Westinghouse Electric Company
Nuclear Fuel
Columbia Fuel Fabrication Facility
5801 Bluff Road
Hopkins, South Carolina 29061
USA

SCDHEC, BLWM
Kim Kuhn
2600 Bull Street
Columbia, SC 29201

Direct tel: 803.647.1920
Direct fax: 803.695.3964
e-mail: joynerdp@westinghouse.com
Your ref:
Our ref: LTR-RAC-20-59

July 8, 2020

Subject: **June** 2020 CA Progress Report

Ms. Kuhn:

In accordance with Item 19 of Consent Agreement (CA) 19-02-HW, this progress report is being submitted to you, including the following requested information:

(a) a brief description of the actions which Westinghouse has taken toward achieving compliance with the Consent Agreement during the previous month;
(b) results of sampling and tests, in tabular summary format received by Westinghouse during the reporting period;
(c) a brief description of all actions which are scheduled for the next month to achieve compliance with the Consent Agreement, and other information relating to the progress of the work as deemed necessary or requested by the Department; and
(d) information regarding the percentage of work completed and any delays encountered or anticipated that may affect the approved schedule for implementation of the terms of the Consent Agreement, and a description of efforts made to mitigate delays or avoid anticipated delays.

In response to the above requirements, the following is being reported to the Department since the last progress report on **June 15, 2020**:

(a) Actions during the previous month:
Westinghouse began implementation of the Final Remedial Investigation (RI) Work Plan on 6/10/19. To comply with **Item 4** of the CA, the following actions were completed this month.
- Submitted the East Lagoon Closure Plan in LTR-RAC-20-57 dated June 30, 2020
- Continued preparing the report for the Tc-99 Source Investigation Work Plan Results - Phase I and Phase II
- Completed the following activities to support the Southern Storage Area (SSA) Operable Unit (OU) Work Plan:

- Removed and packaged for off-site shipment as low-level radioactive waste (LLRW) 3 intermodal containers from the Southern Storage Area (C-41, C-56, C-60)
  - Conducted radiological soil surface surveys under all removed containers. The surface surveys did not indicate the need to remove soil.
  - Collected soil samples underneath the containers on June 29, 2020. The sampling included bias VOC samples underneath C-56 and C-60 where previous contamination was documented within the intermodal containers.
- Continued wet combustible material (WCM) drum removal from 3 intermodal containers (C-64, C-19, and C-54) that have been on hold. Drums potentially containing perchloroethylene were segregated and stored.
  - Intermodal container **C-64** was safely emptied of its contents on 6/17/2020.
    - Health physics radiological surveys of the pallets and the sealand flooring indicated no environmental impact.
  - Intermodal container **C-19** was safely emptied of its contents on 6/26/2020.
    - Health physics radiological surveys of the pallets and the sealand flooring indicated no environmental impact.
  - Intermodal container **C-54**, was safely emptied of its contents on 7/1/2020.
    - Health physics surveys of the pallets indicated no impact to the environment. A subsequent survey of the sealand flooring indicated a small area of impact towards the back, measuring approximately 1-foot in diameter. The impact was quantified at 1,000 dpm/100cm² for alpha contamination.
- Seven (7) of the original eleven (11) intermodal containers with drums potentially containing perchloroethylene have been emptied since April 14, 2020.

(b) Results of sampling and tests:

- Tabulated results of Hydrofluoric Acid Spiking Station #1 (HFSS#1) Soil Sampling conducted May 4-6, 2020 are included as **Attachment A**. The associated laboratory reports are included as **Attachment B**.

(c) Brief description of all actions which are scheduled for the next month:

- In accordance with **Item 4** of the CA, Westinghouse will continue to implement the Work Plan to include the following actions:
  - Submit ***Final*** Interim Remedial Investigation Data Summary Report
  - Submit the Hydrofluoric Acid Spiking Station #1 (HFSS#1) Soil Sampling Report and associated Technical Basis Document
  - Submit an assessment report of the Tc-99 Source Investigation Work Plan Results - Phase I and Phase II
  - Host a webinar to discuss and propose the scope for the RI Phase II Work Plan
  - Continue WCM drum removal from the 4 remaining intermodal containers; segregate and store drums potentially containing perchloroethylene
  - Submit tabulated data from the Southern Storage Area Soil Sampling conducted on June 29, 2020 for intermodal containers C-41, C-56, C-60

(d) Percentage of work completed and any delays encountered or anticipated:

- Assessment activities identified in the Final Remedial Investigation Work Plan and associated addendums have been completed, with a summary report submitted.

Respectfully,

Diana P. Joyner
Principal Environmental Engineer
Westinghouse Electric Company, CFFF
803.497.7062 (m)

Cc: N. Parr, Environmental Manager
J. Ferguson, EH&S Manager
J. Grant, AECOM Project Manager
ENOVIA Records

Attachment A

Hydrofluoric Acid Spiking Station #1 (HFSS#1) Soil Sampling - Tabulated

Table 1
Westinghouse Columbia Fuel Fabrication Facility
HF Spiking Station #1
Soil Analytical Results

			Analyte	pH	Fluoride	Nitrate	Technetium-99	Uranium-233/234	Uranium-235/236	Uranium-238
			Unit	SU	mg/kg	mg/kg	pCi/g	pCi/g	pCi/g	pCi/g
Sample ID	Sample Depth	Depth BSS	Sample Date							
HF1-B1-(1-2)	1 - 2 ft	1 - 2 ft	5/4/2020	**4.81**	**28.3**	**180**	0.447 U	**13.2**	**0.828**	**3.22**
HF1-B1-(2-4)	2 - 4 ft	2 - 4 ft	5/4/2020	**4.02**	**706**	**707**	0.88 U	**8,310**	**465**	**1,620**
HF1-B1-(4-6)	4 - 6 ft	4 - 6 ft	5/4/2020	**3.88**	**1500**	**1240**	0.0772 U	**10,100**	**436**	**1,680**
HF1-B1-(6-8)	6 - 8 ft	6 - 8 ft	5/4/2020	**4.03**	**936**	**971**	0.871 U	**4,500**	**252**	**802**
HF1-B1-(8-10)	8 - 10 ft	8 - 10 ft	5/4/2020	**4.26**	**96.4**	**303**	0.656 U	**1,440**	**79.4**	**263**
HF1-B2-(1-2)	1 - 2 ft	1 - 2 ft	5/5/2020	**6.38**	**1.28**	**76.5**	0	**4.65**	**0.455**	**1.39**
HF1-B2-(2-4)	2 - 4 ft	2 - 4 ft	5/5/2020	**5.16**	**0.623 J**	**90.8**	0	**0.847**	0.107 U	**0.785**
HF1-B2-(4-6)	4 - 6 ft	4 - 6 ft	5/5/2020	**6.05**	1.09	**94**	0	**1.5**	0.0943 U	**0.955**
HF1-B2-(6-8)	6 - 8 ft	6 - 8 ft	5/5/2020	**5.98**	1.1	**45.9**	0.00658 U	**0.926**	0.0131 U	**0.218**
HF1-B2-(8-10)	8 - 10 ft	8 - 10 ft	5/5/2020	**6.17**	**0.8 J**	**23.4**	0	**1.52**	0.0407 U	**0.421**
HF1-B3-(1-2)	1 - 2 ft	1 - 2 ft	5/5/2020	**4.82**	**6.24**	**285**	0	**3.52**	0.0795 U	**1.13**
HF1-B3-(2-4)	2 - 4 ft	2 - 4 ft	5/5/2020	**4.08**	**683**	**589**	0	**3,510**	**159**	**582**
HF1-B3-(4-6)	4 - 6 ft	4 - 6 ft	5/5/2020	**3.96**	**1020**	**1290**	0	**5,600**	**264**	**948**
HF1-B3-(6-8)	6 - 8 ft	6 - 8 ft	5/5/2020	**4.11**	**546**	**700**	0	**2,790**	**171**	**632**
HF1-B3-(8-10)	8 - 10 ft	8 - 10 ft	5/5/2020	**4.25**	**343**	**398**	0	**2,600**	**139**	**636**
HF1-B4-(1-2)	1 - 2 ft	1 - 2 ft	5/6/2020	**5.46**	**65.8**	**69.3**	0	**563**	**29**	**110**
HF1-B4-(2-4)	2 - 4 ft	2 - 4 ft	5/6/2020	**3.97**	**335**	**70.4**	0.171 U	**511**	**22.1**	**105**
HF1-B4-(4-5.33)	4 - 5.33 ft	4 - 5.33 ft	5/6/2020	**3.29**	**359**	**82.5**	2.6 U	**700**	**31.9**	**139**
HF1-B5-(1-2)	1 - 2 ft	1 - 2 ft	5/6/2020	**5.07**	**1.55**	**232**	0	**9.36**	**0.396**	**2.56**
HF1-B5-(2-4)	2 - 4 ft	2 - 4 ft	5/6/2020	**4.39**	**135**	**288**	0	**1,520**	**82.8**	**246**
HF1-B5-(4-6)	4 - 6 ft	4 - 6 ft	5/6/2020	**4.28**	**21.7**	**440**	0	**1,250**	**50.9**	**224**
HF1-B5-(6-8)	6 - 8 ft	6 - 8 ft	5/6/2020	**5.67**	1.11	**150**	0	**9.67**	**0.587**	**1.61**
HF1-B5-(8-10)	8 - 10 ft	8 - 10 ft	5/6/2020	**4.35**	**0.879 J**	**54.3**	0	**2.65**	**0.294**	**1.02**
HF1-B6-(0-2)	0 - 2 ft	0-1.90 ft	5/6/2020	**8.09**	NA	NA	NA	NA	NA	NA
HF1-B6-(2-4)	2 - 4 ft	1.90-3.79 ft	5/6/2020	**6.35**	**5.67**	**14.5**	0	**403**	**19.3**	**78.5**
HF1-B6-(4-5.67)	4 - 5.67 ft	3.79-5.37 ft	5/6/2020	**6.22**	**43.8**	**38**	0	**226**	**9.66**	**41.6**
HF1-B7-(0-2)	0 - 2 ft	0-1.88 ft	5/6/2020	**4.72**	**40.4**	**127**	0	**2,140**	**93.5**	**313**
HF1-B7-(2-4)	2 - 4 ft	1.88-3.75 ft	5/6/2020	**4.41**	**158**	**178**	3.15 U	**2,020**	**92**	**355**
HF1-B7-(4-5.42)	4 - 5.42 ft	3.75-5.08 ft	5/6/2020	**5.21**	**121**	**83**	0.627 U	**799**	**46.5**	**158**
HF1-B7-REFUSAL	5.42 - 5.42 ft	5.08 ft	5/6/2020	**4.58**	NA	NA	NA	NA	NA	NA
Remedial Action Screening Level					3,100	130,000	88,400	3,310	39	179

Notes:
SU - standard units
mg/kg - milligram per kilogram
pCi/g - picocuries per gram
BSS - below soil surface
ft - feet
U - not detected above the method detection concentration
Shaded cells exceed the remedial action screening level

Attachment B

Hydrofluoric Acid Spiking Station #1 (HFSS#1) Soil Sampling - GEL Analytical Results

GEL Analytical Results
Sampling conducted: May 4, 2020
GEL Work Order: 510581
Report Date: May 28, 2020

GEL Analytical Results
Sampling conducted: May 5, 2020
GEL Work Order: 510757
Report Date: June 1, 2020

GEL Analytical Results
Sampling conducted: May 6, 2020
GEL Work Order: 510807
Report Date: June 4, 2020

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
F 843.766.1178

gel.com

May 28, 2020

Ms. Cynthia Logsdon
Westinghouse Electric Company, LLC
PO Drawer R
Columbia, South Carolina 29205

Re: Soil and Vegetation Analysis
Work Order: 510581

Dear Ms. Logsdon:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on May 05, 2020. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4707.

Sincerely,

Katelyn Gray

Katelyn Gray
Project Manager

Purchase Order: 4500799254
Enclosures

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

Certificate of Analysis Report
for

WNUC008 Westinghouse Electric Co, LLC (4500775170)

Client SDG: 510581 GEL Work Order: 510581

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a Tracer compound

** Analyte is a surrogate compound

H Analytical holding time was exceeded

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Katelyn Gray.

Reviewed by Katelyn Gray

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: May 28, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B1-(1-2)
Sample ID: 510581001
Matrix: Soil
Collect Date: 04-MAY-20 13:13
Receive Date: 05-MAY-20
Collector: Client
Moisture: 7.46%

Project: WNUC00821
Client ID: WNUC008

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Fluoride and Nitrate "Dry Weight Corrected"												
Fluoride		28.3	0.366	1.08	mg/kg	9.95	1	JLD1	05/05/20	1932	1994861	1
Nitrate-N		180	1.77	5.38	mg/kg	9.95	5	JLD1	05/06/20	0110	1994861	2
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	4.81	0.0100	0.100	SU		1	RXB5	05/07/20	1446	1994735	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9056A	SW846 9056A Total Anions in Soil	CJ2	05/05/20	1814	1994849

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9056A	
3	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: May 28, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B1-(2-4)
Project: WNUC00821
Sample ID: 510581002
Client ID: WNUC008
Matrix: Soil
Collect Date: 04-MAY-20 13:43
Receive Date: 05-MAY-20
Collector: Client
Moisture: 7.57%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Fluoride and Nitrate "Dry Weight Corrected"												
Fluoride		706	7.38	21.7	mg/kg	10.0	20	JLD1	05/06/20	0243	1994861	1
Nitrate-N		707	7.16	21.7	mg/kg	10.0	20					
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	4.02	0.0100	0.100	SU		1	RXB5	05/07/20	1448	1994735	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9056A	SW846 9056A Total Anions in Soil	CJ2	05/05/20	1814	1994849

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: May 28, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B1-(4-6)
Project: WNUC00821
Sample ID: 510581003
Client ID: WNUC008
Matrix: Soil
Collect Date: 04-MAY-20 14:58
Receive Date: 05-MAY-20
Collector: Client
Moisture: 11.8%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Fluoride and Nitrate "Dry Weight Corrected"												
Fluoride		1500	19.1	56.1	mg/kg	9.90	50	JLD1	05/06/20	0314	1994861	1
Nitrate-N		1240	18.5	56.1	mg/kg	9.90	50					
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	3.88	0.0100	0.100	SU		1	RXB5	05/07/20	1449	1994735	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9056A	SW846 9056A Total Anions in Soil	CJ2	05/05/20	1814	1994849

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: May 28, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B1-(6-8)
Project: WNUC00821
Sample ID: 510581004
Client ID: WNUC008
Matrix: Soil
Collect Date: 04-MAY-20 16:10
Receive Date: 05-MAY-20
Collector: Client
Moisture: 11.6%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Fluoride and Nitrate "Dry Weight Corrected"												
Fluoride		936	9.45	27.8	mg/kg	9.83	25	JLD1	05/06/20	0345	1994861	1
Nitrate-N		971	9.17	27.8	mg/kg	9.83	25					
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	4.03	0.0100	0.100	SU		1	RXB5	05/07/20	1450	1994735	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9056A	SW846 9056A Total Anions in Soil	CJ2	05/05/20	1814	1994849

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: May 28, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B1-(8-10) Project: WNUC00821
Sample ID: 510581005 Client ID: WNUC008
Matrix: Soil
Collect Date: 04-MAY-20 17:02
Receive Date: 05-MAY-20
Collector: Client
Moisture: 12.8%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Fluoride and Nitrate "Dry Weight Corrected"												
Fluoride		96.4	3.90	11.5	mg/kg	10.0	10	JLD1	05/06/20	0415	1994861	1
Nitrate-N		303	3.79	11.5	mg/kg	10.0	10					
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	4.26	0.0100	0.100	SU		1	RXB5	05/07/20	1451	1994735	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9056A	SW846 9056A Total Anions in Soil	CJ2	05/05/20	1814	1994849

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: May 28, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B1-(1-2)
Sample ID: 510581001
Matrix: Soil
Collect Date: 04-MAY-20 13:13
Receive Date: 05-MAY-20
Collector: Client
Moisture: 7.46%

Project: WNUC00821
Client ID: WNUC008

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec Analysis													
Alphaspec U, Soil/Veg "Dry Weight Corrected"													
Uranium-233/234		13.2	+/-0.986	0.221	0.500	pCi/g			HAKB	05/09/20	1307	1994680	1
Uranium-235/236		0.828	+/-0.286	0.186	0.500	pCi/g							
Uranium-238		3.22	+/-0.486	0.111	0.500	pCi/g							
Rad Liquid Scintillation Analysis													
Liquid Scint Tc99, Soil "As Received"													
Technetium-99	U	0.447	+/-1.94	3.34	5.00	pCi/g			JJ3	05/10/20	0542	1994733	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	05/05/20	1018	1994664

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE EML HASL-300, U-02-RC Modified	
2	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Soil/Veg "Dry Weight Corrected"			81.9	(15%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Soil "As Received"			97.3	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: May 28, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B1-(2-4)
Project: WNUC00821
Sample ID: 510581002
Client ID: WNUC008
Matrix: Soil
Collect Date: 04-MAY-20 13:43
Receive Date: 05-MAY-20
Collector: Client
Moisture: 7.57%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec Analysis													
Alphaspec U, Soil/Veg "Dry Weight Corrected"													
Uranium-233/234		8310	+/-213	11.4	0.500	pCi/g			HAKB	05/11/20	1159	1995912	1
Uranium-235/236		465	+/-56.2	5.28	0.500	pCi/g							
Uranium-238		1620	+/-94.3	8.12	0.500	pCi/g							
Rad Liquid Scintillation Analysis													
Liquid Scint Tc99, Soil "As Received"													
Technetium-99	U	0.880	+/-2.19	3.75	5.00	pCi/g			JJ3	05/10/20	0603	1994733	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	05/05/20	1018	1994664

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE EML HASL-300, U-02-RC Modified	
2	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Soil/Veg "Dry Weight Corrected"			62	(15%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Soil "As Received"			94.5	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: May 28, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B1-(4-6)
Project: WNUC00821
Sample ID: 510581003
Client ID: WNUC008
Matrix: Soil
Collect Date: 04-MAY-20 14:58
Receive Date: 05-MAY-20
Collector: Client
Moisture: 11.8%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec Analysis													
Alphaspec U, Soil/Veg "Dry Weight Corrected"													
Uranium-233/234		10100	+/-239	9.20	0.500	pCi/g			HAKB	05/11/20	1159	1995912	1
Uranium-235/236		436	+/-55.3	7.65	0.500	pCi/g							
Uranium-238		1680	+/-97.6	8.76	0.500	pCi/g							
Rad Liquid Scintillation Analysis													
Liquid Scint Tc99, Soil "As Received"													
Technetium-99	U	0.0772	+/-2.09	3.63	5.00	pCi/g			JJ3	05/10/20	0625	1994733	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	05/05/20	1018	1994664

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE EML HASL-300, U-02-RC Modified	
2	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Soil/Veg "Dry Weight Corrected"			67.1	(15%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Soil "As Received"			95.8	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: May 28, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B1-(6-8)
Project: WNUC00821
Sample ID: 510581004
Client ID: WNUC008
Matrix: Soil
Collect Date: 04-MAY-20 16:10
Receive Date: 05-MAY-20
Collector: Client
Moisture: 11.6%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec Analysis													
Alphaspec U, Soil/Veg "Dry Weight Corrected"													
Uranium-233/234		4500	+/-119	4.20	0.500	pCi/g			HAKB	05/07/20	2115	1994680	1
Uranium-235/236		252	+/-31.3	4.22	0.500	pCi/g							
Uranium-238		802	+/-50.2	3.97	0.500	pCi/g							
Rad Liquid Scintillation Analysis													
Liquid Scint Tc99, Soil "As Received"													
Technetium-99	U	0.871	+/-2.06	3.53	5.00	pCi/g			JJ3	05/10/20	0647	1994733	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	05/05/20	1018	1994664

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE EML HASL-300, U-02-RC Modified	
2	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Soil/Veg "Dry Weight Corrected"			15	(15%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Soil "As Received"			96.1	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: May 28, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B1-(8-10) Project: WNUC00821
Sample ID: 510581005 Client ID: WNUC008
Matrix: Soil
Collect Date: 04-MAY-20 17:02
Receive Date: 05-MAY-20
Collector: Client
Moisture: 12.8%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec Analysis													
Alphaspec U, Soil/Veg "Dry Weight Corrected"													
Uranium-233/234		1440	+/-43.8	1.98	0.500	pCi/g			HAKB	05/07/20	2115	1994680	1
Uranium-235/236		79.4	+/-11.5	1.79	0.500	pCi/g							
Uranium-238		263	+/-18.7	1.69	0.500	pCi/g							
Rad Liquid Scintillation Analysis													
Liquid Scint Tc99, Soil "As Received"													
Technetium-99	U	0.656	+/-2.13	3.65	5.00	pCi/g			JJ3	05/10/20	0708	1994733	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	05/05/20	1018	1994664

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE EML HASL-300, U-02-RC Modified	
2	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Soil/Veg "Dry Weight Corrected"			31.5	(15%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Soil "As Received"			92.7	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

QC Summary

Report Date: May 28, 2020

Westinghouse Electric Company, LLC
PO Drawer R
Columbia, South Carolina

Contact: **Ms. Cynthia Logsdon**

Workorder: **510581**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography										
Batch 1994861										
QC1204556272 510581001 DUP										
Fluoride		28.3		37.9	mg/kg	29.1		(0%-109%)	JLD1	05/05/20 23:07
Nitrate-N		180		238	mg/kg	28		(0%-104%)		05/06/20 01:41
QC1204556271 LCS										
Fluoride	25.3			24.1	mg/kg		95.6	(90%-110%)		05/05/20 22:36
Nitrate-N	25.3			24.8	mg/kg		98.2	(90%-110%)		
QC1204556270 MB										
Fluoride			U	ND	mg/kg					05/05/20 22:05
Nitrate-N			U	ND	mg/kg					
QC1204556273 510581001 MS										
Fluoride	26.9	28.3		40.8	mg/kg		46.8 *	(75%-125%)		05/05/20 23:38
Nitrate-N	26.9	180		221	mg/kg		N/A	(75%-125%)		05/06/20 02:12
Titration and Ion Analysis										
Batch 1994735										
QC1204556044 510581001 DUP										
Corrosivity	H	4.81	H	5.15	SU	6.83		(0%-10%)	RXB5	05/07/20 14:47
QC1204556042 LCS										
Corrosivity	7.00			7.00	SU		100	(95%-105%)		05/07/20 14:42

Notes:

The Qualifiers in this report are defined as follows:

< Result is less than value reported

QC Summary

Workorder: **510581**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

>	Result is greater than value reported
B	The target analyte was detected in the associated blank.
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
H	Analytical holding time was exceeded
J	See case narrative for an explanation
J	Value is estimated
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
e	5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for reporting purposes
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

QC Summary

Report Date: May 28, 2020

Westinghouse Electric Company, LLC
PO Drawer R
Columbia, South Carolina

Contact: **Ms. Cynthia Logsdon**

Workorder: **510581**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch 1994680											
QC1204555898 510581001 DUP											
Uranium-233/234		13.2		12.1	pCi/g	9.25		(0%-20%)	HAKB	05/07/20	20:55
	Uncertainty	+/-0.986		+/-1.02							
Uranium-235/236		0.828		0.575	pCi/g	36.1*		(0%-20%)			
	Uncertainty	+/-0.286		+/-0.253							
Uranium-238		3.22		2.27	pCi/g	34.6*		(0%-20%)			
	Uncertainty	+/-0.486		+/-0.450							
QC1204555899 LCS											
Uranium-233/234				12.2	pCi/g					05/07/20	20:55
	Uncertainty			+/-0.829							
Uranium-235/236				0.933	pCi/g						
	Uncertainty			+/-0.257							
Uranium-238	12.9			12.0	pCi/g		93.5	(75%-125%)			
	Uncertainty			+/-0.821							
QC1204555897 MB											
Uranium-233/234				0.428	pCi/g					05/09/20	13:07
	Uncertainty			+/-0.164							
Uranium-235/236				0.0679	pCi/g						
	Uncertainty			+/-0.0763							
Uranium-238			U	0.0889	pCi/g						
	Uncertainty			+/-0.0914							
Batch 1995912											
QC1204558442 510581002 DUP											
Uranium-233/234		8310		8000	pCi/g	3.74		(0%-20%)	HAKB	05/11/20	11:59
	Uncertainty	+/-213		+/-253							
Uranium-235/236		465		379	pCi/g	20.5*		(0%-20%)			
	Uncertainty	+/-56.2		+/-61.4							
Uranium-238		1620		1420	pCi/g	13.5		(0%-20%)			
	Uncertainty	+/-94.3		+/-107							

QC Summary

Workorder: **510581**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1995912										
QC1204558443 LCS										
Uranium-233/234				162	pCi/g				HAKB	05/11/20 11:59
	Uncertainty			+/-27.6						
Uranium-235/236				17.4	pCi/g					
	Uncertainty			+/-10.6						
Uranium-238	160			168	pCi/g		105	(75%-125%)		
	Uncertainty			+/-28.1						
QC1204558441 MB										
Uranium-233/234			U	-1.59	pCi/g					05/11/20 11:59
	Uncertainty			+/-2.31						
Uranium-235/236			U	-0.163	pCi/g					
	Uncertainty			+/-2.70						
Uranium-238			U	0.176	pCi/g					
	Uncertainty			+/-3.14						
Rad Liquid Scintillation										
Batch 1994733										
QC1204556036 510581001 DUP										
Technetium-99	U	0.447	U	0.433	pCi/g	N/A		N/A	JJ3	05/10/20 07:52
	Uncertainty	+/-1.94		+/-2.00						
QC1204556037 LCS										
Technetium-99	57.1			49.8	pCi/g		87.1	(75%-125%)		05/10/20 08:14
	Uncertainty			+/-3.28						
QC1204556035 MB										
Technetium-99			U	2.16	pCi/g					05/10/20 07:30
	Uncertainty			+/-2.07						

Notes:

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

- ** Analyte is a Tracer compound
- < Result is less than value reported
- > Result is greater than value reported
- BD Results are either below the MDC or tracer recovery is low
- FA Failed analysis.
- H Analytical holding time was exceeded
- J See case narrative for an explanation

QC Summary

Workorder: **510581**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

J	Value is estimated
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	REMP Result > MDC/CL and < RDL
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Technical Case Narrative
Westinghouse Electric Co, LLC
SDG #: 510581

General Chemistry

Product: **Ion Chromatography**
Analytical Method: SW846 9056A
Analytical Procedure: GL-GC-E-086 REV# 27
Analytical Batches: 1994861 and 1994849

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
510581001	HF1-B1-(1-2)
510581002	HF1-B1-(2-4)
510581003	HF1-B1-(4-6)
510581004	HF1-B1-(6-8)
510581005	HF1-B1-(8-10)
1204556270	Method Blank (MB)
1204556271	Laboratory Control Sample (LCS)
1204556272	510581001(HF1-B1-(1-2)) Sample Duplicate (DUP)
1204556273	510581001(HF1-B1-(1-2)) Matrix Spike (MS)

The samples in this SDG were analyzed on a "dry weight" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The percent recoveries (%R) obtained from the spike analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike recovered outside of the established acceptance limits due to matrix interference and/or non-homogeneity.

Analyte	Sample	Value
Fluoride	1204556273 (HF1-B1-(1-2)MS)	46.8* (75%-125%)

Technical Information

Sample Dilutions
The following samples 1204556272 (HF1-B1-(1-2)DUP), 1204556273 (HF1-B1-(1-2)MS), 510581001 (HF1-B1-(1-2)), 510581002 (HF1-B1-(2-4)), 510581003 (HF1-B1-(4-6)), 510581004 (HF1-B1-(6-8)) and 510581005 (HF1-B1-(8-10)) were diluted because target analyte concentrations exceeded the calibration range. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analyte	510581				
	001	002	003	004	005
Fluoride	1X	20X	50X	25X	10X
Nitrate	5X	20X	50X	25X	10X

Product: **pH**
Analytical Method: SW846 9045D
Analytical Procedure: GL-GC-E-008 REV# 24
Analytical Batch: 1994735

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
510581001	HF1-B1-(1-2)
510581002	HF1-B1-(2-4)
510581003	HF1-B1-(4-6)
510581004	HF1-B1-(6-8)
510581005	HF1-B1-(8-10)
1204556042	Laboratory Control Sample (LCS)
1204556044	510581001(HF1-B1-(1-2)) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Holding Times
Samples (See Below) were received by the laboratory outside of the method specified holding time. The data is qualified.

Sample	Analyte	Value
1204556044 (HF1-B1-(1-2)DUP)		Received 05-MAY-20, out of holding 04-MAY-20
510581001 (HF1-B1-(1-2))		Received 05-MAY-20, out of holding 04-MAY-20
510581002 (HF1-B1-(2-4))		Received 05-MAY-20, out of holding 04-MAY-20
510581003 (HF1-B1-(4-6))		Received 05-MAY-20, out of holding 04-MAY-20
510581004 (HF1-B1-(6-8))		Received 05-MAY-20, out of holding 04-MAY-20
510581005 (HF1-B1-(8-10))		Received 05-MAY-20, out of holding 04-MAY-20

Radiochemistry

Product: **Alphaspec U, Soil/Veg**
Analytical Method: DOE EML HASL-300, U-02-RC Modified
Analytical Procedure: GL-RAD-A-011 REV# 27
Analytical Batch: 1994680

Preparation Method: Dry Soil Prep
Preparation Procedure: GL-RAD-A-021 REV# 23
Preparation Batch: 1994664

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
510581001	HF1-B1-(1-2)
510581004	HF1-B1-(6-8)
510581005	HF1-B1-(8-10)
1204555897	Method Blank (MB)
1204555898	510581001(HF1-B1-(1-2)) Sample Duplicate (DUP)
1204555899	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on a "dry weight" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Method Blank Criteria
The blank result (See Below) is greater than the MDC but less than the required detection limit.

Sample	Analyte	Value
1204555897 (MB)	Uranium-233/234	Result: 0.428 pCi/g > MDA: 0.138 pCi/g <= RDL: 0.500 pCi/g
	Uranium-235/236	Result: 0.0679 pCi/g > MDA: 0.0509 pCi/g <= RDL: 0.500 pCi/g

Duplication Criteria between QC Sample and Duplicate Sample
The Sample and the Duplicate, (See Below), did not meet the relative percent difference requirement; however, they do meet the relative error ratio requirement with the value listed below.

Sample	Analyte	Value
1204555898 (HF1-B1-(1-2)DUP)	Uranium-235/236	RPD 36.1* (0.00%-20.00%) RER 1.24 (0-3)
	Uranium-238	RPD 34.6* (0.00%-20.00%) RER 2.31 (0-3)

Technical Information

Recounts
Samples 1204555897 (MB) and 510581001 (HF1-B1-(1-2)) were recounted due to high MDCs. The recounts are reported.

Product: **Alphaspec U, Soil/Veg**
Analytical Method: DOE EML HASL-300, U-02-RC Modified
Analytical Procedure: GL-RAD-A-011 REV# 27
Analytical Batch: 1995912

Preparation Method: Dry Soil Prep
Preparation Procedure: GL-RAD-A-021 REV# 23
Preparation Batch: 1994664

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
510581002	HF1-B1-(2-4)
510581003	HF1-B1-(4-6)
1204558441	Method Blank (MB)
1204558442	510581002(HF1-B1-(2-4)) Sample Duplicate (DUP)
1204558443	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on a "dry weight" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Duplication Criteria between QC Sample and Duplicate Sample
The Sample and the Duplicate, (See Below), did not meet the relative percent difference requirement; however, they do meet the relative error ratio requirement with the value listed below.

Sample	Analyte	Value
1204558442 (HF1-B1-(2-4)DUP)	Uranium-235/236	RPD 20.5* (0.00%-20.00%) RER 1.05 (0-3)

RDL Met
The blank (See Below) did not meet the detection limit due to keeping the blank volume consistent with the other sample aliquots.

Sample	Analyte	Value
1204558441 (MB)	Uranium-233/234	Result -1.59 < MDA 7.84 > RDL 0.5 pCi/g
	Uranium-235/236	Result -0.163 < MDA 5.72 > RDL 0.5 pCi/g
	Uranium-238	Result 0.176 < MDA 6.81 > RDL 0.5 pCi/g

Technical Information

Sample Re-prep/Re-analysis
Samples were reprepped due to low carrier/tracer yield. The re-analysis is being reported.

Product: **Dry Weight**
Preparation Method: ASTM D 2216 (Modified)
Preparation Procedure: GL-OA-E-020 REV# 13
Preparation Batch: 1994664

Preparation Method: Dry Soil Prep
Preparation Procedure: GL-RAD-A-021 REV# 23
Preparation Batch: 1994664

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
510581001	HF1-B1-(1-2)
510581002	HF1-B1-(2-4)
510581003	HF1-B1-(4-6)
510581004	HF1-B1-(6-8)
510581005	HF1-B1-(8-10)
1204555869	510581001(HF1-B1-(1-2)) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **Liquid Scint Tc99, Soil**
Analytical Method: DOE EML HASL-300, Tc-02-RC Modified
Analytical Procedure: GL-RAD-A-059 REV# 5
Analytical Batch: 1994733

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
510581001	HF1-B1-(1-2)
510581002	HF1-B1-(2-4)
510581003	HF1-B1-(4-6)
510581004	HF1-B1-(6-8)
510581005	HF1-B1-(8-10)
1204556035	Method Blank (MB)

1204556036	510581001(HF1-B1-(1-2)) Sample Duplicate (DUP)
1204556037	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Page: 1 of 1

GEL Quote #:

COC Number (1):

PO Number: 4500778461, ENV-CONSENTA

510581

GEL Laboratories LLC

gel.com Chemistry | Radiochemistry | Radiobioassay | Specialty Analytics

Chain of Custody and Analytical Request

GEL Work Order Number:

GEL Project Manager:

GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

Client Name: Westinghouse Phone # 803.497.7062

Project/Site Name: Project # HF Spiking Station #1 Soil Sampling Fax #

Address: 5801 Bluff Road, Hopkins, SC 29061

Collected By: R. Crews RCrews Send Results To: joynerdp@westinghouse.com

Sample Analysis Requested (5) (Fill in the number of containers for each test)

Sample ID * For composites - indicate start and stop date/time	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Should this sample be considered: Radioactive (If yes, please supply isotopic info.)	Should this sample be considered: (7) Known or possible Hazards	Total number of containers	pH	Fluoride	moisture content	Nitrate	Isotopic U (alpha spec)	Tc-99					<-- Preservative Type (6)
HF1-B1-(1-2)	5/4/2020	1313		N/A	SO			1	X	X	X	X	X	X					Comments Note: extra sample is required for sample specific QC
HF1-B1-(2-4)	5/4/2020	1343		N/A	SO			1	X	X	X	X	X	X					
HF1-B1-(4-6)	5/4/2020	1458		N/A	SO			1	X	X	X	X	X	X					Please note that MDC for Tc-99 should be 1 pCi/g
HF1-B1-(6-8)	5/4/2020	1610		N/A	SO			1	X	X	X	X	X	X					
HF1-B1-(8-10)	5/4/2020	1702		N/A	SO			1	X	X	X	X	X	X					

Chain of Custody Signatures

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1	Randy Crews RCrews	5/5/2020	0643	Ray Bates RBates	5/5/2020	0643
2	Ray Bates RBates	5/5/2020	8:43	R. Bates 5/5/20		8:43
3				3		

TAT Requested: **Normal: X** **Rush:** _____ **Specify:** _____ **(Subject to Surcharge)**

Fax Results: [ ] Yes [ ] No

Select Deliverable: [ ] C of A [ ] QC Summary [ ] level 1 [ ] Level 2 [ ] Level 3 [ ] Level 4

Additional Remarks:

For Lab Receiving Use Only: *Custody Seal Intact?* [ ] *Yes* [ ] *No* ***Cooler Temp:*** 1 °C

> ***For sample shipping and delivery details, see Sample Receipt & Review form (SRR.)***

***Sample Collection Time Zone*:** [X] Eastern [ ] Pacific [ ] Central [ ] Mountain [ ] Other:

1.) Chain of Custody Number = Client Determined

2.) QC Codes: **N** = Normal Sample, **TB** = Trip Blank, **FD** = Field Duplicate, **EB** = Equipment Blank, **MS** = Matrix Spike Sample, **MSD** = Matrix Spike Duplicate Sample, **G** = Grab, **C** = Composite

3.) Field Filtered: For liquid matrices, indicate with a **- Y -** for yes the sample was field filtered or **- N -** for sample was not field filtered.

4.) Matrix Codes: **DW**=Drinking Water, **GW**=Groundwater, **SW**=Surface Water, **WW**=Waste Water, **W**=Water, **ML**=Misc Liquid, **SO**=Soil, **SD**=Sediment, **SL**=Sludge, **SS**=Solid Waste, **O**=Oil, **F**=Filter, **P**=Wipe, **U**=Urine, **F**=Fecal, **N**=Nasal

5.) Sample Analysis Requested: Analytical method requested (i.e. **8260B, 6010B/7470A**) and number of containers provided for each (i.e. *8260B* **- 3**, *6010B/7470A* **- 1**).

6.) Preservative Type: **HA** = Hydrochloric Acid, **NI** = Nitric Acid, **SH** = Sodium Hydroxide, **SA** = Sulfuric Acid, **AA** = Ascorbic Acid, **HX** = Hexane, **ST** = Sodium Thiosulfate, If no preservative is added = leave field blank

7.) **KNOWN OR POSSIBLE HAZARDS**

RCRA Metals
As = Arsenic **Hg**= Mercury
Ba = Barium **Se**= Selenium
Cd = Cadmium **Ag**= Silver
Cr = Chromium **MR**= Misc. RCRA metals

Characteristic Hazards
FL = Flammable/Ignitable
CO = Corrosive
RE = Reactive

TSCA Regulated
PCB = Polychlorinated

Listed Waste
LW= Listed Waste
(F,K,P and U-listed wastes.)
Waste code(s):

Other
OT= Other / Unknown
(i.e.: High/low pH, asbestos, beryllium, irritants, other misc. health hazards, etc.)
Description:

Please provide any additional details below regarding handling and/or disposal concerns. *(i.e.: Origin of sample(s), type of site collected from, odd matrices, etc.)*

GEL Laboratories LLC

KG

SAMPLE RECEIPT & REVIEW FORM

Client: WNVC	**SDG/AR/COC/Work Order:** 510581
Received By: AA	**Date Received:** 5/5/20
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services (Courier) Other

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
A)Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___
B) Did the client designate the samples are to be received as radioactive?		✓	COC notation or radioactive stickers on containers equal client designation.
C) Did the RSO classify the samples as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): Ø CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3
D) Did the client designate samples are hazardous?		✓	COC notation or hazard labels on containers equal client designation.
E) Did the RSO identify possible hazards?		✓	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: (Wet Ice) Ice Packs Dry ice (None) Other: rchem-21° *all temperatures are recorded in Celsius TEMP: soils-1°
4	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: IR4-16 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?	✓			Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?			✓	If Yes, are Encores or Soil Kits present for solids? Yes No NA (If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes No NA (If unknown, select No) Are liquid VOA vials free of headspace? Yes___ No___ NA___ Sample ID's and containers affected:
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
11	Number of containers received match number indicated on COC?	✓			Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided?	✓			
13	COC form is properly signed in relinquished/received sections?	✓			Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials NFG Date 5/6/20 Page 1 of 1

GL-CHL-SR-001 Rev 6

List of current GEL Certifications as of 28 May 2020

State	Certification
Alaska	17−018
Alaska Drinking Water	SC00012
Arkansas	88−0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH−0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−15−00283, P330−15−00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2019020
Maryland	270
Massachusetts	M−SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE−OS−26−13
Nevada	SC000122020−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R−158
Oklahoma	2019−165
Pennsylvania NELAP	68−00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−20−17
Utah NELAP	SC000122020−32
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
F 843.766.1178

gel.com

June 01, 2020

Ms. Cynthia Logsdon
Westinghouse Electric Company, LLC
PO Drawer R
Columbia, South Carolina 29205

Re: Soil and Vegetation Analysis
Work Order: 510757

Dear Ms. Logsdon:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on May 06, 2020. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4707.

Sincerely,

Katelyn Gray

Katelyn Gray
Project Manager

Purchase Order: 4500799254
Enclosures

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

Certificate of Analysis Report
for

WNUC008 Westinghouse Electric Co, LLC (4500775170)

Client SDG: 510757 GEL Work Order: 510757

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a Tracer compound

** Analyte is a surrogate compound

H Analytical holding time was exceeded

J See case narrative for an explanation

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Katelyn Gray.

Reviewed by Katelyn Gray

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: June 1, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B2-(1-2)
Project: WNUC00821
Sample ID: 510757001
Client ID: WNUC008
Matrix: Soil
Collect Date: 05-MAY-20 09:12
Receive Date: 06-MAY-20
Collector: Client
Moisture: 8.89%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Fluoride and Nitrate "Dry Weight Corrected"												
Fluoride		1.28	0.376	1.11	mg/kg	10.1	1	LXA2	05/07/20	0024	1995237	1
Nitrate-N		76.5	0.730	2.21	mg/kg	10.1	2	LXA2	05/07/20	1557	1995237	2
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	6.38	0.0100	0.100	SU		1	RXB5	05/07/20	1453	1994735	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9056A	SW846 9056A Total Anions in Soil	CJ2	05/06/20	1859	1995236

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9056A	
3	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: June 1, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B2-(2-4)
Project: WNUC00821
Sample ID: 510757002
Client ID: WNUC008
Matrix: Soil
Collect Date: 05-MAY-20 09:40
Receive Date: 06-MAY-20
Collector: Client
Moisture: 7.14%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Fluoride and Nitrate "Dry Weight Corrected"												
Fluoride	J	0.623	0.365	1.07	mg/kg	9.98	1	LXA2	05/07/20	0157	1995237	1
Nitrate-N		90.8	1.77	5.37	mg/kg	9.98	5	LXA2	05/07/20	1730	1995237	2
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	5.16	0.0100	0.100	SU		1	RXB5	05/07/20	1456	1994735	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9056A	SW846 9056A Total Anions in Soil	CJ2	05/06/20	1859	1995236

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9056A	
3	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: June 1, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B2-(4-6)
Project: WNUC00821
Sample ID: 510757003
Client ID: WNUC008
Matrix: Soil
Collect Date: 05-MAY-20 10:43
Receive Date: 06-MAY-20
Collector: Client
Moisture: 8.79%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Fluoride and Nitrate "Dry Weight Corrected"												
Fluoride	U	ND	0.372	1.09	mg/kg	9.98	1	LXA2	05/07/20	0227	1995237	1
Nitrate-N		94.0	1.80	5.47	mg/kg	9.98	5	LXA2	05/07/20	1800	1995237	2
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	6.05	0.0100	0.100	SU		1	RXB5	05/07/20	1457	1994735	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9056A	SW846 9056A Total Anions in Soil	CJ2	05/06/20	1859	1995236

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9056A	
3	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: June 1, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B2-(6-8)
Project: WNUC00821
Sample ID: 510757004
Client ID: WNUC008
Matrix: Soil
Collect Date: 05-MAY-20 11:30
Receive Date: 06-MAY-20
Collector: Client
Moisture: 9.81%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Fluoride and Nitrate "Dry Weight Corrected"												
Fluoride	U	ND	0.375	1.10	mg/kg	9.95	1	LXA2	05/07/20	0400	1995237	1
Nitrate-N		45.9	0.364	1.10	mg/kg	9.95	1					
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	5.98	0.0100	0.100	SU		1	RXB5	05/07/20	1459	1994735	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9056A	SW846 9056A Total Anions in Soil	CJ2	05/06/20	1859	1995236

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: June 1, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B2-(8-10)
Project: WNUC00821
Sample ID: 510757005
Client ID: WNUC008
Matrix: Soil
Collect Date: 05-MAY-20 12:30
Receive Date: 06-MAY-20
Collector: Client
Moisture: 13.1%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Fluoride and Nitrate "Dry Weight Corrected"												
Fluoride	J	0.800	0.388	1.14	mg/kg	9.93	1	LXA2	05/07/20	0431	1995237	1
Nitrate-N		23.4	0.377	1.14	mg/kg	9.93	1					
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	6.17	0.0100	0.100	SU		1	RXB5	05/07/20	1500	1994735	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9056A	SW846 9056A Total Anions in Soil	CJ2	05/06/20	1859	1995236

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: June 1, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B3-(1-2)
Project: WNUC00821
Sample ID: 510757006
Client ID: WNUC008
Matrix: Soil
Collect Date: 05-MAY-20 14:13
Receive Date: 06-MAY-20
Collector: Client
Moisture: 7.09%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Fluoride and Nitrate "Dry Weight Corrected"												
Fluoride		6.24	0.370	1.09	mg/kg	10.1	1	LXA2	05/14/20	2320	1996294	1
Nitrate-N		285	3.59	10.9	mg/kg	10.1	10	LXA2	05/14/20	2347	1996294	2
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	4.82	0.0100	0.100	SU		1	RXB5	05/07/20	1502	1994735	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9056A	SW846 9056A Total Anions in Soil	CJ2	05/14/20	2018	1996293

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9056A	
3	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: June 1, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B3-(2-4)
Sample ID: 510757007
Matrix: Soil
Collect Date: 05-MAY-20 14:44
Receive Date: 06-MAY-20
Collector: Client
Moisture: 8.9%

Project: WNUC00821
Client ID: WNUC008

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Fluoride and Nitrate "Dry Weight Corrected"												
Fluoride		683	18.7	55.0	mg/kg	10.0	50	LXA2	05/15/20	0229	1996294	1
Nitrate-N		589	18.2	55.0	mg/kg	10.0	50					
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	4.08	0.0100	0.100	SU		1	RXB5	05/07/20	1501	1994735	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9056A	SW846 9056A Total Anions in Soil	CJ2	05/14/20	2018	1996293

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: June 1, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B3-(4-6)
Sample ID: 510757008
Matrix: Soil
Collect Date: 05-MAY-20 15:35
Receive Date: 06-MAY-20
Collector: Client
Moisture: 13.9%

Project: WNUC00821
Client ID: WNUC008

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Fluoride and Nitrate "Dry Weight Corrected"												
Fluoride		1020	19.9	58.7	mg/kg	10.1	50	LXA2	05/15/20	0417	1996294	1
Nitrate-N		1290	19.4	58.7	mg/kg	10.1	50					
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	3.96	0.0100	0.100	SU		1	RXB5	05/07/20	1502	1994735	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9056A	SW846 9056A Total Anions in Soil	CJ2	05/14/20	2018	1996293

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B3-(6-8)
Sample ID: 510757009
Matrix: Soil
Collect Date: 05-MAY-20 16:20
Receive Date: 06-MAY-20
Collector: Client
Moisture: 12.3%

Project: WNUC00821
Client ID: WNUC008

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Fluoride and Nitrate "Dry Weight Corrected"												
Fluoride		546	9.79	28.8	mg/kg	10.1	25	LXA2	05/15/20	0511	1996294	1
Nitrate-N		700	9.50	28.8	mg/kg	10.1	25					
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	4.11	0.0100	0.100	SU		1	RXB5	05/07/20	1504	1994735	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9056A	SW846 9056A Total Anions in Soil	CJ2	05/14/20	2018	1996293

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B3-(8-10)
Sample ID: 510757010
Matrix: Soil
Collect Date: 05-MAY-20 17:22
Receive Date: 06-MAY-20
Collector: Client
Moisture: 12.6%

Project: WNUC00821
Client ID: WNUC008

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Fluoride and Nitrate "Dry Weight Corrected"												
Fluoride		343	3.91	11.5	mg/kg	10.1	10	LXA2	05/15/20	0605	1996294	1
Nitrate-N		398	3.80	11.5	mg/kg	10.1	10					
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	4.25	0.0100	0.100	SU		1	RXB5	05/07/20	1505	1994735	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9056A	SW846 9056A Total Anions in Soil	CJ2	05/14/20	2018	1996293

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Report Date: June 1, 2020

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Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B2-(1-2) Project: WNUC00821
Sample ID: 510757001 Client ID: WNUC008
Matrix: Soil
Collect Date: 05-MAY-20 09:12
Receive Date: 06-MAY-20
Collector: Client
Moisture: 8.89%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec Analysis													
Alphaspec U, Soil/Veg "Dry Weight Corrected"													
Uranium-233/234		4.65	+/-0.740	0.316	0.500	pCi/g			BXA4	05/09/20	0839	1995261	1
Uranium-235/236		0.455	+/-0.268	0.201	0.500	pCi/g							
Uranium-238		1.39	+/-0.409	0.228	0.500	pCi/g							
Rad Liquid Scintillation Analysis													
Liquid Scint Tc99, Soil "As Received"													
Technetium-99	U	-1.41	+/-1.95	3.51	5.00	pCi/g			JJ3	05/12/20	0610	1995247	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXB7	05/06/20	1726	1995223

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE EML HASL-300, U-02-RC Modified	
2	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Soil/Veg "Dry Weight Corrected"			99.6	(15%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Soil "As Received"			99.5	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B2-(2-4) Project: WNUC00821
Sample ID: 510757002 Client ID: WNUC008
Matrix: Soil
Collect Date: 05-MAY-20 09:40
Receive Date: 06-MAY-20
Collector: Client
Moisture: 7.14%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec Analysis													
Alphaspec U, Soil/Veg "Dry Weight Corrected"													
Uranium-233/234		0.847	+/-0.345	0.285	0.500	pCi/g			BXA4	05/09/20	0839	1995261	1
Uranium-235/236	U	0.107	+/-0.154	0.186	0.500	pCi/g							
Uranium-238		0.785	+/-0.321	0.206	0.500	pCi/g							
Rad Liquid Scintillation Analysis													
Liquid Scint Tc99, Soil "As Received"													
Technetium-99	U	-0.842	+/-2.14	3.79	5.00	pCi/g			JJ3	05/12/20	0626	1995247	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXB7	05/06/20	1726	1995223

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE EML HASL-300, U-02-RC Modified	
2	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Soil/Veg "Dry Weight Corrected"			87	(15%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Soil "As Received"			97.6	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Report Date: June 1, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B2-(4-6)
Sample ID: 510757003
Matrix: Soil
Collect Date: 05-MAY-20 10:43
Receive Date: 06-MAY-20
Collector: Client
Moisture: 8.79%

Project: WNUC00821
Client ID: WNUC008

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec Analysis													
Alphaspec U, Soil/Veg "Dry Weight Corrected"													
Uranium-233/234		1.50	+/-0.493	0.341	0.500	pCi/g			BXA4	05/09/20	0839	1995261	1
Uranium-235/236	U	0.0943	+/-0.162	0.141	0.500	pCi/g							
Uranium-238		0.955	+/-0.391	0.251	0.500	pCi/g							
Rad Liquid Scintillation Analysis													
Liquid Scint Tc99, Soil "As Received"													
Technetium-99	U	-2.60	+/-1.99	3.66	5.00	pCi/g			JJ3	05/12/20	0643	1995247	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXB7	05/06/20	1726	1995223

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE EML HASL-300, U-02-RC Modified	
2	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Soil/Veg "Dry Weight Corrected"			90.6	(15%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Soil "As Received"			97.2	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B2-(6-8) Project: WNUC00821
Sample ID: 510757004 Client ID: WNUC008
Matrix: Soil
Collect Date: 05-MAY-20 11:30
Receive Date: 06-MAY-20
Collector: Client
Moisture: 9.81%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec Analysis													
Alphaspec U, Soil/Veg "Dry Weight Corrected"													
Uranium-233/234		0.926	+/-0.396	0.327	0.500	pCi/g			BXA4	05/09/20	0839	1995261	1
Uranium-235/236	U	0.0131	+/-0.137	0.286	0.500	pCi/g							
Uranium-238		0.218	+/-0.198	0.182	0.500	pCi/g							
Rad Liquid Scintillation Analysis													
Liquid Scint Tc99, Soil "As Received"													
Technetium-99	U	0.00658	+/-2.05	3.57	5.00	pCi/g			JJ3	05/12/20	0659	1995247	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXB7	05/06/20	1726	1995223

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE EML HASL-300, U-02-RC Modified	
2	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Soil/Veg "Dry Weight Corrected"			86	(15%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Soil "As Received"			97.2	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Report Date: June 1, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B2-(8-10) Project: WNUC00821
Sample ID: 510757005 Client ID: WNUC008
Matrix: Soil
Collect Date: 05-MAY-20 12:30
Receive Date: 06-MAY-20
Collector: Client
Moisture: 13.1%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec Analysis													
Alphaspec U, Soil/Veg "Dry Weight Corrected"													
Uranium-233/234		1.52	+/-0.453	0.248	0.500	pCi/g			BXA4	05/09/20	0839	1995261	1
Uranium-235/236	U	0.0407	+/-0.114	0.122	0.500	pCi/g							
Uranium-238		0.421	+/-0.253	0.231	0.500	pCi/g							
Rad Liquid Scintillation Analysis													
Liquid Scint Tc99, Soil "As Received"													
Technetium-99	U	-2.27	+/-2.18	3.97	5.00	pCi/g			JJ3	05/12/20	0716	1995247	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXB7	05/06/20	1726	1995223

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE EML HASL-300, U-02-RC Modified	
2	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Soil/Veg "Dry Weight Corrected"			87.2	(15%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Soil "As Received"			94.7	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B3-(1-2)
Project: WNUC00821
Sample ID: 510757006
Client ID: WNUC008
Matrix: Soil
Collect Date: 05-MAY-20 14:13
Receive Date: 06-MAY-20
Collector: Client
Moisture: 7.09%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec Analysis													
Alphaspec U, Soil/Veg "Dry Weight Corrected"													
Uranium-233/234		3.52	+/-0.714	0.281	0.500	pCi/g			BXA4	05/09/20	0839	1995261	1
Uranium-235/236	U	0.0795	+/-0.156	0.217	0.500	pCi/g							
Uranium-238		1.13	+/-0.414	0.256	0.500	pCi/g							
Rad Liquid Scintillation Analysis													
Liquid Scint Tc99, Soil "As Received"													
Technetium-99	U	-0.758	+/-2.03	3.59	5.00	pCi/g			JJ3	05/12/20	0732	1995247	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXB7	05/06/20	1726	1995223

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE EML HASL-300, U-02-RC Modified	
2	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Soil/Veg "Dry Weight Corrected"			74.2	(15%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Soil "As Received"			101	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B3-(2-4)
Project: WNUC00821
Sample ID: 510757007
Client ID: WNUC008
Matrix: Soil
Collect Date: 05-MAY-20 14:44
Receive Date: 06-MAY-20
Collector: Client
Moisture: 8.9%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec Analysis													
Alphaspec U, Soil/Veg "Dry Weight Corrected"													
Uranium-233/234		3510	+/-99.5	5.06	0.500	pCi/g			MP2	05/19/20	1147	1997576	1
Uranium-235/236		159	+/-23.6	2.72	0.500	pCi/g							
Uranium-238		582	+/-40.5	3.73	0.500	pCi/g							
Rad Liquid Scintillation Analysis													
Liquid Scint Tc99, Soil "As Received"													
Technetium-99	U	-0.638	+/-2.39	4.21	5.00	pCi/g			JJ3	05/12/20	0429	1995246	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXB7	05/06/20	1723	1995224

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE EML HASL-300, U-02-RC Modified	
2	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Soil/Veg "Dry Weight Corrected"			66.5	(15%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Soil "As Received"			93.3	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Report Date: June 1, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B3-(4-6) Project: WNUC00821
Sample ID: 510757008 Client ID: WNUC008
Matrix: Soil
Collect Date: 05-MAY-20 15:35
Receive Date: 06-MAY-20
Collector: Client
Moisture: 13.9%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec Analysis													
Alphaspec U, Soil/Veg "Dry Weight Corrected"													
Uranium-233/234		5600	+/-137	6.49	0.500	pCi/g			MP2	05/19/20	1147	1997576	1
Uranium-235/236		264	+/-33.1	5.06	0.500	pCi/g							
Uranium-238		948	+/-56.3	3.66	0.500	pCi/g							
Rad Liquid Scintillation Analysis													
Liquid Scint Tc99, Soil "As Received"													
Technetium-99	U	-0.0340	+/-2.23	3.89	5.00	pCi/g			JJ3	05/12/20	0445	1995246	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXB7	05/06/20	1723	1995224

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE EML HASL-300, U-02-RC Modified	
2	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Soil/Veg "Dry Weight Corrected"			61.5	(15%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Soil "As Received"			93	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: June 1, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B3-(6-8) Project: WNUC00821
Sample ID: 510757009 Client ID: WNUC008
Matrix: Soil
Collect Date: 05-MAY-20 16:20
Receive Date: 06-MAY-20
Collector: Client
Moisture: 12.3%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec Analysis													
Alphaspec U, Soil/Veg "Dry Weight Corrected"													
Uranium-233/234		2790	+/-98.0	5.36	0.500	pCi/g			MP2	05/19/20	1147	1997576	1
Uranium-235/236		171	+/-27.1	3.32	0.500	pCi/g							
Uranium-238		632	+/-46.6	4.21	0.500	pCi/g							
Rad Liquid Scintillation Analysis													
Liquid Scint Tc99, Soil "As Received"													
Technetium-99	U	-1.07	+/-2.20	3.92	5.00	pCi/g			JJ3	05/12/20	0502	1995246	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXB7	05/06/20	1723	1995224

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE EML HASL-300, U-02-RC Modified	
2	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Soil/Veg "Dry Weight Corrected"			50.9	(15%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Soil "As Received"			94.8	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: June 1, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B3-(8-10) Project: WNUC00821
Sample ID: 510757010 Client ID: WNUC008
Matrix: Soil
Collect Date: 05-MAY-20 17:22
Receive Date: 06-MAY-20
Collector: Client
Moisture: 12.6%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec Analysis													
Alphaspec U, Soil/Veg "Dry Weight Corrected"													
Uranium-233/234		2600	+/-83.9	5.25	0.500	pCi/g			MP2	05/19/20	1147	1997576	1
Uranium-235/236		139	+/-21.6	3.66	0.500	pCi/g							
Uranium-238		636	+/-41.5	4.19	0.500	pCi/g							
Rad Liquid Scintillation Analysis													
Liquid Scint Tc99, Soil "As Received"													
Technetium-99	U	-2.17	+/-2.15	3.92	5.00	pCi/g			JJ3	05/12/20	0518	1995246	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXB7	05/06/20	1723	1995224

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE EML HASL-300, U-02-RC Modified	
2	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Soil/Veg "Dry Weight Corrected"			64.6	(15%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Soil "As Received"			96.1	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

QC Summary

Report Date: June 1, 2020

Westinghouse Electric Company, LLC
PO Drawer R
Columbia, South Carolina

Contact: **Ms. Cynthia Logsdon**

Workorder: **510757**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography										
Batch 1995237										
QC1204557123 510757001 DUP										
Fluoride		1.28	J	0.471	mg/kg	92.1 ^		(+/-1.10)	LXA2	05/07/20 00:55
Nitrate-N		76.5		103	mg/kg	29.9		(0%-104%)		05/07/20 16:28
QC1204557122 LCS										
Fluoride	25.1			27.1	mg/kg		108	(90%-110%)		05/06/20 22:20
Nitrate-N	25.1			26.6	mg/kg		106	(90%-110%)		
QC1204557121 MB										
Fluoride			U	ND	mg/kg					05/06/20 21:49
Nitrate-N			U	ND	mg/kg					
QC1204557125 510757001 MS										
Fluoride	27.4	1.28		10.7	mg/kg		34.2 *	(75%-125%)		05/07/20 01:26
Nitrate-N	27.4	76.5		108	mg/kg		116	(75%-125%)		05/07/20 16:59
Batch 1996294										
QC1204559298 510757006 DUP										
Fluoride		6.24		5.79	mg/kg	7.5		(0%-109%)	LXA2	05/15/20 00:14
Nitrate-N		285		278	mg/kg	2.37		(0%-104%)		05/15/20 00:41
QC1204559297 LCS										
Fluoride	24.7			24.8	mg/kg		100	(90%-110%)		05/14/20 22:51
Nitrate-N	24.7			25.0	mg/kg		101	(90%-110%)		

QC Summary

Workorder: **510757**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography										
Batch 1996294										
QC1204559296 MB										
Fluoride			U	ND	mg/kg				LXA2	05/14/20 21:55
Nitrate-N			U	ND	mg/kg					
QC1204559300 510757006 MS										
Fluoride	26.8	6.24		12.7	mg/kg		24.1*	(75%-125%)		05/15/20 01:08
Nitrate-N	26.8	285		302	mg/kg		N/A	(75%-125%)		05/15/20 01:35
Titration and Ion Analysis										
Batch 1994735										
QC1204556044 510581001 DUP										
Corrosivity	H	4.81	H	5.15	SU	6.83		(0%-10%)	RXB5	05/07/20 14:47
QC1204556042 LCS										
Corrosivity	7.00			7.00	SU		100	(95%-105%)		05/07/20 14:42

Notes:

The Qualifiers in this report are defined as follows:

- < Result is less than value reported
- > Result is greater than value reported
- B The target analyte was detected in the associated blank.
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- H Analytical holding time was exceeded
- J See case narrative for an explanation
- J Value is estimated
- N/A RPD or %Recovery limits do not apply.
- N1 See case narrative
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
- R Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.
- R Sample results are rejected

QC Summary

Workorder: **510757**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Z Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.

^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.

d 5-day BOD--The 2:1 depletion requirement was not met for this sample

e 5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for reporting purposes

h Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

QC Summary

Report Date: June 1, 2020

Westinghouse Electric Company, LLC
PO Drawer R
Columbia, South Carolina

Contact: **Ms. Cynthia Logsdon**

Workorder: **510757**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1995261										
QC1204557184 510752001 DUP										
Uranium-233/234		1.56		1.31	pCi/g	17.7		(0% - 100%)	BXA4	05/09/20 08:39
	Uncertainty	+/-0.476		+/-0.436						
Uranium-235/236	U	0.0219	U	0.0496	pCi/g	N/A		N/A		
	Uncertainty	+/-0.122		+/-0.136						
Uranium-238		1.60		1.06	pCi/g	40.4*		(0%-20%)		
	Uncertainty	+/-0.470		+/-0.376						
QC1204557186 LCS										
Uranium-233/234				11.9	pCi/g					05/09/20 08:39
	Uncertainty			+/-1.09						
Uranium-235/236				0.344	pCi/g					
	Uncertainty			+/-0.228						
Uranium-238	12.5			13.2	pCi/g		106	(75%-125%)		
	Uncertainty			+/-1.15						
QC1204557183 MB										
Uranium-233/234			U	-0.0435	pCi/g					05/09/20 08:39
	Uncertainty			+/-0.0855						
Uranium-235/236			U	-0.0501	pCi/g					
	Uncertainty			+/-0.0808						
Uranium-238			U	0.0146	pCi/g					
	Uncertainty			+/-0.0813						
Batch 1997576										
QC1204562383 510757007 DUP										
Uranium-233/234		3510		2820	pCi/g	21.9*		(0%-20%)	MP2	05/19/20 11:47
	Uncertainty	+/-99.5		+/-85.0						
Uranium-235/236		159		128	pCi/g	21.6*		(0%-20%)		
	Uncertainty	+/-23.6		+/-20.2						
Uranium-238		582		417	pCi/g	33*		(0%-20%)		
	Uncertainty	+/-40.5		+/-32.7						

QC Summary

Workorder: **510757**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1997576										
QC1204562384 LCS										
Uranium-233/234				71.6	pCi/g				MP2	05/19/20 11:47
	Uncertainty			+/-16.2						
Uranium-235/236				4.52	pCi/g					
	Uncertainty			+/-5.03						
Uranium-238	97.3			97.1	pCi/g		99.8	(75%-125%)		
	Uncertainty			+/-18.7						
QC1204562382 MB										
Uranium-233/234			U	0.523	pCi/g					05/19/20 11:47
	Uncertainty			+/-1.70						
Uranium-235/236			U	0.147	pCi/g					
	Uncertainty			+/-1.49						
Uranium-238			U	-0.153	pCi/g					
	Uncertainty			+/-0.856						
Rad Liquid Scintillation										
Batch 1995246										
QC1204557146 510757007 DUP										
Technetium-99	U	-0.638	U	-1.41	pCi/g	N/A		N/A	JJ3	05/12/20 05:51
	Uncertainty	+/-2.39		+/-2.24						
QC1204557147 LCS										
Technetium-99	59.9			52.9	pCi/g		88.3	(75%-125%)		05/12/20 06:08
	Uncertainty			+/-3.84						
QC1204557145 MB										
Technetium-99			U	-1.73	pCi/g					05/12/20 05:35
	Uncertainty			+/-2.25						
Batch 1995247										
QC1204557150 510757001 DUP										
Technetium-99	U	-1.41	U	-0.0762	pCi/g	N/A		N/A	JJ3	05/12/20 08:22
	Uncertainty	+/-1.95		+/-2.19						
QC1204557151 LCS										
Technetium-99	57.2			57.2	pCi/g		100	(75%-125%)		05/12/20 08:38
	Uncertainty			+/-3.64						
QC1204557148 MB										
Technetium-99			U	-1.52	pCi/g					05/12/20 07:49
	Uncertainty			+/-1.89						

QC Summary

Workorder: **510757**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

Notes:

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

**	Analyte is a Tracer compound
<	Result is less than value reported
>	Result is greater than value reported
BD	Results are either below the MDC or tracer recovery is low
FA	Failed analysis.
H	Analytical holding time was exceeded
J	See case narrative for an explanation
J	Value is estimated
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	REMP Result > MDC/CL and < RDL
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Technical Case Narrative
Westinghouse Electric Co, LLC
SDG #: 510757

General Chemistry

Product: **Ion Chromatography**
Analytical Method: SW846 9056A
Analytical Procedure: GL-GC-E-086 REV# 27
Analytical Batches: 1995237 and 1995236

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
510757001	HF1-B2-(1-2)
510757002	HF1-B2-(2-4)
510757003	HF1-B2-(4-6)
510757004	HF1-B2-(6-8)
510757005	HF1-B2-(8-10)
1204557121	Method Blank (MB)
1204557122	Laboratory Control Sample (LCS)
1204557123	510757001(HF1-B2-(1-2)) Sample Duplicate (DUP)
1204557125	510757001(HF1-B2-(1-2)) Matrix Spike (MS)

The samples in this SDG were analyzed on a "dry weight" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The percent recoveries (%R) obtained from the spike analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike recovered outside of the established acceptance limits due to matrix interference and/or non-homogeneity.

Analyte	Sample	Value
Fluoride	1204557125 (HF1-B2-(1-2)MS)	34.2* (75%-125%)

Technical Information

Sample Dilutions
The following samples 1204557123 (HF1-B2-(1-2)DUP), 1204557125 (HF1-B2-(1-2)MS), 510757001 (HF1-B2-(1-2)), 510757002 (HF1-B2-(2-4)) and 510757003 (HF1-B2-(4-6)) were diluted because target analyte concentrations exceeded the calibration range. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analyte	510757		
	001	002	003
Nitrate	2X	5X	5X

Product: **Ion Chromatography**
Analytical Method: SW846 9056A
Analytical Procedure: GL-GC-E-086 REV# 27
Analytical Batches: 1996294 and 1996293

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
510757006	HF1-B3-(1-2)
510757007	HF1-B3-(2-4)
510757008	HF1-B3-(4-6)
510757009	HF1-B3-(6-8)
510757010	HF1-B3-(8-10)
1204559296	Method Blank (MB)
1204559297	Laboratory Control Sample (LCS)
1204559298	510757006(HF1-B3-(1-2)) Sample Duplicate (DUP)
1204559300	510757006(HF1-B3-(1-2)) Matrix Spike (MS)

The samples in this SDG were analyzed on a "dry weight" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The percent recoveries (%R) obtained from the spike analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike recovered outside of the established acceptance limits due to matrix interference and/or non-homogeneity.

Analyte	Sample	Value
Fluoride	1204559300 (HF1-B3-(1-2)MS)	24.1* (75%-125%)

Technical Information

Sample Dilutions
The following samples 1204559298 (HF1-B3-(1-2)DUP), 1204559300 (HF1-B3-(1-2)MS), 510757006 (HF1-B3-(1-2)), 510757007 (HF1-B3-(2-4)), 510757008 (HF1-B3-(4-6)), 510757009 (HF1-B3-(6-8)) and 510757010 (HF1-B3-(8-10)) were diluted because target analyte concentrations exceeded the calibration range. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analyte	510757				
	006	007	008	009	010
Fluoride	1X	50X	50X	25X	10X
Nitrate	10X	50X	50X	25X	10X

Product: **pH**
Analytical Method: SW846 9045D
Analytical Procedure: GL-GC-E-008 REV# 24
Analytical Batch: 1994735

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
510757001	HF1-B2-(1-2)
510757002	HF1-B2-(2-4)
510757003	HF1-B2-(4-6)
510757004	HF1-B2-(6-8)
510757005	HF1-B2-(8-10)
510757006	HF1-B3-(1-2)
510757007	HF1-B3-(2-4)
510757008	HF1-B3-(4-6)
510757009	HF1-B3-(6-8)
510757010	HF1-B3-(8-10)
1204556042	Laboratory Control Sample (LCS)
1204556044	510581001(HF1-B1-(1-2)) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Holding Times
Samples (See Below) were received by the laboratory outside of the method specified holding time. The data is qualified.

Sample	Analyte	Value
1204556044 (HF1-B1-(1-2)DUP)		Received 05-MAY-20, out of holding 04-MAY-20
510757001 (HF1-B2-(1-2))		Received 06-MAY-20, out of holding 05-MAY-20
510757002 (HF1-B2-(2-4))		Received 06-MAY-20, out of holding 05-MAY-20
510757003 (HF1-B2-(4-6))		Received 06-MAY-20, out of holding 05-MAY-20
510757004 (HF1-B2-(6-8))		Received 06-MAY-20, out of holding 05-MAY-20
510757005 (HF1-B2-(8-10))		Received 06-MAY-20, out of holding 05-MAY-20
510757006 (HF1-B3-(1-2))		Received 06-MAY-20, out of holding 05-MAY-20

510757007 (HF1-B3-(2-4))		Received 06-MAY-20, out of holding 05-MAY-20
510757008 (HF1-B3-(4-6))		Received 06-MAY-20, out of holding 05-MAY-20
510757009 (HF1-B3-(6-8))		Received 06-MAY-20, out of holding 05-MAY-20
510757010 (HF1-B3-(8-10))		Received 06-MAY-20, out of holding 05-MAY-20

Radiochemistry

Product: **Alphaspec U, Soil/Veg**
Analytical Method: DOE EML HASL-300, U-02-RC Modified
Analytical Procedure: GL-RAD-A-011 REV# 27
Analytical Batch: 1995261

Preparation Method: Dry Soil Prep
Preparation Procedure: GL-RAD-A-021 REV# 23
Preparation Batch: 1995223

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
510757001	HF1-B2-(1-2)
510757002	HF1-B2-(2-4)
510757003	HF1-B2-(4-6)
510757004	HF1-B2-(6-8)
510757005	HF1-B2-(8-10)
510757006	HF1-B3-(1-2)
1204557183	Method Blank (MB)
1204557184	510752001(NonSDG) Sample Duplicate (DUP)
1204557186	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on a "dry weight" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Duplication Criteria between QC Sample and Duplicate Sample
The Sample and the Duplicate, (See Below), did not meet the relative percent difference requirement; however, they do meet the relative error ratio requirement with the value listed below.

Sample	Analyte	Value
1204557184 (Non SDG 510752001DUP)	Uranium-238	RPD 40.4* (0.00%-20.00%) RER 1.6 (0-3)

Miscellaneous Information

Manual Integration
Manual integration of alpha spectroscopy spectra 510757003 (HF1-B2-(4-6)) was performed to fully separate counts in Regions of Interest which would have been biased.

Additional Comments
The tracer peak centroid for sample 510757003 (HF1-B2-(4-6)) is greater than 50 keV from the expected library energy value for the tracer; however, the tracer yield requirement was met and the tracer peak is within the tracer region of interest.

Product: **Alphaspec U, Soil/Veg**
Analytical Method: DOE EML HASL-300, U-02-RC Modified
Analytical Procedure: GL-RAD-A-011 REV# 27
Analytical Batch: 1997576

Preparation Method: Dry Soil Prep
Preparation Procedure: GL-RAD-A-021 REV# 23
Preparation Batch: 1995224

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
510757007	HF1-B3-(2-4)
510757008	HF1-B3-(4-6)
510757009	HF1-B3-(6-8)
510757010	HF1-B3-(8-10)
1204562382	Method Blank (MB)
1204562383	510757007(HF1-B3-(2-4)) Sample Duplicate (DUP)
1204562384	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on a "dry weight" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Duplication Criteria between QC Sample and Duplicate Sample
The Sample and the Duplicate, (See Below), did not meet the relative percent difference requirement; however, they do meet the relative error ratio requirement with the value listed below.

Sample	Analyte	Value
1204562383 (HF1-B3-(2-4)DUP)	Uranium-233/234	RPD 21.9* (0.00%-20.00%) RER 1.48 (0-3)

	Uranium-235/236	RPD 21.6* (0.00%-20.00%) RER 1.18 (0-3)
	Uranium-238	RPD 33* (0.00%-20.00%) RER 2.09 (0-3)

RDL Met
The blank (See Below) did not meet the detection limit due to keeping the blank volume consistent with the other sample aliquots.

Sample	Analyte	Value
1204562382 (MB)	Uranium-233/234	Result 0.523 < MDA 3.21 > RDL 0.5 pCi/g
	Uranium-235/236	Result 0.147 < MDA 3.13 > RDL 0.5 pCi/g
	Uranium-238	Result -0.153 < MDA 2.16 > RDL 0.5 pCi/g

Product: **Dry Weight**
Preparation Method: ASTM D 2216 (Modified)
Preparation Procedure: GL-OA-E-020 REV# 13
Preparation Batch: 1995223

Preparation Method: Dry Soil Prep
Preparation Procedure: GL-RAD-A-021 REV# 23
Preparation Batch: 1995223

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
510757001	HF1-B2-(1-2)
510757002	HF1-B2-(2-4)
510757003	HF1-B2-(4-6)
510757004	HF1-B2-(6-8)
510757005	HF1-B2-(8-10)
510757006	HF1-B3-(1-2)
1204557002	510752001(NonSDG) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **Dry Weight**
Preparation Method: ASTM D 2216 (Modified)
Preparation Procedure: GL-OA-E-020 REV# 13
Preparation Batch: 1995224

Preparation Method: Dry Soil Prep
Preparation Procedure: GL-RAD-A-021 REV# 23
Preparation Batch: 1995224

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
510757007	HF1-B3-(2-4)
510757008	HF1-B3-(4-6)
510757009	HF1-B3-(6-8)
510757010	HF1-B3-(8-10)
1204557003	510757007(HF1-B3-(2-4)) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **Liquid Scint Tc99, Soil**
Analytical Method: DOE EML HASL-300, Tc-02-RC Modified
Analytical Procedure: GL-RAD-A-059 REV# 5
Analytical Batch: 1995246

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
510757007	HF1-B3-(2-4)
510757008	HF1-B3-(4-6)
510757009	HF1-B3-(6-8)
510757010	HF1-B3-(8-10)
1204557145	Method Blank (MB)
1204557146	510757007(HF1-B3-(2-4)) Sample Duplicate (DUP)
1204557147	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **Liquid Scint Tc99, Soil**
Analytical Method: DOE EML HASL-300, Tc-02-RC Modified
Analytical Procedure: GL-RAD-A-059 REV# 5
Analytical Batch: 1995247

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
510757001	HF1-B2-(1-2)
510757002	HF1-B2-(2-4)
510757003	HF1-B2-(4-6)
510757004	HF1-B2-(6-8)
510757005	HF1-B2-(8-10)
510757006	HF1-B3-(1-2)
1204557148	Method Blank (MB)
1204557150	510757001(HF1-B2-(1-2)) Sample Duplicate (DUP)
1204557151	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Page: 1 of 1

GEL Quote #:

COC Number (1):

PO Number: 4500778461, ENV-CONSENTA

GEL Laboratories LLC
gel.com
Chemistry | Radiochemistry | Radiobioassay | Specialty Analytics

Chain of Custody and Analytical Request

510757
GEL Work Order Number:

GEL Project Manager:

GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

Client Name: Westinghouse — Phone # 803.497.7062

Project/Site Name: Project # HF Spiking Station #1 Soil Sampling — Fax #

Address: 5801 Bluff Road, Hopkins, SC 29061

Collected By: R. Crews RCrews — Send Results To: joynerdp@westinghouse.com

Sample Analysis Requested (5) (Fill in the number of containers for each test)

Sample ID * For composites - indicate start and stop date/time	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Should this sample be considered: Radioactive (If yes, please supply isotopic info.)	Should this sample be considered: (7) Known or possible Hazards	Total number of containers	pH	Fluoride	moisture content	Nitrate	Isotopic U (alpha spec)	Tc-99					<-- Preservative Type (6)
HF1-B2-(1-2)	5/5/2020	0912		N/A	SO			1	X	X	X	X	X	X					**Comments** Note: extra sample is required for sample specific QC
HF1-B2-(2-4)	5/5/2020	0940		N/A	SO			1	X	X	X	X	X	X					
HF1-B2-(4-6)	5/5/2020	1043		N/A	SO			1	X	X	X	X	X	X					
HF1-B2-(6-8)	5/5/2020	1130		N/A	SO			1	X	X	X	X	X	X					
HF1-B2-(8-10)	5/5/2020	1230		N/A	SO			1	X	X	X	X	X	X					Please note that MDC for Tc-99 should be 1 pCi/g
HF1-B3-(1-2)	5/5/2020	1413		N/A	SO			1	X	X	X	X	X	X					
HF1-B3-(2-4)	5/5/2020	1444		N/A	SO			1	X	X	X	X	X	X					
HF1-B3-(4-6)	5/5/2020	1535		N/A	SO			1	X	X	X	X	X	X					
HF1-B3-(6-8)	5/5/2020	1620		N/A	SO			1	X	X	X	X	X	X					
HF1-B3-(8-10)	5/5/2020	1722		N/A	SO			1	X	X	X	X	X	X					

Chain of Custody Signatures

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1 Randy Crews RCrews	5/6/2020	1020	1 Secure Location	5/6/2020	1020
2 Secure Location	5/6/2020	HF 1522	2 A. Allmen	5/6/20	HF 15:23
3	5/6/20		3		

> *For sample shipping and delivery details, see Sample Receipt & Review form (SRR.)*

TAT Requested: **Normal:** X **Rush:** ____ **Specify:** ____ **(Subject to Surcharge)**

Fax Results: [ ] Yes [ ] No

Select Deliverable: [ ] C of A [ ] QC Summary [ ] level 1 [ ] Level 2 [ ] Level 3 [ ] Level 4

Additional Remarks:

For Lab Receiving Use Only: *Custody Seal Intact?* [ ] *Yes* [ ] *No* ***Cooler Temp:*** 1 °C

***Sample Collection Time Zone*:** [X] Eastern [ ] Pacific [ ] Central [ ] Mountain [ ] Other:

1.) Chain of Custody Number = Client Determined

2.) QC Codes: **N** = Normal Sample, **TB** = Trip Blank, **FD** = Field Duplicate, **EB** = Equipment Blank, **MS** = Matrix Spike Sample, **MSD** = Matrix Spike Duplicate Sample, **G** = Grab, **C** = Composite

3.) Field Filtered: For liquid matrices, indicate with a **- Y -** for yes the sample was field filtered or **- N -** for sample was not field filtered.

4.) Matrix Codes: **DW**=Drinking Water, **GW**=Groundwater, **SW**=Surface Water, **WW**=Waste Water, **W**=Water, **ML**=Misc Liquid, **SO**=Soil, **SD**=Sediment, **SL**=Sludge, **SS**=Solid Waste, **O**=Oil, **F**=Filter, **P**=Wipe, **U**=Urine, **F**=Fecal, **N**=Nasal

5.) Sample Analysis Requested: Analytical method requested (i.e. **8260B, 6010B/7470A)** and number of containers provided for each (i.e. *8260B* **- 3**, *6010B/7470A* **- 1**).

6.) Preservative Type: **HA** = Hydrochloric Acid, **NI** = Nitric Acid, **SH** = Sodium Hydroxide, **SA** = Sulfuric Acid, **AA** = Ascorbic Acid, **HX** = Hexane, **ST** = Sodium Thiosulfate, If no preservative is added = leave field blank

7.) **KNOWN OR POSSIBLE HAZARDS**

RCRA Metals
As = Arsenic **Hg**= Mercury
Ba = Barium **Se**= Selenium
Cd = Cadmium **Ag**= Silver
Cr = Chromium **MR**= Misc. RCRA metals

Characteristic Hazards
FL = Flammable/Ignitable
CO = Corrosive
RE = Reactive

TSCA Regulated
PCB = Polychlorinated

Listed Waste
LW= Listed Waste
(F,K,P and U-listed wastes.)
Waste code(s):

Other
OT= Other / Unknown
(i.e.: High/low pH, asbestos, beryllium, irritants, other misc. health hazards, etc.)
Description:

Please provide any additional details below regarding handling and/or disposal concerns. *(i.e.: Origin of sample(s), type of site collected from, odd matrices, etc.)*

GEL Laboratories LLC

KG

SAMPLE RECEIPT & REVIEW FORM

Client: WNVC	SDG/AR/COC/Work Order: 510757
Received By: AA	Date Received: 5/6/20
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services (Courier) Other

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
A)Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___
B) Did the client designate the samples are to be received as radioactive?		✓	COC notation or radioactive stickers on containers equal client designation.
C) Did the RSO classify the samples as radioactive?	✓		Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 800 (CPM) mR/Hr Classified as: (Rad 1) Rad 2 Rad 3 HF1-B3-(6-8), HF1-B3-(4-6), HF1-B3-(2-4), & HF1-B3-(8-10)
D) Did the client designate samples are hazardous?		✓	COC notation or hazard labels on containers equal client designation.
E) Did the RSO identify possible hazards?		✓	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 < 6 deg. C)?*	✓			Preservation Method: (Wet Ice) Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: 1°
4	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: IR4-16 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?	✓			Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?			✓	If Yes, are Encores or Soil Kits present for solids? Yes No NA (If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes No NA (If unknown, select No) Are liquid VOA vials free of headspace? Yes___ No___ NA___ Sample ID's and containers affected:
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
11	Number of containers received match number indicated on COC?	✓			Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials NRG Date 5/7/20 Page 1 of 1

List of current GEL Certifications as of 01 June 2020

State	Certification
Alaska	17−018
Alaska Drinking Water	SC00012
Arkansas	88−0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH−0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−15−00283, P330−15−00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2019020
Maryland	270
Massachusetts	M−SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE−OS−26−13
Nevada	SC000122020−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R−158
Oklahoma	2019−165
Pennsylvania NELAP	68−00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−20−17
Utah NELAP	SC000122020−32
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
F 843.766.1178

gel.com

June 04, 2020

Ms. Cynthia Logsdon
Westinghouse Electric Company, LLC
PO Drawer R
Columbia, South Carolina 29205

Re: Soil and Vegetation Analysis
Work Order: 510807

Dear Ms. Logsdon:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on May 07, 2020. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4707.

Sincerely,

Samuel Hogan for
Katelyn Gray
Project Manager

Purchase Order: 4500799254
Enclosures

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

Certificate of Analysis Report
for

WNUC008 Westinghouse Electric Co, LLC (4500775170)

Client SDG: 510807 GEL Work Order: 510807

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a Tracer compound

** Analyte is a surrogate compound

H Analytical holding time was exceeded

J See case narrative for an explanation

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Katelyn Gray.

Reviewed by _____

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: June 4, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B4-(1-2)
Sample ID: 510807001
Matrix: Soil
Collect Date: 06-MAY-20 08:23
Receive Date: 07-MAY-20
Collector: Client
Moisture: 1.89%

Project: WNUC00821
Client ID: WNUC008

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Fluoride and Nitrate "Dry Weight Corrected"												
Fluoride		65.8	1.72	5.05	mg/kg	9.90	5	JLD1	05/13/20	1033	1995671	1
Nitrate-N		69.3	1.67	5.05	mg/kg	9.90	5					
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	5.46	0.0100	0.100	SU		1	RXB5	05/28/20	1438	1995459	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9056A	SW846 9056A Total Anions in Soil	CJ2	05/12/20	2001	1995670

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: June 4, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B4-(2-4)
Project: WNUC00821
Sample ID: 510807002
Client ID: WNUC008
Matrix: Soil
Collect Date: 06-MAY-20 08:35
Receive Date: 07-MAY-20
Collector: Client
Moisture: 1.71%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Fluoride and Nitrate "Dry Weight Corrected"												
Nitrate-N		70.4	1.68	5.10	mg/kg	10.0	5	JLD1	05/14/20	0218	1995671	1
Fluoride		335	3.47	10.2	mg/kg	10.0	10	JLD1	05/14/20	1038	1995671	2
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	3.97	0.0100	0.100	SU		1	RXB5	05/28/20	1443	1995459	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9056A	SW846 9056A Total Anions in Soil	CJ2	05/12/20	2001	1995670

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9056A	
3	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: June 4, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B4-(4-5.33) Project: WNUC00821
Sample ID: 510807003 Client ID: WNUC008
Matrix: Soil
Collect Date: 06-MAY-20 08:55
Receive Date: 07-MAY-20
Collector: Client
Moisture: 4.19%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Fluoride and Nitrate "Dry Weight Corrected"												
Fluoride		359	3.56	10.5	mg/kg	10.0	10	JLD1	05/14/20	0350	1995671	1
Nitrate-N		82.5	3.45	10.5	mg/kg	10.0	10					
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	3.29	0.0100	0.100	SU		1	RXB5	05/28/20	1446	1995459	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9056A	SW846 9056A Total Anions in Soil	CJ2	05/12/20	2001	1995670

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: June 4, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B5-(1-2)
Project: WNUC00821
Sample ID: 510807004
Client ID: WNUC008
Matrix: Soil
Collect Date: 06-MAY-20 09:47
Receive Date: 07-MAY-20
Collector: Client
Moisture: 8.03%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Fluoride and Nitrate "Dry Weight Corrected"												
Fluoride		1.55	0.372	1.09	mg/kg	10.1	1	JLD1	05/13/20	0423	1995671	1
Nitrate-N		232	3.61	10.9	mg/kg	10.1	10	JLD1	05/14/20	0421	1995671	2
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	5.07	0.0100	0.100	SU		1	RXB5	05/28/20	1447	1995459	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9056A	SW846 9056A Total Anions in Soil	CJ2	05/12/20	2001	1995670

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9056A	
3	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
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Certificate of Analysis

Report Date: June 4, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B5-(2-4)
Project: WNUC00821
Sample ID: 510807005
Client ID: WNUC008
Matrix: Soil
Collect Date: 06-MAY-20 10:15
Receive Date: 07-MAY-20
Collector: Client
Moisture: 7.57%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Fluoride and Nitrate "Dry Weight Corrected"												
Fluoride		135	3.72	11.0	mg/kg	10.1	10	JLD1	05/14/20	0452	1995671	1
Nitrate-N		288	3.62	11.0	mg/kg	10.1	10					
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	4.39	0.0100	0.100	SU		1	RXB5	05/28/20	1448	1995459	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9056A	SW846 9056A Total Anions in Soil	CJ2	05/12/20	2001	1995670

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Report Date: June 4, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B5-(4-6)
Project: WNUC00821
Sample ID: 510807006
Client ID: WNUC008
Matrix: Soil
Collect Date: 06-MAY-20 10:45
Receive Date: 07-MAY-20
Collector: Client
Moisture: 14.3%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Fluoride and Nitrate "Dry Weight Corrected"												
Fluoride		21.7	0.396	1.16	mg/kg	9.98	1	JLD1	05/13/20	0525	1995671	1
Nitrate-N		440	9.60	29.1	mg/kg	9.98	25	JLD1	05/14/20	1312	1995671	2
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	4.28	0.0100	0.100	SU		1	RXB5	05/28/20	1448	1995459	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9056A	SW846 9056A Total Anions in Soil	CJ2	05/12/20	2001	1995670

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9056A	
3	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B5-(6-8)
Project: WNUC00821
Sample ID: 510807007
Client ID: WNUC008
Matrix: Soil
Collect Date: 06-MAY-20 11:51
Receive Date: 07-MAY-20
Collector: Client
Moisture: 11.4%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Fluoride and Nitrate "Dry Weight Corrected"												
Fluoride	U	ND	0.377	1.11	mg/kg	9.83	1	JLD1	05/13/20	0556	1995671	1
Nitrate-N		150	1.83	5.55	mg/kg	9.83	5	JLD1	05/14/20	0656	1995671	2
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	5.67	0.0100	0.100	SU		1	RXB5	05/28/20	1449	1995459	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9056A	SW846 9056A Total Anions in Soil	CJ2	05/12/20	2001	1995670

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9056A	
3	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B5-(8-10) Project: WNUC00821
Sample ID: 510807008 Client ID: WNUC008
Matrix: Soil
Collect Date: 06-MAY-20 13:40
Receive Date: 07-MAY-20
Collector: Client
Moisture: 12.6%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Fluoride and Nitrate "Dry Weight Corrected"												
Fluoride	J	0.879	0.393	1.16	mg/kg	10.1	1	JLD1	05/13/20	0626	1995671	1
Nitrate-N		54.3	0.381	1.16	mg/kg	10.1	1					
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	4.35	0.0100	0.100	SU		1	RXB5	05/28/20	1450	1995459	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9056A	SW846 9056A Total Anions in Soil	CJ2	05/12/20	2001	1995670

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID:	HF1-B6-(0-2)	Project:	WNUC00821
Sample ID:	510807009	Client ID:	WNUC008
Matrix:	Soil		
Collect Date:	06-MAY-20 14:20		
Receive Date:	07-MAY-20		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	8.09	0.0100	0.100	SU		1	RXB5	05/28/20	1450	1995459	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B6-(2-4)
Project: WNUC00821
Sample ID: 510807010
Client ID: WNUC008
Matrix: Soil
Collect Date: 06-MAY-20 14:40
Receive Date: 07-MAY-20
Collector: Client
Moisture: 3.15%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Fluoride and Nitrate "Dry Weight Corrected"												
Fluoride		5.67	0.348	1.02	mg/kg	9.90	1	JLD1	05/13/20	0657	1995671	1
Nitrate-N		14.5	0.337	1.02	mg/kg	9.90	1					
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	6.35	0.0100	0.100	SU		1	RXB5	05/28/20	1452	1995459	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9056A	SW846 9056A Total Anions in Soil	CJ2	05/12/20	2001	1995670

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Company : Westinghouse Electric Company, LLC
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Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B6-(4-5.67) Project: WNUC00821
Sample ID: 510807011 Client ID: WNUC008
Matrix: Soil
Collect Date: 06-MAY-20 15:25
Receive Date: 07-MAY-20
Collector: Client
Moisture: 4.47%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Fluoride and Nitrate "Dry Weight Corrected"												
Fluoride		43.8	0.350	1.03	mg/kg	9.83	1	JLD1	05/13/20	0728	1995671	1
Nitrate-N		38.0	0.339	1.03	mg/kg	9.83	1					
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	6.22	0.0100	0.100	SU		1	RXB5	05/28/20	1454	1995459	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9056A	SW846 9056A Total Anions in Soil	CJ2	05/12/20	2001	1995670

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B7-(0-2)
Project: WNUC00821
Sample ID: 510807012
Client ID: WNUC008
Matrix: Soil
Collect Date: 06-MAY-20 15:53
Receive Date: 07-MAY-20
Collector: Client
Moisture: 3.63%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Fluoride and Nitrate "Dry Weight Corrected"												
Fluoride		40.4	0.349	1.03	mg/kg	9.90	1	JLD1	05/13/20	0759	1995671	1
Nitrate-N		127	1.70	5.14	mg/kg	9.90	5	JLD1	05/14/20	0726	1995671	2
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	4.72	0.0100	0.100	SU		1	RXB5	05/28/20	1455	1995459	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9056A	SW846 9056A Total Anions in Soil	CJ2	05/12/20	2001	1995670

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9056A	
3	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B7-(2-4)
Project: WNUC00821
Sample ID: 510807013
Client ID: WNUC008
Matrix: Soil
Collect Date: 06-MAY-20 16:13
Receive Date: 07-MAY-20
Collector: Client
Moisture: 3.49%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Fluoride and Nitrate "Dry Weight Corrected"												
Fluoride		158	3.51	10.3	mg/kg	9.98	10	JLD1	05/14/20	0757	1995671	1
Nitrate-N		178	3.41	10.3	mg/kg	9.98	10					
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	4.41	0.0100	0.100	SU		1	RXB5	05/28/20	1456	1995459	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9056A	SW846 9056A Total Anions in Soil	CJ2	05/12/20	2001	1995670

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Report Date: June 4, 2020

Company : Westinghouse Electric Company, LLC
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Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B7-(4-5.42)
Sample ID: 510807014
Matrix: Soil
Collect Date: 06-MAY-20 16:31
Receive Date: 07-MAY-20
Collector: Client
Moisture: 2.69%

Project: WNUC00821
Client ID: WNUC008

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
SW846 9056A Fluoride and Nitrate "Dry Weight Corrected"												
Fluoride		121	1.76	5.19	mg/kg	10.1	5	JLD1	05/14/20	0828	1995671	1
Nitrate-N		83.0	1.71	5.19	mg/kg	10.1	5					
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	5.21	0.0100	0.100	SU		1	RXB5	05/28/20	1457	1995459	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 9056A	SW846 9056A Total Anions in Soil	CJ2	05/12/20	2001	1995670

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9056A	
2	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Company :	Westinghouse Electric Company, LLC
Address :	PO Drawer R
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Contact:	Ms. Cynthia Logsdon
Project:	Soil and Vegetation Analysis

Client Sample ID:	HF1-B7-Refusal	Project:	WNUC00821
Sample ID:	510807015	Client ID:	WNUC008
Matrix:	Soil		
Collect Date:	06-MAY-20 16:31		
Receive Date:	07-MAY-20		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Titration and Ion Analysis												
SW9045D Corrosivity (pH<2or>14) "As Received"												
Corrosivity	H	4.58	0.0100	0.100	SU		1	RXB5	05/28/20	1458	1995459	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9045D	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B4-(1-2) Project: WNUC00821
Sample ID: 510807001 Client ID: WNUC008
Matrix: Soil
Collect Date: 06-MAY-20 08:23
Receive Date: 07-MAY-20
Collector: Client
Moisture: 1.89%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec Analysis													
Alphaspec U, Soil/Veg "Dry Weight Corrected"													
Uranium-233/234		563	+/-16.4	0.997	0.500	pCi/g			MP2	05/11/20	1421	1995498	1
Uranium-235/236		29.0	+/-4.16	0.937	0.500	pCi/g							
Uranium-238		110	+/-7.26	0.595	0.500	pCi/g							
Rad Liquid Scintillation Analysis													
Liquid Scint Tc99, Soil "As Received"													
Technetium-99	U	-0.924	+/-2.26	4.01	1.00	pCi/g			JJ3	05/17/20	0509	1995744	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXB7	05/07/20	1252	1995477

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE EML HASL-300, U-02-RC Modified	
2	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Soil/Veg "Dry Weight Corrected"			25.9	(15%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Soil "As Received"			95.1	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B4-(2-4) Project: WNUC00821
Sample ID: 510807002 Client ID: WNUC008
Matrix: Soil
Collect Date: 06-MAY-20 08:35
Receive Date: 07-MAY-20
Collector: Client
Moisture: 1.71%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec Analysis													
Alphaspec U, Soil/Veg "Dry Weight Corrected"													
Uranium-233/234		511	+/-14.7	0.721	0.500	pCi/g			MP2	05/11/20	1421	1995498	1
Uranium-235/236		22.1	+/-3.41	0.408	0.500	pCi/g							
Uranium-238		105	+/-6.66	0.771	0.500	pCi/g							
Rad Liquid Scintillation Analysis													
Liquid Scint Tc99, Soil "As Received"													
Technetium-99	U	0.171	+/-2.45	4.26	1.00	pCi/g			JJ3	05/17/20	0525	1995744	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXB7	05/07/20	1252	1995477

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE EML HASL-300, U-02-RC Modified	
2	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Soil/Veg "Dry Weight Corrected"			24.1	(15%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Soil "As Received"			89.2	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Company : Westinghouse Electric Company, LLC
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Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B4-(4-5.33) Project: WNUC00821
Sample ID: 510807003 Client ID: WNUC008
Matrix: Soil
Collect Date: 06-MAY-20 08:55
Receive Date: 07-MAY-20
Collector: Client
Moisture: 4.19%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec Analysis													
Alphaspec U, Soil/Veg "Dry Weight Corrected"													
Uranium-233/234		700	+/-17.4	0.789	0.500	pCi/g			MP2	05/11/20	1421	1995498	1
Uranium-235/236		31.9	+/-4.14	0.668	0.500	pCi/g							
Uranium-238		139	+/-7.78	0.790	0.500	pCi/g							
Rad Liquid Scintillation Analysis													
Liquid Scint Tc99, Soil "As Received"													
Technetium-99	U	2.60	+/-2.27	3.78	1.00	pCi/g			JJ3	05/17/20	0542	1995744	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXB7	05/07/20	1252	1995477

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE EML HASL-300, U-02-RC Modified	
2	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Soil/Veg "Dry Weight Corrected"			25.4	(15%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Soil "As Received"			91.7	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B5-(1-2) Project: WNUC00821
Sample ID: 510807004 Client ID: WNUC008
Matrix: Soil
Collect Date: 06-MAY-20 09:47
Receive Date: 07-MAY-20
Collector: Client
Moisture: 8.03%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec Analysis													
Alphaspec U, Soil/Veg "Dry Weight Corrected"													
Uranium-233/234		9.36	+/-0.963	0.221	0.500	pCi/g			MP2	05/11/20	1421	1995498	1
Uranium-235/236		0.396	+/-0.242	0.233	0.500	pCi/g							
Uranium-238		2.56	+/-0.505	0.141	0.500	pCi/g							
Rad Liquid Scintillation Analysis													
Liquid Scint Tc99, Soil "As Received"													
Technetium-99	U	-2.14	+/-2.33	4.21	1.00	pCi/g			JJ3	05/17/20	0559	1995744	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXB7	05/07/20	1252	1995477

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE EML HASL-300, U-02-RC Modified	
2	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Soil/Veg "Dry Weight Corrected"			109	(15%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Soil "As Received"			92.4	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: June 4, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B5-(2-4) Project: WNUC00821
Sample ID: 510807005 Client ID: WNUC008
Matrix: Soil
Collect Date: 06-MAY-20 10:15
Receive Date: 07-MAY-20
Collector: Client
Moisture: 7.57%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec Analysis													
Alphaspec U, Soil/Veg "Dry Weight Corrected"													
Uranium-233/234		1520	+/-51.1	2.49	0.500	pCi/g			MP2	05/11/20	1421	1995498	1
Uranium-235/236		82.8	+/-13.3	2.81	0.500	pCi/g							
Uranium-238		246	+/-20.6	2.55	0.500	pCi/g							
Rad Liquid Scintillation Analysis													
Liquid Scint Tc99, Soil "As Received"													
Technetium-99	U	-1.79	+/-2.17	3.91	1.00	pCi/g			JJ3	05/17/20	0615	1995744	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXB7	05/07/20	1252	1995477

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE EML HASL-300, U-02-RC Modified	
2	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Soil/Veg "Dry Weight Corrected"			17.9	(15%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Soil "As Received"			94.9	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: June 4, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B5-(4-6) Project: WNUC00821
Sample ID: 510807006 Client ID: WNUC008
Matrix: Soil
Collect Date: 06-MAY-20 10:45
Receive Date: 07-MAY-20
Collector: Client
Moisture: 14.3%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec Analysis													
Alphaspec U, Soil/Veg "Dry Weight Corrected"													
Uranium-233/234		1250	+/-36.4	1.81	0.500	pCi/g			MP2	05/11/20	1421	1995498	1
Uranium-235/236		50.9	+/-8.19	1.84	0.500	pCi/g							
Uranium-238		224	+/-15.4	1.70	0.500	pCi/g							
Rad Liquid Scintillation Analysis													
Liquid Scint Tc99, Soil "As Received"													
Technetium-99	U	-1.41	+/-2.27	4.05	1.00	pCi/g			JJ3	05/17/20	0632	1995744	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXB7	05/07/20	1252	1995477

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE EML HASL-300, U-02-RC Modified	
2	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Soil/Veg "Dry Weight Corrected"			25.9	(15%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Soil "As Received"			92.8	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: June 4, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B5-(6-8) Project: WNUC00821
Sample ID: 510807007 Client ID: WNUC008
Matrix: Soil
Collect Date: 06-MAY-20 11:51
Receive Date: 07-MAY-20
Collector: Client
Moisture: 11.4%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec Analysis													
Alphaspec U, Soil/Veg "Dry Weight Corrected"													
Uranium-233/234		9.67	+/-1.23	0.417	0.500	pCi/g			MP2	05/11/20	1410	1995498	1
Uranium-235/236		0.587	+/-0.346	0.147	0.500	pCi/g							
Uranium-238		1.61	+/-0.510	0.277	0.500	pCi/g							
Rad Liquid Scintillation Analysis													
Liquid Scint Tc99, Soil "As Received"													
Technetium-99	U	-2.28	+/-2.21	4.02	1.00	pCi/g			JJ3	05/17/20	0648	1995744	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXB7	05/07/20	1252	1995477

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE EML HASL-300, U-02-RC Modified	
2	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Soil/Veg "Dry Weight Corrected"			89.5	(15%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Soil "As Received"			95.2	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: June 4, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B5-(8-10) Project: WNUC00821
Sample ID: 510807008 Client ID: WNUC008
Matrix: Soil
Collect Date: 06-MAY-20 13:40
Receive Date: 07-MAY-20
Collector: Client
Moisture: 12.6%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec Analysis													
Alphaspec U, Soil/Veg "Dry Weight Corrected"													
Uranium-233/234		2.65	+/-0.665	0.327	0.500	pCi/g			MP2	05/11/20	1410	1995498	1
Uranium-235/236		0.294	+/-0.267	0.245	0.500	pCi/g							
Uranium-238		1.02	+/-0.424	0.306	0.500	pCi/g							
Rad Liquid Scintillation Analysis													
Liquid Scint Tc99, Soil "As Received"													
Technetium-99	U	-2.91	+/-2.17	3.98	1.00	pCi/g			JJ3	05/17/20	0705	1995744	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXB7	05/07/20	1252	1995477

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE EML HASL-300, U-02-RC Modified	
2	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Soil/Veg "Dry Weight Corrected"			81.8	(15%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Soil "As Received"			94.7	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: June 4, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B6-(2-4) Project: WNUC00821
Sample ID: 510807010 Client ID: WNUC008
Matrix: Soil
Collect Date: 06-MAY-20 14:40
Receive Date: 07-MAY-20
Collector: Client
Moisture: 3.15%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec Analysis													
Alphaspec U, Soil/Veg "Dry Weight Corrected"													
Uranium-233/234		403	+/-12.7	0.905	0.500	pCi/g			MP2	05/11/20	1410	1995498	1
Uranium-235/236		19.3	+/-3.11	0.618	0.500	pCi/g							
Uranium-238		78.5	+/-5.62	0.808	0.500	pCi/g							
Rad Liquid Scintillation Analysis													
Liquid Scint Tc99, Soil "As Received"													
Technetium-99	U	-1.66	+/-2.31	4.14	1.00	pCi/g			JJ3	05/17/20	0721	1995744	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXB7	05/07/20	1252	1995477

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE EML HASL-300, U-02-RC Modified	
2	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Soil/Veg "Dry Weight Corrected"			32.9	(15%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Soil "As Received"			94.7	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: June 4, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B6-(4-5.67) Project: WNUC00821
Sample ID: 510807011 Client ID: WNUC008
Matrix: Soil
Collect Date: 06-MAY-20 15:25
Receive Date: 07-MAY-20
Collector: Client
Moisture: 4.47%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec Analysis													
Alphaspec U, Soil/Veg "Dry Weight Corrected"													
Uranium-233/234		226	+/-9.28	0.962	0.500	pCi/g			MP2	05/11/20	1410	1995498	1
Uranium-235/236		9.66	+/-2.16	0.805	0.500	pCi/g							
Uranium-238		41.6	+/-3.99	0.858	0.500	pCi/g							
Rad Liquid Scintillation Analysis													
Liquid Scint Tc99, Soil "As Received"													
Technetium-99	U	-1.09	+/-2.26	4.01	1.00	pCi/g			JJ3	05/17/20	0738	1995744	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXB7	05/07/20	1252	1995477

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE EML HASL-300, U-02-RC Modified	
2	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Soil/Veg "Dry Weight Corrected"			34.1	(15%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Soil "As Received"			97.1	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: June 4, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B7-(0-2)
Project: WNUC00821
Sample ID: 510807012
Client ID: WNUC008
Matrix: Soil
Collect Date: 06-MAY-20 15:53
Receive Date: 07-MAY-20
Collector: Client
Moisture: 3.63%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec Analysis													
Alphaspec U, Soil/Veg "Dry Weight Corrected"													
Uranium-233/234		2140	+/-68.1	4.07	0.500	pCi/g			MP2	05/21/20	1152	1998535	1
Uranium-235/236		93.5	+/-15.9	2.09	0.500	pCi/g							
Uranium-238		313	+/-26.1	2.92	0.500	pCi/g							
Rad Liquid Scintillation Analysis													
Liquid Scint Tc99, Soil "As Received"													
Technetium-99	U	-1.90	+/-2.17	3.91	1.00	pCi/g			JJ3	05/17/20	0754	1995744	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXB7	05/07/20	1252	1995477

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE EML HASL-300, U-02-RC Modified	
2	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Soil/Veg "Dry Weight Corrected"			90.4	(15%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Soil "As Received"			97	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: June 4, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B7-(2-4) Project: WNUC00821
Sample ID: 510807013 Client ID: WNUC008
Matrix: Soil
Collect Date: 06-MAY-20 16:13
Receive Date: 07-MAY-20
Collector: Client
Moisture: 3.49%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec Analysis													
Alphaspec U, Soil/Veg "Dry Weight Corrected"													
Uranium-233/234		2020	+/-59.9	3.64	0.500	pCi/g			MP2	05/21/20	1152	1998535	1
Uranium-235/236		92.0	+/-14.3	2.73	0.500	pCi/g							
Uranium-238		355	+/-25.1	1.97	0.500	pCi/g							
Rad Liquid Scintillation Analysis													
Liquid Scint Tc99, Soil "As Received"													
Technetium-99	U	3.15	+/-2.40	3.97	1.00	pCi/g			JJ3	05/17/20	0811	1995744	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXB7	05/07/20	1252	1995477

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE EML HASL-300, U-02-RC Modified	
2	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Soil/Veg "Dry Weight Corrected"			94.8	(15%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Soil "As Received"			97.3	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: June 4, 2020

Company : Westinghouse Electric Company, LLC
Address : PO Drawer R

Columbia, South Carolina 29205
Contact: Ms. Cynthia Logsdon
Project: Soil and Vegetation Analysis

Client Sample ID: HF1-B7-(4-5.42)
Project: WNUC00821
Sample ID: 510807014
Client ID: WNUC008
Matrix: Soil
Collect Date: 06-MAY-20 16:31
Receive Date: 07-MAY-20
Collector: Client
Moisture: 2.69%

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Alpha Spec Analysis													
Alphaspec U, Soil/Veg "Dry Weight Corrected"													
Uranium-233/234		799	+/-26.9	1.88	0.500	pCi/g			MP2	05/11/20	1410	1995498	1
Uranium-235/236		46.5	+/-7.24	1.37	0.500	pCi/g							
Uranium-238		158	+/-12.0	1.40	0.500	pCi/g							
Rad Liquid Scintillation Analysis													
Liquid Scint Tc99, Soil "As Received"													
Technetium-99	U	0.627	+/-2.37	4.09	1.00	pCi/g			JJ3	05/17/20	0827	1995744	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXB7	05/07/20	1252	1995477

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	DOE EML HASL-300, U-02-RC Modified	
2	DOE EML HASL-300, Tc-02-RC Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Soil/Veg "Dry Weight Corrected"			29.4	(15%-125%)
Technetium-99m Tracer	Liquid Scint Tc99, Soil "As Received"			94.1	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

QC Summary

Report Date: June 4, 2020

Westinghouse Electric Company, LLC
PO Drawer R
Columbia, South Carolina

Contact: **Ms. Cynthia Logsdon**

Workorder: **510807**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography										
Batch 1995671										
QC1204557905 510807001 DUP										
Fluoride		65.8		65.1	mg/kg	1.06		(0%-109%)	JLD1	05/13/20 11:04
Nitrate-N		69.3		68.5	mg/kg	1.27		(0%-104%)		
QC1204557906 510807002 DUP										
Fluoride		335		340	mg/kg	1.66		(0%-109%)		05/14/20 11:08
Nitrate-N		70.4		70.3	mg/kg	0.148		(0%-104%)		05/14/20 02:49
QC1204557904 LCS										
Fluoride	25.1			25.0	mg/kg		99.4	(90%-110%)		05/12/20 22:44
Nitrate-N	25.1			24.4	mg/kg		97.2	(90%-110%)		
QC1204557903 MB										
Fluoride			U	ND	mg/kg					05/12/20 22:13
Nitrate-N			U	ND	mg/kg					
QC1204557907 510807001 MS										
Fluoride	25.1	65.8		94.2	mg/kg		113	(75%-125%)		05/13/20 11:35
Nitrate-N	25.1	69.3		95.2	mg/kg		103	(75%-125%)		
QC1204557908 510807002 MS										
Fluoride	25.7	335		353	mg/kg		N/A	(75%-125%)		05/14/20 12:41
Nitrate-N	25.7	70.4		95.9	mg/kg		99.6	(75%-125%)		05/14/20 03:20

QC Summary

Workorder: **510807**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Titration and Ion Analysis											
Batch 1995459											
QC1204557582 510807001 DUP											
Corrosivity	H	5.46	H	6.08	SU	10.7*		(0%-10%)	RXB5	05/28/20	14:40
QC1204557583 510807002 DUP											
Corrosivity	H	3.97	H	3.98	SU	0.252		(0%-10%)		05/28/20	14:44
QC1204557581 LCS											
Corrosivity	7.00			7.00	SU		100	(95%-105%)		05/28/20	14:38

Notes:

The Qualifiers in this report are defined as follows:

<	Result is less than value reported
>	Result is greater than value reported
B	The target analyte was detected in the associated blank.
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
H	Analytical holding time was exceeded
J	See case narrative for an explanation
J	Value is estimated
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
e	5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for reporting purposes
h	Preparation or preservation holding time was exceeded

QC Summary

Workorder: **510807**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

QC Summary

Report Date: June 4, 2020

Westinghouse Electric Company, LLC
PO Drawer R
Columbia, South Carolina

Contact: **Ms. Cynthia Logsdon**

Workorder: **510807**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1995498										
QC1204557617 510807001 DUP										
Uranium-233/234		563		534	pCi/g	5.32		(0%-20%)	MP2	05/11/20 14:10
	Uncertainty	+/-16.4		+/-18.5						
Uranium-235/236		29.0		22.9	pCi/g	23.7*		(0%-20%)		
	Uncertainty	+/-4.16		+/-4.29						
Uranium-238		110		98.1	pCi/g	11.7		(0%-20%)		
	Uncertainty	+/-7.26		+/-7.94						
QC1204557618 LCS										
Uranium-233/234				11.6	pCi/g					05/11/20 14:10
	Uncertainty			+/-1.29						
Uranium-235/236				0.461	pCi/g					
	Uncertainty			+/-0.321						
Uranium-238	12.3			12.1	pCi/g		98.8	(75%-125%)		
	Uncertainty			+/-1.31						
QC1204557616 MB										
Uranium-233/234			U	0.0886	pCi/g					05/11/20 14:10
	Uncertainty			+/-0.216						
Uranium-235/236			U	0.151	pCi/g					
	Uncertainty			+/-0.191						
Uranium-238			U	0.211	pCi/g					
	Uncertainty			+/-0.209						
Batch 1998535										
QC1204564487 510807012 DUP										
Uranium-233/234		2140		1770	pCi/g	19		(0%-20%)	MP2	05/21/20 11:52
	Uncertainty	+/-68.1		+/-56.9						
Uranium-235/236		93.5		81.2	pCi/g	14.1		(0%-20%)		
	Uncertainty	+/-15.9		+/-13.6						
Uranium-238		313		276	pCi/g	12.6		(0%-20%)		
	Uncertainty	+/-26.1		+/-22.5						

QC Summary

Workorder: **510807**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1998535										
QC1204564488 LCS										
Uranium-233/234				104	pCi/g				MP2	05/21/20 09:49
	Uncertainty			+/-11.8						
Uranium-235/236				4.86	pCi/g					
	Uncertainty			+/-3.01						
Uranium-238	109			101	pCi/g		92.4	(75%-125%)		
	Uncertainty			+/-11.6						
QC1204564486 MB										
Uranium-233/234			U	-0.479	pCi/g					05/21/20 11:52
	Uncertainty			+/-0.824						
Uranium-235/236			U	0.500	pCi/g					
	Uncertainty			+/-1.39						
Uranium-238			U	-0.104	pCi/g					
	Uncertainty			+/-0.812						
Rad Liquid Scintillation										
Batch 1995744										
QC1204558065 510807001 DUP										
Technetium-99	U	-0.924	U	-0.568	pCi/g	N/A		N/A	JJ3	05/17/20 09:01
	Uncertainty	+/-2.26		+/-2.24						
QC1204558066 LCS										
Technetium-99	55.0			49.6	pCi/g		90.2	(75%-125%)		05/17/20 09:17
	Uncertainty			+/-3.46						
QC1204558064 MB										
Technetium-99			U	-1.71	pCi/g					05/17/20 08:44
	Uncertainty			+/-1.93						

Notes:

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

- ** Analyte is a Tracer compound
- < Result is less than value reported
- > Result is greater than value reported
- BD Results are either below the MDC or tracer recovery is low
- FA Failed analysis.
- H Analytical holding time was exceeded
- J See case narrative for an explanation

QC Summary

Workorder: **510807**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

J	Value is estimated
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	REMP Result > MDC/CL and < RDL
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Technical Case Narrative
Westinghouse Electric Co, LLC
SDG #: 510807

General Chemistry

Product: **Ion Chromatography**
Analytical Method: SW846 9056A
Analytical Procedure: GL-GC-E-086 REV# 27
Analytical Batches: 1995671 and 1995670

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
510807001	HF1-B4-(1-2)
510807002	HF1-B4-(2-4)
510807003	HF1-B4-(4-5.33)
510807004	HF1-B5-(1-2)
510807005	HF1-B5-(2-4)
510807006	HF1-B5-(4-6)
510807007	HF1-B5-(6-8)
510807008	HF1-B5-(8-10)
510807010	HF1-B6-(2-4)
510807011	HF1-B6-(4-5.67)
510807012	HF1-B7-(0-2)
510807013	HF1-B7-(2-4)
510807014	HF1-B7-(4-5.42)
1204557903	Method Blank (MB)
1204557904	Laboratory Control Sample (LCS)
1204557905	510807001(HF1-B4-(1-2)) Sample Duplicate (DUP)
1204557906	510807002(HF1-B4-(2-4)) Sample Duplicate (DUP)
1204557907	510807001(HF1-B4-(1-2)) Matrix Spike (MS)
1204557908	510807002(HF1-B4-(2-4)) Matrix Spike (MS)

The samples in this SDG were analyzed on a "dry weight" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Sample Dilutions
The following samples 1204557905 (HF1-B4-(1-2)DUP), 1204557906 (HF1-B4-(2-4)DUP), 1204557907 (HF1-B4-(1-2)MS), 1204557908 (HF1-B4-(2-4)MS), 510807001 (HF1-B4-(1-2)), 510807002 (HF1-B4-(2-4)), 510807003 (HF1-B4-(4-5.33)), 510807004 (HF1-B5-(1-2)), 510807005 (HF1-B5-(2-4)), 510807006 (HF1-B5-(4-6)), 510807007 (HF1-B5-(6-8)), 510807012 (HF1-B7-(0-2)), 510807013 (HF1-B7-(2-4)) and 510807014 (HF1-B7-(4-5.42)) were diluted because target analyte concentrations exceeded the calibration range. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analyte	510807									
	001	002	003	004	005	006	007	012	013	014
Fluoride	5X	10X	10X	1X	10X	1X	1X	1X	10X	5X
Nitrate	5X	5X	10X	10X	10X	25X	5X	5X	10X	5X

Sample Re-analysis
Sample510807006 (HF1-B5-(4-6)) was re-analyzed to verify the result.

Product: pH
Analytical Method: SW846 9045D
Analytical Procedure: GL-GC-E-008 REV# 24
Analytical Batch: 1995459

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
510807001	HF1-B4-(1-2)
510807002	HF1-B4-(2-4)
510807003	HF1-B4-(4-5.33)
510807004	HF1-B5-(1-2)
510807005	HF1-B5-(2-4)
510807006	HF1-B5-(4-6)
510807007	HF1-B5-(6-8)
510807008	HF1-B5-(8-10)
510807009	HF1-B6-(0-2)
510807010	HF1-B6-(2-4)
510807011	HF1-B6-(4-5.67)
510807012	HF1-B7-(0-2)
510807013	HF1-B7-(2-4)
510807014	HF1-B7-(4-5.42)
510807015	HF1-B7-Refusal
1204557581	Laboratory Control Sample (LCS)
1204557582	510807001(HF1-B4-(1-2)) Sample Duplicate (DUP)
1204557583	510807002(HF1-B4-(2-4)) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Duplicate Relative Percent Difference (RPD) Statement
The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample:

Analyte	Sample	Value

Corrosivity	1204557582 (HF1-B4-(1-2)DUP)	10.7* (0%-10%)

Technical Information

Holding Times
Samples (See Below) were received by the laboratory outside of the method specified holding time. The data is qualified.

Sample	Analyte	Value
1204557582 (HF1-B4-(1-2)DUP)		Received 07-MAY-20, out of holding 06-MAY-20
1204557583 (HF1-B4-(2-4)DUP)		Received 07-MAY-20, out of holding 06-MAY-20
510807001 (HF1-B4-(1-2))		Received 07-MAY-20, out of holding 06-MAY-20
510807002 (HF1-B4-(2-4))		Received 07-MAY-20, out of holding 06-MAY-20
510807003 (HF1-B4-(4-5.33))		Received 07-MAY-20, out of holding 06-MAY-20
510807004 (HF1-B5-(1-2))		Received 07-MAY-20, out of holding 06-MAY-20
510807005 (HF1-B5-(2-4))		Received 07-MAY-20, out of holding 06-MAY-20
510807006 (HF1-B5-(4-6))		Received 07-MAY-20, out of holding 06-MAY-20
510807007 (HF1-B5-(6-8))		Received 07-MAY-20, out of holding 06-MAY-20
510807008 (HF1-B5-(8-10))		Received 07-MAY-20, out of holding 06-MAY-20
510807009 (HF1-B6-(0-2))		Received 07-MAY-20, out of holding 06-MAY-20
510807010 (HF1-B6-(2-4))		Received 07-MAY-20, out of holding 06-MAY-20
510807011 (HF1-B6-(4-5.67))		Received 07-MAY-20, out of holding 06-MAY-20
510807012 (HF1-B7-(0-2))		Received 07-MAY-20, out of holding 06-MAY-20
510807013 (HF1-B7-(2-4))		Received 07-MAY-20, out of holding 06-MAY-20
510807014 (HF1-B7-(4-5.42))		Received 07-MAY-20, out of holding 06-MAY-20
510807015 (HF1-B7-Refusal)		Received 07-MAY-20, out of holding 06-MAY-20

Radiochemistry

Product: **Alphaspec U, Soil/Veg**
Analytical Method: DOE EML HASL-300, U-02-RC Modified
Analytical Procedure: GL-RAD-A-011 REV# 27
Analytical Batch: 1995498

Preparation Method: Dry Soil Prep
Preparation Procedure: GL-RAD-A-021 REV# 23
Preparation Batch: 1995477

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
510807001	HF1-B4-(1-2)
510807002	HF1-B4-(2-4)
510807003	HF1-B4-(4-5.33)
510807004	HF1-B5-(1-2)
510807005	HF1-B5-(2-4)
510807006	HF1-B5-(4-6)
510807007	HF1-B5-(6-8)
510807008	HF1-B5-(8-10)
510807010	HF1-B6-(2-4)
510807011	HF1-B6-(4-5.67)
510807014	HF1-B7-(4-5.42)
1204557616	Method Blank (MB)
1204557617	510807001(HF1-B4-(1-2)) Sample Duplicate (DUP)
1204557618	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on a "dry weight" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Duplication Criteria between QC Sample and Duplicate Sample
The Sample and the Duplicate, (See Below), did not meet the relative percent difference requirement; however, they do meet the relative error ratio requirement with the value listed below.

Sample	Analyte	Value
1204557617 (HF1-B4-(1-2)DUP)	Uranium-235/236	RPD 23.7* (0.00%-20.00%) RER 1.08 (0-3)

Miscellaneous Information

Manual Integration
Manual integration of alpha spectroscopy spectra 510807014 (HF1-B7-(4-5.42)) was performed to fully separate counts in Regions of Interest which would have been biased.

Additional Comments
The tracer peak centroid for sample 510807014 (HF1-B7-(4-5.42)) is greater than 50 keV from the expected library energy value for the tracer; however, the tracer yield requirement was met and the tracer peak is within the tracer region of interest.

Product: **Alphaspec U, Soil/Veg**
Analytical Method: DOE EML HASL-300, U-02-RC Modified

Analytical Procedure: GL-RAD-A-011 REV# 27
Analytical Batch: 1998535

Preparation Method: Dry Soil Prep
Preparation Procedure: GL-RAD-A-021 REV# 23
Preparation Batch: 1995477

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
510807012	HF1-B7-(0-2)
510807013	HF1-B7-(2-4)
1204564486	Method Blank (MB)
1204564487	510807012(HF1-B7-(0-2)) Sample Duplicate (DUP)
1204564488	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on a "dry weight" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

RDL Met
The blank (See Below) did not meet the detection limit due to keeping the blank volume consistent with the other sample aliquots.

Sample	Analyte	Value
1204564486 (MB)	Uranium-233/234	Result -0.479 < MDA 2.7 > RDL 0.5 pCi/g
	Uranium-235/236	Result 0.5 < MDA 1.5 > RDL 0.5 pCi/g
	Uranium-238	Result -0.104 < MDA 1.93 > RDL 0.5 pCi/g

Product: **Dry Weight**
Preparation Method: ASTM D 2216 (Modified)
Preparation Procedure: GL-OA-E-020 REV# 13
Preparation Batch: 1995477

Preparation Method: Dry Soil Prep
Preparation Procedure: GL-RAD-A-021 REV# 23
Preparation Batch: 1995477

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
510807001	HF1-B4-(1-2)
510807002	HF1-B4-(2-4)
510807003	HF1-B4-(4-5.33)
510807004	HF1-B5-(1-2)
510807005	HF1-B5-(2-4)
510807006	HF1-B5-(4-6)
510807007	HF1-B5-(6-8)
510807008	HF1-B5-(8-10)
510807010	HF1-B6-(2-4)
510807011	HF1-B6-(4-5.67)
510807012	HF1-B7-(0-2)
510807013	HF1-B7-(2-4)
510807014	HF1-B7-(4-5.42)
1204557593	510807001(HF1-B4-(1-2)) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **Liquid Scint Tc99, Soil**
Analytical Method: DOE EML HASL-300, Tc-02-RC Modified
Analytical Procedure: GL-RAD-A-059 REV# 5
Analytical Batch: 1995744

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
510807001	HF1-B4-(1-2)
510807002	HF1-B4-(2-4)
510807003	HF1-B4-(4-5.33)
510807004	HF1-B5-(1-2)
510807005	HF1-B5-(2-4)
510807006	HF1-B5-(4-6)
510807007	HF1-B5-(6-8)
510807008	HF1-B5-(8-10)
510807010	HF1-B6-(2-4)
510807011	HF1-B6-(4-5.67)
510807012	HF1-B7-(0-2)
510807013	HF1-B7-(2-4)
510807014	HF1-B7-(4-5.42)
1204558064	Method Blank (MB)
1204558065	510807001(HF1-B4-(1-2)) Sample Duplicate (DUP)
1204558066	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Page: 1 of 2

GEL Quote #:

COC Number (1):

PO Number: 4500799254

510807

GEL Laboratories LLC
gel.com
Chemistry | Radiochemistry | Radiobioassay | Specialty Analytics

Chain of Custody and Analytical Request

GEL Work Order Number: ***GEL Project Manager:***

GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

Client Name: Westinghouse Phone # 803.497.7062

Project/Site Name: Project # HF Spiking Station #1 Soil Sampling Fax #

Address: 5801 Bluff Road, Hopkins, SC 29061

Collected By: R. Crews RCrews Send Results To: joynerdp@westinghouse.com

Sample Analysis Requested (5) (Fill in the number of containers for each test)

Sample ID * For composites - indicate start and stop date/time	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Should this sample be considered: Radioactive (if yes, please supply isotopic info.)	Should this sample be considered: (7) Known or possible Hazards	Total number of containers	pH	Fluoride	moisture content	Nitrate	Isotopic U (alpha spec)	Tc-99					<-- Preservative Type (6)
HF1-B4-(1-2)	5/6/2020	0823		N/A	SO			1	X	X	X	X	X	X					Comments Note: extra sample is required for sample specific QC
HF1-B4-(2-4)	5/6/2020	0835		N/A	SO			1	X	X	X	X	X	X					
HF1-B4-(4-5.33)	5/6/2020	0855		N/A	SO			1	X	X	X	X	X	X					
HF1-B5-(1-2)	5/6/2020	0947		N/A	SO			1	X	X	X	X	X	X					
HF1-B5-(2-4)	5/6/2020	1015		N/A	SO			1	X	X	X	X	X	X					Please note that MDC for Tc-99 should be 5 pCi/g
HF1-B5-(4-6)	5/6/2020	1045		N/A	SO			1	X	X	X	X	X	X					
HF1-B5-(6-8)	5/6/2020	1151		N/A	SO			1	X	X	X	X	X	X					
HF1-B5-(8-10)	5/6/2020	1340		N/A	SO			1	X	X	X	X	X	X					

Chain of Custody Signatures

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1 Randy Crews RCrews	5/7/2020	1015	1 Stacy Bowen	5/7/20	1015
2			2		
3			3		

TAT Requested: **Normal:** X **Rush:** ____ **Specify:** ____ **(Subject to Surcharge)**

Fax Results: [ ] Yes [ ] No

Select Deliverable: [ ] C of A [ ] QC Summary [ ] level 1 [ ] Level 2 [ ] Level 3 [ ] Level 4

Additional Remarks:

For Lab Receiving Use Only: *Custody Seal Intact?* [ ] *Yes* [ ] *No* ***Cooler Temp:*** 4 °C

> For sample shipping and delivery details, see Sample Receipt & Review form (SRR.)

Sample Collection Time Zone: [X] Eastern [ ] Pacific [ ] Central [ ] Mountain [ ] Other:

1.) Chain of Custody Number = Client Determined

2.) QC Codes: **N** = Normal Sample, **TB** = Trip Blank, **FD** = Field Duplicate, **EB** = Equipment Blank, **MS** = Matrix Spike Sample, **MSD** = Matrix Spike Duplicate Sample, **G** = Grab, **C** = Composite

3.) Field Filtered: For liquid matrices, indicate with a **- Y -** for yes the sample was field filtered or **- N -** for sample was not field filtered.

4.) Matrix Codes: **DW**=Drinking Water, **GW**=Groundwater, **SW**=Surface Water, **WW**=Waste Water, **W**=Water, **ML**=Misc Liquid, **SO**=Soil, **SD**=Sediment, **SL**=Sludge, **SS**=Solid Waste, **O**=Oil, **F**=Filter, **P**=Wipe, **U**=Urine, **F**=Fecal, **N**=Nasal

5.) Sample Analysis Requested: Analytical method requested (i.e. **8260B, 6010B/7470A**) and number of containers provided for each (i.e. *8260B* **- 3**, *6010B/7470A* **- 1**).

6.) Preservative Type: **HA** = Hydrochloric Acid, **NI** = Nitric Acid, **SH** = Sodium Hydroxide, **SA** = Sulfuric Acid, **AA** = Ascorbic Acid, **HX** = Hexane, **ST** = Sodium Thiosulfate, If no preservative is added = leave field blank

7.) **KNOWN OR POSSIBLE HAZARDS**

RCRA Metals
As = Arsenic **Hg**= Mercury
Ba = Barium **Se**= Selenium
Cd = Cadmium **Ag**= Silver
Cr = Chromium **MR**= Misc. RCRA metals
Pb = Lead

Characteristic Hazards
FL = Flammable/Ignitable
CO = Corrosive
RE = Reactive

TSCA Regulated
PCB = Polychlorinated biphenyls

Listed Waste
LW= Listed Waste
(F,K,P and U-listed wastes.)
Waste code(s):

Other
OT= Other / Unknown
(i.e.: High/low pH, asbestos, beryllium, irritants, other misc. health hazards, etc.)
Description:

Please provide any additional details below regarding handling and/or disposal concerns. *(i.e.: Origin of sample(s), type of site collected from, odd matrices, etc.)*

Page: 2 of 2

GEL Quote #: _____

COC Number (1): _____

PO Number: 4500799254

GEL Laboratories LLC
gel.com
Chemistry | Radiochemistry | Radiobioassay | Specialty Analytics

Chain of Custody and Analytical Request

GEL Work Order Number: **GEL Project Manager:**

GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407

Phone: (843) 556-8171
Fax: (843) 766-1178

Client Name: Westinghouse Phone # 803.497.7062

Project/Site Name: Project # HF Spiking Station #1 Soil Sampling Fax #

Address: 5801 Bluff Road, Hopkins, SC 29061

Collected By: R. Crews RCrews Send Results To: joynerdp@westinghouse.com

Sample Analysis Requested (5) (Fill in the number of containers for each test)

Sample ID * For composites - indicate start and stop date/time	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Should this sample be considered: Radioactive (If yes, please supply isotopic info.)	Should this sample be considered: (7) Known or possible Hazards	Total number of containers	pH	Fluoride	moisture content	Nitrate	Isotopic U (alpha spec	Tc-99					<-- Preservative Type (6)
HF1-B6-(0-2)	5/6/2020	1420		N/A	SO			1	X										
HF1-B6-(2-4)	5/6/2020	1440		N/A	SO			1	X	X	X	X	X	X					
HF1-B6-(4-5.67)	5/6/2020	1525		N/A	SO			1	X	X	X	X	X	X					
HF1-B7-(0-2)	5/6/2020	1553		N/A	SO			1	X	X	X	X	X	X					
HF1-B7-(2-4)	5/6/2020	1613		N/A	SO			1	X	X	X	X	X	X					
HF1-B7-(4-5.42)	5/6/2020	1631		N/A	SO			1	X	X	X	X	X	X					
HF1-B7-Refusal	5/6/2020	1631		N/A	SO			1	X										

Comments
Note: extra sample is required for sample specific QC

Please note that MDC for Tc-99 should be 5 pCi/g

Chain of Custody Signatures

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1 Randy Crews	RCrews 5/7/2020	1015	1 Stacy Boone	5/7/20	1015
2			2		
3			3		

TAT Requested: **Normal: X** **Rush: ____** **Specify: _____** **(Subject to Surcharge)**

Fax Results: [ ] Yes [ ] No

Select Deliverable: [ ] C of A [ ] QC Summary [ ] level 1 [ ] Level 2 [ ] Level 3 [ ] Level 4

Additional Remarks:

For Lab Receiving Use Only: *Custody Seal Intact?* [ ] *Yes* [ ] *No* ***Cooler Temp:*** 4 °C

> ***For sample shipping and delivery details, see Sample Receipt & Review form (SRR.)***

***Sample Collection Time Zone*:** [X] Eastern [ ] Pacific [ ] Central [ ] Mountain [ ] Other:

1.) Chain of Custody Number = Client Determined

2.) QC Codes: **N** = Normal Sample, **TB** = Trip Blank, **FD** = Field Duplicate, **EB** = Equipment Blank, **MS** = Matrix Spike Sample, **MSD** = Matrix Spike Duplicate Sample, **G** = Grab, **C** = Composite

3.) Field Filtered: For liquid matrices, indicate with a **- Y -** for yes the sample was field filtered or **- N -** for sample was not field filtered.

4.) Matrix Codes: **DW**=Drinking Water, **GW**=Groundwater, **SW**=Surface Water, **WW**=Waste Water, **W**=Water, **ML**=Misc Liquid, **SO**=Soil, **SD**=Sediment, **SL**=Sludge, **SS**=Solid Waste, **O**=Oil, **F**=Filter, **P**=Wipe, **U**=Urine, **F**=Fecal, **N**=Nasal

5.) Sample Analysis Requested: Analytical method requested (i.e. **8260B, 6010B/7470A**) and number of containers provided for each (i.e. *8260B* **- 3**, *6010B/7470A* **- 1**).

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Description:

Please provide any additional details below regarding handling and/or disposal concerns. *(i.e.: Origin of sample(s), type of site collected from, odd matrices, etc.)*

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: WNUC	SDG/AR/COC/Work Order: 510807
Received By: S L BOONE	Date Received: MAY 7, 2020
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
A)Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___
B) Did the client designate the samples are to be received as radioactive?		✓	COC notation or radioactive stickers on containers equal client designation.
C) Did the RSO classify the samples as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3
D) Did the client designate samples are hazardous?		✓	COC notation or hazard labels on containers equal client designation.
E) Did the RSO identify possible hazards?		✓	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: 4 °C
4	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: IR1-19 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?			✓	Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?			✓	If Yes, are Encores or Soil Kits present for solids? Yes___ No___ NA___(If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes___ No___ NA___(If unknown, select No) Are liquid VOA vials free of headspace? Yes___ No___ NA___ Sample ID's and containers affected:
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
11	Number of containers received match number indicated on COC?	✓			Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided?	✓			
13	COC form is properly signed in relinquished/received sections?	✓			Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials NRG Date 5/7/20 Page 1 of 1

GL-CHL-SR-001 Rev 6

List of current GEL Certifications as of 04 June 2020

State	Certification
Alaska	17−018
Alaska Drinking Water	SC00012
Arkansas	88−0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH−0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−15−00283, P330−15−00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2019020
Maryland	270
Massachusetts	M−SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE−OS−26−13
Nevada	SC000122020−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R−158
Oklahoma	2019−165
Pennsylvania NELAP	68−00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−20−17
Utah NELAP	SC000122020−32
Vermont	VT87156
Virginia NELAP	460202
Washington	C780