



April 11, 2018

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

**SUBJECT: ORISE CONTRACT NO. DE-SC0014664
LETTER REPORT FOR ANALYTICAL RESULTS FOR FIVE SOIL SAMPLES
ASSOCIATED WITH THE SEQUOYAH FUELS CORPORATION IN
GORE, OKLAHOMA
[TAC NO. 040-08027/18-001] [DOCKET NO. 040-08027](RFTA NO. 18-001)
DCN: 5206-LR-10-0; SDG: 13199-3**

Dear Dr. Evans:

The Oak Ridge Institute for Science and Education (ORISE) is pleased to provide the enclosed data package for five soil samples received on March 13, 2018 from the Sequoyah Fuels Corporation in Gore, Oklahoma. The samples were received in good condition. Per the NRC Form 303 that was sent with the samples, the samples were analyzed for total uranium by gamma spectrometry. The analytical data for uranium-235, uranium-238, and total uranium, along with the procedure reference, are presented in the attached reports.

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

Please contact me at 865.574.9802 or Erika Bailey at 865.576.6659 with any questions or comments.

Sincerely,

Forrest Smith
Project Team Lead
ORAU

WFS:lw

Attachments

Electronic distribution:	T. Carter, NRC	R. Evans, NRC
	S. Roberts, ORAU	E. Bailey, ORAU
	D. Hagemeyer, ORAU	
	File code: 5206	Lab code: 13199

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

NRC FORM 303 (4-2004)		U.S. NUCLEAR REGULATORY COMMISSION			LABORATORY USE ONLY			
REQUEST FOR ANALYSIS AND CHAIN OF CUSTODY LABORATORY - ORISE					CONTROL NUMBER RFTA-18-001			
SAMPLE LOCATION (LICENSEE) Sequoyah Fuels Corporation, Gore, OK					LICENSE NO. SUB-1010		DOCKET NO. 040-08027	
SAMPLE SUBMITTED					DATE SAMPLES SUBMITTED 03/08/2018		PRIORITY <input checked="" type="checkbox"/> ROUTINE <input type="checkbox"/> URGENT	
# TOTAL	TYPE	VOLUME	WEIGHT	SAMPLE COLLECTION INTERVAL				
5	Soil			START	MONTH	DAY	YEAR	TIME
					3	8	2018	
INSPECTOR RESPONSIBLE				TELEPHONE NUMBER		STOP	3	8
							2018	
ANALYSIS TO BE PERFORMED		LIST DESIRED LLD (Optional)		OTHER TYPE OF ANALYSIS (Specify)			LIST DESIRED LLD (Optional)	
<input type="checkbox"/> GROSS ALPHA (GA)				<input type="checkbox"/>				
<input type="checkbox"/> GROSS BETA (GB)				<input type="checkbox"/>				
<input checked="" type="checkbox"/> GAMMA SPEC (GS)				<input type="checkbox"/>				
<input type="checkbox"/> TRITIUM (H3)				<input type="checkbox"/>				
<input type="checkbox"/> CARBON-14 (C14)				<input type="checkbox"/>				
<input type="checkbox"/> IODINE-125 (I125)				<input type="checkbox"/>				
RELINQUISHED BY	RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY				
Robert Evans	FedEx	03/12/2018		Ship to ORAU Lab				
FedEx	ORAU <i>Scott Munson</i>	<i>3/13/18</i>	<i>1145</i>	<i>Analysis</i>				
FEE RECOVERABLE		<input type="checkbox"/> NO <input checked="" type="checkbox"/> YES		IF YES TAC NUMBER		Rpt 040-08027/18-001		
REMARKS								
Radionuclides of concern are isotopes of uranium. Cleanup Level is 100 pCi/g natural uranium (total uranium) If necessary, return samples to Sequoyah Fuels Corporation, Attn: Scott Munson, Highway 10 and Interstate 40 Gore, Oklahoma 74435, 918-489-5511 x223								
NOTE: SAMPLES WILL BE DISCARDED AFTER ANALYSIS UNLESS REASONS ARE NOTED IN REMARKS ABOVE.								


[illegible]

Page 1 of 1	Project Name: ORAU/ORISE Chain of Custody and Analytical Request Project #: Sequoyah Fuels COC # : 1803-003					ORAU/ORISE 1299 Bethel Valley Road, Bldg SC-200 Oak Ridge, TN 37831 Phone: (865) 574-9802 Fax: (865) 241-3248		
Client Name: U.S. Nuclear Regulatory Commission		Phone # : 817.860.8234		Fax # :				
Address: 612 E. Lamar Blvd Suite 400		Email : Robert.Evans@NRC.GOV						
Collected By: Client		Send Results To: EvansRobert						
Client Sample ID	Date Collected (mm-dd-yy)	Time Collected (military)	Sample Matrix (1)	Field Filtered (2)	ORAU/ORISE Lab Sample ID (Lab Use Only)	Total # of containers	Sample Analysis Requested (3)	Comments
NRC-1	03/08/18	13:37	S	No	13199S0007	1	GAMMA SPEC	
NRC-2	03/08/18	13:49	S	No	13199S0008	1	GAMMA SPEC	
NRC-3	03/08/18	13:54	S	No	13199S0009	1	GAMMA SPEC	
NRC-4	03/08/18	14:38	S	No	13199S0010	1	GAMMA SPEC	
NRC-5	03/08/18	14:42	S	No	13199S0011	1	GAMMA SPEC	
Gamma Isotopes: AC228, AC228, BI212, BI214, BI214, BI214, K40, PA234, PB212, PB214, PB214, RA226, TH230, TH234, TH234, U235, U235, U235 Alpha Isotopes: LSA:								
TAT Requested: 28		Rush:		<u>Fax Results</u> Fax # :				
Chain of Custody Signatures							Sample Shipping and Delivery Details	
Relinquished By (Signed)		Date	Time	Received By (Signed)		Date	Time	ORAU/ORISE PM SmithWilliam Phone # : 865-574-9802
Fed Ex		3/13/2018	11:45:00AM	SmithForrest		3/13/2018	11:45:00AM	Method of Shipment: Date Shipped
EDD Required:		Report Type:		Received in Good Condition: Yes			Airbill # :	
PEMS Project ID :		PEMS SOW ID:					Airbill # :	

- 1) Matrix Codes: **S**=Soil, **W**=Water, **M**=Miscellaneous, **A**=Air Filter, **R**=Smear/Wipe
- 2) Field Filtered: For liquid matrices, indicate **-Y-** for yes the sample was field filtered or **-N-** for sample was not field filtered.
- 3) If the integrity of the samples and/or sample packaging are in question, provide details in the CoC comment field.

COC Comments:

APPENDIX A

ORISE Sample Receipt Form				
 OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION				
Client/Task Name: <u>NRC - Seq Fuels</u>		Project/Task # <u>201213199 / 5206</u>		
Received by: <u>WFS</u>		Date Received: <u>3-13-18</u>		
Tracking # <u>NA</u>		Shipment Identified as foreign soil? (circle) YES / <u>NO</u> If YES, notify the manager before proceeding.		
Estimated Activity Level (circle all that apply) <u>MA</u> MA / HA Mark any samples with MA or HA activity on the sample container.		Sample Delivery Group Number: <u>3</u>		
Sample Receipt Criteria	Yes	No	N/A	Comments / Qualifiers (Required if receipt criteria marked "No")
Shipping Containers received intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Appropriate sample containers used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are there any special holding times? Rad analysis hold time is 6 months	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sufficient sample volume to perform the requested analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Individual sample containers securely sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Chain of custody forms included?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Samples screened with hand-held instruments?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Water Samples at project pH?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	As Received pH Preservative Matrix (circle) HNO ₃ / HF / HCl
Did water sample require pH adjustment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Amount of acid added Type of acid added (circle) HNO ₃ / HCl / HF Final sample pH
Sample HPs from COC match container HPs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Date and Time from COC match container Date and Time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Number of containers received match the number indicated on the COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC form properly signed in the requested by/received by section?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Form filled by: JC
Date: 3-14-18

Total Uranium



Analyte: U-Total
Project Name: Sequoyah Fuels
Project #: 201213199

SOP (Rev. #): CP1 (21)
SDG #: 13199-3
Report Date: 4/3/2018

Client Sample ID	Lab Sample ID	Result	TPU(2s)	Units	Enriched or	
					Natural	Batch #
NRC-1	13199S0007	3.31	0.86	pCi/g	Natural	GS0680
NRC-2	13199S0008	6.9	2.0	pCi/g	Natural	GS0680
NRC-3	13199S0009	2.9	1.0	pCi/g	Natural	GS0680
NRC-4	13199S0010	9.9	2.8	pCi/g	Natural	GS0680
NRC-5	13199S0011	7.6	1.9	pCi/g	Natural	GS0680

Signed By:

Date:

TPU= Total Propagated Uncertainty

Gamma Spectrometry Summary Results By Analyte



Report Date: March 28, 2018

Analyte:	U-235	SOP (Rev. #)	CP1 (21)
Project Name:	Sequoyah Fuels	Energy Signature:	143.76 (KeV)
Project # :	201213199	SDG # :	201213199-3

Client Sample ID:	Lab Sample ID:	Result	TPU (2s)	MDC	Units	Qualifier Flag	Batch #
NRC-1	13199S0007	0.073	0.059	0.138	pCi/g	U	GS0680
	13199S0007Dup	0.23	0.12	0.29	pCi/g	U	GS0680
NRC-2	13199S0008	0.15	0.11	0.25	pCi/g	U	GS0680
NRC-3	13199S0009	0.097	0.089	0.206	pCi/g	U	GS0680
NRC-4	13199S0010	0.29	0.19	0.44	pCi/g	U	GS0680
NRC-5	13199S0011	0.142	0.076	0.169	pCi/g	U	GS0680

Electronically Validated By:

John Cox- 3/20/2018 07:35

Electronically Approved By:

William Smith 3/28/2018 13:34

Qualifier Flags:

U = Analyte not detected (< MDC)

TPU = Total Propagated Uncertainty

MDC = Minimum Detectable Concentration

Gamma Spectrometry Summary Results By Analyte



Report Date: March 28, 2018

Analyte:	U-238 by Th-234	SOP (Rev. #)	CP1 (21)
Project Name:	Sequoyah Fuels	Energy Signature:	63.29 (KeV)
Project # :	201213199	SDG # :	201213199-3

Client Sample ID:	Lab Sample ID:	Result	TPU (2s)	MDC	Units	Qualifier Flag	Batch #
NRC-1	13199S0007	1.62	0.43	0.52	pCi/g		GS0680
	13199S0007Dup	1.86	0.54	0.76	pCi/g		GS0680
NRC-2	13199S0008	3.4	1.0	1.5	pCi/g		GS0680
NRC-3	13199S0009	1.39	0.50	0.87	pCi/g		GS0680
NRC-4	13199S0010	4.8	1.4	1.9	pCi/g		GS0680
NRC-5	13199S0011	3.73	0.93	0.93	pCi/g		GS0680

Electronically Validated By:

John Cox- 3/20/2018 07:35

Electronically Approved By:

William Smith 3/28/2018 13:34

Qualifier Flags:

U = Analyte not detected (< MDC)

TPU = Total Propagated Uncertainty

MDC = Minimum Detectable Concentration