



October 15, 2015

Mr. Robert Evans
U.S. Nuclear Regulatory Commission, Region IV
1600 East Lamar Boulevard
Arlington, TX 76011

**SUBJECT: ORISE CONTRACT NO. DE-AC05-06OR23100
LETTER REPORT FOR ANALYTICAL RESULTS FOR SIX (FOUR
CONCRETE, ONE METAL, AND ONE SOIL) SAMPLES ASSOCIATED WITH
GENERAL ATOMICS IN SAN DIEGO, CALIFORNIA
[REPORT NUMBER 50-00163/16-001] (RFTA NO. 16-001)
(DOCKET NO. 050-00163) DCN: 5278-LR-01-0**

Dear Mr. Evans:

Oak Ridge Associated Universities (ORAU), under the Oak Ridge Institute for Science and Education (ORISE) contract, received six samples (four concrete, one metal and one soil) on September 24, 2015 from General Atomics in San Diego, California. The samples were analyzed for cobalt-60 (Co-60), europium-152 (Eu-152), and europium-154 (Eu-154) as requested on the NRC Form 303. The analytical data are presented in attached Gamma Spectrometry Summary Results By Analyte reports. The pertinent procedure references are included with the reports.

ORAU's Quality Control (QC) requirements were met for these analyses. The QC files are available for your review upon request.

You may contact me at 865.576.9184 or Forrest Smith at 865.574.9802 with any questions.

Sincerely,

Wade Ivey, Manager
Laboratory
WPI:km

Enclosures

c: T. Carter, NRC/FSME/DWMEP T-8F5

Electronic: S. Roberts, ORAU T. Vitkus, ORAU File 10845

Distribution approval and concurrence:	Initials
Quality Review	ST
Technical Review	ENB

Gamma Spectrometry Summary Sheet

Report Date: October 13, 2015

Project # : 201210845		COC # : 1510-002	
Project Name: General Atomics			
Batch Number: GS0128		Analyst: smithw	
Client Sample ID: 1-C-1			
Lab Sample ID: 10845M0001	Smp Qty.: 138.49	Units: grams	Geometry: SCL
Detector ID: DET08	Live Time(s): 14,400	SOP (Rev. #): CP1 (19)	
Count Date: 10/7/2015	Receipt Date: 9/24/2015	Collection Date: 7/21/2015	
SDG: 201210845-1			

Analyte	Energy Signature (keV)	Result	TPU (2s)	MDC	Units	Energy (keV)	Qualifier	Duplicate Error Ratio	Meas./Known Activity Ratio
Co-60	1173.23	1.048	0.086	0.093	pCi/g	1173.54		N/A	N/A
Eu-152	344.28	16.20	0.90	0.18	pCi/g	344.26		N/A	N/A
Eu-154	723.30	0.62	0.18	0.38	pCi/g	723.45		N/A	N/A

Project # : 201210845		COC # : 1510-002	
Project Name: General Atomics			
Batch Number: GS0128		Analyst: smithw	
Client Sample ID: 1-C-3			
Lab Sample ID: 10845M0002	Smp Qty.: 96.00	Units: grams	Geometry: SCL
Detector ID: DET09	Live Time(s): 14,400	SOP (Rev. #): CP1 (19)	
Count Date: 10/7/2015	Receipt Date: 9/24/2015	Collection Date: 7/21/2015	
SDG: 201210845-1			

Analyte	Energy Signature (keV)	Result	TPU (2s)	MDC	Units	Energy (keV)	Qualifier	Duplicate Error Ratio	Meas./Known Activity Ratio
Co-60	1173.23	0.569	0.070	0.089	pCi/g	1173.53		N/A	N/A
Eu-152	344.28	8.53	0.51	0.18	pCi/g	344.34		N/A	N/A
Eu-154	723.30	0.28	0.18	0.41	pCi/g	723.43	U	N/A	N/A

Gamma Spectrometry Summary Sheet

Report Date: October 13, 2015

Project # : 201210845		COC # : 1510-002	
Project Name: General Atomics			
Batch Number: GS0128		Analyst: smithw	
Client Sample ID: 1-ST			
Lab Sample ID: 10845M0003	Smp Qty.: 187.24	Units: grams	Geometry: SCL
Detector ID: DET10	Live Time(s): 14,400	SOP (Rev. #): CP1 (19)	
Count Date: 10/7/2015	Receipt Date: 9/24/2015	Collection Date: 7/22/2015	
SDG: 201210845-1			

Analyte	Energy Signature (keV)	Result	TPU (2s)	MDC	Units	Energy (keV)	Qualifier	Duplicate Error Ratio	Meas./Known Activity Ratio
Co-60	1173.23	27.7	1.6	0.2	pCi/g	1173.33		N/A	N/A
Eu-152	344.28	0.05	0.12	0.27	pCi/g		U	N/A	N/A
Eu-154	723.30	0.01	0.27	0.60	pCi/g		U	N/A	N/A

Project # : 201210845		COC # : 1510-002	
Project Name: General Atomics			
Batch Number: GS0128		Analyst: smithw	
Client Sample ID: 1-BS-4			
Lab Sample ID: 10845M0004	Smp Qty.: 54.88	Units: grams	Geometry: SCL
Detector ID: DET07	Live Time(s): 14,400	SOP (Rev. #): CP1 (19)	
Count Date: 10/8/2015	Receipt Date: 9/24/2015	Collection Date: 7/22/2015	
SDG: 201210845-1			

Analyte	Energy Signature (keV)	Result	TPU (2s)	MDC	Units	Energy (keV)	Qualifier	Duplicate Error Ratio	Meas./Known Activity Ratio
Co-60	1173.23	0.76	0.11	0.14	pCi/g	1174.21		N/A	N/A
Eu-152	344.28	5.59	0.41	0.23	pCi/g	344.64		N/A	N/A
Eu-154	723.30	0.42	0.23	0.51	pCi/g	723.65	U	N/A	N/A

Gamma Spectrometry Summary Sheet

Report Date: October 13, 2015

Project # : 201210845	COC # : 1510-002		
Project Name: General Atomics			
Batch Number: GS0128	Analyst: smithw		
Client Sample ID: 1-BS-6			
Lab Sample ID: 10845M0005	Smp Qty.: 113.09	Units: grams	Geometry: SCL
Detector ID: DET08	Live Time(s): 14,400	SOP (Rev. #): CP1 (19)	
Count Date: 10/8/2015	Receipt Date: 9/24/2015	Collection Date: 7/28/2015	
SDG: 201210845-1			

Analyte	Energy Signature (keV)	Result	TPU (2s)	MDC	Units	Energy (keV)	Qualifier	Duplicate Error Ratio	Meas./Known Activity Ratio
Co-60	1173.23	0.414	0.053	0.078	pCi/g	1173.61		N/A	N/A
Eu-152	344.28	5.19	0.32	0.14	pCi/g	344.29		N/A	N/A
Eu-154	723.30	-0.02	0.14	0.34	pCi/g	724.06	U	N/A	N/A

Project # : 201210845	COC # : 1510-002		
Project Name: General Atomics			
Batch Number: GS0128	Analyst: smithw		
Client Sample ID: 1-BS-Soil			
Lab Sample ID: 10845S0001	Smp Qty.: 64.98	Units: grams	Geometry: SCL
Detector ID: DET07	Live Time(s): 14,400	SOP (Rev. #): CP1 (19)	
Count Date: 10/8/2015	Receipt Date: 9/24/2015	Collection Date: 8/10/2015	
SDG: 201210845-1			

Analyte	Energy Signature (keV)	Result	TPU (2s)	MDC	Units	Energy (keV)	Qualifier	Duplicate Error Ratio	Meas./Known Activity Ratio
Co-60	1173.23	0.099	0.071	0.167	pCi/g		U	N/A	N/A
Eu-152	344.28	0.373	0.092	0.168	pCi/g	344.73		N/A	N/A
Eu-154	723.30	-0.69	0.31	0.51	pCi/g		U	N/A	N/A

Electronically Validated By:
William Smith- 10/12/2015 15:38

Electronically Approved By:

Wade A. Ivey

Wade Ivey 10/13/2015 07:11