38	14	11	7	12	9
1737:	8	16	10	11	6	11	10	13
1745:	10	15	7	10	15	13	7	9
1753:	7	6	13	17	11	13	10	12
1761:	27	197	520	715	440	139	22	7
1769:	11	5	10	9	9	7	5	5
1777:	7	13	10	6	10	13	12	9
1785:	10	9	8	6	9	8	7	6
1793:	4	7	7	8	9	5	11	8
1801:	6	10	6	11	10	9	11	6
1809:	7	4	3	3	3	8	9	10
1817:	8	5	4	10	8	9	10	5
1825:	8	13	4	8	3	7	8	7
1833:	9	14	7	14	18	27	19	7
1841:	7	10	9	7	40	73	100	71
1849:	12	10	6	11	7	9	11	10
1857:	6	9	6	4	5	5	4	16
1865:	9	9	2	13	10	15	10	14
1873:	20	9	14	9	8	15	7	17
1881:	6	8	9	8	10	9	7	7
1889:	7	13	11	14	3	9	14	15
1897:	11	5	12	12	5	9	14	5
1905:	5	5	4	9	6	13	7	10
1913:	4	11	5	2	11	11	10	11
1921:	7	8	6	13	10	14	7	8
1929:	9	13	8	10	6	10	11	10
1937:	17	7	13	6	7	9	9	9
1945:	8	13	11	7	12	10	5	11
1953:	9	10	10	5	7	8	15	5
1961:	5	12	7	9	14	5	5	9
1969:	6	14	7	15	9	13	11	7
1977:	8	8	6	8	9	5	5	6
1985:	5	6	8	3	3	7	1	7
1993:	7	8	9	6	6	5	8	8
2001:	5	6	9	7	7	3	7	8
2009:	2	6	4	7	6	3	4	5
2017:	7	4	9	4	4	6	3	2
2025:	5	9	4	5	1	6	5	6
2033:	4	3	7	6	3	6	5	4
2041:	5	5	6	4	3	3	5	11
2049:	4	8	6	6	4	7	1	8
2057:	5	5	0	5	7	5	3	6
2065:	2	3	3	4	6	7	2	5
2073:	4	5	8	5	6	3	4	6
2081:	4	6	9	2	3	4	4	1
2089:	5	6	3	7	2	8	4	4

2097:	1	3	5	5	6	6	5	4

Sample Title: HTC-A06-S001-0006-01

Channel								
2105:	3	0	7	10	4	3	4	3
2113:	2	1	4	17	42	53	24	9
2121:	2	4	0	2	2	4	1	1
2129:	2	1	1	7	3	2	2	3
2137:	2	3	3	3	3	3	2	0
2145:	2	1	5	3	5	0	3	3
2153:	2	3	3	4	7	2	3	3
2161:	5	3	3	1	5	2	3	1
2169:	4	2	8	5	3	2	1	1
2177:	5	1	1	2	6	7	4	3
2185:	4	2	6	5	5	3	6	3
2193:	1	3	2	1	3	2	8	13
2201:	28	90	187	143	68	16	5	4
2209:	4	4	2	2	4	2	4	2
2217:	3	2	5	0	1	0	3	1
2225:	1	2	1	2	1	0	4	1
2233:	2	1	1	2	1	0	2	2
2241:	0	0	3	3	2	2	1	1
2249:	1	2	1	0	1	2	1	1
2257:	1	5	4	3	2	2	2	2
2265:	2	3	3	7	1	1	0	1
2273:	0	3	2	2	2	2	5	3
2281:	3	1	2	1	2	2	2	3
2289:	4	2	8	14	6	6	2	2
2297:	3	2	2	1	0	2	2	2
2305:	1	0	0	3	1	1	1	0
2313:	2	1	0	3	3	0	3	3
2321:	2	3	1	1	1	3	1	1
2329:	1	4	1	2	0	1	2	1
2337:	0	1	1	0	1	2	1	0
2345:	1	0	0	0	1	0	4	1
2353:	2	2	3	2	0	0	2	1
2361:	0	0	0	1	1	0	2	0
2369:	2	2	1	2	0	3	1	0
2377:	0	0	0	0	3	0	0	1
2385:	1	0	1	0	1	2	0	0
2393:	1	1	0	0	0	0	0	1
2401:	1	1	1	0	2	0	1	1
2409:	0	0	0	0	0	2	1	0
2417:	0	0	2	1	1	1	0	0
2425:	1	1	3	0	0	2	0	0
2433:	0	2	0	1	1	0	2	2
2441:	0	1	1	6	13	36	33	26
2449:	6	0	0	0	0	2	1	0
2457:	1	0	0	0	0	0	0	0
2465:	0	0	0	0	0	0	2	1
2473:	0	1	1	0	1	0	0	2
2481:	1	0	0	0	1	0	1	0
2489:	0	1	0	0	0	0	0	0
2497:	1	0	0	2	0	0	0	0
2505:	0	1	0	0	1	0	0	1
2513:	0	0	1	0	0	0	0	0
2521:	0	0	0	1	0	0	0	0

2529:	0	0	0	1	1	1	0	0

Sample Title: HTC-A06-S001-0006-01

Channel								
2537:	0	0	1	1	0	0	0	1
2545:	1	0	0	1	0	0	0	1
2553:	0	2	1	0	0	1	1	1
2561:	1	0	1	2	1	1	0	2
2569:	0	1	0	0	0	3	0	0
2577:	1	0	0	0	0	0	1	0
2585:	0	0	0	0	0	0	0	0
2593:	0	0	0	0	0	3	4	1
2601:	1	1	1	1	0	0	1	0
2609:	0	0	3	9	12	9	8	3
2617:	0	3	1	0	1	0	0	0
2625:	0	0	0	0	0	0	0	0
2633:	0	0	0	0	0	0	1	1
2641:	0	0	0	1	0	0	0	0
2649:	0	1	0	2	0	0	0	0
2657:	0	0	0	1	0	1	1	0
2665:	1	1	0	1	0	0	0	0
2673:	0	0	0	0	0	0	0	0
2681:	0	0	0	0	0	0	0	1
2689:	0	0	0	0	1	0	2	0
2697:	0	0	1	0	0	0	1	0
2705:	1	0	0	0	0	0	1	1
2713:	0	1	0	0	0	1	1	0
2721:	0	0	1	0	0	0	0	0
2729:	0	0	0	0	0	1	0	0
2737:	0	0	0	0	0	0	1	1
2745:	1	0	0	1	0	0	0	0
2753:	1	0	0	1	0	1	1	1
2761:	0	0	0	0	0	1	0	0
2769:	3	0	0	1	0	0	0	1
2777:	0	0	0	0	0	0	0	0
2785:	0	2	0	0	0	0	0	0
2793:	0	0	0	0	0	0	0	0
2801:	0	0	0	0	0	0	1	0
2809:	0	0	0	0	1	0	0	1
2817:	0	0	1	0	0	0	0	0
2825:	0	1	2	0	0	0	0	0
2833:	0	0	0	1	0	0	1	0
2841:	0	0	0	0	0	0	0	0
2849:	0	0	0	0	0	0	0	0
2857:	0	0	0	0	0	0	0	0
2865:	2	1	0	0	1	1	0	0
2873:	0	1	0	0	1	1	1	0
2881:	0	0	0	0	0	1	1	0
2889:	0	0	0	0	0	1	0	1
2897:	1	0	0	0	0	0	1	0
2905:	0	2	0	0	0	0	0	0
2913:	0	2	2	0	0	0	0	0
2921:	1	0	0	0	0	0	0	1
2929:	0	0	0	0	1	0	0	0
2937:	2	0	0	0	1	0	0	0
2945:	0	1	0	0	0	0	0	1
2953:	0	0	0	0	0	1	0	0

2961:	0	2	0	0	0	0	0	0

Sample Title: HTC-A06-S001-0006-01

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

3393:	0	0	0	0	1	0	0	0

Sample Title: HTC-A06-S001-0006-01

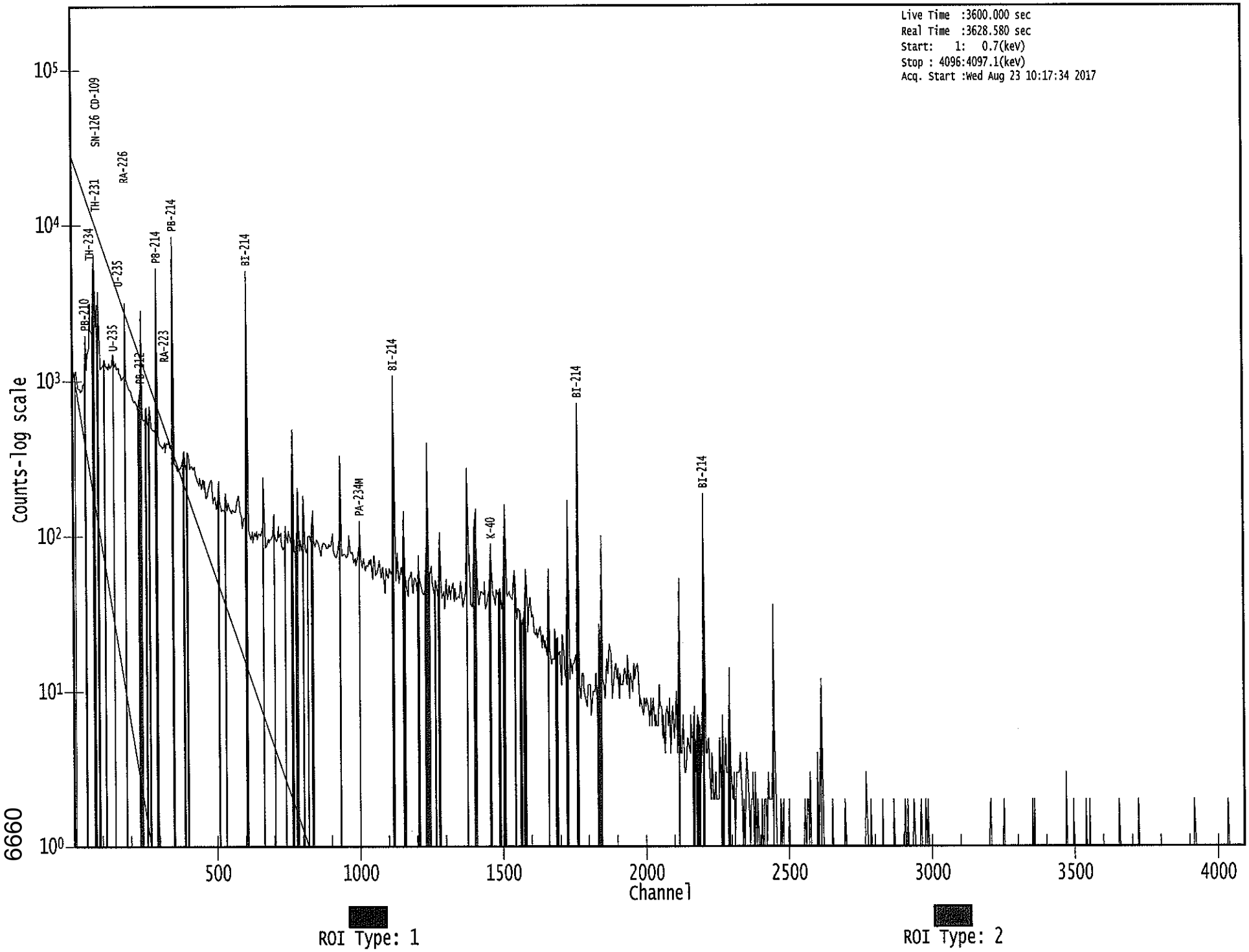
Channel								
3401:	0	1	0	0	0	0	0	1
3409:	0	0	0	0	0	0	0	0
3417:	0	1	0	0	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	1	0	0	0
3441:	1	1	0	0	0	0	0	0
3449:	0	0	0	1	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	3	0	0	0
3473:	0	0	0	0	0	0	0	1
3481:	0	0	0	0	0	0	0	1
3489:	0	0	0	0	0	0	2	0
3497:	0	0	0	0	0	0	0	0
3505:	0	0	0	1	0	0	0	0
3513:	0	1	0	0	1	0	1	0
3521:	0	0	0	0	0	0	0	0
3529:	0	1	1	0	0	0	0	0
3537:	0	0	2	0	0	0	0	0
3545:	0	0	0	0	0	0	0	2
3553:	1	0	0	0	0	1	1	0
3561:	0	0	0	0	0	0	0	0
3569:	0	0	1	0	0	0	0	0
3577:	0	0	1	0	0	0	0	1
3585:	0	0	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:	1	1	0	0	0	0	0	0
3617:	0	0	1	0	0	0	0	0
3625:	0	0	0	0	0	1	0	0
3633:	0	0	0	0	0	0	0	0
3641:	0	0	0	0	0	0	0	0
3649:	0	0	0	0	2	2	0	0
3657:	0	0	1	0	0	0	0	0
3665:	1	0	0	0	0	0	0	0
3673:	0	0	0	0	0	0	0	0
3681:	0	1	0	0	1	1	0	1
3689:	0	0	0	0	0	0	0	0
3697:	0	0	0	0	0	0	0	0
3705:	0	0	0	0	0	0	0	0
3713:	1	0	0	0	0	0	0	0
3721:	0	2	0	0	0	0	0	0
3729:	0	0	0	0	1	0	0	0
3737:	0	1	0	0	0	0	0	0
3745:	0	0	0	0	1	0	0	0
3753:	0	0	0	0	0	0	0	0
3761:	0	0	0	0	0	0	0	0
3769:	0	0	0	1	0	0	0	0
3777:	0	0	0	0	0	1	0	0
3785:	0	0	0	1	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	1	0	0	0	0
3817:	0	0	0	0	0	0	0	0

3825:	0	0	0	0	0	0	1	0

Sample Title: HTC-A06-S001-0006-01

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

0000055796.CNF



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Apex-Gamma

Analysis Report for 1707089-17
HTC-A06-S001-0612-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707089-17
Sample Description	: HTC-A06-S001-0612-01
Sample Type	: SOIL
Sample Size	: 6.378E+02 grams
Facility	: Countroom
Sample Taken On	: 5/16/2017 7:20:08AM
Acquisition Started	: 8/23/2017 10:17:48AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3614.0 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	: 55797

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/23/17

Analysis Report for 1707089-17

HTC-A06-S001-0612-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/23/2017 11:18:38AM
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	46.29	45.34	0.0000	0.00
2	53.18	52.23	0.0000	0.00
3	63.09	62.14	0.0000	0.00
4	76.27	75.33	0.0000	0.00
5	83.89	82.95	0.0000	0.00
6	87.52	86.58	0.0000	0.00
7	92.59	91.65	0.0000	0.00
8	113.34	112.41	0.0000	0.00
9	143.80	142.88	0.0000	0.00
10	153.99	153.07	0.0000	0.00
11	186.10	185.19	0.0000	0.00
12	238.28	237.39	0.0000	0.00
13	242.06	241.17	0.0000	0.00
14	257.36	256.47	0.0000	0.00
15	269.92	269.04	0.0000	0.00
16	295.26	294.39	0.0000	0.00
17	314.61	313.74	0.0000	0.00
18	323.57	322.71	0.0000	0.00
19	339.76	338.90	0.0000	0.00
20	351.91	351.06	0.0000	0.00
21	421.88	421.05	0.0000	0.00
22	480.58	479.77	0.0000	0.00
23	511.45	510.65	0.0000	0.00
24	609.26	608.50	0.0000	0.00
25	631.74	630.99	0.0000	0.00
26	665.38	664.65	0.0000	0.00
27	702.73	702.00	0.0000	0.00
28	709.25	708.53	0.0000	0.00
29	732.89	732.18	0.0000	0.00
30	741.70	740.99	0.0000	0.00
31	768.04	767.34	0.0000	0.00
32	786.07	785.38	0.0000	0.00
33	805.73	805.05	0.0000	0.00
34	911.20	910.57	0.0000	0.00
35	933.63	933.00	0.0000	0.00
36	960.74	960.12	0.0000	0.00
37	963.75	963.14	0.0000	0.00
38	1001.10	1000.50	0.0000	0.00
39	1120.15	1119.61	0.0000	0.00
40	1133.65	1133.11	0.0000	0.00
41	1155.43	1154.90	0.0000	0.00
42	1182.64	1182.13	0.0000	0.00

Analysis Report for 1707089-17

HTC-A06-S001-0612-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1206.87	1206.37	0.0000	0.00
44	1237.80	1237.31	0.0000	0.00
45	1280.51	1280.04	0.0000	0.00
46	1377.18	1376.76	0.0000	0.00
47	1385.11	1384.69	0.0000	0.00
48	1401.47	1401.06	0.0000	0.00
49	1407.74	1407.34	0.0000	0.00
50	1447.32	1446.94	0.0000	0.00
51	1460.51	1460.13	0.0000	0.00
52	1509.39	1509.04	0.0000	0.00
53	1660.67	1660.40	0.0000	0.00
54	1696.33	1696.08	0.0000	0.00
55	1729.18	1728.94	0.0000	0.00
56	1764.10	1763.89	0.0000	0.00
57	1838.35	1838.18	0.0000	0.00
58	1847.08	1846.91	0.0000	0.00
59	1873.36	1873.20	0.0000	0.00
60	2117.92	2117.91	0.0000	0.00
61	2135.82	2135.83	0.0000	0.00
62	2152.63	2152.64	0.0000	0.00
63	2203.43	2203.48	0.0000	0.00
64	2224.93	2224.99	0.0000	0.00
65	2277.85	2277.94	0.0000	0.00
66	2284.27	2284.36	0.0000	0.00
67	2292.77	2292.88	0.0000	0.00
68	2301.99	2302.10	0.0000	0.00
69	2427.43	2427.62	0.0000	0.00
70	2447.09	2447.30	0.0000	0.00
71	2613.72	2614.03	0.0000	0.00
72	2814.14	2814.60	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707089-17

HTC-A06-S001-0612-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/23/2017 11:18:38AM

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	46.29	42 -	48	45.34	1.36E+03	251.05	1.05E+04	2.24
	2	53.18	50 -	54	52.23	3.76E+02	208.17	9.33E+03	1.91
	3	63.09	59 -	65	62.14	2.07E+03	324.79	1.78E+04	2.14
	4	76.27	69 -	80	75.33	1.25E+04	561.96	3.32E+04	3.78
M	5	83.89	81 -	99	82.95	5.31E+02	163.99	7.74E+03	1.66
m	6	87.52	81 -	99	86.58	2.60E+03	349.49	1.85E+04	2.64
m	7	92.59	81 -	99	91.65	3.85E+03	346.73	1.60E+04	2.65
	8	113.34	110 -	116	112.41	3.04E+02	253.46	1.14E+04	3.47
	9	143.80	140 -	146	142.88	5.14E+02	252.39	1.12E+04	1.93
	10	153.99	151 -	156	153.07	3.00E+02	222.62	9.64E+03	3.08
	11	186.10	180 -	190	185.19	4.00E+03	348.79	1.40E+04	2.42
M	12	238.28	234 -	248	237.39	5.37E+02	191.35	6.01E+03	3.71
m	13	242.06	234 -	248	241.17	3.31E+03	211.50	5.46E+03	2.18
	14	257.36	252 -	261	256.47	4.20E+02	222.81	6.82E+03	4.75
	15	269.92	266 -	272	269.04	2.81E+02	163.52	4.69E+03	3.27
	16	295.26	291 -	299	294.39	7.15E+03	247.83	5.04E+03	2.32
	17	314.61	310 -	317	313.74	1.58E+02	150.92	3.70E+03	4.47
	18	323.57	320 -	326	322.71	1.24E+02	133.75	3.16E+03	2.18
	19	339.76	335 -	342	338.90	2.08E+02	147.31	3.46E+03	4.17
	20	351.91	346 -	355	351.06	1.18E+04	274.00	4.00E+03	2.37
	21	421.88	418 -	424	421.05	1.29E+02	117.53	2.42E+03	2.82
	22	480.58	477 -	483	479.77	1.00E+02	93.75	1.52E+03	1.96
	23	511.45	505 -	517	510.65	3.01E+02	145.97	2.36E+03	3.43
	24	609.26	603 -	614	608.50	7.52E+03	210.62	1.77E+03	2.47
	25	631.74	625 -	635	630.99	1.11E+02	96.54	1.19E+03	6.22
	26	665.38	661 -	669	664.65	2.30E+02	83.69	9.36E+02	2.24
	27	702.73	699 -	705	702.00	1.04E+02	64.69	6.91E+02	3.75
	28	709.25	706 -	712	708.53	5.54E+01	67.08	7.79E+02	4.36
	29	732.89	730 -	735	732.18	4.63E+01	54.38	5.53E+02	2.91
	30	741.70	736 -	748	740.99	1.71E+02	106.85	1.27E+03	3.95
	31	768.04	761 -	772	767.34	6.99E+02	111.12	1.19E+03	2.91
	32	786.07	780 -	790	785.38	1.43E+02	98.26	1.21E+03	2.37
	33	805.73	801 -	809	805.05	1.10E+02	80.29	9.27E+02	2.77
	34	911.20	907 -	913	910.57	5.86E+01	67.80	7.85E+02	2.07
	35	933.63	928 -	937	933.00	3.47E+02	86.02	8.56E+02	2.40
M	36	960.74	958 -	965	960.12	3.18E+01	36.50	3.09E+02	1.92
m	37	963.75	958 -	965	963.14	5.16E+01	43.84	3.72E+02	1.68
	38	1001.10	997 -	1004	1000.50	6.73E+01	66.27	6.77E+02	2.05
	39	1120.15	1114 -	1126	1119.61	1.52E+03	113.70	8.11E+02	2.49
	40	1133.65	1131 -	1135	1133.11	3.60E+01	36.68	2.60E+02	2.54

Analysis Report for 1707089-17

HTC-A06-S001-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1155.43	1150 -	1160	1154.90	1.71E+02	72.77	6.11E+02	2.66
	42	1182.64	1178 -	1186	1182.13	5.55E+01	60.61	5.31E+02	1.57
	43	1206.87	1203 -	1210	1206.37	5.09E+01	51.07	4.02E+02	1.64
	44	1237.80	1233 -	1242	1237.31	5.49E+02	79.25	5.81E+02	2.71
	45	1280.51	1275 -	1285	1280.04	1.10E+02	70.42	5.97E+02	1.82
	46	1377.18	1371 -	1380	1376.76	3.22E+02	64.20	4.03E+02	2.40
	47	1385.11	1382 -	1389	1384.69	8.04E+01	50.52	3.71E+02	2.83
M	48	1401.47	1397 -	1415	1401.06	9.62E+01	44.37	3.10E+02	2.43
m	49	1407.74	1397 -	1415	1407.34	2.27E+02	62.11	4.01E+02	3.27
	50	1447.32	1442 -	1452	1446.94	8.15E+01	54.48	3.53E+02	3.74
	51	1460.51	1455 -	1464	1460.13	1.34E+02	58.96	4.20E+02	2.87
	52	1509.39	1504 -	1514	1509.04	1.91E+02	67.40	4.98E+02	2.57
	53	1660.67	1655 -	1665	1660.40	1.05E+02	36.41	1.21E+02	2.09
	54	1696.33	1685 -	1707	1696.08	5.83E+01	66.41	3.03E+02	18.39
	55	1729.18	1721 -	1738	1728.94	2.33E+02	55.84	2.02E+02	3.44
	56	1764.10	1758 -	1771	1763.89	1.04E+03	75.56	1.69E+02	2.86
M	57	1838.35	1832 -	1851	1838.18	2.50E+01	29.71	1.30E+02	2.98
m	58	1847.08	1832 -	1851	1846.91	1.55E+02	35.38	1.04E+02	2.70
	59	1873.36	1870 -	1876	1873.20	2.58E+01	19.07	4.45E+01	3.76
	60	2117.92	2113 -	2122	2117.91	8.76E+01	21.33	1.48E+01	2.41
	61	2135.82	2133 -	2138	2135.83	9.64E+00	9.11	8.71E+00	1.46
	62	2152.63	2148 -	2157	2152.64	1.48E+01	15.26	2.44E+01	4.21
	63	2203.43	2197 -	2208	2203.48	2.71E+02	36.39	3.04E+01	3.33
	64	2224.93	2220 -	2229	2224.99	6.61E+00	7.81	4.78E+00	7.71
	65	2277.85	2275 -	2280	2277.94	8.65E+00	7.00	2.70E+00	1.90
	66	2284.27	2281 -	2288	2284.36	1.10E+01	6.63	0.00E+00	4.22
	67	2292.77	2289 -	2297	2292.88	2.40E+01	9.80	0.00E+00	2.25
	68	2301.99	2299 -	2304	2302.10	6.56E+00	6.40	2.88E+00	1.98
	69	2427.43	2423 -	2431	2427.62	4.93E+00	6.95	4.14E+00	1.08
	70	2447.09	2443 -	2450	2447.30	7.10E+01	16.85	0.00E+00	2.58
	71	2613.72	2609 -	2619	2614.03	3.20E+01	11.31	0.00E+00	3.23
	72	2814.14	2811 -	2817	2814.60	5.00E+00	4.47	0.00E+00	1.70

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/23/2017 11:18:38AM

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

Analysis Report for 1707089-17

HTC-A06-S001-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	46.29	42 -	48	1.36E+03	251.05	1.05E+04	1.97E+02
	2	53.18	50 -	54	3.76E+02	208.17	9.33E+03	1.68E+02
	3	63.09	59 -	65	2.07E+03	324.79	1.78E+04	2.56E+02
	4	76.27	69 -	80	1.25E+04	561.96	3.32E+04	4.24E+02
M	5	83.89	81 -	99	5.31E+02	163.99	7.74E+03	1.45E+02
m	6	87.52	81 -	99	2.60E+03	349.49	1.85E+04	2.24E+02
m	7	92.59	81 -	99	3.85E+03	346.73	1.60E+04	2.08E+02
	8	113.34	110 -	116	3.04E+02	253.46	1.14E+04	2.06E+02
	9	143.80	140 -	146	5.14E+02	252.39	1.12E+04	2.04E+02
	10	153.99	151 -	156	3.00E+02	222.62	9.64E+03	1.81E+02
	11	186.10	180 -	190	4.00E+03	348.79	1.40E+04	2.67E+02
M	12	238.28	234 -	248	5.37E+02	191.35	6.01E+03	1.27E+02
m	13	242.06	234 -	248	3.31E+03	211.50	5.46E+03	1.21E+02
	14	257.36	252 -	261	4.20E+02	222.81	6.82E+03	1.80E+02
	15	269.92	266 -	272	2.81E+02	163.52	4.69E+03	1.32E+02
	16	295.26	291 -	299	7.15E+03	247.83	5.04E+03	1.49E+02
	17	314.61	310 -	317	1.58E+02	150.92	3.70E+03	1.22E+02
	18	323.57	320 -	326	1.24E+02	133.75	3.16E+03	1.08E+02
	19	339.76	335 -	342	2.08E+02	147.31	3.46E+03	1.19E+02
	20	351.91	346 -	355	1.18E+04	274.00	4.00E+03	1.38E+02
	21	421.88	418 -	424	1.29E+02	117.53	2.42E+03	9.48E+01
	22	480.58	477 -	483	1.00E+02	93.75	1.52E+03	7.53E+01
	23	511.45	505 -	517	3.01E+02	145.97	2.36E+03	1.17E+02
	24	609.26	603 -	614	7.52E+03	210.62	1.77E+03	9.82E+01
	25	631.74	625 -	635	1.11E+02	96.54	1.19E+03	7.74E+01
	26	665.38	661 -	669	2.30E+02	83.69	9.36E+02	6.41E+01
	27	702.73	699 -	705	1.04E+02	64.69	6.91E+02	5.05E+01
	28	709.25	706 -	712	5.54E+01	67.08	7.79E+02	5.38E+01
	29	732.89	730 -	735	4.63E+01	54.38	5.53E+02	4.33E+01
	30	741.70	736 -	748	1.71E+02	106.85	1.27E+03	8.52E+01
	31	768.04	761 -	772	6.99E+02	111.12	1.19E+03	8.03E+01
	32	786.07	780 -	790	1.43E+02	98.26	1.21E+03	7.83E+01
	33	805.73	801 -	809	1.10E+02	80.29	9.27E+02	6.37E+01
	34	911.20	907 -	913	5.86E+01	67.80	7.85E+02	5.43E+01
	35	933.63	928 -	937	3.47E+02	86.02	8.56E+02	6.37E+01
M	36	960.74	958 -	965	3.18E+01	36.50	3.09E+02	2.89E+01
m	37	963.75	958 -	965	5.16E+01	43.84	3.72E+02	3.17E+01
	38	1001.10	997 -	1004	6.73E+01	66.27	6.77E+02	5.28E+01
	39	1120.15	1114 -	1126	1.52E+03	113.70	8.11E+02	6.81E+01
	40	1133.65	1131 -	1135	3.60E+01	36.68	2.60E+02	2.85E+01
	41	1155.43	1150 -	1160	1.71E+02	72.77	6.11E+02	5.58E+01
	42	1182.64	1178 -	1186	5.55E+01	60.61	5.31E+02	4.83E+01
	43	1206.87	1203 -	1210	5.09E+01	51.07	4.02E+02	4.03E+01
	44	1237.80	1233 -	1242	5.49E+02	79.25	5.81E+02	5.25E+01
	45	1280.51	1275 -	1285	1.10E+02	70.42	5.97E+02	5.53E+01
	46	1377.18	1371 -	1380	3.22E+02	64.20	4.03E+02	4.37E+01
	47	1385.11	1382 -	1389	8.04E+01	50.52	3.71E+02	3.88E+01
M	48	1401.47	1397 -	1415	9.62E+01	44.37	3.10E+02	2.89E+01
m	49	1407.74	1397 -	1415	2.27E+02	62.11	4.01E+02	3.29E+01
	50	1447.32	1442 -	1452	8.15E+01	54.48	3.53E+02	4.23E+01
	51	1460.51	1455 -	1464	1.34E+02	58.96	4.20E+02	4.46E+01

Analysis Report for 1707089-17

HTC-A06-S001-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	52	1509.39	1504 -	1514	1.91E+02	67.40	4.98E+02	5.05E+01
	53	1660.67	1655 -	1665	1.05E+02	36.41	1.21E+02	2.48E+01
	54	1696.33	1685 -	1707	5.83E+01	66.41	3.03E+02	5.31E+01
	55	1729.18	1721 -	1738	2.33E+02	55.84	2.02E+02	3.84E+01
	56	1764.10	1758 -	1771	1.04E+03	75.56	1.69E+02	3.25E+01
M	57	1838.35	1832 -	1851	2.50E+01	29.71	1.30E+02	1.87E+01
m	58	1847.08	1832 -	1851	1.55E+02	35.38	1.04E+02	1.68E+01
	59	1873.36	1870 -	1876	2.58E+01	19.07	4.45E+01	1.33E+01
	60	2117.92	2113 -	2122	8.76E+01	21.33	1.48E+01	8.41E+00
	61	2135.82	2133 -	2138	9.64E+00	9.11	8.71E+00	5.48E+00
	62	2152.63	2148 -	2157	1.48E+01	15.26	2.44E+01	1.08E+01
	63	2203.43	2197 -	2208	2.71E+02	36.39	3.04E+01	1.28E+01
	64	2224.93	2220 -	2229	6.61E+00	7.81	4.78E+00	4.83E+00
	65	2277.85	2275 -	2280	8.65E+00	7.00	2.70E+00	3.12E+00
	66	2284.27	2281 -	2288	1.10E+01	6.63	0.00E+00	0.00E+00
	67	2292.77	2289 -	2297	2.40E+01	9.80	0.00E+00	0.00E+00
	68	2301.99	2299 -	2304	6.56E+00	6.40	2.88E+00	3.16E+00
	69	2427.43	2423 -	2431	4.93E+00	6.95	4.14E+00	4.39E+00
	70	2447.09	2443 -	2450	7.10E+01	16.85	0.00E+00	0.00E+00
	71	2613.72	2609 -	2619	3.20E+01	11.31	0.00E+00	0.00E+00
	72	2814.14	2811 -	2817	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 : 8/23/2017 11:18:38AM

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	46.29	42 -	48	45.34	1.36E+03	251.05	1.05E+04	PB-210
2	53.18	50 -	54	52.23	3.76E+02	208.17	9.33E+03	.....
3	63.09	59 -	65	62.14	2.07E+03	324.79	1.78E+04	TH-234 TH-230

Analysis Report for 1707089-17

HTC-A06-S001-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	4	76.27	69 -	80	75.33	1.25E+04	561.96	3.32E+04	.....
M	5	83.89	81 -	99	82.95	5.31E+02	163.99	7.74E+03	TH-231
m	6	87.52	81 -	99	86.58	2.60E+03	349.49	1.85E+04	SN-126
									CD-109
									LU-176
m	7	92.59	81 -	99	91.65	3.85E+03	346.73	1.60E+04	GA-67
	8	113.34	110 -	116	112.41	3.04E+02	253.46	1.14E+04	.....
	9	143.80	140 -	146	142.88	5.14E+02	252.39	1.12E+04	U-235
	10	153.99	151 -	156	153.07	3.00E+02	222.62	9.64E+03	CS-136
	11	186.10	180 -	190	185.19	4.00E+03	348.79	1.40E+04	RA-226
M	12	238.28	234 -	248	237.39	5.37E+02	191.35	6.01E+03	PB-212
m	13	242.06	234 -	248	241.17	3.31E+03	211.50	5.46E+03	.....
	14	257.36	252 -	261	256.47	4.20E+02	222.81	6.82E+03	.....
	15	269.92	266 -	272	269.04	2.81E+02	163.52	4.69E+03	.....
	16	295.26	291 -	299	294.39	7.15E+03	247.83	5.04E+03	PB-214
	17	314.61	310 -	317	313.74	1.58E+02	150.92	3.70E+03	.....
	18	323.57	320 -	326	322.71	1.24E+02	133.75	3.16E+03	RA-223
	19	339.76	335 -	342	338.90	2.08E+02	147.31	3.46E+03	CS-136
	20	351.91	346 -	355	351.06	1.18E+04	274.00	4.00E+03	PB-214
	21	421.88	418 -	424	421.05	1.29E+02	117.53	2.42E+03	.....
	22	480.58	477 -	483	479.77	1.00E+02	93.75	1.52E+03	.....
	23	511.45	505 -	517	510.65	3.01E+02	145.97	2.36E+03	.....
	24	609.26	603 -	614	608.50	7.52E+03	210.62	1.77E+03	BI-214
	25	631.74	625 -	635	630.99	1.11E+02	96.54	1.19E+03	.....
	26	665.38	661 -	669	664.65	2.30E+02	83.69	9.36E+02	CE-143
									SB-126
	27	702.73	699 -	705	702.00	1.04E+02	64.69	6.91E+02	NB-94
	28	709.25	706 -	712	708.53	5.54E+01	67.08	7.79E+02	.....
	29	732.89	730 -	735	732.18	4.63E+01	54.38	5.53E+02	.....
	30	741.70	736 -	748	740.99	1.71E+02	106.85	1.27E+03	.....
	31	768.04	761 -	772	767.34	6.99E+02	111.12	1.19E+03	.....
	32	786.07	780 -	790	785.38	1.43E+02	98.26	1.21E+03	.....
	33	805.73	801 -	809	805.05	1.10E+02	80.29	9.27E+02	.....
	34	911.20	907 -	913	910.57	5.86E+01	67.80	7.85E+02	AC-228
									TL-204
	35	933.63	928 -	937	933.00	3.47E+02	86.02	8.56E+02	.....
M	36	960.74	958 -	965	960.12	3.18E+01	36.50	3.09E+02	.....
m	37	963.75	958 -	965	963.14	5.16E+01	43.84	3.72E+02	EU-152
	38	1001.10	997 -	1004	1000.50	6.73E+01	66.27	6.77E+02	PA-234M
	39	1120.15	1114 -	1126	1119.61	1.52E+03	113.70	8.11E+02	BI-214
									SC-46
	40	1133.65	1131 -	1135	1133.11	3.60E+01	36.68	2.60E+02	.....
	41	1155.43	1150 -	1160	1154.90	1.71E+02	72.77	6.11E+02	.....
	42	1182.64	1178 -	1186	1182.13	5.55E+01	60.61	5.31E+02	.....
	43	1206.87	1203 -	1210	1206.37	5.09E+01	51.07	4.02E+02	.....
	44	1237.80	1233 -	1242	1237.31	5.49E+02	79.25	5.81E+02	CO-56
	45	1280.51	1275 -	1285	1280.04	1.10E+02	70.42	5.97E+02	.....
	46	1377.18	1371 -	1380	1376.76	3.22E+02	64.20	4.03E+02	.....
	47	1385.11	1382 -	1389	1384.69	8.04E+01	50.52	3.71E+02	AG-110M
M	48	1401.47	1397 -	1415	1401.06	9.62E+01	44.37	3.10E+02	.....
m	49	1407.74	1397 -	1415	1407.34	2.27E+02	62.11	4.01E+02	EU-152
	50	1447.32	1442 -	1452	1446.94	8.15E+01	54.48	3.53E+02	.....
	51	1460.51	1455 -	1464	1460.13	1.34E+02	58.96	4.20E+02	K-40
	52	1509.39	1504 -	1514	1509.04	1.91E+02	67.40	4.98E+02	.....

Analysis Report for 1707089-17

HTC-A06-S001-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	53	1660.67	1655 -	1665	1660.40	1.05E+02	36.41	1.21E+02	.....
	54	1696.33	1685 -	1707	1696.08	5.83E+01	66.41	3.03E+02	.....
	55	1729.18	1721 -	1738	1728.94	2.33E+02	55.84	2.02E+02	.....
	56	1764.10	1758 -	1771	1763.89	1.04E+03	75.56	1.69E+02	BI-214
M	57	1838.35	1832 -	1851	1838.18	2.50E+01	29.71	1.30E+02	.....
m	58	1847.08	1832 -	1851	1846.91	1.55E+02	35.38	1.04E+02	.....
	59	1873.36	1870 -	1876	1873.20	2.58E+01	19.07	4.45E+01	.....
	60	2117.92	2113 -	2122	2117.91	8.76E+01	21.33	1.48E+01	.....
	61	2135.82	2133 -	2138	2135.83	9.64E+00	9.11	8.71E+00	.....
	62	2152.63	2148 -	2157	2152.64	1.48E+01	15.26	2.44E+01	.....
	63	2203.43	2197 -	2208	2203.48	2.71E+02	36.39	3.04E+01	BI-214
	64	2224.93	2220 -	2229	2224.99	6.61E+00	7.81	4.78E+00	.....
	65	2277.85	2275 -	2280	2277.94	8.65E+00	7.00	2.70E+00	.....
	66	2284.27	2281 -	2288	2284.36	1.10E+01	6.63	0.00E+00	.....
	67	2292.77	2289 -	2297	2292.88	2.40E+01	9.80	0.00E+00	.....
	68	2301.99	2299 -	2304	2302.10	6.56E+00	6.40	2.88E+00	.....
	69	2427.43	2423 -	2431	2427.62	4.93E+00	6.95	4.14E+00	.....
	70	2447.09	2443 -	2450	2447.30	7.10E+01	16.85	0.00E+00	.....
	71	2613.72	2609 -	2619	2614.03	3.20E+01	11.31	0.00E+00	TL-208
	72	2814.14	2811 -	2817	2814.60	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 : 8/23/2017 11:18:38AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.29	1.36E+03	251.05	1.64E-02	1.56E-03
	2	53.18	3.76E+02	208.17	1.89E-02	1.56E-03
	3	63.09	2.07E+03	324.79	2.15E-02	1.64E-03
	4	76.27	1.25E+04	561.96	2.32E-02	1.92E-03
M	5	83.89	5.31E+02	163.99	2.36E-02	2.08E-03
m	6	87.52	2.60E+03	349.49	2.37E-02	2.16E-03
m	7	92.59	3.85E+03	346.73	2.37E-02	2.10E-03
	8	113.34	3.04E+02	253.46	2.27E-02	1.78E-03
	9	143.80	5.14E+02	252.39	2.03E-02	1.57E-03
	10	153.99	3.00E+02	222.62	1.95E-02	1.54E-03

Analysis Report for 1707089-17

HTC-A06-S001-0612-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	11	186.10	4.00E+03	348.79	1.69E-02	1.40E-03
M	12	238.28	5.37E+02	191.35	1.36E-02	1.14E-03
m	13	242.06	3.31E+03	211.50	1.34E-02	1.13E-03
	14	257.36	4.20E+02	222.81	1.26E-02	1.05E-03
	15	269.92	2.81E+02	163.52	1.21E-02	9.92E-04
	16	295.26	7.15E+03	247.83	1.10E-02	9.13E-04
	17	314.61	1.58E+02	150.92	1.03E-02	8.72E-04
	18	323.57	1.24E+02	133.75	1.00E-02	8.54E-04
	19	339.76	2.08E+02	147.31	9.56E-03	8.20E-04
	20	351.91	1.18E+04	274.00	9.22E-03	7.94E-04
	21	421.88	1.29E+02	117.53	7.64E-03	6.98E-04
	22	480.58	1.00E+02	93.75	6.69E-03	6.74E-04
	23	511.45	3.01E+02	145.97	6.28E-03	6.61E-04
	24	609.26	7.52E+03	210.62	5.27E-03	6.20E-04
	25	631.74	1.11E+02	96.54	5.09E-03	6.11E-04
	26	665.38	2.30E+02	83.69	4.84E-03	5.94E-04
	27	702.73	1.04E+02	64.69	4.60E-03	5.47E-04
	28	709.25	5.54E+01	67.08	4.56E-03	5.39E-04
	29	732.89	4.63E+01	54.38	4.42E-03	5.09E-04
	30	741.70	1.71E+02	106.85	4.37E-03	4.98E-04
	31	768.04	6.99E+02	111.12	4.23E-03	4.65E-04
	32	786.07	1.43E+02	98.26	4.14E-03	4.43E-04
	33	805.73	1.10E+02	80.29	4.05E-03	4.18E-04
	34	911.20	5.86E+01	67.80	3.62E-03	2.99E-04
	35	933.63	3.47E+02	86.02	3.54E-03	2.94E-04
M	36	960.74	3.18E+01	36.50	3.45E-03	2.87E-04
m	37	963.75	5.16E+01	43.84	3.44E-03	2.87E-04
	38	1001.10	6.73E+01	66.27	3.33E-03	2.78E-04
	39	1120.15	1.52E+03	113.70	3.02E-03	2.50E-04
	40	1133.65	3.60E+01	36.68	2.98E-03	2.47E-04
	41	1155.43	1.71E+02	72.77	2.93E-03	2.42E-04
	42	1182.64	5.55E+01	60.61	2.88E-03	2.37E-04
	43	1206.87	5.09E+01	51.07	2.82E-03	2.35E-04
	44	1237.80	5.49E+02	79.25	2.76E-03	2.33E-04
	45	1280.51	1.10E+02	70.42	2.68E-03	2.31E-04
	46	1377.18	3.22E+02	64.20	2.51E-03	2.20E-04
	47	1385.11	8.04E+01	50.52	2.50E-03	2.19E-04
M	48	1401.47	9.62E+01	44.37	2.48E-03	2.17E-04
m	49	1407.74	2.27E+02	62.11	2.47E-03	2.16E-04
	50	1447.32	8.15E+01	54.48	2.40E-03	2.10E-04
	51	1460.51	1.34E+02	58.96	2.39E-03	2.08E-04
	52	1509.39	1.91E+02	67.40	2.32E-03	2.00E-04
	53	1660.67	1.05E+02	36.41	2.12E-03	1.78E-04
	54	1696.33	5.83E+01	66.41	2.08E-03	1.72E-04
	55	1729.18	2.33E+02	55.84	2.04E-03	1.67E-04
	56	1764.10	1.04E+03	75.56	2.00E-03	1.62E-04
M	57	1838.35	2.50E+01	29.71	1.92E-03	1.51E-04
m	58	1847.08	1.55E+02	35.38	1.91E-03	1.51E-04
	59	1873.36	2.58E+01	19.07	1.88E-03	1.51E-04
	60	2117.92	8.76E+01	21.33	1.65E-03	1.51E-04
	61	2135.82	9.64E+00	9.11	1.64E-03	1.51E-04
	62	2152.63	1.48E+01	15.26	1.62E-03	1.51E-04
	63	2203.43	2.71E+02	36.39	1.58E-03	1.51E-04

Analysis Report for 1707089-17

HTC-A06-S001-0612-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
64	2224.93	6.61E+00	7.81	1.56E-03	1.51E-04
65	2277.85	8.65E+00	7.00	1.52E-03	1.51E-04
66	2284.27	1.10E+01	6.63	1.52E-03	1.51E-04
67	2292.77	2.40E+01	9.80	1.51E-03	1.51E-04
68	2301.99	6.56E+00	6.40	1.50E-03	1.51E-04
69	2427.43	4.93E+00	6.95	1.41E-03	1.51E-04
70	2447.09	7.10E+01	16.85	1.39E-03	1.51E-04
71	2613.72	3.20E+01	11.31	1.28E-03	1.51E-04
72	2814.14	5.00E+00	4.47	1.15E-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 : 8/23/2017 11:18:38AM

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	46.29	1.36E+03	251.05	2.81E+01	8.29E+00	1.34E+03	2.51E+02
	2	53.18	3.76E+02	208.17			3.76E+02	2.08E+02
	3	63.09	2.07E+03	324.79	5.67E+01	8.57E+00	2.02E+03	3.25E+02
	4	76.27	1.25E+04	561.96			1.25E+04	5.62E+02
M	5	83.89	5.31E+02	163.99			5.31E+02	1.64E+02
m	6	87.52	2.60E+03	349.49			2.60E+03	3.49E+02
m	7	92.59	3.85E+03	346.73	5.99E+01	8.61E+00	3.79E+03	3.47E+02
	8	113.34	3.04E+02	253.46			3.04E+02	2.53E+02
	9	143.80	5.14E+02	252.39			5.14E+02	2.52E+02
	10	153.99	3.00E+02	222.62			3.00E+02	2.23E+02
	11	186.10	4.00E+03	348.79	2.43E+01	7.50E+00	3.98E+03	3.49E+02
M	12	238.28	5.37E+02	191.35	1.06E+01	6.01E+00	5.26E+02	1.91E+02
m	13	242.06	3.31E+03	211.50			3.31E+03	2.11E+02
	14	257.36	4.20E+02	222.81			4.20E+02	2.23E+02
	15	269.92	2.81E+02	163.52			2.81E+02	1.64E+02
	16	295.26	7.15E+03	247.83			7.15E+03	2.48E+02
	17	314.61	1.58E+02	150.92			1.58E+02	1.51E+02
	18	323.57	1.24E+02	133.75			1.24E+02	1.34E+02
	19	339.76	2.08E+02	147.31			2.08E+02	1.47E+02
	20	351.91	1.18E+04	274.00			1.18E+04	2.74E+02
	21	421.88	1.29E+02	117.53			1.29E+02	1.18E+02

Analysis Report for 1707089-17

HTC-A06-S001-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	22	480.58	1.00E+02	93.75			1.00E+02	9.37E+01
	23	511.45	3.01E+02	145.97	4.55E+01	4.99E+00	2.55E+02	1.46E+02
	24	609.26	7.52E+03	210.62			7.52E+03	2.11E+02
	25	631.74	1.11E+02	96.54			1.11E+02	9.65E+01
	26	665.38	2.30E+02	83.69			2.30E+02	8.37E+01
	27	702.73	1.04E+02	64.69			1.04E+02	6.47E+01
	28	709.25	5.54E+01	67.08			5.54E+01	6.71E+01
	29	732.89	4.63E+01	54.38			4.63E+01	5.44E+01
	30	741.70	1.71E+02	106.85			1.71E+02	1.07E+02
	31	768.04	6.99E+02	111.12			6.99E+02	1.11E+02
	32	786.07	1.43E+02	98.26			1.43E+02	9.83E+01
	33	805.73	1.10E+02	80.29			1.10E+02	8.03E+01
	34	911.20	5.86E+01	67.80			5.86E+01	6.78E+01
	35	933.63	3.47E+02	86.02			3.47E+02	8.60E+01
M	36	960.74	3.18E+01	36.50			3.18E+01	3.65E+01
m	37	963.75	5.16E+01	43.84			5.16E+01	4.38E+01
	38	1001.10	6.73E+01	66.27			6.73E+01	6.63E+01
	39	1120.15	1.52E+03	113.70			1.52E+03	1.14E+02
	40	1133.65	3.60E+01	36.68			3.60E+01	3.67E+01
	41	1155.43	1.71E+02	72.77			1.71E+02	7.28E+01
	42	1182.64	5.55E+01	60.61			5.55E+01	6.06E+01
	43	1206.87	5.09E+01	51.07			5.09E+01	5.11E+01
	44	1237.80	5.49E+02	79.25			5.49E+02	7.93E+01
	45	1280.51	1.10E+02	70.42			1.10E+02	7.04E+01
	46	1377.18	3.22E+02	64.20			3.22E+02	6.42E+01
	47	1385.11	8.04E+01	50.52			8.04E+01	5.05E+01
M	48	1401.47	9.62E+01	44.37			9.62E+01	4.44E+01
m	49	1407.74	2.27E+02	62.11			2.27E+02	6.21E+01
	50	1447.32	8.15E+01	54.48			8.15E+01	5.45E+01
	51	1460.51	1.34E+02	58.96			1.34E+02	5.90E+01
	52	1509.39	1.91E+02	67.40			1.91E+02	6.74E+01
	53	1660.67	1.05E+02	36.41			1.05E+02	3.64E+01
	54	1696.33	5.83E+01	66.41			5.83E+01	6.64E+01
	55	1729.18	2.33E+02	55.84			2.33E+02	5.58E+01
	56	1764.10	1.04E+03	75.56			1.04E+03	7.56E+01
M	57	1838.35	2.50E+01	29.71			2.50E+01	2.97E+01
m	58	1847.08	1.55E+02	35.38			1.55E+02	3.54E+01
	59	1873.36	2.58E+01	19.07			2.58E+01	1.91E+01
	60	2117.92	8.76E+01	21.33			8.76E+01	2.13E+01
	61	2135.82	9.64E+00	9.11			9.64E+00	9.11E+00
	62	2152.63	1.48E+01	15.26			1.48E+01	1.53E+01
	63	2203.43	2.71E+02	36.39			2.71E+02	3.64E+01
	64	2224.93	6.61E+00	7.81			6.61E+00	7.81E+00
	65	2277.85	8.65E+00	7.00			8.65E+00	7.00E+00
	66	2284.27	1.10E+01	6.63			1.10E+01	6.63E+00
	67	2292.77	2.40E+01	9.80			2.40E+01	9.80E+00
	68	2301.99	6.56E+00	6.40			6.56E+00	6.40E+00
	69	2427.43	4.93E+00	6.95			4.93E+00	6.95E+00
	70	2447.09	7.10E+01	16.85			7.10E+01	1.69E+01
	71	2613.72	3.20E+01	11.31			3.20E+01	1.13E+01
	72	2814.14	5.00E+00	4.47			5.00E+00	4.47E+00

Analysis Report for 1707089-17

HTC-A06-S001-0612-01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/23/2017 11:18:38AM

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	46.29	1.36E+03	251.05	2.81E+01	8.29E+00	1.34E+03	2.51E+02
	2	53.18	3.76E+02	208.17			3.76E+02	2.08E+02
	3	63.09	2.07E+03	324.79	5.67E+01	8.57E+00	2.02E+03	3.25E+02
	4	76.27	1.25E+04	561.96			1.25E+04	5.62E+02
M	5	83.89	5.31E+02	163.99			5.31E+02	1.64E+02
m	6	87.52	2.60E+03	349.49			2.60E+03	3.49E+02
m	7	92.59	3.85E+03	346.73	5.99E+01	8.61E+00	3.79E+03	3.47E+02
	8	113.34	3.04E+02	253.46			3.04E+02	2.53E+02
	9	143.80	5.14E+02	252.39			5.14E+02	2.52E+02
	10	153.99	3.00E+02	222.62			3.00E+02	2.23E+02
	11	186.10	4.00E+03	348.79	2.43E+01	7.50E+00	3.98E+03	3.49E+02
M	12	238.28	5.37E+02	191.35	1.06E+01	6.01E+00	5.26E+02	1.91E+02
m	13	242.06	3.31E+03	211.50			3.31E+03	2.11E+02
	14	257.36	4.20E+02	222.81			4.20E+02	2.23E+02
	15	269.92	2.81E+02	163.52			2.81E+02	1.64E+02
	16	295.26	7.15E+03	247.83			7.15E+03	2.48E+02
	17	314.61	1.58E+02	150.92			1.58E+02	1.51E+02
	18	323.57	1.24E+02	133.75			1.24E+02	1.34E+02
	19	339.76	2.08E+02	147.31			2.08E+02	1.47E+02
	20	351.91	1.18E+04	274.00			1.18E+04	2.74E+02
	21	421.88	1.29E+02	117.53			1.29E+02	1.18E+02
	22	480.58	1.00E+02	93.75			1.00E+02	9.37E+01
	23	511.45	3.01E+02	145.97	4.55E+01	4.99E+00	2.55E+02	1.46E+02
	24	609.26	7.52E+03	210.62			7.52E+03	2.11E+02
	25	631.74	1.11E+02	96.54			1.11E+02	9.65E+01
	26	665.38	2.30E+02	83.69			2.30E+02	8.37E+01
	27	702.73	1.04E+02	64.69			1.04E+02	6.47E+01
	28	709.25	5.54E+01	67.08			5.54E+01	6.71E+01
	29	732.89	4.63E+01	54.38			4.63E+01	5.44E+01
	30	741.70	1.71E+02	106.85			1.71E+02	1.07E+02
	31	768.04	6.99E+02	111.12			6.99E+02	1.11E+02
	32	786.07	1.43E+02	98.26			1.43E+02	9.83E+01

Analysis Report for 1707089-17

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	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	33	805.73	1.10E+02	80.29			1.10E+02	8.03E+01
	34	911.20	5.86E+01	67.80			5.86E+01	6.78E+01
	35	933.63	3.47E+02	86.02			3.47E+02	8.60E+01
M	36	960.74	3.18E+01	36.50			3.18E+01	3.65E+01
m	37	963.75	5.16E+01	43.84			5.16E+01	4.38E+01
	38	1001.10	6.73E+01	66.27			6.73E+01	6.63E+01
	39	1120.15	1.52E+03	113.70			1.52E+03	1.14E+02
	40	1133.65	3.60E+01	36.68			3.60E+01	3.67E+01
	41	1155.43	1.71E+02	72.77			1.71E+02	7.28E+01
	42	1182.64	5.55E+01	60.61			5.55E+01	6.06E+01
	43	1206.87	5.09E+01	51.07			5.09E+01	5.11E+01
	44	1237.80	5.49E+02	79.25			5.49E+02	7.93E+01
	45	1280.51	1.10E+02	70.42			1.10E+02	7.04E+01
	46	1377.18	3.22E+02	64.20			3.22E+02	6.42E+01
	47	1385.11	8.04E+01	50.52			8.04E+01	5.05E+01
M	48	1401.47	9.62E+01	44.37			9.62E+01	4.44E+01
m	49	1407.74	2.27E+02	62.11			2.27E+02	6.21E+01
	50	1447.32	8.15E+01	54.48			8.15E+01	5.45E+01
	51	1460.51	1.34E+02	58.96			1.34E+02	5.90E+01
	52	1509.39	1.91E+02	67.40			1.91E+02	6.74E+01
	53	1660.67	1.05E+02	36.41			1.05E+02	3.64E+01
	54	1696.33	5.83E+01	66.41			5.83E+01	6.64E+01
	55	1729.18	2.33E+02	55.84			2.33E+02	5.58E+01
	56	1764.10	1.04E+03	75.56			1.04E+03	7.56E+01
M	57	1838.35	2.50E+01	29.71			2.50E+01	2.97E+01
m	58	1847.08	1.55E+02	35.38			1.55E+02	3.54E+01
	59	1873.36	2.58E+01	19.07			2.58E+01	1.91E+01
	60	2117.92	8.76E+01	21.33			8.76E+01	2.13E+01
	61	2135.82	9.64E+00	9.11			9.64E+00	9.11E+00
	62	2152.63	1.48E+01	15.26			1.48E+01	1.53E+01
	63	2203.43	2.71E+02	36.39			2.71E+02	3.64E+01
	64	2224.93	6.61E+00	7.81			6.61E+00	7.81E+00
	65	2277.85	8.65E+00	7.00			8.65E+00	7.00E+00
	66	2284.27	1.10E+01	6.63			1.10E+01	6.63E+00
	67	2292.77	2.40E+01	9.80			2.40E+01	9.80E+00
	68	2301.99	6.56E+00	6.40			6.56E+00	6.40E+00
	69	2427.43	4.93E+00	6.95			4.93E+00	6.95E+00
	70	2447.09	7.10E+01	16.85			7.10E+01	1.69E+01
	71	2613.72	3.20E+01	11.31			3.20E+01	1.13E+01
	72	2814.14	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 1707089-17

HTC-A06-S001-0612-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.985	1460.81	*	10.67	6.21E+00	2.78E+00
CD-109	0.958	88.03	*	3.72	4.03E+01	6.96E+00
SN-126	1.000	87.57	*	37.00	3.49E+00	5.67E-01
PB-210	0.993	46.50	*	4.25	2.28E+01	4.81E+00
PB-212	0.879	238.63	*	44.60	1.02E+00	3.81E-01
		300.09		3.41		
BI-214	0.989	609.31	*	46.30	3.63E+01	4.39E+00
		1120.29	*	15.10	3.92E+01	4.38E+00
		1764.49	*	15.80	3.86E+01	4.21E+00
		2204.22	*	4.98	4.05E+01	6.67E+00
PB-214	1.000	295.21	*	19.19	3.97E+01	3.57E+00
		351.92	*	37.19	4.04E+01	3.61E+00
RA-223	0.986	323.87	*	3.88	3.73E+00	4.05E+00
RA-226	0.998	186.21	*	3.28	8.43E+01	1.55E+02
PA-234M	0.999	1001.03	*	0.92	2.59E+01	2.56E+01
TH-234	0.993	63.29	*	3.80	2.90E+01	5.18E+00

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 11:18:38AM
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	53.18	1.04313E-01	27.72		

Analysis Report for 1707089-17

HTC-A06-S001-0612-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	4	76.27	3.47863E+00	2.24		
M	5	83.89	1.47500E-01	15.44	Tol.	TH-231
m	7	92.59	1.05352E+00	4.57	Sum	
	8	113.34	8.45692E-02	41.63		
	9	143.80	1.42705E-01	24.56	Tol.	U-235
	10	153.99	8.34155E-02	37.07	Tol.	CS-136
m	13	242.06	9.20825E-01	3.19		
	14	257.36	1.16752E-01	26.51		
	15	269.92	7.80835E-02	29.09		
	17	314.61	4.39421E-02	47.70		
	19	339.76	5.78905E-02	35.34	Tol.	CS-136
	21	421.88	3.57591E-02	45.65		
	22	480.58	2.77978E-02	46.84	Sum	
	23	511.45	7.09043E-02	28.61		
	25	631.74	3.09245E-02	43.36		
	26	665.38	6.38889E-02	18.19	Tol.	SB-126 CE-143
	27	702.73	2.87744E-02	31.22	Tol.	NB-94
	28	709.25	1.53842E-02	60.56		
	29	732.89	1.28737E-02	58.67		
	30	741.70	4.74381E-02	31.28	D-Esc	
	31	768.04	1.94140E-01	7.95		
	32	786.07	3.98019E-02	34.29		
	33	805.73	3.06432E-02	36.39		
	34	911.20	1.62885E-02	57.81	Tol.	TL-204 AC-228
	35	933.63	9.64419E-02	12.39	Sum	
M	36	960.74	8.83579E-03	57.37	Sum	
m	37	963.75	1.43382E-02	42.47	Tol.	EU-152
	40	1133.65	1.00033E-02	50.92		
	41	1155.43	4.75955E-02	21.24		
	42	1182.64	1.54167E-02	54.60	Sum	
	43	1206.87	1.41512E-02	50.12	Sum	
	44	1237.80	1.52425E-01	7.22		
	45	1280.51	3.04534E-02	32.12		
	46	1377.18	8.95322E-02	9.96		
	47	1385.11	2.23251E-02	31.43	Tol.	AG-110M
M	48	1401.47	2.67292E-02	23.05		
m	49	1407.74	6.30947E-02	13.67	Tol.	EU-152
	50	1447.32	2.26421E-02	33.42		
	52	1509.39	5.30505E-02	17.65		
	53	1660.67	2.90278E-02	17.42		
	54	1696.33	1.61898E-02	56.97		
	55	1729.18	6.46865E-02	11.99	Sum	
M	57	1838.35	6.94570E-03	59.41		
m	58	1847.08	4.31492E-02	11.39		
	59	1873.36	7.15278E-03	37.02		
	60	2117.92	2.43333E-02	12.18		
	61	2135.82	2.67857E-03	47.24		
	62	2152.63	4.11523E-03	51.52		
	64	2224.93	1.83642E-03	59.07		
	65	2277.85	2.40278E-03	40.46		
	66	2284.27	3.05556E-03	30.15		
	67	2292.77	6.66667E-03	20.41		

Analysis Report for 1707089-17

HTC-A06-S001-0612-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
68	2301.99	1.82292E-03	48.79		
69	2427.43	1.36905E-03	70.47		
70	2447.09	1.97222E-02	11.87		
71	2613.72	8.88889E-03	17.68	Tol.	TL-208
72	2814.14	1.38889E-03	44.72		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.98	1460.81	*	10.67	6.21E+00	2.78E+00
CD-109	0.95	88.03	*	3.72	4.03E+01	6.96E+00
SN-126	1.00	87.57	*	37.00	3.49E+00	5.67E-01
PB-210	0.99	46.50	*	4.25	2.28E+01	4.81E+00
PB-212	0.87	238.63	*	44.60	1.02E+00	3.81E-01
		300.09		3.41		
BI-214	0.98	609.31	*	46.30	3.63E+01	4.39E+00
		1120.29	*	15.10	3.92E+01	4.38E+00
		1764.49	*	15.80	3.86E+01	4.21E+00
		2204.22	*	4.98	4.05E+01	6.67E+00
PB-214	1.00	295.21	*	19.19	3.97E+01	3.57E+00
		351.92	*	37.19	4.04E+01	3.61E+00
RA-223	0.98	323.87	*	3.88	3.73E+00	4.05E+00
RA-226	0.99	186.21	*	3.28	8.43E+01	1.55E+02
PA-234M	0.99	1001.03	*	0.92	2.59E+01	2.56E+01
TH-234	0.99	63.29	*	3.80	2.90E+01	5.18E+00

Analysis Report for 1707089-17

HTC-A06-S001-0612-01

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.985	6.21E+00	2.78E+00	
?	CD-109	0.958	4.03E+01	6.96E+00	
?	SN-126	1.000	3.49E+00	5.67E-01	
	PB-210	0.993	2.28E+01	4.81E+00	
	PB-212	0.879	1.02E+00	3.81E-01	
	BI-214	0.989	3.83E+01	2.34E+00	
	PB-214	1.000	4.01E+01	2.54E+00	
	RA-223	0.986	3.73E+00	4.05E+00	
	RA-226	0.998	8.43E+01	1.55E+02	
	PA-234M	0.999	2.59E+01	2.56E+01	
	TH-234	0.993	2.90E+01	5.18E+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 1707089-17

HTC-A06-S001-0612-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 11:18:38AM
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	53.18	1.04313E-01	27.72		
	4	76.27	3.47863E+00	2.24		
M	5	83.89	1.47500E-01	15.44	Tol.	TH-231
m	7	92.59	1.05352E+00	4.57	Sum	
	8	113.34	8.45692E-02	41.63		
	9	143.80	1.42705E-01	24.56	Tol.	U-235
	10	153.99	8.34155E-02	37.07	Tol.	CS-136
m	13	242.06	9.20825E-01	3.19		
	14	257.36	1.16752E-01	26.51		
	15	269.92	7.80835E-02	29.09		
	17	314.61	4.39421E-02	47.70		
	19	339.76	5.78905E-02	35.34	Tol.	CS-136
	21	421.88	3.57591E-02	45.65		
	22	480.58	2.77978E-02	46.84	Sum	
	23	511.45	7.09043E-02	28.61		
	25	631.74	3.09245E-02	43.36		
	26	665.38	6.38889E-02	18.19	Tol.	SB-126 CE-143
	27	702.73	2.87744E-02	31.22	Tol.	NB-94
	28	709.25	1.53842E-02	60.56		
	29	732.89	1.28737E-02	58.67		
	30	741.70	4.74381E-02	31.28	D-Esc	
	31	768.04	1.94140E-01	7.95		
	32	786.07	3.98019E-02	34.29		
	33	805.73	3.06432E-02	36.39		
	34	911.20	1.62885E-02	57.81	Tol.	TL-204 AC-228
	35	933.63	9.64419E-02	12.39	Sum	
M	36	960.74	8.83579E-03	57.37	Sum	
m	37	963.75	1.43382E-02	42.47	Tol.	EU-152
	40	1133.65	1.00033E-02	50.92		
	41	1155.43	4.75955E-02	21.24		
	42	1182.64	1.54167E-02	54.60	Sum	
	43	1206.87	1.41512E-02	50.12	Sum	
	44	1237.80	1.52425E-01	7.22		

Analysis Report for 1707089-17

HTC-A06-S001-0612-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	45	1280.51	3.04534E-02	32.12		
	46	1377.18	8.95322E-02	9.96		
	47	1385.11	2.23251E-02	31.43	Tol.	AG-110M
M	48	1401.47	2.67292E-02	23.05		
m	49	1407.74	6.30947E-02	13.67	Tol.	EU-152
	50	1447.32	2.26421E-02	33.42		
	52	1509.39	5.30505E-02	17.65		
	53	1660.67	2.90278E-02	17.42		
	54	1696.33	1.61898E-02	56.97		
	55	1729.18	6.46865E-02	11.99	Sum	
M	57	1838.35	6.94570E-03	59.41		
m	58	1847.08	4.31492E-02	11.39		
	59	1873.36	7.15278E-03	37.02		
	60	2117.92	2.43333E-02	12.18		
	61	2135.82	2.67857E-03	47.24		
	62	2152.63	4.11523E-03	51.52		
	64	2224.93	1.83642E-03	59.07		
	65	2277.85	2.40278E-03	40.46		
	66	2284.27	3.05556E-03	30.15		
	67	2292.77	6.66667E-03	20.41		
	68	2301.99	1.82292E-03	48.79		
	69	2427.43	1.36905E-03	70.47		
	70	2447.09	1.97222E-02	11.87		
	71	2613.72	8.88889E-03	17.68	Tol.	TL-208
	72	2814.14	1.38889E-03	44.72		

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59	10.42	-5.69E-01	8.51E+00	8.51E+00
+	NA-22	1274.54	99.94	6.90E-02	3.67E-01	3.67E-01

Analysis Report for 1707089-17

HTC-A06-S001-0612-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	@	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	5.00E-02	2.25E-01	2.25E-01
+		K-40	1460.81	*	10.67	6.21E+00	4.25E+00	4.25E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	2.91E-02	2.61E-01	2.61E-01
			78.34		96.00	4.75E+00		3.51E-01
+		SC-46	889.25		99.98	-1.98E-02	7.41E-01	7.41E-01
			1120.51		99.99	1.30E+01		1.77E+00
+		V-48	983.52		99.98	-4.89E+00	2.34E+01	2.37E+01
			1312.10		97.50	4.21E+00		2.34E+01
+		CR-51	320.08		9.83	4.12E-01	2.73E+01	2.73E+01
+		MN-54	834.83		99.97	-2.60E-01	4.04E-01	4.04E-01
+		CO-56	846.75		99.96	-3.47E-01	7.49E-01	7.49E-01
			1037.75		14.03	-2.24E+00		5.46E+00
			1238.25		67.00	8.33E+00		2.07E+00
			1771.40		15.51	-2.09E-01		3.42E+00
			2598.48		16.90	-3.01E-01		9.51E-01
+		CO-57	122.06		85.51	-2.70E-03	2.81E-01	2.81E-01
			136.48		10.60	-1.25E+00		2.38E+00
+		CO-58	810.76		99.40	5.05E-02	8.48E-01	8.48E-01
+		FE-59	1099.22		56.50	5.84E-01	2.77E+00	2.77E+00
			1291.56		43.20	-7.42E-01		3.11E+00
+		CO-60	1173.22		100.00	-1.30E-01	3.17E-01	3.24E-01
			1332.49		100.00	-1.42E-02		3.17E-01
+		ZN-65	1115.52		50.75	-8.27E-02	1.48E+00	1.48E+00
+		GA-67	93.31		35.70	4.96E+09	9.75E+08	9.75E+08
			208.95		2.24	1.98E+09		1.40E+10
			300.22		16.00	-4.30E+08		2.34E+09
+		SE-75	121.11		16.70	9.29E-03	5.85E-01	1.98E+00
			136.00		59.20	-2.90E-01		5.85E-01
			264.65		59.80	1.25E-01		6.41E-01
			279.53		25.20	-1.13E+00		1.55E+00
			400.65		11.40	-4.03E-01		4.03E+00
+		RB-82	776.52		13.00	3.15E+00	3.25E+01	3.25E+01
+		RB-83	520.41		46.00	-9.68E-02	1.12E+00	1.12E+00
			529.64		30.30	-6.45E-02		1.76E+00
			552.65		16.40	-1.45E+00		3.15E+00
+		KR-85	513.99		0.43	4.26E+01	6.08E+01	6.08E+01
+		SR-85	513.99		99.27	5.28E-01	7.54E-01	7.54E-01
+		Y-88	898.02		93.40	1.05E-01	5.33E-01	6.97E-01
			1836.01		99.38	3.52E-01		5.33E-01
+		MO-93	263.06		56.72	7.50E-02	2.76E-01	3.93E-01
			684.67		99.68	2.40E-02		2.76E-01
			1477.11		99.08	6.37E-02		3.83E-01
+		NB-93M	16.57		9.43	1.22E+02	2.23E+01	2.23E+01
+		NB-94	702.63		100.00	8.31E-03	2.85E-01	2.85E-01

Analysis Report for 1707089-17

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	NB-94	871.10		100.00	2.56E-03	2.85E-01	3.27E-01
+	NB-95	765.79		99.81	1.32E+01	3.15E+00	3.15E+00
+	NB-95M	235.69		25.00	-1.89E+07	1.77E+08	1.77E+08
+	ZR-95	724.18		43.70	1.05E+00	1.51E+00	1.99E+00
		756.72		55.30	4.50E-01		1.51E+00
+	MO-99	181.06		6.20	-1.51E+10	1.68E+11	2.54E+11
		739.58		12.80	4.93E+10		1.68E+11
		778.00		4.50	4.38E+10		4.56E+11
+	RU-103	497.08		89.00	3.64E-01	1.49E+00	1.49E+00
+	RU-106	621.84		9.80	4.11E-01	2.69E+00	2.69E+00
+	AG-108M	433.93		89.90	-1.24E-01	2.66E-01	2.66E-01
		614.37		90.40	6.18E-03		2.87E-01
		722.95		90.50	3.44E-01		3.34E-01
+	CD-109	88.03	*	3.72	4.03E+01	1.68E+01	1.68E+01
+	AG-110M	657.75		93.14	2.07E-02	3.77E-01	3.77E-01
		677.61		10.53	-1.71E+00		3.20E+00
		706.67		16.46	1.65E-01		2.39E+00
		763.93		21.98	-8.78E-02		2.24E+00
		884.67		71.63	3.48E-04		6.07E-01
		1384.27		23.94	-5.14E+00		2.10E+00
+	CD-113M	263.70		0.02	1.85E+02	9.53E+02	9.53E+02
+	SN-113	255.12		1.93	4.11E+00	7.07E-01	2.13E+01
		391.69		64.90	1.88E-01		7.07E-01
+	TE123M	159.00		84.10	-1.05E-01	4.53E-01	4.53E-01
+	SB-124	602.71		97.87	3.37E-02	8.18E-01	8.18E-01
		645.85		7.26	-3.37E+00		9.97E+00
		722.78		11.10	8.77E+00		8.52E+00
		1691.02		49.00	5.31E-02		1.67E+00
+	I-125	35.49		6.49	-1.21E+01	1.59E+01	1.59E+01
+	SB-125	176.33		6.89	-1.57E-01	9.26E-01	3.36E+00
		427.89		29.33	-2.22E-01		9.26E-01
		463.38		10.35	5.76E-01		2.50E+00
		600.56		17.80	6.50E-01		1.54E+00
		635.90		11.32	-3.75E-01		2.23E+00
+	SB-126	414.70		83.30	1.47E+01	6.96E+01	7.92E+01
		666.33		99.60	1.08E+02		7.82E+01
		695.00		99.60	-9.08E+00		6.96E+01
		720.50		53.80	5.85E+01		1.42E+02
+	SN-126	87.57	*	37.00	3.49E+00	1.46E+00	1.46E+00
+	SB-127	473.00		25.00	1.76E+07	4.28E+07	5.51E+07
		685.20		35.70	3.72E+06		4.28E+07
		783.80		14.70	1.17E+08		1.29E+08
+	I-129	29.78		57.00	1.63E-01	8.25E-01	8.25E-01
		33.60		13.20	9.19E-01		2.77E+00
		39.58		7.52	-3.21E+00		3.73E+00
+	I-131	284.30		6.05	8.76E+03	1.42E+03	1.94E+04
		364.48		81.20	2.73E+02		1.42E+03
		636.97		7.26	-1.86E+03		1.64E+04

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	I-131	722.89	1.80	8.90E+04	1.42E+03	8.65E+04
+	TE-132	49.72	13.10	-3.63E+09	3.61E+08	2.84E+09
		228.16	88.00	-1.49E+07		3.61E+08
+	BA-133	81.00	33.00	-7.35E+00	7.36E-01	8.09E-01
		302.84	17.80	-3.29E-01		1.28E+00
		356.01	60.00	5.22E-02		7.36E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-3.09E+06	3.40E+05	3.40E+05
+	CS-134	563.23	8.38	2.20E-01	3.85E-01	3.18E+00
		569.32	15.43	-8.08E-01		1.70E+00
		604.70	97.60	5.91E-02		4.84E-01
		795.84	85.40	2.07E-02		3.85E-01
		801.93	8.73	-1.19E+00		3.86E+00
+	CS-135	268.24	16.00	8.50E-02	1.44E+00	1.44E+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	-5.34E+01	5.83E+01	5.45E+02
		163.89	4.61	3.31E+02		8.64E+02
		176.55	13.56	-2.54E+01		2.96E+02
		273.65	12.66	1.47E+02		3.44E+02
		340.57	48.50	4.57E+01		9.15E+01
		818.50	99.70	1.67E+01		5.83E+01
		1048.07	79.60	-3.95E+01		7.49E+01
		1235.34	19.70	4.85E+01		5.48E+02
+	CS-137	661.65	85.12	1.70E-02	3.59E-01	3.59E-01
+	LA-138	788.74	34.00	6.22E-02	4.74E-01	1.01E+00
		1435.80	66.00	-2.33E-02		4.74E-01
+	CE-139	165.85	80.35	2.72E-01	4.39E-01	4.39E-01
+	BA-140	162.64	6.70	-9.06E+01	2.10E+02	6.90E+02
		304.84	4.50	4.00E+02		1.07E+03
		423.70	3.20	2.02E+02		1.80E+03
		437.55	2.00	-9.53E+02		2.52E+03
		537.32	25.00	1.07E+02		2.10E+02
+	LA-140	328.77	20.50	-4.28E+01	8.22E+01	2.37E+02
		487.03	45.50	3.91E+01		1.15E+02
		815.85	23.50	-1.87E+02		2.78E+02
		1596.49	95.49	6.40E+01		8.22E+01
+	CE-141	145.44	48.40	-2.49E-01	3.66E+00	3.66E+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	-2.43E-01	2.28E+00	2.28E+00
+	PM-144	476.78	42.00	9.75E-02	2.76E-01	6.98E-01
		618.01	98.60	-4.87E-02		2.76E-01
		696.49	99.49	1.31E-01		3.33E-01
+	PM-145	36.85	21.70	-1.07E+00	7.67E-01	1.44E+00
		37.36	39.70	-5.69E-01		7.67E-01
		42.30	15.10	-1.11E+00		1.77E+00

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PM-145	72.40	2.31	-1.37E+02	7.67E-01	1.23E+01
+	PM-146	453.90	39.94	5.47E-01	6.29E-01	6.29E-01
		735.90	14.01	-4.04E-01		2.15E+00
		747.13	13.10	5.42E-02		2.35E+00
+	ND-147	91.11	28.90	2.66E+03	4.71E+02	4.71E+02
		531.02	13.10	-3.33E+02		9.50E+02
+	PM-149	285.90	3.10	1.19E+14	2.29E+14	2.29E+14
+	EU-152	121.78	20.50	-8.86E-03	9.22E-01	9.22E-01
		244.69	5.40	3.17E+01		5.61E+00
		344.27	19.13	-1.52E-01		1.24E+00
		778.89	9.20	-5.58E-01		3.17E+00
		964.01	10.40	-7.34E-01		3.27E+00
		1085.78	7.22	-1.03E+00		4.58E+00
		1112.02	9.60	2.09E-01		3.38E+00
		1407.95	14.94	4.40E+00		3.11E+00
+	GD-153	97.43	31.30	-5.17E+00	8.46E-01	8.46E-01
		103.18	22.20	-9.95E-01		1.07E+00
+	EU-154	123.07	40.50	-5.14E-02	4.72E-01	4.72E-01
		723.30	19.70	8.14E-01		1.54E+00
		873.19	11.50	-1.62E+00		2.84E+00
		996.32	10.30	9.90E-01		3.53E+00
		1004.76	17.90	5.10E-01		2.03E+00
		1274.45	35.50	1.85E-01		9.81E-01
+	EU-155	86.50	30.90	6.27E-01	8.41E-01	8.41E-01
		105.30	20.70	-1.05E+00		8.91E-01
+	EU-156	811.77	10.40	2.10E+01	2.73E+02	2.73E+02
		1153.47	7.20	8.16E+02		5.03E+02
		1230.71	8.90	-1.09E+01		3.56E+02
+	HO-166M	184.41	72.60	3.61E+00	4.09E-01	4.09E-01
		280.45	29.60	-3.45E-01		7.45E-01
		410.94	11.10	-1.28E+00		2.29E+00
		711.69	54.10	8.16E-02		5.49E-01
+	TM-171	66.72	0.14	2.17E+01	2.01E+02	2.01E+02
+	HF-172	67.35	5.31	5.72E-01	1.84E+00	5.28E+00
		125.81	11.30	4.73E-03		1.84E+00
+	LU-172	181.53	20.60	-5.60E+02	1.51E+04	3.31E+04
		900.72	29.81	3.22E+02		3.30E+04
		1093.66	62.50	9.71E+03		1.51E+04
+	LU-173	100.72	5.24	-2.81E+00	1.32E+00	3.97E+00
		272.11	21.20	5.93E-01		1.32E+00
+	HF-175	343.40	84.00	-9.08E-02	7.39E-01	7.39E-01
+	LU-176	88.34	13.30	-7.79E+00	2.34E-01	1.88E+00
		201.83	86.00	6.35E-02		2.60E-01
		306.78	94.00	6.82E-02		2.34E-01
+	HF-181	133.02	41.70	2.98E-01	1.50E+00	2.35E+00
		345.85	17.20	-8.47E-01		6.98E+00
		482.03	82.80	-8.79E-02		1.50E+00
+	TA-182	67.75	41.20	1.21E-01	1.09E+00	1.09E+00
		1121.30	34.90	3.09E+01		4.08E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TA-182	1189.05		16.23	7.32E-02	1.09E+00	3.81E+00
		1221.41		26.98	6.36E-01		2.26E+00
		1231.02		11.44	-1.44E-01		5.71E+00
+	IR-192	308.46		29.68	7.74E-02	1.26E+00	1.84E+00
		468.07		48.10	-6.42E-02		1.26E+00
+	HG-203	279.19		77.30	-1.42E+00	1.24E+00	1.24E+00
+	TL-204	374.74		94.11	-4.13E-02	2.57E-01	2.57E-01
		899.15		99.16	-2.19E-01		3.58E-01
		911.74		91.10	5.76E-02		4.25E-01
+	BI-207	569.67		97.72	-1.17E-01	2.46E-01	2.46E-01
		1063.62		74.90	-2.30E-01		4.30E-01
+	TL-208	583.14		30.22	6.48E-01	7.45E-01	8.83E-01
		860.37		4.48	-2.75E+00		7.26E+00
		2614.66		35.85	8.21E-01		7.45E-01
+	BI-210M	262.00		45.00	2.36E-01	4.96E-01	4.96E-01
		300.00		23.00	-2.10E-01		1.14E+00
+	PB-210	46.50	*	4.25	2.28E+01	6.80E+00	6.80E+00
+	PB-211	404.84		2.90	6.36E+00	9.13E+00	9.13E+00
		831.96		2.90	-2.33E-01		1.07E+01
+	BI-212	727.17		11.80	-4.79E-01	2.39E+00	2.39E+00
		1620.62		2.75	9.42E-01		1.08E+01
+	PB-212	238.63	*	44.60	1.02E+00	1.02E+00	1.02E+00
		300.09		3.41	-1.42E+00		7.72E+00
+	BI-214	609.31	*	46.30	3.63E+01	9.60E-01	9.60E-01
		1120.29	*	15.10	3.92E+01		3.59E+00
		1764.49	*	15.80	3.86E+01		2.53E+00
		2204.22	*	4.98	4.05E+01		4.22E+00
+	PB-214	295.21	*	19.19	3.97E+01	9.55E-01	1.67E+00
		351.92	*	37.19	4.04E+01		9.55E-01
+	RN-219	401.80		6.50	1.21E+00	4.02E+00	4.02E+00
+	RA-223	323.87	*	3.88	3.73E+00	6.63E+00	6.63E+00
+	RA-224	240.98		3.95	7.31E+01	8.33E+00	8.33E+00
+	RA-225	40.00		31.00	-7.97E+01	9.25E+01	9.25E+01
+	RA-226	186.21	*	3.28	8.43E+01	1.14E+01	1.14E+01
+	TH-227	50.10		8.40	-3.89E+00	2.08E+00	3.04E+00
		236.00		11.50	-2.22E-01		2.08E+00
		256.20		6.30	3.18E+00		3.65E+00
+	AC-228	338.32		11.40	5.74E-01	1.34E+00	2.11E+00
		911.07		27.70	8.31E-01		1.34E+00
		969.11		16.60	1.12E+00		2.03E+00
+	TH-230	48.44		16.90	2.46E+00	1.58E+00	1.58E+00
		62.85		4.60	2.40E+01		5.84E+00
		67.67		0.37	7.40E+00		6.66E+01
+	PA-231	283.67		1.60	6.41E+00	9.71E+00	1.42E+01
		302.67		2.30	-2.50E+00		9.71E+00
+	TH-231	25.64		14.70	1.88E+00	3.77E+00	4.59E+00
		84.21		6.40	-9.87E+00		3.77E+00
+	PA-233	311.98		38.60	-1.16E-01	7.33E+00	7.33E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	PA-234	131.20		20.40	9.43E-02	9.44E-01	9.44E-01
		733.99		8.80	-1.25E-01		3.19E+00
		946.00		12.00	-6.99E-01		2.79E+00
+	PA-234M	1001.03	*	0.92	2.59E+01	4.16E+01	4.16E+01
+	TH-234	63.29	*	3.80	2.90E+01	7.44E+00	7.44E+00
+	U-235	143.76		10.50	2.52E+00	2.02E+00	2.02E+00
		163.35		4.70	-6.01E-01		4.58E+00
		205.31		4.70	4.40E+00		4.78E+00
+	NP-237	86.50		12.60	1.48E+00	1.99E+00	1.99E+00
+	NP-239	106.10		22.70	-1.60E+12	3.72E+12	3.72E+12
		228.18		10.70	-4.00E+11		9.69E+12
		277.60		14.10	-3.91E+12		7.43E+12
+	AM-241	59.54		35.90	-4.42E-01	7.17E-01	7.17E-01
+	AM-243	74.67		66.00	8.19E+00	5.29E-01	5.29E-01
+	CM-243	209.75		3.29	-3.87E+00	1.60E+00	6.63E+00
		228.14		10.60	-8.61E-02		2.09E+00
		277.60		14.00	-8.41E-01		1.60E+00

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

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	8.51E+00	8.51E+00	-5.69E-01	4.17E+00
	NA-22	1274.54	99.94	3.67E-01	3.67E-01	6.90E-02	1.77E-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	2.25E-01	2.25E-01	5.00E-02	1.04E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
+	K-40	1460.81	*	10.67	4.25E+00	4.25E+00	6.21E+00	2.06E+00
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	2.61E-01	2.61E-01	2.91E-02	1.30E-01
		78.34		96.00	3.51E-01		4.75E+00	1.75E-01
	SC-46	889.25		99.98	7.41E-01	7.41E-01	-1.98E-02	3.61E-01
		1120.51		99.99	1.77E+00		1.30E+01	8.71E-01
	V-48	983.52		99.98	2.37E+01	2.34E+01	-4.89E+00	1.15E+01
		1312.10		97.50	2.34E+01		4.21E+00	1.12E+01
	CR-51	320.08		9.83	2.73E+01	2.73E+01	4.12E-01	1.35E+01
	MN-54	834.83		99.97	4.04E-01	4.04E-01	-2.60E-01	1.97E-01
	CO-56	846.75		99.96	7.49E-01	7.49E-01	-3.47E-01	3.64E-01
		1037.75		14.03	5.46E+00		-2.24E+00	2.65E+00
		1238.25		67.00	2.07E+00		8.33E+00	1.01E+00
		1771.40		15.51	3.42E+00		-2.09E-01	1.59E+00
		2598.48		16.90	9.51E-01		-3.01E-01	3.01E-01
	CO-57	122.06		85.51	2.81E-01	2.81E-01	-2.70E-03	1.40E-01
		136.48		10.60	2.38E+00		-1.25E+00	1.18E+00
	CO-58	810.76		99.40	8.48E-01	8.48E-01	5.05E-02	4.13E-01
	FE-59	1099.22		56.50	2.77E+00	2.77E+00	5.84E-01	1.34E+00
		1291.56		43.20	3.11E+00		-7.42E-01	1.49E+00
	CO-60	1173.22		100.00	3.24E-01	3.17E-01	-1.30E-01	1.57E-01
		1332.49		100.00	3.17E-01		-1.42E-02	1.52E-01
	ZN-65	1115.52		50.75	1.48E+00	1.48E+00	-8.27E-02	7.27E-01
	GA-67	93.31		35.70	9.75E+08	9.75E+08	4.96E+09	4.85E+08
		208.95		2.24	1.40E+10		1.98E+09	6.92E+09
		300.22		16.00	2.34E+09		-4.30E+08	1.16E+09
	SE-75	121.11		16.70	1.98E+00	5.85E-01	9.29E-03	9.82E-01
		136.00		59.20	5.85E-01		-2.90E-01	2.90E-01
		264.65		59.80	6.41E-01		1.25E-01	3.17E-01
		279.53		25.20	1.55E+00		-1.13E+00	7.65E-01
		400.65		11.40	4.03E+00		-4.03E-01	1.98E+00
	RB-82	776.52		13.00	3.25E+01	3.25E+01	3.15E+00	1.58E+01
	RB-83	520.41		46.00	1.12E+00	1.12E+00	-9.68E-02	5.49E-01
		529.64		30.30	1.76E+00		-6.45E-02	8.59E-01
		552.65		16.40	3.15E+00		-1.45E+00	1.54E+00
	KR-85	513.99		0.43	6.08E+01	6.08E+01	4.26E+01	2.98E+01
	SR-85	513.99		99.27	7.54E-01	7.54E-01	5.28E-01	3.69E-01
	Y-88	898.02		93.40	6.97E-01	5.33E-01	1.05E-01	3.40E-01
		1836.01		99.38	5.33E-01		3.52E-01	2.50E-01
	MO-93	263.06		56.72	3.93E-01	2.76E-01	7.50E-02	1.94E-01
		684.67		99.68	2.76E-01		2.40E-02	1.34E-01
		1477.11		99.08	3.83E-01		6.37E-02	1.84E-01
	NB-93M	16.57		9.43	2.23E+01	2.23E+01	1.22E+02	1.10E+01
	NB-94	702.63		100.00	2.85E-01	2.85E-01	8.31E-03	1.39E-01
		871.10		100.00	3.27E-01		2.56E-03	1.59E-01
	NB-95	765.79		99.81	3.15E+00	3.15E+00	1.32E+01	1.55E+00
	NB-95M	235.69		25.00	1.77E+08	1.77E+08	-1.89E+07	8.77E+07
	ZR-95	724.18		43.70	1.99E+00	1.51E+00	1.05E+00	9.71E-01
		756.72		55.30	1.51E+00		4.50E-01	7.35E-01
	MO-99	181.06		6.20	2.54E+11	1.68E+11	-1.51E+10	1.26E+11
		739.58		12.80	1.68E+11		4.93E+10	8.21E+10
		778.00		4.50	4.56E+11		4.38E+10	2.22E+11
	RU-103	497.08		89.00	1.49E+00	1.49E+00	3.64E-01	7.30E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	RU-106	621.84		9.80	2.69E+00	2.69E+00	4.11E-01	1.31E+00
	AG-108M	433.93		89.90	2.66E-01	2.66E-01	-1.24E-01	1.31E-01
		614.37		90.40	2.87E-01		6.18E-03	1.40E-01
		722.95		90.50	3.34E-01		3.44E-01	1.63E-01
+	CD-109	88.03	*	3.72	1.68E+01	1.68E+01	4.03E+01	8.37E+00
	AG-110M	657.75		93.14	3.77E-01	3.77E-01	2.07E-02	1.84E-01
		677.61		10.53	3.20E+00		-1.71E+00	1.56E+00
		706.67		16.46	2.39E+00		1.65E-01	1.17E+00
		763.93		21.98	2.24E+00		-8.78E-02	1.10E+00
		884.67		71.63	6.07E-01		3.48E-04	2.96E-01
		1384.27		23.94	2.10E+00		-5.14E+00	1.02E+00
	CD-113M	263.70		0.02	9.53E+02	9.53E+02	1.85E+02	4.71E+02
	SN-113	255.12		1.93	2.13E+01	7.07E-01	4.11E+00	1.06E+01
		391.69		64.90	7.07E-01		1.88E-01	3.48E-01
	TE123M	159.00		84.10	4.53E-01	4.53E-01	-1.05E-01	2.25E-01
	SB-124	602.71		97.87	8.18E-01	8.18E-01	3.37E-02	3.99E-01
		645.85		7.26	9.97E+00		-3.37E+00	4.85E+00
		722.78		11.10	8.52E+00		8.77E+00	4.16E+00
		1691.02		49.00	1.67E+00		5.31E-02	7.88E-01
	I-125	35.49		6.49	1.59E+01	1.59E+01	-1.21E+01	7.86E+00
	SB-125	176.33		6.89	3.36E+00	9.26E-01	-1.57E-01	1.66E+00
		427.89		29.33	9.26E-01		-2.22E-01	4.55E-01
		463.38		10.35	2.50E+00		5.76E-01	1.23E+00
		600.56		17.80	1.54E+00		6.50E-01	7.50E-01
		635.90		11.32	2.23E+00		-3.75E-01	1.08E+00
	SB-126	414.70		83.30	7.92E+01	6.96E+01	1.47E+01	3.89E+01
		666.33		99.60	7.82E+01		1.08E+02	3.83E+01
		695.00		99.60	6.96E+01		-9.08E+00	3.39E+01
		720.50		53.80	1.42E+02		5.85E+01	6.92E+01
+	SN-126	87.57	*	37.00	1.46E+00	1.46E+00	3.49E+00	7.26E-01
	SB-127	473.00		25.00	5.51E+07	4.28E+07	1.76E+07	2.70E+07
		685.20		35.70	4.28E+07		3.72E+06	2.08E+07
		783.80		14.70	1.29E+08		1.17E+08	6.32E+07
	I-129	29.78		57.00	8.25E-01	8.25E-01	1.63E-01	4.09E-01
		33.60		13.20	2.77E+00		9.19E-01	1.37E+00
		39.58		7.52	3.73E+00		-3.21E+00	1.85E+00
	I-131	284.30		6.05	1.94E+04	1.42E+03	8.76E+03	9.56E+03
		364.48		81.20	1.42E+03		2.73E+02	6.97E+02
		636.97		7.26	1.64E+04		-1.86E+03	7.99E+03
		722.89		1.80	8.65E+04		8.90E+04	4.22E+04
	TE-132	49.72		13.10	2.84E+09	3.61E+08	-3.63E+09	1.41E+09
		228.16		88.00	3.61E+08		-1.49E+07	1.79E+08
	BA-133	81.00		33.00	8.09E-01	7.36E-01	-7.35E+00	4.02E-01
		302.84		17.80	1.28E+00		-3.29E-01	6.31E-01
		356.01		60.00	7.36E-01		5.22E-02	3.65E-01
@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	XE-133	81.00		38.00	3.40E+05	3.40E+05	-3.09E+06	1.69E+05
	CS-134	563.23		8.38	3.18E+00	3.85E-01	2.20E-01	1.55E+00
		569.32		15.43	1.70E+00		-8.08E-01	8.29E-01
		604.70		97.60	4.84E-01		5.91E-02	2.39E-01
		795.84		85.40	3.85E-01		2.07E-02	1.87E-01
		801.93		8.73	3.86E+00		-1.19E+00	1.88E+00
	CS-135	268.24		16.00	1.44E+00	1.44E+00	8.50E-02	7.12E-01

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41	28.60	1.00E+26		1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		1.00E+26	1.00E+20
CS-136	153.22	7.46	5.45E+02	5.83E+01	-5.34E+01	2.70E+02
	163.89	4.61	8.64E+02		3.31E+02	4.29E+02
	176.55	13.56	2.96E+02		-2.54E+01	1.47E+02
	273.65	12.66	3.44E+02		1.47E+02	1.70E+02
	340.57	48.50	9.15E+01		4.57E+01	4.51E+01
	818.50	99.70	5.83E+01		1.67E+01	2.84E+01
	1048.07	79.60	7.49E+01		-3.95E+01	3.63E+01
	1235.34	19.70	5.48E+02		4.85E+01	2.69E+02
CS-137	661.65	85.12	3.59E-01	3.59E-01	1.70E-02	1.76E-01
LA-138	788.74	34.00	1.01E+00	4.74E-01	6.22E-02	4.96E-01
	1435.80	66.00	4.74E-01		-2.33E-02	2.27E-01
CE-139	165.85	80.35	4.39E-01	4.39E-01	2.72E-01	2.18E-01
BA-140	162.64	6.70	6.90E+02	2.10E+02	-9.06E+01	3.42E+02
	304.84	4.50	1.07E+03		4.00E+02	5.27E+02
	423.70	3.20	1.80E+03		2.02E+02	8.86E+02
	437.55	2.00	2.52E+03		-9.53E+02	1.24E+03
	537.32	25.00	2.10E+02		1.07E+02	1.03E+02
LA-140	328.77	20.50	2.37E+02	8.22E+01	-4.28E+01	1.17E+02
	487.03	45.50	1.15E+02		3.91E+01	5.61E+01
	815.85	23.50	2.78E+02		-1.87E+02	1.36E+02
	1596.49	95.49	8.22E+01		6.40E+01	3.95E+01
CE-141	145.44	48.40	3.66E+00	3.66E+00	-2.49E-01	1.82E+00
@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	293.26	42.00	1.00E+26		1.00E+26	1.00E+20
@	664.55	5.20	1.00E+26		1.00E+26	1.00E+20
CE-144	133.54	10.80	2.28E+00	2.28E+00	-2.43E-01	1.13E+00
PM-144	476.78	42.00	6.98E-01	2.76E-01	9.75E-02	3.42E-01
	618.01	98.60	2.76E-01		-4.87E-02	1.34E-01
	696.49	99.49	3.33E-01		1.31E-01	1.62E-01
PM-145	36.85	21.70	1.44E+00	7.67E-01	-1.07E+00	7.12E-01
	37.36	39.70	7.67E-01		-5.69E-01	3.80E-01
	42.30	15.10	1.77E+00		-1.11E+00	8.80E-01
	72.40	2.31	1.23E+01		-1.37E+02	6.11E+00
PM-146	453.90	39.94	6.29E-01	6.29E-01	5.47E-01	3.09E-01
	735.90	14.01	2.15E+00		-4.04E-01	1.05E+00
	747.13	13.10	2.35E+00		5.42E-02	1.15E+00
ND-147	91.11	28.90	4.71E+02	4.71E+02	2.66E+03	2.34E+02
	531.02	13.10	9.50E+02		-3.33E+02	4.64E+02
PM-149	285.90	3.10	2.29E+14	2.29E+14	1.19E+14	1.13E+14
EU-152	121.78	20.50	9.22E-01	9.22E-01	-8.86E-03	4.58E-01
	244.69	5.40	5.61E+00		3.17E+01	2.78E+00
	344.27	19.13	1.24E+00		-1.52E-01	6.09E-01
	778.89	9.20	3.17E+00		-5.58E-01	1.54E+00
	964.01	10.40	3.27E+00		-7.34E-01	1.59E+00
	1085.78	7.22	4.58E+00		-1.03E+00	2.22E+00
	1112.02	9.60	3.38E+00		2.09E-01	1.64E+00
	1407.95	14.94	3.11E+00		4.40E+00	1.51E+00
GD-153	97.43	31.30	8.46E-01	8.46E-01	-5.17E+00	4.20E-01
	103.18	22.20	1.07E+00		-9.95E-01	5.29E-01
EU-154	123.07	40.50	4.72E-01	4.72E-01	-5.14E-02	2.34E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-154	723.30		19.70	1.54E+00	4.72E-01	8.14E-01	7.51E-01
		873.19		11.50	2.84E+00		-1.62E+00	1.38E+00
		996.32		10.30	3.53E+00		9.90E-01	1.72E+00
		1004.76		17.90	2.03E+00		5.10E-01	9.88E-01
		1274.45		35.50	9.81E-01		1.85E-01	4.74E-01
	EU-155	86.50		30.90	8.41E-01	8.41E-01	6.27E-01	4.18E-01
		105.30		20.70	8.91E-01		-1.05E+00	4.42E-01
	EU-156	811.77		10.40	2.73E+02	2.73E+02	2.10E+01	1.33E+02
		1153.47		7.20	5.03E+02		8.16E+02	2.45E+02
		1230.71		8.90	3.56E+02		-1.09E+01	1.72E+02
	HO-166M	184.41		72.60	4.09E-01	4.09E-01	3.61E+00	2.03E-01
		280.45		29.60	7.45E-01		-3.45E-01	3.68E-01
		410.94		11.10	2.29E+00		-1.28E+00	1.13E+00
		711.69		54.10	5.49E-01		8.16E-02	2.68E-01
	TM-171	66.72		0.14	2.01E+02	2.01E+02	2.17E+01	9.98E+01
	HF-172	67.35		5.31	5.28E+00	1.84E+00	5.72E-01	2.63E+00
		125.81		11.30	1.84E+00		4.73E-03	9.14E-01
	LU-172	181.53		20.60	3.31E+04	1.51E+04	-5.60E+02	1.64E+04
		900.72		29.81	3.30E+04		3.22E+02	1.61E+04
		1093.66		62.50	1.51E+04		9.71E+03	7.32E+03
	LU-173	100.72		5.24	3.97E+00	1.32E+00	-2.81E+00	1.97E+00
		272.11		21.20	1.32E+00		5.93E-01	6.51E-01
	HF-175	343.40		84.00	7.39E-01	7.39E-01	-9.08E-02	3.64E-01
	LU-176	88.34		13.30	1.88E+00	2.34E-01	-7.79E+00	9.33E-01
		201.83		86.00	2.60E-01		6.35E-02	1.29E-01
		306.78		94.00	2.34E-01		6.82E-02	1.16E-01
	HF-181	133.02		41.70	2.35E+00	1.50E+00	2.98E-01	1.17E+00
		345.85		17.20	6.98E+00		-8.47E-01	3.44E+00
		482.03		82.80	1.50E+00		-8.79E-02	7.33E-01
	TA-182	67.75		41.20	1.09E+00	1.09E+00	1.21E-01	5.42E-01
		1121.30		34.90	4.08E+00		3.09E+01	2.01E+00
		1189.05		16.23	3.81E+00		7.32E-02	1.84E+00
		1221.41		26.98	2.26E+00		6.36E-01	1.09E+00
		1231.02		11.44	5.71E+00		-1.44E-01	2.76E+00
	IR-192	308.46		29.68	1.84E+00	1.26E+00	7.74E-02	9.10E-01
		468.07		48.10	1.26E+00		-6.42E-02	6.18E-01
	HG-203	279.19		77.30	1.24E+00	1.24E+00	-1.42E+00	6.14E-01
	TL-204	374.74		94.11	2.57E-01	2.57E-01	-4.13E-02	1.26E-01
		899.15		99.16	3.58E-01		-2.19E-01	1.75E-01
		911.74		91.10	4.25E-01		5.76E-02	2.08E-01
	BI-207	569.67		97.72	2.46E-01	2.46E-01	-1.17E-01	1.20E-01
		1063.62		74.90	4.30E-01		-2.30E-01	2.08E-01
	TL-208	583.14		30.22	8.83E-01	7.45E-01	6.48E-01	4.32E-01
		860.37		4.48	7.26E+00		-2.75E+00	3.54E+00
		2614.66		35.85	7.45E-01		8.21E-01	3.38E-01
	BI-210M	262.00		45.00	4.96E-01	4.96E-01	2.36E-01	2.45E-01
		300.00		23.00	1.14E+00		-2.10E-01	5.66E-01
+	PB-210	46.50	*	4.25	6.80E+00	6.80E+00	2.28E+01	3.37E+00
	PB-211	404.84		2.90	9.13E+00	9.13E+00	6.36E+00	4.50E+00
		831.96		2.90	1.07E+01		-2.33E-01	5.20E+00
	BI-212	727.17		11.80	2.39E+00	2.39E+00	-4.79E-01	1.16E+00
		1620.62		2.75	1.08E+01		9.42E-01	5.14E+00
+	PB-212	238.63	*	44.60	1.02E+00	1.02E+00	1.02E+00	5.09E-01

Analysis Report for 1707089-17

HTC-A06-S001-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PB-212	300.09		3.41	7.72E+00	1.02E+00	-1.42E+00	3.82E+00
+	BI-214	609.31	*	46.30	9.60E-01	9.60E-01	3.63E+01	4.74E-01
		1120.29	*	15.10	3.59E+00		3.92E+01	1.76E+00
		1764.49	*	15.80	2.53E+00		3.86E+01	1.21E+00
		2204.22	*	4.98	4.22E+00		4.05E+01	1.91E+00
+	PB-214	295.21	*	19.19	1.67E+00	9.55E-01	3.97E+01	8.29E-01
		351.92	*	37.19	9.55E-01		4.04E+01	4.73E-01
	RN-219	401.80		6.50	4.02E+00	4.02E+00	1.21E+00	1.98E+00
+	RA-223	323.87	*	3.88	6.63E+00	6.63E+00	3.73E+00	3.27E+00
	RA-224	240.98		3.95	8.33E+00	8.33E+00	7.31E+01	4.13E+00
	RA-225	40.00		31.00	9.25E+01	9.25E+01	-7.97E+01	4.59E+01
+	RA-226	186.21	*	3.28	1.14E+01	1.14E+01	8.43E+01	5.67E+00
	TH-227	50.10		8.40	3.04E+00	2.08E+00	-3.89E+00	1.51E+00
		236.00		11.50	2.08E+00		-2.22E-01	1.03E+00
		256.20		6.30	3.65E+00		3.18E+00	1.80E+00
	AC-228	338.32		11.40	2.11E+00	1.34E+00	5.74E-01	1.04E+00
		911.07		27.70	1.34E+00		8.31E-01	6.53E-01
		969.11		16.60	2.03E+00		1.12E+00	9.88E-01
	TH-230	48.44		16.90	1.58E+00	1.58E+00	2.46E+00	7.85E-01
		62.85		4.60	5.84E+00		2.40E+01	2.91E+00
		67.67		0.37	6.66E+01		7.40E+00	3.31E+01
	PA-231	283.67		1.60	1.42E+01	9.71E+00	6.41E+00	7.00E+00
		302.67		2.30	9.71E+00		-2.50E+00	4.79E+00
	TH-231	25.64		14.70	4.59E+00	3.77E+00	1.88E+00	2.27E+00
		84.21		6.40	3.77E+00		-9.87E+00	1.88E+00
	PA-233	311.98		38.60	7.33E+00	7.33E+00	-1.16E-01	3.61E+00
	PA-234	131.20		20.40	9.44E-01	9.44E-01	9.43E-02	4.68E-01
		733.99		8.80	3.19E+00		-1.25E-01	1.55E+00
		946.00		12.00	2.79E+00		-6.99E-01	1.36E+00
+	PA-234M	1001.03	*	0.92	4.16E+01	4.16E+01	2.59E+01	2.03E+01
+	TH-234	63.29	*	3.80	7.44E+00	7.44E+00	2.90E+01	3.70E+00
	U-235	143.76		10.50	2.02E+00	2.02E+00	2.52E+00	1.00E+00
		163.35		4.70	4.58E+00		-6.01E-01	2.27E+00
		205.31		4.70	4.78E+00		4.40E+00	2.37E+00
	NP-237	86.50		12.60	1.99E+00	1.99E+00	1.48E+00	9.88E-01
	NP-239	106.10		22.70	3.72E+12	3.72E+12	-1.60E+12	1.85E+12
		228.18		10.70	9.69E+12		-4.00E+11	4.80E+12
		277.60		14.10	7.43E+12		-3.91E+12	3.67E+12
	AM-241	59.54		35.90	7.17E-01	7.17E-01	-4.42E-01	3.56E-01
	AM-243	74.67		66.00	5.29E-01	5.29E-01	8.19E+00	2.63E-01
	CM-243	209.75		3.29	6.63E+00	1.60E+00	-3.87E+00	3.28E+00
		228.14		10.60	2.09E+00		-8.61E-02	1.03E+00
		277.60		14.00	1.60E+00		-8.41E-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

Analysis Report for 1707089-17

HTC-A06-S001-0612-01

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A06-S001-0612-01

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	157	783
17:	753	722	720	662	615	622	681	654
25:	648	659	628	635	615	626	636	629
33:	596	611	629	643	621	575	651	672
41:	657	684	770	881	1284	1302	926	783
49:	856	929	946	1113	1116	937	985	1006
57:	1053	1111	1196	1302	1536	2153	2018	1412
65:	1344	1381	1487	1442	1414	1467	1494	1664
73:	2664	3487	3874	4763	3571	1887	1482	1351
81:	1330	1391	1545	1445	1547	2117	1988	1489
89:	1440	1489	2072	2501	1584	1082	923	884
97:	910	994	853	835	809	753	770	812
105:	821	810	802	895	834	841	891	919
113:	887	872	807	804	799	831	797	813
121:	761	784	815	784	807	785	792	769
129:	800	787	840	803	768	761	807	759
137:	831	773	823	794	826	939	1058	907
145:	798	791	796	835	851	828	829	913
153:	893	899	811	777	796	792	783	785
161:	729	785	800	727	691	752	731	659
169:	658	679	726	660	689	679	674	703
177:	672	694	666	673	690	690	761	1427
185:	2179	1802	868	641	660	632	593	648
193:	633	617	726	556	579	601	583	564
201:	592	585	566	589	628	524	532	528
209:	485	514	528	481	506	462	475	495
217:	489	484	468	445	481	483	450	460
225:	457	453	477	446	442	441	431	463
233:	461	445	536	515	539	581	563	1090
241:	1784	1357	535	388	364	392	341	321
249:	368	370	358	367	378	383	442	400
257:	398	408	379	355	320	328	355	364
265:	295	301	333	416	428	414	393	342
273:	387	382	321	311	296	308	292	306
281:	309	314	306	314	328	327	279	323
289:	273	304	269	429	1319	3075	2699	960
297:	328	289	297	254	259	275	266	273
305:	251	254	259	245	223	230	228	270
313:	259	282	250	263	224	245	229	226
321:	240	264	285	250	216	223	226	257
329:	250	237	199	251	257	242	223	231
337:	252	285	255	237	254	200	207	236
345:	220	213	246	285	662	2799	5012	3314
353:	850	209	173	195	170	203	172	181
361:	200	170	177	171	180	198	174	187

369:	167	174	170	182	170	211	182	191

Sample Title: HTC-A06-S001-0612-01

Channel								
377:	166	197	197	184	181	194	176	172
385:	197	196	203	232	219	165	171	208
393:	209	199	193	186	181	179	209	203
401:	214	208	212	202	227	185	195	165
409:	186	185	184	210	164	191	192	198
417:	165	172	186	200	213	196	188	185
425:	168	186	145	176	168	150	171	153
433:	154	143	125	116	148	138	136	142
441:	142	129	148	122	131	109	128	116
449:	132	143	140	139	147	152	107	124
457:	131	96	131	127	169	120	134	114
465:	125	115	141	123	135	115	115	132
473:	137	126	121	106	114	115	137	152
481:	121	112	111	105	129	135	102	116
489:	116	117	99	93	95	113	99	107
497:	100	90	111	105	93	87	107	99
505:	86	103	104	125	140	158	137	108
513:	119	110	108	100	84	95	93	94
521:	94	116	81	100	102	100	98	103
529:	93	96	94	90	86	102	98	94
537:	119	86	87	87	97	76	100	92
545:	90	93	101	86	80	80	74	97
553:	75	94	82	79	98	89	85	86
561:	91	87	83	85	94	81	80	89
569:	77	91	75	85	87	95	89	81
577:	80	93	95	91	107	117	89	99
585:	91	82	87	72	85	69	84	72
593:	79	65	85	67	92	87	69	88
601:	92	91	74	86	90	211	1057	2707
609:	2719	1071	187	64	79	63	70	60
617:	62	57	62	60	55	66	49	54
625:	48	55	60	65	54	77	70	77
633:	74	72	52	61	55	57	60	68
641:	53	60	54	59	59	70	46	70
649:	75	60	57	66	51	46	68	67
657:	61	66	77	49	55	62	68	120
665:	141	87	57	57	51	53	67	57
673:	44	60	49	49	59	49	44	62
681:	52	51	59	68	53	52	59	57
689:	70	57	43	72	52	60	51	55
697:	69	46	40	66	75	60	87	61
705:	60	49	73	78	73	51	69	52
713:	61	50	71	51	53	71	71	69
721:	68	61	56	72	59	54	50	52
729:	50	44	62	61	64	49	43	48
737:	64	57	71	65	76	85	56	62
745:	61	58	49	53	50	56	47	57
753:	54	50	60	53	52	55	42	51
761:	47	48	50	67	85	169	252	269
769:	146	78	41	44	57	52	45	47
777:	58	47	50	55	54	46	64	74
785:	108	97	74	62	62	54	61	54
793:	54	51	65	49	41	47	54	37

801:	59	42	42	75	97	83	73	48

Sample Title: HTC-A06-S001-0612-01

Channel								
809:	55	54	49	58	46	57	46	57
817:	42	52	59	58	69	56	38	65
825:	55	55	40	53	48	60	61	55
833:	53	54	44	38	62	85	85	68
841:	63	60	47	47	53	38	58	56
849:	51	52	65	34	48	53	65	52
857:	54	64	57	56	51	43	47	62
865:	56	60	61	56	64	53	48	40
873:	52	45	51	47	58	58	55	62
881:	61	48	51	57	62	50	52	34
889:	48	53	46	49	67	61	38	51
897:	67	55	51	55	52	60	56	57
905:	60	62	64	55	58	88	79	64
913:	43	59	55	52	44	60	52	39
921:	54	48	47	38	48	56	49	43
929:	51	53	72	102	169	139	70	42
937:	34	46	44	55	37	57	56	47
945:	49	50	33	44	60	58	46	30
953:	40	45	41	42	39	40	36	60
961:	45	47	66	50	35	38	44	62
969:	49	47	47	49	45	32	44	48
977:	39	48	44	40	45	42	40	32
985:	38	44	45	41	45	35	37	53
993:	36	43	48	52	46	42	50	76
1001:	73	45	38	36	39	37	51	45
1009:	39	34	45	41	39	35	36	37
1017:	33	44	34	42	32	48	32	35
1025:	43	28	36	30	41	43	40	52
1033:	35	45	43	39	37	31	37	31
1041:	36	34	41	26	30	33	44	35
1049:	38	39	45	47	49	39	36	32
1057:	44	36	38	34	31	33	43	30
1065:	36	38	36	38	44	43	35	36
1073:	31	22	33	45	29	30	32	40
1081:	34	48	37	28	34	39	26	38
1089:	36	40	38	34	31	39	39	42
1097:	27	34	23	42	38	44	42	42
1105:	27	30	40	36	38	27	35	25
1113:	28	31	35	28	79	214	473	583
1121:	274	65	29	37	46	28	37	30
1129:	29	40	25	42	40	42	17	27
1137:	34	31	40	32	27	41	27	33
1145:	34	23	32	30	32	28	26	38
1153:	52	65	83	55	41	35	26	28
1161:	24	30	29	32	26	37	33	28
1169:	23	20	30	28	40	32	25	27
1177:	30	29	32	32	52	41	35	30
1185:	38	32	27	39	43	27	27	29
1193:	32	25	37	30	29	22	30	28
1201:	29	21	27	30	27	40	49	23
1209:	32	24	28	33	25	25	33	25
1217:	32	25	32	33	29	31	27	23
1225:	41	30	30	24	34	32	39	42

1233:	20	33	55	134	203	221	87	35

Sample Title: HTC-A06-S001-0612-01

Channel								
1241:	28	23	32	25	27	26	19	18
1249:	24	21	32	26	32	29	29	22
1257:	31	23	18	26	26	25	26	20
1265:	25	30	23	21	15	30	25	19
1273:	27	37	24	31	30	39	51	79
1281:	50	33	31	23	17	32	19	22
1289:	22	18	21	24	17	23	14	17
1297:	18	25	15	18	17	26	31	24
1305:	17	26	22	15	21	20	22	30
1313:	24	24	25	20	30	13	18	24
1321:	28	22	23	23	24	18	15	19
1329:	25	25	21	21	21	21	25	14
1337:	24	18	29	27	17	30	26	22
1345:	29	28	22	32	23	26	31	26
1353:	17	23	26	20	22	24	22	22
1361:	23	21	26	17	27	28	16	14
1369:	21	19	19	17	23	27	56	97
1377:	140	80	47	18	25	22	38	42
1385:	54	39	23	24	24	22	21	30
1393:	37	17	18	21	25	15	23	44
1401:	63	42	29	27	32	62	85	76
1409:	52	26	21	22	19	25	15	21
1417:	23	19	25	18	24	26	18	31
1425:	24	33	19	21	18	19	24	17
1433:	20	23	16	25	17	15	19	30
1441:	14	17	23	21	21	35	21	34
1449:	26	22	22	16	17	22	21	19
1457:	21	36	47	65	58	31	25	21
1465:	20	30	26	29	24	17	20	32
1473:	22	24	31	26	16	25	32	35
1481:	29	32	26	24	26	20	28	27
1489:	26	19	18	23	26	26	24	22
1497:	23	28	23	25	30	23	26	26
1505:	26	25	40	90	72	55	32	26
1513:	30	18	22	22	20	30	18	21
1521:	25	26	20	24	24	28	19	27
1529:	22	28	19	34	26	18	24	20
1537:	43	38	26	34	18	40	26	19
1545:	16	17	18	12	16	16	21	14
1553:	16	18	13	14	10	18	13	20
1561:	20	21	14	18	13	19	19	24
1569:	18	15	12	17	25	19	18	18
1577:	13	21	14	17	20	31	24	24
1585:	15	15	22	17	12	14	22	21
1593:	20	21	26	19	16	29	28	17
1601:	21	12	15	14	18	17	11	16
1609:	9	15	10	21	13	21	9	15
1617:	10	23	13	19	10	13	8	14
1625:	8	17	13	16	11	10	14	9
1633:	8	4	14	11	12	13	14	15
1641:	9	7	11	20	12	3	10	13
1649:	3	10	13	10	5	8	3	7
1657:	12	14	10	43	29	21	10	11

1665:	5	6	7	6	9	11	4	11

Sample Title: HTC-A06-S001-0612-01

Channel								
1673:	11	8	10	9	9	8	5	4
1681:	12	6	13	13	4	14	12	5
1689:	7	9	10	12	18	9	6	12
1697:	10	5	16	11	5	8	7	13
1705:	7	7	3	7	7	5	3	12
1713:	6	8	8	5	6	7	7	3
1721:	5	5	5	10	8	9	32	55
1729:	66	65	17	9	5	14	5	12
1737:	8	4	10	2	7	12	6	8
1745:	3	7	4	5	2	9	9	8
1753:	11	7	14	7	5	10	4	12
1761:	26	115	242	355	249	69	15	6
1769:	6	6	6	4	4	3	6	7
1777:	3	2	4	5	7	5	5	6
1785:	3	1	8	6	5	1	5	3
1793:	9	6	6	5	4	8	3	4
1801:	2	5	1	4	11	6	2	5
1809:	8	5	4	10	6	7	9	4
1817:	2	6	8	3	3	5	3	8
1825:	5	6	12	3	6	5	7	8
1833:	4	6	9	8	11	16	11	11
1841:	5	7	6	8	24	40	66	37
1849:	15	9	4	8	8	8	7	3
1857:	6	6	4	2	3	2	6	5
1865:	5	4	5	7	6	4	7	11
1873:	8	11	7	0	4	8	5	6
1881:	7	10	6	7	5	7	6	5
1889:	6	11	6	5	2	11	6	8
1897:	12	6	6	10	4	4	6	5
1905:	5	6	4	8	6	3	4	7
1913:	2	13	3	4	13	3	2	9
1921:	9	5	6	2	4	4	6	5
1929:	8	6	9	9	9	5	6	4
1937:	8	10	5	12	7	5	5	7
1945:	4	3	4	2	9	5	9	8
1953:	9	11	6	11	9	7	7	7
1961:	3	4	5	4	7	6	5	9
1969:	7	4	10	4	5	8	7	5
1977:	2	7	2	2	5	3	7	2
1985:	3	7	3	2	1	3	3	1
1993:	3	6	9	5	2	4	3	1
2001:	2	6	3	1	10	1	1	5
2009:	4	6	4	2	5	4	2	1
2017:	5	6	6	4	4	5	4	7
2025:	4	3	4	8	6	3	4	1
2033:	2	2	4	5	2	3	5	2
2041:	3	6	3	5	2	4	4	8
2049:	4	3	6	3	4	4	3	2
2057:	4	3	5	2	6	3	3	2
2065:	3	2	0	1	5	4	3	4
2073:	1	3	5	3	3	2	1	1
2081:	5	1	2	6	6	4	4	3
2089:	5	2	2	2	0	2	6	1

2097:	3	3	2	1	2	2	4	5

Sample Title: HTC-A06-S001-0612-01

Channel								
2105:	2	1	2	1	4	3	4	1
2113:	1	5	3	6	19	31	17	10
2121:	3	0	1	1	2	0	3	2
2129:	2	2	0	2	0	3	3	3
2137:	5	0	1	3	0	2	2	5
2145:	1	1	1	2	2	0	4	5
2153:	6	3	4	1	0	2	2	3
2161:	1	0	0	3	1	2	2	1
2169:	2	2	0	0	1	0	2	1
2177:	1	2	1	1	1	4	1	2
2185:	1	4	3	2	2	1	1	5
2193:	0	3	1	2	1	4	1	4
2201:	14	43	75	78	50	15	1	0
2209:	2	3	1	0	1	5	2	2
2217:	2	0	1	0	3	1	0	0
2225:	0	1	0	4	0	0	0	3
2233:	0	2	0	1	2	3	1	0
2241:	3	0	1	1	0	3	3	3
2249:	1	1	0	1	1	0	0	3
2257:	0	1	0	3	2	1	1	0
2265:	2	1	1	1	1	1	1	0
2273:	1	0	1	1	1	4	3	0
2281:	0	1	3	2	2	2	1	0
2289:	0	2	1	5	9	5	1	1
2297:	0	0	1	0	1	3	3	0
2305:	0	0	1	0	1	1	1	0
2313:	3	0	1	2	2	0	1	2
2321:	1	1	2	0	3	0	2	2
2329:	0	1	1	3	0	0	1	2
2337:	2	0	0	1	1	0	5	0
2345:	1	2	0	0	1	0	0	0
2353:	1	1	0	0	0	1	0	0
2361:	0	1	0	0	1	3	0	0
2369:	0	1	0	0	1	0	1	1
2377:	1	1	3	1	1	0	0	1
2385:	1	0	3	1	0	0	1	1
2393:	2	3	1	1	0	0	0	1
2401:	1	1	0	0	0	1	1	2
2409:	0	1	0	0	0	0	0	1
2417:	0	0	1	0	0	0	0	1
2425:	0	0	0	4	1	1	0	1
2433:	0	0	0	1	1	1	1	1
2441:	1	0	0	1	7	11	15	25
2449:	12	0	0	1	1	0	0	0
2457:	0	0	0	0	2	2	0	2
2465:	0	0	0	0	0	0	0	1
2473:	0	1	1	1	0	1	0	0
2481:	1	2	1	1	0	0	1	0
2489:	1	0	0	0	0	0	0	1
2497:	1	0	0	0	0	1	0	0
2505:	0	1	0	1	0	0	0	1
2513:	0	0	1	1	0	0	1	0
2521:	0	0	1	0	0	0	0	1

2529:	0	0	0	0	0	1	0	0

Sample Title: HTC-A06-S001-0612-01

Channel								
2537:	0	0	0	0	1	0	0	0
2545:	0	0	0	0	0	0	0	1
2553:	0	0	0	0	0	1	0	0
2561:	1	0	0	1	1	0	0	0
2569:	0	0	0	0	0	0	0	1
2577:	0	0	0	0	1	0	0	0
2585:	0	0	0	0	1	1	0	1
2593:	0	1	0	0	0	0	0	1
2601:	0	0	0	0	0	0	1	0
2609:	0	0	0	6	8	8	4	3
2617:	1	2	0	0	0	0	1	1
2625:	0	1	0	0	0	0	0	0
2633:	0	0	0	0	0	0	0	0
2641:	0	0	1	0	0	0	1	0
2649:	0	0	1	0	1	0	0	1
2657:	0	0	0	0	0	1	0	0
2665:	0	1	0	0	1	0	0	0
2673:	0	0	0	0	0	0	1	1
2681:	0	1	0	2	0	0	1	0
2689:	0	0	0	0	0	0	2	0
2697:	0	1	0	0	0	1	0	0
2705:	0	0	0	0	0	0	0	0
2713:	0	0	0	0	0	0	1	0
2721:	0	0	1	0	0	0	0	1
2729:	0	0	0	0	0	0	0	0
2737:	0	0	0	0	0	0	0	0
2745:	0	0	0	0	0	0	0	0
2753:	1	0	0	0	0	0	2	0
2761:	0	0	0	0	1	0	0	0
2769:	0	0	0	1	0	1	0	0
2777:	0	0	1	0	1	0	0	0
2785:	0	0	0	0	0	0	0	0
2793:	0	0	0	1	0	0	0	0
2801:	0	1	0	1	1	0	0	0
2809:	0	0	0	0	0	2	3	0
2817:	0	0	0	0	0	0	0	0
2825:	0	0	0	0	0	0	0	0
2833:	0	0	0	0	1	1	2	0
2841:	1	0	0	0	0	0	0	0
2849:	0	0	0	0	0	0	0	0
2857:	0	0	0	0	1	0	0	0
2865:	0	0	0	0	0	1	0	3
2873:	0	0	0	0	0	0	1	0
2881:	0	0	0	0	0	0	0	0
2889:	0	0	0	0	1	0	0	0
2897:	0	0	0	1	0	0	0	0
2905:	0	0	0	0	0	2	0	0
2913:	0	0	0	0	0	0	0	0
2921:	2	0	0	0	0	1	0	0
2929:	0	0	0	0	0	0	0	0
2937:	0	0	0	0	0	1	0	0
2945:	0	0	1	0	1	0	1	0
2953:	0	0	2	0	0	0	0	0

2961:	1	0	1	0	0	0	0	0

Sample Title: HTC-A06-S001-0612-01

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

3393:	0	1	0	0	0	0	0	0

Sample Title: HTC-A06-S001-0612-01

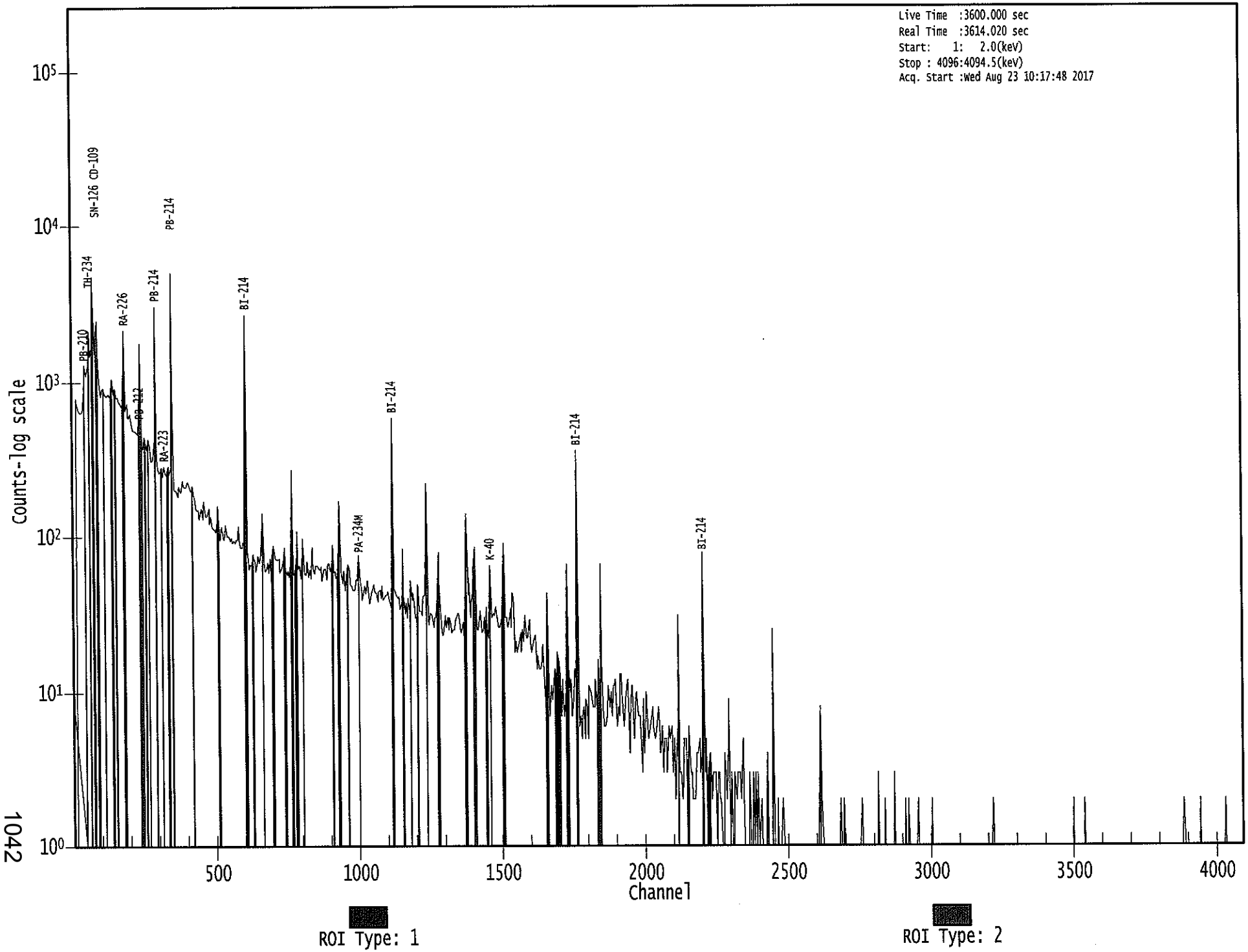
Channel								
3401:	0	0	0	1	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	1	0	0	1	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	1	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	1	0	0	1	0	0
3481:	1	1	0	0	0	0	0	0
3489:	0	1	0	0	0	0	0	0
3497:	0	0	0	2	0	0	0	0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

3825:	0	0	1	0	0	0	0	0

Sample Title: HTC-A06-S001-0612-01

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

0000055797.CNF



JCB 8/23/17

Apex-Gamma

Analysis Report for 1707089-18

HTC-A08-S001-0612-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707089-18
Sample Description	: HTC-A08-S001-0612-01
Sample Type	: SOIL
Sample Size	: 5.890E+02 grams
Facility	: Countroom
Sample Taken On	: 5/16/2017 7:20:35AM
Acquisition Started	: 8/23/2017 11:18:56AM
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	: 55798

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/23/17

Analysis Report for 1707089-18

HTC-A08-S001-0612-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/23/2017 12:19:01PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	74.56	75.15	0.0000	0.00
2	77.26	77.85	0.0000	0.00
3	104.86	105.43	0.0000	0.00
4	115.11	115.67	0.0000	0.00
5	128.96	129.50	0.0000	0.00
6	185.81	186.29	0.0000	0.00
7	209.51	209.96	0.0000	0.00
8	235.13	235.56	0.0000	0.00
9	238.60	239.03	0.0000	0.00
10	241.72	242.14	0.0000	0.00
11	269.58	269.98	0.0000	0.00
12	295.13	295.50	0.0000	0.00
13	299.90	300.27	0.0000	0.00
14	338.54	338.87	0.0000	0.00
15	351.78	352.09	0.0000	0.00
16	463.30	463.50	0.0000	0.00
17	511.14	511.29	0.0000	0.00
18	563.33	563.43	0.0000	0.00
19	583.42	583.50	0.0000	0.00
20	609.51	609.56	0.0000	0.00
21	661.55	661.55	0.0000	0.00
22	727.47	727.40	0.0000	0.00
23	736.68	736.60	0.0000	0.00
24	769.65	769.54	0.0000	0.00
25	785.36	785.24	0.0000	0.00
26	794.63	794.49	0.0000	0.00
27	860.88	860.68	0.0000	0.00
28	911.52	911.27	0.0000	0.00
29	934.55	934.28	0.0000	0.00
30	965.10	964.80	0.0000	0.00
31	969.20	968.89	0.0000	0.00
32	1074.10	1073.68	0.0000	0.00
33	1120.61	1120.15	0.0000	0.00
34	1123.22	1122.76	0.0000	0.00
35	1155.71	1155.21	0.0000	0.00
36	1238.85	1238.28	0.0000	0.00
37	1312.86	1312.21	0.0000	0.00
38	1378.37	1377.65	0.0000	0.00
39	1461.22	1460.42	0.0000	0.00
40	1465.99	1465.19	0.0000	0.00
41	1589.39	1588.47	0.0000	0.00
42	1593.39	1592.46	0.0000	0.00

Analysis Report for 1707089-18

HTC-A08-S001-0612-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1598.87	1597.93	0.0000	0.00
44	1764.89	1763.80	0.0000	0.00
45	1774.50	1773.39	0.0000	0.00
46	1811.64	1810.50	0.0000	0.00
47	1819.16	1818.02	0.0000	0.00
48	1849.01	1847.84	0.0000	0.00
49	2002.45	2001.13	0.0000	0.00
50	2073.99	2072.60	0.0000	0.00
51	2104.88	2103.46	0.0000	0.00
52	2177.46	2175.97	0.0000	0.00
53	2203.27	2201.76	0.0000	0.00
54	2287.84	2286.25	0.0000	0.00
55	2352.64	2350.98	0.0000	0.00
56	2425.47	2423.75	0.0000	0.00
57	2449.34	2447.59	0.0000	0.00
58	2615.44	2613.54	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707089-18

HTC-A08-S001-0612-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/23/2017 12:19:01PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	1	74.56	71 -	83	75.15	4.68E+02	97.47	1.39E+03	1.65
m	2	77.26	71 -	83	77.85	7.36E+02	104.89	1.36E+03	1.65
	3	104.86	103 -	108	105.43	6.36E+01	73.53	1.03E+03	1.71
	4	115.11	114 -	118	115.67	5.66E+01	60.74	7.69E+02	1.15
	5	128.96	125 -	133	129.50	1.19E+02	97.41	1.39E+03	2.82
	6	185.81	182 -	190	186.29	2.38E+02	88.17	1.05E+03	1.88
	7	209.51	207 -	212	209.96	6.54E+01	61.38	6.91E+02	1.61
M	8	235.13	233 -	251	235.56	4.45E+01	46.23	4.80E+02	3.10
m	9	238.60	233 -	251	239.03	9.93E+02	76.09	4.28E+02	1.78
m	10	241.72	233 -	251	242.14	3.15E+02	86.07	4.82E+02	2.39
	11	269.58	266 -	274	269.98	9.61E+01	66.50	6.22E+02	2.25
M	12	295.13	292 -	304	295.50	3.24E+02	50.26	2.89E+02	1.71
m	13	299.90	292 -	304	300.27	1.01E+02	51.50	3.77E+02	2.49
	14	338.54	334 -	344	338.87	2.59E+02	74.07	5.92E+02	2.05
	15	351.78	347 -	356	352.09	5.58E+02	80.63	6.10E+02	1.75
	16	463.30	458 -	470	463.50	1.15E+02	58.30	3.49E+02	2.75
	17	511.14	506 -	517	511.29	1.80E+02	63.15	4.09E+02	2.51
	18	563.33	561 -	566	563.43	2.55E+01	26.87	1.21E+02	3.60
	19	583.42	579 -	587	583.50	2.92E+02	54.03	2.69E+02	1.97
	20	609.51	607 -	615	609.56	3.70E+02	56.20	2.72E+02	2.02
	21	661.55	656 -	668	661.55	6.94E+01	47.06	2.29E+02	5.01
M	22	727.47	723 -	740	727.40	7.82E+01	30.27	1.09E+02	2.23
m	23	736.68	723 -	740	736.60	2.52E+01	27.06	1.17E+02	2.33
	24	769.65	765 -	774	769.54	4.68E+01	40.88	2.04E+02	4.62
	25	785.36	782 -	789	785.24	2.90E+01	28.91	1.20E+02	3.58
	26	794.63	790 -	798	794.49	3.55E+01	31.93	1.35E+02	2.28
	27	860.88	857 -	863	860.68	2.72E+01	27.28	1.16E+02	2.04
	28	911.52	907 -	914	911.27	2.05E+02	41.62	1.51E+02	2.60
	29	934.55	931 -	936	934.28	2.08E+01	23.39	9.23E+01	1.97
M	30	965.10	961 -	973	964.80	5.62E+01	32.44	1.54E+02	2.22
m	31	969.20	961 -	973	968.89	7.63E+01	35.50	1.84E+02	2.22
	32	1074.10	1071 -	1077	1073.68	1.88E+01	22.93	7.85E+01	4.33
M	33	1120.61	1097 -	1125	1120.15	7.64E+01	29.66	8.69E+01	2.51
m	34	1123.22	1097 -	1125	1122.76	2.15E+01	24.74	6.99E+01	2.51
	35	1155.71	1151 -	1158	1155.21	3.27E+01	28.57	1.11E+02	2.60
	36	1238.85	1236 -	1243	1238.28	2.90E+01	35.61	1.92E+02	1.16
	37	1312.86	1308 -	1317	1312.21	2.69E+01	22.25	5.61E+01	3.91
	38	1378.37	1374 -	1381	1377.65	2.00E+01	19.18	4.80E+01	1.82
M	39	1461.22	1455 -	1471	1460.42	9.98E+02	64.95	3.84E+01	2.21
m	40	1465.99	1455 -	1471	1465.19	3.39E+01	47.57	3.15E+00	2.91

Analysis Report for 1707089-18

HTC-A08-S001-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	41	1589.39	1582 -	1595	1588.47	3.17E+01	15.23	1.91E+01	2.69
m	42	1593.39	1582 -	1595	1592.46	1.53E+01	13.46	1.97E+01	2.41
	43	1598.87	1596 -	1600	1597.93	1.08E+01	9.22	8.47E+00	1.78
	44	1764.89	1759 -	1770	1763.80	8.70E+01	21.07	1.20E+01	2.83
	45	1774.50	1770 -	1777	1773.39	1.24E+01	8.49	3.29E+00	3.61
	46	1811.64	1806 -	1813	1810.50	8.00E+00	8.94	8.00E+00	1.28
	47	1819.16	1815 -	1821	1818.02	6.33E+00	7.78	5.33E+00	2.00
	48	1849.01	1843 -	1854	1847.84	1.66E+01	10.77	6.85E+00	3.93
	49	2002.45	1997 -	2004	2001.13	8.00E+00	5.66	0.00E+00	3.25
	50	2073.99	2068 -	2076	2072.60	1.00E+01	6.32	0.00E+00	3.00
	51	2104.88	2099 -	2110	2103.46	2.98E+01	12.81	4.38E+00	2.64
	52	2177.46	2174 -	2179	2175.97	6.06E+00	6.40	3.88E+00	2.84
	53	2203.27	2197 -	2207	2201.76	1.91E+01	12.67	1.18E+01	2.86
	54	2287.84	2283 -	2290	2286.25	7.39E+00	7.21	3.22E+00	1.38
	55	2352.64	2347 -	2354	2350.98	1.11E+01	8.25	3.77E+00	3.78
	56	2425.47	2420 -	2426	2423.75	4.42E+00	6.02	3.17E+00	2.56
	57	2449.34	2442 -	2453	2447.59	1.37E+01	12.17	1.05E+01	6.01
	58	2615.44	2608 -	2622	2613.54	1.19E+02	24.83	1.50E+01	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 : 8/23/2017 12:19:01PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	1	74.56	71 -	83	4.68E+02	97.47	1.39E+03	6.13E+01
m	2	77.26	71 -	83	7.36E+02	104.89	1.36E+03	6.06E+01
	3	104.86	103 -	108	6.36E+01	73.53	1.03E+03	5.90E+01
	4	115.11	114 -	118	5.66E+01	60.74	7.69E+02	4.84E+01
	5	128.96	125 -	133	1.19E+02	97.41	1.39E+03	7.80E+01
	6	185.81	182 -	190	2.38E+02	88.17	1.05E+03	6.79E+01
	7	209.51	207 -	212	6.54E+01	61.38	6.91E+02	4.87E+01
M	8	235.13	233 -	251	4.45E+01	46.23	4.80E+02	3.60E+01
m	9	238.60	233 -	251	9.93E+02	76.09	4.28E+02	3.40E+01
m	10	241.72	233 -	251	3.15E+02	86.07	4.82E+02	3.61E+01

Analysis Report for 1707089-18

HTC-A08-S001-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	11	269.58	266 -	274	9.61E+01	66.50	6.22E+02	2.72E+01
M	12	295.13	292 -	304	3.24E+02	50.26	2.89E+02	2.80E+01
m	13	299.90	292 -	304	1.01E+02	51.50	3.77E+02	3.19E+01
	14	338.54	334 -	344	2.59E+02	74.07	5.92E+02	5.48E+01
	15	351.78	347 -	356	5.58E+02	80.63	6.10E+02	5.37E+01
	16	463.30	458 -	470	1.15E+02	58.30	3.49E+02	4.46E+01
	17	511.14	506 -	517	1.80E+02	63.15	4.09E+02	4.70E+01
	18	563.33	561 -	566	2.55E+01	26.87	1.21E+02	2.05E+01
	19	583.42	579 -	587	2.92E+02	54.03	2.69E+02	3.44E+01
	20	609.51	607 -	615	3.70E+02	56.20	2.72E+02	3.37E+01
	21	661.55	656 -	668	6.94E+01	47.06	2.29E+02	3.62E+01
M	22	727.47	723 -	740	7.82E+01	30.27	1.09E+02	1.72E+01
m	23	736.68	723 -	740	2.52E+01	27.06	1.17E+02	1.78E+01
	24	769.65	765 -	774	4.68E+01	40.88	2.04E+02	3.17E+01
	25	785.36	782 -	789	2.90E+01	28.91	1.20E+02	2.21E+01
	26	794.63	790 -	798	3.55E+01	31.93	1.35E+02	2.44E+01
	27	860.88	857 -	863	2.72E+01	27.28	1.16E+02	2.07E+01
	28	911.52	907 -	914	2.05E+02	41.62	1.51E+02	2.48E+01
	29	934.55	931 -	936	2.08E+01	23.39	9.23E+01	1.77E+01
M	30	965.10	961 -	973	5.62E+01	32.44	1.54E+02	2.04E+01
m	31	969.20	961 -	973	7.63E+01	35.50	1.84E+02	2.23E+01
	32	1074.10	1071 -	1077	1.88E+01	22.93	7.85E+01	1.75E+01
M	33	1120.61	1097 -	1125	7.64E+01	29.66	8.69E+01	1.53E+01
m	34	1123.22	1097 -	1125	2.15E+01	24.74	6.99E+01	1.37E+01
	35	1155.71	1151 -	1158	3.27E+01	28.57	1.11E+02	2.15E+01
	36	1238.85	1236 -	1243	2.90E+01	35.61	1.92E+02	2.79E+01
	37	1312.86	1308 -	1317	2.69E+01	22.25	5.61E+01	1.62E+01
	38	1378.37	1374 -	1381	2.00E+01	19.18	4.80E+01	1.39E+01
M	39	1461.22	1455 -	1471	9.98E+02	64.95	3.84E+01	1.02E+01
m	40	1465.99	1455 -	1471	3.39E+01	47.57	3.15E+00	2.92E+00
M	41	1589.39	1582 -	1595	3.17E+01	15.23	1.91E+01	7.18E+00
m	42	1593.39	1582 -	1595	1.53E+01	13.46	1.97E+01	7.30E+00
	43	1598.87	1596 -	1600	1.08E+01	9.22	8.47E+00	5.32E+00
	44	1764.89	1759 -	1770	8.70E+01	21.07	1.20E+01	8.05E+00
	45	1774.50	1770 -	1777	1.24E+01	8.49	3.29E+00	3.91E+00
	46	1811.64	1806 -	1813	8.00E+00	8.94	8.00E+00	5.70E+00
	47	1819.16	1815 -	1821	6.33E+00	7.78	5.33E+00	4.87E+00
	48	1849.01	1843 -	1854	1.66E+01	10.77	6.85E+00	5.80E+00
	49	2002.45	1997 -	2004	8.00E+00	5.66	0.00E+00	0.00E+00
	50	2073.99	2068 -	2076	1.00E+01	6.32	0.00E+00	0.00E+00
	51	2104.88	2099 -	2110	2.98E+01	12.81	4.38E+00	5.50E+00
	52	2177.46	2174 -	2179	6.06E+00	6.40	3.88E+00	3.36E+00
	53	2203.27	2197 -	2207	1.91E+01	12.67	1.18E+01	7.53E+00
	54	2287.84	2283 -	2290	7.39E+00	7.21	3.22E+00	3.89E+00
	55	2352.64	2347 -	2354	1.11E+01	8.25	3.77E+00	3.99E+00
	56	2425.47	2420 -	2426	4.42E+00	6.02	3.17E+00	3.54E+00
	57	2449.34	2442 -	2453	1.37E+01	12.17	1.05E+01	7.93E+00
	58	2615.44	2608 -	2622	1.19E+02	24.83	1.50E+01	9.81E+00

Analysis Report for 1707089-18

HTC-A08-S001-0612-01

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/23/2017 12:19:01PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	1	74.56	71 -	83	75.15	4.68E+02	97.47	1.39E+03	AM-243
m	2	77.26	71 -	83	77.85	7.36E+02	104.89	1.36E+03	.....
	3	104.86	103 -	108	105.43	6.36E+01	73.53	1.03E+03	EU-155
	4	115.11	114 -	118	115.67	5.66E+01	60.74	7.69E+02	.....
	5	128.96	125 -	133	129.50	1.19E+02	97.41	1.39E+03	.....
	6	185.81	182 -	190	186.29	2.38E+02	88.17	1.05E+03	RA-226
	7	209.51	207 -	212	209.96	6.54E+01	61.38	6.91E+02	CM-243 GA-67
M	8	235.13	233 -	251	235.56	4.45E+01	46.23	4.80E+02	NB-95M TH-227
m	9	238.60	233 -	251	239.03	9.93E+02	76.09	4.28E+02	PB-212
m	10	241.72	233 -	251	242.14	3.15E+02	86.07	4.82E+02	RA-224
	11	269.58	266 -	274	269.98	9.61E+01	66.50	6.22E+02	.....
M	12	295.13	292 -	304	295.50	3.24E+02	50.26	2.89E+02	PB-214
m	13	299.90	292 -	304	300.27	1.01E+02	51.50	3.77E+02	BI-210M PB-212 GA-67
	14	338.54	334 -	344	338.87	2.59E+02	74.07	5.92E+02	AC-228
	15	351.78	347 -	356	352.09	5.58E+02	80.63	6.10E+02	PB-214
	16	463.30	458 -	470	463.50	1.15E+02	58.30	3.49E+02	SB-125
	17	511.14	506 -	517	511.29	1.80E+02	63.15	4.09E+02	.....
	18	563.33	561 -	566	563.43	2.55E+01	26.87	1.21E+02	CS-134
	19	583.42	579 -	587	583.50	2.92E+02	54.03	2.69E+02	TL-208
	20	609.51	607 -	615	609.56	3.70E+02	56.20	2.72E+02	BI-214
	21	661.55	656 -	668	661.55	6.94E+01	47.06	2.29E+02	CS-137
M	22	727.47	723 -	740	727.40	7.82E+01	30.27	1.09E+02	BI-212
m	23	736.68	723 -	740	736.60	2.52E+01	27.06	1.17E+02	PM-146
	24	769.65	765 -	774	769.54	4.68E+01	40.88	2.04E+02	.....
	25	785.36	782 -	789	785.24	2.90E+01	28.91	1.20E+02	.....
	26	794.63	790 -	798	794.49	3.55E+01	31.93	1.35E+02	.....

Analysis Report for 1707089-18

HTC-A08-S001-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	27	860.88	857 -	863	860.68	2.72E+01	27.28	1.16E+02	TL-208
	28	911.52	907 -	914	911.27	2.05E+02	41.62	1.51E+02	TL-204 AC-228
	29	934.55	931 -	936	934.28	2.08E+01	23.39	9.23E+01	.....
M	30	965.10	961 -	973	964.80	5.62E+01	32.44	1.54E+02	.....
m	31	969.20	961 -	973	968.89	7.63E+01	35.50	1.84E+02	AC-228
	32	1074.10	1071 -	1077	1073.68	1.88E+01	22.93	7.85E+01	.....
M	33	1120.61	1097 -	1125	1120.15	7.64E+01	29.66	8.69E+01	SC-46 BI-214 TA-182
m	34	1123.22	1097 -	1125	1122.76	2.15E+01	24.74	6.99E+01	.....
	35	1155.71	1151 -	1158	1155.21	3.27E+01	28.57	1.11E+02	.....
	36	1238.85	1236 -	1243	1238.28	2.90E+01	35.61	1.92E+02	CO-56
	37	1312.86	1308 -	1317	1312.21	2.69E+01	22.25	5.61E+01	V-48
	38	1378.37	1374 -	1381	1377.65	2.00E+01	19.18	4.80E+01	.....
M	39	1461.22	1455 -	1471	1460.42	9.98E+02	64.95	3.84E+01	K-40
m	40	1465.99	1455 -	1471	1465.19	3.39E+01	47.57	3.15E+00	.....
M	41	1589.39	1582 -	1595	1588.47	3.17E+01	15.23	1.91E+01	.....
m	42	1593.39	1582 -	1595	1592.46	1.53E+01	13.46	1.97E+01	.....
	43	1598.87	1596 -	1600	1597.93	1.08E+01	9.22	8.47E+00	.....
	44	1764.89	1759 -	1770	1763.80	8.70E+01	21.07	1.20E+01	BI-214
	45	1774.50	1770 -	1777	1773.39	1.24E+01	8.49	3.29E+00	.....
	46	1811.64	1806 -	1813	1810.50	8.00E+00	8.94	8.00E+00	.....
	47	1819.16	1815 -	1821	1818.02	6.33E+00	7.78	5.33E+00	.....
	48	1849.01	1843 -	1854	1847.84	1.66E+01	10.77	6.85E+00	.....
	49	2002.45	1997 -	2004	2001.13	8.00E+00	5.66	0.00E+00	.....
	50	2073.99	2068 -	2076	2072.60	1.00E+01	6.32	0.00E+00	.....
	51	2104.88	2099 -	2110	2103.46	2.98E+01	12.81	4.38E+00	.....
	52	2177.46	2174 -	2179	2175.97	6.06E+00	6.40	3.88E+00	.....
	53	2203.27	2197 -	2207	2201.76	1.91E+01	12.67	1.18E+01	BI-214
	54	2287.84	2283 -	2290	2286.25	7.39E+00	7.21	3.22E+00	.....
	55	2352.64	2347 -	2354	2350.98	1.11E+01	8.25	3.77E+00	.....
	56	2425.47	2420 -	2426	2423.75	4.42E+00	6.02	3.17E+00	.....
	57	2449.34	2442 -	2453	2447.59	1.37E+01	12.17	1.05E+01	.....
	58	2615.44	2608 -	2622	2613.54	1.19E+02	24.83	1.50E+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 : 8/23/2017 12:19:01PM

Analysis Report for 1707089-18

HTC-A08-S001-0612-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	1	74.56	4.68E+02	97.47	2.75E-02	2.38E-03
m	2	77.26	7.36E+02	104.89	2.75E-02	2.41E-03
	3	104.86	6.36E+01	73.53	2.68E-02	2.25E-03
	4	115.11	5.66E+01	60.74	2.62E-02	2.09E-03
	5	128.96	1.19E+02	97.41	2.54E-02	1.94E-03
	6	185.81	2.38E+02	88.17	2.17E-02	1.68E-03
	7	209.51	6.54E+01	61.38	2.04E-02	1.61E-03
M	8	235.13	4.45E+01	46.23	1.90E-02	1.54E-03
m	9	238.60	9.93E+02	76.09	1.89E-02	1.53E-03
m	10	241.72	3.15E+02	86.07	1.87E-02	1.52E-03
	11	269.58	9.61E+01	66.50	1.75E-02	1.44E-03
M	12	295.13	3.24E+02	50.26	1.64E-02	1.37E-03
m	13	299.90	1.01E+02	51.50	1.63E-02	1.36E-03
	14	338.54	2.59E+02	74.07	1.49E-02	1.27E-03
	15	351.78	5.58E+02	80.63	1.45E-02	1.24E-03
	16	463.30	1.15E+02	58.30	1.19E-02	1.10E-03
	17	511.14	1.80E+02	63.15	1.10E-02	1.07E-03
	18	563.33	2.55E+01	26.87	1.02E-02	1.03E-03
	19	583.42	2.92E+02	54.03	9.96E-03	1.02E-03
	20	609.51	3.70E+02	56.20	9.63E-03	1.01E-03
	21	661.55	6.94E+01	47.06	9.04E-03	9.72E-04
M	22	727.47	7.82E+01	30.27	8.41E-03	8.67E-04
m	23	736.68	2.52E+01	27.06	8.33E-03	8.53E-04
	24	769.65	4.68E+01	40.88	8.05E-03	8.00E-04
	25	785.36	2.90E+01	28.91	7.93E-03	7.75E-04
	26	794.63	3.55E+01	31.93	7.86E-03	7.61E-04
	27	860.88	2.72E+01	27.28	7.40E-03	6.55E-04
	28	911.52	2.05E+02	41.62	7.08E-03	5.91E-04
	29	934.55	2.08E+01	23.39	6.95E-03	5.82E-04
M	30	965.10	5.62E+01	32.44	6.79E-03	5.71E-04
m	31	969.20	7.63E+01	35.50	6.76E-03	5.69E-04
	32	1074.10	1.88E+01	22.93	6.27E-03	5.29E-04
M	33	1120.61	7.64E+01	29.66	6.07E-03	5.11E-04
m	34	1123.22	2.15E+01	24.74	6.06E-03	5.10E-04
	35	1155.71	3.27E+01	28.57	5.94E-03	4.98E-04
	36	1238.85	2.90E+01	35.61	5.64E-03	4.76E-04
	37	1312.86	2.69E+01	22.25	5.41E-03	4.59E-04
	38	1378.37	2.00E+01	19.18	5.22E-03	4.44E-04
M	39	1461.22	9.98E+02	64.95	5.01E-03	4.25E-04
m	40	1465.99	3.39E+01	47.57	4.99E-03	4.24E-04
M	41	1589.39	3.17E+01	15.23	4.71E-03	3.95E-04
m	42	1593.39	1.53E+01	13.46	4.70E-03	3.94E-04
	43	1598.87	1.08E+01	9.22	4.69E-03	3.93E-04
	44	1764.89	8.70E+01	21.07	4.37E-03	3.54E-04
	45	1774.50	1.24E+01	8.49	4.36E-03	3.52E-04
	46	1811.64	8.00E+00	8.94	4.29E-03	3.43E-04
	47	1819.16	6.33E+00	7.78	4.28E-03	3.42E-04
	48	1849.01	1.66E+01	10.77	4.23E-03	3.38E-04
	49	2002.45	8.00E+00	5.66	4.00E-03	3.38E-04
	50	2073.99	1.00E+01	6.32	3.90E-03	3.38E-04
	51	2104.88	2.98E+01	12.81	3.86E-03	3.38E-04
	52	2177.46	6.06E+00	6.40	3.77E-03	3.38E-04
	53	2203.27	1.91E+01	12.67	3.74E-03	3.38E-04

Analysis Report for 1707089-18

HTC-A08-S001-0612-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
54	2287.84	7.39E+00	7.21	3.64E-03	3.38E-04
55	2352.64	1.11E+01	8.25	3.57E-03	3.38E-04
56	2425.47	4.42E+00	6.02	3.49E-03	3.38E-04
57	2449.34	1.37E+01	12.17	3.47E-03	3.38E-04
58	2615.44	1.19E+02	24.83	3.31E-03	3.38E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/23/2017 12:19:01PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055573.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	1	74.56	4.68E+02	97.47			4.68E+02	9.75E+01
m	2	77.26	7.36E+02	104.89	7.20E+00	1.47E+00	7.29E+02	1.05E+02
	3	104.86	6.36E+01	73.53			6.36E+01	7.35E+01
	4	115.11	5.66E+01	60.74			5.66E+01	6.07E+01
	5	128.96	1.19E+02	97.41			1.19E+02	9.74E+01
	6	185.81	2.38E+02	88.17	5.22E+01	7.59E+00	1.86E+02	8.85E+01
	7	209.51	6.54E+01	61.38			6.54E+01	6.14E+01
M	8	235.13	4.45E+01	46.23			4.45E+01	4.62E+01
m	9	238.60	9.93E+02	76.09	2.13E+01	6.33E+00	9.72E+02	7.64E+01
m	10	241.72	3.15E+02	86.07			3.15E+02	8.61E+01
	11	269.58	9.61E+01	66.50			9.61E+01	6.65E+01
M	12	295.13	3.24E+02	50.26			3.24E+02	5.03E+01
m	13	299.90	1.01E+02	51.50			1.01E+02	5.15E+01
	14	338.54	2.59E+02	74.07			2.59E+02	7.41E+01
	15	351.78	5.58E+02	80.63	5.79E+00	4.49E+00	5.52E+02	8.08E+01
	16	463.30	1.15E+02	58.30			1.15E+02	5.83E+01
	17	511.14	1.80E+02	63.15	7.28E+01	5.30E+00	1.08E+02	6.34E+01
	18	563.33	2.55E+01	26.87			2.55E+01	2.69E+01
	19	583.42	2.92E+02	54.03	2.72E+00	3.05E+00	2.89E+02	5.41E+01
	20	609.51	3.70E+02	56.20	6.35E+00	4.02E+00	3.63E+02	5.63E+01
	21	661.55	6.94E+01	47.06			6.94E+01	4.71E+01
M	22	727.47	7.82E+01	30.27			7.82E+01	3.03E+01
m	23	736.68	2.52E+01	27.06			2.52E+01	2.71E+01
	24	769.65	4.68E+01	40.88			4.68E+01	4.09E+01
	25	785.36	2.90E+01	28.91			2.90E+01	2.89E+01

Analysis Report for 1707089-18

HTC-A08-S001-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	26	794.63	3.55E+01	31.93			3.55E+01	3.19E+01
	27	860.88	2.72E+01	27.28			2.72E+01	2.73E+01
	28	911.52	2.05E+02	41.62	5.31E+00	3.00E+00	2.00E+02	4.17E+01
	29	934.55	2.08E+01	23.39			2.08E+01	2.34E+01
M	30	965.10	5.62E+01	32.44			5.62E+01	3.24E+01
m	31	969.20	7.63E+01	35.50			7.63E+01	3.55E+01
	32	1074.10	1.88E+01	22.93			1.88E+01	2.29E+01
M	33	1120.61	7.64E+01	29.66			7.64E+01	2.97E+01
m	34	1123.22	2.15E+01	24.74			2.15E+01	2.47E+01
	35	1155.71	3.27E+01	28.57			3.27E+01	2.86E+01
	36	1238.85	2.90E+01	35.61			2.90E+01	3.56E+01
	37	1312.86	2.69E+01	22.25			2.69E+01	2.22E+01
	38	1378.37	2.00E+01	19.18			2.00E+01	1.92E+01
M	39	1461.22	9.98E+02	64.95	8.09E+00	2.23E+00	9.90E+02	6.50E+01
m	40	1465.99	3.39E+01	47.57			3.39E+01	4.76E+01
M	41	1589.39	3.17E+01	15.23			3.17E+01	1.52E+01
m	42	1593.39	1.53E+01	13.46			1.53E+01	1.35E+01
	43	1598.87	1.08E+01	9.22			1.08E+01	9.22E+00
	44	1764.89	8.70E+01	21.07			8.70E+01	2.11E+01
	45	1774.50	1.24E+01	8.49			1.24E+01	8.49E+00
	46	1811.64	8.00E+00	8.94			8.00E+00	8.94E+00
	47	1819.16	6.33E+00	7.78			6.33E+00	7.78E+00
	48	1849.01	1.66E+01	10.77			1.66E+01	1.08E+01
	49	2002.45	8.00E+00	5.66			8.00E+00	5.66E+00
	50	2073.99	1.00E+01	6.32			1.00E+01	6.32E+00
	51	2104.88	2.98E+01	12.81			2.98E+01	1.28E+01
	52	2177.46	6.06E+00	6.40			6.06E+00	6.40E+00
	53	2203.27	1.91E+01	12.67			1.91E+01	1.27E+01
	54	2287.84	7.39E+00	7.21			7.39E+00	7.21E+00
	55	2352.64	1.11E+01	8.25			1.11E+01	8.25E+00
	56	2425.47	4.42E+00	6.02			4.42E+00	6.02E+00
	57	2449.34	1.37E+01	12.17			1.37E+01	1.22E+01
	58	2615.44	1.19E+02	24.83	5.63E+00	1.38E+00	1.13E+02	2.49E+01

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

Analysis Report for 1707089-18

HTC-A08-S001-0612-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/23/2017 12:19:01PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055573.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	1	74.56	4.68E+02	97.47			4.68E+02	9.75E+01
m	2	77.26	7.36E+02	104.89	7.20E+00	1.47E+00	7.29E+02	1.05E+02
	3	104.86	6.36E+01	73.53			6.36E+01	7.35E+01
	4	115.11	5.66E+01	60.74			5.66E+01	6.07E+01
	5	128.96	1.19E+02	97.41			1.19E+02	9.74E+01
	6	185.81	2.38E+02	88.17	5.22E+01	7.59E+00	1.86E+02	8.85E+01
	7	209.51	6.54E+01	61.38			6.54E+01	6.14E+01
M	8	235.13	4.45E+01	46.23			4.45E+01	4.62E+01
m	9	238.60	9.93E+02	76.09	2.13E+01	6.33E+00	9.72E+02	7.64E+01
m	10	241.72	3.15E+02	86.07			3.15E+02	8.61E+01
	11	269.58	9.61E+01	66.50			9.61E+01	6.65E+01
M	12	295.13	3.24E+02	50.26			3.24E+02	5.03E+01
m	13	299.90	1.01E+02	51.50			1.01E+02	5.15E+01
	14	338.54	2.59E+02	74.07			2.59E+02	7.41E+01
	15	351.78	5.58E+02	80.63	5.79E+00	4.49E+00	5.52E+02	8.08E+01
	16	463.30	1.15E+02	58.30			1.15E+02	5.83E+01
	17	511.14	1.80E+02	63.15	7.28E+01	5.30E+00	1.08E+02	6.34E+01
	18	563.33	2.55E+01	26.87			2.55E+01	2.69E+01
	19	583.42	2.92E+02	54.03	2.72E+00	3.05E+00	2.89E+02	5.41E+01
	20	609.51	3.70E+02	56.20	6.35E+00	4.02E+00	3.63E+02	5.63E+01
	21	661.55	6.94E+01	47.06			6.94E+01	4.71E+01
M	22	727.47	7.82E+01	30.27			7.82E+01	3.03E+01
m	23	736.68	2.52E+01	27.06			2.52E+01	2.71E+01
	24	769.65	4.68E+01	40.88			4.68E+01	4.09E+01
	25	785.36	2.90E+01	28.91			2.90E+01	2.89E+01
	26	794.63	3.55E+01	31.93			3.55E+01	3.19E+01
	27	860.88	2.72E+01	27.28			2.72E+01	2.73E+01
	28	911.52	2.05E+02	41.62	5.31E+00	3.00E+00	2.00E+02	4.17E+01
	29	934.55	2.08E+01	23.39			2.08E+01	2.34E+01
M	30	965.10	5.62E+01	32.44			5.62E+01	3.24E+01
m	31	969.20	7.63E+01	35.50			7.63E+01	3.55E+01
	32	1074.10	1.88E+01	22.93			1.88E+01	2.29E+01
M	33	1120.61	7.64E+01	29.66			7.64E+01	2.97E+01
m	34	1123.22	2.15E+01	24.74			2.15E+01	2.47E+01
	35	1155.71	3.27E+01	28.57			3.27E+01	2.86E+01
	36	1238.85	2.90E+01	35.61			2.90E+01	3.56E+01
	37	1312.86	2.69E+01	22.25			2.69E+01	2.22E+01
	38	1378.37	2.00E+01	19.18			2.00E+01	1.92E+01
M	39	1461.22	9.98E+02	64.95	8.09E+00	2.23E+00	9.90E+02	6.50E+01
m	40	1465.99	3.39E+01	47.57			3.39E+01	4.76E+01
M	41	1589.39	3.17E+01	15.23			3.17E+01	1.52E+01

Analysis Report for 1707089-18

HTC-A08-S001-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
m	42	1593.39	1.53E+01	13.46			1.53E+01	1.35E+01
	43	1598.87	1.08E+01	9.22			1.08E+01	9.22E+00
	44	1764.89	8.70E+01	21.07			8.70E+01	2.11E+01
	45	1774.50	1.24E+01	8.49			1.24E+01	8.49E+00
	46	1811.64	8.00E+00	8.94			8.00E+00	8.94E+00
	47	1819.16	6.33E+00	7.78			6.33E+00	7.78E+00
	48	1849.01	1.66E+01	10.77			1.66E+01	1.08E+01
	49	2002.45	8.00E+00	5.66			8.00E+00	5.66E+00
	50	2073.99	1.00E+01	6.32			1.00E+01	6.32E+00
	51	2104.88	2.98E+01	12.81			2.98E+01	1.28E+01
	52	2177.46	6.06E+00	6.40			6.06E+00	6.40E+00
	53	2203.27	1.91E+01	12.67			1.91E+01	1.27E+01
	54	2287.84	7.39E+00	7.21			7.39E+00	7.21E+00
	55	2352.64	1.11E+01	8.25			1.11E+01	8.25E+00
	56	2425.47	4.42E+00	6.02			4.42E+00	6.02E+00
	57	2449.34	1.37E+01	12.17			1.37E+01	1.22E+01
	58	2615.44	1.19E+02	24.83	5.63E+00	1.38E+00	1.13E+02	2.49E+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	0.974	1460.81	*	10.67	2.36E+01	2.58E+00
CS-137	0.998	661.65	*	85.12	1.16E-01	7.94E-02
TL-208	0.943	583.14	*	30.22	1.22E+00	2.61E-01
		860.37	*	4.48	1.05E+00	1.05E+00
		2614.66	*	35.85	1.21E+00	2.95E-01
BI-212	0.752	727.17	*	11.80	1.00E+00	4.02E-01
		1620.62		2.75		
PB-212	0.999	238.63	*	44.60	1.47E+00	1.66E-01
		300.09	*	3.41	2.33E+00	1.20E+00
BI-214	0.980	609.31	*	46.30	1.04E+00	1.94E-01
		1120.29	*	15.10	1.06E+00	4.22E-01
		1764.49	*	15.80	1.60E+00	4.10E-01
		2204.22	*	4.98	1.31E+00	8.76E-01
PB-214	0.998	295.21	*	19.19	1.31E+00	2.31E-01

Analysis Report for 1707089-18

HTC-A08-S001-0612-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PB-214	0.998	351.92	*	37.19	1.30E+00	2.20E-01
RA-224	0.917	240.98	*	3.95	5.44E+00	1.55E+00
RA-226	0.974	186.21	*	3.28	3.33E+00	6.30E+00
AC-228	0.982	338.32	*	11.40	1.94E+00	5.78E-01
		911.07	*	27.70	1.30E+00	2.92E-01
		969.11	*	16.60	8.66E-01	4.09E-01
AM-243	0.998	74.67	*	66.00	3.29E-01	7.42E-02

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 12:19:01PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	2	77.26	2.02542E-01	7.19		
	3	104.86	1.76731E-02	57.79	Tol.	EU-155
	4	115.11	1.57114E-02	53.69		
	5	128.96	3.30284E-02	40.96		
	7	209.51	1.81650E-02	46.93	Tol.	GA-67 CM-243
M	8	235.13	1.23592E-02	51.95	Tol.	NB-95M TH-227
	11	269.58	2.66865E-02	34.61		
	16	463.30	3.20762E-02	25.25	Tol.	SB-125
	17	511.14	2.99130E-02	29.42		
	18	563.33	7.08656E-03	52.66	Tol.	CS-134
m	23	736.68	7.00038E-03	53.68	Sum	
	24	769.65	1.30062E-02	43.65	Sum	
	25	785.36	8.05556E-03	49.85		
	26	794.63	9.86111E-03	44.97	Sum	
	29	934.55	5.78773E-03	56.12	Sum	
M	30	965.10	1.56050E-02	28.87	Sum	
	32	1074.10	5.21073E-03	61.13		
m	34	1123.22	5.96913E-03	57.56		
	35	1155.71	9.07197E-03	43.73	Sum	
	36	1238.85	8.05556E-03	61.39		

Analysis Report for 1707089-18

HTC-A08-S001-0612-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	37	1312.86	7.47980E-03	41.31		
	38	1378.37	5.55556E-03	47.96		
m	40	1465.99	9.42594E-03	70.09		
M	41	1589.39	8.81429E-03	24.00		
m	42	1593.39	4.25398E-03	43.96	D-Esc	
	43	1598.87	2.99074E-03	42.82		
	45	1774.50	3.43254E-03	34.33		
	46	1811.64	2.22222E-03	55.90		
	47	1819.16	1.75926E-03	61.41		
	48	1849.01	4.60417E-03	32.49	Sum	
	49	2002.45	2.22222E-03	35.36		
	50	2073.99	2.77778E-03	31.62		
	51	2104.88	8.28125E-03	21.48	S-Esc	
	52	2177.46	1.68403E-03	52.81		
	54	2287.84	2.05247E-03	48.80		
	55	2352.64	3.08761E-03	37.09		
	56	2425.47	1.22685E-03	68.16	Sum	
	57	2449.34	3.81579E-03	44.28		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.97	1460.81	*	10.67	2.36E+01	2.58E+00
CS-137	0.99	661.65	*	85.12	1.16E-01	7.94E-02
TL-208	0.94	583.14	*	30.22	1.22E+00	2.61E-01
		860.37	*	4.48	1.05E+00	1.05E+00
		2614.66	*	35.85	1.21E+00	2.95E-01
BI-212	0.75	727.17	*	11.80	1.00E+00	4.02E-01
		1620.62		2.75		
PB-212	0.99	238.63	*	44.60	1.47E+00	1.66E-01
		300.09	*	3.41	2.33E+00	1.20E+00
BI-214	0.98	609.31	*	46.30	1.04E+00	1.94E-01

Analysis Report for 1707089-18

HTC-A08-S001-0612-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.98	1120.29	*	15.10	1.06E+00	4.22E-01
		1764.49	*	15.80	1.60E+00	4.10E-01
		2204.22	*	4.98	1.31E+00	8.76E-01
PB-214	0.99	295.21	*	19.19	1.31E+00	2.31E-01
		351.92	*	37.19	1.30E+00	2.20E-01
RA-224	0.91	240.98	*	3.95	5.44E+00	1.55E+00
RA-226	0.97	186.21	*	3.28	3.33E+00	6.30E+00
AC-228	0.98	338.32	*	11.40	1.94E+00	5.78E-01
		911.07	*	27.70	1.30E+00	2.92E-01
		969.11	*	16.60	8.66E-01	4.09E-01
AM-243	0.99	74.67	*	66.00	3.29E-01	7.42E-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	0.974	2.36E+01	2.58E+00	
CS-137	0.998	1.16E-01	7.94E-02	
TL-208	0.943	1.21E+00	1.92E-01	
BI-212	0.752	1.00E+00	4.02E-01	
PB-212	0.999	1.49E+00	1.65E-01	
BI-214	0.980	1.14E+00	1.59E-01	
PB-214	0.998	1.30E+00	1.59E-01	
RA-224	0.917	5.44E+00	1.55E+00	
RA-226	0.974	3.33E+00	6.30E+00	
AC-228	0.982	1.27E+00	2.20E-01	
AM-243	0.998	3.29E-01	7.42E-02	

Analysis Report for 1707089-18

HTC-A08-S001-0612-01

? = 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 1707089-18

HTC-A08-S001-0612-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/23/2017 12:19:01PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	2	77.26	2.02542E-01	7.19		
	3	104.86	1.76731E-02	57.79	Tol.	EU-155
	4	115.11	1.57114E-02	53.69		
	5	128.96	3.30284E-02	40.96		
	7	209.51	1.81650E-02	46.93	Tol.	GA-67
						CM-243
M	8	235.13	1.23592E-02	51.95	Tol.	NB-95M
						TH-227
	11	269.58	2.66865E-02	34.61		
	16	463.30	3.20762E-02	25.25	Tol.	SB-125
	17	511.14	2.99130E-02	29.42		
	18	563.33	7.08656E-03	52.66	Tol.	CS-134
m	23	736.68	7.00038E-03	53.68	Sum	
	24	769.65	1.30062E-02	43.65	Sum	
	25	785.36	8.05556E-03	49.85		
	26	794.63	9.86111E-03	44.97	Sum	
	29	934.55	5.78773E-03	56.12	Sum	
M	30	965.10	1.56050E-02	28.87	Sum	
	32	1074.10	5.21073E-03	61.13		
m	34	1123.22	5.96913E-03	57.56		
	35	1155.71	9.07197E-03	43.73	Sum	
	36	1238.85	8.05556E-03	61.39		
	37	1312.86	7.47980E-03	41.31		
	38	1378.37	5.55556E-03	47.96		
m	40	1465.99	9.42594E-03	70.09		
M	41	1589.39	8.81429E-03	24.00		
m	42	1593.39	4.25398E-03	43.96	D-Esc	
	43	1598.87	2.99074E-03	42.82		
	45	1774.50	3.43254E-03	34.33		
	46	1811.64	2.22222E-03	55.90		
	47	1819.16	1.75926E-03	61.41		
	48	1849.01	4.60417E-03	32.49	Sum	
	49	2002.45	2.22222E-03	35.36		
	50	2073.99	2.77778E-03	31.62		
	51	2104.88	8.28125E-03	21.48	S-Esc	

Analysis Report for 1707089-18

HTC-A08-S001-0612-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
52	2177.46	1.68403E-03	52.81		
54	2287.84	2.05247E-03	48.80		
55	2352.64	3.08761E-03	37.09		
56	2425.47	1.22685E-03	68.16	Sum	
57	2449.34	3.81579E-03	44.28		

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	1.20E+00	2.17E+00	2.17E+00
+	NA-22	1274.54		99.94	2.26E-02	9.16E-02	9.16E-02
+	@ NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@	2754.09		99.86	1.00E+26		1.00E+26
+	AL-26	1808.65		99.76	2.48E-03	4.95E-02	4.95E-02
+	K-40	1460.81	*	10.67	2.36E+01	1.25E+00	1.25E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-5.02E-02	6.14E-02	6.14E-02
		78.34		96.00	2.15E-01		8.59E-02
+	SC-46	889.25		99.98	1.16E-02	1.44E-01	1.44E-01
		1120.51		99.99	4.26E-01		2.69E-01
+	V-48	983.52		99.98	-1.88E+00	5.21E+00	5.21E+00
		1312.10		97.50	3.34E+00		5.95E+00
+	CR-51	320.08		9.83	-3.94E-01	6.83E+00	6.83E+00
+	MN-54	834.83		99.97	-2.98E-02	8.96E-02	8.96E-02
+	CO-56	846.75		99.96	-1.51E-01	1.48E-01	1.48E-01
		1037.75		14.03	-5.29E-01		1.20E+00
		1238.25		67.00	1.44E-01		4.16E-01
		1771.40		15.51	-1.86E+00		8.18E-01
		2598.48		16.90	-8.16E-02		5.85E-01
+	CO-57	122.06		85.51	8.15E-03	7.06E-02	7.06E-02
		136.48		10.60	-7.98E-02		5.94E-01
+	CO-58	810.76		99.40	-2.81E-03	1.90E-01	1.90E-01
+	FE-59	1099.22		56.50	-1.68E-01	6.14E-01	6.14E-01

Analysis Report for 1707089-18

HTC-A08-S001-0612-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	FE-59	1291.56	43.20	7.86E-02	6.14E-01	8.18E-01
+	CO-60	1173.22	100.00	-2.70E-02	6.96E-02	9.05E-02
		1332.49	100.00	-7.65E-03		6.96E-02
+	ZN-65	1115.52	50.75	-4.94E-01	1.89E-01	1.89E-01
+	GA-67	93.31	35.70	5.05E+08	2.66E+08	2.66E+08
		208.95	2.24	2.93E+09		3.67E+09
		300.22	16.00	-7.04E+08		5.87E+08
+	SE-75	121.11	16.70	1.89E-01	1.46E-01	5.07E-01
		136.00	59.20	-1.97E-02		1.46E-01
		264.65	59.80	3.53E-02		1.70E-01
		279.53	25.20	1.36E-01		4.08E-01
		400.65	11.40	2.73E-01		9.64E-01
+	RB-82	776.52	13.00	-3.75E-01	7.91E+00	7.91E+00
+	RB-83	520.41	46.00	1.53E-02	3.04E-01	3.04E-01
		529.64	30.30	-1.84E-01		4.12E-01
		552.65	16.40	-2.66E-03		8.30E-01
+	KR-85	513.99	0.43	2.51E+01	2.09E+01	2.09E+01
+	SR-85	513.99	99.27	3.12E-01	2.60E-01	2.60E-01
+	Y-88	898.02	93.40	2.18E-02	9.12E-02	1.43E-01
		1836.01	99.38	1.58E-02		9.12E-02
+	MO-93	263.06	56.72	-1.54E-02	5.30E-02	9.89E-02
		684.67	99.68	-1.04E-02		7.06E-02
		1477.11	99.08	2.31E-02		5.30E-02
+	NB-93M	16.57	9.43	-1.40E-01	5.44E-01	5.44E-01
+	NB-94	702.63	100.00	-3.49E-02	6.52E-02	6.80E-02
		871.10	100.00	-6.97E-03		6.52E-02
+	NB-95	765.79	99.81	3.06E-02	6.00E-01	6.00E-01
+	NB-95M	235.69	25.00	-3.27E+08	5.15E+07	5.15E+07
+	ZR-95	724.18	43.70	-5.42E-02	3.75E-01	4.91E-01
		756.72	55.30	3.84E-02		3.75E-01
+	MO-99	181.06	6.20	3.39E+09	3.54E+10	5.75E+10
		739.58	12.80	-2.14E+09		3.54E+10
		778.00	4.50	4.29E+10		1.16E+11
+	RU-103	497.08	89.00	-1.30E-01	3.89E-01	3.89E-01
+	RU-106	621.84	9.80	2.73E-01	7.45E-01	7.45E-01
+	AG-108M	433.93	89.90	-1.79E-03	6.71E-02	6.71E-02
		614.37	90.40	3.29E-03		8.55E-02
		722.95	90.50	-1.02E-02		6.86E-02
+	CD-109	88.03	3.72	-2.27E-01	2.09E+00	2.09E+00
+	AG-110M	657.75	93.14	-3.41E-02	9.24E-02	9.24E-02
		677.61	10.53	-1.55E-01		8.41E-01
		706.67	16.46	3.42E-03		5.76E-01
		763.93	21.98	6.74E-02		4.46E-01
		884.67	71.63	-4.53E-02		1.14E-01
		1384.27	23.94	0.00E+00		3.62E-01
+	CD-113M	263.70	0.02	-2.50E+01	2.50E+02	2.50E+02
+	SN-113	255.12	1.93	-9.48E-01	1.70E-01	4.34E+00
		391.69	64.90	1.47E-02		1.70E-01

Analysis Report for 1707089-18

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TE123M	159.00	84.10	-6.89E-02	9.56E-02	9.56E-02
+	SB-124	602.71	97.87	-1.27E-01	2.16E-01	2.16E-01
		645.85	7.26	7.61E-01		2.69E+00
		722.78	11.10	-2.59E-01		1.75E+00
		1691.02	49.00	3.36E-02		2.71E-01
+	I-125	35.49	6.49	4.08E-01	2.65E+00	2.65E+00
+	SB-125	176.33	6.89	8.08E-02	2.07E-01	7.85E-01
		427.89	29.33	-1.76E-02		2.07E-01
		463.38	10.35	7.51E-01		7.51E-01
		600.56	17.80	6.47E-02		3.98E-01
		635.90	11.32	-4.80E-02		6.15E-01
+	SB-126	414.70	83.30	-8.80E+00	1.70E+01	1.84E+01
		666.33	99.60	-5.44E+00		1.70E+01
		695.00	99.60	-1.54E+00		1.70E+01
		720.50	53.80	-9.87E-02		2.92E+01
+	SN-126	87.57	37.00	5.53E-02	1.75E-01	1.75E-01
+	SB-127	473.00	25.00	-2.99E+05	1.10E+07	1.38E+07
		685.20	35.70	-1.62E+06		1.10E+07
		783.80	14.70	2.60E+06		2.79E+07
+	I-129	29.78	57.00	-1.64E-02	1.06E-01	1.06E-01
		33.60	13.20	1.40E-01		4.39E-01
		39.58	7.52	-2.89E-01		6.79E-01
+	I-131	284.30	6.05	-5.51E+02	3.71E+02	4.87E+03
		364.48	81.20	8.15E+01		3.71E+02
		636.97	7.26	2.05E+03		4.87E+03
		722.89	1.80	-2.64E+03		1.78E+04
+	TE-132	49.72	13.10	-9.43E+08	8.42E+07	5.84E+08
		228.16	88.00	-8.57E+06		8.42E+07
+	BA-133	81.00	33.00	-7.59E-01	1.44E-01	1.75E-01
		302.84	17.80	-3.50E-02		3.58E-01
		356.01	60.00	1.26E-02		1.44E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-3.21E+05	7.41E+04	7.41E+04
+	CS-134	563.23	8.38	1.90E-01	8.29E-02	8.09E-01
		569.32	15.43	1.86E-01		4.22E-01
		604.70	97.60	-4.92E-02		8.29E-02
		795.84	85.40	2.39E-02		9.50E-02
		801.93	8.73	4.44E-02		8.97E-01
+	CS-135	268.24	16.00	1.73E-01	3.96E-01	3.96E-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	3.33E+01	1.18E+01	1.25E+02
		163.89	4.61	4.64E+00		1.93E+02
		176.55	13.56	7.12E+00		6.92E+01
		273.65	12.66	-5.59E+00		8.79E+01
		340.57	48.50	7.37E+01		3.26E+01
		818.50	99.70	-8.07E+00		1.18E+01
		1048.07	79.60	1.41E+00		1.73E+01

Analysis Report for 1707089-18

HTC-A08-S001-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CS-136	1235.34		19.70	5.61E+00	1.18E+01	1.09E+02
+	CS-137	661.65	*	85.12	1.16E-01	1.25E-01	1.25E-01
+	LA-138	788.74		34.00	-4.18E-02	7.66E-02	2.01E-01
		1435.80		66.00	-3.12E-02		7.66E-02
+	CE-139	165.85		80.35	9.81E-03	9.89E-02	9.89E-02
+	BA-140	162.64		6.70	2.66E+01	5.14E+01	1.53E+02
		304.84		4.50	-5.98E+01		2.65E+02
		423.70		3.20	4.83E+01		4.06E+02
		437.55		2.00	1.39E+02		6.78E+02
		537.32		25.00	5.95E+00		5.14E+01
+	LA-140	328.77		20.50	3.68E+01	1.62E+01	6.85E+01
		487.03		45.50	1.39E+00		2.78E+01
		815.85		23.50	2.12E+01		6.37E+01
		1596.49		95.49	6.82E+00		1.62E+01
+	CE-141	145.44		48.40	2.72E-01	8.98E-01	8.98E-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	-2.37E-02	5.82E-01	5.82E-01
+	PM-144	476.78		42.00	5.41E-02	7.80E-02	1.80E-01
		618.01		98.60	-7.15E-03		7.80E-02
		696.49		99.49	2.43E-02		8.17E-02
+	PM-145	36.85		21.70	-8.28E-02	1.34E-01	2.46E-01
		37.36		39.70	-3.23E-02		1.34E-01
		42.30		15.10	-1.17E-01		3.44E-01
		72.40		2.31	-9.45E-01		3.18E+00
+	PM-146	453.90		39.94	2.37E-02	1.33E-01	1.33E-01
		735.90		14.01	9.90E-02		5.15E-01
		747.13		13.10	1.62E-01		5.12E-01
+	ND-147	91.11		28.90	1.70E+02	1.26E+02	1.26E+02
		531.02		13.10	1.04E+01		2.32E+02
+	PM-149	285.90		3.10	2.00E+13	5.93E+13	5.93E+13
+	EU-152	121.78		20.50	8.80E-02	2.36E-01	2.36E-01
		244.69		5.40	-6.67E-01		1.13E+00
		344.27		19.13	-2.30E-02		3.13E-01
		778.89		9.20	4.55E-01		7.94E-01
		964.01		10.40	-1.04E+00		9.54E-01
		1085.78		7.22	-3.43E-01		1.01E+00
		1112.02		9.60	3.39E-01		8.13E-01
		1407.95		14.94	-3.94E-02		4.88E-01
+	GD-153	97.43		31.30	-1.21E-01	2.22E-01	2.22E-01
		103.18		22.20	1.01E-01		3.00E-01
+	EU-154	123.07		40.50	9.84E-03	1.17E-01	1.17E-01
		723.30		19.70	-4.76E-02		3.21E-01
		873.19		11.50	-3.27E-01		5.25E-01
		996.32		10.30	-2.12E-01		7.89E-01
		1004.76		17.90	5.74E-02		4.25E-01
		1274.45		35.50	6.04E-02		2.45E-01
+	EU-155	86.50		30.90	1.50E-01	2.20E-01	2.20E-01

Analysis Report for 1707089-18

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-155	105.30		20.70	5.46E-02	2.20E-01	2.53E-01
+	EU-156	811.77		10.40	-5.86E+00	6.22E+01	6.22E+01
		1153.47		7.20	3.05E+01		1.21E+02
		1230.71		8.90	-3.63E+01		1.03E+02
+	HO-166M	184.41		72.60	1.41E-01	8.64E-02	8.64E-02
		280.45		29.60	9.47E-02		1.96E-01
		410.94		11.10	2.12E-01		5.70E-01
		711.69		54.10	9.18E-03		1.31E-01
+	TM-171	66.72		0.14	-5.68E+01	4.64E+01	4.64E+01
+	HF-172	67.35		5.31	-9.84E-01	4.75E-01	1.21E+00
		125.81		11.30	-3.76E-01		4.75E-01
+	LU-172	181.53		20.60	4.09E+02	3.17E+03	6.93E+03
		900.72		29.81	4.25E+02		6.93E+03
		1093.66		62.50	-1.31E+03		3.17E+03
+	LU-173	100.72		5.24	2.19E-01	3.36E-01	1.08E+00
		272.11		21.20	-7.43E-02		3.36E-01
+	HF-175	343.40		84.00	-1.38E-02	1.90E-01	1.90E-01
+	LU-176	88.34		13.30	-5.48E-02	5.91E-02	5.03E-01
		201.83		86.00	-6.70E-03		6.22E-02
		306.78		94.00	-5.31E-03		5.91E-02
+	HF-181	133.02		41.70	-2.44E-02	3.53E-01	5.98E-01
		345.85		17.20	-1.28E-01		1.78E+00
		482.03		82.80	-8.44E-02		3.53E-01
+	TA-182	67.75		41.20	-2.09E-01	2.56E-01	2.56E-01
		1121.30		34.90	1.09E+00		6.27E-01
		1189.05		16.23	3.43E-01		1.09E+00
		1221.41		26.98	-9.18E-02		6.97E-01
		1231.02		11.44	-5.57E-01		1.58E+00
+	IR-192	308.46		29.68	8.12E-02	3.20E-01	4.90E-01
		468.07		48.10	-3.75E-01		3.20E-01
+	HG-203	279.19		77.30	1.09E-01	3.27E-01	3.27E-01
+	TL-204	374.74		94.11	3.65E-02	6.83E-02	6.83E-02
		899.15		99.16	2.09E-02		7.65E-02
		911.74		91.10	4.09E-01		1.64E-01
+	BI-207	569.67		97.72	2.26E-02	6.24E-02	6.24E-02
		1063.62		74.90	4.70E-02		1.08E-01
+	TL-208	583.14	*	30.22	1.22E+00	2.58E-01	3.05E-01
		860.37	*	4.48	1.05E+00		1.70E+00
		2614.66	*	35.85	1.21E+00		2.58E-01
+	BI-210M	262.00		45.00	4.13E-02	1.29E-01	1.29E-01
		300.00		23.00	-9.89E-01		2.92E-01
+	PB-210	46.50		4.25	7.60E-01	1.32E+00	1.32E+00
+	PB-211	404.84		2.90	-8.28E-01	2.12E+00	2.12E+00
		831.96		2.90	-3.10E-01		2.39E+00
+	BI-212	727.17	*	11.80	1.00E+00	1.15E+00	1.15E+00
		1620.62		2.75	3.74E-01		2.34E+00
+	PB-212	238.63	*	44.60	1.47E+00	3.11E-01	3.11E-01
		300.09	*	3.41	2.33E+00		2.87E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BI-214	609.31	*	46.30	1.04E+00	2.03E-01	2.03E-01
		1120.29	*	15.10	1.06E+00		1.55E+00
		1764.49	*	15.80	1.60E+00		3.47E-01
		2204.22	*	4.98	1.31E+00		1.22E+00
+	PB-214	295.21	*	19.19	1.31E+00	2.61E-01	4.97E-01
		351.92	*	37.19	1.30E+00		2.61E-01
+	RN-219	401.80		6.50	4.52E-01	9.67E-01	9.67E-01
+	RA-223	323.87		3.88	-8.64E-01	1.55E+00	1.55E+00
+	RA-224	240.98	*	3.95	5.44E+00	3.54E+00	3.54E+00
+	RA-225	40.00		31.00	-3.58E+00	1.73E+01	1.73E+01
+	RA-226	186.21	*	3.28	3.33E+00	2.53E+00	2.53E+00
+	TH-227	50.10		8.40	-2.56E-01	6.00E-01	6.41E-01
		236.00		11.50	-3.81E+00		6.00E-01
		256.20		6.30	3.49E-01		8.89E-01
+	AC-228	338.32	*	11.40	1.94E+00	3.45E-01	8.41E-01
		911.07	*	27.70	1.30E+00		3.45E-01
		969.11	*	16.60	8.66E-01		9.53E-01
+	TH-230	48.44		16.90	2.42E-01	3.33E-01	3.33E-01
		62.85		4.60	1.82E+00		1.41E+00
		67.67		0.37	-1.28E+01		1.56E+01
+	PA-231	283.67		1.60	-9.07E-01	2.72E+00	3.54E+00
		302.67		2.30	-2.66E-01		2.72E+00
+	TH-231	25.64		14.70	-2.80E+00	5.18E-01	5.18E-01
		84.21		6.40	-2.29E-01		9.49E-01
+	PA-233	311.98		38.60	3.29E-01	1.88E+00	1.88E+00
+	PA-234	131.20		20.40	2.41E-02	2.52E-01	2.52E-01
		733.99		8.80	5.89E-01		8.50E-01
		946.00		12.00	-7.71E-03		5.93E-01
+	PA-234M	1001.03		0.92	1.02E+01	9.62E+00	9.62E+00
+	TH-234	63.29		3.80	1.58E+00	1.70E+00	1.70E+00
+	U-235	143.76		10.50	1.56E-01	5.00E-01	5.00E-01
		163.35		4.70	2.45E-02		1.02E+00
		205.31		4.70	2.83E-01		1.15E+00
+	NP-237	86.50		12.60	3.54E-01	5.19E-01	5.19E-01
+	NP-239	106.10		22.70	4.89E+11	1.07E+12	1.07E+12
		228.18		10.70	-2.31E+11		2.27E+12
		277.60		14.10	-2.04E+11		1.92E+12
+	AM-241	59.54		35.90	-1.65E-01	1.61E-01	1.61E-01
+	AM-243	74.67	*	66.00	3.29E-01	1.88E-01	1.88E-01
+	CM-243	209.75		3.29	1.10E+00	4.09E-01	1.72E+00
		228.14		10.60	-4.91E-02		4.83E-01
		277.60		14.00	-4.34E-02		4.09E-01

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	2.17E+00	2.17E+00	1.20E+00	1.04E+00
	NA-22	1274.54		99.94	9.16E-02	9.16E-02	2.26E-02	4.24E-02
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	4.95E-02	4.95E-02	2.48E-03	2.07E-02
+	K-40	1460.81	*	10.67	1.25E+00	1.25E+00	2.36E+01	5.92E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	6.14E-02	6.14E-02	-5.02E-02	3.00E-02
		78.34		96.00	8.59E-02		2.15E-01	4.23E-02
	SC-46	889.25		99.98	1.44E-01	1.44E-01	1.16E-02	6.66E-02
		1120.51		99.99	2.69E-01		4.26E-01	1.28E-01
	V-48	983.52		99.98	5.21E+00	5.21E+00	-1.88E+00	2.41E+00
		1312.10		97.50	5.95E+00		3.34E+00	2.73E+00
	CR-51	320.08		9.83	6.83E+00	6.83E+00	-3.94E-01	3.28E+00
	MN-54	834.83		99.97	8.96E-02	8.96E-02	-2.98E-02	4.20E-02
	CO-56	846.75		99.96	1.48E-01	1.48E-01	-1.51E-01	6.84E-02
		1037.75		14.03	1.20E+00		-5.29E-01	5.57E-01
		1238.25		67.00	4.16E-01		1.44E-01	1.97E-01
		1771.40		15.51	8.18E-01		-1.86E+00	3.48E-01
		2598.48		16.90	5.85E-01		-8.16E-02	2.19E-01
	CO-57	122.06		85.51	7.06E-02	7.06E-02	8.15E-03	3.43E-02
		136.48		10.60	5.94E-01		-7.98E-02	2.88E-01
	CO-58	810.76		99.40	1.90E-01	1.90E-01	-2.81E-03	8.93E-02
	FE-59	1099.22		56.50	6.14E-01	6.14E-01	-1.68E-01	2.84E-01
		1291.56		43.20	8.18E-01		7.86E-02	3.75E-01
	CO-60	1173.22		100.00	9.05E-02	6.96E-02	-2.70E-02	4.22E-02
		1332.49		100.00	6.96E-02		-7.65E-03	3.15E-02
	ZN-65	1115.52		50.75	1.89E-01	1.89E-01	-4.94E-01	8.71E-02
	GA-67	93.31		35.70	2.66E+08	2.66E+08	5.05E+08	1.31E+08

Analysis Report for 1707089-18

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
GA-67	208.95	2.24	3.67E+09	2.66E+08	2.93E+09	1.78E+09
	300.22	16.00	5.87E+08		-7.04E+08	2.84E+08
SE-75	121.11	16.70	5.07E-01	1.46E-01	1.89E-01	2.46E-01
	136.00	59.20	1.46E-01		-1.97E-02	7.11E-02
	264.65	59.80	1.70E-01		3.53E-02	8.22E-02
	279.53	25.20	4.08E-01		1.36E-01	1.97E-01
	400.65	11.40	9.64E-01		2.73E-01	4.62E-01
RB-82	776.52	13.00	7.91E+00	7.91E+00	-3.75E-01	3.71E+00
RB-83	520.41	46.00	3.04E-01	3.04E-01	1.53E-02	1.44E-01
	529.64	30.30	4.12E-01		-1.84E-01	1.94E-01
	552.65	16.40	8.30E-01		-2.66E-03	3.92E-01
KR-85	513.99	0.43	2.09E+01	2.09E+01	2.51E+01	1.01E+01
SR-85	513.99	99.27	2.60E-01	2.60E-01	3.12E-01	1.25E-01
Y-88	898.02	93.40	1.43E-01	9.12E-02	2.18E-02	6.65E-02
	1836.01	99.38	9.12E-02		1.58E-02	3.78E-02
MO-93	263.06	56.72	9.89E-02	5.30E-02	-1.54E-02	4.77E-02
	684.67	99.68	7.06E-02		-1.04E-02	3.33E-02
	1477.11	99.08	5.30E-02		2.31E-02	2.29E-02
NB-93M	16.57	9.43	5.44E-01	5.44E-01	-1.40E-01	2.55E-01
NB-94	702.63	100.00	6.80E-02	6.52E-02	-3.49E-02	3.20E-02
	871.10	100.00	6.52E-02		-6.97E-03	3.03E-02
NB-95	765.79	99.81	6.00E-01	6.00E-01	3.06E-02	2.85E-01
NB-95M	235.69	25.00	5.15E+07	5.15E+07	-3.27E+08	2.51E+07
ZR-95	724.18	43.70	4.91E-01	3.75E-01	-5.42E-02	2.32E-01
	756.72	55.30	3.75E-01		3.84E-02	1.76E-01
MO-99	181.06	6.20	5.75E+10	3.54E+10	3.39E+09	2.78E+10
	739.58	12.80	3.54E+10		-2.14E+09	1.66E+10
	778.00	4.50	1.16E+11		4.29E+10	5.44E+10
RU-103	497.08	89.00	3.89E-01	3.89E-01	-1.30E-01	1.84E-01
RU-106	621.84	9.80	7.45E-01	7.45E-01	2.73E-01	3.50E-01
AG-108M	433.93	89.90	6.71E-02	6.71E-02	-1.79E-03	3.20E-02
	614.37	90.40	8.55E-02		3.29E-03	4.07E-02
	722.95	90.50	6.86E-02		-1.02E-02	3.20E-02
CD-109	88.03	3.72	2.09E+00	2.09E+00	-2.27E-01	1.02E+00
AG-110M	657.75	93.14	9.24E-02	9.24E-02	-3.41E-02	4.35E-02
	677.61	10.53	8.41E-01		-1.55E-01	3.96E-01
	706.67	16.46	5.76E-01		3.42E-03	2.72E-01
	763.93	21.98	4.46E-01		6.74E-02	2.10E-01
	884.67	71.63	1.14E-01		-4.53E-02	5.27E-02
	1384.27	23.94	3.62E-01		0.00E+00	1.63E-01
CD-113M	263.70	0.02	2.50E+02	2.50E+02	-2.50E+01	1.21E+02
SN-113	255.12	1.93	4.34E+00	1.70E-01	-9.48E-01	2.08E+00
	391.69	64.90	1.70E-01		1.47E-02	8.16E-02
TE123M	159.00	84.10	9.56E-02	9.56E-02	-6.89E-02	4.63E-02
SB-124	602.71	97.87	2.16E-01	2.16E-01	-1.27E-01	1.02E-01
	645.85	7.26	2.69E+00		7.61E-01	1.27E+00
	722.78	11.10	1.75E+00		-2.59E-01	8.17E-01
	1691.02	49.00	2.71E-01		3.36E-02	1.11E-01
I-125	35.49	6.49	2.65E+00	2.65E+00	4.08E-01	1.28E+00
SB-125	176.33	6.89	7.85E-01	2.07E-01	8.08E-02	3.80E-01
	427.89	29.33	2.07E-01		-1.76E-02	9.83E-02
	463.38	10.35	7.51E-01		7.51E-01	3.61E-01
	600.56	17.80	3.98E-01		6.47E-02	1.88E-01

Analysis Report for 1707089-18

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	SB-125	635.90		11.32	6.15E-01	2.07E-01	-4.80E-02	2.90E-01
	SB-126	414.70		83.30	1.84E+01	1.70E+01	-8.80E+00	8.79E+00
		666.33		99.60	1.70E+01		-5.44E+00	7.99E+00
		695.00		99.60	1.70E+01		-1.54E+00	7.97E+00
		720.50		53.80	2.92E+01		-9.87E-02	1.36E+01
	SN-126	87.57		37.00	1.75E-01	1.75E-01	5.53E-02	8.59E-02
	SB-127	473.00		25.00	1.38E+07	1.10E+07	-2.99E+05	6.56E+06
		685.20		35.70	1.10E+07		-1.62E+06	5.21E+06
		783.80		14.70	2.79E+07		2.60E+06	1.31E+07
	I-129	29.78		57.00	1.06E-01	1.06E-01	-1.64E-02	5.15E-02
		33.60		13.20	4.39E-01		1.40E-01	2.13E-01
		39.58		7.52	6.79E-01		-2.89E-01	3.30E-01
	I-131	284.30		6.05	4.87E+03	3.71E+02	-5.51E+02	2.35E+03
		364.48		81.20	3.71E+02		8.15E+01	1.78E+02
		636.97		7.26	4.87E+03		2.05E+03	2.30E+03
		722.89		1.80	1.78E+04		-2.64E+03	8.32E+03
	TE-132	49.72		13.10	5.84E+08	8.42E+07	-9.43E+08	2.85E+08
		228.16		88.00	8.42E+07		-8.57E+06	4.06E+07
	BA-133	81.00		33.00	1.75E-01	1.44E-01	-7.59E-01	8.58E-02
		302.84		17.80	3.58E-01		-3.50E-02	1.73E-01
		356.01		60.00	1.44E-01		1.26E-02	7.02E-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	7.41E+04	7.41E+04	-3.21E+05	3.62E+04
	CS-134	563.23		8.38	8.09E-01	8.29E-02	1.90E-01	3.83E-01
		569.32		15.43	4.22E-01		1.86E-01	1.99E-01
		604.70		97.60	8.29E-02		-4.92E-02	3.95E-02
		795.84		85.40	9.50E-02		2.39E-02	4.47E-02
		801.93		8.73	8.97E-01		4.44E-02	4.21E-01
	CS-135	268.24		16.00	3.96E-01	3.96E-01	1.73E-01	1.92E-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	1.25E+02	1.18E+01	3.33E+01	6.05E+01
		163.89		4.61	1.93E+02		4.64E+00	9.37E+01
		176.55		13.56	6.92E+01		7.12E+00	3.35E+01
		273.65		12.66	8.79E+01		-5.59E+00	4.25E+01
		340.57		48.50	3.26E+01		7.37E+01	1.58E+01
		818.50		99.70	1.18E+01		-8.07E+00	5.47E+00
		1048.07		79.60	1.73E+01		1.41E+00	8.04E+00
		1235.34		19.70	1.09E+02		5.61E+00	5.14E+01
+	CS-137	661.65	*	85.12	1.25E-01	1.25E-01	1.16E-01	6.03E-02
	LA-138	788.74		34.00	2.01E-01	7.66E-02	-4.18E-02	9.43E-02
		1435.80		66.00	7.66E-02		-3.12E-02	3.32E-02
	CE-139	165.85		80.35	9.89E-02	9.89E-02	9.81E-03	4.79E-02
	BA-140	162.64		6.70	1.53E+02	5.14E+01	2.66E+01	7.43E+01
		304.84		4.50	2.65E+02		-5.98E+01	1.27E+02
		423.70		3.20	4.06E+02		4.83E+01	1.94E+02
		437.55		2.00	6.78E+02		1.39E+02	3.24E+02
		537.32		25.00	5.14E+01		5.95E+00	2.43E+01
	LA-140	328.77		20.50	6.85E+01	1.62E+01	3.68E+01	3.31E+01
		487.03		45.50	2.78E+01		1.39E+00	1.32E+01
		815.85		23.50	6.37E+01		2.12E+01	2.98E+01
		1596.49		95.49	1.62E+01		6.82E+00	7.28E+00

Analysis Report for 1707089-18

HTC-A08-S001-0612-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CE-141	145.44	48.40	8.98E-01	8.98E-01	2.72E-01	4.37E-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	5.82E-01	5.82E-01	-2.37E-02	2.83E-01
PM-144	476.78	42.00	1.80E-01	7.80E-02	5.41E-02	8.56E-02
	618.01	98.60	7.80E-02		-7.15E-03	3.68E-02
	696.49	99.49	8.17E-02		2.43E-02	3.84E-02
PM-145	36.85	21.70	2.46E-01	1.34E-01	-8.28E-02	1.19E-01
	37.36	39.70	1.34E-01		-3.23E-02	6.51E-02
	42.30	15.10	3.44E-01		-1.17E-01	1.67E-01
	72.40	2.31	3.18E+00		-9.45E-01	1.56E+00
PM-146	453.90	39.94	1.33E-01	1.33E-01	2.37E-02	6.27E-02
	735.90	14.01	5.15E-01		9.90E-02	2.42E-01
	747.13	13.10	5.12E-01		1.62E-01	2.39E-01
ND-147	91.11	28.90	1.26E+02	1.26E+02	1.70E+02	6.18E+01
	531.02	13.10	2.32E+02		1.04E+01	1.10E+02
PM-149	285.90	3.10	5.93E+13	5.93E+13	2.00E+13	2.86E+13
EU-152	121.78	20.50	2.36E-01	2.36E-01	8.80E-02	1.15E-01
	244.69	5.40	1.13E+00		-6.67E-01	5.46E-01
	344.27	19.13	3.13E-01		-2.30E-02	1.50E-01
	778.89	9.20	7.94E-01		4.55E-01	3.73E-01
	964.01	10.40	9.54E-01		-1.04E+00	4.52E-01
	1085.78	7.22	1.01E+00		-3.43E-01	4.64E-01
	1112.02	9.60	8.13E-01		3.39E-01	3.77E-01
	1407.95	14.94	4.88E-01		-3.94E-02	2.21E-01
GD-153	97.43	31.30	2.22E-01	2.22E-01	-1.21E-01	1.08E-01
	103.18	22.20	3.00E-01		1.01E-01	1.46E-01
EU-154	123.07	40.50	1.17E-01	1.17E-01	9.84E-03	5.71E-02
	723.30	19.70	3.21E-01		-4.76E-02	1.50E-01
	873.19	11.50	5.25E-01		-3.27E-01	2.41E-01
	996.32	10.30	7.89E-01		-2.12E-01	3.69E-01
	1004.76	17.90	4.25E-01		5.74E-02	1.97E-01
	1274.45	35.50	2.45E-01		6.04E-02	1.13E-01
EU-155	86.50	30.90	2.20E-01	2.20E-01	1.50E-01	1.08E-01
	105.30	20.70	2.53E-01		5.46E-02	1.23E-01
EU-156	811.77	10.40	6.22E+01	6.22E+01	-5.86E+00	2.91E+01
	1153.47	7.20	1.21E+02		3.05E+01	5.69E+01
	1230.71	8.90	1.03E+02		-3.63E+01	4.83E+01
HO-166M	184.41	72.60	8.64E-02	8.64E-02	1.41E-01	4.21E-02
	280.45	29.60	1.96E-01		9.47E-02	9.44E-02
	410.94	11.10	5.70E-01		2.12E-01	2.73E-01
	711.69	54.10	1.31E-01		9.18E-03	6.18E-02
TM-171	66.72	0.14	4.64E+01	4.64E+01	-5.68E+01	2.27E+01
HF-172	67.35	5.31	1.21E+00	4.75E-01	-9.84E-01	5.89E-01
	125.81	11.30	4.75E-01		-3.76E-01	2.31E-01
LU-172	181.53	20.60	6.93E+03	3.17E+03	4.09E+02	3.36E+03
	900.72	29.81	6.93E+03		4.25E+02	3.23E+03
	1093.66	62.50	3.17E+03		-1.31E+03	1.46E+03
LU-173	100.72	5.24	1.08E+00	3.36E-01	2.19E-01	5.27E-01
	272.11	21.20	3.36E-01		-7.43E-02	1.63E-01
HF-175	343.40	84.00	1.90E-01	1.90E-01	-1.38E-02	9.12E-02
LU-176	88.34	13.30	5.03E-01	5.91E-02	-5.48E-02	2.47E-01

Analysis Report for 1707089-18

HTC-A08-S001-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	LU-176	201.83		86.00	6.22E-02	5.91E-02	-6.70E-03	3.01E-02
		306.78		94.00	5.91E-02		-5.31E-03	2.84E-02
	HF-181	133.02		41.70	5.98E-01	3.53E-01	-2.44E-02	2.91E-01
		345.85		17.20	1.78E+00		-1.28E-01	8.55E-01
		482.03		82.80	3.53E-01		-8.44E-02	1.67E-01
	TA-182	67.75		41.20	2.56E-01	2.56E-01	-2.09E-01	1.25E-01
		1121.30		34.90	6.27E-01		1.09E+00	2.99E-01
		1189.05		16.23	1.09E+00		3.43E-01	5.09E-01
		1221.41		26.98	6.97E-01		-9.18E-02	3.28E-01
		1231.02		11.44	1.58E+00		-5.57E-01	7.41E-01
	IR-192	308.46		29.68	4.90E-01	3.20E-01	8.12E-02	2.36E-01
		468.07		48.10	3.20E-01		-3.75E-01	1.52E-01
	HG-203	279.19		77.30	3.27E-01	3.27E-01	1.09E-01	1.58E-01
	TL-204	374.74		94.11	6.83E-02	6.83E-02	3.65E-02	3.28E-02
		899.15		99.16	7.65E-02		2.09E-02	3.57E-02
		911.74		91.10	1.64E-01		4.09E-01	7.92E-02
	BI-207	569.67		97.72	6.24E-02	6.24E-02	2.26E-02	2.95E-02
		1063.62		74.90	1.08E-01		4.70E-02	5.05E-02
+	TL-208	583.14	*	30.22	3.05E-01	2.58E-01	1.22E+00	1.47E-01
		860.37	*	4.48	1.70E+00		1.05E+00	7.97E-01
		2614.66	*	35.85	2.58E-01		1.21E+00	1.14E-01
	BI-210M	262.00		45.00	1.29E-01	1.29E-01	4.13E-02	6.22E-02
		300.00		23.00	2.92E-01		-9.89E-01	1.41E-01
	PB-210	46.50		4.25	1.32E+00	1.32E+00	7.60E-01	6.46E-01
	PB-211	404.84		2.90	2.12E+00	2.12E+00	-8.28E-01	1.01E+00
		831.96		2.90	2.39E+00		-3.10E-01	1.12E+00
+	BI-212	727.17	*	11.80	1.15E+00	1.15E+00	1.00E+00	5.60E-01
		1620.62		2.75	2.34E+00		3.74E-01	1.04E+00
+	PB-212	238.63	*	44.60	3.11E-01	3.11E-01	1.47E+00	1.53E-01
		300.09	*	3.41	2.87E+00		2.33E+00	1.41E+00
+	BI-214	609.31	*	46.30	2.03E-01	2.03E-01	1.04E+00	9.75E-02
		1120.29	*	15.10	1.55E+00		1.06E+00	7.57E-01
		1764.49	*	15.80	3.47E-01		1.60E+00	1.49E-01
		2204.22	*	4.98	1.22E+00		1.31E+00	5.16E-01
+	PB-214	295.21	*	19.19	4.97E-01	2.61E-01	1.31E+00	2.43E-01
		351.92	*	37.19	2.61E-01		1.30E+00	1.27E-01
	RN-219	401.80		6.50	9.67E-01	9.67E-01	4.52E-01	4.63E-01
	RA-223	323.87		3.88	1.55E+00	1.55E+00	-8.64E-01	7.48E-01
+	RA-224	240.98	*	3.95	3.54E+00	3.54E+00	5.44E+00	1.74E+00
	RA-225	40.00		31.00	1.73E+01	1.73E+01	-3.58E+00	8.42E+00
+	RA-226	186.21	*	3.28	2.53E+00	2.53E+00	3.33E+00	1.24E+00
	TH-227	50.10		8.40	6.41E-01	6.00E-01	-2.56E-01	3.13E-01
		236.00		11.50	6.00E-01		-3.81E+00	2.92E-01
		256.20		6.30	8.89E-01		3.49E-01	4.29E-01
+	AC-228	338.32	*	11.40	8.41E-01	3.45E-01	1.94E+00	4.10E-01
		911.07	*	27.70	3.45E-01		1.30E+00	1.64E-01
		969.11	*	16.60	9.53E-01		8.66E-01	4.61E-01
	TH-230	48.44		16.90	3.33E-01	3.33E-01	2.42E-01	1.62E-01
		62.85		4.60	1.41E+00		1.82E+00	6.91E-01
		67.67		0.37	1.56E+01		-1.28E+01	7.65E+00
	PA-231	283.67		1.60	3.54E+00	2.72E+00	-9.07E-01	1.70E+00
		302.67		2.30	2.72E+00		-2.66E-01	1.31E+00
	TH-231	25.64		14.70	5.18E-01	5.18E-01	-2.80E+00	2.52E-01

Analysis Report for 1707089-18

HTC-A08-S001-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TH-231	84.21		6.40	9.49E-01	5.18E-01	-2.29E-01	4.65E-01
	PA-233	311.98		38.60	1.88E+00	1.88E+00	3.29E-01	9.04E-01
	PA-234	131.20		20.40	2.52E-01	2.52E-01	2.41E-02	1.23E-01
		733.99		8.80	8.50E-01		5.89E-01	4.01E-01
		946.00		12.00	5.93E-01		-7.71E-03	2.76E-01
	PA-234M	1001.03		0.92	9.62E+00	9.62E+00	1.02E+01	4.53E+00
	TH-234	63.29		3.80	1.70E+00	1.70E+00	1.58E+00	8.31E-01
	U-235	143.76		10.50	5.00E-01	5.00E-01	1.56E-01	2.43E-01
		163.35		4.70	1.02E+00		2.45E-02	4.94E-01
		205.31		4.70	1.15E+00		2.83E-01	5.57E-01
	NP-237	86.50		12.60	5.19E-01	5.19E-01	3.54E-01	2.55E-01
	NP-239	106.10		22.70	1.07E+12	1.07E+12	4.89E+11	5.22E+11
		228.18		10.70	2.27E+12		-2.31E+11	1.09E+12
		277.60		14.10	1.92E+12		-2.04E+11	9.28E+11
	AM-241	59.54		35.90	1.61E-01	1.61E-01	-1.65E-01	7.86E-02
+	AM-243	74.67	*	66.00	1.88E-01	1.88E-01	3.29E-01	9.31E-02
	CM-243	209.75		3.29	1.72E+00	4.09E-01	1.10E+00	8.32E-01
		228.14		10.60	4.83E-01		-4.91E-02	2.33E-01
		277.60		14.00	4.09E-01		-4.34E-02	1.97E-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 1707089-18

HTC-A08-S001-0612-01

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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-A08-S001-0612-01

Elapsed Live time: 3600
Elapsed Real Time: 3601

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	74	85	68	150	487	161
25:	84	70	62	61	72	66	71	81
33:	81	73	77	73	71	74	64	81
41:	77	68	87	83	81	89	154	84
49:	104	95	101	93	112	127	106	108
57:	110	113	132	133	140	126	184	233
65:	153	131	140	135	140	130	157	152
73:	148	208	425	328	410	563	168	134
81:	136	134	123	138	190	121	187	246
89:	137	173	177	151	262	222	129	131
97:	103	91	113	103	95	77	91	87
105:	109	125	91	77	98	100	82	98
113:	86	69	119	91	94	68	85	86
121:	83	69	88	82	69	77	82	103
129:	108	117	83	96	78	79	80	78
137:	70	84	84	82	86	78	88	93
145:	91	91	74	87	77	83	75	79
153:	78	83	72	68	72	60	57	60
161:	60	62	76	70	56	64	64	73
169:	68	52	66	52	67	69	51	78
177:	76	49	85	71	58	55	66	71
185:	70	168	130	86	64	54	66	65
193:	63	64	72	62	52	63	71	57
201:	75	57	70	71	67	70	63	60
209:	77	99	68	44	59	47	52	57
217:	58	44	51	39	56	49	62	48
225:	61	54	45	46	49	54	63	59
233:	40	64	53	52	80	214	606	250
241:	103	170	113	75	54	43	47	51
249:	51	41	26	32	31	35	29	46
257:	42	30	56	33	34	39	31	48
265:	41	27	47	39	49	65	67	35
273:	44	34	36	28	41	43	28	40
281:	35	33	38	40	28	30	37	38
289:	41	29	33	28	29	44	168	173
297:	41	35	49	69	56	33	34	26
305:	26	27	31	30	29	39	32	33
313:	37	29	14	27	28	30	28	23
321:	21	39	31	39	33	37	28	53
329:	44	38	27	34	28	28	26	34
337:	36	111	137	59	42	28	30	24
345:	28	27	26	36	37	38	85	324
353:	206	39	37	35	34	29	25	20
361:	25	28	29	24	29	24	21	23

369:	26	22	23	24	30	31	27	32

Sample Title: HTC-A08-S001-0612-01

Channel								
377:	26	19	16	27	27	17	27	19
385:	25	23	32	17	35	15	27	24
393:	28	24	22	22	26	15	26	28
401:	20	28	30	28	20	22	22	19
409:	28	32	23	28	21	25	21	22
417:	24	14	25	26	19	29	21	19
425:	23	18	22	21	13	17	17	22
433:	16	27	18	26	20	23	29	24
441:	17	22	18	21	23	17	12	23
449:	19	13	20	10	18	14	13	10
457:	12	9	12	22	13	37	46	37
465:	20	19	23	15	23	14	18	21
473:	17	17	25	17	18	22	20	17
481:	17	14	13	15	17	12	21	23
489:	10	17	22	14	20	17	11	11
497:	19	24	16	20	15	28	19	18
505:	16	17	19	16	23	56	83	64
513:	22	23	24	19	19	16	18	19
521:	12	16	21	18	15	15	14	11
529:	15	14	12	15	11	20	14	12
537:	15	17	13	10	6	22	16	18
545:	14	17	13	17	13	14	7	16
553:	16	16	13	21	11	18	9	16
561:	9	21	15	18	16	7	10	15
569:	13	12	20	15	11	9	13	14
577:	14	17	16	18	11	36	136	153
585:	26	17	13	14	13	24	12	11
593:	8	3	13	17	13	11	11	13
601:	18	15	20	18	15	11	10	43
609:	154	186	42	16	20	19	16	19
617:	9	10	14	14	11	14	8	11
625:	11	8	11	16	11	12	9	14
633:	10	14	17	16	12	14	10	20
641:	11	12	12	10	12	14	16	13
649:	6	11	7	10	15	9	6	10
657:	13	11	13	18	18	23	14	19
665:	14	13	10	8	11	12	11	17
673:	16	14	16	17	11	9	12	15
681:	10	15	12	10	12	12	19	14
689:	19	13	13	11	14	10	13	7
697:	13	15	14	10	8	12	12	16
705:	15	14	12	22	7	11	14	16
713:	13	21	11	12	6	10	18	10
721:	8	6	9	8	8	19	39	34
729:	16	7	14	15	13	15	7	14
737:	21	8	7	10	7	6	10	9
745:	8	7	7	11	14	15	10	7
753:	12	11	17	14	12	10	13	7
761:	12	13	12	15	13	11	16	27
769:	25	8	12	17	12	8	7	14
777:	13	13	11	17	10	5	14	10
785:	14	20	9	8	9	6	11	10
793:	8	15	22	17	8	6	9	9

801:	12	9	18	11	10	17	11	11

Sample Title: HTC-A08-S001-0612-01

Channel								
809:	8	11	7	13	11	16	7	10
817:	12	7	8	6	8	9	13	8
825:	7	8	7	5	9	10	13	6
833:	11	14	6	18	10	9	14	13
841:	10	11	17	8	5	4	5	8
849:	14	8	11	12	13	13	13	12
857:	4	8	8	22	23	12	8	9
865:	10	12	11	12	13	6	4	12
873:	2	7	6	8	5	9	7	11
881:	7	7	8	4	6	7	10	10
889:	8	4	8	4	8	8	6	6
897:	7	18	7	12	6	10	6	11
905:	11	13	12	10	12	54	88	77
913:	22	6	7	10	9	7	6	12
921:	10	8	12	5	9	8	11	6
929:	8	8	9	5	10	18	18	7
937:	7	7	11	8	6	11	4	11
945:	7	11	8	5	13	11	6	7
953:	7	10	6	7	6	9	7	8
961:	12	2	9	24	38	17	11	34
969:	48	33	12	10	12	17	11	7
977:	9	10	6	7	9	3	11	6
985:	6	12	8	14	14	9	7	8
993:	8	11	9	8	2	18	13	16
1001:	14	10	11	4	8	3	9	2
1009:	6	10	9	9	8	4	7	2
1017:	1	10	4	7	9	9	7	11
1025:	5	5	7	8	8	5	8	8
1033:	9	11	6	8	2	6	9	8
1041:	11	9	8	8	7	7	8	11
1049:	9	6	7	7	7	11	9	7
1057:	8	4	6	8	11	7	8	6
1065:	18	6	8	8	5	13	3	13
1073:	11	12	7	8	4	4	12	6
1081:	10	3	6	12	7	9	5	6
1089:	15	3	7	8	8	5	9	4
1097:	4	9	5	10	6	13	11	10
1105:	3	5	6	8	11	6	10	3
1113:	9	7	8	7	2	11	22	37
1121:	29	16	16	6	4	8	10	7
1129:	7	12	7	10	7	4	8	7
1137:	7	7	7	7	10	10	7	6
1145:	5	9	10	11	11	8	11	10
1153:	8	9	23	10	14	3	7	12
1161:	8	10	8	10	7	9	6	8
1169:	14	6	10	6	10	6	12	15
1177:	14	8	12	6	5	10	14	10
1185:	8	11	14	16	10	6	9	13
1193:	9	10	8	10	6	9	9	7
1201:	7	7	11	9	11	8	10	18
1209:	13	12	11	11	15	11	13	7
1217:	13	15	16	13	7	11	13	12
1225:	13	18	11	14	12	8	8	12

1233:	14	14	10	14	14	30	15	15

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Channel								
1241:	12	12	13	11	13	8	9	6
1249:	7	6	6	5	4	8	3	6
1257:	8	9	7	9	6	5	4	10
1265:	4	6	10	3	7	3	2	13
1273:	9	10	4	9	7	8	7	7
1281:	9	5	3	8	7	3	9	7
1289:	7	7	3	4	6	7	2	8
1297:	8	5	5	10	12	4	10	5
1305:	2	5	1	3	4	3	9	7
1313:	9	8	4	4	4	3	6	4
1321:	4	10	6	5	4	4	5	5
1329:	6	1	4	2	7	7	3	3
1337:	6	7	3	2	6	3	3	2
1345:	7	3	6	4	5	2	2	4
1353:	3	4	3	1	4	5	4	2
1361:	4	4	3	4	5	5	4	3
1369:	7	4	2	5	2	4	2	1
1377:	11	14	5	4	3	3	2	5
1385:	3	4	7	2	7	2	7	3
1393:	3	3	6	1	3	3	1	3
1401:	7	8	3	4	5	7	4	3
1409:	6	3	5	4	3	2	4	0
1417:	3	1	3	0	3	0	4	6
1425:	1	1	4	2	2	4	3	2
1433:	4	3	1	1	2	1	3	3
1441:	1	4	2	3	3	2	3	4
1449:	2	3	0	4	3	6	5	6
1457:	3	25	134	386	361	100	12	9
1465:	14	7	3	3	1	2	0	0
1473:	2	2	1	0	3	3	3	2
1481:	1	3	1	2	2	0	2	0
1489:	0	3	6	1	1	3	2	6
1497:	5	3	5	2	7	1	5	3
1505:	3	1	2	1	4	2	4	1
1513:	2	2	1	4	2	2	1	3
1521:	1	5	3	1	1	2	3	3
1529:	0	2	1	1	2	1	1	2
1537:	1	4	5	4	3	0	3	4
1545:	2	0	0	0	1	4	1	1
1553:	0	3	2	2	3	3	1	1
1561:	0	0	0	1	2	2	3	4
1569:	1	1	1	1	2	3	0	2
1577:	1	2	2	1	1	1	2	1
1585:	3	5	3	15	7	3	1	8
1593:	8	3	0	3	2	6	4	0
1601:	1	0	1	0	1	1	3	3
1609:	0	1	2	0	2	0	1	0
1617:	4	1	4	3	4	3	1	3
1625:	4	2	1	5	3	4	4	1
1633:	2	0	0	1	1	3	2	2
1641:	0	1	2	0	1	3	2	0
1649:	1	0	1	0	1	2	1	2
1657:	2	4	1	1	4	2	1	3

1665:	1	1	2	3	0	0	3	5

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Channel								
1673:	0	1	2	0	0	0	3	3
1681:	0	0	3	0	1	0	1	0
1689:	2	0	1	0	3	2	0	2
1697:	1	1	2	1	3	0	3	3
1705:	2	1	1	0	2	1	2	0
1713:	2	4	0	0	0	3	1	4
1721:	1	0	2	2	0	1	5	1
1729:	5	5	2	3	3	2	2	1
1737:	3	1	2	1	0	3	1	2
1745:	2	1	0	1	0	1	0	4
1753:	1	1	3	1	1	0	1	0
1761:	1	9	26	31	20	2	1	1
1769:	1	0	1	4	3	3	2	1
1777:	0	0	1	1	1	3	1	2
1785:	2	0	1	2	0	2	0	2
1793:	0	0	2	0	4	2	0	0
1801:	1	1	0	1	1	0	1	1
1809:	2	2	2	4	0	1	1	0
1817:	3	3	1	1	0	0	3	1
1825:	1	3	0	0	1	0	0	0
1833:	2	0	2	1	2	1	3	0
1841:	2	0	0	2	1	3	4	2
1849:	1	2	2	2	1	0	1	0
1857:	1	0	0	1	0	0	2	0
1865:	0	2	0	2	2	0	1	0
1873:	3	3	1	0	1	0	1	0
1881:	1	0	0	2	0	1	1	0
1889:	1	1	0	1	0	1	2	2
1897:	2	2	0	0	0	1	0	0
1905:	1	1	2	0	3	0	2	1
1913:	1	2	0	1	3	4	1	2
1921:	1	1	0	3	0	1	1	1
1929:	2	1	4	0	1	1	1	1
1937:	1	0	1	1	0	1	2	0
1945:	0	3	0	1	1	2	1	2
1953:	1	2	1	1	1	2	0	0
1961:	0	2	2	0	2	1	4	1
1969:	0	0	1	1	0	2	0	0
1977:	1	1	1	0	0	1	1	0
1985:	1	0	1	0	1	2	0	1
1993:	1	0	1	0	0	0	1	2
2001:	1	3	1	0	0	0	1	0
2009:	1	2	0	1	0	0	1	1
2017:	2	1	4	3	0	2	1	1
2025:	1	2	2	0	1	0	2	3
2033:	0	1	2	2	1	1	0	0
2041:	1	0	0	1	3	0	3	3
2049:	0	3	1	2	1	0	2	1
2057:	1	0	0	1	2	1	0	2
2065:	0	1	0	0	1	0	1	2
2073:	3	2	1	0	0	2	0	2
2081:	0	0	1	0	0	0	0	2
2089:	2	0	0	2	0	2	1	1

2097:	0	1	0	1	5	6	9	2

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

2529:	0	3	0	0	0	0	2	0

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Channel								
2537:	0	0	1	0	0	0	0	1
2545:	1	0	0	1	0	0	0	0
2553:	0	1	0	2	0	0	0	0
2561:	2	0	0	0	0	0	0	0
2569:	0	0	1	0	2	0	0	1
2577:	0	0	0	0	0	0	0	2
2585:	0	1	0	0	1	0	1	0
2593:	0	1	0	0	0	1	0	1
2601:	0	1	0	1	1	1	0	1
2609:	1	0	9	27	36	23	16	2
2617:	1	2	3	3	2	0	1	1
2625:	1	0	0	0	1	1	0	2
2633:	0	0	0	1	1	0	0	1
2641:	2	0	0	0	0	0	0	2
2649:	0	0	0	2	0	0	0	0
2657:	0	0	1	0	1	0	0	3
2665:	1	0	1	1	0	0	0	2
2673:	0	1	1	0	0	0	0	1
2681:	0	0	0	0	2	0	1	0
2689:	0	0	0	2	1	0	0	1
2697:	0	0	0	1	1	0	0	0
2705:	1	0	0	0	1	0	0	0
2713:	0	0	0	0	2	1	0	0
2721:	1	0	1	1	0	1	0	1
2729:	0	0	1	0	1	1	0	1
2737:	1	1	0	0	1	1	0	0
2745:	0	1	0	0	1	0	0	1
2753:	0	1	2	0	0	0	0	1
2761:	1	0	1	0	0	0	0	0
2769:	0	0	0	1	0	0	0	0
2777:	0	0	0	1	0	0	0	0
2785:	0	0	0	0	0	0	0	0
2793:	0	0	0	0	0	0	0	0
2801:	0	2	0	0	0	1	1	0
2809:	0	0	1	0	1	0	1	0
2817:	0	1	0	1	1	0	0	0
2825:	0	1	0	0	0	3	0	0
2833:	1	0	1	1	0	0	0	1
2841:	0	0	1	0	0	0	2	0
2849:	1	0	0	1	0	0	2	0
2857:	1	0	0	1	0	0	0	0
2865:	0	0	0	0	2	0	0	0
2873:	1	0	1	0	0	0	0	0
2881:	1	1	0	0	0	0	0	0
2889:	0	0	1	0	0	1	1	0
2897:	0	0	1	0	0	0	0	0
2905:	0	0	1	0	0	0	0	0
2913:	0	0	0	0	1	0	0	1
2921:	0	0	0	0	0	1	0	0
2929:	0	0	0	0	0	0	0	0
2937:	0	0	0	0	0	0	0	0
2945:	0	0	0	0	0	0	0	1
2953:	0	0	3	0	0	0	0	0

2961:	0	0	0	0	0	1	0	0

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

3393:	0	0	0	0	0	0	0	0

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

3825:	0	0	0	0	0	1	1	0

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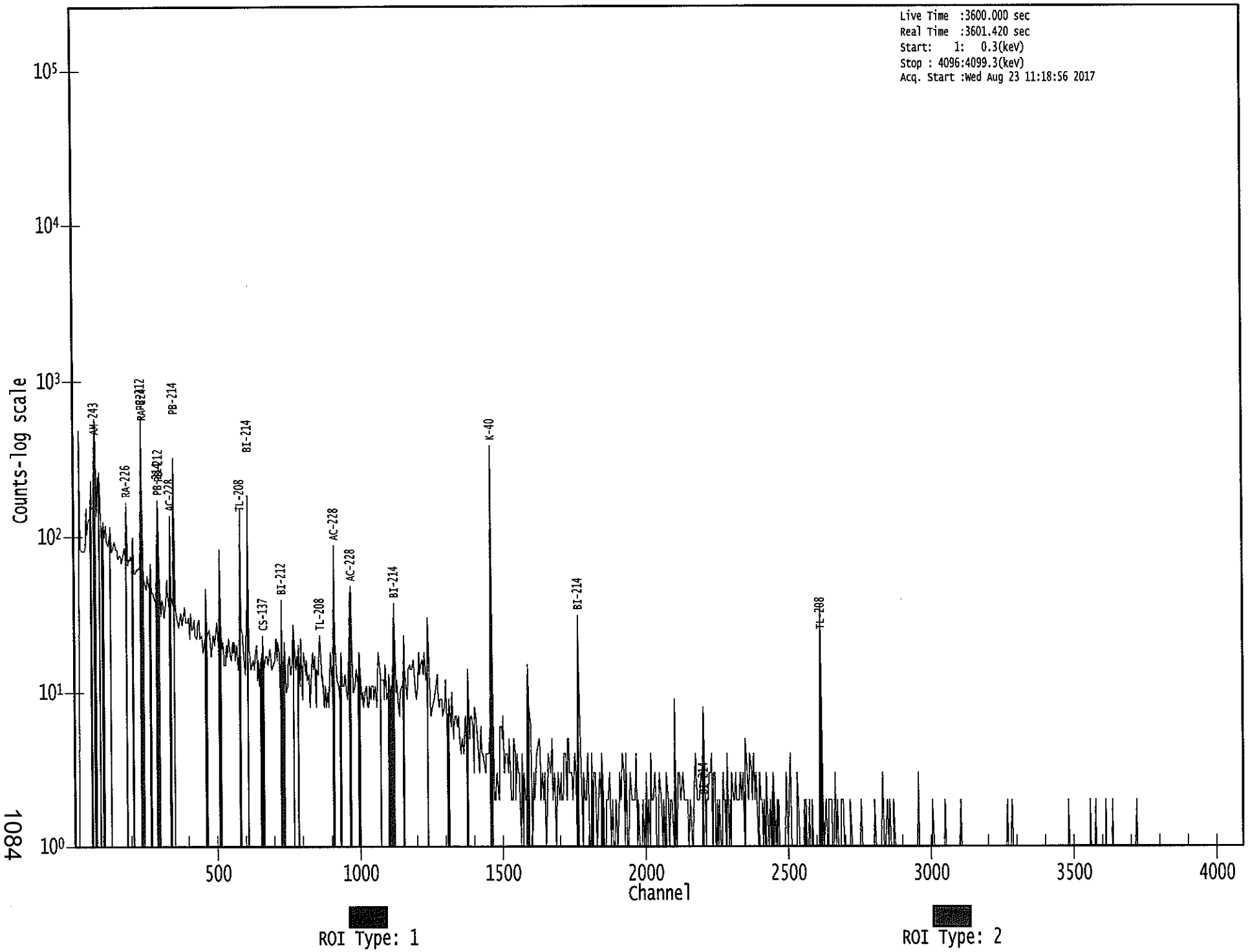
Channel								
3833:	0	1	0	0	0	0	0	0
3841:	0	1	0	0	0	1	0	0
3849:	0	0	0	0	0	0	0	0
3857:	0	1	0	0	0	1	0	0
3865:	0	0	0	0	0	0	0	1
3873:	0	0	0	0	0	0	0	0
3881:	0	0	0	0	0	0	0	0
3889:	0	0	0	0	0	0	0	0
3897:	0	0	0	0	0	1	0	0
3905:	0	0	0	0	0	0	1	0
3913:	0	0	0	0	0	1	0	0
3921:	0	1	0	0	0	0	0	0
3929:	0	0	0	0	0	0	0	0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

0000055798.CNF



1084

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*************************************************************************
*****        G E N I E   Q U A L I T Y   A S S U R A N C E          *****
*************************************************************************
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8/23

Last Results Report
8/23/17 5:33:45 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: 8/23/17 5:17:24 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 967.6 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	5.8260E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Peak centroid 661.65 kev	6.6067E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1332.49 ke	1.3318E+003	
Boundary Limits: [1.331E+003, 1.335E+003]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
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	2.6577E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Cs-137	2.5113E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Co-60	2.7734E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	3.0212E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		<Ab : : : >
Decay corrected activity	1.3709E+005	
Boundary Limits: [1.196E-001, 1.793E-001]		< : : : >
Decay corrected activity	6.1266E+004	
Boundary Limits: [4.890E-002, 7.335E-002]		< : : : >

Decay corrected activity 9.0189E+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	1.8897E+005	
Boundary Limits: [1.609E-001, 2.414E-001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

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*************************************************************************
*****        G E N I E   Q U A L I T Y   A S S U R A N C E          *****
*************************************************************************
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Last Results Report
8/23/17 5:33:10 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: 8/23/17 5:17:19 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 933.8 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	5.9896E+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]		< : : : >
Peak centroid 1332.49 ke	1.3325E+003	
Boundary Limits: [1.330E+003, 1.334E+003]		< : : : >
Peak centroid 1836.01 ke	1.8358E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Peak FWHM Am-241	1.9554E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Cs-137	2.2318E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Co-60	2.6359E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	2.8738E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Decay corrected activity	1.5689E+005	
Boundary Limits: [1.189E-001, 1.784E-001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Decay corrected activity	6.0617E+004	
Boundary Limits: [4.862E-002, 7.293E-002]		< : : : >

Trend Test: The last 9 samples exhibit a bias trend.

Decay corrected activity 9.4648E+004
Boundary Limits: [7.700E-002, 1.155E-001] < : : : >
Trend Test: The last 9 samples exhibit a bias trend.

Decay corrected activity 1.8879E+005
Boundary Limits: [1.600E-001, 2.400E-001] < : : : >
Trend Test: The last 9 samples exhibit a bias trend.

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

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*****        G E N I E   Q U A L I T Y   A S S U R A N C E          *****
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Last Results Report
8/23/17 5:32:59 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: 8/23/17 5:17:11 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 923.8 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	6.6141E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1332.49 ke	1.3319E+003	
Boundary Limits: [1.331E+003, 1.334E+003]		< : : : >
Peak centroid 1836.01 ke	1.8351E+003	
Boundary Limits: [1.833E+003, 1.838E+003]		< : : : >
Peak FWHM Am-241	1.2510E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Cs-137	2.0919E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Co-60	2.3733E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Y-88	2.8236E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Decay corrected activity	1.4208E+005	
Boundary Limits: [1.190E-001, 1.785E-001]		< : : : >

Decay corrected activity 7.2405E+004
Boundary Limits: [5.718E-002, 8.577E-002] < : : : >

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Decay corrected activity Boundary Limits: [7.706E-002, 1.156E-001]	1.0115E+005	< : : : >
Decay corrected activity Boundary Limits: [1.602E-001, 2.403E-001]	2.0672E+005	< : : : >

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)

8/23

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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
8/23/17 5:32:48 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: 8/23/17 5:17:04 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 928.7 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	6.0012E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 661.65 kev	6.6180E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1332.49 ke	1.3324E+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	1.4317E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Cs-137	1.8499E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Co-60	2.2163E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	2.4394E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Decay corrected activity	1.5153E+004	
Boundary Limits: [1.254E-002, 1.881E-002]		< : : : >
Decay corrected activity	6.6600E+003	

Boundary Limits: [5.134E-003, 7.700E-003] < : : : >

Decay corrected activity 1.0780E+004
Boundary Limits: [8.130E-003, 1.220E-002] < : : : >

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Decay corrected activity Boundary Limits: [1.690E-002, 2.534E-002]	2.0084E+004	< : : : >

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

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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
8/23/17 5:57:06 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: 8/23/17 5:41:44 AM
Measurement Date: 8/23/17 5:41:46 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 900.3 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE4 [SD: 7.1308E+000+/-131.12]	1.7211E+000	-4.1256E-002 < : : : >

Trend Test: The last 9 samples exhibit a bias trend.

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

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*************************************************************************
*****          G E N I E   Q U A L I T Y   A S S U R A N C E          *****
*************************************************************************
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Last Results Report
8/23/17 5:56:57 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: 8/23/17 5:41:38 AM
Measurement Date: 8/23/17 5:41:40 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 901.6 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE3 [SD: 2.1795E+003+/-1174.4]	1.6290E+003	-4.6872E-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
8/23/17 5:56:48 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: 8/23/17 5:41:30 AM
Measurement Date: 8/23/17 5:41:32 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:-1.7082E+035+/-******]	2.3456E+000	3.1686E-002 < : : : >

Trend Test: The last 9 samples exhibit a bias trend.

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

****
***** G E N I E Q U A L I T Y A S S U R A N C E *****
****

8/23

Last Results Report
8/23/17 5:56:39 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: 8/23/17 5:41:24 AM
Measurement Date: 8/23/17 5:41:26 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 900.1 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE1 [SD: 2.2765E+000+/- 1.244]	2.2578E+000	-1.5013E-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)