FWAP

BOSTON CHEMICAL DATA CORP.

MWA

STANDARD LEVEL IV
REPORT OF ANALYSIS

WORK ORDER #22-01045-OR

February 7, 2022

EBERLINE ANALYTICAL/OAK RIDGE LABORATORY
OAK RIDGE, TN

TABLE OF CONTENTS

Eberline Services – Oak Ridge Laboratory

LABORATORY DATA SUPPORT CHECKLIST

MP-001-3

Eberline Services Work Order # 22-01045

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

Date for Partial	Initials	Date	Initials	Checklist Items
		1/18/22		Sample Log-In
		1/24/22		Data Compilation
		1-26-22	MM	First Technical Data Review
		1/28/22	MM	Second Technical Data Review
		2/4/22		Data Entry/Electronic Deliverable
		2/4/22		Case Narrative
		2/7/22		Electronic Deliverable Proof
		2/7/22	MM	Samples Analyzed within Holding Time Yes? ☑ No? ☐
		2/7/22	MM	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: _____ 2/7/22

for Laboratory Manager Date

Copy No. _____

SECTION I

CHAIN OF CUSTODY

CHAIN OF CUSTODY

ALS Environmental

1317 South 13th Ave., Kelso, WA 98626 | 360.577.7222 | 800.695.7222 | 360.636.1068 (fax)

REC'D JAN 18 2022

SR# 2 | 1/18/22

PAGE _____ OF _____ COC# _____

PROJECT NAME	MWA
PROJECT NUMBER	—
PROJECT MANAGER	M. Kaltofen
COMPANY NAME	Boston Chemical
ADDRESS	
CITY/STATE/ZIP	
E-MAIL ADDRESS	mpkaltofen@gmail.com
PHONE # / FAX #	503 259 6717
SAMPLER'S SIGNATURE	MA

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	REMARKS
MWA 11, 12, 13	Dec. 24	MA	—	S	1	

Semivolatile Organics by GC/MS 625☐ 8270☐ 8270LL☐ SIM PAH☐
Volatile Organics 624☐ 8260☐ 8021☐ BTEX☐
Hydrocarbons (*see below) Gas☐ Diesel☐ Oil☐
Oil & Grease/TRPH 1664 HEM☐ 1664 SGT☐
PCBs Aroclors☐ Congeners☐
Pesticides/Herbicides 608☐ 8081☐ 8141☐ 8151☐
Chlorophenolics - 8151M Tri☐ Tetra☐ PCP☐
Metals, Total or Dissolved (See List below)
Cyanide☐ Hex-Chrom☐
(circle) pH, Cond., Cl, SO_4, PO_4, F, NO_2, NO_3, BOD, TSS, TDS, Turb.
(circle) NH_3-N, COD, TKN, TOC, DOC, NO_2+NO_3, T-Phos
TOX 9020☐ AOX 1650☐ 506☐
Alkalinity ☐ CO_3 ☐ HCO_3 ☐
Dioxins/Furans 1613☐ 8290☐
Dissolved Gases CO_2☐ RSK 175☐Methane☐Ethane☐Ethene☐
Gamma - Norm - GS137/137

X

22-01045

REPORT REQUIREMENTS

- ✓ I. Routine Report: Method Blank, Surrogate, as required
- ___ II. Report Dup., MS, MSD as required
- ___ III. CLP Like Summary (no raw data)
- ___ IV. Data Validation Report
- ___ V. EDD

INVOICE INFORMATION

P.O. # _____

Bill To: _____

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.

___ 5 day

___ ✓ Standard (15 working days)

___ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER: _____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

Pro forma invoice to: Leatra Harper
419-450-7042 cell
via text

☐ Sample Shipment contains USDA regulated soil samples (check box if applicable)

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature]	Signature: [signature]	Signature:	Signature:
Date/Time: 1/14/22 11A	Date/Time: 1-18-22 1016	Date/Time:	Date/Time:
Printed Name: M. Kaltofen	Printed Name: Randolph Spencer	Printed Name:	Printed Name:
Firm: BCS	Firm: Eberline	Firm:	Firm:

EBERLINE SERVICES Oak Ridge Laboratory	Internal Chain of Custody	Work Order #	22-01045
		Lab Deadline	2/1/2022
		Analysis	Gamma - Level 4
		Sample Matrix	Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
Report Ac228, Bi214, Cs134/137, K40, Pb212/214, Ra226 from Bi214, Ra228 from Ac228, Tl208, Th234 & positives.	04	20	G1.4

	Location (circle one)					Initials	Date
Received by	Sample Storage (circled)	Rough Prep	Prep	Separations	Count Room 1405	Kay Sus	1-18-22
Relinquished by	Sample Storage	Rough Prep (circled)	Prep	Separations	Count Room 0810	Kay Sus	1-19-22
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room (circled)	KB 1/19/22 0823	
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room (circled)	KB 1/19/22 1228	
Received by	Sample Storage (circled)	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
FWAP	ENV	Environmental	01/18/2022	21	22-01045
Project Name	**Client WO**	**Sample Disp**	**Lab Deadline**	**Internal Deadline**	**Client Deadline**
ENV	MWA	H	02/01/2022	02/07/2022	02/08/2022

Internal ID	Client ID	Sample Date	Matrix	Storage	Gamma																								Ttl
01	LCS	01/18/22	SO	G1.4	X																								1
02	BLANK	01/18/22	SO	G1.4	X																								1
03	DUP	01/18/22	SO	G1.4	X																								1
04	MWA 11,12,13	12/31/21 00:00	SO	G1.4	X																								1
																													0
																													0
																													0
																													0
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																													0
																													0
																													0
																													0
Totals Per Analysis (non QA samples)					1	0	0	0	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		Report Data	
	Leatra J Harper		Marco Kaltofen
	FWAP		Boston Chemical Data Corp
	PO Box 473		2 Summer Street, Suite 14
	Grand Rapids, OH 43522		Natick, MA 01760
Voice	419-450-7042	Voice	508-259-6717
Fax		Fax	
Contact	Marco Kaltofen		
Voice	508-259-6717		
Fax			

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Eberline Services – Oak Ridge Laboratory

SAMPLE RECEIPT CHECKLIST
MP-001-2

WORK ORDER # 22-01045

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: Randolph Spencer DATE: 1-18-22

SECTION III

CASE NARRATIVE

EBERLINE ANALYTICAL

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

EBS-OR-49324

February 7, 2022

Marco Kaltofen
Boston Chemical Data Corp.
2 Summer St., Suite 14
Natick, MA 01760

CASE NARRATIVE
Work Order # 22-01045-OR

SAMPLE RECEIPT

This work order contains one soil sample received 01/18/2022. Sample was analyzed by Gamma Spectroscopy.

CLIENT ID	LAB ID
MWA 11,12,13	22-01045-04

ANALYTICAL METHODS

Gamma Spectroscopy was performed using EPA Method 901.1 Modified.

ANALYTICAL RESULTS

Combined Standard Uncertainty is reported at 1-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.

GAMMA SPECTROSCOPY

Sample for Gamma Spectroscopy analysis was prepared by transferring a known mass/aliquot of the homogenized sample to a standard geometry container. Sample was counted on a High Purity Germanium (HPGe) gamma ray detector.

Sample demonstrated acceptable results for all gamma-emitting radionuclides as reported. The method blank demonstrated acceptable results for all radionuclides as reported. Results for the Actinium-228, Bismuth-214, 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 complies 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.

for M.R. McDougall
Laboratory Manager

Date: 2/7/2022

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

SECTION IV

ANALYTICAL RESULTS SUMMARY

Eberline Analytical
Final Report of Analysis

Report To:
Marco Kaltofen
Boston Chemical Data Corp
2 Summer Street, Suite 14
Natick, MA 01760

Work Order Details:
SDG: 22-01045
Project: MWA
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
22-01045-01	LCS	KNOWN	01/18/22 00:00	1/18/2022	1/19/2022	22-01045	Cobalt-60	EPA 901.1 Modified	2.66E+02	1.04E+01			pCi/g
22-01045-01	LCS	KNOWN	01/18/22 00:00	1/18/2022	1/19/2022	22-01045	Cesium-137	EPA 901.1 Modified	1.62E+02	6.66E+00			pCi/g
22-01045-01	LCS	SPIKE	01/18/22 00:00	1/18/2022	1/19/2022	22-01045	Cobalt-60	EPA 901.1 Modified	2.74E+02	1.55E+01	2.09E+01	1.51E+00	pCi/g
22-01045-01	LCS	SPIKE	01/18/22 00:00	1/18/2022	1/19/2022	22-01045	Cesium-137	EPA 901.1 Modified	1.69E+02	1.55E+01	1.77E+01	1.54E+00	pCi/g
22-01045-02	MBL	BLANK	01/18/22 00:00	1/18/2022	1/19/2022	22-01045	Actinium-228	EPA 901.1 Modified	4.84E-03	1.15E-01	1.15E-01	2.37E-01	pCi/g
22-01045-02	MBL	BLANK	01/18/22 00:00	1/18/2022	1/19/2022	22-01045	Bismuth-214	EPA 901.1 Modified	-3.34E-04	9.25E-02	9.25E-02	1.48E-01	pCi/g
22-01045-02	MBL	BLANK	01/18/22 00:00	1/18/2022	1/19/2022	22-01045	Cesium-134	EPA 901.1 Modified	-3.77E-02	4.44E-02	4.44E-02	5.88E-02	pCi/g
22-01045-02	MBL	BLANK	01/18/22 00:00	1/18/2022	1/19/2022	22-01045	Cesium-137	EPA 901.1 Modified	6.32E-02	3.81E-02	3.82E-02	8.40E-02	pCi/g
22-01045-02	MBL	BLANK	01/18/22 00:00	1/18/2022	1/19/2022	22-01045	Potassium-40	EPA 901.1 Modified	2.24E-01	4.24E-01	4.24E-01	8.37E-01	pCi/g
22-01045-02	MBL	BLANK	01/18/22 00:00	1/18/2022	1/19/2022	22-01045	Lead-212	EPA 901.1 Modified	2.53E-02	5.10E-02	5.11E-02	8.56E-02	pCi/g
22-01045-02	MBL	BLANK	01/18/22 00:00	1/18/2022	1/19/2022	22-01045	Lead-214	EPA 901.1 Modified	2.38E-02	7.34E-02	7.34E-02	1.22E-01	pCi/g
22-01045-02	MBL	BLANK	01/18/22 00:00	1/18/2022	1/19/2022	22-01045	Radium-226	EPA 901.1 Modified	-3.34E-04	9.25E-02	9.25E-02	1.48E-01	pCi/g
22-01045-02	MBL	BLANK	01/18/22 00:00	1/18/2022	1/19/2022	22-01045	Radium-228	EPA 901.1 Modified	4.84E-03	1.15E-01	1.15E-01	2.37E-01	pCi/g
22-01045-02	MBL	BLANK	01/18/22 00:00	1/18/2022	1/19/2022	22-01045	Thorium-234	EPA 901.1 Modified	5.81E-01	4.70E-01	4.71E-01	7.28E-01	pCi/g
22-01045-02	MBL	BLANK	01/18/22 00:00	1/18/2022	1/19/2022	22-01045	Thallium-208	EPA 901.1 Modified	3.68E-02	9.78E-02	9.79E-02	1.78E-01	pCi/g
22-01045-03	DUP	MWA 11,12,13	12/31/21 00:00	1/18/2022	1/19/2022	22-01045	Actinium-228	EPA 901.1 Modified	3.41E+00	1.54E+00	1.55E+00	3.23E+00	pCi/g
22-01045-03	DUP	MWA 11,12,13	12/31/21 00:00	1/18/2022	1/19/2022	22-01045	Bismuth-214	EPA 901.1 Modified	1.49E+01	1.60E+00	1.78E+00	4.74E-01	pCi/g
22-01045-03	DUP	MWA 11,12,13	12/31/21 00:00	1/18/2022	1/19/2022	22-01045	Cesium-134	EPA 901.1 Modified	3.11E-02	9.86E-02	9.86E-02	6.48E-01	pCi/g
22-01045-03	DUP	MWA 11,12,13	12/31/21 00:00	1/18/2022	1/19/2022	22-01045	Cesium-137	EPA 901.1 Modified	-2.69E-01	4.08E-01	4.08E-01	5.17E-01	pCi/g
22-01045-03	DUP	MWA 11,12,13	12/31/21 00:00	1/18/2022	1/19/2022	22-01045	Potassium-40	EPA 901.1 Modified	1.20E+01	5.04E+00	5.07E+00	6.93E+00	pCi/g
22-01045-03	DUP	MWA 11,12,13	12/31/21 00:00	1/18/2022	1/19/2022	22-01045	Lead-212	EPA 901.1 Modified	3.24E+00	8.01E-01	8.18E-01	1.33E+00	pCi/g
22-01045-03	DUP	MWA 11,12,13	12/31/21 00:00	1/18/2022	1/19/2022	22-01045	Lead-214	EPA 901.1 Modified	1.42E+01	1.55E+00	1.71E+00	1.77E+00	pCi/g
22-01045-03	DUP	MWA 11,12,13	12/31/21 00:00	1/18/2022	1/19/2022	22-01045	Radium-226	EPA 901.1 Modified	1.49E+01	1.60E+00	1.78E+00	4.74E-01	pCi/g
22-01045-03	DUP	MWA 11,12,13	12/31/21 00:00	1/18/2022	1/19/2022	22-01045	Radium-228	EPA 901.1 Modified	3.41E+00	1.54E+00	1.55E+00	3.23E+00	pCi/g
22-01045-03	DUP	MWA 11,12,13	12/31/21 00:00	1/18/2022	1/19/2022	22-01045	Thorium-234	EPA 901.1 Modified	6.93E+00	8.31E+00	8.31E+00	1.39E+01	pCi/g
22-01045-03	DUP	MWA 11,12,13	12/31/21 00:00	1/18/2022	1/19/2022	22-01045	Thallium-208	EPA 901.1 Modified	2.05E+00	7.54E-01	7.62E-01	1.48E+00	pCi/g

0014

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (1-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:
Marco Kaltofen
Boston Chemical Data Corp
2 Summer Street, Suite 14
Natick, MA 01760

Work Order Details:
SDG: 22-01045
Project: MWA
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
22-01045-04	DO	MWA 11,12,13	12/31/21 00:00	1/18/2022	1/19/2022	22-01045	Actinium-228	EPA 901.1 Modified	4.06E+00	1.62E+00	1.63E+00	3.74E+00	pCi/g
22-01045-04	DO	MWA 11,12,13	12/31/21 00:00	1/18/2022	1/19/2022	22-01045	Bismuth-214	EPA 901.1 Modified	1.32E+01	1.58E+00	1.72E+00	1.68E+00	pCi/g
22-01045-04	DO	MWA 11,12,13	12/31/21 00:00	1/18/2022	1/19/2022	22-01045	Cesium-134	EPA 901.1 Modified	4.66E-02	1.72E-01	1.72E-01	6.48E-01	pCi/g
22-01045-04	DO	MWA 11,12,13	12/31/21 00:00	1/18/2022	1/19/2022	22-01045	Cesium-137	EPA 901.1 Modified	-4.32E-01	4.28E-01	4.29E-01	4.84E-01	pCi/g
22-01045-04	DO	MWA 11,12,13	12/31/21 00:00	1/18/2022	1/19/2022	22-01045	Potassium-40	EPA 901.1 Modified	9.40E+00	4.59E+00	4.62E+00	6.54E+00	pCi/g
22-01045-04	DO	MWA 11,12,13	12/31/21 00:00	1/18/2022	1/19/2022	22-01045	Lead-212	EPA 901.1 Modified	3.04E+00	6.75E-01	6.93E-01	1.32E+00	pCi/g
22-01045-04	DO	MWA 11,12,13	12/31/21 00:00	1/18/2022	1/19/2022	22-01045	Lead-214	EPA 901.1 Modified	1.55E+01	1.68E+00	1.86E+00	1.69E+00	pCi/g
22-01045-04	DO	MWA 11,12,13	12/31/21 00:00	1/18/2022	1/19/2022	22-01045	Radium-226	EPA 901.1 Modified	1.32E+01	1.58E+00	1.72E+00	1.68E+00	pCi/g
22-01045-04	DO	MWA 11,12,13	12/31/21 00:00	1/18/2022	1/19/2022	22-01045	Radium-228	EPA 901.1 Modified	4.06E+00	1.62E+00	1.63E+00	3.74E+00	pCi/g
22-01045-04	DO	MWA 11,12,13	12/31/21 00:00	1/18/2022	1/19/2022	22-01045	Thorium-234	EPA 901.1 Modified	8.71E+00	9.01E+00	9.02E+00	1.50E+01	pCi/g
22-01045-04	DO	MWA 11,12,13	12/31/21 00:00	1/18/2022	1/19/2022	22-01045	Thallium-208	EPA 901.1 Modified	3.36E+00	8.79E-01	8.96E-01	1.12E+00	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (1-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

EBERLINE ANALYTICAL

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

SECTION V

ANALYTICAL STANDARD

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-2101

SRS Number: 120257
Source Description: Sand in 16 Ounce PP Taral Jar Half Filled
Product Code: 8401-EG-SAN
Customer: Eberlline Analytical Corporation
P.O. Number: OR-2107007, Item 3

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-July-2021 12:00 PM EST

MGS Mixture

Isotope	Gamma-Ray Energy, keV	Half-Life, d	Activity, Bq	Flux, s^{-1}	Uncertainty u_A, %	Uncertainty u_B, %	Uncertainty U, %*	Calibration Method**
Am-241	59.5	1.580E+05	5.514E+03	1.979E+03	0.1	1.8	3.7	4π LS
Cd-109	88.0	4.614E+02	7.719E+04	2.856E+03	0.5	2.0	4.2	HPGe
Co-57	122.1	2.717E+02	1.766E+03	1.511E+03	0.4	1.7	3.5	HPGe
Ce-139	165.9	1.376E+02	2.655E+03	2.124E+03	0.4	1.8	3.7	HPGe
Hg-203	279.2	4.659E+01	5.360E+03	4.372E+03	0.3	1.7	3.5	HPGe
Sn-113	391.7	1.151E+02	4.591E+03	2.983E+03	0.4	2.0	4.1	HPGe
Cs-137	661.7	1.099E+04	2.193E+03	1.866E+03	0.7	1.9	4.1	HPGe
Y-88	898.0	1.066E+02	7.736E+03	7.249E+03	0.7	1.7	3.7	HPGe
Y-88	1836.1	———	———	7.674E+03	0.7	1.7	3.7	———
Co-60	1173.2	1.925E+03	3.573E+03	3.568E+03	0.7	1.8	3.9	HPGe
Co-60	1332.5	———	———	3.573E+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)

QA/QC REVIEWED

DATE 9-30-21 INITIALS MM

Corporate Office
24937 Avenue Tibbitts Valencia, California 91355

Laboratory 0017
1380 Seaboard Industrial Blvd. Atlanta, Georgia, 30318

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Analytics

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Fax 404•352•2837
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CERTIFICATE OF CALIBRATION
Standard Reference Source

GAS-1801

SRS Number: 109354
Source Description: Sand in 16 Ounce PP Omega Jar Half Filled
Product Code: 8401-EG-SAN
Customer: Eberline Analytical Corporation
P.O. Number: OR-1802013, Item 3

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-April-2018 12:00 PM EST

MGS Mixture

Isotope	Gamma-Ray Energy, keV	Half-Life, d	Activity, Bq	Flux, s^{-1}	Uncertainty u_A, %	Uncertainty u_B, %	Uncertainty U, %*	Calibration Method**
Am-241	59.5	1.580E+05	5.495E+03	1.973E+03	0.1	1.8	3.6	4π LS
Cd-109	88.0	4.614E+02	7.795E+04	2.884E+03	0.5	2.0	4.1	HPGe
Co-57	122.1	2.717E+02	1.781E+03	1.525E+03	0.4	1.7	3.4	HPGe
Ce-139	165.9	1.376E+02	2.659E+03	2.127E+03	0.4	1.7	3.6	HPGe
Hg-203	279.2	4.659E+01	5.567E+03	4.540E+03	0.3	1.7	3.5	HPGe
Sn-113	391.7	1.151E+02	4.576E+03	2.973E+03	0.4	1.9	3.9	HPGe
Cs-137	661.7	1.099E+04	2.256E+03	1.920E+03	0.7	1.9	4.1	HPGe
Y-88	898.0	1.066E+02	7.476E+03	7.005E+03	0.7	1.7	3.7	HPGe
Y-88	1836.1	———	———	7.416E+03	0.7	1.7	3.7	———
Co-60	1173.2	1.925E+03	3.521E+03	3.516E+03	0.7	1.8	3.9	HPGe
Co-60	1332.5	———	———	3.520E+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)

SECTION VI

QUALITY CONTROL SAMPLE RESULTS SUMMARY

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
22-01045	Gamma	1	pCi	g	FWAP

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		102.88%	7.64%	100.00%	3.90%	2.66E+02	1.04E+01	2.74E+02	2.09E+01	GAS-2001	2.66E+02	1.04E+01	3.68E+02
CS-137		103.75%	10.51%	100.00%	4.10%	1.62E+02	6.66E+00	1.69E+02	1.77E+01	GAS-2001	1.62E+02	6.66E+00	3.68E+02

Matrix Spike

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

Replicate Sample

Analyte	*Normalized Difference*	*RPD*	*Original Result*	*Original CSU*	*Replicate Result*	*Replicate CSU*
AC-228	0.56	17.23	4.06E+00	1.63E+00	3.41E+00	1.55E+00
BI-214	1.35	12.16	1.32E+01	1.72E+00	1.49E+01	1.78E+00
K-40	0.74	24.17	9.40E+00	4.62E+00	1.20E+01	5.07E+00

QC Summary

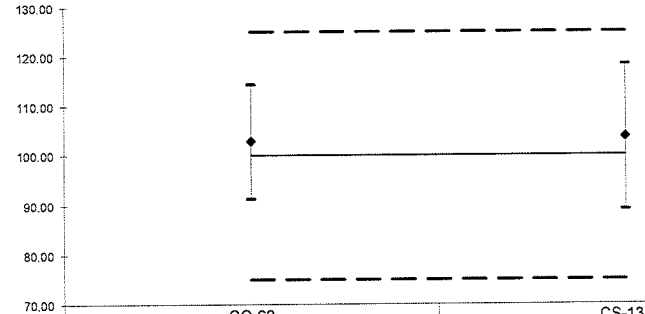
LCS Relative Bias	*LCS % R*		*MS % R*	*MS ND*	*Rep RPD*	*Rep ND*
1.03	OK		<CS-137	AC-228>	NA	
1.04	OK		<CO-60	BI-214>	NA	OK
				K-40>	NA	OK

0020

Version

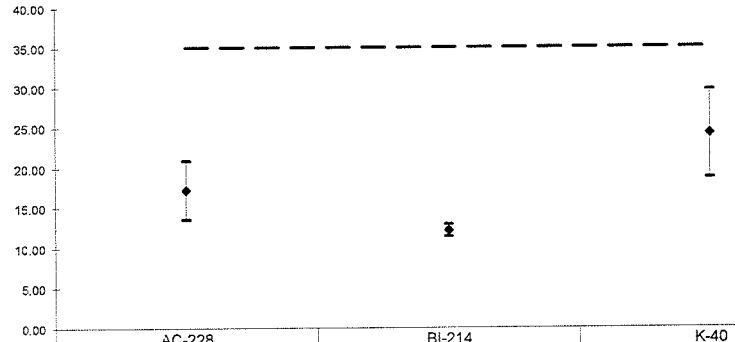
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
22-01045	Gamma	1	pCi	g	FWAP

LCS % Recovery



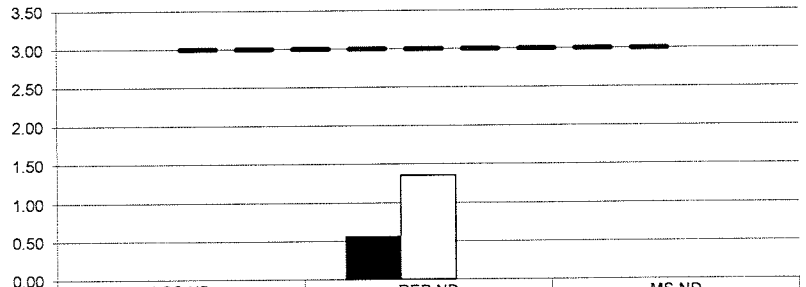
	CO-60	CS-137
Lower Error	91.33	89.14
Upper Error	114.42	118.37
%R	102.88	103.75
LCL	75	75
Mean	100	100
UCL	125	125

Replicate Sample RPD



	AC-228	BI-214	K-40
Lower Error	20.90	12.91	29.64
Upper Error	13.55	11.40	18.69
RPD	17.23	12.16	24.17
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
CO-60	0.00	0.56	0.00
CS-137	0.00	1.35	0.00
	0.00	0.00	0.00
UCL	3	3	3

No Matrix Spike

0021

SECTION VII

LABORATORY TECHNICIAN'S NOTES

GE I

DATE	Sample #	Client	Load Time	CT. Time	Analysis	Tech
~~1/12/22~~	~~2201018-09~~	~~Man. Sciences~~	~~1036~~	~~1hr BP 1136~~		~~KP~~
1/12/22	2201019-05	Manu. Sciences	1603	4hr	✓	KB
1/13/22	Daily Bkgd	Lab	0526	15 min	✓	KP
1/13/22	GAF-21	Lab	0548	15 min	✓	KP
1/13/22	2201018-07	Man. Sciences	0630	1hr	✓	KP
1/14/22	Daily Bkgd	Lab	0449	15 min	✓	KP
1/14/22	GAF-21	Lab	0505	15 min	✓	KP
1/14/22	2201038-01	ERA	1053	30 mins	✓	KP
1/14/22	2201037-02	UCOR	1126	4hrs	✓	KP
1/14/22	System Bkgd	Lab	1550	24 hr	✓	KB
1/18/22	Daily Bkgd	Lab	0651	15 min	✓	KP
1/18/22	GAF-21	Lab	0710	15 min	✓	KP
1/19/22	GAF-21	Lab	0727	15 min	✓	AC
1/19/22	Daily Bkgd	Lab	0748	15 min	✓	AC
1/19/22	2201040-01	Unitech	0923	30 mins	✓	KB
1/19/22	2201040-06	Unitech	0957	1 hr	✓	KB
1/19/22	2201055-01	APTIM	1058	30 mins	✓	KB
1/19/22	2201055-06	APTIM	1131	1 hr	✓	KB
1/19/22	2201055-08	APTIM	1237	1 hr	✓	KB
1/19/22	2201055-12	APTIM	1339	1 hr	✓	KB
1/19/22	2201045-03	FWAP	1439	1 hr	✓	KB
1/19/22	2201045-04	FWAP	1540	1 hr	✓	KB
1/19/22	2201047-01	UCOR	1640	30 mins	✓	KB
1/19/22	2201047-02	UCOR	1716	4 hrs	✓	KB
1/20/22	GAF-21	Lab	0635	15 min	✓	AC
1/20/22	Daily Bkgd	Lab	0718	15 min	✓	AC

GC 2

DATE	Sample #	Client	Load Time	GC Time	Analysis	Tech
1/19/22	2201055-03	APTIM	1225 KB 1/19/22	1hr	γ	KB
1/19/22	2201055-04	APTIM	1125	1hr	γ	KB
1/19/22	2201055-11	APTIM	1330	1hr	γ	KB
1/19/22	2201055-15	APTIM	1431	1hr	γ	KB
1/19/22	2201055-18	APTIM	1536	1hr	γ	KB
1/19/22	2201045-01	FWAP	1636	30mins	γ	KB

GC4

DATE	Sample #	Client	Lost Time	CT. Time	Analysis	Tech
1/10/22	2112057-01	Weston	1630	30mins	✓	KB
1/10/22	2112057-10	Weston	1702	1 hr	✓	KB
1/10/22	2112057-14	Weston	1803	1 hr	✓	KB
1/11/22	Daily Bkgd	Lab	0551	15 min	✓	KP
1/11/22	GAW-21	Lab	0608	15 min	✓	KP
1/12/22	Daily Bkgd	Lab	0518	15 min	✓	KP
1/12/22	GAW-21	Lab	0535	15 min	✓	KP
1/12/22	2201018-05	Man. Sciences	0816	1 hr	✓	KP
~~1/12/22~~	~~2201018-08~~	Man. Sciences	0952	4 hr	✓	KP
1/12/22	2201019-02	Manu. Sciences	1603	4 hrs	✓	KB
1/13/22	Daily Bkgd	Lab	0520	15 min	✓	KP
1/13/22	GAW-21	Lab	0548	15 min	✓	KP
1/13/22	2201018-10	Man. Sciences	0630	1 hr	✓	KP
1/13/22	2201026-01	UCOR	0832	30 min	✓	KP
1/13/22	2201026-03	UCOR	0907	4 hrs	✓	KP
1/13/22	2201026-04	UCOR	1326	4 hrs	✓	KB
1/14/22	Daily Bkgd	Lab	0449	15 min	✓	KP
1/14/22	GAW-21	Lab	0505	15 min	✓	KP
1/14/22	2201037-03	UCOR	0735	4 hrs	✓	KP
1/14/22	2201037-05	UCOR	1142	4 hrs	✓	KP
1/14/22	System Bkgd	Lab	1551	24 hr	✓	KB
1/18/22	Daily Bkgd	Lab	0651	15 min	✓	KP
1/18/22	GAW-21	Lab	0710	15 min	✓	KP
1/19/22	GAW-21	Lab	0728	15 min	✓	AG
1/19/22	Daily Bkgd	Lab	0749	15 min	✓	AG
1/19/22	2201040-03	Unitech	0908	1 hr	✓	KB
1/19/22	2201040-04	Unitech	1015	1 hr	✓	KB
1/19/22	2201055-02	APTIM	1118	1 hr	✓	KB
1/19/22	2201055-07	APTIM	1220	1 hr	✓	KB
1/19/22	2201055-10	APTIM	1321	1 hr	✓	KB
1/19/22	2201055-14	APTIM	1424	1 hr	✓	KB
1/19/22	2201055-17	APTIM	1525	1 hr	✓	KB
1/19/22	2201045-02	FWAP	1626	1 hr	✓	KB

SECTION VIII

ANALYTICAL DATA (GAMMA SPECTROSCOPY)

Work Order	22-01045
Analysis Code	Gamma
Run	1
Date Received	1/18/2022
Lab Deadline	2/1/2022
Client	FWAP
Project	ENV
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		01/18/22 00:00	1.0000E+00
02	MBL	BLANK		01/18/22 00:00	1.0000E+00
03	DUP	MWA 11,12,13	20	12/31/21 00:00	4.5800E+01
04	DO	MWA 11,12,13	20	12/31/21 00:00	4.5800E+01

0027

* 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.

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								

0028

* 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.

22-01045
Gamma
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								
02	MBL								
03	DUP								
04	DO								

0029

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

Eberline Services
Oak Ridge Laboratory

Preliminary Data Report & Analytical Calculations

Work Order: 22-01045-Gamma-1

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	2.74E+02	1.55E+01	1.51E+00	2.66E+02	102.88	OK		01/18/22 00:00	1.00E+00	01/19/22 16:36	YES
01	CS-137	LCS	LCS	pCi/g	1.69E+02	1.55E+01	1.54E+00	1.62E+02	103.75	OK		01/18/22 00:00	1.00E+00	01/19/22 16:36	YES
02	AC-228	MBL	BLANK	pCi/g	4.84E-03	1.15E-01	2.37E-01					01/18/22 00:00	1.00E+00	01/19/22 16:26	NO
02	BI-214	MBL	BLANK	pCi/g	-3.34E-04	9.25E-02	1.48E-01					01/18/22 00:00	1.00E+00	01/19/22 16:26	NO
02	CS-134	MBL	BLANK	pCi/g	-3.77E-02	4.44E-02	5.88E-02					01/18/22 00:00	1.00E+00	01/19/22 16:26	NO
02	CS-137	MBL	BLANK	pCi/g	6.32E-02	3.81E-02	8.40E-02					01/18/22 00:00	1.00E+00	01/19/22 16:26	NO
02	K-40	MBL	BLANK	pCi/g	2.24E-01	4.24E-01	8.37E-01					01/18/22 00:00	1.00E+00	01/19/22 16:26	NO
02	PB-212	MBL	BLANK	pCi/g	2.53E-02	5.10E-02	8.56E-02					01/18/22 00:00	1.00E+00	01/19/22 16:26	NO
02	PB-214	MBL	BLANK	pCi/g	2.38E-02	7.34E-02	1.22E-01					01/18/22 00:00	1.00E+00	01/19/22 16:26	NO
02	RA-226	MBL	BLANK	pCi/g	-3.34E-04	9.25E-02	1.48E-01					01/18/22 00:00	1.00E+00	01/19/22 16:26	NO
02	RA-228	MBL	BLANK	pCi/g	4.84E-03	1.15E-01	2.37E-01					01/18/22 00:00	1.00E+00	01/19/22 16:26	NO
02	TH-234	MBL	BLANK	pCi/g	5.81E-01	4.70E-01	7.28E-01					01/18/22 00:00	1.00E+00	01/19/22 16:26	NO
02	TL-208	MBL	BLANK	pCi/g	3.68E-02	9.78E-02	1.78E-01					01/18/22 00:00	1.00E+00	01/19/22 16:26	NO
03	AC-228	DUP	MWA 11,12,13	pCi/g	3.41E+00	1.54E+00	3.23E+00				NA	12/31/21 00:00	4.58E+01	01/19/22 14:39	YES
03	BI-214	DUP	MWA 11,12,13	pCi/g	1.49E+01	1.60E+00	4.74E-01				NA	12/31/21 00:00	4.58E+01	01/19/22 14:39	YES
03	CS-134	DUP	MWA 11,12,13	pCi/g	3.11E-02	9.86E-02	6.48E-01					12/31/21 00:00	4.58E+01	01/19/22 14:39	NO
03	CS-137	DUP	MWA 11,12,13	pCi/g	-2.69E-01	4.08E-01	5.17E-01					12/31/21 00:00	4.58E+01	01/19/22 14:39	NO
03	K-40	DUP	MWA 11,12,13	pCi/g	1.20E+01	5.04E+00	6.93E+00				NA	12/31/21 00:00	4.58E+01	01/19/22 14:39	YES
03	PB-212	DUP	MWA 11,12,13	pCi/g	3.24E+00	8.01E-01	1.33E+00					12/31/21 00:00	4.58E+01	01/19/22 14:39	YES
03	PB-214	DUP	MWA 11,12,13	pCi/g	1.42E+01	1.55E+00	1.77E+00					12/31/21 00:00	4.58E+01	01/19/22 14:39	YES
03	RA-226	DUP	MWA 11,12,13	pCi/g	1.49E+01	1.60E+00	4.74E-01					12/31/21 00:00	4.58E+01	01/19/22 14:39	YES
03	RA-228	DUP	MWA 11,12,13	pCi/g	3.41E+00	1.54E+00	3.23E+00					12/31/21 00:00	4.58E+01	01/19/22 14:39	YES
03	TH-234	DUP	MWA 11,12,13	pCi/g	6.93E+00	8.31E+00	1.39E+01					12/31/21 00:00	4.58E+01	01/19/22 14:39	YES
03	TL-208	DUP	MWA 11,12,13	pCi/g	2.05E+00	7.54E-01	1.48E+00					12/31/21 00:00	4.58E+01	01/19/22 14:39	YES
04	AC-228	DO	MWA 11,12,13	pCi/g	4.06E+00	1.62E+00	3.74E+00					12/31/21 00:00	4.58E+01	01/19/22 15:40	YES
04	BI-214	DO	MWA 11,12,13	pCi/g	1.32E+01	1.58E+00	1.68E+00					12/31/21 00:00	4.58E+01	01/19/22 15:40	YES
04	CS-134	DO	MWA 11,12,13	pCi/g	4.66E-02	1.72E-01	6.48E-01					12/31/21 00:00	4.58E+01	01/19/22 15:40	NO
04	CS-137	DO	MWA 11,12,13	pCi/g	-4.32E-01	4.28E-01	4.84E-01					12/31/21 00:00	4.58E+01	01/19/22 15:40	NO
04	K-40	DO	MWA 11,12,13	pCi/g	9.40E+00	4.59E+00	6.54E+00					12/31/21 00:00	4.58E+01	01/19/22 15:40	YES
04	PB-212	DO	MWA 11,12,13	pCi/g	3.04E+00	6.75E-01	1.32E+00					12/31/21 00:00	4.58E+01	01/19/22 15:40	YES
04	PB-214	DO	MWA 11,12,13	pCi/g	1.55E+01	1.68E+00	1.69E+00					12/31/21 00:00	4.58E+01	01/19/22 15:40	YES
04	RA-226	DO	MWA 11,12,13	pCi/g	1.32E+01	1.58E+00	1.68E+00					12/31/21 00:00	4.58E+01	01/19/22 15:40	YES
04	RA-228	DO	MWA 11,12,13	pCi/g	4.06E+00	1.62E+00	3.74E+00					12/31/21 00:00	4.58E+01	01/19/22 15:40	YES
04	TH-234	DO	MWA 11,12,13	pCi/g	8.71E+00	9.01E+00	1.50E+01					12/31/21 00:00	4.58E+01	01/19/22 15:40	NO
04	TL-208	DO	MWA 11,12,13	pCi/g	3.36E+00	8.79E-01	1.12E+00					12/31/21 00:00	4.58E+01	01/19/22 15:40	YES

Count Room Report
Client: FWAP

22-01045-Gamma-1 (pCi/g) in SO
Tracer ID:

1 N

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	01/18/22 00:00	1.0000				0.00		
02	MBL	BLANK	01/18/22 00:00	1.0000				0.00		
03	DUP	MWA 11,12,13	12/31/21 00:00	45.8000				0.00		
04	DO	MWA 11,12,13	12/31/21 00:00	45.8000				0.00		

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Printed: 1/18/2022 1:12 PM

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
22-01045	1	Gamma	grams	2/1/2022	KSALLINGS

Lab Fraction	FWAP Client ID	Sample Type	Muffle Data Ratio Post/Pre	Dilution Data No of Dils	Dil Factor	Ratio	Aliquot Data Aliquot	Net Equiv	MS Aliquot Data Aliquot	Net Equiv	H-3 Solids Only Water Added (ml)	H3 Dist Aliq
01	LCS	LCS					1.0000E+00	1.0000E+00				
02	BLANK	MBL					1.0000E+00	1.0000E+00				
03	MWA 11,12,13	DUP					4.5800E+01	4.5800E+01				
04	MWA 11,12,13	DO					4.5800E+01	4.5800E+01				

Comments	

0032

Technician: Kenny Sallings Date: 1/18/22

KB 1/19/22

Apex-Gamma

Analysis Report for 2201045-01
GAS-2001

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 2201045-01
Sample Description	: GAS-2001
Sample Type	: SOIL
Sample Size	: 3.680E+02 grams
Facility	: Countroom
Sample Taken On	: 4/1/2020 1:43:49PM
Acquisition Started	: 1/19/2022 4:36:56PM
Procedure	: GAS-2101 pCi
Operator	: Administrator
Detector Name	: GE2
Geometry	: GAS-2101
Live Time	: 1800.0 seconds
Real Time	: 1834.3 seconds
Dead Time	: 1.87 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 24 - 4096
Identification Energy Tolerance	: 2.500 keV
Energy Calibration Used Done On	: 11/20/2021
Efficiency Calibration Used Done On	: 11/21/2021
Efficiency Calibration Description	:
Sample Number	: 119129

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
1/20/22

Analysis Report for 2201045-01

GAS-2001

PEAK LOCATE REPORT

Peak Locate Performed on : 1/19/2022 5:07:34PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	32.48	34.08	0.0000	0.00
2	49.54	51.11	0.0000	0.00
3	59.43	60.98	0.0000	0.00
4	68.48	70.01	0.0000	0.00
5	88.02	89.52	0.0000	0.00
6	122.03	123.46	0.0000	0.00
7	136.37	137.76	0.0000	0.00
8	165.78	167.12	0.0000	0.00
9	187.46	188.75	0.0000	0.00
10	217.47	218.71	0.0000	0.00
11	255.32	256.48	0.0000	0.00
12	391.51	392.41	0.0000	0.00
13	426.74	427.57	0.0000	0.00
14	510.72	511.39	0.0000	0.00
15	661.47	661.86	0.0000	0.00
16	884.43	884.41	0.0000	0.00
17	897.85	897.81	0.0000	0.00
18	996.18	995.96	0.0000	0.00
19	1172.93	1172.41	0.0000	0.00
20	1184.19	1183.64	0.0000	0.00
21	1332.14	1331.34	0.0000	0.00
22	1531.19	1530.06	0.0000	0.00
23	1835.38	1833.77	0.0000	0.00
24	1981.78	1979.96	0.0000	0.00
25	1986.77	1984.94	0.0000	0.00
26	2504.41	2501.84	0.0000	0.00
27	2559.45	2556.80	0.0000	0.00
28	2613.67	2610.95	0.0000	0.00
29	2732.12	2729.25	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 2201045-01

GAS-2001

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 1/19/2022 5:07:34PM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	32.48	32 -	37	34.08	3.89E+03	334.34	1.96E+04	1.71
M	2	49.54	47 -	64	51.11	6.16E+03	376.29	2.34E+04	1.18
m	3	59.43	47 -	64	60.98	1.15E+05	816.98	2.05E+04	1.21
	4	68.48	68 -	75	70.01	1.43E+03	571.58	5.36E+04	5.26
	5	88.02	85 -	94	89.52	8.44E+04	826.12	4.72E+04	1.85
	6	122.03	120 -	128	123.46	2.12E+04	483.89	2.25E+04	1.89
	7	136.37	134 -	141	137.76	2.89E+03	344.31	1.78E+04	1.31
	8	165.78	163 -	169	167.12	4.99E+03	313.21	1.42E+04	1.34
	9	187.46	187 -	191	188.75	2.26E+02	223.07	1.09E+04	2.04
	10	217.47	217 -	221	218.71	1.91E+02	229.77	1.15E+04	1.56
	11	255.32	255 -	259	256.48	2.27E+02	202.03	8.84E+03	1.35
	12	391.51	389 -	396	392.41	1.90E+03	270.87	1.10E+04	1.97
	13	426.74	425 -	430	427.57	2.67E+02	202.68	8.00E+03	3.28
	14	510.72	508 -	514	511.39	2.69E+02	197.37	6.90E+03	2.44
	15	661.47	657 -	666	661.86	4.24E+04	473.52	7.82E+03	1.73
	16	884.43	882 -	888	884.41	1.95E+02	183.80	6.02E+03	2.89
	17	897.85	894 -	902	897.81	1.88E+03	245.10	8.10E+03	2.11
	18	996.18	993 -	999	995.96	1.78E+02	172.37	5.27E+03	3.68
	19	1172.93	1166 -	1178	1172.41	4.06E+04	451.78	4.89E+03	2.30
	20	1184.19	1180 -	1187	1183.64	1.42E+02	118.49	2.23E+03	4.60
	21	1332.14	1325 -	1337	1331.34	3.70E+04	403.27	1.73E+03	2.41
	22	1531.19	1527 -	1534	1530.06	4.38E+01	44.32	3.02E+02	3.31
	23	1835.38	1827 -	1839	1833.77	1.08E+03	84.42	3.30E+02	2.67
M	24	1981.78	1976 -	1987	1979.96	2.92E+01	25.30	8.28E+01	3.92
m	25	1986.77	1976 -	1987	1984.94	1.90E+01	23.27	8.41E+01	2.39
	26	2504.41	2495 -	2506	2501.84	4.97E+02	48.29	4.55E+01	2.77
	27	2559.45	2554 -	2559	2556.80	5.00E+00	4.47	0.00E+00	2.41
	28	2613.67	2607 -	2614	2610.95	1.80E+01	9.80	3.90E+00	3.76
	29	2732.12	2723 -	2733	2729.25	2.20E+01	11.41	6.04E+00	2.89

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 2201045-01

GAS-2001

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 1/19/2022 5:07:34PM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	32.48	32 -	37	3.89E+03	334.34	1.96E+04	2.55E+02
M	2	49.54	47 -	64	6.16E+03	376.29	2.34E+04	2.52E+02
m	3	59.43	47 -	64	1.15E+05	816.98	2.05E+04	2.36E+02
	4	68.48	68 -	75	1.43E+03	571.58	5.36E+04	4.66E+02
	5	88.02	85 -	94	8.44E+04	826.12	4.72E+04	4.83E+02
	6	122.03	120 -	128	2.12E+04	483.89	2.25E+04	3.18E+02
	7	136.37	134 -	141	2.89E+03	344.31	1.78E+04	2.69E+02
	8	165.78	163 -	169	4.99E+03	313.21	1.42E+04	2.30E+02
	9	187.46	187 -	191	2.26E+02	223.07	1.09E+04	1.82E+02
	10	217.47	217 -	221	1.91E+02	229.77	1.15E+04	1.88E+02
	11	255.32	255 -	259	2.27E+02	202.03	8.84E+03	1.64E+02
	12	391.51	389 -	396	1.90E+03	270.87	1.10E+04	2.11E+02
	13	426.74	425 -	430	2.67E+02	202.68	8.00E+03	1.64E+02
	14	510.72	508 -	514	2.69E+02	197.37	6.90E+03	1.60E+02
	15	661.47	657 -	666	4.24E+04	473.52	7.82E+03	1.92E+02
	16	884.43	882 -	888	1.95E+02	183.80	6.02E+03	1.49E+02
	17	897.85	894 -	902	1.88E+03	245.10	8.10E+03	1.88E+02
	18	996.18	993 -	999	1.78E+02	172.37	5.27E+03	1.40E+02
	19	1172.93	1166 -	1178	4.06E+04	451.78	4.89E+03	1.68E+02
	20	1184.19	1180 -	1187	1.42E+02	118.49	2.23E+03	9.54E+01
	21	1332.14	1325 -	1337	3.70E+04	403.27	1.73E+03	9.99E+01
	22	1531.19	1527 -	1534	4.38E+01	44.32	3.02E+02	3.48E+01
	23	1835.38	1827 -	1839	1.08E+03	84.42	3.30E+02	4.36E+01
M	24	1981.78	1976 -	1987	2.92E+01	25.30	8.28E+01	1.50E+01
m	25	1986.77	1976 -	1987	1.90E+01	23.27	8.41E+01	1.51E+01
	26	2504.41	2495 -	2506	4.97E+02	48.29	4.55E+01	1.52E+01
	27	2559.45	2554 -	2559	5.00E+00	4.47	0.00E+00	0.00E+00
	28	2613.67	2607 -	2614	1.80E+01	9.80	3.90E+00	4.01E+00
	29	2732.12	2723 -	2733	2.20E+01	11.41	6.04E+00	5.35E+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 2201045-01

GAS-2001

PEAK WITH NID REPORT

Peak Analysis Performed on : 1/19/2022 5:07:34PM

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

Tentative NID Library : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB
Peak Match Tolerance : 2.500 keV

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	32.48	32 -	37	34.08	3.89E+03	334.34	1.96E+04	I-129
M	2	49.54	47 -	64	51.11	6.16E+03	376.29	2.34E+04	TE-132
									TH-227
									TH-230
m	3	59.43	47 -	64	60.98	1.15E+05	816.98	2.05E+04	AM-241
									CE-143
	4	68.48	68 -	75	70.01	1.43E+03	571.58	5.36E+04	TI-44
									TA-182
									TH-230
									HF-172
									TM-171
	5	88.02	85 -	94	89.52	8.44E+04	826.12	4.72E+04	CD-109
									LU-176
									SN-126
									NP-237
									EU-155
	6	122.03	120 -	128	123.46	2.12E+04	483.89	2.25E+04	CO-57
									EU-152
									SE-75
									EU-154
	7	136.37	134 -	141	137.76	2.89E+03	344.31	1.78E+04	CO-57
									SE-75
	8	165.78	163 -	169	167.12	4.99E+03	313.21	1.42E+04	CE-139
									CS-136
									U-235
	9	187.46	187 -	191	188.75	2.26E+02	223.07	1.09E+04	RA-226
	10	217.47	217 -	221	218.71	1.91E+02	229.77	1.15E+04	.....
	11	255.32	255 -	259	256.48	2.27E+02	202.03	8.84E+03	SN-113
									TH-227
	12	391.51	389 -	396	392.41	1.90E+03	270.87	1.10E+04	SN-113
	13	426.74	425 -	430	427.57	2.67E+02	202.68	8.00E+03	SB-125
	14	510.72	508 -	514	511.39	2.69E+02	197.37	6.90E+03	.....
	15	661.47	657 -	666	661.86	4.24E+04	473.52	7.82E+03	CS-137
	16	884.43	882 -	888	884.41	1.95E+02	183.80	6.02E+03	AG-110M
	17	897.85	894 -	902	897.81	1.88E+03	245.10	8.10E+03	Y-88
									TL-204
	18	996.18	993 -	999	995.96	1.78E+02	172.37	5.27E+03	EU-154
	19	1172.93	1166 -	1178	1172.41	4.06E+04	451.78	4.89E+03	CO-60
	20	1184.19	1180 -	1187	1183.64	1.42E+02	118.49	2.23E+03	.....
	21	1332.14	1325 -	1337	1331.34	3.70E+04	403.27	1.73E+03	CO-60
	22	1531.19	1527 -	1534	1530.06	4.38E+01	44.32	3.02E+02	.....

Analysis Report for 2201045-01

GAS-2001

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	23	1835.38	1827 -	1839	1833.77	1.08E+03	84.42	3.30E+02	Y-88
M	24	1981.78	1976 -	1987	1979.96	2.92E+01	25.30	8.28E+01	.....
m	25	1986.77	1976 -	1987	1984.94	1.90E+01	23.27	8.41E+01	.....
	26	2504.41	2495 -	2506	2501.84	4.97E+02	48.29	4.55E+01	.....
	27	2559.45	2554 -	2559	2556.80	5.00E+00	4.47	0.00E+00	.....
	28	2613.67	2607 -	2614	2610.95	1.80E+01	9.80	3.90E+00	TL-208
	29	2732.12	2723 -	2733	2729.25	2.20E+01	11.41	6.04E+00	.....

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 1/19/2022 5:07:34PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	32.48	3.89E+03	334.34	1.65E-02	2.84E-03
M	2	49.54	6.16E+03	376.29	3.24E-02	2.84E-03
m	3	59.43	1.15E+05	816.98	3.78E-02	2.84E-03
	4	68.48	1.43E+03	571.58	4.07E-02	3.13E-03
	5	88.02	8.44E+04	826.12	4.29E-02	3.77E-03
	6	122.03	2.12E+04	483.89	4.09E-02	3.11E-03
	7	136.37	2.89E+03	344.31	3.92E-02	2.97E-03
	8	165.78	4.99E+03	313.21	3.58E-02	2.69E-03
	9	187.46	2.26E+02	223.07	3.34E-02	2.54E-03
	10	217.47	1.91E+02	229.77	3.04E-02	2.33E-03
	11	255.32	2.27E+02	202.03	2.71E-02	2.07E-03
	12	391.51	1.90E+03	270.87	1.95E-02	1.65E-03
	13	426.74	2.67E+02	202.68	1.82E-02	1.59E-03
	14	510.72	2.69E+02	197.37	1.56E-02	1.44E-03
	15	661.47	4.24E+04	473.52	1.26E-02	1.17E-03
	16	884.43	1.95E+02	183.80	9.80E-03	7.59E-04
	17	897.85	1.88E+03	245.10	9.67E-03	7.34E-04
	18	996.18	1.78E+02	172.37	8.85E-03	6.95E-04
	19	1172.93	4.06E+04	451.78	7.71E-03	6.24E-04
	20	1184.19	1.42E+02	118.49	7.65E-03	6.20E-04
	21	1332.14	3.70E+04	403.27	6.94E-03	5.61E-04
	22	1531.19	4.38E+01	44.32	6.19E-03	5.00E-04
	23	1835.38	1.08E+03	84.42	5.36E-03	4.07E-04

Analysis Report for 2201045-01

GAS-2001

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	24	1981.78	2.92E+01	25.30	5.05E-03	4.07E-04
m	25	1986.77	1.90E+01	23.27	5.04E-03	4.07E-04
	26	2504.41	4.97E+02	48.29	4.25E-03	4.07E-04
	27	2559.45	5.00E+00	4.47	4.19E-03	4.07E-04
	28	2613.67	1.80E+01	9.80	4.13E-03	4.07E-04
	29	2732.12	2.20E+01	11.41	4.00E-03	4.07E-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 : 1/19/2022 5:07:34PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000119048.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	32.48	3.89E+03	334.34			3.89E+03	3.34E+02
M	2	49.54	6.16E+03	376.29			6.16E+03	3.76E+02
m	3	59.43	1.15E+05	816.98	6.35E+00	2.38E+00	1.15E+05	8.17E+02
	4	68.48	1.43E+03	571.58	6.70E+00	2.54E+00	1.42E+03	5.72E+02
	5	88.02	8.44E+04	826.12	2.23E+00	2.15E+00	8.44E+04	8.26E+02
	6	122.03	2.12E+04	483.89			2.12E+04	4.84E+02
	7	136.37	2.89E+03	344.31			2.89E+03	3.44E+02
	8	165.78	4.99E+03	313.21			4.99E+03	3.13E+02
	9	187.46	2.26E+02	223.07	1.79E+01	3.68E+00	2.08E+02	2.23E+02
	10	217.47	1.91E+02	229.77			1.91E+02	2.30E+02
	11	255.32	2.27E+02	202.03			2.27E+02	2.02E+02
	12	391.51	1.90E+03	270.87			1.90E+03	2.71E+02
	13	426.74	2.67E+02	202.68			2.67E+02	2.03E+02
	14	510.72	2.69E+02	197.37	3.42E+01	2.46E+00	2.35E+02	1.97E+02
	15	661.47	4.24E+04	473.52			4.24E+04	4.74E+02
	16	884.43	1.95E+02	183.80			1.95E+02	1.84E+02
	17	897.85	1.88E+03	245.10			1.88E+03	2.45E+02
	18	996.18	1.78E+02	172.37			1.78E+02	1.72E+02
	19	1172.93	4.06E+04	451.78			4.06E+04	4.52E+02
	20	1184.19	1.42E+02	118.49			1.42E+02	1.18E+02
	21	1332.14	3.70E+04	403.27			3.70E+04	4.03E+02
	22	1531.19	4.38E+01	44.32			4.38E+01	4.43E+01
	23	1835.38	1.08E+03	84.42			1.08E+03	8.44E+01
M	24	1981.78	2.92E+01	25.30			2.92E+01	2.53E+01

Analysis Report for 2201045-01

GAS-2001

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	25	1986.77	1.90E+01	23.27			1.90E+01	2.33E+01
	26	2504.41	4.97E+02	48.29			4.97E+02	4.83E+01
	27	2559.45	5.00E+00	4.47			5.00E+00	4.47E+00
	28	2613.67	1.80E+01	9.80	2.37E+00	7.34E-01	1.57E+01	9.83E+00
	29	2732.12	2.20E+01	11.41			2.20E+01	1.14E+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 : 1/19/2022 5:07:34PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000119048.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	32.48	3.89E+03	334.34			3.89E+03	3.34E+02
M	2	49.54	6.16E+03	376.29			6.16E+03	3.76E+02
m	3	59.43	1.15E+05	816.98	6.35E+00	2.38E+00	1.15E+05	8.17E+02
	4	68.48	1.43E+03	571.58	6.70E+00	2.54E+00	1.42E+03	5.72E+02
	5	88.02	8.44E+04	826.12	2.23E+00	2.15E+00	8.44E+04	8.26E+02
	6	122.03	2.12E+04	483.89			2.12E+04	4.84E+02
	7	136.37	2.89E+03	344.31			2.89E+03	3.44E+02
	8	165.78	4.99E+03	313.21			4.99E+03	3.13E+02
	9	187.46	2.26E+02	223.07	1.79E+01	3.68E+00	2.08E+02	2.23E+02
	10	217.47	1.91E+02	229.77			1.91E+02	2.30E+02
	11	255.32	2.27E+02	202.03			2.27E+02	2.02E+02
	12	391.51	1.90E+03	270.87			1.90E+03	2.71E+02
	13	426.74	2.67E+02	202.68			2.67E+02	2.03E+02
	14	510.72	2.69E+02	197.37	3.42E+01	2.46E+00	2.35E+02	1.97E+02
	15	661.47	4.24E+04	473.52			4.24E+04	4.74E+02
	16	884.43	1.95E+02	183.80			1.95E+02	1.84E+02
	17	897.85	1.88E+03	245.10			1.88E+03	2.45E+02
	18	996.18	1.78E+02	172.37			1.78E+02	1.72E+02
	19	1172.93	4.06E+04	451.78			4.06E+04	4.52E+02
	20	1184.19	1.42E+02	118.49			1.42E+02	1.18E+02
	21	1332.14	3.70E+04	403.27			3.70E+04	4.03E+02
	22	1531.19	4.38E+01	44.32			4.38E+01	4.43E+01
	23	1835.38	1.08E+03	84.42			1.08E+03	8.44E+01

Analysis Report for 2201045-01

GAS-2001

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	24	1981.78	2.92E+01	25.30			2.92E+01	2.53E+01
m	25	1986.77	1.90E+01	23.27			1.90E+01	2.33E+01
	26	2504.41	4.97E+02	48.29			4.97E+02	4.83E+01
	27	2559.45	5.00E+00	4.47			5.00E+00	4.47E+00
	28	2613.67	1.80E+01	9.80	2.37E+00	7.34E-01	1.57E+01	9.83E+00
	29	2732.12	2.20E+01	11.41			2.20E+01	1.14E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CO-57	0.971	122.06	*	85.51	1.33E+02	1.06E+01
		136.48	*	10.60	1.53E+02	2.15E+01
CO-60	0.997	1173.22	*	100.00	2.72E+02	2.22E+01
		1332.49	*	100.00	2.76E+02	2.25E+01
Y-88	0.822	898.02	*	93.40	6.12E+02	9.24E+01
		1836.01	*	99.38	5.97E+02	6.51E+01
CD-109	0.990	88.03	*	3.72	5.76E+03	5.09E+02
SN-113	0.849	255.12	*	1.93	9.31E+02	8.31E+02
		391.69	*	64.90	3.23E+02	5.35E+01
SN-126	0.995	87.57	*	37.00	2.17E+02	1.91E+01
CS-137	0.999	661.65	*	85.12	1.69E+02	1.58E+01
CE-139	0.892	165.85	*	80.35	1.95E+02	1.91E+01
EU-155	0.325	86.50	*	30.90	3.34E+02	2.95E+01
		105.30		20.70		
TM-171	0.920	66.72	*	0.14	1.95E+03	7.98E+02
RA-226	0.961	186.21	*	3.28	7.76E+00	8.35E+00
TH-230	0.611	48.43	*	16.90	4.59E+01	4.90E+00
		62.85		4.60		
		67.67	*	0.37	3.86E+02	1.58E+02
NP-237	0.943	86.50	*	12.60	6.37E+02	5.62E+01
AM-241	1.000	59.54	*	35.90	3.47E+02	2.62E+01

Analysis Report for 2201045-01

GAS-2001

* = Energy line found in the spectrum.
- = Manually added nuclide.
? = Manually edited nuclide.
Energy Tolerance : 2.500 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000sigma

UNIDENTIFIED PEAKS

Peak Locate Performed on : 1/19/2022 5:07:34PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	32.48	2.15841E+00	4.30	Tol.	I-129
	10	217.47	1.05905E-01	60.27	Sum	
	13	426.74	1.48209E-01	37.99	Tol.	SB-125
	14	510.72	1.30407E-01	42.04	Sum	
	16	884.43	1.08483E-01	47.06	Tol.	AG-110M
	18	996.18	9.88889E-02	48.42	Tol.	EU-154
	20	1184.19	7.89659E-02	41.68		
	22	1531.19	2.43333E-02	50.59		
M	24	1981.78	1.61975E-02	43.39		
m	25	1986.77	1.05414E-02	61.32		
	26	2504.41	2.76242E-01	4.86	Sum	
	27	2559.45	2.77778E-03	44.72		
	28	2613.67	8.71310E-03	31.32	Tol.	TL-208
	29	2732.12	1.22111E-02	25.96	Sum	

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Analysis Report for 2201045-01

GAS-2001

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CO-57	0.97	122.06	*	85.51	1.33E+02	1.06E+01
		136.48	*	10.60	1.53E+02	2.15E+01
CO-60	0.99	1173.22	*	100.00	2.72E+02	2.22E+01
		1332.49	*	100.00	2.76E+02	2.25E+01
Y-88	0.82	898.02	*	93.40	6.12E+02	9.24E+01
		1836.01	*	99.38	5.97E+02	6.51E+01
CD-109	0.99	88.03	*	3.72	5.76E+03	5.09E+02
SN-113	0.84	255.12	*	1.93	9.31E+02	8.31E+02
		391.69	*	64.90	3.23E+02	5.35E+01
SN-126	0.99	87.57	*	37.00	2.17E+02	1.91E+01
CS-137	0.99	661.65	*	85.12	1.69E+02	1.58E+01
CE-139	0.89	165.85	*	80.35	1.95E+02	1.91E+01
EU-155	0.32	86.50	*	30.90	3.34E+02	2.95E+01
		105.30		20.70		
TM-171	0.92	66.72	*	0.14	1.95E+03	7.98E+02
RA-226	0.96	186.21	*	3.28	7.76E+00	8.35E+00
TH-230	0.61	48.43	*	16.90	4.59E+01	4.90E+00
		62.85		4.60		
		67.67	*	0.37	3.86E+02	1.58E+02
NP-237	0.94	86.50	*	12.60	6.37E+02	5.62E+01
AM-241	1.00	59.54	*	35.90	3.47E+02	2.62E+01

* = Energy line found in the spectrum.
\- = Manually added nuclide.
? = Manually edited nuclide.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 2.500 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	0.971	1.37E+02	9.51E+00	
	CO-60	0.997	2.74E+02	1.58E+01	
	Y-88	0.822	6.02E+02	5.32E+01	
?	CD-109	0.990	5.76E+03	5.09E+02	

Analysis Report for 2201045-01

GAS-2001

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	SN-113	0.849	3.26E+02	5.34E+01	
?	SN-126	0.995	2.17E+02	1.91E+01	
	CS-137	0.999	1.69E+02	1.58E+01	
	CE-139	0.892	1.95E+02	1.91E+01	
?	EU-155	0.325	3.34E+02	2.95E+01	
	TM-171	0.920	1.72E+03	7.98E+02	
	RA-226	0.961	7.76E+00	8.35E+00	
X	TH-227	0.301			
	TH-230	0.611	4.59E+01	4.90E+00	
?	NP-237	0.943	6.37E+02	5.62E+01	
	AM-241	1.000	3.47E+02	2.62E+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 2201045-01
GAS-2001

UNIDENTIFIED PEAKS

Peak Locate Performed on : 1/19/2022 5:07:34PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	32.48	2.15841E+00	4.30	Tol.	I-129
	10	217.47	1.05905E-01	60.27	Sum	
	13	426.74	1.48209E-01	37.99	Tol.	SB-125
	14	510.72	1.30407E-01	42.04	Sum	
	16	884.43	1.08483E-01	47.06	Tol.	AG-110M
	18	996.18	9.88889E-02	48.42	Tol.	EU-154
	20	1184.19	7.89659E-02	41.68		
	22	1531.19	2.43333E-02	50.59		
M	24	1981.78	1.61975E-02	43.39		
m	25	1986.77	1.05414E-02	61.32		
	26	2504.41	2.76242E-01	4.86	Sum	
	27	2559.45	2.77778E-03	44.72		
	28	2613.67	8.71310E-03	31.32	Tol.	TL-208
	29	2732.12	1.22111E-02	25.96	Sum	

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59	10.42	1.71E+04	3.24E+04	3.24E+04
+	NA-22	1274.54	99.94	1.39E-01	8.16E-01	8.16E-01
+	NA-24	1368.53	99.99	1.08E-02	1.45E-01	4.23E-01

Analysis Report for 2201045-01

GAS-2001

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	NA-24	2754.09		99.86	4.85E-02	1.45E-01	1.45E-01
+	AL-26	1808.65		99.76	7.22E-02	4.04E-01	4.04E-01
+	K-40	1460.81		10.67	7.12E-01	3.84E+00	3.84E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	1.51E+00	6.13E-01	6.72E-01
		78.34		96.00	3.76E-01		6.13E-01
+	SC-46	889.25		98.98	5.51E+01	2.49E+02	2.58E+02
		1120.51		99.90	6.22E+01		2.49E+02
+	V-48	983.52		99.98	-2.58E+11	1.32E+12	2.85E+12
		1312.10		97.50	3.80E+11		1.32E+12
+	CR-51	320.08		9.83	-3.48E+07	7.21E+07	7.21E+07
+	MN-54	834.83		99.97	-4.12E-01	4.25E+00	4.25E+00
+	CO-56	846.75		99.96	6.50E+01	4.56E+02	6.63E+02
		1037.75		14.03	1.44E+03		5.27E+03
		1238.25		67.00	1.90E+01		5.53E+02
		1771.40		15.51	-8.53E+02		1.51E+03
		2587.48		16.90	-3.80E+01		4.56E+02
+	CO-57	122.06	*	85.51	1.33E+02	4.02E+00	4.02E+00
		136.48	*	10.60	1.53E+02		2.86E+01
+	CO-58	810.76		99.40	-1.87E+02	5.94E+02	5.94E+02
+	FE-59	1099.22		56.50	-3.12E+03	3.25E+04	5.82E+04
		1291.56		43.20	8.32E+03		3.25E+04
+	CO-60	1173.22	*	100.00	2.72E+02	1.51E+00	2.27E+00
		1332.49	*	100.00	2.76E+02		1.51E+00
+	ZN-65	1115.52		50.75	3.97E+00	1.46E+01	1.46E+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	5.71E+03	3.39E+01	2.09E+02
		136.00		59.50	2.26E+02		3.39E+01
		264.65		59.80	8.51E-01		3.62E+01
		279.53		25.20	-4.13E+01		8.67E+01
		400.65		11.40	-1.02E+01		2.34E+02
+	RB-82	776.52		13.00	-2.55E+08	3.85E+08	3.85E+08
+	RB-83	520.41		46.00	-8.04E+01	2.62E+02	2.62E+02
		529.64		30.30	5.49E+01		3.96E+02
		552.65		16.40	-4.68E+02		8.46E+02
+	KR-85	513.99		0.43	-1.57E+01	1.61E+02	1.61E+02
+	SR-85	513.99		99.27	-6.96E+01	7.12E+02	7.12E+02
+	Y-88	898.02	*	93.40	6.12E+02	4.98E+01	1.24E+02
		1836.01	*	99.38	5.97E+02		4.98E+01
+	MO-93	263.06		56.72	-3.57E-01	4.53E-01	9.34E-01
		684.67		99.68	2.77E-01		8.66E-01
		1477.11		99.08	2.48E-01		4.53E-01
+	NB-93M	16.57		9.43	0.00E+00	4.17E+03	4.17E+03
+	NB-94	702.63		100.00	-1.30E-01	7.94E-01	7.94E-01
		871.10		100.00	1.43E-01		1.06E+00

Analysis Report for 2201045-01

GAS-2001

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		NB-95	765.79		99.81	-8.17E+04	3.91E+05	3.91E+05
+	@	NB-95M	235.69		25.00	1.00E+26	1.00E+26	1.00E+26
+		ZR-95	724.18		43.70	-1.26E+03	1.92E+03	2.32E+03
			756.72		55.30	-1.59E+03		1.92E+03
+	@	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
+		TC-99M	140.51		89.00	-4.12E-02	4.13E-01	4.13E-01
+		RU-103	497.08		89.00	-1.74E+04	7.47E+04	7.47E+04
+		RU-106	621.84		9.80	3.80E-01	2.62E+01	2.62E+01
+		AG-108M	433.93		89.90	5.11E-01	7.14E-01	7.14E-01
			614.37		90.40	-9.67E-02		8.25E-01
			722.95		90.50	-2.68E-01		9.14E-01
+		CD-109	88.03	*	3.72	5.76E+03	6.61E+01	6.61E+01
+		AG-110M	657.75		93.14	-1.09E+00	1.08E+01	1.24E+01
			677.61		10.53	-1.12E+00		4.58E+01
			706.67		16.46	1.46E+01		2.98E+01
			763.93		21.98	1.56E+01		2.48E+01
			884.67		21.98	8.35E+00		3.13E+01
			1384.27		23.94	6.94E-01		1.08E+01
+		CD-113M	263.70		0.02	-6.90E+02	2.26E+03	2.26E+03
+		SN-113	255.12	*	1.93	9.31E+02	7.20E+01	1.36E+03
			391.69	*	64.90	3.23E+02		7.20E+01
+		TE-123M	159.00		84.10	-1.02E+01	2.02E+01	2.02E+01
+		SB-124	602.71		97.87	-5.96E+02	1.46E+03	1.46E+03
			645.85		7.26	9.67E+03		2.10E+04
			722.78		11.10	-4.23E+03		1.44E+04
			1691.02		49.00	7.06E+02		1.50E+03
+		I-125	35.49		6.49	3.36E+04	2.94E+04	2.94E+04
+		SB-125	176.33		6.89	5.95E+00	3.33E+00	8.88E+00
			427.89		29.33	-4.02E-01		3.33E+00
			463.38		10.35	6.47E+00		1.03E+01
			600.56		17.80	-3.98E-02		6.41E+00
			635.90		11.32	4.58E+00		1.07E+01
+		SB-126	414.70		83.30	-9.22E-02	7.17E-01	7.17E-01
			666.33		99.60	3.96E-02		8.29E-01
			695.00		99.60	1.16E-01		7.96E-01
			720.50		53.80	4.63E-01		1.51E+00
+		SN-126	87.57	*	37.00	2.17E+02	2.49E+00	2.49E+00
+	@	SB-127	473.00		25.00	1.00E+26	1.00E+26	1.00E+26
	@		685.00		35.70	1.00E+26		1.00E+26
	@		783.80		14.70	1.00E+26		1.00E+26
+		I-129	29.78		57.00	-3.09E+01	2.26E+00	2.26E+00
			33.60		13.20	4.89E+01		9.02E+00
			39.58		7.52	-4.64E+01		1.03E+01
+	@	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

Analysis Report for 2201045-01

GAS-2001

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
@	I-131	722.89		1.80	1.00E+26	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		34.06	-3.21E+00	9.83E-01	1.91E+00
		302.84		18.33	-2.01E+00		3.00E+00
		356.01		62.05	6.72E-01		9.83E-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	-7.25E+00	1.38E+00	1.52E+01
		569.32		15.43	-2.88E+00		8.39E+00
		604.70		97.60	-2.27E-02		1.38E+00
		795.84		85.40	-1.40E+00		1.96E+00
		801.93		8.73	-2.78E+00		1.93E+01
+	CS-135	268.24		16.00	2.74E-01	3.06E+00	3.06E+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	2.35E+15	1.11E+15	5.71E+15
		163.89		4.61	3.29E+16		1.23E+16
		176.55		13.56	2.19E+15		3.26E+15
		273.65		12.66	-1.57E+15		4.31E+15
		340.57		48.50	-3.72E+14		1.22E+15
		818.50		99.70	-1.30E+14		1.11E+15
		1048.07		79.60	-2.48E+14		1.60E+15
		1235.34		19.70	2.38E+15		3.39E+15
+	CS-137	661.65	*	85.12	1.69E+02	1.54E+00	1.54E+00
+	LA-138	788.74		34.00	1.46E+00	5.96E-01	2.70E+00
		1435.80		66.00	-6.81E-02		5.96E-01
+	CE-139	165.85	*	80.35	1.95E+02	1.81E+01	1.81E+01
+	BA-140	162.64		6.70	-4.68E+17	7.34E+15	1.84E+16
		304.84		4.50	6.52E+15		3.39E+16
		423.70		3.20	-1.30E+16		5.99E+16
		437.55		2.00	5.48E+15		9.82E+16
		537.32		25.00	-4.25E+15		7.34E+15
+	LA-140	328.77		20.50	-3.30E+15	1.44E+15	7.68E+15
		487.03		45.50	-4.48E+14		4.18E+15
		815.85		23.50	-2.23E+15		1.26E+16
		1596.49		95.49	3.43E+14		1.44E+15
+	CE-141	145.44		48.40	-9.05E+04	9.56E+05	9.56E+05
+ @	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	-2.09E+02	1.79E+01	1.79E+01
+	PM-144	476.78		42.00	2.91E+00	2.65E+00	5.53E+00
		618.01		98.60	-6.97E-03		2.65E+00
		696.49		99.49	5.02E-01		2.81E+00
+	PM-145	36.85		21.70	9.97E+00	2.27E+00	4.25E+00
		37.36		39.70	4.05E+00		2.27E+00
		42.30		15.10	-1.44E+00		5.62E+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	1.98E+01	2.27E+00	2.80E+01
+		PM-146	453.90		39.94	2.57E-01	2.07E+00	2.07E+00
			735.90		14.01	-2.45E+00		7.41E+00
			747.13		13.10	-2.88E-01		8.09E+00
+		ND-147	91.11		28.90	-2.67E+20	1.59E+18	1.59E+18
			531.02		13.10	1.55E+17		5.06E+18
+	@	PM-149	285.90		3.10	1.00E+26	1.00E+26	1.00E+26
+		EU-152	121.78		20.50	1.13E+02	2.90E+00	4.14E+00
			244.69		5.40	1.89E+00		9.72E+00
			344.27		19.13	5.70E-02		3.01E+00
			778.89		9.10	2.95E-01		1.08E+01
			964.01		10.40	7.88E-01		1.28E+01
			1085.78		7.22	2.61E+00		1.78E+01
			1112.02		9.60	1.79E+00		1.34E+01
			1407.95		14.94	1.14E+00		2.90E+00
+		GD-153	97.43		31.30	4.64E+00	8.06E+00	8.06E+00
			103.18		22.20	2.89E+00		1.13E+01
+		EU-154	123.07		40.50	5.98E+01	1.64E+00	2.20E+00
			723.30		19.70	-2.58E+00		4.77E+00
			873.19		11.50	-4.84E+00		1.06E+01
			996.32		10.30	1.03E+01		1.29E+01
			1004.76		17.90	2.04E+00		7.29E+00
			1274.45		35.50	2.78E-01		1.64E+00
+		EU-155	86.50	*	30.90	3.34E+02	2.37E+00	3.83E+00
			105.30		20.70	3.67E-01		2.37E+00
+		EU-156	811.77		10.40	-3.94E+12	7.62E+13	1.01E+14
			1153.47		7.20	5.54E+12		1.44E+14
			1230.71		8.90	1.17E+12		7.62E+13
+		HO-166M	184.41		72.60	-2.23E-01	5.72E-01	5.72E-01
			280.45		29.60	1.02E+00		1.66E+00
			410.94		11.10	1.53E+00		5.41E+00
			711.69		54.10	5.33E-02		1.46E+00
+		TM-171	66.72	*	0.14	1.95E+03	1.28E+03	1.28E+03
+		HF-172	67.35		5.31	5.14E+01	6.27E+00	2.29E+01
			125.82		11.30	-3.26E+02		6.27E+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	-4.91E+00	5.68E+00	1.81E+01
			272.11		21.20	-5.92E-01		5.68E+00
+		HF-175	343.40		84.00	1.74E+02	4.25E+02	4.25E+02
+		LU-176	88.34		13.30	5.93E+02	5.06E-01	1.02E+01
			201.83		86.00	1.03E-02		5.06E-01
			306.78		94.00	-2.13E-01		5.31E-01
+		HF-181	133.02		41.70	1.51E+03	3.52E+04	4.16E+04
			345.85		17.20	-1.50E+04		1.44E+05
			482.03		82.80	-1.84E+04		3.52E+04
+		TA-182	67.75		41.20	1.83E+02	8.14E+01	8.14E+01
			1121.30		34.90	-4.12E+01		1.64E+02

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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	9.20E+01	8.14E+01	2.72E+02
		1221.41		26.98	3.49E+00		1.30E+02
		1231.02		11.44	4.40E+00		2.87E+02
+	IR-192	308.46		29.68	1.20E+02	6.69E+02	8.03E+02
		468.07		48.10	3.79E+01		6.69E+02
+	HG-203	279.19		77.30	-4.56E+03	1.12E+04	1.12E+04
+	TL-204	374.74		94.11	8.95E-02	8.16E-01	8.16E-01
		899.15		99.16	1.03E+01		1.97E+00
		911.74		91.10	-1.11E+00		1.81E+00
+	BI-207	569.67		97.72	-2.58E-01	7.51E-01	7.51E-01
		1063.62		74.90	2.24E-01		1.60E+00
+	TL-208	583.14		30.22	-4.97E-01	6.49E-01	2.39E+00
		860.37		4.48	5.49E+00		2.34E+01
		2614.66		35.85	0.00E+00		6.49E-01
+	BI-210M	262.00		45.00	-7.07E-01	1.04E+00	1.04E+00
		300.00		23.00	-3.58E-01		2.12E+00
+	PB-210	46.50		4.25	-2.43E+02	2.18E+01	2.18E+01
+	PB-211	404.84		2.90	4.57E+00	2.07E+01	2.07E+01
		831.96		2.90	-2.03E+01		3.35E+01
+	BI-212	727.17		11.80	-2.41E-01	7.01E+00	7.01E+00
		1620.62		2.75	2.61E+00		1.48E+01
+	PB-212	238.63		44.60	2.80E-01	1.07E+00	1.07E+00
		300.09		3.41	-2.41E+00		1.43E+01
+	BI-214	609.31		46.30	-6.79E-02	1.60E+00	1.60E+00
		1120.29		15.10	1.78E+00		7.15E+00
		1764.49		15.80	9.27E-01		2.52E+00
		2204.22		4.98	1.79E+00		7.80E+00
+	PB-214	295.21		19.19	2.74E+00	1.43E+00	2.62E+00
		351.92		37.19	-4.21E-01		1.43E+00
+	RN-219	401.80		6.50	5.10E+00	9.22E+00	9.22E+00
+	RA-223	323.87		3.88	-7.85E+00	1.31E+01	1.31E+01
+	RA-224	240.98		3.95	5.83E+00	1.22E+01	1.22E+01
+	RA-225	40.00		31.00	-2.98E+14	6.10E+13	6.10E+13
+	RA-226	186.21	*	3.28	7.76E+00	1.37E+01	1.37E+01
+	TH-227	50.10	*	8.40	9.23E+01	4.14E+00	2.35E+01
		236.00		11.50	-3.66E+00		4.14E+00
		256.20	*	6.30	5.42E+00		7.91E+00
+	AC-228	338.32		11.40	-1.86E+00	4.30E+00	4.59E+00
		911.07		27.70	8.81E-02		4.30E+00
		969.11		16.60	-6.68E-01		7.04E+00
+	TH-230	48.43	*	16.90	4.59E+01	1.17E+01	1.17E+01
		62.85		4.60	-1.55E+01		2.13E+01
		67.67	*	0.37	3.86E+02		2.53E+02
+	PA-231	283.67		1.60	-2.79E+00	2.13E+01	3.05E+01
		302.67		2.30	-1.42E+01		2.13E+01
+	TH-231	25.64		14.70	1.27E+03	9.54E+00	3.08E+01
		84.21		6.40	-1.52E+03		9.54E+00
+	PA-233	311.98		38.60	1.74E+07	2.85E+07	2.85E+07

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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	6.01E-01	1.80E+00	1.80E+00
		733.99		8.80	2.11E+00		9.44E+00
		946.00		12.00	-3.66E-01		1.08E+01
+	PA-234M	1001.03		0.92	-6.11E+01	1.21E+02	1.21E+02
+	TH-234	63.29		3.80	-3.18E+01	1.44E+01	1.44E+01
+	U-235	143.76		10.50	1.45E+00	3.54E+00	3.54E+00
		163.35		4.70	2.84E+01		1.07E+01
		205.31		4.70	9.62E-02		9.40E+00
+	NP-237	86.50	*	12.60	6.37E+02	7.30E+00	7.30E+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	3.47E+02	4.72E+00	4.72E+00
+	AM-243	74.67		66.00	-3.38E-01	8.90E-01	8.90E-01
+	CM-243	209.75		3.29	-6.42E+00	3.61E+00	1.44E+01
		228.14		10.60	1.32E-02		4.75E+00
		277.60		14.00	-6.52E-01		3.61E+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	3.24E+04	3.24E+04	1.71E+04	1.60E+04
NA-22	1274.54	99.94	8.16E-01	8.16E-01	1.39E-01	3.96E-01
NA-24	1368.53	99.99	4.23E-01	1.45E-01	1.08E-02	2.03E-01
	2754.09	99.86	1.45E-01		4.85E-02	5.85E-02
AL-26	1808.65	99.76	4.04E-01	4.04E-01	7.22E-02	1.92E-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	3.84E+00	3.84E+00	7.12E-01	1.84E+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	6.72E-01	6.13E-01	1.51E+00	3.35E-01
		78.34		96.00	6.13E-01		3.76E-01	3.05E-01
	SC-46	889.25		98.98	2.58E+02	2.49E+02	5.51E+01	1.28E+02
		1120.51		99.90	2.49E+02		6.22E+01	1.23E+02
	V-48	983.52		99.98	2.85E+12	1.32E+12	-2.58E+11	1.41E+12
		1312.10		97.50	1.32E+12		3.80E+11	6.38E+11
	CR-51	320.08		9.83	7.21E+07	7.21E+07	-3.48E+07	3.57E+07
	MN-54	834.83		99.97	4.25E+00	4.25E+00	-4.12E-01	2.10E+00
	CO-56	846.75		99.96	6.63E+02	4.56E+02	6.50E+01	3.28E+02
		1037.75		14.03	5.27E+03		1.44E+03	2.60E+03
		1238.25		67.00	5.53E+02		1.90E+01	2.69E+02
		1771.40		15.51	1.51E+03		-8.53E+02	7.15E+02
		2587.48		16.90	4.56E+02		-3.80E+01	1.77E+02
+	CO-57	122.06	*	85.51	4.02E+00	4.02E+00	1.33E+02	2.00E+00
		136.48	*	10.60	2.86E+01		1.53E+02	1.42E+01
	CO-58	810.76		99.40	5.94E+02	5.94E+02	-1.87E+02	2.94E+02
	FE-59	1099.22		56.50	5.82E+04	3.25E+04	-3.12E+03	2.88E+04
		1291.56		43.20	3.25E+04		8.32E+03	1.58E+04
+	CO-60	1173.22	*	100.00	2.27E+00	1.51E+00	2.72E+02	1.13E+00
		1332.49	*	100.00	1.51E+00		2.76E+02	7.46E-01
	ZN-65	1115.52		50.75	1.46E+01	1.46E+01	3.97E+00	7.22E+00
@	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	2.09E+02	3.39E+01	5.71E+03	1.04E+02
		136.00		59.50	3.39E+01		2.26E+02	1.68E+01
		264.65		59.80	3.62E+01		8.51E-01	1.79E+01
		279.53		25.20	8.67E+01		-4.13E+01	4.30E+01
		400.65		11.40	2.34E+02		-1.02E+01	1.16E+02
	RB-82	776.52		13.00	3.85E+08	3.85E+08	-2.55E+08	1.90E+08
	RB-83	520.41		46.00	2.62E+02	2.62E+02	-8.04E+01	1.29E+02
		529.64		30.30	3.96E+02		5.49E+01	1.96E+02
		552.65		16.40	8.46E+02		-4.68E+02	4.18E+02
	KR-85	513.99		0.43	1.61E+02	1.61E+02	-1.57E+01	7.95E+01
	SR-85	513.99		99.27	7.12E+02	7.12E+02	-6.96E+01	3.52E+02
+	Y-88	898.02	*	93.40	1.24E+02	4.98E+01	6.12E+02	6.15E+01
		1836.01	*	99.38	4.98E+01		5.97E+02	2.42E+01
	MO-93	263.06		56.72	9.34E-01	4.53E-01	-3.57E-01	4.63E-01
		684.67		99.68	8.66E-01		2.77E-01	4.28E-01
		1477.11		99.08	4.53E-01		2.48E-01	2.16E-01
	NB-93M	16.57		9.43	4.17E+03	4.17E+03	0.00E+00	0.00E+00
	NB-94	702.63		100.00	7.94E-01	7.94E-01	-1.30E-01	3.92E-01
		871.10		100.00	1.06E+00		1.43E-01	5.24E-01
	NB-95	765.79		99.81	3.91E+05	3.91E+05	-8.17E+04	1.93E+05
@	NB-95M	235.69		25.00	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	ZR-95	724.18		43.70	2.32E+03	1.92E+03	-1.26E+03	1.15E+03
		756.72		55.30	1.92E+03		-1.59E+03	9.51E+02
@	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
	TC-99M	140.51		89.00	4.13E-01	4.13E-01	-4.12E-02	2.05E-01

Analysis Report for 2201045-01

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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-103	497.08		89.00	7.47E+04	7.47E+04	-1.74E+04	3.69E+04
	RU-106	621.84		9.80	2.62E+01	2.62E+01	3.80E-01	1.29E+01
	AG-108M	433.93		89.90	7.14E-01	7.14E-01	5.11E-01	3.54E-01
		614.37		90.40	8.25E-01		-9.67E-02	4.08E-01
		722.95		90.50	9.14E-01		-2.68E-01	4.52E-01
+	CD-109	88.03	*	3.72	6.61E+01	6.61E+01	5.76E+03	3.30E+01
	AG-110M	657.75		93.14	1.24E+01	1.08E+01	-1.09E+00	6.16E+00
		677.61		10.53	4.58E+01		-1.12E+00	2.26E+01
		706.67		16.46	2.98E+01		1.46E+01	1.47E+01
		763.93		21.98	2.48E+01		1.56E+01	1.23E+01
		884.67		21.98	3.13E+01		8.35E+00	1.55E+01
		1384.27		23.94	1.08E+01		6.94E-01	5.20E+00
	CD-113M	263.70		0.02	2.26E+03	2.26E+03	-6.90E+02	1.12E+03
+	SN-113	255.12	*	1.93	1.36E+03	7.20E+01	9.31E+02	6.73E+02
		391.69	*	64.90	7.20E+01		3.23E+02	3.58E+01
	TE-123M	159.00		84.10	2.02E+01	2.02E+01	-1.02E+01	1.00E+01
	SB-124	602.71		97.87	1.46E+03	1.46E+03	-5.96E+02	7.20E+02
		645.85		7.26	2.10E+04		9.67E+03	1.04E+04
		722.78		11.10	1.44E+04		-4.23E+03	7.13E+03
		1691.02		49.00	1.50E+03		7.06E+02	7.11E+02
	I-125	35.49		6.49	2.94E+04	2.94E+04	3.36E+04	1.46E+04
	SB-125	176.33		6.89	8.88E+00	3.33E+00	5.95E+00	4.40E+00
		427.89		29.33	3.33E+00		-4.02E-01	1.65E+00
		463.38		10.35	1.03E+01		6.47E+00	5.13E+00
		600.56		17.80	6.41E+00		-3.98E-02	3.17E+00
		635.90		11.32	1.07E+01		4.58E+00	5.27E+00
	SB-126	414.70		83.30	7.17E-01	7.17E-01	-9.22E-02	3.55E-01
		666.33		99.60	8.29E-01		3.96E-02	4.10E-01
		695.00		99.60	7.96E-01		1.16E-01	3.94E-01
		720.50		53.80	1.51E+00		4.63E-01	7.47E-01
+	SN-126	87.57	*	37.00	2.49E+00	2.49E+00	2.17E+02	1.24E+00
@	SB-127	473.00		25.00	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		685.00		35.70	1.00E+26		1.00E+26	1.00E+20
@		783.80		14.70	1.00E+26		1.00E+26	1.00E+20
	I-129	29.78		57.00	2.26E+00	2.26E+00	-3.09E+01	1.12E+00
		33.60		13.20	9.02E+00		4.89E+01	4.49E+00
		39.58		7.52	1.03E+01		-4.64E+01	5.13E+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		34.06	1.91E+00	9.83E-01	-3.21E+00	9.53E-01
		302.84		18.33	3.00E+00		-2.01E+00	1.49E+00
		356.01		62.05	9.83E-01		6.72E-01	4.87E-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	1.52E+01	1.38E+00	-7.25E+00	7.53E+00
		569.32		15.43	8.39E+00		-2.88E+00	4.15E+00
		604.70		97.60	1.38E+00		-2.27E-02	6.82E-01
		795.84		85.40	1.96E+00		-1.40E+00	9.67E-01
		801.93		8.73	1.93E+01		-2.78E+00	9.56E+00

Analysis Report for 2201045-01

GAS-2001

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CS-135	268.24		16.00	3.06E+00	3.06E+00	2.74E-01	1.52E+00
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	5.71E+15	1.11E+15	2.35E+15	2.83E+15
		163.89		4.61	1.23E+16		3.29E+16	6.14E+15
		176.55		13.56	3.26E+15		2.19E+15	1.62E+15
		273.65		12.66	4.31E+15		-1.57E+15	2.14E+15
		340.57		48.50	1.22E+15		-3.72E+14	6.02E+14
		818.50		99.70	1.11E+15		-1.30E+14	5.47E+14
		1048.07		79.60	1.60E+15		-2.48E+14	7.92E+14
		1235.34		19.70	3.39E+15		2.38E+15	1.65E+15
+	CS-137	661.65	*	85.12	1.54E+00	1.54E+00	1.69E+02	7.66E-01
	LA-138	788.74		34.00	2.70E+00	5.96E-01	1.46E+00	1.33E+00
		1435.80		66.00	5.96E-01		-6.81E-02	2.85E-01
+	CE-139	165.85	*	80.35	1.81E+01	1.81E+01	1.95E+02	8.98E+00
	BA-140	162.64		6.70	1.84E+16	7.34E+15	-4.68E+17	9.13E+15
		304.84		4.50	3.39E+16		6.52E+15	1.68E+16
		423.70		3.20	5.99E+16		-1.30E+16	2.97E+16
		437.55		2.00	9.82E+16		5.48E+15	4.86E+16
		537.32		25.00	7.34E+15		-4.25E+15	3.63E+15
	LA-140	328.77		20.50	7.68E+15	1.44E+15	-3.30E+15	3.80E+15
		487.03		45.50	4.18E+15		-4.48E+14	2.07E+15
		815.85		23.50	1.26E+16		-2.23E+15	6.21E+15
		1596.49		95.49	1.44E+15		3.43E+14	6.90E+14
	CE-141	145.44		48.40	9.56E+05	9.56E+05	-9.05E+04	4.74E+05
@	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	1.79E+01	1.79E+01	-2.09E+02	8.87E+00
	PM-144	476.78		42.00	5.53E+00	2.65E+00	2.91E+00	2.74E+00
		618.01		98.60	2.65E+00		-6.97E-03	1.31E+00
		696.49		99.49	2.81E+00		5.02E-01	1.39E+00
	PM-145	36.85		21.70	4.25E+00	2.27E+00	9.97E+00	2.11E+00
		37.36		39.70	2.27E+00		4.05E+00	1.13E+00
		42.30		15.10	5.62E+00		-1.44E+00	2.80E+00
		72.40		2.31	2.80E+01		1.98E+01	1.39E+01
	PM-146	453.90		39.94	2.07E+00	2.07E+00	2.57E-01	1.03E+00
		735.90		14.01	7.41E+00		-2.45E+00	3.66E+00
		747.13		13.10	8.09E+00		-2.88E-01	4.00E+00
	ND-147	91.11		28.90	1.59E+18	1.59E+18	-2.67E+20	7.89E+17
		531.02		13.10	5.06E+18		1.55E+17	2.50E+18
@	PM-149	285.90		3.10	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	EU-152	121.78		20.50	4.14E+00	2.90E+00	1.13E+02	2.06E+00
		244.69		5.40	9.72E+00		1.89E+00	4.82E+00
		344.27		19.13	3.01E+00		5.70E-02	1.49E+00
		778.89		9.10	1.08E+01		2.95E-01	5.33E+00
		964.01		10.40	1.28E+01		7.88E-01	6.33E+00
		1085.78		7.22	1.78E+01		2.61E+00	8.82E+00
		1112.02		9.60	1.34E+01		1.79E+00	6.62E+00
		1407.95		14.94	2.90E+00		1.14E+00	1.39E+00
	GD-153	97.43		31.30	8.06E+00	8.06E+00	4.64E+00	4.00E+00
		103.18		22.20	1.13E+01		2.89E+00	5.62E+00

Analysis Report for 2201045-01

GAS-2001

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-154	123.07		40.50	2.20E+00	1.64E+00	5.98E+01	1.10E+00
		723.30		19.70	4.77E+00		-2.58E+00	2.36E+00
		873.19		11.50	1.06E+01		-4.84E+00	5.26E+00
		996.32		10.30	1.29E+01		1.03E+01	6.36E+00
		1004.76		17.90	7.29E+00		2.04E+00	3.61E+00
		1274.45		35.50	1.64E+00		2.78E-01	7.94E-01
+	EU-155	86.50	*	30.90	3.83E+00	2.37E+00	3.34E+02	1.91E+00
		105.30		20.70	2.37E+00		3.67E-01	1.18E+00
	EU-156	811.77		10.40	1.01E+14	7.62E+13	-3.94E+12	4.98E+13
		1153.47		7.20	1.44E+14		5.54E+12	7.09E+13
		1230.71		8.90	7.62E+13		1.17E+12	3.72E+13
	HO-166M	184.41		72.60	5.72E-01	5.72E-01	-2.23E-01	2.84E-01
		280.45		29.60	1.66E+00		1.02E+00	8.22E-01
		410.94		11.10	5.41E+00		1.53E+00	2.68E+00
		711.69		54.10	1.46E+00		5.33E-02	7.21E-01
+	TM-171	66.72	*	0.14	1.28E+03	1.28E+03	1.95E+03	6.39E+02
	HF-172	67.35		5.31	2.29E+01	6.27E+00	5.14E+01	1.14E+01
		125.82		11.30	6.27E+00		-3.26E+02	3.11E+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	1.81E+01	5.68E+00	-4.91E+00	8.98E+00
		272.11		21.20	5.68E+00		-5.92E-01	2.81E+00
	HF-175	343.40		84.00	4.25E+02	4.25E+02	1.74E+02	2.10E+02
	LU-176	88.34		13.30	1.02E+01	5.06E-01	5.93E+02	5.09E+00
		201.83		86.00	5.06E-01		1.03E-02	2.51E-01
		306.78		94.00	5.31E-01		-2.13E-01	2.63E-01
	HF-181	133.02		41.70	4.16E+04	3.52E+04	1.51E+03	2.07E+04
		345.85		17.20	1.44E+05		-1.50E+04	7.12E+04
		482.03		82.80	3.52E+04		-1.84E+04	1.74E+04
	TA-182	67.75		41.20	8.14E+01	8.14E+01	1.83E+02	4.05E+01
		1121.30		34.90	1.64E+02		-4.12E+01	8.08E+01
		1189.05		16.23	2.72E+02		9.20E+01	1.34E+02
		1221.41		26.98	1.30E+02		3.49E+00	6.33E+01
		1231.02		11.44	2.87E+02		4.40E+00	1.40E+02
	IR-192	308.46		29.68	8.03E+02	6.69E+02	1.20E+02	3.98E+02
		468.07		48.10	6.69E+02		3.79E+01	3.31E+02
	HG-203	279.19		77.30	1.12E+04	1.12E+04	-4.56E+03	5.54E+03
	TL-204	374.74		94.11	8.16E-01	8.16E-01	8.95E-02	4.04E-01
		899.15		99.16	1.97E+00		1.03E+01	9.75E-01
		911.74		91.10	1.81E+00		-1.11E+00	8.97E-01
	BI-207	569.67		97.72	7.51E-01	7.51E-01	-2.58E-01	3.71E-01
		1063.62		74.90	1.60E+00		2.24E-01	7.90E-01
	TL-208	583.14		30.22	2.39E+00	6.49E-01	-4.97E-01	1.18E+00
		860.37		4.48	2.34E+01		5.49E+00	1.16E+01
		2614.66		35.85	6.49E-01		0.00E+00	2.87E-01
	BI-210M	262.00		45.00	1.04E+00	1.04E+00	-7.07E-01	5.17E-01
		300.00		23.00	2.12E+00		-3.58E-01	1.05E+00
	PB-210	46.50		4.25	2.18E+01	2.18E+01	-2.43E+02	1.08E+01
	PB-211	404.84		2.90	2.07E+01	2.07E+01	4.57E+00	1.02E+01
		831.96		2.90	3.35E+01		-2.03E+01	1.66E+01
	BI-212	727.17		11.80	7.01E+00	7.01E+00	-2.41E-01	3.47E+00
		1620.62		2.75	1.48E+01		2.61E+00	7.08E+00

Analysis Report for 2201045-01

GAS-2001

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PB-212	238.63		44.60	1.07E+00	1.07E+00	2.80E-01	5.30E-01
		300.09		3.41	1.43E+01		-2.41E+00	7.09E+00
	BI-214	609.31		46.30	1.60E+00	1.60E+00	-6.79E-02	7.90E-01
		1120.29		15.10	7.15E+00		1.78E+00	3.53E+00
		1764.49		15.80	2.52E+00		9.27E-01	1.20E+00
		2204.22		4.98	7.80E+00		1.79E+00	3.66E+00
	PB-214	295.21		19.19	2.62E+00	1.43E+00	2.74E+00	1.30E+00
		351.92		37.19	1.43E+00		-4.21E-01	7.09E-01
	RN-219	401.80		6.50	9.22E+00	9.22E+00	5.10E+00	4.57E+00
	RA-223	323.87		3.88	1.31E+01	1.31E+01	-7.85E+00	6.46E+00
	RA-224	240.98		3.95	1.22E+01	1.22E+01	5.83E+00	6.03E+00
	RA-225	40.00		31.00	6.10E+13	6.10E+13	-2.98E+14	3.03E+13
+	RA-226	186.21	*	3.28	1.37E+01	1.37E+01	7.76E+00	6.79E+00
	TH-227	50.10	*	8.40	2.35E+01	4.14E+00	9.23E+01	1.18E+01
		236.00		11.50	4.14E+00		-3.66E+00	2.05E+00
		256.20	*	6.30	7.91E+00		5.42E+00	3.92E+00
	AC-228	338.32		11.40	4.59E+00	4.30E+00	-1.86E+00	2.27E+00
		911.07		27.70	4.30E+00		8.81E-02	2.13E+00
		969.11		16.60	7.04E+00		-6.68E-01	3.48E+00
	TH-230	48.43	*	16.90	1.17E+01	1.17E+01	4.59E+01	5.84E+00
		62.85		4.60	2.13E+01		-1.55E+01	1.06E+01
		67.67	*	0.37	2.53E+02		3.86E+02	1.26E+02
	PA-231	283.67		1.60	3.05E+01	2.13E+01	-2.79E+00	1.51E+01
		302.67		2.30	2.13E+01		-1.42E+01	1.05E+01
	TH-231	25.64		14.70	3.08E+01	9.54E+00	1.27E+03	1.53E+01
		84.21		6.40	9.54E+00		-1.52E+03	4.75E+00
	PA-233	311.98		38.60	2.85E+07	2.85E+07	1.74E+07	1.41E+07
	PA-234	131.20		20.40	1.80E+00	1.80E+00	6.01E-01	8.91E-01
		733.99		8.80	9.44E+00		2.11E+00	4.66E+00
		946.00		12.00	1.08E+01		-3.66E-01	5.36E+00
	PA-234M	1001.03		0.92	1.21E+02	1.21E+02	-6.11E+01	5.98E+01
	TH-234	63.29		3.80	1.44E+01	1.44E+01	-3.18E+01	7.17E+00
	U-235	143.76		10.50	3.54E+00	3.54E+00	1.45E+00	1.76E+00
		163.35		4.70	1.07E+01		2.84E+01	5.30E+00
		205.31		4.70	9.40E+00		9.62E-02	4.66E+00
+	NP-237	86.50	*	12.60	7.30E+00	7.30E+00	6.37E+02	3.64E+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	4.72E+00	4.72E+00	3.47E+02	2.36E+00
	AM-243	74.67		66.00	8.90E-01	8.90E-01	-3.38E-01	4.43E-01
	CM-243	209.75		3.29	1.44E+01	3.61E+00	-6.42E+00	7.12E+00
		228.14		10.60	4.75E+00		1.32E-02	2.35E+00
		277.60		14.00	3.61E+00		-6.52E-01	1.79E+00

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

Analysis Report for 2201045-01
GAS-2001

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-2001

Elapsed Live time: 1800
Elapsed Real Time: 1834

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	6
25:	253	415	32583	8417	1916	1268	1323	1398
33:	2270	3984	2843	1694	1480	2144	1974	1887
41:	1731	1872	2129	2459	2854	2901	3063	3477
49:	4083	5709	7447	7511	7033	6935	6972	7046
57:	7395	7695	8217	15688	101311	31002	2341	2333
65:	2351	2661	3033	3487	3691	3721	3604	3634
73:	3388	3361	3353	3486	3196	3265	3411	3354
81:	3227	3208	3235	3434	3638	3670	3757	4319
89:	39405	45928	2765	1561	1479	1502	1441	1432
97:	1443	1454	1402	1531	1471	1402	1371	1443
105:	1506	1402	1428	1415	1395	1400	1451	1376
113:	1441	1469	1473	1473	1495	1446	1480	1433
121:	1517	1862	11946	10970	1359	1149	1148	1086
129:	1150	1164	1215	1109	1175	1108	1219	1182
137:	1756	2992	1300	1122	1110	1069	1122	1124
145:	1120	1148	1056	1096	1058	1088	1040	1074
153:	1061	1068	1019	1088	1099	1015	1032	1026
161:	1050	1043	1046	1044	1108	1415	4330	2189
169:	962	1008	1008	966	1003	938	953	1009
177:	1015	996	1008	931	944	963	1031	985
185:	1027	1064	1090	1168	1184	1110	1107	1079
193:	1145	1085	1118	1046	1059	1064	1015	1126
201:	1048	1035	1049	1024	1096	997	1111	1040
209:	1051	1081	1038	1091	1135	1158	1102	1159
217:	1188	1242	1190	1187	1156	1128	1176	1101
225:	1106	1095	1052	1094	1162	1058	1101	1092
233:	1004	1089	1076	1059	1031	940	1000	1075
241:	1007	1000	957	993	958	991	972	986
249:	974	945	950	886	900	930	888	1041
257:	952	899	869	868	868	840	874	860
265:	814	909	893	922	881	879	905	878
273:	827	821	853	853	851	853	782	839
281:	825	833	851	856	818	805	777	823
289:	742	856	818	787	765	832	783	790
297:	858	837	752	755	770	751	732	712
305:	746	777	790	723	743	765	807	769
313:	727	754	748	700	713	736	673	756
321:	710	731	716	750	698	723	707	767
329:	721	701	713	633	746	724	700	754
337:	750	743	714	687	683	728	702	700
345:	719	702	690	684	667	697	677	712
353:	673	684	729	721	717	674	697	675
361:	652	712	673	672	647	669	701	688

369:	637	687	652	653	710	722	626	660

Sample Title: GAS-2001

Channel								
377:	674	700	645	681	687	702	743	702
385:	702	685	696	674	699	717	778	1584
393:	1518	758	671	658	709	671	674	655
401:	693	722	687	731	728	710	675	673
409:	667	698	723	661	690	671	679	671
417:	671	664	670	690	718	655	677	675
425:	670	755	709	738	700	693	631	649
433:	738	710	692	690	700	699	667	712
441:	710	657	648	695	681	726	666	745
449:	702	701	644	728	735	695	664	710
457:	737	680	743	694	691	742	717	771
465:	711	708	681	710	737	671	742	695
473:	709	724	693	664	683	673	629	611
481:	565	574	536	557	548	558	556	558
489:	496	547	542	549	551	529	516	545
497:	544	505	506	517	547	538	512	490
505:	493	490	479	485	502	537	588	552
513:	535	519	483	509	490	493	485	475
521:	469	485	443	487	476	451	462	470
529:	451	443	444	462	421	463	447	423
537:	425	430	420	439	436	466	457	399
545:	391	425	405	426	436	405	404	418
553:	451	370	411	373	449	390	455	388
561:	387	399	409	367	401	386	382	411
569:	381	399	419	405	359	400	430	405
577:	386	423	381	387	402	420	386	425
585:	398	378	352	437	392	381	375	395
593:	387	372	376	372	385	384	379	373
601:	406	358	368	394	392	372	410	399
609:	362	402	382	354	379	412	364	392
617:	348	401	377	374	403	353	383	384
625:	351	378	371	392	369	381	367	359
633:	370	423	381	355	394	349	430	377
641:	377	387	387	372	398	396	398	376
649:	396	334	398	367	394	374	394	377
657:	417	422	528	1721	11255	22670	7845	668
665:	374	380	390	322	364	383	334	371
673:	368	370	375	348	396	353	355	307
681:	341	332	356	375	336	308	354	329
689:	351	321	364	330	370	330	348	361
697:	359	373	376	329	356	336	351	348
705:	350	359	318	353	329	335	312	313
713:	366	348	340	327	337	329	335	376
721:	346	347	369	339	351	336	355	412
729:	339	358	381	331	325	335	363	357
737:	376	363	322	352	373	350	325	342
745:	388	354	354	348	344	351	350	388
753:	357	359	334	399	372	364	329	331
761:	396	386	375	361	371	378	322	373
769:	350	381	323	371	382	377	369	381
777:	349	330	382	359	395	392	357	374
785:	360	373	362	390	368	382	380	410
793:	361	355	410	390	362	355	359	394

801:	395	341	374	372	380	404	383	376

Sample Title: GAS-2001

Channel								
809:	397	383	349	385	390	384	383	397
817:	374	385	402	390	439	425	420	427
825:	431	407	421	417	392	340	397	403
833:	395	409	393	423	387	394	450	411
841:	377	394	420	410	432	434	406	418
849:	412	380	439	384	415	443	405	400
857:	425	397	424	439	461	452	407	459
865:	410	418	405	434	438	449	439	409
873:	401	434	442	425	454	450	458	448
881:	444	388	480	503	486	463	449	434
889:	446	451	479	444	449	432	492	552
897:	962	1266	790	477	491	464	451	490
905:	462	439	498	523	489	502	509	505
913:	502	498	486	572	493	521	534	547
921:	529	507	467	509	524	520	514	524
929:	558	498	508	480	514	529	538	532
937:	554	518	547	538	589	507	574	587
945:	569	548	546	550	559	544	605	566
953:	583	576	616	534	535	565	534	508
961:	466	521	519	462	453	435	459	422
969:	449	422	438	422	401	449	421	410
977:	437	405	391	377	369	401	404	374
985:	410	407	379	406	430	395	374	394
993:	364	402	430	428	421	399	369	380
1001:	351	369	362	380	386	411	391	391
1009:	390	373	423	408	348	396	361	389
1017:	382	391	369	363	391	391	377	390
1025:	370	385	381	326	376	389	369	366
1033:	370	366	383	360	347	350	381	349
1041:	324	360	371	377	331	319	359	387
1049:	348	342	376	367	320	353	335	354
1057:	370	354	397	376	384	324	360	356
1065:	369	358	330	354	350	323	338	320
1073:	340	365	353	346	360	365	346	342
1081:	360	392	358	363	335	347	381	360
1089:	381	343	336	354	348	366	366	361
1097:	380	353	378	325	390	388	357	388
1105:	349	367	370	378	343	335	370	354
1113:	362	326	336	304	333	294	317	281
1121:	269	267	264	261	250	278	248	217
1129:	225	244	262	236	228	231	227	223
1137:	220	243	219	204	217	220	215	190
1145:	201	214	212	213	221	233	187	212
1153:	214	185	202	195	201	185	193	208
1161:	199	192	195	218	205	224	236	290
1169:	505	1319	5137	14358	15584	4409	446	176
1177:	180	187	139	159	152	173	157	180
1185:	162	165	110	155	137	156	160	136
1193:	144	155	133	142	133	124	114	126
1201:	131	124	115	106	113	106	96	106
1209:	110	103	96	91	125	111	103	105
1217:	95	102	87	93	87	86	79	87
1225:	80	80	108	79	86	58	75	69

1233:	63	72	77	67	82	69	50	62

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Channel								
1241:	52	53	74	70	64	53	83	55
1249:	55	65	51	62	46	54	56	48
1257:	48	56	50	54	54	48	44	42
1265:	56	48	51	51	54	55	47	47
1273:	44	52	50	48	56	38	44	47
1281:	39	51	41	60	45	37	43	53
1289:	51	47	49	40	53	52	51	50
1297:	52	50	43	48	48	29	49	40
1305:	41	42	48	56	44	42	45	53
1313:	50	40	44	41	37	49	52	55
1321:	63	69	74	73	93	120	199	462
1329:	1392	5110	12740	13115	4022	397	59	55
1337:	62	40	51	51	41	43	35	40
1345:	43	40	40	32	36	41	38	33
1353:	29	33	33	36	32	25	31	27
1361:	24	31	34	35	25	33	36	31
1369:	28	33	25	28	25	27	34	30
1377:	35	34	23	21	34	24	28	32
1385:	30	33	23	33	28	29	25	36
1393:	21	33	18	20	25	25	21	13
1401:	19	20	29	25	24	26	22	26
1409:	28	24	23	15	28	27	24	40
1417:	24	25	32	23	28	27	25	20
1425:	26	23	21	27	18	24	28	23
1433:	21	20	28	27	25	23	25	23
1441:	17	25	34	23	25	15	30	23
1449:	20	21	29	21	22	19	18	23
1457:	32	28	32	21	22	18	24	26
1465:	25	24	23	32	14	19	21	17
1473:	33	27	26	17	21	25	16	19
1481:	18	13	21	27	25	22	26	27
1489:	29	27	28	20	22	23	15	30
1497:	18	24	22	23	24	23	30	20
1505:	22	18	28	25	20	23	19	16
1513:	25	22	26	22	26	24	34	25
1521:	15	20	30	27	25	13	18	21
1529:	30	30	32	23	25	16	27	22
1537:	28	31	16	18	29	22	21	31
1545:	27	29	19	29	29	25	22	30
1553:	14	27	18	20	15	22	22	26
1561:	26	20	29	24	25	28	21	16
1569:	20	25	21	24	22	21	24	16
1577:	21	26	23	18	29	22	24	21
1585:	30	16	32	19	30	21	22	28
1593:	31	23	20	22	20	36	24	26
1601:	26	27	27	22	20	26	30	22
1609:	24	21	16	14	20	22	28	17
1617:	26	23	25	13	22	21	19	12
1625:	18	12	18	16	23	17	15	22
1633:	15	17	20	17	12	17	15	19
1641:	20	16	18	14	19	21	16	20
1649:	18	12	18	16	19	8	13	15
1657:	18	21	18	15	17	17	11	12

1665:	13	21	11	24	17	12	29	15

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Channel								
1673:	15	17	5	12	9	15	19	12
1681:	14	14	7	21	17	11	10	17
1689:	16	26	16	14	16	16	8	16
1697:	14	17	11	12	12	23	12	16
1705:	16	14	11	20	9	13	18	14
1713:	15	16	10	12	12	10	14	15
1721:	17	16	19	13	10	12	13	7
1729:	15	15	12	20	17	10	12	16
1737:	11	14	8	8	17	9	18	12
1745:	12	12	12	14	15	15	15	13
1753:	12	14	13	8	8	11	23	13
1761:	11	10	12	11	13	14	14	11
1769:	14	9	10	6	7	12	15	15
1777:	12	9	12	16	12	12	10	10
1785:	16	7	11	12	12	10	10	11
1793:	16	12	15	13	8	11	6	11
1801:	10	6	15	13	11	15	10	15
1809:	14	10	16	14	17	11	9	11
1817:	18	15	7	14	11	10	15	19
1825:	11	13	9	17	23	26	43	113
1833:	226	380	270	88	19	14	15	14
1841:	19	15	9	12	11	9	7	16
1849:	15	11	18	10	14	9	7	7
1857:	13	7	11	8	10	14	10	10
1865:	12	10	10	11	13	15	7	12
1873:	8	14	13	9	7	13	9	9
1881:	8	8	9	13	8	12	15	7
1889:	7	10	9	8	11	9	10	11
1897:	10	2	5	8	10	13	5	14
1905:	14	9	13	6	4	9	13	11
1913:	10	9	9	11	12	10	12	14
1921:	9	10	6	10	9	9	9	6
1929:	12	10	12	7	15	8	11	11
1937:	10	9	13	9	11	12	8	7
1945:	6	14	12	4	13	9	8	10
1953:	12	13	9	8	6	10	10	5
1961:	9	8	10	6	10	16	6	14
1969:	13	11	10	14	9	5	5	4
1977:	7	6	17	11	11	9	7	9
1985:	19	8	5	8	10	12	13	9
1993:	11	6	5	10	18	8	11	13
2001:	8	9	8	10	13	8	11	6
2009:	7	7	12	12	11	12	4	9
2017:	10	7	13	12	6	12	8	10
2025:	11	7	4	11	15	6	11	4
2033:	11	17	10	11	9	14	10	12
2041:	15	15	5	8	11	8	3	4
2049:	5	10	13	8	5	9	9	9
2057:	7	10	8	6	6	6	7	5
2065:	8	11	7	12	15	9	9	10
2073:	10	9	9	11	12	9	6	6
2081:	9	7	6	11	13	8	8	13
2089:	8	6	9	10	6	8	6	5

2097:	10	16	7	7	8	9	17	13

Sample Title: GAS-2001

Channel								
2105:	12	6	6	6	5	10	9	7
2113:	9	5	6	5	11	8	9	5
2121:	7	10	13	10	4	8	11	5
2129:	2	5	6	10	4	8	9	7
2137:	10	12	14	6	8	11	12	10
2145:	15	8	7	12	10	4	10	5
2153:	9	3	7	7	7	8	11	3
2161:	5	4	9	6	5	6	6	3
2169:	10	12	6	7	16	8	8	3
2177:	7	7	5	9	9	13	10	13
2185:	9	8	8	5	4	13	7	8
2193:	6	7	13	11	7	9	5	10
2201:	9	13	9	7	12	6	4	6
2209:	7	8	8	6	11	6	8	10
2217:	4	11	11	12	6	9	12	3
2225:	10	9	6	7	8	10	12	10
2233:	13	10	5	5	9	9	7	14
2241:	6	6	7	7	8	15	12	11
2249:	10	5	12	9	7	5	5	7
2257:	8	7	10	4	8	9	12	10
2265:	6	6	13	6	10	10	9	6
2273:	9	15	13	7	6	10	7	7
2281:	9	5	11	8	4	9	10	8
2289:	8	10	7	11	9	5	9	5
2297:	5	5	6	8	3	8	4	6
2305:	2	9	3	4	4	11	10	10
2313:	8	6	9	7	4	9	8	4
2321:	11	8	5	5	2	8	8	2
2329:	2	2	5	4	9	3	4	2
2337:	4	3	5	3	5	7	4	3
2345:	9	5	9	5	3	2	8	5
2353:	7	6	3	3	8	7	6	3
2361:	8	4	4	4	2	2	2	3
2369:	1	5	4	4	3	1	3	0
2377:	2	2	4	3	7	3	1	2
2385:	1	2	0	3	2	3	3	4
2393:	3	2	1	1	3	1	4	2
2401:	2	0	4	2	2	0	1	2
2409:	1	0	0	1	2	0	0	1
2417:	2	2	1	1	0	3	1	2
2425:	2	1	0	2	1	0	2	3
2433:	3	4	1	1	2	3	0	0
2441:	2	1	1	1	3	3	3	0
2449:	1	0	2	0	0	1	2	4
2457:	0	0	1	2	0	0	2	1
2465:	1	1	2	2	3	3	1	0
2473:	2	0	1	1	0	1	1	0
2481:	2	3	0	2	2	2	1	0
2489:	1	2	1	2	1	3	3	2
2497:	5	9	23	54	99	164	112	42
2505:	7	0	1	1	0	1	2	1
2513:	0	1	1	0	1	0	1	1
2521:	0	0	3	0	1	0	0	0

2529:	0	1	0	1	0	0	0	0

Sample Title: GAS-2001

Channel								
2537:	0	0	0	1	0	0	2	0
2545:	0	1	1	3	0	1	0	0
2553:	0	0	0	2	2	1	0	0
2561:	0	1	0	1	1	2	0	1
2569:	1	1	0	1	1	0	0	0
2577:	0	0	0	1	0	1	2	0
2585:	0	0	0	1	0	1	1	0
2593:	1	0	0	0	1	0	1	0
2601:	0	1	1	1	1	1	0	0
2609:	3	5	5	5	2	0	0	0
2617:	0	0	0	0	0	1	0	0
2625:	0	0	0	0	0	1	0	0
2633:	0	0	1	0	0	1	2	0
2641:	0	0	0	0	0	0	0	0
2649:	0	1	0	0	0	0	0	0
2657:	0	1	0	0	0	2	0	1
2665:	0	0	0	0	0	0	0	0
2673:	0	0	0	0	1	0	0	1
2681:	0	0	0	0	1	0	0	0
2689:	0	0	0	0	0	1	1	0
2697:	0	0	0	1	0	0	0	1
2705:	0	0	0	0	1	0	0	0
2713:	0	0	0	0	0	0	0	0
2721:	0	1	0	1	0	1	2	4
2729:	7	5	3	2	0	0	0	0
2737:	0	0	0	0	0	1	0	1
2745:	0	0	2	0	0	1	0	0
2753:	1	2	0	0	0	0	0	0
2761:	0	0	0	0	0	0	0	1
2769:	0	1	0	1	0	0	1	0
2777:	1	0	0	0	0	1	0	1
2785:	0	0	0	0	0	0	0	0
2793:	0	1	0	0	1	0	2	0
2801:	0	0	0	1	1	0	0	0
2809:	2	0	0	0	0	0	0	1
2817:	0	0	0	0	1	0	0	0
2825:	0	0	0	0	0	0	0	1
2833:	0	0	1	0	0	0	0	0
2841:	0	1	0	0	0	0	0	0
2849:	0	0	0	0	0	0	1	0
2857:	1	1	0	0	0	0	0	0
2865:	1	0	0	0	0	0	0	0
2873:	0	1	0	0	0	0	1	0
2881:	1	1	0	0	1	2	1	1
2889:	0	0	0	0	0	2	0	0
2897:	0	0	1	0	0	0	0	0
2905:	1	0	0	0	0	0	0	0
2913:	1	0	0	0	0	0	0	1
2921:	0	0	0	0	0	0	0	0
2929:	0	0	0	0	0	0	0	0
2937:	0	0	1	0	0	0	0	0
2945:	0	0	0	0	0	0	0	0
2953:	0	0	0	0	0	0	0	1

2961:	0	0	0	0	0	0	1	0

Sample Title: GAS-2001

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	1	0	0
3001:	0	0	0	0	0	0	0	0
3009:	0	1	1	0	0	0	0	0
3017:	0	0	0	0	0	0	0	0
3025:	0	1	0	0	1	0	0	0
3033:	0	0	0	0	0	2	0	0
3041:	0	0	0	0	0	0	0	1
3049:	0	0	0	0	1	0	0	0
3057:	1	0	0	1	0	0	0	0
3065:	0	0	0	0	0	0	1	1
3073:	0	0	0	0	1	0	1	1
3081:	0	0	0	0	0	0	0	1
3089:	0	0	1	1	0	1	0	0
3097:	0	0	0	0	0	0	0	0
3105:	0	0	0	1	0	0	0	0
3113:	0	0	0	0	0	0	0	0
3121:	0	0	0	0	0	0	0	0
3129:	0	0	0	0	0	0	0	0
3137:	0	0	0	0	1	0	1	0
3145:	0	0	0	0	1	0	1	0
3153:	0	0	0	0	0	0	1	1
3161:	0	0	0	0	0	0	0	0
3169:	0	0	0	0	0	0	0	0
3177:	0	0	0	0	0	0	0	0
3185:	1	0	1	0	0	0	0	0
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	0
3217:	0	0	0	1	1	0	0	0
3225:	0	0	0	0	0	0	0	0
3233:	0	0	0	0	0	0	0	0
3241:	0	0	0	0	0	0	0	0
3249:	0	0	0	0	0	1	0	0
3257:	0	0	0	0	0	0	0	0
3265:	0	0	0	0	0	0	0	0
3273:	0	0	0	0	0	0	0	0
3281:	0	0	1	0	0	1	0	1
3289:	0	0	0	0	0	0	0	0
3297:	0	0	0	0	0	1	0	0
3305:	0	0	0	0	0	0	0	0
3313:	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	0	1	0	0	0
3353:	1	0	0	0	0	0	0	0
3361:	0	0	0	0	0	0	0	0
3369:	0	0	0	0	0	2	1	0
3377:	0	0	0	0	0	0	0	0
3385:	0	0	0	0	0	0	0	0

3393:	0	1	0	0	0	0	0	0

Sample Title: GAS-2001

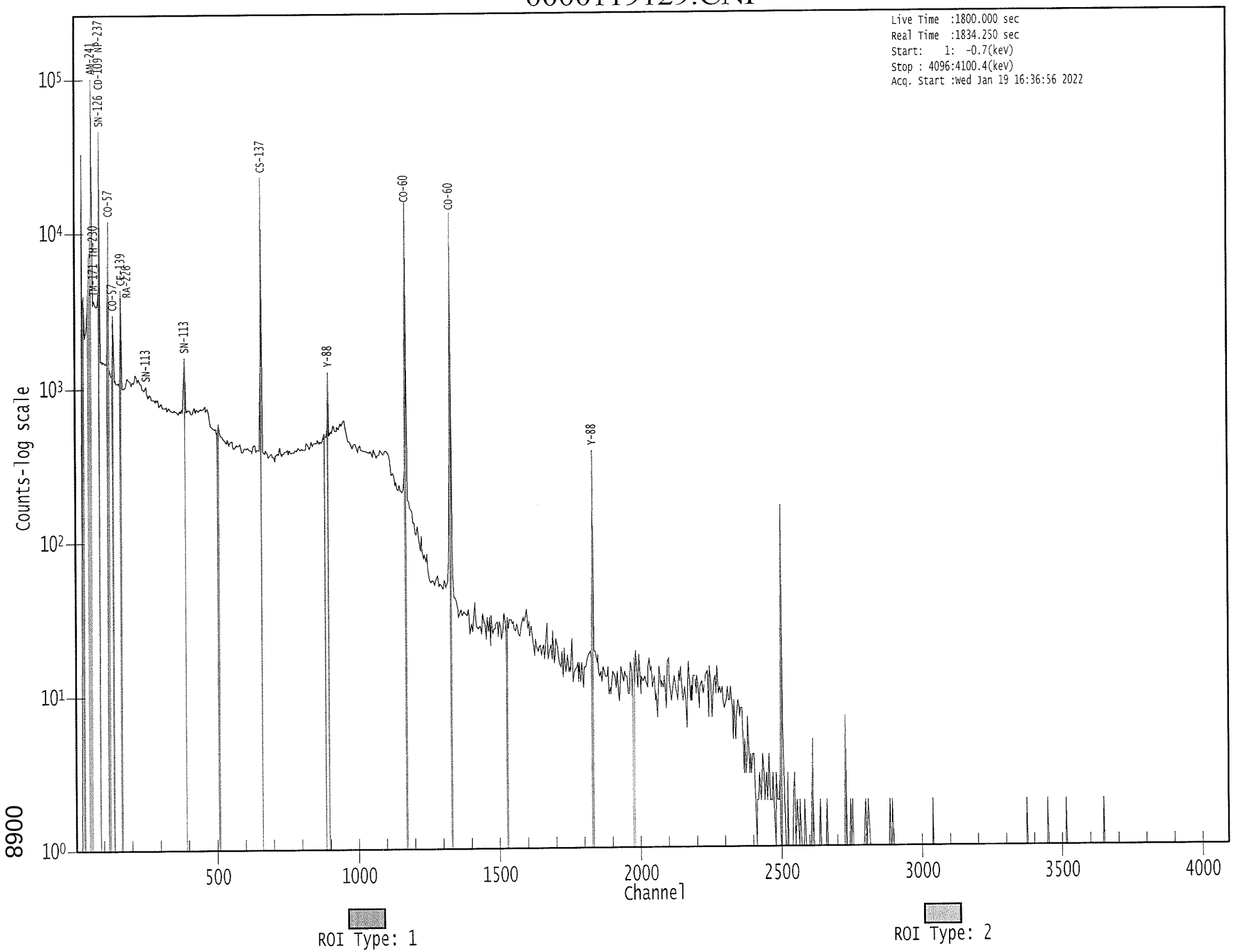
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	1	0	0	0	0
3417:	0	0	1	0	0	0	0	0
3425:	0	0	0	0	0	0	1	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	2
3449:	0	0	0	1	0	0	0	0
3457:	0	0	0	0	0	0	1	0
3465:	0	0	0	0	0	1	0	0
3473:	0	0	1	0	0	0	0	0
3481:	0	0	0	0	0	0	1	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	1	0	0	0
3505:	0	0	0	0	0	0	0	0
3513:	2	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	1	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	1	0	0	0
3577:	0	1	0	0	0	0	0	0
3585:	1	0	0	0	0	0	0	0
3593:	0	0	0	0	0	1	0	0
3601:	0	0	0	0	0	0	0	0
3609:	0	0	0	1	0	0	0	0
3617:	0	0	0	0	0	0	0	0
3625:	0	0	0	0	0	0	0	0
3633:	0	0	0	0	0	0	0	0
3641:	0	0	0	0	0	0	2	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	0	0	0
3673:	0	0	0	0	0	0	0	0
3681:	0	0	1	0	0	0	1	0
3689:	0	0	0	0	0	0	0	0
3697:	0	1	0	0	0	0	1	1
3705:	0	0	1	0	0	0	0	0
3713:	0	0	0	0	0	0	0	0
3721:	0	1	0	0	0	0	0	0
3729:	0	0	0	0	0	0	0	0
3737:	0	1	0	0	0	0	0	1
3745:	1	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	0	0	0	0	0
3777:	0	0	0	0	0	0	0	1
3785:	0	0	0	0	0	0	1	0
3793:	0	0	0	0	0	0	0	0
3801:	0	0	0	0	0	0	0	0
3809:	0	0	0	0	0	0	0	0
3817:	0	0	0	0	0	0	0	0

3825:	0	1	0	0	0	0	0	0

Sample Title: GAS-2001

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

0000119129.CNF



KB 1/19/22

Apex-Gamma

Analysis Report for 2201045-02
BLANK

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 2201045-02
Sample Description	: BLANK
Sample Type	: SOIL
Sample Size	: 3.735E+02 grams
Facility	: Countroom
Sample Taken On	: 1/19/2022 1:44:23PM
Acquisition Started	: 1/19/2022 4:26:27PM
Procedure	: GAS-2101 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-2101
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)	: 9 - 4096
Identification Energy Tolerance	: 2.500 keV
Energy Calibration Used Done On	: 11/22/2021
Efficiency Calibration Used Done On	: 11/20/2021
Efficiency Calibration Description	:
Sample Number	: 119128

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
1/20/22

Analysis Report for 2201045-02

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PEAK LOCATE REPORT

Peak Locate Performed on : 1/19/2022 5:26:30PM
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	77.22	77.15	0.0000	0.00
2	153.70	153.58	0.0000	0.00
3	419.49	419.21	0.0000	0.00
4	558.20	557.85	0.0000	0.00
5	650.91	650.50	0.0000	0.00
6	658.69	658.27	0.0000	0.00
7	664.27	663.86	0.0000	0.00
8	738.04	737.59	0.0000	0.00
9	771.94	771.47	0.0000	0.00
10	823.91	823.41	0.0000	0.00
11	897.22	896.69	0.0000	0.00
12	917.90	917.36	0.0000	0.00
13	1028.14	1027.55	0.0000	0.00
14	1167.43	1166.78	0.0000	0.00
15	1231.39	1230.71	0.0000	0.00
16	1370.73	1370.00	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 2201045-02

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PEAK ANALYSIS REPORT

Peak Analysis Performed on : 1/19/2022 5:26:30PM

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	77.22	74 -	80	77.15	2.51E+01	30.38	1.48E+02	3.45
	2	153.70	150 -	157	153.58	2.96E+01	24.41	7.88E+01	4.56
	3	419.49	416 -	422	419.21	1.90E+01	12.37	1.40E+01	2.59
	4	558.20	555 -	561	557.85	1.65E+01	13.17	1.69E+01	1.36
	5	650.91	646 -	653	650.50	1.21E+01	14.56	2.58E+01	2.42
M	6	658.69	656 -	666	658.27	9.85E+00	7.40	5.83E+00	3.03
m	7	664.27	656 -	666	663.86	1.25E+01	10.81	1.16E+01	3.03
	8	738.04	731 -	743	737.59	1.83E+01	13.44	1.15E+01	1.30
	9	771.94	767 -	774	771.47	8.63E+00	11.31	1.48E+01	2.10
	10	823.91	819 -	829	823.41	1.13E+01	12.91	1.54E+01	1.37
	11	897.22	894 -	900	896.69	7.50E+00	8.28	7.00E+00	2.96
	12	917.90	914 -	920	917.36	1.10E+01	6.63	0.00E+00	4.60
	13	1028.14	1023 -	1031	1027.55	1.10E+01	6.63	0.00E+00	6.20
	14	1167.43	1163 -	1170	1166.78	7.95E+00	7.48	4.10E+00	2.61
	15	1231.39	1227 -	1233	1230.71	8.25E+00	7.23	3.50E+00	1.91
	16	1370.73	1367 -	1373	1370.00	7.00E+00	5.29	0.00E+00	1.00

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 : 1/19/2022 5:26:30PM

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

Analysis Report for 2201045-02

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	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	77.22	74 -	80	2.51E+01	30.38	1.48E+02	2.36E+01
	2	153.70	150 -	157	2.96E+01	24.41	7.88E+01	1.80E+01
	3	419.49	416 -	422	1.90E+01	12.37	1.40E+01	7.21E+00
	4	558.20	555 -	561	1.65E+01	13.17	1.69E+01	8.52E+00
	5	650.91	646 -	653	1.21E+01	14.56	2.58E+01	1.05E+01
M	6	658.69	656 -	666	9.85E+00	7.40	5.83E+00	3.97E+00
m	7	664.27	656 -	666	1.25E+01	10.81	1.16E+01	5.60E+00
	8	738.04	731 -	743	1.83E+01	13.44	1.15E+01	8.52E+00
	9	771.94	767 -	774	8.63E+00	11.31	1.48E+01	7.95E+00
	10	823.91	819 -	829	1.13E+01	12.91	1.54E+01	9.06E+00
	11	897.22	894 -	900	7.50E+00	8.28	7.00E+00	5.10E+00
	12	917.90	914 -	920	1.10E+01	6.63	0.00E+00	0.00E+00
	13	1028.14	1023 -	1031	1.10E+01	6.63	0.00E+00	0.00E+00
	14	1167.43	1163 -	1170	7.95E+00	7.48	4.10E+00	4.04E+00
	15	1231.39	1227 -	1233	8.25E+00	7.23	3.50E+00	3.61E+00
	16	1370.73	1367 -	1373	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 : 1/19/2022 5:26:30PM

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

Tentative NID Library : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB
Peak Match Tolerance : 2.500 keV

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	77.22	74 -	80	77.15	2.51E+01	30.38	1.48E+02	TI-44
	2	153.70	150 -	157	153.58	2.96E+01	24.41	7.88E+01	CS-136
	3	419.49	416 -	422	419.21	1.90E+01	12.37	1.40E+01	.....
	4	558.20	555 -	561	557.85	1.65E+01	13.17	1.69E+01	.....
	5	650.91	646 -	653	650.50	1.21E+01	14.56	2.58E+01	.....
M	6	658.69	656 -	666	658.27	9.85E+00	7.40	5.83E+00	AG-110M
m	7	664.27	656 -	666	663.86	1.25E+01	10.81	1.16E+01	CE-143
									SB-126
	8	738.04	731 -	743	737.59	1.83E+01	13.44	1.15E+01	MO-99

Analysis Report for 2201045-02

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Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
								PM-146
9	771.94	767 -	774	771.47	8.63E+00	11.31	1.48E+01	.....
10	823.91	819 -	829	823.41	1.13E+01	12.91	1.54E+01	.....
11	897.22	894 -	900	896.69	7.50E+00	8.28	7.00E+00	Y-88
								TL-204
12	917.90	914 -	920	917.36	1.10E+01	6.63	0.00E+00	.....
13	1028.14	1023 -	1031	1027.55	1.10E+01	6.63	0.00E+00	.....
14	1167.43	1163 -	1170	1166.78	7.95E+00	7.48	4.10E+00	.....
15	1231.39	1227 -	1233	1230.71	8.25E+00	7.23	3.50E+00	TA-182
								EU-156
16	1370.73	1367 -	1373	1370.00	7.00E+00	5.29	0.00E+00	NA-24

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 : 1/19/2022 5:26:30PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	77.22	2.51E+01	30.38	4.45E-02	3.51E-03
	2	153.70	2.96E+01	24.41	3.42E-02	2.61E-03
	3	419.49	1.90E+01	12.37	1.26E-02	1.21E-03
	4	558.20	1.65E+01	13.17	9.21E-03	9.19E-04
	5	650.91	1.21E+01	14.56	7.82E-03	7.22E-04
M	6	658.69	9.85E+00	7.40	7.72E-03	7.06E-04
m	7	664.27	1.25E+01	10.81	7.65E-03	6.97E-04
	8	738.04	1.83E+01	13.44	6.86E-03	6.19E-04
	9	771.94	8.63E+00	11.31	6.55E-03	5.83E-04
	10	823.91	1.13E+01	12.91	6.13E-03	5.28E-04
	11	897.22	7.50E+00	8.28	5.64E-03	4.51E-04
	12	917.90	1.10E+01	6.63	5.51E-03	4.44E-04
	13	1028.14	1.10E+01	6.63	4.94E-03	4.12E-04
	14	1167.43	7.95E+00	7.48	4.39E-03	3.71E-04
	15	1231.39	8.25E+00	7.23	4.17E-03	3.48E-04
	16	1370.73	7.00E+00	5.29	3.78E-03	3.05E-04

Analysis Report for 2201045-02

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 1/19/2022 5:26:30PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000119050.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	77.22	2.51E+01	30.38			2.51E+01	3.04E+01
	2	153.70	2.96E+01	24.41			2.96E+01	2.44E+01
	3	419.49	1.90E+01	12.37			1.90E+01	1.24E+01
	4	558.20	1.65E+01	13.17	5.35E+00	3.91E+00	1.12E+01	1.37E+01
	5	650.91	1.21E+01	14.56			1.21E+01	1.46E+01
M	6	658.69	9.85E+00	7.40			9.85E+00	7.40E+00
m	7	664.27	1.25E+01	10.81			1.25E+01	1.08E+01
	8	738.04	1.83E+01	13.44			1.83E+01	1.34E+01
	9	771.94	8.63E+00	11.31			8.63E+00	1.13E+01
	10	823.91	1.13E+01	12.91			1.13E+01	1.29E+01
	11	897.22	7.50E+00	8.28			7.50E+00	8.28E+00
	12	917.90	1.10E+01	6.63			1.10E+01	6.63E+00
	13	1028.14	1.10E+01	6.63			1.10E+01	6.63E+00
	14	1167.43	7.95E+00	7.48			7.95E+00	7.48E+00
	15	1231.39	8.25E+00	7.23			8.25E+00	7.23E+00
	16	1370.73	7.00E+00	5.29	0.00E+00	0.00E+00	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 2201045-02

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AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 1/19/2022 5:26:30PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000119050.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	77.22	2.51E+01	30.38			2.51E+01	3.04E+01
	2	153.70	2.96E+01	24.41			2.96E+01	2.44E+01
	3	419.49	1.90E+01	12.37			1.90E+01	1.24E+01
	4	558.20	1.65E+01	13.17	5.35E+00	3.91E+00	1.12E+01	1.37E+01
	5	650.91	1.21E+01	14.56			1.21E+01	1.46E+01
M	6	658.69	9.85E+00	7.40			9.85E+00	7.40E+00
m	7	664.27	1.25E+01	10.81			1.25E+01	1.08E+01
	8	738.04	1.83E+01	13.44			1.83E+01	1.34E+01
	9	771.94	8.63E+00	11.31			8.63E+00	1.13E+01
	10	823.91	1.13E+01	12.91			1.13E+01	1.29E+01
	11	897.22	7.50E+00	8.28			7.50E+00	8.28E+00
	12	917.90	1.10E+01	6.63			1.10E+01	6.63E+00
	13	1028.14	1.10E+01	6.63			1.10E+01	6.63E+00
	14	1167.43	7.95E+00	7.48			7.95E+00	7.48E+00
	15	1231.39	8.25E+00	7.23			8.25E+00	7.23E+00
	16	1370.73	7.00E+00	5.29	0.00E+00	0.00E+00	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
			*		?
			*		?

Analysis Report for 2201045-02

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* = Energy line found in the spectrum.
- = Manually added nuclide.
? = Manually edited nuclide.
Energy Tolerance : 2.500 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000sigma

UNIDENTIFIED PEAKS

Peak Locate Performed on : 1/19/2022 5:26:30PM
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	77.22	6.96549E-03	60.57	Tol.	TI-44
	2	153.70	8.22866E-03	41.21	Tol.	CS-136
	3	419.49	5.27778E-03	32.55		
	4	558.20	3.10705E-03	61.43		
	5	650.91	3.36111E-03	60.17		
M	6	658.69	2.73595E-03	37.56	Tol.	AG-110M
m	7	664.27	3.46808E-03	43.27	Tol.	SB-126 CE-143
	8	738.04	5.06944E-03	36.81	Tol.	MO-99 PM-146
	9	771.94	2.39583E-03	65.59		
	10	823.91	3.13597E-03	57.19		
	11	897.22	2.08333E-03	55.18	Tol.	Y-88 TL-204
	12	917.90	3.05556E-03	30.15		
	13	1028.14	3.05556E-03	30.15		
	14	1167.43	2.20833E-03	47.06		
	15	1231.39	2.29167E-03	43.81	Tol.	EU-156 TA-182
	16	1370.73	1.94444E-03	37.80	Tol.	NA-24

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 2201045-02

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NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

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

* = Energy line found in the spectrum.
\- = Manually added nuclide.
? = Manually edited nuclide.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 2.500 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

? = 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 2201045-02
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UNIDENTIFIED PEAKS

Peak Locate Performed on : 1/19/2022 5:26:30PM
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	77.22	6.96549E-03	60.57	Tol.	TI-44
	2	153.70	8.22866E-03	41.21	Tol.	CS-136
	3	419.49	5.27778E-03	32.55		
	4	558.20	3.10705E-03	61.43		
	5	650.91	3.36111E-03	60.17		
M	6	658.69	2.73595E-03	37.56	Tol.	AG-110M
m	7	664.27	3.46808E-03	43.27	Tol.	SB-126
						CE-143
	8	738.04	5.06944E-03	36.81	Tol.	MO-99
						PM-146
	9	771.94	2.39583E-03	65.59		
	10	823.91	3.13597E-03	57.19		
	11	897.22	2.08333E-03	55.18	Tol.	Y-88
						TL-204
	12	917.90	3.05556E-03	30.15		
	13	1028.14	3.05556E-03	30.15		
	14	1167.43	2.20833E-03	47.06		
	15	1231.39	2.29167E-03	43.81	Tol.	EU-156
						TA-182
	16	1370.73	1.94444E-03	37.80	Tol.	NA-24

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 2201045-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59	10.42	-6.75E-02	4.34E-01	4.34E-01
+	NA-22	1274.54	99.94	5.80E-03	7.89E-02	7.89E-02
+	NA-24	1368.53	99.99	-8.84E-03	7.77E-02	8.42E-02
		2754.09	99.86	7.04E-03		7.77E-02
+	AL-26	1808.65	99.76	4.81E-02	1.03E-01	1.03E-01
+	K-40	1460.81	10.67	2.24E-01	8.37E-01	8.37E-01
+	AR-41	1293.64	99.16	2.98E-02	2.70E-01	2.70E-01
+	TI-44	67.88	94.40	-5.62E-03	2.54E-02	2.78E-02
		78.34	96.00	-2.29E-03		2.54E-02
+	SC-46	889.25	98.98	1.88E-02	5.80E-02	8.41E-02
		1120.51	99.90	-3.74E-02		5.80E-02
+	V-48	983.52	99.98	3.92E-02	8.13E-02	8.13E-02
		1312.10	97.50	3.69E-02		8.35E-02
+	CR-51	320.08	9.83	-1.14E-01	4.09E-01	4.09E-01
+	MN-54	834.83	99.97	-1.13E-02	5.79E-02	5.79E-02
+	CO-56	846.75	99.96	-9.84E-04	7.19E-02	7.19E-02
		1037.75	14.03	-1.03E-01		4.40E-01
		1238.25	67.00	-3.86E-02		1.02E-01
		1771.40	15.51	-1.16E-01		4.03E-01
		2587.48	16.90	0.00E+00		1.58E-01
+	CO-57	122.06	85.51	1.12E-02	2.93E-02	2.93E-02
		136.48	10.60	-1.10E-01		2.36E-01
+	CO-58	810.76	99.40	1.80E-04	7.29E-02	7.29E-02
+	FE-59	1099.22	56.50	5.44E-03	1.22E-01	1.22E-01
		1291.56	43.20	-7.00E-02		1.65E-01
+	CO-60	1173.22	100.00	-1.46E-02	3.81E-02	6.04E-02
		1332.49	100.00	-2.42E-02		3.81E-02
+	ZN-65	1115.52	50.75	-6.09E-03	1.44E-01	1.44E-01
+	GA-67	93.31	35.70	6.22E-02	8.32E-02	8.32E-02
		208.95	2.24	7.67E-01		1.63E+00
		300.22	16.00	-5.67E-02		2.57E-01
+	SE-75	121.11	16.70	7.98E-02	4.19E-02	1.49E-01
		136.00	59.50	-1.96E-02		4.19E-02
		264.65	59.80	1.13E-02		6.30E-02
		279.53	25.20	-2.31E-02		1.55E-01
		400.65	11.40	1.19E-01		3.86E-01
+	RB-82	776.52	13.00	-1.62E-01	4.94E-01	4.94E-01
+	RB-83	520.41	46.00	-5.62E-02	9.87E-02	9.87E-02
		529.64	30.30	9.25E-02		1.98E-01
		552.65	16.40	-2.93E-03		3.48E-01
+	KR-85	513.99	0.43	8.56E+00	1.68E+01	1.68E+01
+	SR-85	513.99	99.27	3.75E-02	7.36E-02	7.36E-02
+	Y-88	898.02	93.40	-2.29E-02	7.20E-02	7.20E-02
		1836.01	99.38	1.56E-02		9.87E-02
+	MO-93	263.06	56.72	-5.63E-04	5.30E-02	6.39E-02
		684.67	99.68	-1.35E-02		5.30E-02
		1477.11	99.08	1.28E-02		8.10E-02

Analysis Report for 2201045-02

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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	2.24E+00	2.96E+00	2.96E+00
+	NB-94	702.63	100.00	-2.08E-02	5.60E-02	5.60E-02
		871.10	100.00	1.52E-03		7.38E-02
+	NB-95	765.79	99.81	1.39E-03	6.34E-02	6.34E-02
+	NB-95M	235.69	25.00	2.30E-02	1.50E-01	1.50E-01
+	ZR-95	724.18	43.70	3.16E-02	1.13E-01	1.40E-01
		756.72	55.30	-2.54E-02		1.13E-01
+	MO-99	181.06	6.20	9.33E-02	4.92E-01	4.92E-01
		739.58	12.80	-1.17E-01		5.33E-01
		778.00	4.50	-3.73E-01		1.29E+00
+	TC-99M	140.51	89.00	6.55E-03	2.90E-02	2.90E-02
+	RU-103	497.08	89.00	-1.96E-02	4.86E-02	4.86E-02
+	RU-106	621.84	9.80	-8.06E-02	5.61E-01	5.61E-01
+	AG-108M	433.93	89.90	1.41E-02	5.41E-02	5.41E-02
		614.37	90.40	3.51E-03		7.54E-02
		722.95	90.50	-9.06E-03		6.38E-02
+	CD-109	88.03	3.72	-5.05E-01	7.06E-01	7.06E-01
+	AG-110M	657.75	93.14	-6.05E-03	5.62E-02	5.62E-02
		677.61	10.53	-1.13E-01		5.13E-01
		706.67	16.46	-7.77E-03		3.92E-01
		763.93	21.98	7.29E-02		3.25E-01
		884.67	21.98	-1.66E-01		3.59E-01
		1384.27	23.94	-1.87E-03		3.55E-01
+	CD-113M	263.70	0.02	2.92E+01	1.63E+02	1.63E+02
+	SN-113	255.12	1.93	-3.71E-01	7.31E-02	1.60E+00
		391.69	64.90	-1.93E-03		7.31E-02
+	TE-123M	159.00	84.10	2.69E-03	3.12E-02	3.12E-02
+	SB-124	602.71	97.87	-5.42E-02	5.83E-02	5.83E-02
		645.85	7.26	6.77E-02		8.97E-01
		722.78	11.10	-5.12E-02		5.36E-01
		1691.02	49.00	-2.05E-02		1.42E-01
+	I-125	35.49	6.49	1.67E-02	6.30E-01	6.30E-01
+	SB-125	176.33	6.89	-3.35E-02	1.54E-01	4.13E-01
		427.89	29.33	1.61E-02		1.54E-01
		463.38	10.35	1.52E-01		4.85E-01
		600.56	17.80	7.20E-02		3.62E-01
		635.90	11.32	-2.33E-01		4.46E-01
+	SB-126	414.70	83.30	1.29E-03	5.07E-02	5.07E-02
		666.33	99.60	-1.87E-02		6.75E-02
		695.00	99.60	1.59E-02		6.50E-02
		720.50	53.80	8.27E-03		1.19E-01
+	SN-126	87.57	37.00	-1.30E-01	6.62E-02	6.62E-02
+	SB-127	473.00	25.00	-1.68E-01	1.52E-01	1.63E-01
		685.00	35.70	-3.11E-02		1.52E-01
		783.80	14.70	-1.86E-01		4.23E-01
+	I-129	29.78	57.00	-1.58E-02	9.76E-02	9.76E-02
		33.60	13.20	1.14E-01		3.42E-01
		39.58	7.52	-1.09E-01		4.59E-01

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	I-131	284.30	6.05	-5.95E-02	5.64E-02	6.78E-01
		364.48	81.20	2.68E-03		5.64E-02
		636.97	7.26	-9.47E-02		7.86E-01
		722.89	1.80	-3.19E-01		3.34E+00
+	TE-132	49.72	13.10	1.42E-01	4.22E-02	2.37E-01
		228.16	88.00	4.05E-03		4.22E-02
+	BA-133	81.00	34.06	8.45E-03	7.06E-02	7.06E-02
		302.84	18.33	2.77E-02		2.28E-01
		356.01	62.05	4.98E-03		7.33E-02
+	I-133	529.87	86.30	4.19E-02	7.71E-02	7.71E-02
+	XE-133	81.00	38.00	7.71E-03	6.44E-02	6.44E-02
+	CS-134	563.23	8.38	-1.23E-01	5.88E-02	5.90E-01
		569.32	15.43	8.98E-02		3.61E-01
		604.70	97.60	-3.77E-02		6.33E-02
		795.84	85.40	-1.76E-02		5.88E-02
		801.93	8.73	-1.78E-02		7.12E-01
+	CS-135	268.24	16.00	5.13E-02	2.29E-01	2.29E-01
+	I-135	1131.51	22.50	4.15E-02	3.61E-01	4.39E-01
		1260.41	28.60	1.83E-02		3.61E-01
		1678.03	9.54	-2.50E-01		1.01E+00
+	CS-136	153.22	7.46	-1.65E-02	6.41E-02	3.38E-01
		163.89	4.61	9.22E-02		6.07E-01
		176.55	13.56	-1.71E-02		2.12E-01
		273.65	12.66	-1.62E-01		2.83E-01
		340.57	48.50	5.05E-02		9.77E-02
		818.50	99.70	-1.10E-02		6.41E-02
		1048.07	79.60	-3.67E-02		7.87E-02
		1235.34	19.70	8.23E-03		4.48E-01
+	CS-137	661.65	85.12	6.32E-02	8.40E-02	8.40E-02
+	LA-138	788.74	34.00	2.77E-02	1.18E-01	2.07E-01
		1435.80	66.00	4.01E-02		1.18E-01
+	CE-139	165.85	80.35	2.40E-03	3.59E-02	3.59E-02
+	BA-140	162.64	6.70	-2.86E-02	2.11E-01	4.08E-01
		304.84	4.50	-7.52E-02		9.01E-01
		423.70	3.20	-5.42E-01		1.43E+00
		437.55	2.00	3.36E-01		2.41E+00
		537.32	25.00	-1.14E-01		2.11E-01
+	LA-140	328.77	20.50	7.52E-02	9.67E-02	2.03E-01
		487.03	45.50	8.96E-02		1.26E-01
		815.85	23.50	5.96E-02		2.80E-01
		1596.49	95.49	3.53E-02		9.67E-02
+	CE-141	145.44	48.40	-4.35E-03	5.31E-02	5.31E-02
+	CE-143	57.36	11.80	-2.98E-01	1.01E-01	2.18E-01
		293.26	42.00	-3.01E-02		1.01E-01
		664.55	5.20	-2.61E-01		1.33E+00
+	CE-144	133.54	10.80	-6.17E-03	2.34E-01	2.34E-01
+	PM-144	476.78	42.00	-1.82E-02	6.08E-02	1.11E-01
		618.01	98.60	2.20E-02		6.53E-02
		696.49	99.49	-4.08E-03		6.08E-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	PM-145	36.85	21.70	1.52E-01	9.88E-02	1.84E-01
		37.36	39.70	8.16E-02		9.88E-02
		42.30	15.10	-1.88E-01		2.14E-01
		72.40	2.31	3.15E-01		1.08E+00
+	PM-146	453.90	39.94	-7.95E-03	1.09E-01	1.09E-01
		735.90	14.01	1.67E-01		4.91E-01
		747.13	13.10	2.72E-01		5.33E-01
+	ND-147	91.11	28.90	7.97E-02	1.01E-01	1.01E-01
		531.02	13.10	1.18E-01		4.55E-01
+	PM-149	285.90	3.10	3.15E-01	1.37E+00	1.37E+00
+	EU-152	121.78	20.50	4.64E-02	1.22E-01	1.22E-01
		244.69	5.40	2.55E-01		6.47E-01
		344.27	19.13	1.75E-02		2.42E-01
		778.89	9.10	-1.78E-01		6.17E-01
		964.01	10.40	0.00E+00		6.92E-01
		1085.78	7.22	-8.90E-02		9.41E-01
		1112.02	9.60	3.42E-01		8.59E-01
		1407.95	14.94	1.57E-01		6.07E-01
+	GD-153	97.43	31.30	2.21E-02	8.75E-02	8.75E-02
		103.18	22.20	-3.56E-02		1.06E-01
+	EU-154	123.07	40.50	2.46E-02	6.35E-02	6.35E-02
		723.30	19.70	-4.16E-02		2.93E-01
		873.19	11.50	-1.43E-02		6.94E-01
		996.32	10.30	-2.43E-02		6.68E-01
		1004.76	17.90	-4.69E-02		3.70E-01
		1274.45	35.50	1.63E-02		2.22E-01
+	EU-155	86.50	30.90	-9.80E-02	7.63E-02	7.63E-02
		105.30	20.70	-1.79E-02		1.14E-01
+	EU-156	811.77	10.40	-5.02E-02	6.84E-01	6.84E-01
		1153.47	7.20	-1.27E-01		1.10E+00
		1230.71	8.90	7.91E-02		9.87E-01
+	HO-166M	184.41	72.60	1.91E-02	4.22E-02	4.22E-02
		280.45	29.60	-1.18E-02		1.35E-01
		410.94	11.10	8.25E-02		4.01E-01
		711.69	54.10	1.98E-02		1.33E-01
+	TM-171	66.72	0.14	4.91E+00	1.94E+01	1.94E+01
+	HF-172	67.35	5.31	1.29E-01	2.27E-01	5.11E-01
		125.82	11.30	-1.37E-02		2.27E-01
+	LU-172	181.53	20.60	2.76E-02	1.27E-01	1.45E-01
		900.72	29.81	1.04E-02		2.60E-01
		1093.66	62.50	3.50E-02		1.27E-01
+	LU-173	100.72	5.24	5.73E-02	1.71E-01	4.63E-01
		272.11	21.20	-8.80E-02		1.71E-01
+	HF-175	343.40	84.00	-2.59E-04	5.36E-02	5.36E-02
+	LU-176	88.34	13.30	-1.41E-01	3.80E-02	1.98E-01
		201.83	86.00	5.93E-04		3.80E-02
		306.78	94.00	1.11E-03		4.43E-02
+	HF-181	133.02	41.70	-1.60E-03	6.06E-02	6.06E-02
		345.85	17.20	-7.80E-02		2.62E-01

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	HF-181	482.03	82.80	3.52E-02	6.06E-02	7.06E-02
+	TA-182	67.75	41.20	-1.29E-02	6.38E-02	6.38E-02
		1121.30	34.90	-1.04E-01		1.66E-01
		1189.05	16.23	-1.72E-01		3.09E-01
		1221.41	26.98	-7.21E-02		2.32E-01
		1231.02	11.44	6.13E-02		7.64E-01
+	IR-192	308.46	29.68	-5.08E-02	1.02E-01	1.38E-01
		468.07	48.10	3.18E-02		1.02E-01
+	HG-203	279.19	77.30	-7.53E-03	5.04E-02	5.04E-02
+	TL-204	374.74	94.11	-1.67E-02	4.45E-02	4.45E-02
		899.15	99.16	5.21E-03		7.68E-02
		911.74	91.10	1.47E-03		7.21E-02
+	BI-207	569.67	97.72	1.42E-02	5.71E-02	5.71E-02
		1063.62	74.90	-2.00E-02		8.42E-02
+	TL-208	583.14	30.22	3.68E-02	1.78E-01	1.78E-01
		860.37	4.48	-1.53E-01		1.15E+00
		2614.66	35.85	1.02E-01		4.16E-01
+	BI-210M	262.00	45.00	-7.78E-03	7.88E-02	7.88E-02
		300.00	23.00	-3.83E-02		1.74E-01
+	PB-210	46.50	4.25	1.86E-01	7.28E-01	7.28E-01
+	PB-211	404.84	2.90	-1.94E-01	1.44E+00	1.44E+00
		831.96	2.90	-4.03E-01		1.81E+00
+	BI-212	727.17	11.80	-2.04E-01	4.26E-01	4.26E-01
		1620.62	2.75	-5.63E-01		2.09E+00
+	PB-212	238.63	44.60	2.53E-02	8.56E-02	8.56E-02
		300.09	3.41	-2.58E-01		1.17E+00
+	BI-214	609.31	46.30	-3.34E-04	1.48E-01	1.48E-01
		1120.29	15.10	-2.47E-01		3.83E-01
		1764.49	15.80	-2.83E-02		5.09E-01
		2204.22	4.98	2.41E-01		2.35E+00
+	PB-214	295.21	19.19	2.94E-02	1.22E-01	2.12E-01
		351.92	37.19	2.38E-02		1.22E-01
+	RN-219	401.80	6.50	-3.04E-01	5.84E-01	5.84E-01
+	RA-223	323.87	3.88	1.09E-01	1.09E+00	1.09E+00
+	RA-224	240.98	3.95	2.44E-01	9.41E-01	9.41E-01
+	RA-225	40.00	31.00	-2.64E-02	1.11E-01	1.11E-01
+	RA-226	186.21	3.28	2.74E-01	9.26E-01	9.26E-01
+	TH-227	50.10	8.40	2.14E-01	3.18E-01	3.57E-01
		236.00	11.50	4.89E-02		3.18E-01
		256.20	6.30	1.65E-01		5.36E-01
+	AC-228	338.32	11.40	8.33E-02	2.37E-01	3.96E-01
		911.07	27.70	4.84E-03		2.37E-01
		969.11	16.60	7.58E-02		4.20E-01
+	TH-230	48.43	16.90	9.55E-02	1.81E-01	1.81E-01
		62.85	4.60	4.81E-01		6.03E-01
		67.67	0.37	-1.43E+00		7.10E+00
+	PA-231	283.67	1.60	-1.42E-01	1.81E+00	2.55E+00
		302.67	2.30	4.16E-01		1.81E+00

Analysis Report for 2201045-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TH-231	25.64	14.70	4.23E-01	3.67E-01	5.46E-01
		84.21	6.40	1.13E-01		3.67E-01
+	PA-233	311.98	38.60	1.63E-02	1.12E-01	1.12E-01
+	PA-234	131.20	20.40	5.20E-02	1.26E-01	1.26E-01
		733.99	8.80	3.05E-01		7.79E-01
		946.00	12.00	-1.34E-01		5.21E-01
+	PA-234M	1001.03	0.92	4.31E-01	7.51E+00	7.51E+00
+	TH-234	63.29	3.80	5.81E-01	7.28E-01	7.28E-01
+	U-235	143.76	10.50	1.25E-01	2.47E-01	2.47E-01
		163.35	4.70	-4.06E-02		5.80E-01
		205.31	4.70	-3.26E-01		6.89E-01
+	NP-237	86.50	12.60	-2.40E-01	1.87E-01	1.87E-01
+	NP-239	106.10	22.70	-3.77E-03	1.09E-01	1.09E-01
		228.18	10.70	3.37E-02		3.51E-01
		277.60	14.10	7.04E-02		2.87E-01
+	AM-241	59.54	35.90	-4.30E-02	7.19E-02	7.19E-02
+	AM-243	74.67	66.00	1.06E-02	3.92E-02	3.92E-02
+	CM-243	209.75	3.29	1.16E-01	2.78E-01	1.06E+00
		228.14	10.60	3.27E-02		3.40E-01
		277.60	14.00	6.82E-02		2.78E-01

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

NUCLIDE MDA REPORT

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

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	4.34E-01	4.34E-01	-6.75E-02	1.93E-01

Analysis Report for 2201045-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
NA-22	1274.54	99.94	7.89E-02	7.89E-02	5.80E-03	3.27E-02
NA-24	1368.53	99.99	8.42E-02	7.77E-02	-8.84E-03	3.49E-02
	2754.09	99.86	7.77E-02		7.04E-03	2.46E-02
AL-26	1808.65	99.76	1.03E-01	1.03E-01	4.81E-02	4.23E-02
K-40	1460.81	10.67	8.37E-01	8.37E-01	2.24E-01	3.47E-01
AR-41	1293.64	99.16	2.70E-01	2.70E-01	2.98E-02	1.12E-01
TI-44	67.88	94.40	2.78E-02	2.54E-02	-5.62E-03	1.32E-02
	78.34	96.00	2.54E-02		-2.29E-03	1.21E-02
SC-46	889.25	98.98	8.41E-02	5.80E-02	1.88E-02	3.72E-02
	1120.51	99.90	5.80E-02		-3.74E-02	2.30E-02
V-48	983.52	99.98	8.13E-02	8.13E-02	3.92E-02	3.53E-02
	1312.10	97.50	8.35E-02		3.69E-02	3.46E-02
CR-51	320.08	9.83	4.09E-01	4.09E-01	-1.14E-01	1.88E-01
MN-54	834.83	99.97	5.79E-02	5.79E-02	-1.13E-02	2.44E-02
CO-56	846.75	99.96	7.19E-02	7.19E-02	-9.84E-04	3.14E-02
	1037.75	14.03	4.40E-01		-1.03E-01	1.80E-01
	1238.25	67.00	1.02E-01		-3.86E-02	4.12E-02
	1771.40	15.51	4.03E-01		-1.16E-01	1.43E-01
	2587.48	16.90	1.58E-01		0.00E+00	0.00E+00
CO-57	122.06	85.51	2.93E-02	2.93E-02	1.12E-02	1.38E-02
	136.48	10.60	2.36E-01		-1.10E-01	1.11E-01
CO-58	810.76	99.40	7.29E-02	7.29E-02	1.80E-04	3.21E-02
FE-59	1099.22	56.50	1.22E-01	1.22E-01	5.44E-03	5.06E-02
	1291.56	43.20	1.65E-01		-7.00E-02	6.65E-02
CO-60	1173.22	100.00	6.04E-02	3.81E-02	-1.46E-02	2.40E-02
	1332.49	100.00	3.81E-02		-2.42E-02	1.20E-02
ZN-65	1115.52	50.75	1.44E-01	1.44E-01	-6.09E-03	6.04E-02
GA-67	93.31	35.70	8.32E-02	8.32E-02	6.22E-02	3.98E-02
	208.95	2.24	1.63E+00		7.67E-01	7.67E-01
	300.22	16.00	2.57E-01		-5.67E-02	1.19E-01
SE-75	121.11	16.70	1.49E-01	4.19E-02	7.98E-02	7.05E-02
	136.00	59.50	4.19E-02		-1.96E-02	1.97E-02
	264.65	59.80	6.30E-02		1.13E-02	2.93E-02
	279.53	25.20	1.55E-01		-2.31E-02	7.18E-02
	400.65	11.40	3.86E-01		1.19E-01	1.75E-01
RB-82	776.52	13.00	4.94E-01	4.94E-01	-1.62E-01	2.15E-01
RB-83	520.41	46.00	9.87E-02	9.87E-02	-5.62E-02	4.34E-02
	529.64	30.30	1.98E-01		9.25E-02	8.96E-02
	552.65	16.40	3.48E-01		-2.93E-03	1.56E-01
KR-85	513.99	0.43	1.68E+01	1.68E+01	8.56E+00	7.78E+00
SR-85	513.99	99.27	7.36E-02	7.36E-02	3.75E-02	3.41E-02
Y-88	898.02	93.40	7.20E-02	7.20E-02	-2.29E-02	3.08E-02
	1836.01	99.38	9.87E-02		1.56E-02	3.99E-02
MO-93	263.06	56.72	6.39E-02	5.30E-02	-5.63E-04	2.96E-02
	684.67	99.68	5.30E-02		-1.35E-02	2.28E-02
	1477.11	99.08	8.10E-02		1.28E-02	3.27E-02
NB-93M	16.57	9.43	2.96E+00	2.96E+00	2.24E+00	1.44E+00
NB-94	702.63	100.00	5.60E-02	5.60E-02	-2.08E-02	2.43E-02
	871.10	100.00	7.38E-02		1.52E-03	3.22E-02
NB-95	765.79	99.81	6.34E-02	6.34E-02	1.39E-03	2.76E-02
NB-95M	235.69	25.00	1.50E-01	1.50E-01	2.30E-02	7.03E-02
ZR-95	724.18	43.70	1.40E-01	1.13E-01	3.16E-02	6.13E-02
	756.72	55.30	1.13E-01		-2.54E-02	4.91E-02

Analysis Report for 2201045-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
MO-99	181.06	6.20	4.92E-01	4.92E-01	9.33E-02	2.31E-01
	739.58	12.80	5.33E-01		-1.17E-01	2.34E-01
	778.00	4.50	1.29E+00		-3.73E-01	5.49E-01
TC-99M	140.51	89.00	2.90E-02	2.90E-02	6.55E-03	1.37E-02
RU-103	497.08	89.00	4.86E-02	4.86E-02	-1.96E-02	2.14E-02
RU-106	621.84	9.80	5.61E-01	5.61E-01	-8.06E-02	2.47E-01
AG-108M	433.93	89.90	5.41E-02	5.41E-02	1.41E-02	2.46E-02
	614.37	90.40	7.54E-02		3.51E-03	3.41E-02
	722.95	90.50	6.38E-02		-9.06E-03	2.76E-02
CD-109	88.03	3.72	7.06E-01	7.06E-01	-5.05E-01	3.37E-01
AG-110M	657.75	93.14	5.62E-02	5.62E-02	-6.05E-03	2.43E-02
	677.61	10.53	5.13E-01		-1.13E-01	2.22E-01
	706.67	16.46	3.92E-01		-7.77E-03	1.73E-01
	763.93	21.98	3.25E-01		7.29E-02	1.44E-01
	884.67	21.98	3.59E-01		-1.66E-01	1.58E-01
	1384.27	23.94	3.55E-01		-1.87E-03	1.47E-01
CD-113M	263.70	0.02	1.63E+02	1.63E+02	2.92E+01	7.58E+01
SN-113	255.12	1.93	1.60E+00	7.31E-02	-3.71E-01	7.34E-01
	391.69	64.90	7.31E-02		-1.93E-03	3.35E-02
TE-123M	159.00	84.10	3.12E-02	3.12E-02	2.69E-03	1.46E-02
SB-124	602.71	97.87	5.83E-02	5.83E-02	-5.42E-02	2.59E-02
	645.85	7.26	8.97E-01		6.77E-02	4.01E-01
	722.78	11.10	5.36E-01		-5.12E-02	2.33E-01
	1691.02	49.00	1.42E-01		-2.05E-02	5.30E-02
I-125	35.49	6.49	6.30E-01	6.30E-01	1.67E-02	3.00E-01
SB-125	176.33	6.89	4.13E-01	1.54E-01	-3.35E-02	1.94E-01
	427.89	29.33	1.54E-01		1.61E-02	6.96E-02
	463.38	10.35	4.85E-01		1.52E-01	2.19E-01
	600.56	17.80	3.62E-01		7.20E-02	1.63E-01
	635.90	11.32	4.46E-01		-2.33E-01	1.93E-01
SB-126	414.70	83.30	5.07E-02	5.07E-02	1.29E-03	2.28E-02
	666.33	99.60	6.75E-02		-1.87E-02	3.02E-02
	695.00	99.60	6.50E-02		1.59E-02	2.88E-02
	720.50	53.80	1.19E-01		8.27E-03	5.25E-02
SN-126	87.57	37.00	6.62E-02	6.62E-02	-1.30E-01	3.14E-02
SB-127	473.00	25.00	1.63E-01	1.52E-01	-1.68E-01	7.15E-02
	685.00	35.70	1.52E-01		-3.11E-02	6.53E-02
	783.80	14.70	4.23E-01		-1.86E-01	1.82E-01
I-129	29.78	57.00	9.76E-02	9.76E-02	-1.58E-02	4.66E-02
	33.60	13.20	3.42E-01		1.14E-01	1.63E-01
	39.58	7.52	4.59E-01		-1.09E-01	2.18E-01
I-131	284.30	6.05	6.78E-01	5.64E-02	-5.95E-02	3.16E-01
	364.48	81.20	5.64E-02		2.68E-03	2.59E-02
	636.97	7.26	7.86E-01		-9.47E-02	3.46E-01
	722.89	1.80	3.34E+00		-3.19E-01	1.45E+00
TE-132	49.72	13.10	2.37E-01	4.22E-02	1.42E-01	1.13E-01
	228.16	88.00	4.22E-02		4.05E-03	1.98E-02
BA-133	81.00	34.06	7.06E-02	7.06E-02	8.45E-03	3.35E-02
	302.84	18.33	2.28E-01		2.77E-02	1.06E-01
	356.01	62.05	7.33E-02		4.98E-03	3.38E-02
I-133	529.87	86.30	7.71E-02	7.71E-02	4.19E-02	3.50E-02
XE-133	81.00	38.00	6.44E-02	6.44E-02	7.71E-03	3.06E-02
CS-134	563.23	8.38	5.90E-01	5.88E-02	-1.23E-01	2.60E-01

Analysis Report for 2201045-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-134	569.32	15.43	3.61E-01	5.88E-02	8.98E-02	1.61E-01
	604.70	97.60	6.33E-02		-3.77E-02	2.83E-02
	795.84	85.40	5.88E-02		-1.76E-02	2.44E-02
	801.93	8.73	7.12E-01		-1.78E-02	3.06E-01
CS-135	268.24	16.00	2.29E-01	2.29E-01	5.13E-02	1.06E-01
I-135	1131.51	22.50	4.39E-01	3.61E-01	4.15E-02	1.82E-01
	1260.41	28.60	3.61E-01		1.83E-02	1.48E-01
	1678.03	9.54	1.01E+00		-2.50E-01	3.77E-01
CS-136	153.22	7.46	3.38E-01	6.41E-02	-1.65E-02	1.58E-01
	163.89	4.61	6.07E-01		9.22E-02	2.85E-01
	176.55	13.56	2.12E-01		-1.71E-02	9.93E-02
	273.65	12.66	2.83E-01		-1.62E-01	1.31E-01
	340.57	48.50	9.77E-02		5.05E-02	4.53E-02
	818.50	99.70	6.41E-02		-1.10E-02	2.76E-02
	1048.07	79.60	7.87E-02		-3.67E-02	3.23E-02
	1235.34	19.70	4.48E-01		8.23E-03	1.90E-01
CS-137	661.65	85.12	8.40E-02	8.40E-02	6.32E-02	3.78E-02
LA-138	788.74	34.00	2.07E-01	1.18E-01	2.77E-02	9.11E-02
	1435.80	66.00	1.18E-01		4.01E-02	4.79E-02
CE-139	165.85	80.35	3.59E-02	3.59E-02	2.40E-03	1.69E-02
BA-140	162.64	6.70	4.08E-01	2.11E-01	-2.86E-02	1.92E-01
	304.84	4.50	9.01E-01		-7.52E-02	4.16E-01
	423.70	3.20	1.43E+00		-5.42E-01	6.46E-01
	437.55	2.00	2.41E+00		3.36E-01	1.09E+00
	537.32	25.00	2.11E-01		-1.14E-01	9.41E-02
LA-140	328.77	20.50	2.03E-01	9.67E-02	7.52E-02	9.32E-02
	487.03	45.50	1.26E-01		8.96E-02	5.73E-02
	815.85	23.50	2.80E-01		5.96E-02	1.21E-01
	1596.49	95.49	9.67E-02		3.53E-02	3.96E-02
CE-141	145.44	48.40	5.31E-02	5.31E-02	-4.35E-03	2.49E-02
CE-143	57.36	11.80	2.18E-01	1.01E-01	-2.98E-01	1.03E-01
	293.26	42.00	1.01E-01		-3.01E-02	4.68E-02
	664.55	5.20	1.33E+00		-2.61E-01	5.90E-01
CE-144	133.54	10.80	2.34E-01	2.34E-01	-6.17E-03	1.10E-01
PM-144	476.78	42.00	1.11E-01	6.08E-02	-1.82E-02	4.98E-02
	618.01	98.60	6.53E-02		2.20E-02	2.93E-02
	696.49	99.49	6.08E-02		-4.08E-03	2.66E-02
PM-145	36.85	21.70	1.84E-01	9.88E-02	1.52E-01	8.74E-02
	37.36	39.70	9.88E-02		8.16E-02	4.70E-02
	42.30	15.10	2.14E-01		-1.88E-01	1.02E-01
	72.40	2.31	1.08E+00		3.15E-01	5.15E-01
PM-146	453.90	39.94	1.09E-01	1.09E-01	-7.95E-03	4.86E-02
	735.90	14.01	4.91E-01		1.67E-01	2.17E-01
	747.13	13.10	5.33E-01		2.72E-01	2.36E-01
ND-147	91.11	28.90	1.01E-01	1.01E-01	7.97E-02	4.84E-02
	531.02	13.10	4.55E-01		1.18E-01	2.06E-01
PM-149	285.90	3.10	1.37E+00	1.37E+00	3.15E-01	6.39E-01
EU-152	121.78	20.50	1.22E-01	1.22E-01	4.64E-02	5.75E-02
	244.69	5.40	6.47E-01		2.55E-01	3.01E-01
	344.27	19.13	2.42E-01		1.75E-02	1.12E-01
	778.89	9.10	6.17E-01		-1.78E-01	2.63E-01
	964.01	10.40	6.92E-01		0.00E+00	2.96E-01
	1085.78	7.22	9.41E-01		-8.90E-02	3.90E-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-152	1112.02	9.60	8.59E-01	1.22E-01	3.42E-01	3.68E-01
	1407.95	14.94	6.07E-01		1.57E-01	2.54E-01
GD-153	97.43	31.30	8.75E-02	8.75E-02	2.21E-02	4.17E-02
	103.18	22.20	1.06E-01		-3.56E-02	5.00E-02
EU-154	123.07	40.50	6.35E-02	6.35E-02	2.46E-02	3.00E-02
	723.30	19.70	2.93E-01		-4.16E-02	1.27E-01
	873.19	11.50	6.94E-01		-1.43E-02	3.06E-01
	996.32	10.30	6.68E-01		-2.43E-02	2.82E-01
	1004.76	17.90	3.70E-01		-4.69E-02	1.55E-01
	1274.45	35.50	2.22E-01		1.63E-02	9.21E-02
EU-155	86.50	30.90	7.63E-02	7.63E-02	-9.80E-02	3.62E-02
	105.30	20.70	1.14E-01		-1.79E-02	5.40E-02
EU-156	811.77	10.40	6.84E-01	6.84E-01	-5.02E-02	3.00E-01
	1153.47	7.20	1.10E+00		-1.27E-01	4.66E-01
	1230.71	8.90	9.87E-01		7.91E-02	4.20E-01
HO-166M	184.41	72.60	4.22E-02	4.22E-02	1.91E-02	1.98E-02
	280.45	29.60	1.35E-01		-1.18E-02	6.29E-02
	410.94	11.10	4.01E-01		8.25E-02	1.82E-01
	711.69	54.10	1.33E-01		1.98E-02	5.95E-02
TM-171	66.72	0.14	1.94E+01	1.94E+01	4.91E+00	9.26E+00
HF-172	67.35	5.31	5.11E-01	2.27E-01	1.29E-01	2.44E-01
	125.82	11.30	2.27E-01		-1.37E-02	1.07E-01
LU-172	181.53	20.60	1.45E-01	1.27E-01	2.76E-02	6.82E-02
	900.72	29.81	2.60E-01		1.04E-02	1.13E-01
	1093.66	62.50	1.27E-01		3.50E-02	5.40E-02
LU-173	100.72	5.24	4.63E-01	1.71E-01	5.73E-02	2.19E-01
	272.11	21.20	1.71E-01		-8.80E-02	7.93E-02
HF-175	343.40	84.00	5.36E-02	5.36E-02	-2.59E-04	2.48E-02
LU-176	88.34	13.30	1.98E-01	3.80E-02	-1.41E-01	9.42E-02
	201.83	86.00	3.80E-02		5.93E-04	1.78E-02
	306.78	94.00	4.43E-02		1.11E-03	2.05E-02
HF-181	133.02	41.70	6.06E-02	6.06E-02	-1.60E-03	2.86E-02
	345.85	17.20	2.62E-01		-7.80E-02	1.21E-01
	482.03	82.80	7.06E-02		3.52E-02	3.23E-02
TA-182	67.75	41.20	6.38E-02	6.38E-02	-1.29E-02	3.04E-02
	1121.30	34.90	1.66E-01		-1.04E-01	6.59E-02
	1189.05	16.23	3.09E-01		-1.72E-01	1.16E-01
	1221.41	26.98	2.32E-01		-7.21E-02	9.22E-02
	1231.02	11.44	7.64E-01		6.13E-02	3.25E-01
IR-192	308.46	29.68	1.38E-01	1.02E-01	-5.08E-02	6.36E-02
	468.07	48.10	1.02E-01		3.18E-02	4.61E-02
HG-203	279.19	77.30	5.04E-02	5.04E-02	-7.53E-03	2.34E-02
TL-204	374.74	94.11	4.45E-02	4.45E-02	-1.67E-02	2.03E-02
	899.15	99.16	7.68E-02		5.21E-03	3.35E-02
	911.74	91.10	7.21E-02		1.47E-03	3.07E-02
BI-207	569.67	97.72	5.71E-02	5.71E-02	1.42E-02	2.55E-02
	1063.62	74.90	8.42E-02		-2.00E-02	3.45E-02
TL-208	583.14	30.22	1.78E-01	1.78E-01	3.68E-02	7.87E-02
	860.37	4.48	1.15E+00		-1.53E-01	4.70E-01
	2614.66	35.85	4.16E-01		1.02E-01	1.71E-01
BI-210M	262.00	45.00	7.88E-02	7.88E-02	-7.78E-03	3.66E-02
	300.00	23.00	1.74E-01		-3.83E-02	8.03E-02
PB-210	46.50	4.25	7.28E-01	7.28E-01	1.86E-01	3.46E-01

Analysis Report for 2201045-02

BLANK

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	1.44E+00	1.44E+00	-1.94E-01	6.50E-01
	831.96	2.90	1.81E+00		-4.03E-01	7.51E-01
BI-212	727.17	11.80	4.26E-01	4.26E-01	-2.04E-01	1.80E-01
	1620.62	2.75	2.09E+00		-5.63E-01	7.41E-01
PB-212	238.63	44.60	8.56E-02	8.56E-02	2.53E-02	4.02E-02
	300.09	3.41	1.17E+00		-2.58E-01	5.42E-01
BI-214	609.31	46.30	1.48E-01	1.48E-01	-3.34E-04	6.71E-02
	1120.29	15.10	3.83E-01		-2.47E-01	1.52E-01
	1764.49	15.80	5.09E-01		-2.83E-02	1.97E-01
	2204.22	4.98	2.35E+00		2.41E-01	9.49E-01
PB-214	295.21	19.19	2.12E-01	1.22E-01	2.94E-02	9.81E-02
	351.92	37.19	1.22E-01		2.38E-02	5.62E-02
RN-219	401.80	6.50	5.84E-01	5.84E-01	-3.04E-01	2.61E-01
RA-223	323.87	3.88	1.09E+00	1.09E+00	1.09E-01	5.02E-01
RA-224	240.98	3.95	9.41E-01	9.41E-01	2.44E-01	4.40E-01
RA-225	40.00	31.00	1.11E-01	1.11E-01	-2.64E-02	5.25E-02
RA-226	186.21	3.28	9.26E-01	9.26E-01	2.74E-01	4.35E-01
TH-227	50.10	8.40	3.57E-01	3.18E-01	2.14E-01	1.70E-01
	236.00	11.50	3.18E-01		4.89E-02	1.49E-01
	256.20	6.30	5.36E-01		1.65E-01	2.48E-01
AC-228	338.32	11.40	3.96E-01	2.37E-01	8.33E-02	1.83E-01
	911.07	27.70	2.37E-01		4.84E-03	1.01E-01
	969.11	16.60	4.20E-01		7.58E-02	1.79E-01
TH-230	48.43	16.90	1.81E-01	1.81E-01	9.55E-02	8.63E-02
	62.85	4.60	6.03E-01		4.81E-01	2.88E-01
	67.67	0.37	7.10E+00		-1.43E+00	3.38E+00
PA-231	283.67	1.60	2.55E+00	1.81E+00	-1.42E-01	1.19E+00
	302.67	2.30	1.81E+00		4.16E-01	8.41E-01
TH-231	25.64	14.70	5.46E-01	3.67E-01	4.23E-01	2.62E-01
	84.21	6.40	3.67E-01		1.13E-01	1.74E-01
PA-233	311.98	38.60	1.12E-01	1.12E-01	1.63E-02	5.20E-02
PA-234	131.20	20.40	1.26E-01	1.26E-01	5.20E-02	5.94E-02
	733.99	8.80	7.79E-01		3.05E-01	3.45E-01
	946.00	12.00	5.21E-01		-1.34E-01	2.18E-01
PA-234M	1001.03	0.92	7.51E+00	7.51E+00	4.31E-01	3.17E+00
TH-234	63.29	3.80	7.28E-01	7.28E-01	5.81E-01	3.47E-01
U-235	143.76	10.50	2.47E-01	2.47E-01	1.25E-01	1.16E-01
	163.35	4.70	5.80E-01		-4.06E-02	2.72E-01
	205.31	4.70	6.89E-01		-3.26E-01	3.23E-01
NP-237	86.50	12.60	1.87E-01	1.87E-01	-2.40E-01	8.87E-02
NP-239	106.10	22.70	1.09E-01	1.09E-01	-3.77E-03	5.16E-02
	228.18	10.70	3.51E-01		3.37E-02	1.64E-01
	277.60	14.10	2.87E-01		7.04E-02	1.34E-01
AM-241	59.54	35.90	7.19E-02	7.19E-02	-4.30E-02	3.41E-02
AM-243	74.67	66.00	3.92E-02	3.92E-02	1.06E-02	1.87E-02
CM-243	209.75	3.29	1.06E+00	2.78E-01	1.16E-01	5.01E-01
	228.14	10.60	3.40E-01		3.27E-02	1.60E-01
	277.60	14.00	2.78E-01		6.82E-02	1.29E-01

Analysis Report for 2201045-02

BLANK

+ = 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: BLANK

Elapsed Live time: 3600
Elapsed Real Time: 3601

Channel								
1:	0	0	0	0	0	0	0	0
9:	30	73	50	56	63	46	52	65
17:	41	34	31	25	23	29	19	26
25:	21	20	24	19	13	19	9	10
33:	20	14	12	15	15	23	11	10
41:	15	6	14	9	16	15	25	17
49:	8	19	14	12	11	15	9	12
57:	11	9	14	14	6	18	28	32
65:	11	12	12	15	9	12	15	19
73:	13	11	10	23	16	14	16	9
81:	10	13	14	15	11	11	10	19
89:	9	10	22	33	41	14	12	14
97:	12	17	12	11	13	11	11	10
105:	14	14	6	11	12	14	9	11
113:	14	10	5	8	8	8	9	16
121:	10	13	12	12	12	8	13	5
129:	14	13	12	13	10	12	5	8
137:	5	8	17	9	10	9	15	9
145:	9	8	9	10	5	6	4	16
153:	14	6	9	12	2	7	6	11
161:	8	10	12	9	6	12	6	9
169:	16	8	9	11	11	7	6	8
177:	7	6	9	12	7	5	10	8
185:	15	14	7	5	11	5	4	7
193:	7	16	3	8	16	8	13	9
201:	7	7	9	9	9	9	8	8
209:	10	13	12	9	11	6	4	10
217:	13	5	12	3	9	7	7	16
225:	10	8	10	6	8	5	10	4
233:	8	8	9	11	6	8	13	7
241:	11	6	5	9	8	6	6	3
249:	8	2	0	5	8	3	3	6
257:	6	6	6	9	5	7	5	4
265:	7	6	8	10	5	5	8	3
273:	5	5	5	7	7	11	8	4
281:	7	5	4	8	7	12	7	7
289:	8	3	6	5	5	8	7	5
297:	7	4	9	5	7	4	7	4
305:	8	8	4	5	4	9	5	4
313:	7	8	9	5	4	5	5	8
321:	6	8	3	1	7	5	2	9
329:	7	2	7	1	5	2	6	2
337:	11	4	5	7	5	9	8	4
345:	4	4	3	8	6	2	6	6
353:	9	3	3	4	2	6	7	6
361:	2	6	7	4	11	2	2	3

369:	5	3	5	4	4	4	3	3

Sample Title: BLANK

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

801:	1	1	3	4	3	3	3	2

Sample Title: BLANK

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

1233:	0	0	3	1	1	0	0	1

Sample Title: BLANK

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

1665:	2	1	1	0	0	0	0	0

Sample Title: BLANK

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

2097:	0	0	0	0	0	0	2	0

Sample Title: BLANK

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

2529:	0	0	0	0	0	0	0	0

Sample Title: BLANK

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

2961:	0	1	0	0	0	0	0	0

Sample Title: BLANK

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

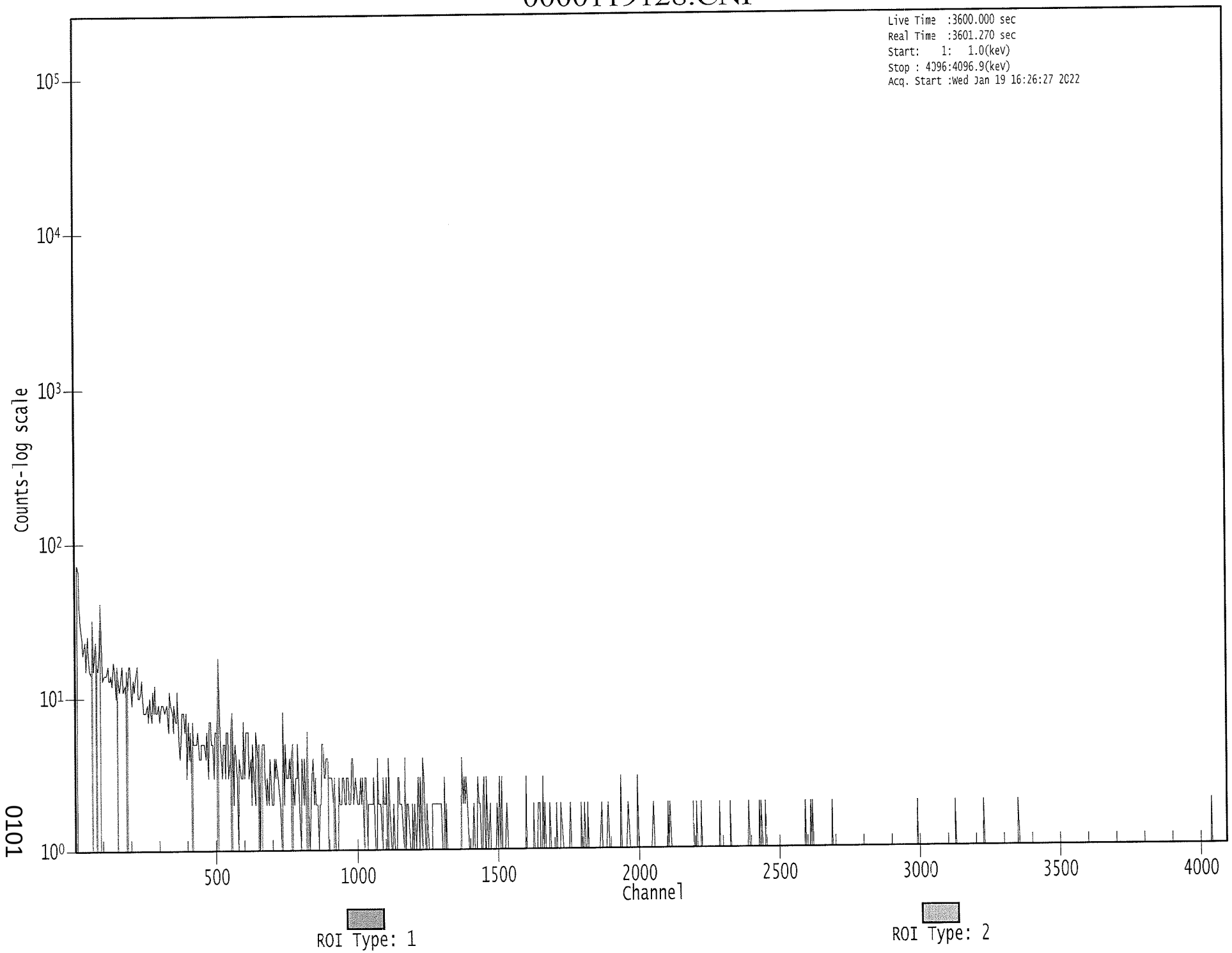
Channel								
3401:	0	0	1	0	0	0	0	1
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	1	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	1	0	0	1	0
3457:	1	1	1	0	0	1	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	1
3489:	0	0	0	1	0	1	0	0
3497:	0	0	0	0	0	0	0	0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

Sample Title: BLANK

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

0000119128.CNF



Apex-Gamma

Analysis Report for 2201045-03
MWA 11,12,13

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 2201045-03
Sample Description	: MWA 11,12,13
Sample Type	: SOIL
Sample Size	: 4.580E+01 grams
Facility	: Countroom
Sample Taken On	: 12/31/2021 1:45:05PM
Acquisition Started	: 1/19/2022 2:39:49PM
Procedure	: GAS-2101 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-2101
Live Time	: 3600.0 seconds
Real Time	: 3600.8 seconds
Dead Time	: 0.02 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 32 - 4096
Identification Energy Tolerance	: 2.500 keV
Energy Calibration Used Done On	: 11/20/2021
Efficiency Calibration Used Done On	: 11/20/2021
Efficiency Calibration Description	:
Sample Number	: 119122

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
1/20/22

Analysis Report for 2201045-03

MWA 11,12,13

PEAK LOCATE REPORT

Peak Locate Performed on : 1/19/2022 3:39:53PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	62.25	61.94	0.0000	0.00
2	76.49	76.18	0.0000	0.00
3	87.40	87.09	0.0000	0.00
4	128.77	128.45	0.0000	0.00
5	186.37	186.04	0.0000	0.00
6	209.64	209.31	0.0000	0.00
7	239.06	238.73	0.0000	0.00
8	242.40	242.07	0.0000	0.00
9	259.45	259.12	0.0000	0.00
10	270.27	269.93	0.0000	0.00
11	290.64	290.30	0.0000	0.00
12	295.37	295.03	0.0000	0.00
13	352.10	351.76	0.0000	0.00
14	478.88	478.52	0.0000	0.00
15	583.54	583.17	0.0000	0.00
16	609.62	609.25	0.0000	0.00
17	729.35	728.98	0.0000	0.00
18	761.67	761.29	0.0000	0.00
19	769.17	768.79	0.0000	0.00
20	805.67	805.29	0.0000	0.00
21	820.24	819.86	0.0000	0.00
22	840.63	840.25	0.0000	0.00
23	893.63	893.25	0.0000	0.00
24	911.68	911.30	0.0000	0.00
25	934.84	934.46	0.0000	0.00
26	969.14	968.76	0.0000	0.00
27	1076.62	1076.23	0.0000	0.00
28	1120.35	1119.96	0.0000	0.00
29	1238.00	1237.61	0.0000	0.00
30	1377.56	1377.18	0.0000	0.00
31	1408.34	1407.96	0.0000	0.00
32	1415.66	1415.28	0.0000	0.00
33	1461.21	1460.82	0.0000	0.00
34	1508.00	1507.62	0.0000	0.00
35	1710.59	1710.22	0.0000	0.00
36	1730.81	1730.44	0.0000	0.00
37	1764.97	1764.60	0.0000	0.00
38	1848.00	1847.64	0.0000	0.00
39	1873.56	1873.20	0.0000	0.00
40	2118.85	2118.52	0.0000	0.00
41	2204.11	2203.79	0.0000	0.00
42	2446.96	2446.68	0.0000	0.00

Analysis Report for 2201045-03

MWA 11,12,13

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	2614.43	2614.17	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 2201045-03

MWA 11,12,13

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 1/19/2022 3:39:53PM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	62.25	57 -	67	61.94	1.73E+02	97.66	1.19E+03	5.64
	2	76.49	70 -	81	76.18	1.21E+03	125.60	1.36E+03	3.63
M	3	87.40	82 -	96	87.09	4.11E+02	98.07	1.03E+03	4.86
	4	128.77	125 -	131	128.45	4.12E+01	51.50	4.54E+02	2.55
	5	186.37	182 -	190	186.04	2.10E+02	68.36	5.89E+02	1.74
	6	209.64	204 -	213	209.31	6.94E+01	62.71	5.15E+02	4.04
M	7	239.06	234 -	246	238.73	3.02E+02	67.76	4.25E+02	2.94
m	8	242.40	234 -	246	242.07	2.60E+02	61.18	3.06E+02	2.42
	9	259.45	254 -	263	259.12	5.12E+01	52.82	3.68E+02	3.43
	10	270.27	268 -	272	269.93	3.00E+01	30.16	1.76E+02	2.58
M	11	290.64	289 -	299	290.30	2.14E+01	17.86	8.61E+01	2.73
m	12	295.37	289 -	299	295.03	4.88E+02	59.88	3.05E+02	2.34
	13	352.10	347 -	357	351.76	7.48E+02	78.54	4.24E+02	2.28
	14	478.88	474 -	482	478.52	5.20E+01	30.63	1.12E+02	3.24
	15	583.54	579 -	588	583.17	9.49E+01	32.30	9.43E+01	2.69
	16	609.62	602 -	615	609.25	5.54E+02	63.09	1.96E+02	2.40
	17	729.35	722 -	736	728.98	3.31E+01	34.52	1.08E+02	9.42
M	18	761.67	758 -	777	761.29	2.16E+01	16.61	3.16E+01	3.34
m	19	769.17	758 -	777	768.79	4.67E+01	26.53	6.18E+01	3.34
	20	805.67	801 -	809	805.29	2.97E+01	24.82	7.67E+01	4.97
	21	820.24	818 -	822	819.86	1.30E+01	11.92	2.00E+01	2.65
	22	840.63	829 -	851	840.25	5.52E+01	51.85	1.76E+02	18.42
	23	893.63	885 -	903	893.25	3.45E+01	40.84	1.33E+02	12.10
	24	911.68	905 -	917	911.30	6.91E+01	36.42	1.24E+02	3.33
	25	934.84	930 -	943	934.46	5.72E+01	34.45	1.12E+02	3.49
	26	969.14	966 -	973	968.76	2.73E+01	23.07	6.74E+01	1.50
	27	1076.62	1072 -	1081	1076.23	2.10E+01	12.41	1.00E+01	5.53
	28	1120.35	1114 -	1126	1119.96	1.16E+02	32.75	7.21E+01	2.26
	29	1238.00	1232 -	1243	1237.61	5.67E+01	24.74	4.87E+01	4.02
	30	1377.56	1373 -	1381	1377.18	1.60E+01	17.26	3.60E+01	2.98
M	31	1408.34	1405 -	1424	1407.96	2.72E+01	14.15	2.90E+01	3.03
m	32	1415.66	1405 -	1424	1415.28	1.55E+01	17.04	3.04E+01	3.03
	33	1461.21	1457 -	1466	1460.82	5.71E+01	22.63	4.17E+01	1.63
	34	1508.00	1501 -	1515	1507.62	2.26E+01	25.73	6.08E+01	6.06
	35	1710.59	1705 -	1713	1710.22	8.50E+00	8.02	5.00E+00	1.39
	36	1730.81	1725 -	1737	1730.44	2.98E+01	14.98	1.04E+01	6.45
	37	1764.97	1758 -	1772	1764.60	1.11E+02	21.07	0.00E+00	2.67
	38	1848.00	1842 -	1852	1847.64	1.25E+01	14.59	2.11E+01	1.14
	39	1873.56	1869 -	1876	1873.20	1.00E+01	6.32	0.00E+00	1.69
	40	2118.85	2115 -	2122	2118.52	1.02E+01	10.39	9.60E+00	2.67

Analysis Report for 2201045-03

MWA 11,12,13

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	2204.11	2198 -	2208	2203.79	3.84E+01	13.94	5.15E+00	2.21
42	2446.96	2443 -	2449	2446.68	5.78E+00	7.78	6.44E+00	2.76
43	2614.43	2610 -	2617	2614.17	1.51E+01	9.17	3.76E+00	1.97

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 1/19/2022 3:39:53PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	62.25	57 -	67	1.73E+02	97.66	1.19E+03	7.73E+01
	2	76.49	70 -	81	1.21E+03	125.60	1.36E+03	8.59E+01
M	3	87.40	82 -	96	4.11E+02	98.07	1.03E+03	5.29E+01
	4	128.77	125 -	131	4.12E+01	51.50	4.54E+02	4.10E+01
	5	186.37	182 -	190	2.10E+02	68.36	5.89E+02	5.09E+01
	6	209.64	204 -	213	6.94E+01	62.71	5.15E+02	4.97E+01
M	7	239.06	234 -	246	3.02E+02	67.76	4.25E+02	3.39E+01
m	8	242.40	234 -	246	2.60E+02	61.18	3.06E+02	2.88E+01
	9	259.45	254 -	263	5.12E+01	52.82	3.68E+02	4.18E+01
	10	270.27	268 -	272	3.00E+01	30.16	1.76E+02	2.31E+01
M	11	290.64	289 -	299	2.14E+01	17.86	8.61E+01	1.53E+01
m	12	295.37	289 -	299	4.88E+02	59.88	3.05E+02	2.87E+01
	13	352.10	347 -	357	7.48E+02	78.54	4.24E+02	4.63E+01
	14	478.88	474 -	482	5.20E+01	30.63	1.12E+02	2.22E+01
	15	583.54	579 -	588	9.49E+01	32.30	9.43E+01	2.12E+01
	16	609.62	602 -	615	5.54E+02	63.09	1.96E+02	3.45E+01
	17	729.35	722 -	736	3.31E+01	34.52	1.08E+02	2.68E+01
M	18	761.67	758 -	777	2.16E+01	16.61	3.16E+01	9.24E+00
m	19	769.17	758 -	777	4.67E+01	26.53	6.18E+01	1.29E+01
	20	805.67	801 -	809	2.97E+01	24.82	7.67E+01	1.83E+01
	21	820.24	818 -	822	1.30E+01	11.92	2.00E+01	7.80E+00
	22	840.63	829 -	851	5.52E+01	51.85	1.76E+02	4.08E+01
	23	893.63	885 -	903	3.45E+01	40.84	1.33E+02	3.21E+01
	24	911.68	905 -	917	6.91E+01	36.42	1.24E+02	2.66E+01

Analysis Report for 2201045-03

MWA 11,12,13

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	25	934.84	930 -	943	5.72E+01	34.45	1.12E+02	2.54E+01
	26	969.14	966 -	973	2.73E+01	23.07	6.74E+01	1.69E+01
	27	1076.62	1072 -	1081	2.10E+01	12.41	1.00E+01	6.88E+00
	28	1120.35	1114 -	1126	1.16E+02	32.75	7.21E+01	2.03E+01
	29	1238.00	1232 -	1243	5.67E+01	24.74	4.87E+01	1.61E+01
	30	1377.56	1373 -	1381	1.60E+01	17.26	3.60E+01	1.26E+01
M	31	1408.34	1405 -	1424	2.72E+01	14.15	2.90E+01	8.85E+00
m	32	1415.66	1405 -	1424	1.55E+01	17.04	3.04E+01	9.06E+00
	33	1461.21	1457 -	1466	5.71E+01	22.63	4.17E+01	1.38E+01
	34	1508.00	1501 -	1515	2.26E+01	25.73	6.08E+01	1.97E+01
	35	1710.59	1705 -	1713	8.50E+00	8.02	5.00E+00	4.52E+00
	36	1730.81	1725 -	1737	2.98E+01	14.98	1.04E+01	8.44E+00
	37	1764.97	1758 -	1772	1.11E+02	21.07	0.00E+00	0.00E+00
	38	1848.00	1842 -	1852	1.25E+01	14.59	2.11E+01	1.05E+01
	39	1873.56	1869 -	1876	1.00E+01	6.32	0.00E+00	0.00E+00
	40	2118.85	2115 -	2122	1.02E+01	10.39	9.60E+00	6.74E+00
	41	2204.11	2198 -	2208	3.84E+01	13.94	5.15E+00	5.23E+00
	42	2446.96	2443 -	2449	5.78E+00	7.78	6.44E+00	5.03E+00
	43	2614.43	2610 -	2617	1.51E+01	9.17	3.76E+00	3.99E+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 : 1/19/2022 3:39:53PM

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

Tentative NID Library : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB
Peak Match Tolerance : 2.500 keV

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	62.25	57 -	67	61.94	1.73E+02	97.66	1.19E+03	TH-230 TH-234
	2	76.49	70 -	81	76.18	1.21E+03	125.60	1.36E+03	AM-243 TI-44
M	3	87.40	82 -	96	87.09	4.11E+02	98.07	1.03E+03	SN-126 CD-109

Analysis Report for 2201045-03

MWA 11,12,13

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									NP-237
									EU-155
									LU-176
	4	128.77	125 -	131	128.45	4.12E+01	51.50	4.54E+02	PA-234
	5	186.37	182 -	190	186.04	2.10E+02	68.36	5.89E+02	RA-226
									HO-166M
	6	209.64	204 -	213	209.31	6.94E+01	62.71	5.15E+02	CM-243
									GA-67
M	7	239.06	234 -	246	238.73	3.02E+02	67.76	4.25E+02	PB-212
									RA-224
m	8	242.40	234 -	246	242.07	2.60E+02	61.18	3.06E+02	RA-224
									EU-152
	9	259.45	254 -	263	259.12	5.12E+01	52.82	3.68E+02	.....
	10	270.27	268 -	272	269.93	3.00E+01	30.16	1.76E+02	LU-173
									CS-135
M	11	290.64	289 -	299	290.30	2.14E+01	17.86	8.61E+01	.....
m	12	295.37	289 -	299	295.03	4.88E+02	59.88	3.05E+02	PB-214
									CE-143
	13	352.10	347 -	357	351.76	7.48E+02	78.54	4.24E+02	PB-214
	14	478.88	474 -	482	478.52	5.20E+01	30.63	1.12E+02	BE-7
									PM-144
	15	583.54	579 -	588	583.17	9.49E+01	32.30	9.43E+01	TL-208
	16	609.62	602 -	615	609.25	5.54E+02	63.09	1.96E+02	BI-214
	17	729.35	722 -	736	728.98	3.31E+01	34.52	1.08E+02	BI-212
M	18	761.67	758 -	777	761.29	2.16E+01	16.61	3.16E+01	AG-110M
m	19	769.17	758 -	777	768.79	4.67E+01	26.53	6.18E+01	.....
	20	805.67	801 -	809	805.29	2.97E+01	24.82	7.67E+01	.....
	21	820.24	818 -	822	819.86	1.30E+01	11.92	2.00E+01	CS-136
	22	840.63	829 -	851	840.25	5.52E+01	51.85	1.76E+02	.....
	23	893.63	885 -	903	893.25	3.45E+01	40.84	1.33E+02	.....
	24	911.68	905 -	917	911.30	6.91E+01	36.42	1.24E+02	TL-204
									AC-228
	25	934.84	930 -	943	934.46	5.72E+01	34.45	1.12E+02	.....
	26	969.14	966 -	973	968.76	2.73E+01	23.07	6.74E+01	AC-228
	27	1076.62	1072 -	1081	1076.23	2.10E+01	12.41	1.00E+01	.....
	28	1120.35	1114 -	1126	1119.96	1.16E+02	32.75	7.21E+01	BI-214
									SC-46
									TA-182
	29	1238.00	1232 -	1243	1237.61	5.67E+01	24.74	4.87E+01	CO-56
	30	1377.56	1373 -	1381	1377.18	1.60E+01	17.26	3.60E+01	.....
M	31	1408.34	1405 -	1424	1407.96	2.72E+01	14.15	2.90E+01	EU-152
m	32	1415.66	1405 -	1424	1415.28	1.55E+01	17.04	3.04E+01	.....
	33	1461.21	1457 -	1466	1460.82	5.71E+01	22.63	4.17E+01	K-40
	34	1508.00	1501 -	1515	1507.62	2.26E+01	25.73	6.08E+01	.....
	35	1710.59	1705 -	1713	1710.22	8.50E+00	8.02	5.00E+00	.....
	36	1730.81	1725 -	1737	1730.44	2.98E+01	14.98	1.04E+01	.....
	37	1764.97	1758 -	1772	1764.60	1.11E+02	21.07	0.00E+00	BI-214
	38	1848.00	1842 -	1852	1847.64	1.25E+01	14.59	2.11E+01	.....
	39	1873.56	1869 -	1876	1873.20	1.00E+01	6.32	0.00E+00	.....
	40	2118.85	2115 -	2122	2118.52	1.02E+01	10.39	9.60E+00	.....
	41	2204.11	2198 -	2208	2203.79	3.84E+01	13.94	5.15E+00	BI-214
	42	2446.96	2443 -	2449	2446.68	5.78E+00	7.78	6.44E+00	.....
	43	2614.43	2610 -	2617	2614.17	1.51E+01	9.17	3.76E+00	TL-208

Analysis Report for 2201045-03

MWA 11,12,13

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 : 1/19/2022 3:39:53PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	62.25	1.73E+02	97.66	5.01E-02	3.74E-03
	2	76.49	1.21E+03	125.60	5.14E-02	4.06E-03
M	3	87.40	4.11E+02	98.07	5.11E-02	4.30E-03
	4	128.77	4.12E+01	51.50	4.64E-02	3.38E-03
	5	186.37	2.10E+02	68.36	3.83E-02	3.01E-03
	6	209.64	6.94E+01	62.71	3.54E-02	2.84E-03
M	7	239.06	3.02E+02	67.76	3.23E-02	2.62E-03
m	8	242.40	2.60E+02	61.18	3.20E-02	2.59E-03
	9	259.45	5.12E+01	52.82	3.04E-02	2.46E-03
	10	270.27	3.00E+01	30.16	2.94E-02	2.38E-03
M	11	290.64	2.14E+01	17.86	2.78E-02	2.27E-03
m	12	295.37	4.88E+02	59.88	2.74E-02	2.25E-03
	13	352.10	7.48E+02	78.54	2.37E-02	2.04E-03
	14	478.88	5.20E+01	30.63	1.82E-02	1.72E-03
	15	583.54	9.49E+01	32.30	1.53E-02	1.51E-03
	16	609.62	5.54E+02	63.09	1.47E-02	1.45E-03
	17	729.35	3.31E+01	34.52	1.25E-02	1.23E-03
M	18	761.67	2.16E+01	16.61	1.21E-02	1.17E-03
m	19	769.17	4.67E+01	26.53	1.19E-02	1.16E-03
	20	805.67	2.97E+01	24.82	1.15E-02	1.09E-03
	21	820.24	1.30E+01	11.92	1.13E-02	1.06E-03
	22	840.63	5.52E+01	51.85	1.11E-02	1.03E-03
	23	893.63	3.45E+01	40.84	1.05E-02	9.32E-04
	24	911.68	6.91E+01	36.42	1.03E-02	9.11E-04
	25	934.84	5.72E+01	34.45	1.01E-02	8.90E-04
	26	969.14	2.73E+01	23.07	9.77E-03	8.58E-04
	27	1076.62	2.10E+01	12.41	8.93E-03	7.58E-04
	28	1120.35	1.16E+02	32.75	8.64E-03	7.18E-04
	29	1238.00	5.67E+01	24.74	7.94E-03	6.44E-04
	30	1377.56	1.60E+01	17.26	7.26E-03	5.92E-04
M	31	1408.34	2.72E+01	14.15	7.13E-03	5.81E-04
m	32	1415.66	1.55E+01	17.04	7.10E-03	5.79E-04
	33	1461.21	5.71E+01	22.63	6.92E-03	5.63E-04
	34	1508.00	2.26E+01	25.73	6.74E-03	5.47E-04

Analysis Report for 2201045-03

MWA 11,12,13

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
35	1710.59	8.50E+00	8.02	6.07E-03	4.77E-04
36	1730.81	2.98E+01	14.98	6.01E-03	4.70E-04
37	1764.97	1.11E+02	21.07	5.92E-03	4.58E-04
38	1848.00	1.25E+01	14.59	5.70E-03	4.33E-04
39	1873.56	1.00E+01	6.32	5.63E-03	4.33E-04
40	2118.85	1.02E+01	10.39	5.09E-03	4.33E-04
41	2204.11	3.84E+01	13.94	4.92E-03	4.33E-04
42	2446.96	5.78E+00	7.78	4.51E-03	4.33E-04
43	2614.43	1.51E+01	9.17	4.26E-03	4.33E-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 : 1/19/2022 3:39:53PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000119047.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	62.25	1.73E+02	97.66	9.27E+01	1.03E+01	8.04E+01	9.82E+01
	2	76.49	1.21E+03	125.60	8.88E+00	3.71E+00	1.20E+03	1.26E+02
M	3	87.40	4.11E+02	98.07			4.11E+02	9.81E+01
	4	128.77	4.12E+01	51.50			4.12E+01	5.15E+01
	5	186.37	2.10E+02	68.36	5.42E+01	8.68E+00	1.56E+02	6.89E+01
	6	209.64	6.94E+01	62.71			6.94E+01	6.27E+01
M	7	239.06	3.02E+02	67.76	1.70E+01	6.15E+00	2.85E+02	6.80E+01
m	8	242.40	2.60E+02	61.18			2.60E+02	6.12E+01
	9	259.45	5.12E+01	52.82			5.12E+01	5.28E+01
	10	270.27	3.00E+01	30.16			3.00E+01	3.02E+01
M	11	290.64	2.14E+01	17.86			2.14E+01	1.79E+01
m	12	295.37	4.88E+02	59.88	4.03E+00	5.84E+01	4.84E+02	8.36E+01
	13	352.10	7.48E+02	78.54			7.48E+02	7.85E+01
	14	478.88	5.20E+01	30.63			5.20E+01	3.06E+01
	15	583.54	9.49E+01	32.30			9.49E+01	3.23E+01
	16	609.62	5.54E+02	63.09			5.54E+02	6.31E+01
	17	729.35	3.31E+01	34.52			3.31E+01	3.45E+01
M	18	761.67	2.16E+01	16.61			2.16E+01	1.66E+01
m	19	769.17	4.67E+01	26.53			4.67E+01	2.65E+01
	20	805.67	2.97E+01	24.82	2.88E+00	2.50E+00	2.68E+01	2.50E+01
	21	820.24	1.30E+01	11.92			1.30E+01	1.19E+01

Analysis Report for 2201045-03

MWA 11,12,13

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	22	840.63	5.52E+01	51.85			5.52E+01	5.18E+01
	23	893.63	3.45E+01	40.84			3.45E+01	4.08E+01
	24	911.68	6.91E+01	36.42	2.51E-01	2.90E+00	6.89E+01	3.65E+01
	25	934.84	5.72E+01	34.45			5.72E+01	3.45E+01
	26	969.14	2.73E+01	23.07			2.73E+01	2.31E+01
	27	1076.62	2.10E+01	12.41			2.10E+01	1.24E+01
	28	1120.35	1.16E+02	32.75			1.16E+02	3.28E+01
	29	1238.00	5.67E+01	24.74			5.67E+01	2.47E+01
	30	1377.56	1.60E+01	17.26			1.60E+01	1.73E+01
M	31	1408.34	2.72E+01	14.15			2.72E+01	1.42E+01
m	32	1415.66	1.55E+01	17.04			1.55E+01	1.70E+01
	33	1461.21	5.71E+01	22.63	3.16E+00	1.93E+00	5.40E+01	2.27E+01
	34	1508.00	2.26E+01	25.73			2.26E+01	2.57E+01
	35	1710.59	8.50E+00	8.02			8.50E+00	8.02E+00
	36	1730.81	2.98E+01	14.98			2.98E+01	1.50E+01
	37	1764.97	1.11E+02	21.07			1.11E+02	2.11E+01
	38	1848.00	1.25E+01	14.59			1.25E+01	1.46E+01
	39	1873.56	1.00E+01	6.32			1.00E+01	6.32E+00
	40	2118.85	1.02E+01	10.39			1.02E+01	1.04E+01
	41	2204.11	3.84E+01	13.94			3.84E+01	1.39E+01
	42	2446.96	5.78E+00	7.78			5.78E+00	7.78E+00
	43	2614.43	1.51E+01	9.17	4.82E+00	1.66E+00	1.03E+01	9.31E+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 : 1/19/2022 3:39:53PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000119047.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	62.25	1.73E+02	97.66	9.27E+01	1.03E+01	8.04E+01	9.82E+01
	2	76.49	1.21E+03	125.60	8.88E+00	3.71E+00	1.20E+03	1.26E+02
M	3	87.40	4.11E+02	98.07			4.11E+02	9.81E+01
	4	128.77	4.12E+01	51.50			4.12E+01	5.15E+01
	5	186.37	2.10E+02	68.36	5.42E+01	8.68E+00	1.56E+02	6.89E+01
	6	209.64	6.94E+01	62.71			6.94E+01	6.27E+01

Analysis Report for 2201045-03

MWA 11,12,13

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	7	239.06	3.02E+02	67.76	1.70E+01	6.15E+00	2.85E+02	6.80E+01
m	8	242.40	2.60E+02	61.18			2.60E+02	6.12E+01
	9	259.45	5.12E+01	52.82			5.12E+01	5.28E+01
	10	270.27	3.00E+01	30.16			3.00E+01	3.02E+01
M	11	290.64	2.14E+01	17.86			2.14E+01	1.79E+01
m	12	295.37	4.88E+02	59.88	4.03E+00	5.84E+01	4.84E+02	8.36E+01
	13	352.10	7.48E+02	78.54			7.48E+02	7.85E+01
	14	478.88	5.20E+01	30.63			5.20E+01	3.06E+01
	15	583.54	9.49E+01	32.30			9.49E+01	3.23E+01
	16	609.62	5.54E+02	63.09			5.54E+02	6.31E+01
	17	729.35	3.31E+01	34.52			3.31E+01	3.45E+01
M	18	761.67	2.16E+01	16.61			2.16E+01	1.66E+01
m	19	769.17	4.67E+01	26.53			4.67E+01	2.65E+01
	20	805.67	2.97E+01	24.82	2.88E+00	2.50E+00	2.68E+01	2.50E+01
	21	820.24	1.30E+01	11.92			1.30E+01	1.19E+01
	22	840.63	5.52E+01	51.85			5.52E+01	5.18E+01
	23	893.63	3.45E+01	40.84			3.45E+01	4.08E+01
	24	911.68	6.91E+01	36.42	2.51E-01	2.90E+00	6.89E+01	3.65E+01
	25	934.84	5.72E+01	34.45			5.72E+01	3.45E+01
	26	969.14	2.73E+01	23.07			2.73E+01	2.31E+01
	27	1076.62	2.10E+01	12.41			2.10E+01	1.24E+01
	28	1120.35	1.16E+02	32.75			1.16E+02	3.28E+01
	29	1238.00	5.67E+01	24.74			5.67E+01	2.47E+01
	30	1377.56	1.60E+01	17.26			1.60E+01	1.73E+01
M	31	1408.34	2.72E+01	14.15			2.72E+01	1.42E+01
m	32	1415.66	1.55E+01	17.04			1.55E+01	1.70E+01
	33	1461.21	5.71E+01	22.63	3.16E+00	1.93E+00	5.40E+01	2.27E+01
	34	1508.00	2.26E+01	25.73			2.26E+01	2.57E+01
	35	1710.59	8.50E+00	8.02			8.50E+00	8.02E+00
	36	1730.81	2.98E+01	14.98			2.98E+01	1.50E+01
	37	1764.97	1.11E+02	21.07			1.11E+02	2.11E+01
	38	1848.00	1.25E+01	14.59			1.25E+01	1.46E+01
	39	1873.56	1.00E+01	6.32			1.00E+01	6.32E+00
	40	2118.85	1.02E+01	10.39			1.02E+01	1.04E+01
	41	2204.11	3.84E+01	13.94			3.84E+01	1.39E+01
	42	2446.96	5.78E+00	7.78			5.78E+00	7.78E+00
	43	2614.43	1.51E+01	9.17	4.82E+00	1.66E+00	1.03E+01	9.31E+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 2201045-03

MWA 11,12,13

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BE-7	0.958	477.59	*	10.42	5.76E+00	3.44E+00
K-40	0.996	1460.81	*	10.67	1.20E+01	5.14E+00
CD-109	0.990	88.03	*	3.72	3.65E+01	9.22E+00
SN-126	0.999	87.57	*	37.00	3.56E+00	9.01E-01
CS-135	0.900	268.24	*	16.00	1.05E+00	1.05E+00
EU-155	0.352	86.50	*	30.90	4.30E+00	1.09E+00
		105.30		20.70		
LU-173	0.542	100.72		5.24		
		272.11	*	21.20	8.10E-01	8.16E-01
TL-208	0.883	583.14	*	30.22	3.37E+00	1.20E+00
		860.37		4.48		
		2614.66	*	35.85	1.11E+00	1.01E+00
BI-212	0.678	727.17	*	11.80	3.67E+00	3.85E+00
		1620.62		2.75		
PB-212	0.891	238.63	*	44.60	3.24E+00	8.18E-01
		300.09		3.41		
BI-214	0.997	609.31	*	46.30	1.34E+01	2.02E+00
		1120.29	*	15.10	1.46E+01	4.29E+00
		1764.49	*	15.80	1.95E+01	3.99E+00
		2204.22	*	4.98	2.57E+01	9.59E+00
PB-214	0.999	295.21	*	19.19	1.51E+01	2.88E+00
		351.92	*	37.19	1.39E+01	1.89E+00
RA-224	0.950	240.98	*	3.95	3.38E+01	8.40E+00
RA-226	0.999	186.21	*	3.28	2.04E+01	9.14E+00
AC-228	0.537	338.32		11.40		
		911.07	*	27.70	3.96E+00	2.13E+00
		969.11	*	16.60	2.76E+00	2.34E+00
PA-234	0.396	131.20	*	20.40	7.14E-01	8.94E-01
		733.99		8.80		
		946.00		12.00		
TH-234	0.973	63.29	*	3.80	6.93E+00	8.48E+00
NP-237	0.980	86.50	*	12.60	1.05E+01	2.65E+00
AM-243	0.918	74.67	*	66.00	5.81E+00	7.61E-01

* = Energy line found in the spectrum.
\- = Manually added nuclide.
? = Manually edited nuclide.
Energy Tolerance : 2.500 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000sigma

Analysis Report for 2201045-03

MWA 11,12,13

UNIDENTIFIED PEAKS

Peak Locate Performed on : 1/19/2022 3:39:53PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	6	209.64	1.92741E-02	45.19	Tol.	GA-67 CM-243
	9	259.45	1.42187E-02	51.60	Sum	
M	11	290.64	5.94173E-03	41.75		
M	18	761.67	6.00764E-03	38.41		
m	19	769.17	1.29695E-02	28.41	Sum	
	20	805.67	7.43869E-03	46.58	Sum	
	21	820.24	3.61111E-03	45.83	Sum	
	22	840.63	1.53205E-02	47.00		
	23	893.63	9.58333E-03	59.18		
	25	934.84	1.59022E-02	30.09	Sum	
	27	1076.62	5.83333E-03	29.55		
	29	1238.00	1.57373E-02	21.83	Sum	
	30	1377.56	4.44444E-03	53.95		
M	31	1408.34	7.54286E-03	26.06	Tol.	EU-152
m	32	1415.66	4.30996E-03	54.90	Sum	
	34	1508.00	6.28145E-03	56.89		
	35	1710.59	2.36111E-03	47.15		
	36	1730.81	8.27778E-03	25.14	Sum	
	38	1848.00	3.46015E-03	58.58	Sum	
	39	1873.56	2.77778E-03	31.62		
	40	2118.85	2.83333E-03	50.94	Sum	
	42	2446.96	1.60494E-03	67.31	Sum	

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Analysis Report for 2201045-03

MWA 11,12,13

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BE-7	0.95	477.59	*	10.42	5.76E+00	3.44E+00
K-40	0.99	1460.81	*	10.67	1.20E+01	5.14E+00
CD-109	0.99	88.03	*	3.72	3.65E+01	9.22E+00
SN-126	0.99	87.57	*	37.00	3.56E+00	9.01E-01
CS-135	0.90	268.24	*	16.00	1.05E+00	1.05E+00
EU-155	0.35	86.50	*	30.90	4.30E+00	1.09E+00
		105.30		20.70		
LU-173	0.54	100.72		5.24		
		272.11	*	21.20	8.10E-01	8.16E-01
TL-208	0.88	583.14	*	30.22	3.37E+00	1.20E+00
		860.37		4.48		
		2614.66	*	35.85	1.11E+00	1.01E+00
BI-212	0.67	727.17	*	11.80	3.67E+00	3.85E+00
		1620.62		2.75		
PB-212	0.89	238.63	*	44.60	3.24E+00	8.18E-01
		300.09		3.41		
BI-214	0.99	609.31	*	46.30	1.34E+01	2.02E+00
		1120.29	*	15.10	1.46E+01	4.29E+00
		1764.49	*	15.80	1.95E+01	3.99E+00
		2204.22	*	4.98	2.57E+01	9.59E+00
PB-214	0.99	295.21	*	19.19	1.51E+01	2.88E+00
		351.92	*	37.19	1.39E+01	1.89E+00
RA-224	0.95	240.98	*	3.95	3.38E+01	8.40E+00
RA-226	0.99	186.21	*	3.28	2.04E+01	9.14E+00
AC-228	0.53	338.32		11.40		
		911.07	*	27.70	3.96E+00	2.13E+00
		969.11	*	16.60	2.76E+00	2.34E+00
PA-234	0.39	131.20	*	20.40	7.14E-01	8.94E-01
		733.99		8.80		
		946.00		12.00		
TH-234	0.97	63.29	*	3.80	6.93E+00	8.48E+00
NP-237	0.98	86.50	*	12.60	1.05E+01	2.65E+00
AM-243	0.91	74.67	*	66.00	5.81E+00	7.61E-01

* = Energy line found in the spectrum.
\- = Manually added nuclide.
? = Manually edited nuclide.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 2.500 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000sigma

INTERFERENCE CORRECTED REPORT

Analysis Report for 2201045-03

MWA 11,12,13

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	BE-7	0.958	5.76E+00	3.44E+00	
	K-40	0.996	1.20E+01	5.14E+00	
?	CD-109	0.990	3.65E+01	9.22E+00	
?	SN-126	0.999	3.56E+00	9.01E-01	
?	CS-135	0.900	1.05E+00	1.05E+00	
?	EU-155	0.352	4.30E+00	1.09E+00	
?	LU-173	0.542	8.10E-01	8.16E-01	
	TL-208	0.883	2.05E+00	7.70E-01	
	BI-212	0.678	3.67E+00	3.85E+00	
	PB-212	0.891	3.24E+00	8.18E-01	
	BI-214	0.997	1.49E+01	1.64E+00	
	PB-214	0.999	1.42E+01	1.58E+00	
	RA-224	0.950	3.38E+01	8.40E+00	
	RA-226	0.999	2.04E+01	9.14E+00	
	AC-228	0.537	3.41E+00	1.58E+00	
	PA-234	0.396	7.14E-01	8.94E-01	
	TH-234	0.973	6.93E+00	8.48E+00	
?	NP-237	0.980	1.05E+01	2.65E+00	
	AM-243	0.918	5.81E+00	7.61E-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 2201045-03

MWA 11,12,13

UNIDENTIFIED PEAKS

Peak Locate Performed on : 1/19/2022 3:39:53PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	6	209.64	1.92741E-02	45.19	Tol.	GA-67 CM-243
	9	259.45	1.42187E-02	51.60	Sum	
M	11	290.64	5.94173E-03	41.75		
M	18	761.67	6.00764E-03	38.41		
m	19	769.17	1.29695E-02	28.41	Sum	
	20	805.67	7.43869E-03	46.58	Sum	
	21	820.24	3.61111E-03	45.83	Sum	
	22	840.63	1.53205E-02	47.00		
	23	893.63	9.58333E-03	59.18		
	25	934.84	1.59022E-02	30.09	Sum	
	27	1076.62	5.83333E-03	29.55		
	29	1238.00	1.57373E-02	21.83	Sum	
	30	1377.56	4.44444E-03	53.95		
M	31	1408.34	7.54286E-03	26.06	Tol.	EU-152
m	32	1415.66	4.30996E-03	54.90	Sum	
	34	1508.00	6.28145E-03	56.89		
	35	1710.59	2.36111E-03	47.15		
	36	1730.81	8.27778E-03	25.14	Sum	
	38	1848.00	3.46015E-03	58.58	Sum	
	39	1873.56	2.77778E-03	31.62		
	40	2118.85	2.83333E-03	50.94	Sum	
	42	2446.96	1.60494E-03	67.31	Sum	

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

Analysis Report for 2201045-03

MWA 11,12,13

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	5.76E+00	5.23E+00	5.23E+00
+	NA-22	1274.54		99.94	-2.36E-01	5.27E-01	5.27E-01
+	NA-24	1368.53		99.99	-1.53E-01	4.34E-01	4.79E-01
		2754.09		99.86	1.21E-01		4.34E-01
+	AL-26	1808.65		99.76	-1.04E-02	4.93E-01	4.93E-01
+	K-40	1460.81	*	10.67	1.20E+01	6.93E+00	6.93E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-1.81E-02	3.51E-01	3.51E-01
		78.34		96.00	2.63E+00		5.84E-01
+	SC-46	889.25		98.98	1.16E-02	6.44E-01	6.44E-01
		1120.51		99.90	2.56E+00		1.29E+00
+	V-48	983.52		99.98	5.12E-01	1.22E+00	1.28E+00
		1312.10		97.50	3.63E-02		1.22E+00
+	CR-51	320.08		9.83	-1.43E+00	5.29E+00	5.29E+00
+	MN-54	834.83		99.97	-1.35E-01	5.96E-01	5.96E-01
+	CO-56	846.75		99.96	-1.26E-01	6.35E-01	6.35E-01
		1037.75		14.03	-9.01E-01		4.50E+00
		1238.25		67.00	1.86E+00		1.58E+00
		1771.40		15.51	0.00E+00		4.21E+00
		2587.48		16.90	1.09E+00		3.27E+00
+	CO-57	122.06		85.51	-3.92E-03	3.04E-01	3.04E-01
		136.48		10.60	5.20E-01		2.71E+00
+	CO-58	810.76		99.40	1.11E-01	7.11E-01	7.11E-01
+	FE-59	1099.22		56.50	2.31E-01	1.29E+00	1.29E+00
		1291.56		43.20	6.35E-01		1.96E+00
+	CO-60	1173.22		100.00	-2.79E-01	4.58E-01	5.25E-01
		1332.49		100.00	-1.52E-01		4.58E-01
+	ZN-65	1115.52		50.75	-1.11E-01	1.45E+00	1.45E+00
+	GA-67	93.31		35.70	1.72E+01	5.84E+01	5.84E+01
		208.95		2.24	7.21E+02		8.92E+02
		300.22		16.00	3.49E+01		1.44E+02
+	SE-75	121.11		16.70	-5.77E-01	5.13E-01	1.63E+00
		136.00		59.50	9.83E-02		5.13E-01
		264.65		59.80	-1.04E-01		5.87E-01
		279.53		25.20	-6.12E-01		1.49E+00
		400.65		11.40	7.95E-01		3.93E+00
+	RB-82	776.52		13.00	-5.61E-01	6.18E+00	6.18E+00
+	RB-83	520.41		46.00	-4.59E-01	1.02E+00	1.02E+00
		529.64		30.30	-1.04E+00		1.57E+00
		552.65		16.40	-7.61E-01		2.97E+00
+	KR-85	513.99		0.43	1.11E+02	1.34E+02	1.34E+02
+	SR-85	513.99		99.27	5.94E-01	7.17E-01	7.17E-01

Analysis Report for 2201045-03

MWA 11,12,13

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	Y-88	898.02		93.40	2.77E-01	4.89E-01	6.78E-01
		1836.01		99.38	-6.05E-02		4.89E-01
+	MO-93	263.06		56.72	-2.93E-03	4.40E-01	5.80E-01
		684.67		99.68	-1.26E-01		4.40E-01
		1477.11		99.08	-8.50E-03		5.57E-01
+	NB-93M	16.57		9.43	0.00E+00	4.12E-01	4.12E-01
+	NB-94	702.63		100.00	-3.06E-01	4.74E-01	4.79E-01
		871.10		100.00	-2.89E-01		4.74E-01
+	NB-95	765.79		99.81	5.93E-01	9.54E-01	9.54E-01
+	NB-95M	235.69		25.00	-5.13E+00	6.48E+01	6.48E+01
+	ZR-95	724.18		43.70	3.94E-01	1.09E+00	1.49E+00
		756.72		55.30	1.79E-02		1.09E+00
+	MO-99	181.06		6.20	-6.30E+01	4.40E+02	6.04E+02
		739.58		12.80	2.48E+01		4.40E+02
		778.00		4.50	-4.62E+02		1.26E+03
+	TC-99M	140.51		89.00	-1.47E-01	3.12E-01	3.12E-01
+	RU-103	497.08		89.00	9.60E-02	6.49E-01	6.49E-01
+	RU-106	621.84		9.80	1.22E+00	5.14E+00	5.14E+00
+	AG-108M	433.93		89.90	7.44E-02	4.64E-01	4.64E-01
		614.37		90.40	8.09E-02		1.02E+00
		722.95		90.50	1.61E-01		5.82E-01
+	CD-109	88.03	*	3.72	3.65E+01	1.66E+01	1.66E+01
+	AG-110M	657.75		93.14	-4.63E-02	4.86E-01	4.86E-01
		677.61		10.53	-1.48E-01		4.33E+00
		706.67		16.46	-1.35E+00		2.96E+00
		763.93		21.98	4.59E-01		2.92E+00
		884.67		21.98	1.22E-01		2.47E+00
		1384.27		23.94	5.66E-01		2.59E+00
+	CD-113M	263.70		0.02	-7.23E+00	1.43E+03	1.43E+03
+	SN-113	255.12		1.93	1.19E+00	7.02E-01	1.90E+01
		391.69		64.90	5.07E-01		7.02E-01
+	TE-123M	159.00		84.10	6.95E-03	4.00E-01	4.00E-01
+	SB-124	602.71		97.87	-8.06E-02	5.54E-01	5.54E-01
		645.85		7.26	2.13E-01		7.82E+00
		722.78		11.10	1.74E+00		5.78E+00
		1691.02		49.00	4.80E-02		1.49E+00
+	I-125	35.49		6.49	4.42E+01	1.03E+01	1.03E+01
+	SB-125	176.33		6.89	1.13E+00	1.53E+00	4.50E+00
		427.89		29.33	5.99E-01		1.53E+00
		463.38		10.35	1.54E+00		4.55E+00
		600.56		17.80	-3.19E-01		2.45E+00
		635.90		11.32	-9.12E-01		3.93E+00
+	SB-126	414.70		83.30	3.90E-02	4.65E-01	4.65E-01
		666.33		99.60	3.90E-01		5.15E-01
		695.00		99.60	7.63E-02		5.28E-01
		720.50		53.80	4.54E-01		9.89E-01
+	SN-126	87.57	*	37.00	3.56E+00	1.62E+00	1.62E+00
+	SB-127	473.00		25.00	1.50E+01	3.89E+01	4.92E+01

Analysis Report for 2201045-03

MWA 11,12,13

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		SB-127	685.00		35.70	-1.21E+01	3.89E+01	3.89E+01
			783.80		14.70	1.59E+01		1.17E+02
+		I-129	29.78		57.00	-3.26E-01	2.22E-01	2.22E-01
			33.60		13.20	-7.12E+00		2.81E+00
			39.58		7.52	1.44E+01		6.50E+00
+		I-131	284.30		6.05	-4.71E+00	2.53E+00	2.87E+01
			364.48		81.20	9.24E-01		2.53E+00
			636.97		7.26	1.30E+00		3.21E+01
			722.89		1.80	4.17E+01		1.51E+02
+		TE-132	49.72		13.10	4.00E+00	2.01E+01	1.49E+02
			228.16		88.00	-2.97E+00		2.01E+01
+		BA-133	81.00		34.06	-5.10E+00	9.35E-01	1.14E+00
			302.84		18.33	3.18E-01		2.02E+00
			356.01		62.05	-1.10E-01		9.35E-01
+		I-133	529.87		86.30	-3.33E+05	2.01E+06	2.01E+06
+		XE-133	81.00		38.00	-5.66E+01	1.26E+01	1.26E+01
+		CS-134	563.23		8.38	1.24E+00	6.48E-01	5.80E+00
			569.32		15.43	4.13E-01		2.98E+00
			604.70		97.60	3.11E-02		7.63E-01
			795.84		85.40	-1.65E-02		6.48E-01
			801.93		8.73	-1.06E+00		6.43E+00
+		CS-135	268.24	*	16.00	1.05E+00	1.70E+00	1.70E+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	3.05E+00	1.26E+00	1.08E+01
			163.89		4.61	-3.49E+00		1.78E+01
			176.55		13.56	1.55E+00		6.16E+00
			273.65		12.66	2.22E-01		7.68E+00
			340.57		48.50	2.43E+00		2.46E+00
			818.50		99.70	-2.92E-01		1.26E+00
			1048.07		79.60	-3.69E-01		1.95E+00
			1235.34		19.70	5.98E+00		1.13E+01
+		CS-137	661.65		85.12	-2.69E-01	5.17E-01	5.17E-01
+		LA-138	788.74		34.00	3.21E-01	7.75E-01	1.73E+00
			1435.80		66.00	8.61E-02		7.75E-01
+		CE-139	165.85		80.35	-4.87E-02	4.10E-01	4.10E-01
+		BA-140	162.64		6.70	8.70E+00	5.03E+00	1.29E+01
			304.84		4.50	9.31E+00		2.29E+01
			423.70		3.20	7.99E+00		3.94E+01
			437.55		2.00	4.62E+00		5.90E+01
			537.32		25.00	1.12E-01		5.03E+00
+		LA-140	328.77		20.50	9.31E-01	1.72E+00	4.95E+00
			487.03		45.50	-2.05E-01		2.61E+00
			815.85		23.50	4.07E-01		6.09E+00
			1596.49		95.49	-3.95E-03		1.72E+00
+		CE-141	145.44		48.40	2.78E-01	9.23E-01	9.23E-01
+		CE-143	57.36		11.80	2.52E+03	2.47E+04	3.91E+04
			293.26		42.00	8.84E+04		2.47E+04

Analysis Report for 2201045-03

MWA 11,12,13

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CE-143	664.55		5.20	3.94E+03	2.47E+04	1.38E+05
+	CE-144	133.54		10.80	4.42E-01	2.70E+00	2.70E+00
+	PM-144	476.78		42.00	1.36E-01	4.95E-01	1.09E+00
		618.01		98.60	1.99E-01		4.95E-01
		696.49		99.49	1.87E-01		5.46E-01
+	PM-145	36.85		21.70	7.58E+00	1.33E+00	2.45E+00
		37.36		39.70	4.10E+00		1.33E+00
		42.30		15.10	-1.36E+01		2.31E+00
		72.40		2.31	-5.77E+01		1.91E+01
+	PM-146	453.90		39.94	1.10E-01	1.07E+00	1.07E+00
		735.90		14.01	4.06E-02		3.22E+00
		747.13		13.10	-8.59E-02		4.01E+00
+	ND-147	91.11		28.90	4.79E+00	4.59E+00	4.59E+00
		531.02		13.10	-7.02E-01		1.09E+01
+	PM-149	285.90		3.10	-5.01E+02	4.46E+03	4.46E+03
+	EU-152	121.78		20.50	-4.23E-01	1.20E+00	1.20E+00
		244.69		5.40	8.63E+00		9.18E+00
		344.27		19.13	-2.22E-01		1.97E+00
		778.89		9.10	-2.47E+00		5.29E+00
		964.01		10.40	3.67E-01		6.38E+00
		1085.78		7.22	2.32E+00		7.13E+00
		1112.02		9.60	-1.04E+00		4.93E+00
		1407.95		14.94	1.44E+00		5.44E+00
+	GD-153	97.43		31.30	1.47E-01	1.01E+00	1.01E+00
		103.18		22.20	-1.41E-01		1.32E+00
+	EU-154	123.07		40.50	8.25E-02	6.31E-01	6.31E-01
		723.30		19.70	7.41E-01		2.68E+00
		873.19		11.50	1.89E+00		4.63E+00
		996.32		10.30	1.62E+00		5.74E+00
		1004.76		17.90	3.06E-01		3.15E+00
		1274.45		35.50	-6.58E-01		1.47E+00
+	EU-155	86.50	*	30.90	4.30E+00	1.35E+00	1.95E+00
		105.30		20.70	3.42E-01		1.35E+00
+	EU-156	811.77		10.40	5.02E+00	1.31E+01	1.31E+01
		1153.47		7.20	1.19E-01		2.02E+01
		1230.71		8.90	1.38E-01		1.51E+01
+	HO-166M	184.41		72.60	1.18E+00	5.84E-01	5.84E-01
		280.45		29.60	-3.73E-01		1.14E+00
		410.94		11.10	-5.81E-01		3.48E+00
		711.69		54.10	-1.49E-01		9.32E-01
+	TM-171	66.72		0.14	-1.25E+01	2.55E+02	2.55E+02
+	HF-172	67.35		5.31	-3.29E-01	2.48E+00	6.51E+00
		125.82		11.30	5.43E-02		2.48E+00
+	LU-172	181.53		20.60	-1.12E+00	6.20E+00	1.07E+01
		900.72		29.81	3.66E+00		1.30E+01
		1093.66		62.50	5.30E-01		6.20E+00
+	LU-173	100.72		5.24	-1.67E+00	1.32E+00	5.49E+00
		272.11	*	21.20	8.10E-01		1.32E+00
+	HF-175	343.40		84.00	-4.56E-01	5.60E-01	5.60E-01

Analysis Report for 2201045-03

MWA 11,12,13

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	LU-176	88.34		13.30	3.70E-01	3.60E-01	3.03E+00
		201.83		86.00	-2.86E-03		3.74E-01
		306.78		94.00	-2.87E-01		3.60E-01
+	HF-181	133.02		41.70	1.49E-01	7.61E-01	9.09E-01
		345.85		17.20	1.53E+00		3.31E+00
		482.03		82.80	-1.09E-01		7.61E-01
+	TA-182	67.75		41.20	-4.67E-02	9.23E-01	9.23E-01
		1121.30		34.90	6.78E+00		3.54E+00
		1189.05		16.23	1.10E+00		4.01E+00
		1221.41		26.98	8.58E-02		2.43E+00
		1231.02		11.44	7.51E-02		5.60E+00
+	IR-192	308.46		29.68	4.22E-01	1.07E+00	1.43E+00
		468.07		48.10	4.37E-01		1.07E+00
+	HG-203	279.19		77.30	-2.37E-01	5.76E-01	5.76E-01
+	TL-204	374.74		94.11	1.11E-01	3.66E-01	3.66E-01
		899.15		99.16	1.80E-01		5.48E-01
		911.74		91.10	1.33E+00		9.28E-01
+	BI-207	569.67		97.72	6.42E-02	4.63E-01	4.63E-01
		1063.62		74.90	4.05E-03		6.42E-01
+	TL-208	583.14	*	30.22	3.37E+00	1.48E+00	1.60E+00
		860.37		4.48	-1.66E+00		1.12E+01
		2614.66	*	35.85	1.11E+00		1.48E+00
+	BI-210M	262.00		45.00	-1.94E-01	7.17E-01	7.17E-01
		300.00		23.00	4.22E-01		1.75E+00
+	PB-210	46.50		4.25	4.18E+00	8.31E+00	8.31E+00
+	PB-211	404.84		2.90	1.80E+00	1.42E+01	1.42E+01
		831.96		2.90	1.87E+00		1.93E+01
+	BI-212	727.17	*	11.80	3.67E+00	6.24E+00	6.24E+00
		1620.62		2.75	-3.05E+00		2.00E+01
+	PB-212	238.63	*	44.60	3.24E+00	1.33E+00	1.33E+00
		300.09		3.41	2.85E+00		1.18E+01
+	BI-214	609.31	*	46.30	1.34E+01	4.74E-01	1.73E+00
		1120.29	*	15.10	1.46E+01		5.44E+00
		1764.49	*	15.80	1.95E+01		4.74E-01
		2204.22	*	4.98	2.57E+01		8.81E+00
+	PB-214	295.21	*	19.19	1.51E+01	1.77E+00	4.27E+00
		351.92	*	37.19	1.39E+01		1.77E+00
+	RN-219	401.80		6.50	5.46E-01	6.23E+00	6.23E+00
+	RA-223	323.87		3.88	3.73E-01	9.02E+00	9.02E+00
+	RA-224	240.98	*	3.95	3.38E+01	1.46E+01	1.46E+01
+	RA-225	40.00		31.00	6.78E+00	3.75E+00	3.75E+00
+	RA-226	186.21	*	3.28	2.04E+01	1.41E+01	1.41E+01
+	TH-227	50.10		8.40	-2.47E+00	3.91E+00	3.91E+00
		236.00		11.50	8.47E-01		4.17E+00
		256.20		6.30	4.02E-01		5.24E+00
+	AC-228	338.32		11.40	2.48E+00	3.23E+00	3.69E+00
		911.07	*	27.70	3.96E+00		3.23E+00
		969.11	*	16.60	2.76E+00		3.69E+00

Analysis Report for 2201045-03

MWA 11,12,13

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TH-230	48.43		16.90	1.29E+00	2.07E+00	2.07E+00
		62.85		4.60	7.42E+00		7.88E+00
		67.67		0.37	-4.63E+00		9.16E+01
+	PA-231	283.67		1.60	-1.22E+01	1.60E+01	2.08E+01
		302.67		2.30	2.52E+00		1.60E+01
+	TH-231	25.64		14.70	0.00E+00	1.12E-01	1.12E-01
		84.21		6.40	-5.64E+00		5.69E+00
+	PA-233	311.98		38.60	4.86E-01	1.50E+00	1.50E+00
+	PA-234	131.20	*	20.40	7.14E-01	1.47E+00	1.47E+00
		733.99		8.80	-7.48E-01		4.92E+00
		946.00		12.00	7.65E-01		4.40E+00
+	PA-234M	1001.03		0.92	1.27E+01	6.29E+01	6.29E+01
+	TH-234	63.29	*	3.80	6.93E+00	1.39E+01	1.39E+01
+	U-235	143.76		10.50	6.89E-01	2.79E+00	2.79E+00
		163.35		4.70	2.39E-01		6.42E+00
		205.31		4.70	-5.86E-01		6.93E+00
+	NP-237	86.50	*	12.60	1.05E+01	4.75E+00	4.75E+00
+	NP-239	106.10		22.70	2.65E+01	3.34E+02	3.34E+02
		228.18		10.70	-1.15E+02		7.82E+02
		277.60		14.10	5.86E+02		6.92E+02
+	AM-241	59.54		35.90	-9.79E-01	9.06E-01	9.06E-01
+	AM-243	74.67	*	66.00	5.81E+00	8.46E-01	8.46E-01
+	CM-243	209.75		3.29	8.58E+00	2.56E+00	1.06E+01
		228.14		10.60	-4.28E-01		2.90E+00
		277.60		14.00	2.17E+00		2.56E+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 2201045-03

MWA 11,12,13

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
+	BE-7	477.59	*	10.42	5.23E+00	5.23E+00	5.76E+00	2.46E+00
	NA-22	1274.54		99.94	5.27E-01	5.27E-01	-2.36E-01	2.34E-01
	NA-24	1368.53		99.99	4.79E-01	4.34E-01	-1.53E-01	2.09E-01
		2754.09		99.86	4.34E-01		1.21E-01	1.62E-01
	AL-26	1808.65		99.76	4.93E-01	4.93E-01	-1.04E-02	2.08E-01
+	K-40	1460.81	*	10.67	6.93E+00	6.93E+00	1.20E+01	3.16E+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	3.51E-01	3.51E-01	-1.81E-02	1.71E-01
		78.34		96.00	5.84E-01		2.63E+00	2.88E-01
	SC-46	889.25		98.98	6.44E-01	6.44E-01	1.16E-02	2.97E-01
		1120.51		99.90	1.29E+00		2.56E+00	6.17E-01
	V-48	983.52		99.98	1.28E+00	1.22E+00	5.12E-01	5.86E-01
		1312.10		97.50	1.22E+00		3.63E-02	5.42E-01
	CR-51	320.08		9.83	5.29E+00	5.29E+00	-1.43E+00	2.50E+00
	MN-54	834.83		99.97	5.96E-01	5.96E-01	-1.35E-01	2.77E-01
	CO-56	846.75		99.96	6.35E-01	6.35E-01	-1.26E-01	2.93E-01
		1037.75		14.03	4.50E+00		-9.01E-01	2.04E+00
		1238.25		67.00	1.58E+00		1.86E+00	7.39E-01
		1771.40		15.51	4.21E+00		0.00E+00	1.81E+00
		2587.48		16.90	3.27E+00		1.09E+00	1.27E+00
	CO-57	122.06		85.51	3.04E-01	3.04E-01	-3.92E-03	1.46E-01
		136.48		10.60	2.71E+00		5.20E-01	1.31E+00
	CO-58	810.76		99.40	7.11E-01	7.11E-01	1.11E-01	3.32E-01
	FE-59	1099.22		56.50	1.29E+00	1.29E+00	2.31E-01	5.85E-01
		1291.56		43.20	1.96E+00		6.35E-01	8.90E-01
	CO-60	1173.22		100.00	5.25E-01	4.58E-01	-2.79E-01	2.36E-01
		1332.49		100.00	4.58E-01		-1.52E-01	1.99E-01
	ZN-65	1115.52		50.75	1.45E+00	1.45E+00	-1.11E-01	6.72E-01
	GA-67	93.31		35.70	5.84E+01	5.84E+01	1.72E+01	2.85E+01
		208.95		2.24	8.92E+02		7.21E+02	4.30E+02
		300.22		16.00	1.44E+02		3.49E+01	6.91E+01
	SE-75	121.11		16.70	1.63E+00	5.13E-01	-5.77E-01	7.84E-01
		136.00		59.50	5.13E-01		9.83E-02	2.47E-01
		264.65		59.80	5.87E-01		-1.04E-01	2.80E-01
		279.53		25.20	1.49E+00		-6.12E-01	7.10E-01
		400.65		11.40	3.93E+00		7.95E-01	1.86E+00
	RB-82	776.52		13.00	6.18E+00	6.18E+00	-5.61E-01	2.85E+00
	RB-83	520.41		46.00	1.02E+00	1.02E+00	-4.59E-01	4.79E-01
		529.64		30.30	1.57E+00		-1.04E+00	7.33E-01
		552.65		16.40	2.97E+00		-7.61E-01	1.39E+00
	KR-85	513.99		0.43	1.34E+02	1.34E+02	1.11E+02	6.41E+01
	SR-85	513.99		99.27	7.17E-01	7.17E-01	5.94E-01	3.42E-01
	Y-88	898.02		93.40	6.78E-01	4.89E-01	2.77E-01	3.13E-01
		1836.01		99.38	4.89E-01		-6.05E-02	2.01E-01
	MO-93	263.06		56.72	5.80E-01	4.40E-01	-2.93E-03	2.77E-01
		684.67		99.68	4.40E-01		-1.26E-01	2.03E-01
		1477.11		99.08	5.57E-01		-8.50E-03	2.46E-01
	NB-93M	16.57		9.43	4.12E-01	4.12E-01	0.00E+00	0.00E+00
	NB-94	702.63		100.00	4.79E-01	4.74E-01	-3.06E-01	2.23E-01
		871.10		100.00	4.74E-01		-2.89E-01	2.16E-01
	NB-95	765.79		99.81	9.54E-01	9.54E-01	5.93E-01	4.50E-01
	NB-95M	235.69		25.00	6.48E+01	6.48E+01	-5.13E+00	3.13E+01
	ZR-95	724.18		43.70	1.49E+00	1.09E+00	3.94E-01	6.97E-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	1.09E+00	1.09E+00	1.79E-02	5.04E-01
	MO-99	181.06		6.20	6.04E+02	4.40E+02	-6.30E+01	2.91E+02
		739.58		12.80	4.40E+02		2.48E+01	2.03E+02
		778.00		4.50	1.26E+03		-4.62E+02	5.79E+02
	TC-99M	140.51		89.00	3.12E-01	3.12E-01	-1.47E-01	1.50E-01
	RU-103	497.08		89.00	6.49E-01	6.49E-01	9.60E-02	3.05E-01
	RU-106	621.84		9.80	5.14E+00	5.14E+00	1.22E+00	2.41E+00
	AG-108M	433.93		89.90	4.64E-01	4.64E-01	7.44E-02	2.19E-01
		614.37		90.40	1.02E+00		8.09E-02	4.96E-01
		722.95		90.50	5.82E-01		1.61E-01	2.71E-01
+	CD-109	88.03	*	3.72	1.66E+01	1.66E+01	3.65E+01	8.16E+00
	AG-110M	657.75		93.14	4.86E-01	4.86E-01	-4.63E-02	2.25E-01
		677.61		10.53	4.33E+00		-1.48E-01	2.00E+00
		706.67		16.46	2.96E+00		-1.35E+00	1.37E+00
		763.93		21.98	2.92E+00		4.59E-01	1.37E+00
		884.67		21.98	2.47E+00		1.22E-01	1.13E+00
		1384.27		23.94	2.59E+00		5.66E-01	1.16E+00
	CD-113M	263.70		0.02	1.43E+03	1.43E+03	-7.23E+00	6.83E+02
	SN-113	255.12		1.93	1.90E+01	7.02E-01	1.19E+00	9.08E+00
		391.69		64.90	7.02E-01		5.07E-01	3.33E-01
	TE-123M	159.00		84.10	4.00E-01	4.00E-01	6.95E-03	1.93E-01
	SB-124	602.71		97.87	5.54E-01	5.54E-01	-8.06E-02	2.58E-01
		645.85		7.26	7.82E+00		2.13E-01	3.63E+00
		722.78		11.10	5.78E+00		1.74E+00	2.69E+00
		1691.02		49.00	1.49E+00		4.80E-02	6.52E-01
	I-125	35.49		6.49	1.03E+01	1.03E+01	4.42E+01	5.04E+00
	SB-125	176.33		6.89	4.50E+00	1.53E+00	1.13E+00	2.17E+00
		427.89		29.33	1.53E+00		5.99E-01	7.25E-01
		463.38		10.35	4.55E+00		1.54E+00	2.16E+00
		600.56		17.80	2.45E+00		-3.19E-01	1.14E+00
		635.90		11.32	3.93E+00		-9.12E-01	1.82E+00
	SB-126	414.70		83.30	4.65E-01	4.65E-01	3.90E-02	2.20E-01
		666.33		99.60	5.15E-01		3.90E-01	2.41E-01
		695.00		99.60	5.28E-01		7.63E-02	2.47E-01
		720.50		53.80	9.89E-01		4.54E-01	4.62E-01
+	SN-126	87.57	*	37.00	1.62E+00	1.62E+00	3.56E+00	7.98E-01
	SB-127	473.00		25.00	4.92E+01	3.89E+01	1.50E+01	2.31E+01
		685.00		35.70	3.89E+01		-1.21E+01	1.80E+01
		783.80		14.70	1.17E+02		1.59E+01	5.46E+01
	I-129	29.78		57.00	2.22E-01	2.22E-01	-3.26E-01	9.87E-02
		33.60		13.20	2.81E+00		-7.12E+00	1.36E+00
		39.58		7.52	6.50E+00		1.44E+01	3.18E+00
	I-131	284.30		6.05	2.87E+01	2.53E+00	-4.71E+00	1.37E+01
		364.48		81.20	2.53E+00		9.24E-01	1.20E+00
		636.97		7.26	3.21E+01		1.30E+00	1.49E+01
		722.89		1.80	1.51E+02		4.17E+01	7.05E+01
	TE-132	49.72		13.10	1.49E+02	2.01E+01	4.00E+00	7.24E+01
		228.16		88.00	2.01E+01		-2.97E+00	9.61E+00
	BA-133	81.00		34.06	1.14E+00	9.35E-01	-5.10E+00	5.56E-01
		302.84		18.33	2.02E+00		3.18E-01	9.64E-01
		356.01		62.05	9.35E-01		-1.10E-01	4.52E-01
	I-133	529.87		86.30	2.01E+06	2.01E+06	-3.33E+05	9.40E+05
	XE-133	81.00		38.00	1.26E+01	1.26E+01	-5.66E+01	6.17E+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	563.23		8.38	5.80E+00	6.48E-01	1.24E+00	2.73E+00
		569.32		15.43	2.98E+00		4.13E-01	1.40E+00
		604.70		97.60	7.63E-01		3.11E-02	3.66E-01
		795.84		85.40	6.48E-01		-1.65E-02	3.01E-01
		801.93		8.73	6.43E+00		-1.06E+00	2.99E+00
+	CS-135	268.24	*	16.00	1.70E+00	1.70E+00	1.05E+00	8.05E-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	1.08E+01	1.26E+00	3.05E+00	5.23E+00
		163.89		4.61	1.78E+01		-3.49E+00	8.57E+00
		176.55		13.56	6.16E+00		1.55E+00	2.97E+00
		273.65		12.66	7.68E+00		2.22E-01	3.68E+00
		340.57		48.50	2.46E+00		2.43E+00	1.18E+00
		818.50		99.70	1.26E+00		-2.92E-01	5.76E-01
		1048.07		79.60	1.95E+00		-3.69E-01	8.93E-01
		1235.34		19.70	1.13E+01		5.98E+00	5.27E+00
	CS-137	661.65		85.12	5.17E-01	5.17E-01	-2.69E-01	2.39E-01
	LA-138	788.74		34.00	1.73E+00	7.75E-01	3.21E-01	8.09E-01
		1435.80		66.00	7.75E-01		8.61E-02	3.39E-01
	CE-139	165.85		80.35	4.10E-01	4.10E-01	-4.87E-02	1.98E-01
	BA-140	162.64		6.70	1.29E+01	5.03E+00	8.70E+00	6.24E+00
		304.84		4.50	2.29E+01		9.31E+00	1.09E+01
		423.70		3.20	3.94E+01		7.99E+00	1.87E+01
		437.55		2.00	5.90E+01		4.62E+00	2.79E+01
		537.32		25.00	5.03E+00		1.12E-01	2.36E+00
	LA-140	328.77		20.50	4.95E+00	1.72E+00	9.31E-01	2.35E+00
		487.03		45.50	2.61E+00		-2.05E-01	1.23E+00
		815.85		23.50	6.09E+00		4.07E-01	2.81E+00
		1596.49		95.49	1.72E+00		-3.95E-03	7.61E-01
	CE-141	145.44		48.40	9.23E-01	9.23E-01	2.78E-01	4.46E-01
	CE-143	57.36		11.80	3.91E+04	2.47E+04	2.52E+03	1.90E+04
		293.26		42.00	2.47E+04		8.84E+04	1.21E+04
		664.55		5.20	1.38E+05		3.94E+03	6.42E+04
	CE-144	133.54		10.80	2.70E+00	2.70E+00	4.42E-01	1.30E+00
	PM-144	476.78		42.00	1.09E+00	4.95E-01	1.36E-01	5.13E-01
		618.01		98.60	4.95E-01		1.99E-01	2.31E-01
		696.49		99.49	5.46E-01		1.87E-01	2.55E-01
	PM-145	36.85		21.70	2.45E+00	1.33E+00	7.58E+00	1.20E+00
		37.36		39.70	1.33E+00		4.10E+00	6.49E-01
		42.30		15.10	2.31E+00		-1.36E+01	1.12E+00
		72.40		2.31	1.91E+01		-5.77E+01	9.35E+00
	PM-146	453.90		39.94	1.07E+00	1.07E+00	1.10E-01	5.07E-01
		735.90		14.01	3.22E+00		4.06E-02	1.48E+00
		747.13		13.10	4.01E+00		-8.59E-02	1.87E+00
	ND-147	91.11		28.90	4.59E+00	4.59E+00	4.79E+00	2.25E+00
		531.02		13.10	1.09E+01		-7.02E-01	5.10E+00
	PM-149	285.90		3.10	4.46E+03	4.46E+03	-5.01E+02	2.13E+03
	EU-152	121.78		20.50	1.20E+00	1.20E+00	-4.23E-01	5.75E-01
		244.69		5.40	9.18E+00		8.63E+00	4.46E+00
		344.27		19.13	1.97E+00		-2.22E-01	9.35E-01
		778.89		9.10	5.29E+00		-2.47E+00	2.44E+00
		964.01		10.40	6.38E+00		3.67E-01	2.97E+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-152	1085.78		7.22	7.13E+00	1.20E+00	2.32E+00	3.22E+00
		1112.02		9.60	4.93E+00		-1.04E+00	2.20E+00
		1407.95		14.94	5.44E+00		1.44E+00	2.51E+00
	GD-153	97.43		31.30	1.01E+00	1.01E+00	1.47E-01	4.89E-01
		103.18		22.20	1.32E+00		-1.41E-01	6.41E-01
	EU-154	123.07		40.50	6.31E-01	6.31E-01	8.25E-02	3.04E-01
		723.30		19.70	2.68E+00		7.41E-01	1.25E+00
		873.19		11.50	4.63E+00		1.89E+00	2.13E+00
		996.32		10.30	5.74E+00		1.62E+00	2.64E+00
		1004.76		17.90	3.15E+00		3.06E-01	1.45E+00
		1274.45		35.50	1.47E+00		-6.58E-01	6.53E-01
+	EU-155	86.50	*	30.90	1.95E+00	1.35E+00	4.30E+00	9.62E-01
		105.30		20.70	1.35E+00		3.42E-01	6.52E-01
	EU-156	811.77		10.40	1.31E+01	1.31E+01	5.02E+00	6.10E+00
		1153.47		7.20	2.02E+01		1.19E-01	9.25E+00
		1230.71		8.90	1.51E+01		1.38E-01	6.78E+00
	HO-166M	184.41		72.60	5.84E-01	5.84E-01	1.18E+00	2.84E-01
		280.45		29.60	1.14E+00		-3.73E-01	5.45E-01
		410.94		11.10	3.48E+00		-5.81E-01	1.64E+00
		711.69		54.10	9.32E-01		-1.49E-01	4.34E-01
	TM-171	66.72		0.14	2.55E+02	2.55E+02	-1.25E+01	1.24E+02
	HF-172	67.35		5.31	6.51E+00	2.48E+00	-3.29E-01	3.17E+00
		125.82		11.30	2.48E+00		5.43E-02	1.19E+00
	LU-172	181.53		20.60	1.07E+01	6.20E+00	-1.12E+00	5.17E+00
		900.72		29.81	1.30E+01		3.66E+00	5.99E+00
		1093.66		62.50	6.20E+00		5.30E-01	2.81E+00
+	LU-173	100.72		5.24	5.49E+00	1.32E+00	-1.67E+00	2.66E+00
		272.11	*	21.20	1.32E+00		8.10E-01	6.23E-01
	HF-175	343.40		84.00	5.60E-01	5.60E-01	-4.56E-01	2.67E-01
	LU-176	88.34		13.30	3.03E+00	3.60E-01	3.70E-01	1.48E+00
		201.83		86.00	3.74E-01		-2.86E-03	1.80E-01
		306.78		94.00	3.60E-01		-2.87E-01	1.71E-01
	HF-181	133.02		41.70	9.09E-01	7.61E-01	1.49E-01	4.39E-01
		345.85		17.20	3.31E+00		1.53E+00	1.58E+00
		482.03		82.80	7.61E-01		-1.09E-01	3.60E-01
	TA-182	67.75		41.20	9.23E-01	9.23E-01	-4.67E-02	4.50E-01
		1121.30		34.90	3.54E+00		6.78E+00	1.69E+00
		1189.05		16.23	4.01E+00		1.10E+00	1.82E+00
		1221.41		26.98	2.43E+00		8.58E-02	1.10E+00
		1231.02		11.44	5.60E+00		7.51E-02	2.53E+00
	IR-192	308.46		29.68	1.43E+00	1.07E+00	4.22E-01	6.79E-01
		468.07		48.10	1.07E+00		4.37E-01	5.06E-01
	HG-203	279.19		77.30	5.76E-01	5.76E-01	-2.37E-01	2.75E-01
	TL-204	374.74		94.11	3.66E-01	3.66E-01	1.11E-01	1.72E-01
		899.15		99.16	5.48E-01		1.80E-01	2.53E-01
		911.74		91.10	9.28E-01		1.33E+00	4.40E-01
	BI-207	569.67		97.72	4.63E-01	4.63E-01	6.42E-02	2.17E-01
		1063.62		74.90	6.42E-01		4.05E-03	2.88E-01
+	TL-208	583.14	*	30.22	1.60E+00	1.48E+00	3.37E+00	7.53E-01
		860.37		4.48	1.12E+01		-1.66E+00	5.15E+00
		2614.66	*	35.85	1.48E+00		1.11E+00	5.96E-01
	BI-210M	262.00		45.00	7.17E-01	7.17E-01	-1.94E-01	3.42E-01
		300.00		23.00	1.75E+00		4.22E-01	8.37E-01

Analysis Report for 2201045-03

MWA 11,12,13

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PB-210	46.50		4.25	8.31E+00	8.31E+00	4.18E+00	4.04E+00
	PB-211	404.84		2.90	1.42E+01	1.42E+01	1.80E+00	6.76E+00
		831.96		2.90	1.93E+01		1.87E+00	8.98E+00
+	BI-212	727.17	*	11.80	6.24E+00	6.24E+00	3.67E+00	2.97E+00
		1620.62		2.75	2.00E+01		-3.05E+00	8.74E+00
+	PB-212	238.63	*	44.60	1.33E+00	1.33E+00	3.24E+00	6.49E-01
		300.09		3.41	1.18E+01		2.85E+00	5.65E+00
+	BI-214	609.31	*	46.30	1.73E+00	4.74E-01	1.34E+01	8.34E-01
		1120.29	*	15.10	5.44E+00		1.46E+01	2.55E+00
		1764.49	*	15.80	4.74E-01		1.95E+01	0.00E+00
		2204.22	*	4.98	8.81E+00		2.57E+01	3.50E+00
+	PB-214	295.21	*	19.19	4.27E+00	1.77E+00	1.51E+01	2.09E+00
		351.92	*	37.19	1.77E+00		1.39E+01	8.61E-01
	RN-219	401.80		6.50	6.23E+00	6.23E+00	5.46E-01	2.96E+00
	RA-223	323.87		3.88	9.02E+00	9.02E+00	3.73E-01	4.28E+00
+	RA-224	240.98	*	3.95	1.46E+01	1.46E+01	3.38E+01	7.13E+00
	RA-225	40.00		31.00	3.75E+00	3.75E+00	6.78E+00	1.83E+00
+	RA-226	186.21	*	3.28	1.41E+01	1.41E+01	2.04E+01	6.90E+00
	TH-227	50.10		8.40	3.91E+00	3.91E+00	-2.47E+00	1.90E+00
		236.00		11.50	4.17E+00		8.47E-01	2.02E+00
		256.20		6.30	5.24E+00		4.02E-01	2.50E+00
+	AC-228	338.32		11.40	3.69E+00	3.23E+00	2.48E+00	1.77E+00
		911.07	*	27.70	3.23E+00		3.96E+00	1.54E+00
		969.11	*	16.60	3.69E+00		2.76E+00	1.71E+00
	TH-230	48.43		16.90	2.07E+00	2.07E+00	1.29E+00	1.01E+00
		62.85		4.60	7.88E+00		7.42E+00	3.85E+00
		67.67		0.37	9.16E+01		-4.63E+00	4.46E+01
	PA-231	283.67		1.60	2.08E+01	1.60E+01	-1.22E+01	9.92E+00
		302.67		2.30	1.60E+01		2.52E+00	7.65E+00
	TH-231	25.64		14.70	1.12E-01	1.12E-01	0.00E+00	0.00E+00
		84.21		6.40	5.69E+00		-5.64E+00	2.78E+00
	PA-233	311.98		38.60	1.50E+00	1.50E+00	4.86E-01	7.14E-01
+	PA-234	131.20	*	20.40	1.47E+00	1.47E+00	7.14E-01	7.11E-01
		733.99		8.80	4.92E+00		-7.48E-01	2.26E+00
		946.00		12.00	4.40E+00		7.65E-01	2.01E+00
	PA-234M	1001.03		0.92	6.29E+01	6.29E+01	1.27E+01	2.89E+01
+	TH-234	63.29	*	3.80	1.39E+01	1.39E+01	6.93E+00	6.84E+00
	U-235	143.76		10.50	2.79E+00	2.79E+00	6.89E-01	1.35E+00
		163.35		4.70	6.42E+00		2.39E-01	3.10E+00
		205.31		4.70	6.93E+00		-5.86E-01	3.33E+00
+	NP-237	86.50	*	12.60	4.75E+00	4.75E+00	1.05E+01	2.34E+00
	NP-239	106.10		22.70	3.34E+02	3.34E+02	2.65E+01	1.61E+02
		228.18		10.70	7.82E+02		-1.15E+02	3.74E+02
		277.60		14.10	6.92E+02		5.86E+02	3.31E+02
	AM-241	59.54		35.90	9.06E-01	9.06E-01	-9.79E-01	4.41E-01
+	AM-243	74.67	*	66.00	8.46E-01	8.46E-01	5.81E+00	4.17E-01
	CM-243	209.75		3.29	1.06E+01	2.56E+00	8.58E+00	5.12E+00
		228.14		10.60	2.90E+00		-4.28E-01	1.39E+00
		277.60		14.00	2.56E+00		2.17E+00	1.22E+00

Analysis Report for 2201045-03

MWA 11,12,13

+ = 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: MWA 11,12,13

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	0	0	0	22
33:	45	71	72	71	230	150	47	48
41:	46	55	49	43	65	81	68	52
49:	48	46	57	48	60	57	53	40
57:	43	48	69	64	69	89	96	96
65:	64	64	64	67	64	66	73	78
73:	109	182	266	294	375	226	105	71
81:	47	51	69	78	84	108	134	125
89:	92	77	77	103	124	79	53	42
97:	46	61	46	40	44	43	37	52
105:	48	45	45	33	43	35	48	34
113:	38	34	42	33	35	23	28	28
121:	35	30	36	33	29	39	35	43
129:	49	45	28	39	33	29	41	43
137:	28	38	33	28	37	46	35	39
145:	38	45	36	35	45	31	37	36
153:	30	39	41	44	22	35	40	38
161:	32	45	26	41	40	27	35	32
169:	40	39	28	33	16	33	36	41
177:	41	33	34	25	37	29	31	40
185:	79	140	78	41	35	32	33	30
193:	30	24	37	50	32	29	30	35
201:	32	28	30	31	32	30	33	34
209:	41	39	35	32	20	24	25	21
217:	32	26	30	21	26	26	23	30
225:	20	23	19	29	19	19	36	20
233:	27	24	29	31	55	112	118	92
241:	93	133	82	27	25	17	23	18
249:	30	32	15	20	22	18	17	22
257:	27	33	22	35	18	25	18	16
265:	14	26	21	13	31	30	29	15
273:	21	26	26	23	16	33	23	20
281:	17	13	24	22	24	19	22	22
289:	21	37	13	16	42	135	222	143
297:	44	28	17	27	28	28	15	17
305:	22	21	20	15	16	23	20	13
313:	23	21	19	14	18	20	11	11
321:	15	18	13	20	15	23	19	22
329:	23	12	14	16	18	13	11	18
337:	21	51	29	23	15	13	27	14
345:	21	26	12	19	39	74	236	319
353:	150	55	18	19	19	20	16	22
361:	26	17	19	22	13	14	19	11

369:	16	9	18	8	10	13	9	15

Sample Title: MWA 11,12,13

Channel								
377:	17	12	7	14	13	12	15	16
385:	12	11	11	22	16	19	20	9
393:	19	15	9	15	14	19	15	10
401:	18	18	18	16	17	16	14	15
409:	21	11	17	14	14	7	16	15
417:	15	16	7	16	9	19	10	20
425:	13	11	23	10	11	11	10	13
433:	6	12	15	15	12	11	9	13
441:	12	10	12	10	6	8	9	9
449:	9	12	9	8	18	11	9	12
457:	10	12	11	13	15	14	16	14
465:	16	13	5	13	9	9	9	10
473:	6	3	5	9	21	15	17	13
481:	15	10	6	9	12	10	10	10
489:	11	11	8	6	10	9	8	8
497:	15	7	8	10	5	13	5	14
505:	7	6	10	16	22	31	31	32
513:	14	12	11	9	4	10	6	11
521:	6	6	12	6	10	7	7	11
529:	6	4	8	7	9	13	11	8
537:	10	8	11	6	6	9	11	10
545:	13	7	9	10	6	11	11	4
553:	7	6	7	5	10	8	7	9
561:	5	15	14	6	7	13	10	8
569:	8	6	6	9	8	8	4	6
577:	11	6	4	11	11	24	34	22
585:	14	10	6	6	3	14	8	8
593:	9	10	10	7	10	2	7	4
601:	9	6	5	11	10	8	31	101
609:	216	171	57	16	11	5	4	9
617:	11	9	6	12	11	3	7	8
625:	7	6	9	10	9	6	7	7
633:	7	4	8	4	5	5	10	7
641:	10	6	6	6	7	4	4	5
649:	12	6	4	5	7	6	9	6
657:	4	9	2	4	4	9	5	8
665:	8	9	8	9	9	8	6	4
673:	4	4	7	11	5	4	6	5
681:	3	6	6	5	7	4	6	7
689:	8	8	9	7	3	6	9	8
697:	14	6	9	8	5	3	8	5
705:	4	9	9	6	4	4	10	7
713:	7	8	7	6	11	7	8	13
721:	7	3	5	8	3	9	10	9
729:	5	8	3	7	7	3	5	2
737:	3	4	8	6	7	6	7	7
745:	8	7	3	5	7	5	12	7
753:	7	8	7	5	3	2	8	5
761:	10	12	5	3	6	7	8	25
769:	18	13	7	9	5	4	6	6
777:	3	4	8	2	8	3	7	5
785:	15	11	5	10	9	7	5	4
793:	5	9	9	12	6	4	5	6

801:	2	7	9	8	7	12	11	6

Sample Title: MWA 11,12,13

Channel								
809:	6	3	8	11	4	6	8	0
817:	2	2	8	6	6	1	3	2
825:	2	3	5	8	4	3	10	0
833:	12	11	6	4	7	7	11	7
841:	10	7	5	5	3	3	9	6
849:	6	5	2	2	7	4	6	4
857:	4	4	5	2	6	8	5	5
865:	6	6	3	3	4	4	7	2
873:	7	6	1	11	5	4	2	4
881:	4	6	4	3	4	3	5	10
889:	5	8	6	4	3	7	4	7
897:	5	7	9	4	3	4	3	4
905:	4	2	5	4	7	23	22	26
913:	14	8	6	5	5	6	5	4
921:	4	3	7	4	3	1	6	4
929:	3	2	4	5	18	21	19	13
937:	5	3	2	6	4	5	6	4
945:	5	7	4	3	2	4	2	4
953:	1	6	2	8	4	5	3	2
961:	8	7	6	10	6	5	8	11
969:	20	8	4	3	2	5	5	6
977:	5	4	8	0	2	5	4	8
985:	9	3	3	1	1	3	7	7
993:	4	5	5	3	7	5	3	7
1001:	6	3	4	5	4	4	3	5
1009:	2	3	6	1	5	4	3	4
1017:	3	3	2	5	2	2	5	5
1025:	6	2	4	0	3	3	2	1
1033:	6	5	4	5	3	1	3	2
1041:	4	6	5	6	3	7	4	2
1049:	5	5	6	1	5	5	5	2
1057:	4	2	2	5	3	3	5	2
1065:	3	1	2	3	3	3	1	0
1073:	1	7	6	1	2	2	4	3
1081:	0	1	5	1	5	3	5	3
1089:	6	3	2	3	5	3	4	2
1097:	4	3	2	4	5	2	6	3
1105:	1	3	4	0	5	2	2	1
1113:	3	2	4	4	7	8	23	48
1121:	34	11	5	2	3	1	5	4
1129:	6	4	3	4	4	4	6	1
1137:	1	2	4	3	2	2	5	2
1145:	4	5	6	3	2	2	3	3
1153:	4	8	7	4	5	6	1	4
1161:	5	9	3	1	3	6	6	2
1169:	6	6	1	1	3	2	1	4
1177:	2	3	4	6	4	4	1	3
1185:	3	3	4	6	3	4	2	4
1193:	3	3	0	5	0	1	8	4
1201:	3	5	5	0	1	7	3	4
1209:	2	2	3	7	4	0	5	4
1217:	3	2	4	3	5	1	2	4
1225:	7	3	4	4	3	6	0	2

1233:	4	2	4	13	8	10	20	8

Sample Title: MWA 11,12,13

Channel								
1241:	6	2	2	4	3	2	3	5
1249:	1	5	8	3	3	5	4	4
1257:	1	4	3	3	1	5	4	3
1265:	2	3	4	3	4	3	2	1
1273:	2	5	2	5	2	0	2	6
1281:	3	2	5	1	1	1	5	2
1289:	1	6	4	5	1	3	6	6
1297:	2	4	5	2	4	2	2	0
1305:	3	2	0	3	1	1	7	1
1313:	3	2	1	2	2	3	3	1
1321:	1	0	2	2	2	2	2	2
1329:	1	3	2	3	1	3	0	0
1337:	2	1	5	5	3	5	1	5
1345:	0	4	2	2	2	1	1	1
1353:	3	1	2	6	2	1	2	6
1361:	1	3	4	0	0	2	2	1
1369:	1	4	4	2	2	3	2	6
1377:	6	8	4	2	1	3	4	2
1385:	5	3	1	4	3	3	1	4
1393:	4	2	0	2	2	8	2	2
1401:	5	9	1	5	2	8	5	12
1409:	9	4	1	3	3	2	7	4
1417:	1	3	3	2	2	3	1	0
1425:	2	2	2	4	3	0	0	2
1433:	3	3	2	2	0	4	1	2
1441:	0	1	3	4	1	2	3	2
1449:	3	2	4	1	3	2	1	2
1457:	1	6	9	10	24	11	9	3
1465:	3	2	3	4	1	1	1	5
1473:	2	4	2	0	1	4	0	3
1481:	3	3	1	2	3	3	0	2
1489:	2	0	0	6	1	2	1	3
1497:	1	4	1	1	2	2	2	5
1505:	4	1	5	6	8	5	3	2
1513:	4	2	2	3	1	4	3	2
1521:	3	1	0	2	2	2	0	3
1529:	3	1	2	1	4	4	0	1
1537:	3	0	3	0	3	3	4	2
1545:	1	2	1	2	4	2	0	2
1553:	1	1	2	3	1	1	4	0
1561:	0	1	1	1	2	2	0	2
1569:	1	3	1	1	1	2	0	1
1577:	3	3	0	2	1	3	3	1
1585:	2	1	2	6	4	5	1	3
1593:	0	4	3	3	2	1	2	1
1601:	1	2	1	1	2	3	1	0
1609:	1	0	2	0	2	2	0	0
1617:	1	2	1	2	2	1	2	5
1625:	2	7	1	1	0	3	1	1
1633:	3	3	6	1	0	1	0	2
1641:	0	3	1	1	2	1	3	1
1649:	0	1	1	3	1	0	2	2
1657:	0	2	2	2	3	2	3	3

1665:	0	3	1	1	3	1	0	1

Sample Title: MWA 11,12,13

Channel								
1673:	1	1	0	0	1	1	0	3
1681:	0	0	1	3	2	2	2	0
1689:	2	3	2	3	0	3	2	2
1697:	2	0	1	1	1	0	1	1
1705:	0	2	0	1	0	2	2	4
1713:	0	0	0	2	1	0	0	1
1721:	0	1	1	2	0	3	2	5
1729:	6	4	6	2	1	3	2	1
1737:	0	0	4	0	0	0	1	0
1745:	1	2	1	3	0	2	2	1
1753:	0	0	1	1	0	0	3	1
1761:	4	4	10	29	31	16	8	1
1769:	1	1	2	0	0	0	0	0
1777:	3	2	0	0	1	1	1	0
1785:	3	1	1	1	1	0	0	1
1793:	0	0	1	1	0	1	2	0
1801:	2	1	0	0	0	1	3	1
1809:	0	2	2	1	1	2	1	0
1817:	0	0	0	1	1	0	1	4
1825:	0	0	0	1	0	1	1	1
1833:	0	1	1	0	0	1	2	1
1841:	1	2	1	0	1	2	9	2
1849:	2	3	1	0	1	1	0	0
1857:	1	0	1	1	0	1	1	0
1865:	0	0	1	0	0	0	1	1
1873:	3	5	0	0	0	2	2	0
1881:	0	2	1	4	1	1	0	1
1889:	0	1	1	0	1	1	0	2
1897:	3	1	0	3	0	0	0	1
1905:	0	1	2	0	1	0	0	0
1913:	2	1	2	0	0	1	1	0
1921:	0	0	0	1	0	2	2	0
1929:	1	0	2	1	0	1	1	0
1937:	1	2	1	0	1	2	1	0
1945:	2	0	3	0	0	1	1	0
1953:	1	0	1	2	1	0	0	1
1961:	0	0	3	0	0	3	1	0
1969:	1	0	1	0	1	0	1	0
1977:	0	3	1	0	1	2	2	1
1985:	0	0	1	0	0	1	0	1
1993:	0	1	0	1	2	0	0	0
2001:	0	2	0	1	1	0	1	2
2009:	0	2	0	0	1	0	0	1
2017:	0	0	0	2	2	0	0	1
2025:	1	0	1	1	1	0	1	0
2033:	0	0	0	1	0	1	0	1
2041:	0	1	0	0	1	1	1	1
2049:	0	0	0	1	1	0	1	0
2057:	0	0	4	1	2	2	0	2
2065:	0	0	0	2	2	0	3	0
2073:	1	0	1	0	0	0	1	2
2081:	1	0	1	0	0	0	0	0
2089:	0	1	0	0	2	0	0	0

2097:	0	0	1	0	0	3	0	0

Sample Title: MWA 11,12,13

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

2529:	1	1	0	0	0	1	0	1

Sample Title: MWA 11,12,13

Channel								
2537:	0	0	0	0	2	0	0	0
2545:	0	0	1	0	0	0	1	0
2553:	0	0	2	0	0	1	0	1
2561:	0	0	1	1	0	0	0	0
2569:	0	1	0	0	0	1	1	1
2577:	0	0	0	0	0	0	0	0
2585:	1	0	0	1	0	0	1	1
2593:	0	0	0	0	0	0	0	0
2601:	1	0	0	1	0	1	0	0
2609:	0	0	0	0	3	8	5	1
2617:	0	1	0	0	0	0	1	0
2625:	1	0	0	1	1	0	0	0
2633:	1	0	0	0	0	0	0	1
2641:	0	0	1	0	0	0	0	0
2649:	0	0	0	0	0	1	0	0
2657:	0	0	0	0	0	0	0	1
2665:	0	0	0	0	1	0	0	0
2673:	0	0	0	0	1	0	0	0
2681:	0	1	0	0	0	0	0	0
2689:	1	0	1	0	0	0	0	0
2697:	0	0	1	0	0	1	0	0
2705:	1	0	0	0	0	0	0	0
2713:	0	0	0	0	0	0	0	0
2721:	0	0	0	2	0	2	0	0
2729:	1	0	0	1	0	0	0	0
2737:	0	0	1	0	0	0	1	0
2745:	0	0	0	0	0	0	2	0
2753:	0	0	0	1	0	0	0	0
2761:	0	0	0	1	0	0	1	0
2769:	1	0	0	0	0	1	0	1
2777:	0	0	0	0	0	0	0	0
2785:	0	1	1	0	0	0	0	0
2793:	0	0	0	0	0	0	0	0
2801:	0	0	0	0	1	1	0	0
2809:	0	1	1	0	0	0	0	0
2817:	0	0	0	0	0	0	1	0
2825:	0	0	0	0	0	0	1	0
2833:	1	0	0	0	0	1	0	0
2841:	0	0	0	0	0	0	0	0
2849:	0	0	0	0	0	0	0	0
2857:	0	1	0	0	0	0	1	0
2865:	1	1	0	1	0	1	0	0
2873:	0	0	0	0	0	1	0	0
2881:	0	0	0	1	0	0	0	0
2889:	0	0	0	2	0	0	0	0
2897:	0	1	0	0	1	0	0	0
2905:	0	0	0	0	1	0	0	0
2913:	0	1	0	0	0	0	0	0
2921:	0	0	0	0	1	0	1	2
2929:	0	0	0	0	0	1	0	0
2937:	0	1	0	0	0	0	0	0
2945:	0	0	0	0	0	0	0	1
2953:	1	1	0	0	0	0	1	0

2961:	0	0	0	0	0	0	1	0

Sample Title: MWA 11,12,13

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

3393:	0	0	0	1	0	0	1	0

Sample Title: MWA 11,12,13

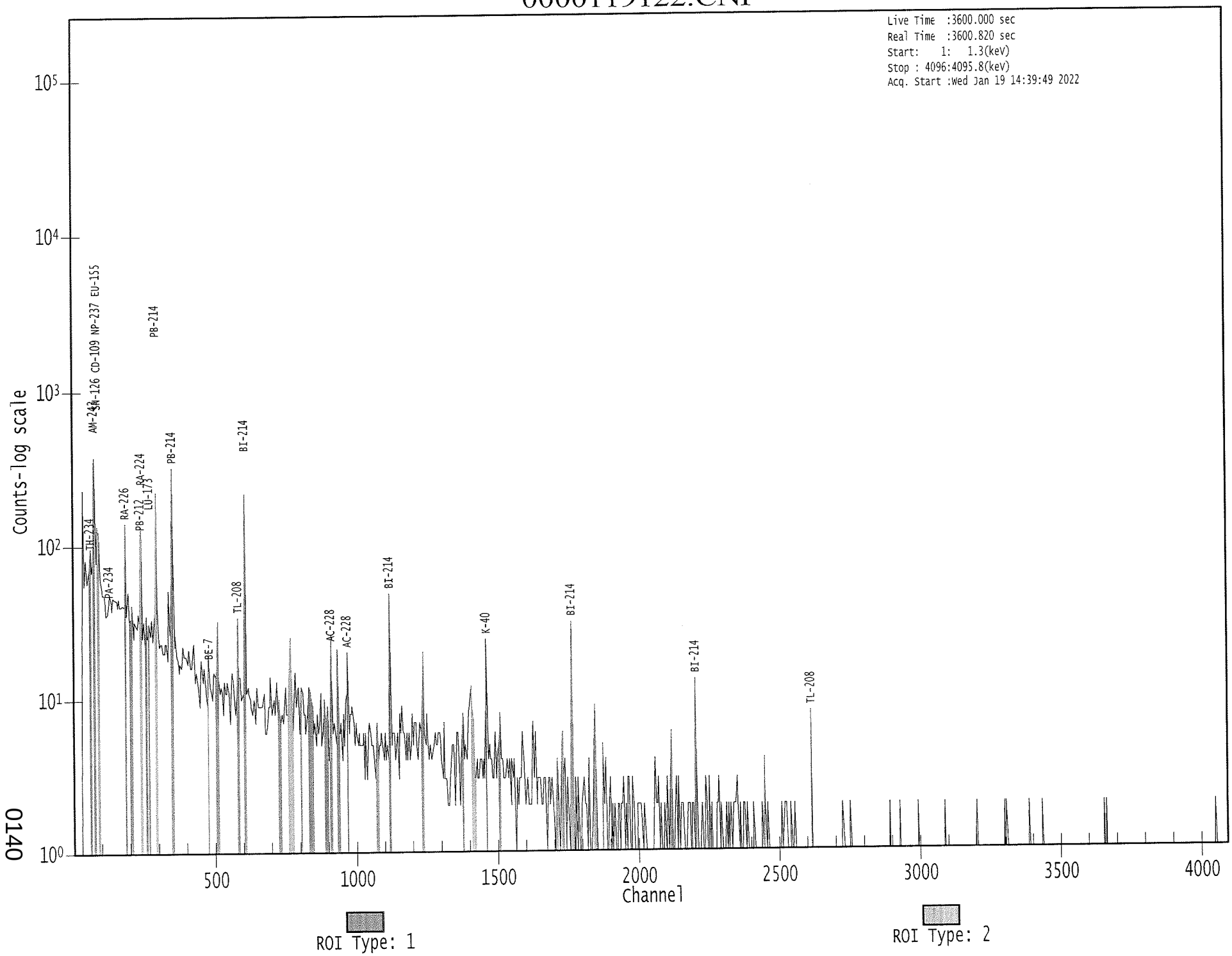
Channel								
3401:	0	0	0	0	0	1	0	0
3409:	0	0	0	0	0	1	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	2	0	0	0	0	1	0	0
3441:	0	0	0	0	0	1	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	1
3465:	0	0	0	1	0	1	0	0
3473:	1	0	0	0	0	0	1	0
3481:	0	1	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	1
3505:	0	0	0	1	0	0	0	0
3513:	0	0	1	0	0	0	0	0
3521:	0	0	0	1	0	1	0	0
3529:	1	0	0	1	0	0	0	0
3537:	0	0	0	0	0	0	0	0
3545:	0	0	0	0	0	0	0	0
3553:	0	0	0	0	0	0	0	0
3561:	1	0	0	0	0	0	0	0
3569:	0	0	0	1	0	1	0	0
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	0	0	0	0	0	0	0
3609:	0	1	1	0	1	0	0	0
3617:	0	0	0	0	0	0	0	1
3625:	1	0	0	0	0	1	0	0
3633:	0	0	0	0	0	0	0	1
3641:	0	0	0	0	0	1	0	0
3649:	0	0	0	0	0	2	0	0
3657:	0	0	0	0	0	0	2	0
3665:	1	0	0	0	0	0	0	0
3673:	0	0	0	0	0	0	0	0
3681:	0	0	0	1	0	0	0	1
3689:	0	0	0	0	0	0	0	0
3697:	0	0	1	0	0	0	0	0
3705:	0	0	0	0	0	0	0	0
3713:	0	0	0	1	0	0	0	0
3721:	0	0	0	0	0	0	0	0
3729:	1	0	0	0	0	0	0	0
3737:	0	0	0	0	0	0	0	0
3745:	0	0	0	0	0	1	0	0
3753:	0	0	1	0	0	1	0	0
3761:	0	0	0	1	0	0	0	0
3769:	1	0	0	0	0	0	0	0
3777:	0	0	0	0	0	0	0	0
3785:	0	0	0	0	0	0	0	0
3793:	0	0	0	0	0	0	0	1
3801:	0	0	0	0	0	0	0	0
3809:	0	0	0	0	0	0	0	1
3817:	0	0	0	0	0	1	0	0

3825:	0	0	0	0	0	1	0	0

Sample Title: MWA 11,12,13

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

0000119122.CNF



0140

KB 1/19/22

Apex-Gamma

Analysis Report for 2201045-04
MWA 11,12,13

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 2201045-04
Sample Description	: MWA 11,12,13
Sample Type	: SOIL
Sample Size	: 4.580E+01 grams
Facility	: Countroom
Sample Taken On	: 12/31/2021 1:45:50PM
Acquisition Started	: 1/19/2022 3:40:20PM
Procedure	: GAS-2101 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-2101
Live Time	: 3600.0 seconds
Real Time	: 3600.8 seconds
Dead Time	: 0.02 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 32 - 4096
Identification Energy Tolerance	: 2.500 keV
Energy Calibration Used Done On	: 11/20/2021
Efficiency Calibration Used Done On	: 11/20/2021
Efficiency Calibration Description	:
Sample Number	: 119126

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 1/20/22

Analysis Report for 2201045-04

MWA 11,12,13

PEAK LOCATE REPORT

Peak Locate Performed on : 1/19/2022 4:40:23PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	46.07	45.77	0.0000	0.00
2	53.40	53.09	0.0000	0.00
3	64.80	64.48	0.0000	0.00
4	74.52	74.20	0.0000	0.00
5	77.23	76.92	0.0000	0.00
6	87.28	86.97	0.0000	0.00
7	92.75	92.43	0.0000	0.00
8	186.21	185.88	0.0000	0.00
9	238.85	238.51	0.0000	0.00
10	241.94	241.61	0.0000	0.00
11	275.42	275.09	0.0000	0.00
12	295.51	295.17	0.0000	0.00
13	338.46	338.11	0.0000	0.00
14	352.13	351.79	0.0000	0.00
15	438.65	438.30	0.0000	0.00
16	510.69	510.33	0.0000	0.00
17	570.34	569.97	0.0000	0.00
18	583.33	582.96	0.0000	0.00
19	609.69	609.32	0.0000	0.00
20	618.36	617.99	0.0000	0.00
21	621.37	621.00	0.0000	0.00
22	678.23	677.86	0.0000	0.00
23	684.96	684.59	0.0000	0.00
24	704.98	704.60	0.0000	0.00
25	768.35	767.97	0.0000	0.00
26	795.23	794.85	0.0000	0.00
27	807.43	807.04	0.0000	0.00
28	822.59	822.21	0.0000	0.00
29	891.54	891.15	0.0000	0.00
30	910.49	910.11	0.0000	0.00
31	934.32	933.93	0.0000	0.00
32	970.13	969.74	0.0000	0.00
33	1020.20	1019.81	0.0000	0.00
34	1025.83	1025.44	0.0000	0.00
35	1031.99	1031.60	0.0000	0.00
36	1052.13	1051.74	0.0000	0.00
37	1057.65	1057.26	0.0000	0.00
38	1120.45	1120.06	0.0000	0.00
39	1154.58	1154.19	0.0000	0.00
40	1238.75	1238.36	0.0000	0.00
41	1315.45	1315.07	0.0000	0.00
42	1321.31	1320.92	0.0000	0.00

Analysis Report for 2201045-04

MWA 11,12,13

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1385.60	1385.22	0.0000	0.00
44	1402.73	1402.34	0.0000	0.00
45	1407.90	1407.52	0.0000	0.00
46	1460.86	1460.47	0.0000	0.00
47	1510.21	1509.83	0.0000	0.00
48	1529.08	1528.70	0.0000	0.00
49	1543.95	1543.57	0.0000	0.00
50	1694.76	1694.39	0.0000	0.00
51	1705.00	1704.63	0.0000	0.00
52	1729.05	1728.68	0.0000	0.00
53	1765.09	1764.73	0.0000	0.00
54	1782.90	1782.53	0.0000	0.00
55	1847.56	1847.20	0.0000	0.00
56	1955.89	1955.54	0.0000	0.00
57	2102.40	2102.06	0.0000	0.00
58	2204.21	2203.89	0.0000	0.00
59	2296.78	2296.47	0.0000	0.00
60	2613.86	2613.61	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 2201045-04

MWA 11,12,13

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 1/19/2022 4:40:23PM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	46.07	43 -	49	45.77	9.62E+01	62.30	6.40E+02	1.71
	2	53.40	50 -	57	53.09	5.67E+01	69.17	7.59E+02	2.56
	3	64.80	59 -	70	64.48	1.95E+02	106.77	1.33E+03	8.00
M	4	74.52	71 -	82	74.20	4.31E+02	93.88	8.97E+02	2.25
m	5	77.23	71 -	82	76.92	7.13E+02	97.09	9.38E+02	2.25
M	6	87.28	82 -	96	86.97	3.39E+02	86.57	9.76E+02	3.65
m	7	92.75	82 -	96	92.43	2.42E+02	84.32	7.79E+02	2.89
	8	186.21	182 -	191	185.88	2.42E+02	73.42	6.35E+02	1.88
M	9	238.85	235 -	248	238.51	2.84E+02	56.25	3.20E+02	2.24
m	10	241.94	235 -	248	241.61	3.29E+02	71.79	3.81E+02	3.24
	11	275.42	270 -	280	275.09	6.63E+01	56.01	3.77E+02	6.34
	12	295.51	288 -	301	295.17	5.12E+02	86.03	5.95E+02	2.26
	13	338.46	333 -	343	338.11	6.69E+01	52.78	3.36E+02	2.15
	14	352.13	346 -	356	351.79	8.31E+02	78.83	3.86E+02	2.25
	15	438.65	435 -	441	438.30	2.25E+01	27.21	1.17E+02	3.01
	16	510.69	505 -	516	510.33	1.41E+02	42.61	1.58E+02	3.47
	17	570.34	568 -	573	569.97	1.74E+01	20.15	6.92E+01	2.67
	18	583.33	578 -	589	582.96	1.03E+02	33.76	9.33E+01	3.32
	19	609.69	603 -	615	609.32	5.77E+02	62.92	1.92E+02	2.40
M	20	618.36	616 -	626	617.99	1.85E+01	18.60	5.78E+01	2.90
m	21	621.37	616 -	626	621.00	2.03E+01	24.04	8.41E+01	2.44
	22	678.23	675 -	681	677.86	2.12E+01	18.75	4.76E+01	4.24
	23	684.96	682 -	688	684.59	1.69E+01	18.97	5.41E+01	3.46
	24	704.98	700 -	708	704.60	3.19E+01	25.47	7.83E+01	1.47
	25	768.35	763 -	772	767.97	2.83E+01	32.54	1.35E+02	3.28
	26	795.23	792 -	798	794.85	2.55E+01	19.27	4.90E+01	3.04
	27	807.43	801 -	812	807.04	3.06E+01	30.27	9.07E+01	5.56
	28	822.59	817 -	827	822.21	3.06E+01	24.02	6.08E+01	4.86
	29	891.54	889 -	893	891.15	9.65E+00	11.40	2.07E+01	1.92
	30	910.49	904 -	918	910.11	4.77E+01	40.31	1.55E+02	2.80
	31	934.32	929 -	936	933.93	2.28E+01	23.92	8.04E+01	2.34
	32	970.13	963 -	977	969.74	7.28E+01	34.75	9.24E+01	3.68
	33	1020.20	1017 -	1023	1019.81	1.57E+01	15.57	2.86E+01	1.43
	34	1025.83	1023 -	1027	1025.44	1.02E+01	10.94	1.76E+01	1.85
	35	1031.99	1028 -	1035	1031.60	2.48E+01	17.78	3.64E+01	2.70
M	36	1052.13	1047 -	1065	1051.74	1.48E+01	19.15	4.67E+01	2.89
m	37	1057.65	1047 -	1065	1057.26	1.44E+01	20.95	4.98E+01	2.89
	38	1120.45	1114 -	1123	1120.06	9.82E+01	29.14	6.57E+01	2.27
	39	1154.58	1148 -	1158	1154.19	3.19E+01	21.40	4.41E+01	2.29
	40	1238.75	1232 -	1247	1238.36	6.79E+01	27.50	5.01E+01	3.50

Analysis Report for 2201045-04

MWA 11,12,13

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1315.45	1312 -	1317	1315.07	7.70E+00	10.25	1.46E+01	1.97
	42	1321.31	1318 -	1325	1320.92	1.20E+01	12.00	1.60E+01	2.48
	43	1385.60	1383 -	1391	1385.22	1.60E+01	16.67	3.61E+01	3.24
M	44	1402.73	1398 -	1412	1402.34	2.26E+01	13.11	9.74E+00	4.03
m	45	1407.90	1398 -	1412	1407.52	2.13E+01	15.97	1.73E+01	3.33
	46	1460.86	1454 -	1464	1460.47	4.55E+01	20.72	3.30E+01	2.96
	47	1510.21	1503 -	1517	1509.83	2.73E+01	23.10	4.33E+01	1.46
	48	1529.08	1524 -	1534	1528.70	1.64E+01	13.81	1.73E+01	1.26
	49	1543.95	1538 -	1549	1543.57	2.29E+01	13.71	1.22E+01	2.33
	50	1694.76	1688 -	1698	1694.39	1.05E+01	11.16	1.10E+01	1.18
	51	1705.00	1701 -	1708	1704.63	8.30E+00	7.48	3.40E+00	1.27
	52	1729.05	1722 -	1733	1728.68	2.58E+01	12.33	6.38E+00	2.94
	53	1765.09	1759 -	1772	1764.73	7.14E+01	23.07	2.53E+01	3.00
	54	1782.90	1779 -	1786	1782.53	5.88E+00	6.93	4.25E+00	2.94
	55	1847.56	1843 -	1851	1847.20	1.50E+01	7.75	0.00E+00	5.88
	56	1955.89	1951 -	1959	1955.54	7.85E+00	7.76	4.30E+00	1.06
	57	2102.40	2097 -	2106	2102.06	7.65E+00	8.06	4.70E+00	2.89
	58	2204.21	2199 -	2207	2203.89	1.45E+01	10.79	8.95E+00	4.38
	59	2296.78	2294 -	2299	2296.47	5.29E+00	6.08	3.43E+00	2.83
	60	2613.86	2607 -	2617	2613.61	3.30E+01	11.49	0.00E+00	2.89

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 : 1/19/2022 4:40:23PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	46.07	43 -	49	9.62E+01	62.30	6.40E+02	4.86E+01
	2	53.40	50 -	57	5.67E+01	69.17	7.59E+02	5.55E+01
	3	64.80	59 -	70	1.95E+02	106.77	1.33E+03	8.47E+01
M	4	74.52	71 -	82	4.31E+02	93.88	8.97E+02	4.92E+01
m	5	77.23	71 -	82	7.13E+02	97.09	9.38E+02	5.04E+01
M	6	87.28	82 -	96	3.39E+02	86.57	9.76E+02	5.14E+01
m	7	92.75	82 -	96	2.42E+02	84.32	7.79E+02	4.59E+01
	8	186.21	182 -	191	2.42E+02	73.42	6.35E+02	5.47E+01

Analysis Report for 2201045-04

MWA 11,12,13

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	9	238.85	235 -	248	2.84E+02	56.25	3.20E+02	2.94E+01
m	10	241.94	235 -	248	3.29E+02	71.79	3.81E+02	3.21E+01
	11	275.42	270 -	280	6.63E+01	56.01	3.77E+02	4.41E+01
	12	295.51	288 -	301	5.12E+02	86.03	5.95E+02	6.02E+01
	13	338.46	333 -	343	6.69E+01	52.78	3.36E+02	4.12E+01
	14	352.13	346 -	356	8.31E+02	78.83	3.86E+02	4.42E+01
	15	438.65	435 -	441	2.25E+01	27.21	1.17E+02	2.10E+01
	16	510.69	505 -	516	1.41E+02	42.61	1.58E+02	2.91E+01
	17	570.34	568 -	573	1.74E+01	20.15	6.92E+01	1.51E+01
	18	583.33	578 -	589	1.03E+02	33.76	9.33E+01	2.22E+01
	19	609.69	603 -	615	5.77E+02	62.92	1.92E+02	3.34E+01
M	20	618.36	616 -	626	1.85E+01	18.60	5.78E+01	1.25E+01
m	21	621.37	616 -	626	2.03E+01	24.04	8.41E+01	1.51E+01
	22	678.23	675 -	681	2.12E+01	18.75	4.76E+01	1.34E+01
	23	684.96	682 -	688	1.69E+01	18.97	5.41E+01	1.40E+01
	24	704.98	700 -	708	3.19E+01	25.47	7.83E+01	1.88E+01
	25	768.35	763 -	772	2.83E+01	32.54	1.35E+02	2.53E+01
	26	795.23	792 -	798	2.55E+01	19.27	4.90E+01	1.35E+01
	27	807.43	801 -	812	3.06E+01	30.27	9.07E+01	2.32E+01
	28	822.59	817 -	827	3.06E+01	24.02	6.08E+01	1.75E+01
	29	891.54	889 -	893	9.65E+00	11.40	2.07E+01	7.86E+00
	30	910.49	904 -	918	4.77E+01	40.31	1.55E+02	3.11E+01
	31	934.32	929 -	936	2.28E+01	23.92	8.04E+01	1.80E+01
	32	970.13	963 -	977	7.28E+01	34.75	9.24E+01	2.49E+01
	33	1020.20	1017 -	1023	1.57E+01	15.57	2.86E+01	1.10E+01
	34	1025.83	1023 -	1027	1.02E+01	10.94	1.76E+01	7.30E+00
	35	1031.99	1028 -	1035	2.48E+01	17.78	3.64E+01	1.21E+01
M	36	1052.13	1047 -	1065	1.48E+01	19.15	4.67E+01	1.12E+01
m	37	1057.65	1047 -	1065	1.44E+01	20.95	4.98E+01	1.16E+01
	38	1120.45	1114 -	1123	9.82E+01	29.14	6.57E+01	1.76E+01
	39	1154.58	1148 -	1158	3.19E+01	21.40	4.41E+01	1.49E+01
	40	1238.75	1232 -	1247	6.79E+01	27.50	5.01E+01	1.81E+01
	41	1315.45	1312 -	1317	7.70E+00	10.25	1.46E+01	7.08E+00
	42	1321.31	1318 -	1325	1.20E+01	12.00	1.60E+01	8.05E+00
	43	1385.60	1383 -	1391	1.60E+01	16.67	3.61E+01	1.20E+01
M	44	1402.73	1398 -	1412	2.26E+01	13.11	9.74E+00	5.13E+00
m	45	1407.90	1398 -	1412	2.13E+01	15.97	1.73E+01	6.83E+00
	46	1460.86	1454 -	1464	4.55E+01	20.72	3.30E+01	1.29E+01
	47	1510.21	1503 -	1517	2.73E+01	23.10	4.33E+01	1.69E+01
	48	1529.08	1524 -	1534	1.64E+01	13.81	1.73E+01	9.20E+00
	49	1543.95	1538 -	1549	2.29E+01	13.71	1.22E+01	8.07E+00
	50	1694.76	1688 -	1698	1.05E+01	11.16	1.10E+01	7.47E+00
	51	1705.00	1701 -	1708	8.30E+00	7.48	3.40E+00	3.93E+00
	52	1729.05	1722 -	1733	2.58E+01	12.33	6.38E+00	5.74E+00
	53	1765.09	1759 -	1772	7.14E+01	23.07	2.53E+01	1.29E+01
	54	1782.90	1779 -	1786	5.88E+00	6.93	4.25E+00	4.07E+00
	55	1847.56	1843 -	1851	1.50E+01	7.75	0.00E+00	0.00E+00
	56	1955.89	1951 -	1959	7.85E+00	7.76	4.30E+00	4.42E+00
	57	2102.40	2097 -	2106	7.65E+00	8.06	4.70E+00	4.82E+00
	58	2204.21	2199 -	2207	1.45E+01	10.79	8.95E+00	6.28E+00
	59	2296.78	2294 -	2299	5.29E+00	6.08	3.43E+00	3.27E+00

Analysis Report for 2201045-04

MWA 11,12,13

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
60	2613.86	2607 -	2617	3.30E+01	11.49	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

PEAK WITH NID REPORT

Peak Analysis Performed on : 1/19/2022 4:40:23PM

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

Tentative NID Library : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB
Peak Match Tolerance : 2.500 keV

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	46.07	43 -	49	45.77	9.62E+01	62.30	6.40E+02	PB-210
									TH-230
	2	53.40	50 -	57	53.09	5.67E+01	69.17	7.59E+02	.....
	3	64.80	59 -	70	64.48	1.95E+02	106.77	1.33E+03	TH-234
									TM-171
									TH-230
M	4	74.52	71 -	82	74.20	4.31E+02	93.88	8.97E+02	AM-243
									PM-145
m	5	77.23	71 -	82	76.92	7.13E+02	97.09	9.38E+02	TI-44
M	6	87.28	82 -	96	86.97	3.39E+02	86.57	9.76E+02	SN-126
									CD-109
									NP-237
									EU-155
									LU-176
m	7	92.75	82 -	96	92.43	2.42E+02	84.32	7.79E+02	GA-67
									ND-147
	8	186.21	182 -	191	185.88	2.42E+02	73.42	6.35E+02	RA-226
									HO-166M
M	9	238.85	235 -	248	238.51	2.84E+02	56.25	3.20E+02	PB-212
									RA-224
m	10	241.94	235 -	248	241.61	3.29E+02	71.79	3.81E+02	RA-224
	11	275.42	270 -	280	275.09	6.63E+01	56.01	3.77E+02	CS-136
									NP-239
									CM-243
	12	295.51	288 -	301	295.17	5.12E+02	86.03	5.95E+02	PB-214

Analysis Report for 2201045-04

MWA 11,12,13

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									CE-143
	13	338.46	333 -	343	338.11	6.69E+01	52.78	3.36E+02	AC-228
									CS-136
	14	352.13	346 -	356	351.79	8.31E+02	78.83	3.86E+02	PB-214
	15	438.65	435 -	441	438.30	2.25E+01	27.21	1.17E+02	BA-140
	16	510.69	505 -	516	510.33	1.41E+02	42.61	1.58E+02	.....
	17	570.34	568 -	573	569.97	1.74E+01	20.15	6.92E+01	BI-207
									CS-134
	18	583.33	578 -	589	582.96	1.03E+02	33.76	9.33E+01	TL-208
	19	609.69	603 -	615	609.32	5.77E+02	62.92	1.92E+02	BI-214
M	20	618.36	616 -	626	617.99	1.85E+01	18.60	5.78E+01	PM-144
m	21	621.37	616 -	626	621.00	2.03E+01	24.04	8.41E+01	RU-106
	22	678.23	675 -	681	677.86	2.12E+01	18.75	4.76E+01	AG-110M
	23	684.96	682 -	688	684.59	1.69E+01	18.97	5.41E+01	SB-127
									MO-93
	24	704.98	700 -	708	704.60	3.19E+01	25.47	7.83E+01	AG-110M
									NB-94
	25	768.35	763 -	772	767.97	2.83E+01	32.54	1.35E+02	.....
	26	795.23	792 -	798	794.85	2.55E+01	19.27	4.90E+01	CS-134
	27	807.43	801 -	812	807.04	3.06E+01	30.27	9.07E+01	.....
	28	822.59	817 -	827	822.21	3.06E+01	24.02	6.08E+01	.....
	29	891.54	889 -	893	891.15	9.65E+00	11.40	2.07E+01	SC-46
	30	910.49	904 -	918	910.11	4.77E+01	40.31	1.55E+02	AC-228
									TL-204
	31	934.32	929 -	936	933.93	2.28E+01	23.92	8.04E+01	.....
	32	970.13	963 -	977	969.74	7.28E+01	34.75	9.24E+01	AC-228
	33	1020.20	1017 -	1023	1019.81	1.57E+01	15.57	2.86E+01	.....
	34	1025.83	1023 -	1027	1025.44	1.02E+01	10.94	1.76E+01	.....
	35	1031.99	1028 -	1035	1031.60	2.48E+01	17.78	3.64E+01	.....
M	36	1052.13	1047 -	1065	1051.74	1.48E+01	19.15	4.67E+01	.....
m	37	1057.65	1047 -	1065	1057.26	1.44E+01	20.95	4.98E+01	.....
	38	1120.45	1114 -	1123	1120.06	9.82E+01	29.14	6.57E+01	SC-46
									BI-214
									TA-182
	39	1154.58	1148 -	1158	1154.19	3.19E+01	21.40	4.41E+01	EU-156
	40	1238.75	1232 -	1247	1238.36	6.79E+01	27.50	5.01E+01	CO-56
	41	1315.45	1312 -	1317	1315.07	7.70E+00	10.25	1.46E+01	.....
	42	1321.31	1318 -	1325	1320.92	1.20E+01	12.00	1.60E+01	.....
	43	1385.60	1383 -	1391	1385.22	1.60E+01	16.67	3.61E+01	AG-110M
M	44	1402.73	1398 -	1412	1402.34	2.26E+01	13.11	9.74E+00	.....
m	45	1407.90	1398 -	1412	1407.52	2.13E+01	15.97	1.73E+01	EU-152
	46	1460.86	1454 -	1464	1460.47	4.55E+01	20.72	3.30E+01	K-40
	47	1510.21	1503 -	1517	1509.83	2.73E+01	23.10	4.33E+01	.....
	48	1529.08	1524 -	1534	1528.70	1.64E+01	13.81	1.73E+01	.....
	49	1543.95	1538 -	1549	1543.57	2.29E+01	13.71	1.22E+01	.....
	50	1694.76	1688 -	1698	1694.39	1.05E+01	11.16	1.10E+01	.....
	51	1705.00	1701 -	1708	1704.63	8.30E+00	7.48	3.40E+00	.....
	52	1729.05	1722 -	1733	1728.68	2.58E+01	12.33	6.38E+00	.....
	53	1765.09	1759 -	1772	1764.73	7.14E+01	23.07	2.53E+01	BI-214
	54	1782.90	1779 -	1786	1782.53	5.88E+00	6.93	4.25E+00	.....
	55	1847.56	1843 -	1851	1847.20	1.50E+01	7.75	0.00E+00	.....
	56	1955.89	1951 -	1959	1955.54	7.85E+00	7.76	4.30E+00	.....
	57	2102.40	2097 -	2106	2102.06	7.65E+00	8.06	4.70E+00	.....
	58	2204.21	2199 -	2207	2203.89	1.45E+01	10.79	8.95E+00	BI-214

Analysis Report for 2201045-04

MWA 11,12,13

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
59	2296.78	2294 -	2299	2296.47	5.29E+00	6.08	3.43E+00	.....
60	2613.86	2607 -	2617	2613.61	3.30E+01	11.49	0.00E+00	TL-208

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 1/19/2022 4:40:23PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.07	9.62E+01	62.30	4.46E-02	3.68E-03
	2	53.40	5.67E+01	69.17	4.78E-02	3.68E-03
	3	64.80	1.95E+02	106.77	5.05E-02	3.80E-03
M	4	74.52	4.31E+02	93.88	5.13E-02	4.02E-03
m	5	77.23	7.13E+02	97.09	5.14E-02	4.08E-03
M	6	87.28	3.39E+02	86.57	5.12E-02	4.30E-03
m	7	92.75	2.42E+02	84.32	5.08E-02	4.19E-03
	8	186.21	2.42E+02	73.42	3.83E-02	3.01E-03
M	9	238.85	2.84E+02	56.25	3.23E-02	2.62E-03
m	10	241.94	3.29E+02	71.79	3.20E-02	2.59E-03
	11	275.42	6.63E+01	56.01	2.90E-02	2.34E-03
	12	295.51	5.12E+02	86.03	2.74E-02	2.25E-03
	13	338.46	6.69E+01	52.78	2.45E-02	2.09E-03
	14	352.13	8.31E+02	78.83	2.37E-02	2.04E-03
	15	438.65	2.25E+01	27.21	1.96E-02	1.80E-03
	16	510.69	1.41E+02	42.61	1.72E-02	1.65E-03
	17	570.34	1.74E+01	20.15	1.56E-02	1.53E-03
	18	583.33	1.03E+02	33.76	1.53E-02	1.51E-03
	19	609.69	5.77E+02	62.92	1.47E-02	1.45E-03
M	20	618.36	1.85E+01	18.60	1.45E-02	1.44E-03
m	21	621.37	2.03E+01	24.04	1.44E-02	1.43E-03
	22	678.23	2.12E+01	18.75	1.33E-02	1.32E-03
	23	684.96	1.69E+01	18.97	1.32E-02	1.31E-03
	24	704.98	3.19E+01	25.47	1.29E-02	1.27E-03
	25	768.35	2.83E+01	32.54	1.20E-02	1.16E-03
	26	795.23	2.55E+01	19.27	1.16E-02	1.11E-03
	27	807.43	3.06E+01	30.27	1.14E-02	1.09E-03
	28	822.59	3.06E+01	24.02	1.13E-02	1.06E-03

Analysis Report for 2201045-04

MWA 11,12,13

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	29	891.54	9.65E+00	11.40	1.05E-02	9.36E-04
	30	910.49	4.77E+01	40.31	1.03E-02	9.12E-04
	31	934.32	2.28E+01	23.92	1.01E-02	8.90E-04
	32	970.13	7.28E+01	34.75	9.76E-03	8.57E-04
	33	1020.20	1.57E+01	15.57	9.35E-03	8.11E-04
	34	1025.83	1.02E+01	10.94	9.31E-03	8.05E-04
	35	1031.99	2.48E+01	17.78	9.26E-03	8.00E-04
M	36	1052.13	1.48E+01	19.15	9.11E-03	7.81E-04
m	37	1057.65	1.44E+01	20.95	9.07E-03	7.76E-04
	38	1120.45	9.82E+01	29.14	8.64E-03	7.18E-04
	39	1154.58	3.19E+01	21.40	8.42E-03	6.86E-04
	40	1238.75	6.79E+01	27.50	7.94E-03	6.43E-04
	41	1315.45	7.70E+00	10.25	7.55E-03	6.14E-04
	42	1321.31	1.20E+01	12.00	7.52E-03	6.12E-04
	43	1385.60	1.60E+01	16.67	7.23E-03	5.89E-04
M	44	1402.73	2.26E+01	13.11	7.15E-03	5.83E-04
m	45	1407.90	2.13E+01	15.97	7.13E-03	5.81E-04
	46	1460.86	4.55E+01	20.72	6.92E-03	5.63E-04
	47	1510.21	2.73E+01	23.10	6.73E-03	5.46E-04
	48	1529.08	1.64E+01	13.81	6.66E-03	5.40E-04
	49	1543.95	2.29E+01	13.71	6.61E-03	5.34E-04
	50	1694.76	1.05E+01	11.16	6.12E-03	4.82E-04
	51	1705.00	8.30E+00	7.48	6.09E-03	4.79E-04
	52	1729.05	2.58E+01	12.33	6.02E-03	4.70E-04
	53	1765.09	7.14E+01	23.07	5.92E-03	4.58E-04
	54	1782.90	5.88E+00	6.93	5.87E-03	4.52E-04
	55	1847.56	1.50E+01	7.75	5.70E-03	4.33E-04
	56	1955.89	7.85E+00	7.76	5.44E-03	4.33E-04
	57	2102.40	7.65E+00	8.06	5.12E-03	4.33E-04
	58	2204.21	1.45E+01	10.79	4.92E-03	4.33E-04
	59	2296.78	5.29E+00	6.08	4.76E-03	4.33E-04
	60	2613.86	3.30E+01	11.49	4.26E-03	4.33E-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 : 1/19/2022 4:40:23PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000119047.CNF

Analysis Report for 2201045-04

MWA 11,12,13

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.07	9.62E+01	62.30	3.35E+01	4.28E+00	6.27E+01	6.24E+01
	2	53.40	5.67E+01	69.17			5.67E+01	6.92E+01
	3	64.80	1.95E+02	106.77	9.27E+01	1.03E+01	1.02E+02	1.07E+02
M	4	74.52	4.31E+02	93.88	8.88E+00	3.71E+00	4.22E+02	9.40E+01
m	5	77.23	7.13E+02	97.09	8.88E+00	3.71E+00	7.04E+02	9.72E+01
M	6	87.28	3.39E+02	86.57			3.39E+02	8.66E+01
m	7	92.75	2.42E+02	84.32	1.25E+02	6.15E+00	1.16E+02	8.45E+01
	8	186.21	2.42E+02	73.42	5.42E+01	8.68E+00	1.88E+02	7.39E+01
M	9	238.85	2.84E+02	56.25	1.70E+01	6.15E+00	2.67E+02	5.66E+01
m	10	241.94	3.29E+02	71.79			3.29E+02	7.18E+01
	11	275.42	6.63E+01	56.01			6.63E+01	5.60E+01
	12	295.51	5.12E+02	86.03	4.03E+00	5.84E+01	5.08E+02	1.04E+02
	13	338.46	6.69E+01	52.78			6.69E+01	5.28E+01
	14	352.13	8.31E+02	78.83			8.31E+02	7.88E+01
	15	438.65	2.25E+01	27.21			2.25E+01	2.72E+01
	16	510.69	1.41E+02	42.61	7.07E+01	5.71E+00	7.04E+01	4.30E+01
	17	570.34	1.74E+01	20.15			1.74E+01	2.01E+01
	18	583.33	1.03E+02	33.76			1.03E+02	3.38E+01
	19	609.69	5.77E+02	62.92			5.77E+02	6.29E+01
M	20	618.36	1.85E+01	18.60			1.85E+01	1.86E+01
m	21	621.37	2.03E+01	24.04			2.03E+01	2.40E+01
	22	678.23	2.12E+01	18.75			2.12E+01	1.87E+01
	23	684.96	1.69E+01	18.97			1.69E+01	1.90E+01
	24	704.98	3.19E+01	25.47			3.19E+01	2.55E+01
	25	768.35	2.83E+01	32.54			2.83E+01	3.25E+01
	26	795.23	2.55E+01	19.27			2.55E+01	1.93E+01
	27	807.43	3.06E+01	30.27			3.06E+01	3.03E+01
	28	822.59	3.06E+01	24.02			3.06E+01	2.40E+01
	29	891.54	9.65E+00	11.40			9.65E+00	1.14E+01
	30	910.49	4.77E+01	40.31	2.51E-01	2.90E+00	4.75E+01	4.04E+01
	31	934.32	2.28E+01	23.92			2.28E+01	2.39E+01
	32	970.13	7.28E+01	34.75			7.28E+01	3.47E+01
	33	1020.20	1.57E+01	15.57	0.00E+00	0.00E+00	1.57E+01	1.56E+01
	34	1025.83	1.02E+01	10.94			1.02E+01	1.09E+01
	35	1031.99	2.48E+01	17.78			2.48E+01	1.78E+01
M	36	1052.13	1.48E+01	19.15			1.48E+01	1.92E+01
m	37	1057.65	1.44E+01	20.95			1.44E+01	2.09E+01
	38	1120.45	9.82E+01	29.14			9.82E+01	2.91E+01
	39	1154.58	3.19E+01	21.40			3.19E+01	2.14E+01
	40	1238.75	6.79E+01	27.50			6.79E+01	2.75E+01
	41	1315.45	7.70E+00	10.25			7.70E+00	1.02E+01
	42	1321.31	1.20E+01	12.00			1.20E+01	1.20E+01
	43	1385.60	1.60E+01	16.67			1.60E+01	1.67E+01
M	44	1402.73	2.26E+01	13.11			2.26E+01	1.31E+01
m	45	1407.90	2.13E+01	15.97			2.13E+01	1.60E+01
	46	1460.86	4.55E+01	20.72	3.16E+00	1.93E+00	4.23E+01	2.08E+01
	47	1510.21	2.73E+01	23.10			2.73E+01	2.31E+01
	48	1529.08	1.64E+01	13.81			1.64E+01	1.38E+01
	49	1543.95	2.29E+01	13.71	1.07E+00	1.47E+00	2.18E+01	1.38E+01
	50	1694.76	1.05E+01	11.16			1.05E+01	1.12E+01
	51	1705.00	8.30E+00	7.48			8.30E+00	7.48E+00
	52	1729.05	2.58E+01	12.33			2.58E+01	1.23E+01
	53	1765.09	7.14E+01	23.07			7.14E+01	2.31E+01
	54	1782.90	5.88E+00	6.93			5.88E+00	6.93E+00

Analysis Report for 2201045-04

MWA 11,12,13

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
55	1847.56	1.50E+01	7.75			1.50E+01	7.75E+00
56	1955.89	7.85E+00	7.76			7.85E+00	7.76E+00
57	2102.40	7.65E+00	8.06			7.65E+00	8.06E+00
58	2204.21	1.45E+01	10.79			1.45E+01	1.08E+01
59	2296.78	5.29E+00	6.08			5.29E+00	6.08E+00
60	2613.86	3.30E+01	11.49	4.82E+00	1.66E+00	2.82E+01	1.16E+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 : 1/19/2022 4:40:23PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000119047.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	46.07	9.62E+01	62.30	3.35E+01	4.28E+00	6.27E+01	6.24E+01
	2	53.40	5.67E+01	69.17			5.67E+01	6.92E+01
	3	64.80	1.95E+02	106.77	9.27E+01	1.03E+01	1.02E+02	1.07E+02
M	4	74.52	4.31E+02	93.88	8.88E+00	3.71E+00	4.22E+02	9.40E+01
m	5	77.23	7.13E+02	97.09	8.88E+00	3.71E+00	7.04E+02	9.72E+01
M	6	87.28	3.39E+02	86.57			3.39E+02	8.66E+01
m	7	92.75	2.42E+02	84.32	1.25E+02	6.15E+00	1.16E+02	8.45E+01
	8	186.21	2.42E+02	73.42	5.42E+01	8.68E+00	1.88E+02	7.39E+01
M	9	238.85	2.84E+02	56.25	1.70E+01	6.15E+00	2.67E+02	5.66E+01
m	10	241.94	3.29E+02	71.79			3.29E+02	7.18E+01
	11	275.42	6.63E+01	56.01			6.63E+01	5.60E+01
	12	295.51	5.12E+02	86.03	4.03E+00	5.84E+01	5.08E+02	1.04E+02
	13	338.46	6.69E+01	52.78			6.69E+01	5.28E+01
	14	352.13	8.31E+02	78.83			8.31E+02	7.88E+01
	15	438.65	2.25E+01	27.21			2.25E+01	2.72E+01
	16	510.69	1.41E+02	42.61	7.07E+01	5.71E+00	7.04E+01	4.30E+01
	17	570.34	1.74E+01	20.15			1.74E+01	2.01E+01
	18	583.33	1.03E+02	33.76			1.03E+02	3.38E+01
	19	609.69	5.77E+02	62.92			5.77E+02	6.29E+01
M	20	618.36	1.85E+01	18.60			1.85E+01	1.86E+01
m	21	621.37	2.03E+01	24.04			2.03E+01	2.40E+01
	22	678.23	2.12E+01	18.75			2.12E+01	1.87E+01

Analysis Report for 2201045-04

MWA 11,12,13

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	23	684.96	1.69E+01	18.97			1.69E+01	1.90E+01
	24	704.98	3.19E+01	25.47			3.19E+01	2.55E+01
	25	768.35	2.83E+01	32.54			2.83E+01	3.25E+01
	26	795.23	2.55E+01	19.27			2.55E+01	1.93E+01
	27	807.43	3.06E+01	30.27			3.06E+01	3.03E+01
	28	822.59	3.06E+01	24.02			3.06E+01	2.40E+01
	29	891.54	9.65E+00	11.40			9.65E+00	1.14E+01
	30	910.49	4.77E+01	40.31	2.51E-01	2.90E+00	4.75E+01	4.04E+01
	31	934.32	2.28E+01	23.92			2.28E+01	2.39E+01
	32	970.13	7.28E+01	34.75			7.28E+01	3.47E+01
	33	1020.20	1.57E+01	15.57	0.00E+00	0.00E+00	1.57E+01	1.56E+01
	34	1025.83	1.02E+01	10.94			1.02E+01	1.09E+01
	35	1031.99	2.48E+01	17.78			2.48E+01	1.78E+01
M	36	1052.13	1.48E+01	19.15			1.48E+01	1.92E+01
m	37	1057.65	1.44E+01	20.95			1.44E+01	2.09E+01
	38	1120.45	9.82E+01	29.14			9.82E+01	2.91E+01
	39	1154.58	3.19E+01	21.40			3.19E+01	2.14E+01
	40	1238.75	6.79E+01	27.50			6.79E+01	2.75E+01
	41	1315.45	7.70E+00	10.25			7.70E+00	1.02E+01
	42	1321.31	1.20E+01	12.00			1.20E+01	1.20E+01
	43	1385.60	1.60E+01	16.67			1.60E+01	1.67E+01
M	44	1402.73	2.26E+01	13.11			2.26E+01	1.31E+01
m	45	1407.90	2.13E+01	15.97			2.13E+01	1.60E+01
	46	1460.86	4.55E+01	20.72	3.16E+00	1.93E+00	4.23E+01	2.08E+01
	47	1510.21	2.73E+01	23.10			2.73E+01	2.31E+01
	48	1529.08	1.64E+01	13.81			1.64E+01	1.38E+01
	49	1543.95	2.29E+01	13.71	1.07E+00	1.47E+00	2.18E+01	1.38E+01
	50	1694.76	1.05E+01	11.16			1.05E+01	1.12E+01
	51	1705.00	8.30E+00	7.48			8.30E+00	7.48E+00
	52	1729.05	2.58E+01	12.33			2.58E+01	1.23E+01
	53	1765.09	7.14E+01	23.07			7.14E+01	2.31E+01
	54	1782.90	5.88E+00	6.93			5.88E+00	6.93E+00
	55	1847.56	1.50E+01	7.75			1.50E+01	7.75E+00
	56	1955.89	7.85E+00	7.76			7.85E+00	7.76E+00
	57	2102.40	7.65E+00	8.06			7.65E+00	8.06E+00
	58	2204.21	1.45E+01	10.79			1.45E+01	1.08E+01
	59	2296.78	5.29E+00	6.08			5.29E+00	6.08E+00
	60	2613.86	3.30E+01	11.49	4.82E+00	1.66E+00	2.82E+01	1.16E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Analysis Report for 2201045-04

MWA 11,12,13

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	1.000	1460.81	*	10.67	9.40E+00	4.69E+00
GA-67	0.467	93.31	*	35.70	6.10E+01	4.46E+01
		208.95		2.24		
		300.22		16.00		
RU-106	0.994	621.84	*	9.80	2.44E+00	2.90E+00
CD-109	0.986	88.03	*	3.72	3.01E+01	8.08E+00
SN-126	0.998	87.57	*	37.00	2.94E+00	7.89E-01
ND-147	0.615	91.11	*	28.90	4.34E+00	3.17E+00
		531.02		13.10		
EU-155	0.355	86.50	*	30.90	3.54E+00	9.52E-01
		105.30		20.70		
BI-207	0.404	569.67	*	97.72	1.88E-01	2.18E-01
		1063.62		74.90		
TL-208	0.877	583.14	*	30.22	3.67E+00	1.25E+00
		860.37		4.48		
		2614.66	*	35.85	3.02E+00	1.28E+00
PB-212	0.894	238.63	*	44.60	3.04E+00	6.89E-01
		300.09		3.41		
BI-214	0.996	609.31	*	46.30	1.39E+01	2.05E+00
		1120.29	*	15.10	1.23E+01	3.80E+00
		1764.49	*	15.80	1.25E+01	4.16E+00
		2204.22	*	4.98	9.71E+00	7.27E+00
PB-214	0.998	295.21	*	19.19	1.58E+01	3.49E+00
		351.92	*	37.19	1.54E+01	1.98E+00
RA-224	0.977	240.98	*	3.95	4.26E+01	9.93E+00
RA-226	1.000	186.21	*	3.28	2.45E+01	9.84E+00
AC-228	0.988	338.32	*	11.40	3.92E+00	3.11E+00
		911.07	*	27.70	2.73E+00	2.33E+00
		969.11	*	16.60	7.36E+00	3.57E+00
TH-230	0.849	48.43	*	16.90	1.36E+00	1.36E+00
		62.85	*	4.60	7.20E+00	7.59E+00
		67.67		0.37		
NP-237	0.984	86.50	*	12.60	8.63E+00	2.32E+00
AM-243	0.999	74.67	*	66.00	2.04E+00	4.82E-01

* = Energy line found in the spectrum.
- = Manually added nuclide.
? = Manually edited nuclide.
Energy Tolerance : 2.500 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000sigma

Analysis Report for 2201045-04

MWA 11,12,13

UNIDENTIFIED PEAKS

Peak Locate Performed on : 1/19/2022 4:40:23PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	53.40	1.57378E-02	61.04		
m	5	77.23	1.95595E-01	6.90		
	11	275.42	1.84205E-02	42.23	Sum	
	15	438.65	6.25686E-03	60.41	D-Esc	
	16	510.69	1.95566E-02	30.53		
M	20	618.36	5.13476E-03	50.31	Sum	
	22	678.23	5.88272E-03	44.26	Sum	
	23	684.96	4.70328E-03	56.01	Sum	
	24	704.98	8.85368E-03	39.95	Sum	
	25	768.35	7.86892E-03	57.44	Sum	
	26	795.23	7.08333E-03	37.79	Sum	
	27	807.43	8.51243E-03	49.38	Sum	
	28	822.59	8.49499E-03	39.26	Sum	
	29	891.54	2.68056E-03	59.08		
	31	934.32	6.33598E-03	52.43	Sum	
	33	1020.20	4.36111E-03	49.59		
	34	1025.83	2.83626E-03	53.59		
	35	1031.99	6.89276E-03	35.82		
M	36	1052.13	4.11426E-03	64.65		
m	37	1057.65	4.01052E-03	72.54	Sum	
	39	1154.58	8.86831E-03	33.52	Sum	
	40	1238.75	1.88710E-02	20.24		
	41	1315.45	2.13889E-03	66.54		
	42	1321.31	3.33333E-03	50.00	Sum	
	43	1385.60	4.43219E-03	52.22	Tol.	AG-110M
M	44	1402.73	6.26847E-03	29.06		
m	45	1407.90	5.90523E-03	37.56	Tol.	EU-152
	47	1510.21	7.59637E-03	42.23		
	48	1529.08	4.54444E-03	42.21		
	49	1543.95	6.06423E-03	31.58		
	50	1694.76	2.91667E-03	53.13	S-Esc	
	51	1705.00	2.30556E-03	45.08	Sum	
	52	1729.05	7.16954E-03	23.88	Sum	
	54	1782.90	1.63194E-03	58.96		
	55	1847.56	4.16667E-03	25.82		
	56	1955.89	2.18056E-03	49.44		
	57	2102.40	2.12500E-03	52.69	S-Esc	
	59	2296.78	1.46825E-03	57.54	Sum	

Analysis Report for 2201045-04

MWA 11,12,13

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	1.00	1460.81	*	10.67	9.40E+00	4.69E+00
GA-67	0.46	93.31	*	35.70	6.10E+01	4.46E+01
		208.95		2.24		
		300.22		16.00		
RU-106	0.99	621.84	*	9.80	2.44E+00	2.90E+00
CD-109	0.98	88.03	*	3.72	3.01E+01	8.08E+00
SN-126	0.99	87.57	*	37.00	2.94E+00	7.89E-01
ND-147	0.61	91.11	*	28.90	4.34E+00	3.17E+00
		531.02		13.10		
EU-155	0.35	86.50	*	30.90	3.54E+00	9.52E-01
		105.30		20.70		
BI-207	0.40	569.67	*	97.72	1.88E-01	2.18E-01
		1063.62		74.90		
TL-208	0.87	583.14	*	30.22	3.67E+00	1.25E+00
		860.37		4.48		
		2614.66	*	35.85	3.02E+00	1.28E+00
PB-212	0.89	238.63	*	44.60	3.04E+00	6.89E-01
		300.09		3.41		
BI-214	0.99	609.31	*	46.30	1.39E+01	2.05E+00
		1120.29	*	15.10	1.23E+01	3.80E+00
		1764.49	*	15.80	1.25E+01	4.16E+00
		2204.22	*	4.98	9.71E+00	7.27E+00
PB-214	0.99	295.21	*	19.19	1.58E+01	3.49E+00
		351.92	*	37.19	1.54E+01	1.98E+00
RA-224	0.97	240.98	*	3.95	4.26E+01	9.93E+00
RA-226	1.00	186.21	*	3.28	2.45E+01	9.84E+00
AC-228	0.98	338.32	*	11.40	3.92E+00	3.11E+00
		911.07	*	27.70	2.73E+00	2.33E+00
		969.11	*	16.60	7.36E+00	3.57E+00
TH-230	0.84	48.43	*	16.90	1.36E+00	1.36E+00
		62.85	*	4.60	7.20E+00	7.59E+00
		67.67		0.37		

Analysis Report for 2201045-04

MWA 11,12,13

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
NP-237	0.98	86.50	*	12.60	8.63E+00	2.32E+00
AM-243	0.99	74.67	*	66.00	2.04E+00	4.82E-01

* = Energy line found in the spectrum.
\- = Manually added nuclide.
? = Manually edited nuclide.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 2.500 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	9.40E+00	4.69E+00	
X	SC-46	0.935			
?	GA-67	0.467	6.10E+01	4.46E+01	
	RU-106	0.994	2.44E+00	2.90E+00	
?	CD-109	0.986	3.01E+01	8.08E+00	
?	SN-126	0.998	2.94E+00	7.89E-01	
?	ND-147	0.615	4.34E+00	3.17E+00	
?	EU-155	0.355	3.54E+00	9.52E-01	
X	TM-171	0.910			
	BI-207	0.404	1.88E-01	2.18E-01	
	TL-208	0.877	3.36E+00	8.97E-01	
X	PB-210	0.995			
	PB-212	0.894	3.04E+00	6.89E-01	
	BI-214	0.996	1.32E+01	1.61E+00	
	PB-214	0.998	1.55E+01	1.72E+00	
	RA-224	0.977	4.26E+01	9.93E+00	
	RA-226	1.000	2.45E+01	9.84E+00	
	AC-228	0.988	4.06E+00	1.65E+00	
	TH-230	0.849	1.54E+00	1.34E+00	
X	TH-234	0.944			
?	NP-237	0.984	8.63E+00	2.32E+00	
	AM-243	0.999	2.04E+00	4.82E-01	

Analysis Report for 2201045-04

MWA 11,12,13

? = 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 2201045-04

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UNIDENTIFIED PEAKS

Peak Locate Performed on : 1/19/2022 4:40:23PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	53.40	1.57378E-02	61.04		
m	5	77.23	1.95595E-01	6.90		
	11	275.42	1.84205E-02	42.23	Sum	
	15	438.65	6.25686E-03	60.41	D-Esc	
	16	510.69	1.95566E-02	30.53		
M	20	618.36	5.13476E-03	50.31	Sum	
	22	678.23	5.88272E-03	44.26	Sum	
	23	684.96	4.70328E-03	56.01	Sum	
	24	704.98	8.85368E-03	39.95	Sum	
	25	768.35	7.86892E-03	57.44	Sum	
	26	795.23	7.08333E-03	37.79	Sum	
	27	807.43	8.51243E-03	49.38	Sum	
	28	822.59	8.49499E-03	39.26	Sum	
	29	891.54	2.68056E-03	59.08		
	31	934.32	6.33598E-03	52.43	Sum	
	33	1020.20	4.36111E-03	49.59		
	34	1025.83	2.83626E-03	53.59		
	35	1031.99	6.89276E-03	35.82		
M	36	1052.13	4.11426E-03	64.65		
m	37	1057.65	4.01052E-03	72.54	Sum	
	39	1154.58	8.86831E-03	33.52	Sum	
	40	1238.75	1.88710E-02	20.24		
	41	1315.45	2.13889E-03	66.54		
	42	1321.31	3.33333E-03	50.00	Sum	
	43	1385.60	4.43219E-03	52.22	Tol.	AG-110M
M	44	1402.73	6.26847E-03	29.06		
m	45	1407.90	5.90523E-03	37.56	Tol.	EU-152
	47	1510.21	7.59637E-03	42.23		
	48	1529.08	4.54444E-03	42.21		
	49	1543.95	6.06423E-03	31.58		
	50	1694.76	2.91667E-03	53.13	S-Esc	

Analysis Report for 2201045-04

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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
51	1705.00	2.30556E-03	45.08	Sum	
52	1729.05	7.16954E-03	23.88	Sum	
54	1782.90	1.63194E-03	58.96		
55	1847.56	4.16667E-03	25.82		
56	1955.89	2.18056E-03	49.44		
57	2102.40	2.12500E-03	52.69	S-Esc	
59	2296.78	1.46825E-03	57.54	Sum	

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	3.03E+00	6.12E+00	6.12E+00
+	NA-22	1274.54		99.94	-8.39E-03	5.96E-01	5.96E-01
+	NA-24	1368.53		99.99	-1.94E-01	3.74E-01	6.70E-01
		2754.09		99.86	-3.29E-01		3.74E-01
+	AL-26	1808.65		99.76	5.26E-02	4.25E-01	4.25E-01
+	K-40	1460.81	*	10.67	9.40E+00	6.54E+00	6.54E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-3.98E-01	3.63E-01	3.63E-01
		78.34		96.00	2.29E+00		5.84E-01
+	SC-46	889.25	*	98.98	1.78E-01	3.40E-01	3.40E-01
		1120.51	*	99.90	2.18E+00		8.42E-01
+	V-48	983.52		99.98	1.99E-01	1.28E+00	1.28E+00
		1312.10		97.50	3.21E-02		1.30E+00
+	CR-51	320.08		9.83	-3.27E-01	5.39E+00	5.39E+00
+	MN-54	834.83		99.97	-5.23E-02	5.32E-01	5.32E-01
+	CO-56	846.75		99.96	-1.14E-01	6.36E-01	6.36E-01
		1037.75		14.03	-2.00E+00		4.50E+00
		1238.25		67.00	1.68E+00		1.56E+00
		1771.40		15.51	-3.12E-01		4.61E+00
		2587.48		16.90	6.36E-01		3.84E+00
+	CO-57	122.06		85.51	4.95E-02	3.31E-01	3.31E-01
		136.48		10.60	-1.42E-01		2.73E+00

Analysis Report for 2201045-04

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CO-58	810.76		99.40	6.39E-02	6.54E-01	6.54E-01
+	FE-59	1099.22		56.50	4.02E-01	1.29E+00	1.29E+00
		1291.56		43.20	-5.90E-01		1.57E+00
+	CO-60	1173.22		100.00	-6.18E-02	3.85E-01	5.34E-01
		1332.49		100.00	-1.69E-01		3.85E-01
+	ZN-65	1115.52		50.75	1.97E-02	1.45E+00	1.45E+00
+	GA-67	93.31	*	35.70	6.10E+01	1.01E+02	1.01E+02
		208.95		2.24	-4.47E+01		8.67E+02
		300.22		16.00	-1.86E+01		1.44E+02
+	SE-75	121.11		16.70	6.58E-02	5.17E-01	1.81E+00
		136.00		59.50	-2.69E-02		5.17E-01
		264.65		59.80	-8.56E-02		5.89E-01
		279.53		25.20	5.48E-03		1.48E+00
		400.65		11.40	-2.54E-01		3.74E+00
+	RB-82	776.52		13.00	-2.02E+00	6.81E+00	6.81E+00
+	RB-83	520.41		46.00	3.05E-02	1.10E+00	1.10E+00
		529.64		30.30	-7.17E-01		1.58E+00
		552.65		16.40	-1.76E-01		3.07E+00
+	KR-85	513.99		0.43	4.44E+00	1.41E+02	1.41E+02
+	SR-85	513.99		99.27	2.37E-02	7.54E-01	7.54E-01
+	Y-88	898.02		93.40	2.67E-02	5.43E-01	6.46E-01
		1836.01		99.38	3.62E-02		5.43E-01
+	MO-93	263.06		56.72	-1.84E-01	4.60E-01	5.52E-01
		684.67		99.68	-4.02E-02		4.60E-01
		1477.11		99.08	-2.29E-01		5.82E-01
+	NB-93M	16.57		9.43	0.00E+00	4.12E-01	4.12E-01
+	NB-94	702.63		100.00	-7.47E-02	5.13E-01	5.20E-01
		871.10		100.00	1.80E-01		5.13E-01
+	NB-95	765.79		99.81	2.00E-02	9.26E-01	9.26E-01
+	NB-95M	235.69		25.00	9.90E+00	6.72E+01	6.72E+01
+	ZR-95	724.18		43.70	4.59E-01	1.10E+00	1.52E+00
		756.72		55.30	7.36E-02		1.10E+00
+	MO-99	181.06		6.20	1.76E+02	4.66E+02	6.63E+02
		739.58		12.80	7.43E+01		4.66E+02
		778.00		4.50	-4.68E+01		1.49E+03
+	TC-99M	140.51		89.00	-2.34E-01	3.17E-01	3.17E-01
+	RU-103	497.08		89.00	1.61E-01	7.01E-01	7.01E-01
+	RU-106	621.84	*	9.80	2.44E+00	6.24E+00	6.24E+00
+	AG-108M	433.93		89.90	5.39E-02	4.62E-01	4.62E-01
		614.37		90.40	-1.97E-01		1.02E+00
		722.95		90.50	2.57E-01		6.06E-01
+	CD-109	88.03	*	3.72	3.01E+01	1.70E+01	1.70E+01
+	AG-110M	657.75		93.14	1.85E-01	4.82E-01	4.82E-01
		677.61		10.53	-1.79E-01		4.61E+00
		706.67		16.46	1.09E-01		3.35E+00
		763.93		21.98	2.94E-01		2.87E+00
		884.67		21.98	1.03E+00		2.60E+00
		1384.27		23.94	-1.17E+00		3.10E+00

Analysis Report for 2201045-04

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CD-113M	263.70		0.02	-4.55E+02	1.36E+03	1.36E+03
+	SN-113	255.12		1.93	1.13E+00	6.62E-01	1.93E+01
		391.69		64.90	-1.24E-01		6.62E-01
+	TE-123M	159.00		84.10	-1.20E-01	4.03E-01	4.03E-01
+	SB-124	602.71		97.87	1.35E-01	6.70E-01	6.70E-01
		645.85		7.26	-2.25E+00		7.82E+00
		722.78		11.10	-5.42E-01		6.11E+00
		1691.02		49.00	-1.50E-01		1.18E+00
+	I-125	35.49		6.49	3.21E+01	9.23E+00	9.23E+00
+	SB-125	176.33		6.89	2.54E-01	1.44E+00	4.60E+00
		427.89		29.33	2.49E-01		1.44E+00
		463.38		10.35	1.06E+00		4.55E+00
		600.56		17.80	4.01E-01		2.89E+00
		635.90		11.32	-1.02E+00		4.02E+00
+	SB-126	414.70		83.30	4.27E-02	4.85E-01	5.02E-01
		666.33		99.60	7.00E-02		4.85E-01
		695.00		99.60	5.01E-02		4.96E-01
		720.50		53.80	9.37E-01		1.06E+00
+	SN-126	87.57	*	37.00	2.94E+00	1.66E+00	1.66E+00
+	SB-127	473.00		25.00	-3.08E+01	3.89E+01	5.55E+01
		685.00		35.70	-5.84E+00		3.89E+01
		783.80		14.70	5.73E+01		1.23E+02
+	I-129	29.78		57.00	-3.21E-01	1.87E-01	1.87E-01
		33.60		13.20	-7.61E+00		2.44E+00
		39.58		7.52	1.10E+01		6.01E+00
+	I-131	284.30		6.05	7.95E+00	2.29E+00	2.88E+01
		364.48		81.20	9.18E-01		2.29E+00
		636.97		7.26	-3.60E+00		3.29E+01
		722.89		1.80	6.70E+01		1.58E+02
+	TE-132	49.72		13.10	-2.86E+01	2.15E+01	1.53E+02
		228.16		88.00	-8.07E+00		2.15E+01
+	BA-133	81.00		34.06	-5.44E+00	9.29E-01	1.15E+00
		302.84		18.33	-5.61E-01		1.87E+00
		356.01		62.05	7.09E-02		9.29E-01
+	I-133	529.87		86.30	-4.03E+05	2.09E+06	2.09E+06
+	XE-133	81.00		38.00	-6.07E+01	1.29E+01	1.29E+01
+	CS-134	563.23		8.38	-6.47E-01	6.48E-01	5.44E+00
		569.32		15.43	-1.17E-01		2.96E+00
		604.70		97.60	4.66E-02		8.11E-01
		795.84		85.40	1.14E-01		6.48E-01
		801.93		8.73	5.35E-01		6.43E+00
+	CS-135	268.24		16.00	1.73E-01	2.09E+00	2.09E+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	-5.30E+00	1.47E+00	1.11E+01
		163.89		4.61	5.45E+00		1.81E+01
		176.55		13.56	3.49E-01		6.31E+00
		273.65		12.66	2.76E+00		7.85E+00

Analysis Report for 2201045-04

MWA 11,12,13

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CS-136	340.57		48.50	7.41E-01	1.47E+00	2.38E+00
		818.50		99.70	1.96E-01		1.47E+00
		1048.07		79.60	-2.05E-02		1.84E+00
		1235.34		19.70	6.58E+00		1.13E+01
+	CS-137	661.65		85.12	-4.32E-01	4.84E-01	4.84E-01
+	LA-138	788.74		34.00	-5.75E-01	6.90E-01	1.46E+00
		1435.80		66.00	-1.91E-01		6.90E-01
+	CE-139	165.85		80.35	1.38E-01	4.18E-01	4.18E-01
+	BA-140	162.64		6.70	-7.39E+00	4.68E+00	1.25E+01
		304.84		4.50	-6.41E+00		2.11E+01
		423.70		3.20	-9.94E+00		3.64E+01
		437.55		2.00	-2.64E+00		5.75E+01
		537.32		25.00	-1.96E+00		4.68E+00
+	LA-140	328.77		20.50	1.87E+00	1.69E+00	5.14E+00
		487.03		45.50	-4.48E-01		2.63E+00
		815.85		23.50	6.29E-01		5.50E+00
		1596.49		95.49	1.28E-01		1.69E+00
+	CE-141	145.44		48.40	7.59E-01	9.93E-01	9.93E-01
+	CE-143	57.36		11.80	-4.73E+04	2.54E+04	3.98E+04
		293.26		42.00	9.12E+04		2.54E+04
		664.55		5.20	6.68E+02		1.34E+05
+	CE-144	133.54		10.80	-8.46E-01	2.72E+00	2.72E+00
+	PM-144	476.78		42.00	3.47E-01	5.08E-01	1.21E+00
		618.01		98.60	1.98E-01		5.48E-01
		696.49		99.49	-3.47E-02		5.08E-01
+	PM-145	36.85		21.70	6.13E+00	1.21E+00	2.24E+00
		37.36		39.70	3.31E+00		1.21E+00
		42.30		15.10	-3.99E+00		2.30E+00
		72.40		2.31	-6.14E+01		1.94E+01
+	PM-146	453.90		39.94	-4.97E-01	1.03E+00	1.03E+00
		735.90		14.01	-5.53E-01		3.31E+00
		747.13		13.10	1.03E-01		3.82E+00
+	ND-147	91.11	*	28.90	4.34E+00	7.20E+00	7.20E+00
		531.02		13.10	-3.42E+00		1.05E+01
+	PM-149	285.90		3.10	7.53E+02	4.34E+03	4.34E+03
+	EU-152	121.78		20.50	4.82E-02	1.32E+00	1.32E+00
		244.69		5.40	1.23E+01		9.26E+00
		344.27		19.13	2.96E-01		1.97E+00
		778.89		9.10	-7.74E-01		6.10E+00
		964.01		10.40	-2.40E-01		6.43E+00
		1085.78		7.22	-7.23E-01		6.90E+00
		1112.02		9.60	2.13E-01		5.47E+00
		1407.95		14.94	1.73E+00		4.96E+00
+	GD-153	97.43		31.30	-2.75E-03	9.47E-01	9.47E-01
		103.18		22.20	2.00E-01		1.22E+00
+	EU-154	123.07		40.50	-1.65E-01	6.67E-01	6.67E-01
		723.30		19.70	1.19E+00		2.79E+00
		873.19		11.50	-1.12E+00		4.10E+00
		996.32		10.30	-2.54E+00		5.06E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-154	1004.76		17.90	-5.09E-01	6.67E-01	3.05E+00
		1274.45		35.50	-2.34E-02		1.66E+00
+	EU-155	86.50	*	30.90	3.54E+00	1.20E+00	2.01E+00
		105.30		20.70	-7.68E-01		1.20E+00
+	EU-156	811.77		10.40	2.19E+00	1.18E+01	1.18E+01
		1153.47		7.20	1.59E+01		2.30E+01
		1230.71		8.90	4.19E+00		1.71E+01
+	HO-166M	184.41		72.60	9.39E-01	5.89E-01	5.89E-01
		280.45		29.60	8.81E-03		1.09E+00
		410.94		11.10	1.38E+00		3.83E+00
		711.69		54.10	-3.67E-01		8.35E-01
+	TM-171	66.72	*	0.14	2.41E+02	4.16E+02	4.16E+02
+	HF-172	67.35		5.31	7.33E-01	2.56E+00	6.76E+00
		125.82		11.30	6.48E-01		2.56E+00
+	LU-172	181.53		20.60	3.11E+00	5.87E+00	1.17E+01
		900.72		29.81	2.64E+00		1.31E+01
		1093.66		62.50	3.14E-01		5.87E+00
+	LU-173	100.72		5.24	1.90E+00	1.70E+00	5.15E+00
		272.11		21.20	-4.85E-01		1.70E+00
+	HF-175	343.40		84.00	8.11E-02	5.30E-01	5.30E-01
+	LU-176	88.34		13.30	1.08E+00	3.49E-01	3.09E+00
		201.83		86.00	3.73E-03		3.94E-01
		306.78		94.00	-8.75E-02		3.49E-01
+	HF-181	133.02		41.70	-2.85E-01	7.97E-01	9.16E-01
		345.85		17.20	4.51E-01		3.11E+00
		482.03		82.80	2.09E-01		7.97E-01
+	TA-182	67.75		41.20	1.04E-01	9.58E-01	9.58E-01
		1121.30		34.90	-1.83E-01		3.41E+00
		1189.05		16.23	-8.20E-01		3.02E+00
		1221.41		26.98	-1.31E+00		2.36E+00
		1231.02		11.44	3.90E-01		5.94E+00
+	IR-192	308.46		29.68	-5.33E-01	1.08E+00	1.32E+00
		468.07		48.10	-3.90E-01		1.08E+00
+	HG-203	279.19		77.30	2.12E-03	5.75E-01	5.75E-01
+	TL-204	374.74		94.11	-7.36E-02	3.56E-01	3.56E-01
		899.15		99.16	1.21E-03		5.37E-01
		911.74		91.10	7.58E-01		8.35E-01
+	BI-207	569.67	*	97.72	1.88E-01	3.55E-01	3.55E-01
		1063.62		74.90	2.33E-02		8.23E-01
+	TL-208	583.14	*	30.22	3.67E+00	1.12E+00	1.67E+00
		860.37		4.48	1.73E+00		1.13E+01
		2614.66	*	35.85	3.02E+00		1.12E+00
+	BI-210M	262.00		45.00	-1.46E-01	6.88E-01	6.88E-01
		300.00		23.00	-2.24E-01		1.73E+00
+	PB-210	46.50	*	4.25	5.42E+00	8.83E+00	8.83E+00
+	PB-211	404.84		2.90	-3.12E+00	1.32E+01	1.32E+01
		831.96		2.90	-4.46E+00		1.70E+01
+	BI-212	727.17		11.80	-1.56E+00	4.12E+00	4.12E+00

Analysis Report for 2201045-04

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	BI-212	1620.62		2.75	5.05E+00	4.12E+00	1.89E+01
+	PB-212	238.63	*	44.60	3.04E+00	1.32E+00	1.32E+00
		300.09		3.41	-1.51E+00		1.17E+01
+	BI-214	609.31	*	46.30	1.39E+01	1.68E+00	1.68E+00
		1120.29	*	15.10	1.23E+01		4.76E+00
		1764.49	*	15.80	1.25E+01		5.00E+00
		2204.22	*	4.98	9.71E+00		1.02E+01
+	PB-214	295.21	*	19.19	1.58E+01	1.69E+00	4.89E+00
		351.92	*	37.19	1.54E+01		1.69E+00
+	RN-219	401.80		6.50	-8.31E-01	5.83E+00	5.83E+00
+	RA-223	323.87		3.88	-7.67E+00	8.70E+00	8.70E+00
+	RA-224	240.98	*	3.95	4.26E+01	1.51E+01	1.51E+01
+	RA-225	40.00		31.00	6.83E+00	3.54E+00	3.54E+00
+	RA-226	186.21	*	3.28	2.45E+01	1.51E+01	1.51E+01
+	TH-227	50.10		8.40	-3.85E+00	3.96E+00	3.96E+00
		236.00		11.50	1.61E-01		4.24E+00
		256.20		6.30	2.94E-01		5.19E+00
+	AC-228	338.32	*	11.40	3.92E+00	3.74E+00	5.00E+00
		911.07	*	27.70	2.73E+00		3.74E+00
		969.11	*	16.60	7.36E+00		5.31E+00
+	TH-230	48.43	*	16.90	1.36E+00	2.22E+00	2.22E+00
		62.85	*	4.60	7.20E+00		1.24E+01
		67.67		0.37	1.03E+01		9.51E+01
+	PA-231	283.67		1.60	-6.25E-01	1.49E+01	1.99E+01
		302.67		2.30	-4.45E+00		1.49E+01
+	TH-231	25.64		14.70	0.00E+00	1.12E-01	1.12E-01
		84.21		6.40	-2.67E+00		5.96E+00
+	PA-233	311.98		38.60	3.18E-01	1.43E+00	1.43E+00
+	PA-234	131.20		20.40	8.18E-01	1.44E+00	1.44E+00
		733.99		8.80	1.35E+00		5.18E+00
		946.00		12.00	4.71E-02		3.97E+00
+	PA-234M	1001.03		0.92	2.93E+01	6.29E+01	6.29E+01
+	TH-234	63.29	*	3.80	8.71E+00	1.50E+01	1.50E+01
+	U-235	143.76		10.50	1.04E+00	2.94E+00	2.94E+00
		163.35		4.70	-1.45E+00		6.42E+00
		205.31		4.70	-4.96E+00		6.97E+00
+	NP-237	86.50	*	12.60	8.63E+00	4.89E+00	4.89E+00
+	NP-239	106.10		22.70	-1.92E+02	3.05E+02	3.05E+02
		228.18		10.70	-3.15E+02		8.38E+02
		277.60		14.10	2.19E+02		6.90E+02
+	AM-241	59.54		35.90	-9.10E-01	8.80E-01	8.80E-01
+	AM-243	74.67	*	66.00	2.04E+00	8.60E-01	8.60E-01
+	CM-243	209.75		3.29	-5.27E-01	2.52E+00	1.02E+01
		228.14		10.60	-1.15E+00		3.07E+00
		277.60		14.00	8.01E-01		2.52E+00

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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	6.12E+00	6.12E+00	3.03E+00	2.91E+00
	NA-22	1274.54		99.94	5.96E-01	5.96E-01	-8.39E-03	2.69E-01
	NA-24	1368.53		99.99	6.70E-01	3.74E-01	-1.94E-01	3.05E-01
		2754.09		99.86	3.74E-01		-3.29E-01	1.33E-01
	AL-26	1808.65		99.76	4.25E-01	4.25E-01	5.26E-02	1.74E-01
+	K-40	1460.81	*	10.67	6.54E+00	6.54E+00	9.40E+00	2.97E+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	3.63E-01	3.63E-01	-3.98E-01	1.77E-01
		78.34		96.00	5.84E-01		2.29E+00	2.87E-01
	SC-46	889.25	*	98.98	3.40E-01	3.40E-01	1.78E-01	1.45E-01
		1120.51	*	99.90	8.42E-01		2.18E+00	3.91E-01
	V-48	983.52		99.98	1.28E+00	1.28E+00	1.99E-01	5.87E-01
		1312.10		97.50	1.30E+00		3.21E-02	5.80E-01
	CR-51	320.08		9.83	5.39E+00	5.39E+00	-3.27E-01	2.55E+00
	MN-54	834.83		99.97	5.32E-01	5.32E-01	-5.23E-02	2.45E-01
	CO-56	846.75		99.96	6.36E-01	6.36E-01	-1.14E-01	2.93E-01
		1037.75		14.03	4.50E+00		-2.00E+00	2.04E+00
		1238.25		67.00	1.56E+00		1.68E+00	7.29E-01
		1771.40		15.51	4.61E+00		-3.12E-01	2.01E+00
		2587.48		16.90	3.84E+00		6.36E-01	1.55E+00
	CO-57	122.06		85.51	3.31E-01	3.31E-01	4.95E-02	1.60E-01
		136.48		10.60	2.73E+00		-1.42E-01	1.32E+00
	CO-58	810.76		99.40	6.54E-01	6.54E-01	6.39E-02	3.03E-01
	FE-59	1099.22		56.50	1.29E+00	1.29E+00	4.02E-01	5.85E-01
		1291.56		43.20	1.57E+00		-5.90E-01	6.93E-01
	CO-60	1173.22		100.00	5.34E-01	3.85E-01	-6.18E-02	2.40E-01
		1332.49		100.00	3.85E-01		-1.69E-01	1.63E-01
	ZN-65	1115.52		50.75	1.45E+00	1.45E+00	1.97E-02	6.73E-01
+	GA-67	93.31	*	35.70	1.01E+02	1.01E+02	6.10E+01	4.99E+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)
	GA-67	208.95		2.24	8.67E+02	1.01E+02	-4.47E+01	4.17E+02
		300.22		16.00	1.44E+02		-1.86E+01	6.90E+01
	SE-75	121.11		16.70	1.81E+00	5.17E-01	6.58E-02	8.72E-01
		136.00		59.50	5.17E-01		-2.69E-02	2.49E-01
		264.65		59.80	5.89E-01		-8.56E-02	2.81E-01
		279.53		25.20	1.48E+00		5.48E-03	7.08E-01
		400.65		11.40	3.74E+00		-2.54E-01	1.77E+00
	RB-82	776.52		13.00	6.81E+00	6.81E+00	-2.02E+00	3.17E+00
	RB-83	520.41		46.00	1.10E+00	1.10E+00	3.05E-02	5.15E-01
		529.64		30.30	1.58E+00		-7.17E-01	7.38E-01
		552.65		16.40	3.07E+00		-1.76E-01	1.44E+00
	KR-85	513.99		0.43	1.41E+02	1.41E+02	4.44E+00	6.75E+01
	SR-85	513.99		99.27	7.54E-01	7.54E-01	2.37E-02	3.61E-01
	Y-88	898.02		93.40	6.46E-01	5.43E-01	2.67E-02	2.97E-01
		1836.01		99.38	5.43E-01		3.62E-02	2.27E-01
	MO-93	263.06		56.72	5.52E-01	4.60E-01	-1.84E-01	2.63E-01
		684.67		99.68	4.60E-01		-4.02E-02	2.13E-01
		1477.11		99.08	5.82E-01		-2.29E-01	2.58E-01
	NB-93M	16.57		9.43	4.12E-01	4.12E-01	0.00E+00	0.00E+00
	NB-94	702.63		100.00	5.20E-01	5.13E-01	-7.47E-02	2.43E-01
		871.10		100.00	5.13E-01		1.80E-01	2.36E-01
	NB-95	765.79		99.81	9.26E-01	9.26E-01	2.00E-02	4.36E-01
	NB-95M	235.69		25.00	6.72E+01	6.72E+01	9.90E+00	3.25E+01
	ZR-95	724.18		43.70	1.52E+00	1.10E+00	4.59E-01	7.13E-01
		756.72		55.30	1.10E+00		7.36E-02	5.09E-01
	MO-99	181.06		6.20	6.63E+02	4.66E+02	1.76E+02	3.20E+02
		739.58		12.80	4.66E+02		7.43E+01	2.16E+02
		778.00		4.50	1.49E+03		-4.68E+01	6.94E+02
	TC-99M	140.51		89.00	3.17E-01	3.17E-01	-2.34E-01	1.53E-01
	RU-103	497.08		89.00	7.01E-01	7.01E-01	1.61E-01	3.31E-01
+	RU-106	621.84	*	9.80	6.24E+00	6.24E+00	2.44E+00	2.96E+00
	AG-108M	433.93		89.90	4.62E-01	4.62E-01	5.39E-02	2.18E-01
		614.37		90.40	1.02E+00		-1.97E-01	4.95E-01
		722.95		90.50	6.06E-01		2.57E-01	2.83E-01
+	CD-109	88.03	*	3.72	1.70E+01	1.70E+01	3.01E+01	8.39E+00
	AG-110M	657.75		93.14	4.82E-01	4.82E-01	1.85E-01	2.23E-01
		677.61		10.53	4.61E+00		-1.79E-01	2.14E+00
		706.67		16.46	3.35E+00		1.09E-01	1.56E+00
		763.93		21.98	2.87E+00		2.94E-01	1.34E+00
		884.67		21.98	2.60E+00		1.03E+00	1.20E+00
		1384.27		23.94	3.10E+00		-1.17E+00	1.41E+00
	CD-113M	263.70		0.02	1.36E+03	1.36E+03	-4.55E+02	6.49E+02
	SN-113	255.12		1.93	1.93E+01	6.62E-01	1.13E+00	9.23E+00
		391.69		64.90	6.62E-01		-1.24E-01	3.13E-01
	TE-123M	159.00		84.10	4.03E-01	4.03E-01	-1.20E-01	1.95E-01
	SB-124	602.71		97.87	6.70E-01	6.70E-01	1.35E-01	3.16E-01
		645.85		7.26	7.82E+00		-2.25E+00	3.64E+00
		722.78		11.10	6.11E+00		-5.42E-01	2.86E+00
		1691.02		49.00	1.18E+00		-1.50E-01	5.00E-01
	I-125	35.49		6.49	9.23E+00	9.23E+00	3.21E+01	4.50E+00
	SB-125	176.33		6.89	4.60E+00	1.44E+00	2.54E-01	2.22E+00
		427.89		29.33	1.44E+00		2.49E-01	6.82E-01
		463.38		10.35	4.55E+00		1.06E+00	2.16E+00

Analysis Report for 2201045-04

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	SB-125	600.56		17.80	2.89E+00	1.44E+00	4.01E-01	1.36E+00
		635.90		11.32	4.02E+00		-1.02E+00	1.87E+00
	SB-126	414.70		83.30	5.02E-01	4.85E-01	4.27E-02	2.38E-01
		666.33		99.60	4.85E-01		7.00E-02	2.26E-01
		695.00		99.60	4.96E-01		5.01E-02	2.31E-01
		720.50		53.80	1.06E+00		9.37E-01	4.98E-01
+	SN-126	87.57	*	37.00	1.66E+00	1.66E+00	2.94E+00	8.20E-01
	SB-127	473.00		25.00	5.55E+01	3.89E+01	-3.08E+01	2.63E+01
		685.00		35.70	3.89E+01		-5.84E+00	1.80E+01
		783.80		14.70	1.23E+02		5.73E+01	5.76E+01
	I-129	29.78		57.00	1.87E-01	1.87E-01	-3.21E-01	8.15E-02
		33.60		13.20	2.44E+00		-7.61E+00	1.17E+00
		39.58		7.52	6.01E+00		1.10E+01	2.93E+00
	I-131	284.30		6.05	2.88E+01	2.29E+00	7.95E+00	1.37E+01
		364.48		81.20	2.29E+00		9.18E-01	1.08E+00
		636.97		7.26	3.29E+01		-3.60E+00	1.53E+01
		722.89		1.80	1.58E+02		6.70E+01	7.39E+01
	TE-132	49.72		13.10	1.53E+02	2.15E+01	-2.86E+01	7.45E+01
		228.16		88.00	2.15E+01		-8.07E+00	1.03E+01
	BA-133	81.00		34.06	1.15E+00	9.29E-01	-5.44E+00	5.64E-01
		302.84		18.33	1.87E+00		-5.61E-01	8.92E-01
		356.01		62.05	9.29E-01		7.09E-02	4.49E-01
	I-133	529.87		86.30	2.09E+06	2.09E+06	-4.03E+05	9.79E+05
	XE-133	81.00		38.00	1.29E+01	1.29E+01	-6.07E+01	6.30E+00
	CS-134	563.23		8.38	5.44E+00	6.48E-01	-6.47E-01	2.55E+00
		569.32		15.43	2.96E+00		-1.17E-01	1.39E+00
		604.70		97.60	8.11E-01		4.66E-02	3.90E-01
		795.84		85.40	6.48E-01		1.14E-01	3.01E-01
		801.93		8.73	6.43E+00		5.35E-01	2.99E+00
	CS-135	268.24		16.00	2.09E+00	2.09E+00	1.73E-01	9.99E-01
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	1.11E+01	1.47E+00	-5.30E+00	5.35E+00
		163.89		4.61	1.81E+01		5.45E+00	8.71E+00
		176.55		13.56	6.31E+00		3.49E-01	3.04E+00
		273.65		12.66	7.85E+00		2.76E+00	3.76E+00
		340.57		48.50	2.38E+00		7.41E-01	1.14E+00
		818.50		99.70	1.47E+00		1.96E-01	6.79E-01
		1048.07		79.60	1.84E+00		-2.05E-02	8.36E-01
		1235.34		19.70	1.13E+01		6.58E+00	5.24E+00
	CS-137	661.65		85.12	4.84E-01	4.84E-01	-4.32E-01	2.23E-01
	LA-138	788.74		34.00	1.46E+00	6.90E-01	-5.75E-01	6.72E-01
		1435.80		66.00	6.90E-01		-1.91E-01	2.97E-01
	CE-139	165.85		80.35	4.18E-01	4.18E-01	1.38E-01	2.01E-01
	BA-140	162.64		6.70	1.25E+01	4.68E+00	-7.39E+00	6.05E+00
		304.84		4.50	2.11E+01		-6.41E+00	1.01E+01
		423.70		3.20	3.64E+01		-9.94E+00	1.72E+01
		437.55		2.00	5.75E+01		-2.64E+00	2.71E+01
		537.32		25.00	4.68E+00		-1.96E+00	2.19E+00
	LA-140	328.77		20.50	5.14E+00	1.69E+00	1.87E+00	2.45E+00
		487.03		45.50	2.63E+00		-4.48E-01	1.24E+00
		815.85		23.50	5.50E+00		6.29E-01	2.51E+00

Analysis Report for 2201045-04

MWA 11,12,13

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	LA-140	1596.49		95.49	1.69E+00	1.69E+00	1.28E-01	7.42E-01
	CE-141	145.44		48.40	9.93E-01	9.93E-01	7.59E-01	4.81E-01
	CE-143	57.36		11.80	3.98E+04	2.54E+04	-4.73E+04	1.93E+04
		293.26		42.00	2.54E+04		9.12E+04	1.24E+04
		664.55		5.20	1.34E+05		6.68E+02	6.24E+04
	CE-144	133.54		10.80	2.72E+00	2.72E+00	-8.46E-01	1.31E+00
	PM-144	476.78		42.00	1.21E+00	5.08E-01	3.47E-01	5.75E-01
		618.01		98.60	5.48E-01		1.98E-01	2.58E-01
		696.49		99.49	5.08E-01		-3.47E-02	2.36E-01
	PM-145	36.85		21.70	2.24E+00	1.21E+00	6.13E+00	1.09E+00
		37.36		39.70	1.21E+00		3.31E+00	5.90E-01
		42.30		15.10	2.30E+00		-3.99E+00	1.11E+00
		72.40		2.31	1.94E+01		-6.14E+01	9.50E+00
	PM-146	453.90		39.94	1.03E+00	1.03E+00	-4.97E-01	4.84E-01
		735.90		14.01	3.31E+00		-5.53E-01	1.53E+00
		747.13		13.10	3.82E+00		1.03E-01	1.77E+00
+	ND-147	91.11	*	28.90	7.20E+00	7.20E+00	4.34E+00	3.55E+00
		531.02		13.10	1.05E+01		-3.42E+00	4.90E+00
	PM-149	285.90		3.10	4.34E+03	4.34E+03	7.53E+02	2.07E+03
	EU-152	121.78		20.50	1.32E+00	1.32E+00	4.82E-02	6.39E-01
		244.69		5.40	9.26E+00		1.23E+01	4.50E+00
		344.27		19.13	1.97E+00		2.96E-01	9.35E-01
		778.89		9.10	6.10E+00		-7.74E-01	2.85E+00
		964.01		10.40	6.43E+00		-2.40E-01	3.00E+00
		1085.78		7.22	6.90E+00		-7.23E-01	3.10E+00
		1112.02		9.60	5.47E+00		2.13E-01	2.47E+00
		1407.95		14.94	4.96E+00		1.73E+00	2.27E+00
	GD-153	97.43		31.30	9.47E-01	9.47E-01	-2.75E-03	4.59E-01
		103.18		22.20	1.22E+00		2.00E-01	5.89E-01
	EU-154	123.07		40.50	6.67E-01	6.67E-01	-1.65E-01	3.22E-01
		723.30		19.70	2.79E+00		1.19E+00	1.31E+00
		873.19		11.50	4.10E+00		-1.12E+00	1.87E+00
		996.32		10.30	5.06E+00		-2.54E+00	2.30E+00
		1004.76		17.90	3.05E+00		-5.09E-01	1.39E+00
		1274.45		35.50	1.66E+00		-2.34E-02	7.50E-01
+	EU-155	86.50	*	30.90	2.01E+00	1.20E+00	3.54E+00	9.89E-01
		105.30		20.70	1.20E+00		-7.68E-01	5.79E-01
	EU-156	811.77		10.40	1.18E+01	1.18E+01	2.19E+00	5.44E+00
		1153.47		7.20	2.30E+01		1.59E+01	1.06E+01
		1230.71		8.90	1.71E+01		4.19E+00	7.81E+00
	HO-166M	184.41		72.60	5.89E-01	5.89E-01	9.39E-01	2.86E-01
		280.45		29.60	1.09E+00		8.81E-03	5.20E-01
		410.94		11.10	3.83E+00		1.38E+00	1.82E+00
		711.69		54.10	8.35E-01		-3.67E-01	3.86E-01
	TM-171	66.72	*	0.14	4.16E+02	4.16E+02	2.41E+02	2.05E+02
	HF-172	67.35		5.31	6.76E+00	2.56E+00	7.33E-01	3.30E+00
		125.82		11.30	2.56E+00		6.48E-01	1.24E+00
	LU-172	181.53		20.60	1.17E+01	5.87E+00	3.11E+00	5.66E+00
		900.72		29.81	1.31E+01		2.64E+00	6.01E+00
		1093.66		62.50	5.87E+00		3.14E-01	2.64E+00
	LU-173	100.72		5.24	5.15E+00	1.70E+00	1.90E+00	2.49E+00
		272.11		21.20	1.70E+00		-4.85E-01	8.15E-01
	HF-175	343.40		84.00	5.30E-01	5.30E-01	8.11E-02	2.52E-01

Analysis Report for 2201045-04

MWA 11,12,13

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	LU-176	88.34		13.30	3.09E+00	3.49E-01	1.08E+00	1.51E+00
		201.83		86.00	3.94E-01		3.73E-03	1.90E-01
		306.78		94.00	3.49E-01		-8.75E-02	1.66E-01
	HF-181	133.02		41.70	9.16E-01	7.97E-01	-2.85E-01	4.42E-01
		345.85		17.20	3.11E+00		4.51E-01	1.48E+00
		482.03		82.80	7.97E-01		2.09E-01	3.78E-01
	TA-182	67.75		41.20	9.58E-01	9.58E-01	1.04E-01	4.67E-01
		1121.30		34.90	3.41E+00		-1.83E-01	1.62E+00
		1189.05		16.23	3.02E+00		-8.20E-01	1.32E+00
		1221.41		26.98	2.36E+00		-1.31E+00	1.06E+00
		1231.02		11.44	5.94E+00		3.90E-01	2.69E+00
	IR-192	308.46		29.68	1.32E+00	1.08E+00	-5.33E-01	6.25E-01
		468.07		48.10	1.08E+00		-3.90E-01	5.11E-01
	HG-203	279.19		77.30	5.75E-01	5.75E-01	2.12E-03	2.74E-01
	TL-204	374.74		94.11	3.56E-01	3.56E-01	-7.36E-02	1.68E-01
		899.15		99.16	5.37E-01		1.21E-03	2.47E-01
		911.74		91.10	8.35E-01		7.58E-01	3.94E-01
+	BI-207	569.67	*	97.72	3.55E-01	3.55E-01	1.88E-01	1.63E-01
		1063.62		74.90	8.23E-01		2.33E-02	3.79E-01
+	TL-208	583.14	*	30.22	1.67E+00	1.12E+00	3.67E+00	7.88E-01
		860.37		4.48	1.13E+01		1.73E+00	5.21E+00
		2614.66	*	35.85	1.12E+00		3.02E+00	4.15E-01
	BI-210M	262.00		45.00	6.88E-01	6.88E-01	-1.46E-01	3.28E-01
		300.00		23.00	1.73E+00		-2.24E-01	8.28E-01
	PB-210	46.50	*	4.25	8.83E+00	8.83E+00	5.42E+00	4.30E+00
	PB-211	404.84		2.90	1.32E+01	1.32E+01	-3.12E+00	6.25E+00
		831.96		2.90	1.70E+01		-4.46E+00	7.82E+00
	BI-212	727.17		11.80	4.12E+00	4.12E+00	-1.56E+00	1.91E+00
		1620.62		2.75	1.89E+01		5.05E+00	8.17E+00
+	PB-212	238.63	*	44.60	1.32E+00	1.32E+00	3.04E+00	6.46E-01
		300.09		3.41	1.17E+01		-1.51E+00	5.59E+00
+	BI-214	609.31	*	46.30	1.68E+00	1.68E+00	1.39E+01	8.07E-01
		1120.29	*	15.10	4.76E+00		1.23E+01	2.21E+00
		1764.49	*	15.80	5.00E+00		1.25E+01	2.26E+00
		2204.22	*	4.98	1.02E+01		9.71E+00	4.20E+00
+	PB-214	295.21	*	19.19	4.89E+00	1.69E+00	1.58E+01	2.40E+00
		351.92	*	37.19	1.69E+00		1.54E+01	8.21E-01
	RN-219	401.80		6.50	5.83E+00	5.83E+00	-8.31E-01	2.75E+00
	RA-223	323.87		3.88	8.70E+00	8.70E+00	-7.67E+00	4.12E+00
+	RA-224	240.98	*	3.95	1.51E+01	1.51E+01	4.26E+01	7.37E+00
	RA-225	40.00		31.00	3.54E+00	3.54E+00	6.83E+00	1.73E+00
+	RA-226	186.21	*	3.28	1.51E+01	1.51E+01	2.45E+01	7.37E+00
	TH-227	50.10		8.40	3.96E+00	3.96E+00	-3.85E+00	1.92E+00
		236.00		11.50	4.24E+00		1.61E-01	2.06E+00
		256.20		6.30	5.19E+00		2.94E-01	2.48E+00
+	AC-228	338.32	*	11.40	5.00E+00	3.74E+00	3.92E+00	2.42E+00
		911.07	*	27.70	3.74E+00		2.73E+00	1.79E+00
		969.11	*	16.60	5.31E+00		7.36E+00	2.52E+00
+	TH-230	48.43	*	16.90	2.22E+00	2.22E+00	1.36E+00	1.08E+00
		62.85	*	4.60	1.24E+01		7.20E+00	6.12E+00
		67.67		0.37	9.51E+01		1.03E+01	4.64E+01
	PA-231	283.67		1.60	1.99E+01	1.49E+01	-6.25E-01	9.48E+00
		302.67		2.30	1.49E+01		-4.45E+00	7.08E+00

Analysis Report for 2201045-04

MWA 11,12,13

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TH-231	25.64		14.70	1.12E-01	1.12E-01	0.00E+00	0.00E+00
		84.21		6.40	5.96E+00		-2.67E+00	2.91E+00
	PA-233	311.98		38.60	1.43E+00	1.43E+00	3.18E-01	6.79E-01
	PA-234	131.20		20.40	1.44E+00	1.44E+00	8.18E-01	6.94E-01
		733.99		8.80	5.18E+00		1.35E+00	2.39E+00
		946.00		12.00	3.97E+00		4.71E-02	1.80E+00
	PA-234M	1001.03		0.92	6.29E+01	6.29E+01	2.93E+01	2.89E+01
	TH-234	63.29	*	3.80	1.50E+01	1.50E+01	8.71E+00	7.40E+00
	U-235	143.76		10.50	2.94E+00	2.94E+00	1.04E+00	1.42E+00
		163.35		4.70	6.42E+00		-1.45E+00	3.10E+00
		205.31		4.70	6.97E+00		-4.96E+00	3.36E+00
+	NP-237	86.50	*	12.60	4.89E+00	4.89E+00	8.63E+00	2.41E+00
	NP-239	106.10		22.70	3.05E+02	3.05E+02	-1.92E+02	1.47E+02
		228.18		10.70	8.38E+02		-3.15E+02	4.02E+02
		277.60		14.10	6.90E+02		2.19E+02	3.30E+02
	AM-241	59.54		35.90	8.80E-01	8.80E-01	-9.10E-01	4.27E-01
+	AM-243	74.67	*	66.00	8.60E-01	8.60E-01	2.04E+00	4.23E-01
	CM-243	209.75		3.29	1.02E+01	2.52E+00	-5.27E-01	4.92E+00
		228.14		10.60	3.07E+00		-1.15E+00	1.47E+00
		277.60		14.00	2.52E+00		8.01E-01	1.20E+00

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

Analysis Report for 2201045-04

MWA 11,12,13

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: MWA 11,12,13

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	0	0	0	15
33:	46	55	48	46	198	120	57	46
41:	46	38	47	50	66	97	68	46
49:	42	54	49	60	70	59	58	49
57:	37	57	41	70	59	84	84	81
65:	67	77	79	76	74	69	54	76
73:	106	229	257	276	400	203	94	92
81:	59	66	74	78	90	105	156	123
89:	81	83	89	120	104	82	43	35
97:	41	39	42	40	46	37	33	38
105:	28	39	37	27	43	36	48	46
113:	46	38	32	43	42	38	33	37
121:	35	40	45	35	35	31	33	52
129:	52	28	47	37	45	31	34	40
137:	27	38	34	33	31	35	56	52
145:	50	43	44	38	46	32	40	33
153:	40	47	41	35	45	45	36	33
161:	31	35	31	45	34	40	37	35
169:	28	26	37	29	29	42	34	33
177:	32	35	40	38	33	26	35	65
185:	71	129	82	48	35	35	34	33
193:	36	37	37	47	37	27	39	42
201:	42	35	22	43	19	36	36	30
209:	36	37	36	15	33	35	25	24
217:	28	24	37	23	28	25	30	28
225:	23	32	25	26	18	33	29	35
233:	27	28	24	23	54	125	130	87
241:	97	133	61	39	27	23	27	14
249:	16	29	24	25	29	24	21	25
257:	19	21	19	22	19	21	15	19
265:	21	20	24	24	19	21	25	21
273:	26	26	29	29	28	17	22	11
281:	19	18	18	20	18	23	25	19
289:	19	27	16	28	37	125	233	152
297:	63	23	18	23	26	15	15	22
305:	13	20	16	16	16	18	17	23
313:	18	16	14	16	15	17	20	15
321:	12	13	18	20	14	19	18	29
329:	26	20	12	15	15	17	18	18
337:	26	44	35	21	19	12	10	21
345:	24	17	25	14	28	75	268	360
353:	162	46	21	8	21	18	17	13
361:	22	21	13	14	10	15	10	10

369:	11	8	13	12	12	12	11	10

Sample Title: MWA 11,12,13

Channel								
377:	15	21	12	20	15	7	15	18
385:	12	19	14	13	12	12	16	22
393:	15	16	12	21	11	13	17	12
401:	9	21	18	9	18	11	14	14
409:	20	17	21	19	15	15	12	20
417:	13	17	11	15	11	13	14	11
425:	16	11	6	16	9	12	17	10
433:	9	9	10	8	14	15	16	11
441:	7	8	8	12	13	12	8	11
449:	12	5	10	13	9	8	11	7
457:	17	12	16	12	12	16	13	12
465:	9	17	10	13	6	8	14	11
473:	12	12	12	13	15	20	15	14
481:	15	11	9	14	7	13	12	8
489:	10	7	8	11	7	13	16	8
497:	9	8	9	6	18	7	11	7
505:	4	14	15	16	20	33	40	32
513:	20	8	8	10	5	15	9	9
521:	7	3	14	9	8	9	6	5
529:	6	11	9	8	8	11	6	13
537:	7	9	5	5	6	10	11	5
545:	8	7	6	7	10	9	12	6
553:	9	6	7	6	12	7	7	11
561:	12	11	5	7	10	8	4	4
569:	13	10	11	8	6	8	8	13
577:	2	3	8	13	6	24	31	20
585:	18	8	7	8	4	6	8	7
593:	7	8	8	8	7	8	12	11
601:	13	9	10	9	13	8	24	113
609:	229	169	59	15	5	12	7	4
617:	12	9	13	11	14	5	7	5
625:	10	4	9	3	10	7	6	6
633:	5	4	6	8	8	6	6	11
641:	9	9	9	3	7	4	4	9
649:	6	9	6	7	4	6	6	6
657:	8	4	4	4	8	1	3	8
665:	6	15	6	7	8	10	10	4
673:	6	5	3	9	7	12	4	8
681:	2	4	6	8	9	8	5	4
689:	5	5	8	7	8	8	3	8
697:	10	4	6	6	9	3	9	10
705:	16	5	9	4	2	10	2	7
713:	5	7	3	10	6	10	8	9
721:	8	8	12	8	1	7	11	6
729:	3	6	1	8	7	4	5	7
737:	7	2	5	3	9	6	9	6
745:	4	8	8	6	3	7	4	6
753:	6	6	6	9	5	5	2	8
761:	6	6	7	5	5	10	16	15
769:	18	10	5	5	9	7	2	8
777:	10	7	5	5	7	11	9	3
785:	11	11	8	2	5	2	4	3
793:	10	7	13	7	8	2	5	10

801:	4	10	4	8	5	12	8	9

Sample Title: MWA 11,12,13

Channel								
809:	5	5	6	0	3	8	6	3
817:	2	5	6	5	6	13	3	5
825:	5	9	2	4	5	5	3	4
833:	8	6	3	6	6	6	7	10
841:	5	6	12	2	4	6	3	5
849:	6	5	4	10	2	8	2	3
857:	3	4	2	5	9	8	4	6
865:	3	4	7	7	3	2	4	4
873:	7	5	5	2	4	3	3	6
881:	13	8	6	2	5	4	3	1
889:	2	3	7	6	2	3	2	3
897:	6	6	3	8	9	5	2	4
905:	8	6	9	6	8	13	13	21
913:	10	2	10	3	5	7	7	0
921:	5	4	4	3	7	6	3	7
929:	9	1	4	4	12	15	16	2
937:	2	7	2	4	3	1	6	3
945:	4	2	2	4	7	3	3	4
953:	5	5	4	2	7	6	1	4
961:	5	6	3	7	8	6	8	17
969:	20	7	13	4	6	7	5	6
977:	2	2	7	5	4	4	2	6
985:	5	4	5	5	2	7	6	5
993:	4	3	4	3	5	3	7	1
1001:	7	7	4	3	7	3	4	2
1009:	5	3	6	6	1	6	10	2
1017:	6	2	5	10	4	3	0	2
1025:	8	8	1	3	4	4	11	6
1033:	7	4	4	1	3	3	7	1
1041:	3	8	5	3	5	1	4	1
1049:	2	4	6	8	6	2	3	8
1057:	8	8	3	9	7	5	6	6
1065:	1	5	3	4	4	2	5	1
1073:	5	4	2	4	1	6	3	4
1081:	3	2	3	1	5	3	3	1
1089:	6	1	4	2	5	3	4	1
1097:	2	4	2	4	2	8	5	1
1105:	4	0	6	3	4	3	0	5
1113:	5	2	2	5	3	18	14	39
1121:	35	13	0	6	2	3	3	6
1129:	3	2	2	4	5	3	3	1
1137:	1	7	0	1	4	5	2	2
1145:	2	3	3	2	2	4	3	6
1153:	6	11	8	4	6	2	1	6
1161:	5	1	0	6	1	3	2	2
1169:	1	1	4	3	5	4	4	2
1177:	3	7	4	2	4	2	4	6
1185:	5	2	1	3	4	0	1	1
1193:	0	3	1	2	0	6	2	2
1201:	3	5	4	1	6	3	5	3
1209:	1	3	3	2	3	7	2	4
1217:	4	4	5	2	3	2	3	4
1225:	2	7	7	2	7	4	0	2

1233:	2	6	3	7	14	15	13	6

Sample Title: MWA 11,12,13

Channel								
1241:	4	3	3	7	2	4	2	2
1249:	1	4	2	0	3	1	9	3
1257:	5	2	1	4	0	2	4	5
1265:	2	2	3	2	2	2	7	3
1273:	2	1	4	2	4	4	3	4
1281:	5	3	3	5	4	4	1	3
1289:	1	0	3	5	2	1	4	3
1297:	0	3	2	5	4	4	3	3
1305:	2	2	3	3	3	2	1	2
1313:	1	3	4	5	0	2	2	4
1321:	5	3	2	2	0	2	1	3
1329:	3	1	0	0	0	1	2	0
1337:	2	0	5	1	3	3	2	5
1345:	3	2	1	3	0	1	5	3
1353:	4	2	5	6	2	3	1	6
1361:	3	1	4	7	3	7	1	4
1369:	1	5	3	3	6	6	6	10
1377:	9	22	10	4	3	0	2	7
1385:	6	8	4	3	2	1	1	4
1393:	3	1	1	2	0	1	0	2
1401:	6	7	5	3	7	4	9	7
1409:	6	2	1	1	1	2	2	5
1417:	5	2	2	2	2	4	0	5
1425:	1	3	2	0	2	1	0	1
1433:	2	2	2	2	2	1	1	2
1441:	6	1	1	2	1	1	1	2
1449:	3	3	1	1	2	1	4	1
1457:	0	2	7	15	16	10	5	1
1465:	2	3	5	4	2	7	4	3
1473:	1	3	1	2	1	6	0	3
1481:	4	2	1	3	2	3	2	0
1489:	1	2	1	2	2	3	5	3
1497:	1	3	1	3	2	1	3	1
1505:	1	3	5	5	11	4	2	3
1513:	1	3	3	3	1	1	2	3
1521:	2	3	0	0	1	2	1	8
1529:	3	2	3	2	3	0	3	0
1537:	0	0	1	3	2	1	3	7
1545:	4	4	3	1	0	2	2	2
1553:	2	1	1	1	1	4	3	0
1561:	2	1	1	1	3	0	2	3
1569:	4	3	1	1	1	2	0	3
1577:	0	2	2	0	2	5	4	2
1585:	0	4	2	4	2	0	4	1
1593:	3	2	2	3	1	3	2	1
1601:	1	0	4	0	1	4	3	1
1609:	0	3	0	1	2	0	3	2
1617:	2	0	1	2	2	1	2	2
1625:	1	0	0	3	4	1	2	1
1633:	0	1	3	2	0	1	3	2
1641:	2	1	1	2	0	3	2	2
1649:	3	1	2	2	1	1	3	0
1657:	2	4	2	0	6	1	1	3

1665:	1	0	3	1	2	1	1	0

Sample Title: MWA 11,12,13

Channel								
1673:	1	1	1	0	2	2	1	3
1681:	3	1	1	1	0	0	1	0
1689:	1	1	2	2	1	1	1	2
1697:	5	0	1	0	1	0	2	1
1705:	4	1	1	0	0	4	2	1
1713:	3	1	1	0	2	1	3	1
1721:	0	1	1	2	0	0	1	7
1729:	8	5	3	1	0	0	1	1
1737:	0	0	1	1	2	0	0	3
1745:	0	0	1	1	1	0	1	0
1753:	0	1	0	1	1	2	1	3
1761:	2	8	13	11	23	10	4	3
1769:	1	3	1	1	0	2	1	2
1777:	2	0	0	0	2	1	3	1
1785:	1	0	1	1	0	0	0	1
1793:	1	1	1	0	0	0	0	0
1801:	2	0	2	3	1	0	1	1
1809:	0	0	1	0	0	0	1	2
1817:	1	1	1	2	0	1	2	2
1825:	2	1	0	1	1	1	2	0
1833:	1	0	1	1	2	3	0	1
1841:	1	0	0	2	0	3	3	3
1849:	3	1	0	0	6	2	0	1
1857:	1	1	1	2	0	2	1	1
1865:	2	1	1	1	0	0	4	1
1873:	2	1	2	1	1	1	0	0
1881:	0	1	1	0	0	1	1	0
1889:	1	0	1	2	1	1	2	1
1897:	1	1	2	1	3	1	0	1
1905:	2	0	2	0	1	0	1	0
1913:	1	0	0	1	0	1	0	0
1921:	0	0	2	1	0	2	2	1
1929:	4	0	2	0	0	1	1	0
1937:	0	1	0	0	1	0	0	1
1945:	1	2	2	0	0	0	0	2
1953:	0	0	0	5	1	2	0	1
1961:	0	0	2	0	0	1	1	0
1969:	0	2	1	0	1	1	0	0
1977:	3	0	0	0	0	1	3	1
1985:	0	1	0	0	1	0	2	0
1993:	0	1	2	0	2	2	1	1
2001:	1	0	0	2	1	0	0	0
2009:	1	3	1	2	1	0	1	1
2017:	1	0	0	1	0	1	1	2
2025:	0	2	1	1	0	0	0	0
2033:	0	0	0	1	0	0	2	0
2041:	1	0	0	0	0	2	0	0
2049:	1	0	0	3	0	2	1	2
2057:	1	1	1	3	0	1	0	0
2065:	3	1	0	0	0	0	0	0
2073:	3	0	1	0	1	1	1	0
2081:	0	4	0	0	0	0	1	2
2089:	1	1	0	2	0	0	0	0

2097:	0	0	1	0	2	2	3	1

Sample Title: MWA 11,12,13

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

2529:	0	0	2	0	0	0	1	1

Sample Title: MWA 11,12,13

Channel								
2537:	1	0	0	0	0	1	0	0
2545:	0	0	0	0	0	0	1	0
2553:	0	1	1	0	1	1	1	0
2561:	1	0	1	1	1	0	1	1
2569:	0	0	0	0	0	0	0	0
2577:	0	0	1	0	0	0	0	1
2585:	0	0	0	0	1	1	1	2
2593:	0	0	1	1	0	0	1	0
2601:	1	0	1	0	0	0	0	1
2609:	1	0	2	1	7	10	9	2
2617:	0	0	0	1	0	3	0	0
2625:	0	0	0	1	0	1	0	0
2633:	0	0	2	0	0	0	0	1
2641:	0	0	1	0	0	0	1	0
2649:	2	0	0	1	0	0	0	0
2657:	0	0	0	1	2	0	2	0
2665:	0	0	1	0	0	0	0	0
2673:	1	0	0	2	0	0	0	0
2681:	0	0	0	0	0	0	0	0
2689:	0	0	2	0	0	1	1	1
2697:	0	0	0	1	0	1	0	1
2705:	1	1	2	0	1	0	0	0
2713:	1	0	0	0	0	0	1	1
2721:	0	0	0	0	0	0	0	1
2729:	0	0	0	0	0	0	0	0
2737:	0	0	0	0	0	0	1	0
2745:	0	1	0	1	1	0	0	0
2753:	0	1	0	0	0	0	0	1
2761:	1	1	0	0	0	0	1	0
2769:	1	0	1	0	1	0	0	1
2777:	0	1	0	0	0	0	0	0
2785:	0	1	0	1	1	0	0	1
2793:	1	1	0	0	1	0	0	1
2801:	0	1	0	0	1	0	0	0
2809:	0	0	0	0	1	0	0	0
2817:	1	0	0	0	0	0	0	1
2825:	0	0	2	1	0	0	0	0
2833:	0	0	0	0	0	1	0	1
2841:	1	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	1	1	0	2	0	0
2873:	0	0	0	0	0	0	0	0
2881:	1	0	0	0	0	0	0	0
2889:	0	0	1	0	0	0	0	0
2897:	0	0	0	0	0	0	1	0
2905:	0	0	0	0	1	0	0	0
2913:	1	0	0	0	0	2	0	0
2921:	0	0	0	0	1	0	0	0
2929:	0	0	0	1	0	0	0	0
2937:	0	0	1	0	0	1	1	0
2945:	1	0	1	0	0	0	2	0
2953:	0	0	0	0	1	0	0	1

2961:	0	0	0	1	0	0	0	2

Sample Title: MWA 11,12,13

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

3393:	0	0	0	1	0	0	1	0

Sample Title: MWA 11,12,13

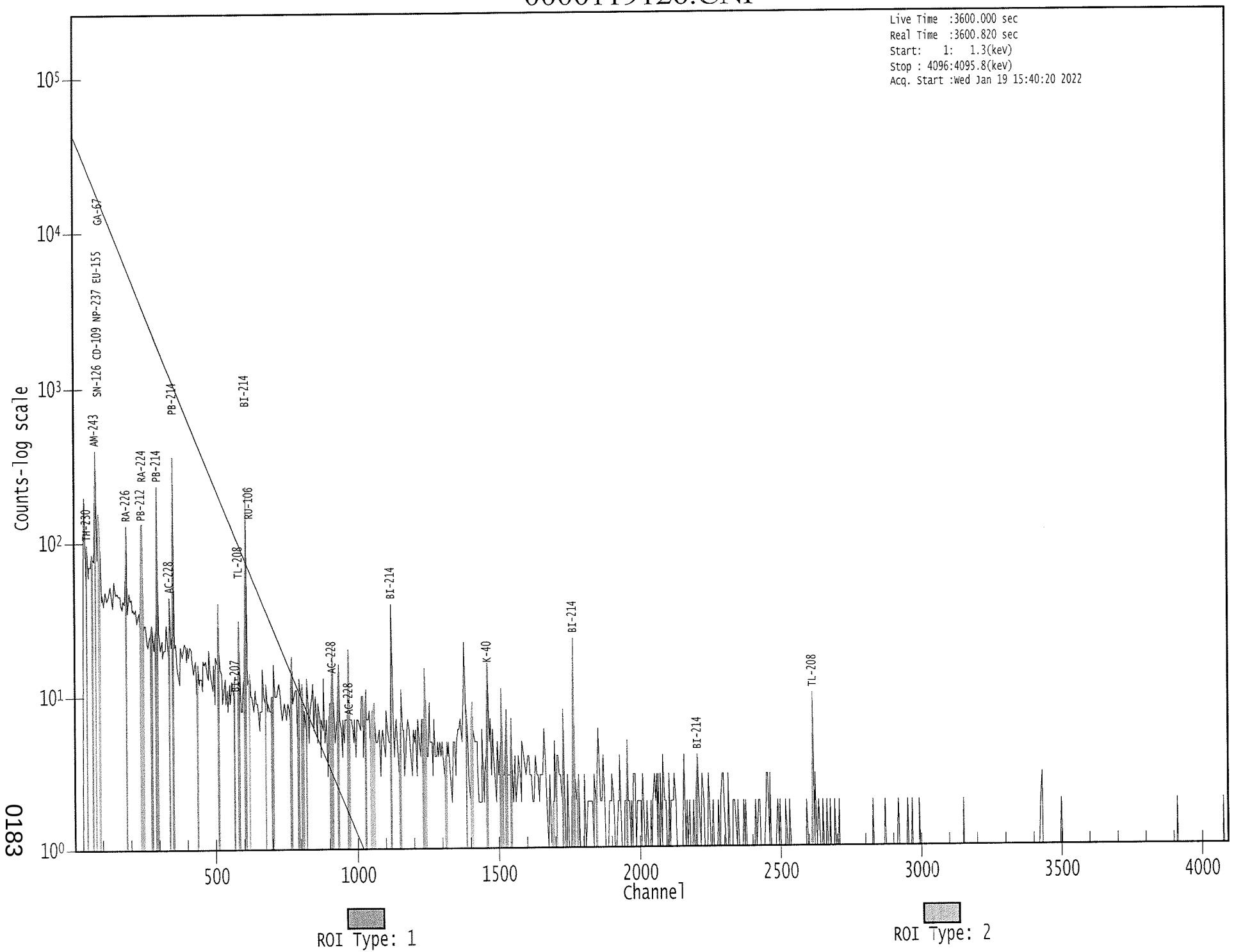
Channel								
3401:	0	1	0	0	0	0	0	0
3409:	0	0	0	1	1	0	0	1
3417:	1	0	1	1	1	1	0	0
3425:	2	0	0	1	0	0	3	0
3433:	1	0	0	0	0	0	0	0
3441:	0	1	1	0	0	1	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	1	1
3465:	1	0	0	0	0	0	0	0
3473:	1	0	1	0	0	0	0	0
3481:	0	0	0	0	0	0	1	0
3489:	0	0	0	0	0	0	1	0
3497:	0	1	2	0	0	1	0	0
3505:	0	0	0	0	0	0	0	0
3513:	0	0	0	0	0	0	0	1
3521:	0	0	0	0	0	1	0	0
3529:	0	0	0	0	1	0	0	0
3537:	1	0	0	0	0	0	0	1
3545:	0	0	1	0	0	0	0	0
3553:	0	0	0	0	0	0	0	0
3561:	0	0	0	0	0	0	0	0
3569:	1	0	1	0	0	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:	1	0	0	0	0	1	0	0
3609:	0	1	0	0	0	0	0	0
3617:	0	0	0	0	0	0	0	1
3625:	0	0	0	0	0	0	0	0
3633:	0	0	0	0	0	0	0	0
3641:	0	0	0	0	0	0	0	0
3649:	1	0	0	0	0	1	1	0
3657:	0	0	0	0	0	0	0	0
3665:	0	0	0	0	0	0	0	0
3673:	0	1	0	0	1	0	0	0
3681:	1	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	1	0	0	0	0
3713:	0	0	1	0	0	0	0	0
3721:	0	0	0	0	0	0	0	0
3729:	0	0	0	0	0	0	1	0
3737:	0	1	1	0	0	0	0	0
3745:	1	0	0	0	1	0	1	0
3753:	1	0	0	0	0	0	0	1
3761:	1	0	0	0	0	0	0	0
3769:	1	1	0	0	0	0	0	0
3777:	1	0	0	0	0	1	0	1
3785:	1	0	0	1	0	0	0	1
3793:	0	1	0	1	1	0	1	1
3801:	0	0	0	0	0	0	0	0
3809:	0	0	0	0	1	0	0	1
3817:	0	0	0	0	0	0	0	0

3825:	1	0	1	0	1	0	0	0

Sample Title: MWA 11,12,13

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

0000119126.CNF



0183

****
***** GENIE QUALITY ASSURANCE *****
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AG
1/19/22

Last Results Report
1/19/22 7:43:50 AM

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000002GAS-2101C.QC

Detector: GE2
Geometry: <None>
Certificate: GAS-2101
Sample ID: QA Calibration C
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 7/1/21 12:00:00 PM
Measurement Date: 1/19/22 7:28:08 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 931.1 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	6.1000E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 661.65 kev	6.6186E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Peak centroid 1332.49 ke	1.3315E+003	
Boundary Limits: [1.331E+003, 1.334E+003]		< : : : >
Peak centroid 1836.01 ke	1.8342E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Peak FWHM Am-241	1.2199E+000	
Boundary Limits: [5.000E-001, 4.500E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Cs-137	1.7304E+000	
Boundary Limits: [5.000E-001, 4.500E+000]		< : : : >
Peak FWHM Co-60	2.2561E+000	
Boundary Limits: [5.000E-001, 4.500E+000]		< : : : >
Peak FWHM Y-88	2.7014E+000	
Boundary Limits: [5.000E-001, 4.500E+000]		< : : : >
Decay corrected activity	1.5108E+005	
Boundary Limits: [1.192E-001, 1.788E-001]		< : : : >
Decay corrected activity	6.1029E+004	
Boundary Limits: [4.740E-002, 7.110E-002]		< : : : >

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Decay corrected activity	9.8280E+004	
Boundary Limits: [7.700E-002, 1.155E-001]		< : : : >
Decay corrected activity	2.1020E+005	
Boundary Limits: [1.670E-001, 2.504E-001]		< : : : >

Flags Key:

LU = Lower/Upper Bounds Test	(Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test	(In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test	(In = Investigate, Ac = Action)
BS = Measurement Bias Test	(In = Investigate, Ac = Action)

****
***** GENIE QUALITY ASSURANCE *****
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Last Results Report
1/19/22 7:45:06 AM

AG
1/19/22

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000004GAW-21C.QCK

Detector: GE4
Geometry: <None>
Certificate: GAW-21
Sample ID: QA Calibration C
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 7/1/21 12:00:00 PM
Measurement Date: 1/19/22 7:28:27 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 987.1 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	5.9227E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 661.65 kev	6.6084E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1332.49 ke	1.3310E+003	
Boundary Limits: [1.331E+003, 1.334E+003]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1836.01 ke	1.8341E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Am-241	2.4447E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Cs-137	2.5912E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Co-60	2.8911E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Y-88	3.0617E+000	
Boundary Limits: [5.000E-001, 3.500E+000]		< : : : >
Decay corrected activity	1.4073E+005	
Boundary Limits: [1.195E-001, 1.792E-001]		< : : : >

Trend Test: The last 9 samples exhibit a bias trend.

Decay corrected activity 6.1854E+004
Boundary Limits: [4.752E-002, 7.129E-002] < : : : >
Trend Test: The last 9 samples exhibit a bias trend.

Decay corrected activity 9.5001E+004
Boundary Limits: [7.738E-002, 1.161E-001] < : : : >

Decay corrected activity 2.1336E+005
Boundary Limits: [1.674E-001, 2.511E-001] < : : : >

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

****
***** GENIE QUALITY ASSURANCE *****
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Last Results Report
1/19/22 8:04:12 AM

AG
1/19/22

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: 1/19/22 7:49:01 AM
Measurement Date: 1/19/22 7:49:03 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	2.0056E+000	2.1592E-002
[SD:-7.9320E+034+/-******]		< : : : >

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)

****
***** GENIE QUALITY ASSURANCE *****
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Last Results Report
1/19/22 8:04:54 AM

AG
1/19/22

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: 1/19/22 7:49:35 AM
Measurement Date: 1/19/22 7:49:36 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 901.3 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE4 [SD:-8.3239E+034+/-******]	1.6989E+000	2.2119E-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 *****
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Last Results Report
1/19/22 8:04:03 AM

AC
1/19/22

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: 1/19/22 7:48:48 AM
Measurement Date: 1/19/22 7:48:50 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	1.9344E+000	-4.9604E-002
[SD: 3.9060E+001+/-748.44]		< : : : >

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)

****
***** GENIE QUALITY ASSURANCE *****
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Last Results Report
1/19/22 7:43:23 AM

AG 1/19/22

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000001GAF-21C.QCK

Detector: GE1
Geometry: <None>
Certificate: GAF-21
Sample ID: QA Calibration C
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 7/1/21 12:00:00 PM
Measurement Date: 1/19/22 7:27:57 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 911.9 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	5.9363E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 661.65 kev	6.6155E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1332.49 ke	1.3325E+003	
Boundary Limits: [1.331E+003, 1.334E+003]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1836.01 ke	1.8362E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Am-241	2.0511E+000	
Boundary Limits: [5.000E-001, 4.500E+000]		< : : : >
Peak FWHM Cs-137	2.4047E+000	
Boundary Limits: [5.000E-001, 4.500E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Co-60	2.7420E+000	
Boundary Limits: [5.000E-001, 4.500E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Y-88	3.1104E+000	
Boundary Limits: [5.000E-001, 4.500E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Decay corrected activity	1.7495E+004	

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Boundary Limits: [1.272E-002, 2.120E-002]		< : : : >
Decay corrected activity	6.9312E+003	
Boundary Limits: [4.565E-003, 7.609E-003]		< : : : >
Decay corrected activity	1.0861E+004	
Boundary Limits: [7.437E-003, 1.240E-002]		< : : : >
Decay corrected activity	2.1891E+004	
Boundary Limits: [1.610E-002, 2.683E-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)