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ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
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Laboratory Job ID: 180-90260-1
Client Project/Site: BRF_SES_20190515_1B
Revision: 1

For:
Environmental Standards Inc.
1140 Valley Forge Road
PO BOX 810
Valley Forge, Pennsylvania 19482-0810

Attn: Jennifer N. Gable

Authorized for release by:
7/24/2019 3:46:05 PM

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LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416

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Job ID: 180-90260-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-90260-1

This report has been revised to update the COC

Receipt
The samples were received on 5/17/2019 9:00 AM; the samples arrived in good condition, properly preserved and on ice. The temperatures of the 5 coolers at receipt time were 2.4º C, 2.6º C, 2.8º C, 3.0º C and 3.0º C.

RAD
Method 901.1: Gamma Prep Batch 160-430196
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from	Reported to Analyte
Ac-228	Ra-228
Bi-214	Ra-226

BRF-SES-04-20190515 (180-90260-1), BRF-SES-DUP01-20190515 (180-90260-2), BRF-SES-01-20190515 (180-90260-4), BRF-SES-02-20190515 (180-90260-5), BRF-SES-03-20190515 (180-90260-6), BRF-SES-03-20190515 (180-90260-6[DU]), (LCS 160-430196/2-A) and (MB 160-430196/1-A)

Method 901.1: Gamma Prep Batch 160-430074
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from	Reported to Analyte
Ac-228	Ra-228
Bi-214	Ra-226

BRF-SES-FB01-20190515 (180-90260-3), BRF-SES-EB01-20190515 (180-90260-7), (LCS 160-430074/2-A), (MB 160-430074/1-A), (180-90101-A-1-A) and (180-90101-A-1-B DU)

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Environmental Standards Inc.
Project/Site: BRF_SES_20190515_1B

Job ID: 180-90260-1

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Environmental Standards Inc.
Project/Site: BRF_SES_20190515_1B

Job ID: 180-90260-1

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-20
California	State		2891	04-30-20
California	State Program	9	2891	04-30-20
Connecticut	State		PH-0688	09-30-20
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-20
Illinois	NELAP	5	200005	06-30-20
Kansas	NELAP	7	E-10350	01-31-20
Kansas	NELAP		E-10350	03-31-20
Kentucky (UST)	State Program	4	162013	04-30-20
Kentucky (WW)	State Program	4	KY98043	12-31-19
Louisiana	NELAP	6	04041	06-30-20
Minnesota	NELAP Secondary AB	5	042-999-482	12-31-19
Nevada	State		PA00164	07-31-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-20
New Jersey	NELAP	2	PA005	06-30-20
New York	NELAP	2	11182	03-31-20
New York	NELAP		11182	04-01-20
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	02-06-20
Oregon	NELAP		PA-2151	02-06-20
Pennsylvania	NELAP	3	02-00416	04-30-20
Pennsylvania	NELAP		02-00416	04-30-20
Rhode Island	State		LAO00362	12-30-19
Rhode Island	State Program	1	LAO00362	12-30-19
South Carolina	State Program	4	89014	04-30-20
Texas	NELAP	6	T104704528-15-2	03-31-20
Texas	NELAP		T104704528	03-31-20
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
US Fish & Wildlife	US Federal Programs		058448	07-31-20
USDA	Federal		P-Soil-01	06-26-22
USDA	US Federal Programs		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-20
Utah	NELAP		PA001462019-8	05-31-20
Virginia	NELAP	3	460189	09-14-19
Virginia	NELAP		10043	09-14-19
West Virginia DEP	State		142	01-31-20
West Virginia DEP	State Program	3	142	01-31-20
Wisconsin	State		998027800	08-31-19
Wisconsin	State Program	5	998027800	08-31-19

Accreditation/Certification Summary

Client: Environmental Standards Inc.
Project/Site: BRF_SES_20190515_1B

Job ID: 180-90260-1

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-19
ANAB	Dept. of Defense ELAP		L2305	04-06-22
ANAB	DoD		L2305	04-06-22
ANAB	DOE		L2305.01	04-06-22
Arizona	State		AZ0813	12-08-19
Arizona	State Program	9	AZ0813	12-08-19
California	State Program	9	2886	06-30-20
Connecticut	State Program	1	PH-0241	03-31-21
Florida	NELAP	4	E87689	06-30-20
Hawaii	State Program	9	NA	06-30-19
Illinois	NELAP	5	200023	11-30-19
Iowa	State Program	7	373	12-01-20
Kansas	NELAP	7	E-10236	10-31-19
Kentucky (DW)	State Program	4	KY90125	12-31-19
Louisiana	NELAP	6	04080	06-30-20
Louisiana (DW)	NELAP	6	LA011	12-31-19
Maryland	State Program	3	310	09-30-20
Michigan	State Program	5	9005	06-30-19
Missouri	State Program	7	780	06-30-19 *
Nevada	State Program	9	MO000542018-1	07-31-19 *
New Jersey	NELAP	2	MO002	06-30-20
New York	NELAP	2	11616	03-31-20
New York	NELAP		11616	04-01-20
North Dakota	State Program	8	R207	06-30-19 *
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State		9997	08-31-19
Oklahoma	State Program	6	9997	08-31-19 *
Pennsylvania	NELAP	3	68-00540	02-28-20
Pennsylvania	NELAP		68-00540	02-28-20
South Carolina	State Program	4	85002001	06-30-19 *
Texas	NELAP	6	T104704193-18-13	07-31-19 *
Texas	NELAP		T104704193-19-13	07-31-20
US Fish & Wildlife	Federal		058448	07-31-19
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542018-10	07-31-19 *
Virginia	NELAP	3	460230	06-14-20
Virginia	NELAP		10310	06-14-20
Washington	State Program	10	C592	08-30-19
West Virginia DEP	State Program	3	381	08-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Sample Summary

Client: Environmental Standards Inc.
Project/Site: BRF_SES_20190515_1B

Job ID: 180-90260-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-90260-1	BRF-SES-04-20190515	Solid	05/15/19 09:15	05/17/19 09:00	
180-90260-2	BRF-SES-DUP01-20190515	Solid	05/15/19 00:00	05/17/19 09:00	
180-90260-3	BRF-SES-FB01-20190515	Water	05/15/19 11:04	05/17/19 09:00	
180-90260-4	BRF-SES-01-20190515	Solid	05/15/19 13:52	05/17/19 09:00	
180-90260-5	BRF-SES-02-20190515	Solid	05/15/19 15:15	05/17/19 09:00	
180-90260-6	BRF-SES-03-20190515	Solid	05/15/19 15:47	05/17/19 09:00	
180-90260-7	BRF-SES-EB01-20190515	Water	05/15/19 18:02	05/17/19 09:00	

Method Summary

Client: Environmental Standards Inc.
Project/Site: BRF_SES_20190515_1B

Job ID: 180-90260-1

Method	Method Description	Protocol	Laboratory
901.1	Radium-226 & Other Gamma Emitters (GS)	EPA	TAL SL
Dry and Grind	Preparation, Dry and Grind	None	TAL SL
Fill_Geo-21	Fill Geometry, 21-Day In-Growth	None	TAL SL

Protocol References:

EPA = US Environmental Protection Agency
None = None

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: BRF_SES_20190515_1B

Job ID: 180-90260-1

Client Sample ID: BRF-SES-04-20190515
Lab Sample ID: 180-90260-1
Date Collected: 05/15/19 09:15
Matrix: Solid
Date Received: 05/17/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Leach	Dry and Grind			1.0 g	1.0 g	429647	05/23/19 12:11	DRO	TAL SL
Total/NA	Prep	Fill_Geo-21			269.9 g	1.0 g	430196	05/30/19 03:34	SJS	TAL SL
Total/NA	Analysis	901.1		1			432463	06/24/19 06:00	KLS	TAL SL
	Instrument ID:	GAMMAVISION								

Client Sample ID: BRF-SES-DUP01-20190515
Lab Sample ID: 180-90260-2
Date Collected: 05/15/19 00:00
Matrix: Solid
Date Received: 05/17/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Leach	Dry and Grind			1.0 g	1.0 g	429647	05/23/19 12:11	DRO	TAL SL
Total/NA	Prep	Fill_Geo-21			275.5 g	1.0 g	430196	05/30/19 03:34	SJS	TAL SL
Total/NA	Analysis	901.1		1			432448	06/23/19 23:42	KLS	TAL SL
	Instrument ID:	GAMMAVISION								

Client Sample ID: BRF-SES-FB01-20190515
Lab Sample ID: 180-90260-3
Date Collected: 05/15/19 11:04
Matrix: Water
Date Received: 05/17/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			1000 mL	1.0 g	430074	05/28/19 16:16	KRS	TAL SL
Total/NA	Analysis	901.1		1			432237	06/20/19 06:19	KLS	TAL SL
	Instrument ID:	GAMMAVISION								

Client Sample ID: BRF-SES-01-20190515
Lab Sample ID: 180-90260-4
Date Collected: 05/15/19 13:52
Matrix: Solid
Date Received: 05/17/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Leach	Dry and Grind			1.0 g	1.0 g	429647	05/23/19 12:11	DRO	TAL SL
Total/NA	Prep	Fill_Geo-21			309.5 g	1.0 g	430196	05/30/19 03:34	SJS	TAL SL
Total/NA	Analysis	901.1		1			432469	06/23/19 23:43	KLS	TAL SL
	Instrument ID:	GAMMAVISION								

Client Sample ID: BRF-SES-02-20190515
Lab Sample ID: 180-90260-5
Date Collected: 05/15/19 15:15
Matrix: Solid
Date Received: 05/17/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Leach	Dry and Grind			1.0 g	1.0 g	429647	05/23/19 12:11	DRO	TAL SL
Total/NA	Prep	Fill_Geo-21			419.5 g	1.0 g	430196	05/30/19 03:34	SJS	TAL SL
Total/NA	Analysis	901.1		1			432458	06/24/19 06:03	KLS	TAL SL
	Instrument ID:	GAMMAVISION								

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: BRF_SES_20190515_1B

Job ID: 180-90260-1

Client Sample ID: BRF-SES-03-20190515

Lab Sample ID: 180-90260-6
Date Collected: 05/15/19 15:47
Matrix: Solid
Date Received: 05/17/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Leach	Dry and Grind			1.0 g	1.0 g	429647	05/23/19 12:11	DRO	TAL SL
Total/NA	Prep	Fill_Geo-21			260.1 g	1.0 g	430196	05/30/19 03:34	SJS	TAL SL
Total/NA	Analysis	901.1		1			432461	06/23/19 23:41	KLS	TAL SL
	Instrument ID:	GAMMAVISION								

Client Sample ID: BRF-SES-EB01-20190515

Lab Sample ID: 180-90260-7
Date Collected: 05/15/19 18:02
Matrix: Water
Date Received: 05/17/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			1000 mL	1.0 g	430074	05/28/19 16:16	KRS	TAL SL
Total/NA	Analysis	901.1		1			432234	06/20/19 08:48	KLS	TAL SL
	Instrument ID:	GAMMAVISION								

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Analyst References:

Lab: TAL SL
- Batch Type: Leach
  - DRO = David Oetter
- Batch Type: Prep
  - KRS = Kurt Slama
  - SJS = Sean Small
- Batch Type: Analysis
  - KLS = Kody Saulters

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: BRF_SES_20190515_1B

Job ID: 180-90260-1

Client Sample ID: BRF-SES-04-20190515

Lab Sample ID: 180-90260-1

Date Collected: 05/15/19 09:15

Matrix: Solid

Date Received: 05/17/19 09:00

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228 (positive only)	2.06		0.461	0.486			pCi/g	05/30/19 03:34	06/24/19 06:00	1
Radium-226	0.857		0.222	0.239	1.00	0.209	pCi/g	05/30/19 03:34	06/24/19 06:00	1
Radium-228	1.20		0.404	0.423		0.381	pCi/g	05/30/19 03:34	06/24/19 06:00	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: BRF_SES_20190515_1B

Job ID: 180-90260-1

Client Sample ID: BRF-SES-DUP01-20190515

Lab Sample ID: 180-90260-2

Date Collected: 05/15/19 00:00

Matrix: Solid

Date Received: 05/17/19 09:00

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228 (positive only)	2.71		0.407	0.452			pCi/g	05/30/19 03:34	06/23/19 23:42	1
Radium-226	1.15		0.248	0.274	1.00	0.165	pCi/g	05/30/19 03:34	06/23/19 23:42	1
Radium-228	1.56		0.323	0.360		0.164	pCi/g	05/30/19 03:34	06/23/19 23:42	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: BRF_SES_20190515_1B

Job ID: 180-90260-1

Client Sample ID: BRF-SES-FB01-20190515

Lab Sample ID: 180-90260-3

Date Collected: 05/15/19 11:04

Matrix: Water

Date Received: 05/17/19 09:00

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228 (positive only)	26.6	U	18.4	18.6			pCi/L	05/28/19 16:16	06/20/19 06:19	1
Radium-226	-2.07	U	21.6	21.6	50.0	36.7	pCi/L	05/28/19 16:16	06/20/19 06:19	1
Radium-228	**26.6**		18.4	18.6	50.0	18.7	pCi/L	05/28/19 16:16	06/20/19 06:19	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: BRF_SES_20190515_1B

Job ID: 180-90260-1

Client Sample ID: BRF-SES-01-20190515

Lab Sample ID: 180-90260-4

Date Collected: 05/15/19 13:52
Date Received: 05/17/19 09:00

Matrix: Solid

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228 (positive only)	1.28		0.292	0.307			pCi/g	05/30/19 03:34	06/23/19 23:43	1
Radium-226	0.655		0.204	0.215	1.00	0.168	pCi/g	05/30/19 03:34	06/23/19 23:43	1
Radium-228	0.628		0.209	0.219		0.162	pCi/g	05/30/19 03:34	06/23/19 23:43	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: BRF_SES_20190515_1B

Job ID: 180-90260-1

Client Sample ID: BRF-SES-02-20190515

Lab Sample ID: 180-90260-5

Date Collected: 05/15/19 15:15

Matrix: Solid

Date Received: 05/17/19 09:00

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228 (positive only)	0.951		0.197	0.208			pCi/g	05/30/19 03:34	06/24/19 06:03	1
Radium-226	0.472		0.127	0.136	1.00	0.131	pCi/g	05/30/19 03:34	06/24/19 06:03	1
Radium-228	0.479		0.150	0.157		0.0896	pCi/g	05/30/19 03:34	06/24/19 06:03	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: BRF_SES_20190515_1B

Job ID: 180-90260-1

Client Sample ID: BRF-SES-03-20190515

Lab Sample ID: 180-90260-6

Date Collected: 05/15/19 15:47
Matrix: Solid
Date Received: 05/17/19 09:00

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228 (positive only)	1.74		0.372	0.396			pCi/g	05/30/19 03:34	06/23/19 23:41	1
Radium-226	0.597		0.218	0.227	1.00	0.217	pCi/g	05/30/19 03:34	06/23/19 23:41	1
Radium-228	1.14		0.302	0.324		0.213	pCi/g	05/30/19 03:34	06/23/19 23:41	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: BRF_SES_20190515_1B

Job ID: 180-90260-1

Client Sample ID: BRF-SES-EB01-20190515

Lab Sample ID: 180-90260-7

Date Collected: 05/15/19 18:02

Matrix: Water

Date Received: 05/17/19 09:00

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228 (positive only)	6.07	U	14.8	14.8			pCi/L	05/28/19 16:16	06/20/19 08:48	1
Radium-226	-5.10	U	20.0	20.0	50.0	34.0	pCi/L	05/28/19 16:16	06/20/19 08:48	1
Radium-228	6.07	U	14.8	14.8	50.0	33.4	pCi/L	05/28/19 16:16	06/20/19 08:48	1

QC Sample Results

Client: Environmental Standards Inc.
Project/Site: BRF_SES_20190515_1B

Job ID: 180-90260-1

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-430074/1-A
Matrix: Water
Analysis Batch: 431997

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 430074

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228 (positive only)	10.66	U	19.4	19.4			pCi/L	05/28/19 16:16	06/19/19 21:57	1
Radium-226	-11.22	U	20.2	20.3	50.0	34.1	pCi/L	05/28/19 16:16	06/19/19 21:57	1
Radium-228	10.66	U	19.4	19.4	50.0	22.9	pCi/L	05/28/19 16:16	06/19/19 21:57	1

Lab Sample ID: LCS 160-430074/2-A
Matrix: Water
Analysis Batch: 431998

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 430074

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium-241	136000	126800		14600		314	pCi/L	93	90 - 111
Cesium-137	44600	44280		4430		81.2	pCi/L	99	90 - 111
Cobalt-60	29200	28590		2830		49.1	pCi/L	98	89 - 110

Lab Sample ID: 180-90101-A-1-B DU
Matrix: Water
Analysis Batch: 432365

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 430074

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium 226 and 228 (positive only)	13.6	U	16.87	U	21.5			pCi/L	0.06	
Radium-226	-8.98	U	-11.22	U	17.4	50.0	38.0	pCi/L	0.07	1
Radium-228	13.6	U	16.87	U	21.5	50.0	22.9	pCi/L	0.08	1

Lab Sample ID: MB 160-430196/1-A
Matrix: Solid
Analysis Batch: 432453

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 430196

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium 226 and 228 (positive only)	0.05580	U	0.1072	0.1073			pCi/g	05/30/19 03:34	06/23/19 23:37	1
Radium-226	0.05580	U	0.0721	0.0723	1.00	0.246	pCi/g	05/30/19 03:34	06/23/19 23:37	1
Radium-228	0.0000	U	0.0793	0.0793		0.295	pCi/g	05/30/19 03:34	06/23/19 23:37	1

Lab Sample ID: LCS 160-430196/2-A
Matrix: Solid
Analysis Batch: 432452

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 430196

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium-241	96.7	97.10		11.4		1.07	pCi/g	100	87 - 116
Cesium-137	27.6	30.02		3.15		0.272	pCi/g	109	87 - 120
Cobalt-60	11.5	12.35		1.29		0.164	pCi/g	107	87 - 115

QC Sample Results

Client: Environmental Standards Inc.
Project/Site: BRF_SES_20190515_1B

Job ID: 180-90260-1

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS) (Continued)

Lab Sample ID: 180-90260-6 DU
Matrix: Solid
Analysis Batch: 432459

Client Sample ID: BRF-SES-03-20190515
Prep Type: Total/NA
Prep Batch: 430196

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium 226 and 228 (positive only)	1.74			1.749		0.470			pCi/g			0.01	
Radium-226	0.597			0.6677		0.182	1.00	0.188	pCi/g			0.17	1
Radium-228	1.14			1.081		0.433		0.396	pCi/g			0.07	1

QC Association Summary

Client: Environmental Standards Inc.
Project/Site: BRF_SES_20190515_1B

Job ID: 180-90260-1

Rad

Leach Batch: 429647

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-90260-1	BRF-SES-04-20190515	Total/NA	Solid	Dry and Grind	
180-90260-2	BRF-SES-DUP01-20190515	Total/NA	Solid	Dry and Grind	
180-90260-4	BRF-SES-01-20190515	Total/NA	Solid	Dry and Grind	
180-90260-5	BRF-SES-02-20190515	Total/NA	Solid	Dry and Grind	
180-90260-6	BRF-SES-03-20190515	Total/NA	Solid	Dry and Grind	
180-90260-6 DU	BRF-SES-03-20190515	Total/NA	Solid	Dry and Grind	

Prep Batch: 430074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-90260-3	BRF-SES-FB01-20190515	Total/NA	Water	Fill_Geo-21	
180-90260-7	BRF-SES-EB01-20190515	Total/NA	Water	Fill_Geo-21	
MB 160-430074/1-A	Method Blank	Total/NA	Water	Fill_Geo-21	
LCS 160-430074/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-21	
180-90101-A-1-B DU	Duplicate	Total/NA	Water	Fill_Geo-21	

Prep Batch: 430196

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-90260-1	BRF-SES-04-20190515	Total/NA	Solid	Fill_Geo-21	429647
180-90260-2	BRF-SES-DUP01-20190515	Total/NA	Solid	Fill_Geo-21	429647
180-90260-4	BRF-SES-01-20190515	Total/NA	Solid	Fill_Geo-21	429647
180-90260-5	BRF-SES-02-20190515	Total/NA	Solid	Fill_Geo-21	429647
180-90260-6	BRF-SES-03-20190515	Total/NA	Solid	Fill_Geo-21	429647
MB 160-430196/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	
LCS 160-430196/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
180-90260-6 DU	BRF-SES-03-20190515	Total/NA	Solid	Fill_Geo-21	429647

TVA Environmental Investigations

Tennessee Valley Authority

Chain-of-Custody / Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate

COOLER No.: 1 of 5
COC No: BRF_SES_20190515_1B
1 of 1 Pages
Task Desc: BRF_SES

Rev 1 B3 5/20/19
Rev 2 7/19/19 B3

Required Ship to Lab:
Lab Name: TestAmerica Pittsburgh
Lab Address: 301 Alpha Drive, Pittsburgh, PA 15238

Lab Manager Contact Information
Lab PM: Gail Lage
Phone/Fax: 615-301-5741/615-726-3404
Lab Email: Gail.Lage@testamericainc.com

Required Project Information:
Site ID #: Bull Run Fossil Plant
Project #: NA
Site Address: 1265 Edgemoor Rd
City: Clinton State, Zip: TN, 37716
Site PM Name: Roy Quinn
Phone/Fax: 423-751-3753
Site PM Email: [illegible]

Required Sampler Information
Sampler: S.Bolden, A.Wilson & D. Norman
Sampling Company: Stantec
Address: 601 Grassmere Park Road, Suite 22
City/State: Nashville, TN Phone: (615) 885-1144
Sampling Team Number: 1
Send EDD/Hard Copy to: [illegible]

Analysis Turnaround Time
CALENDAR DAYS WORKING DAYS
TAT if different from Below
24 Hours
3 Business Days
5 Business Days
10 Business Days

ITEMS #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	Sample Depth Start Depth (Depth Unit)	Sample Depth End Depth (Select Unit)	MATRIX CODE	G= GRAB C=COMP	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	# OF CONTAINERS	Comments/ Lab Sample I.D.	MS/MSD	Filtered?	Preserve Name	Analysis: SEEP_SOIL_RAD	Analysis: SEEP_SOIL_BLANKS_RAD
1	BRF-SeS-04-20190515	SeS04	0.0	0.3	SES	C	N	5/15/2019	0915	2			N		X	
2	BRF-SeS-DUP01-20190515	NA	NA	NA	SES	C	FD	5/15/2019	NA	1			N		X	
3	BRF-SeS-FB01-20190515	SeS04	NA	NA	AQ	G	FB	5/15/2019	1104	3				HNO3		X
4	BRF-SeS-01-20190515	SeS01	0.0	0.3	SES	C	N	5/15/2019	1352	1					X	
5	BRF-SeS-02-20190515	SeS02	0.0	0.3	SES	C	N	5/15/2019	1515	2					X	
6	BRF-SeS-03-20190515	SeS03	0.0	0.3	SES	C	N	5/15/2019	1547	3		X			X	
7	BRF-SeS-EB01-20190515	SeS03	NA	NA	AQ	G	EB	5/15/2019	1802	3						X

AW 5/16/2019 AW 5/16/2019 AW 5/16/2019

A104 A104 A101 A102 A103 A103

B3 5/20/19

Additional Comments/Special Instructions:
Additional volume collected should be used for laboratory duplicate analysis.

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Suama Bolden / Stantec	5/16/2019	15:00	[illegible]		
			5/17/19 0900		

Sample Receipt Conditions

Temperature in °C	Sample on Ice?	Sample Intact?	Trip Blank?
Yes / No	Yes / No	Yes / No	Yes / No
Yes / No	Yes / No	Yes / No	Yes / No
Yes / No	Yes / No	Yes / No	Yes / No
Yes / No	Yes / No	Yes / No	Yes / No

SHIPPING METHOD: Courier

SAMPLER NAME AND SIGNATURE
Suama Bolden /
Anna Wilson /
Dominic Norman /

4582 - 3.0
7341 - 3.0
7352 - 2.8
7363 - 2.6
7374 - 2.4

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B3 7/19/19 B3 7/19/19

180-90260 Chain of Custody

Form TVA 30067A

TVA Environmental Investigations

Tennessee Valley Authority

Chain-of-Custody / Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate

COOLER No.:	2 of 5
COC No:	BRF_SES_20190515_1B
1 of 1 Pages	
Task Desc:	BRF_SES

Rev 1 BJ 8/26/19
Rev 2 7/19/19 BJ

Required Ship to Lab:

Lab Name:	TestAmerica Pittsburgh
Lab Address:	301 Alpha Drive Pittsburgh, PA 15238

Lab Manager Contact Information

Lab PM:	Gail Lage
Phone/Fax:	615-301-5741/615-726-3404
Lab Email:	Gail.Lage@testamericainc.com

Required Project Information:

Site ID #:	Bull Run Fossil Plant
Project #:	NA
Site Address	1265 Edgemoor Rd
City	Clinton
State, Zip:	TN, 37716
Site PM Name:	Roy Quinn
Phone/Fax:	423-751-3753
Site PM Email:	rquinn@tva.gov

Required Sampler Information

Sampler:	S Belden, A Wilson & D. Norman
Sampling Company:	Stantec
Address	601 Grassmere Park Road, Suite 22
City/State	Nashville, TN
Phone:	(616) 885-1144
Sampling Team Number:	1
Send EDD/Hard Copy to:	tva_deweb@stantec.com

Analysis Turnaround Time

CALENDAR DAYS / WORKING DAYS

TAT if different from Below _____

- ☐ 24 Hours
- ☐ 3 Business Days
- ☐ 5 Business Days
- ☑ 10 Business Days

ITEMS #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	Sample Depth Depth Unit	Sample Depth Select Unit	MATRIX CODE	G= GRAB C=COMP	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	# OF CONTAINERS	Comments/ Lab Sample I.D.	MS/MSD	Analysis SEEP_SOIL_RAD	Analysis SEEP_SOIL_BLANKS_RAD	Filtered N	Filtered N	Preservative None	Preservative HNO3
1	BRF-SeS-04-20190515	~~SeS04~~ A104	0.0	0.3	SES	C	N	5/15/2019	0915	2			X					
2	BRF-SeS-DUP01-20190515	NA	NA	NA	SES	C	FD	5/15/2019	NA	1			X					
3	BRF-SeS-FB01-20190515	~~SeS04~~ A104	NA	NA	AQ	G	FB	5/15/2019	1104	3				X				
4	BRF-SeS-01-20190515	~~SeS01~~ A101	0.0	0.3	SES	C	N	5/15/2019	1352	1			X					
5	BRF-SeS-02-20190515	~~SeS02~~ A102	0.0	0.3	SES	C	N	5/15/2019	1515	2			X					
6	BRF-SeS-03-20190515	~~SeS03~~ A103	0.0	0.3	SES	C	N	5/15/2019	1547	3		X	X					
7	BRF-SeS-EB01-20190515	~~SeS03~~ A103	NA	NA	AQ	G	EB	5/15/2019	1802	3				X				

BJ 8/26/19

AW 5/16/2019

AW 5/16/2019

AW 5/16/2019

Additional Comments/Special Instructions:

Additional volume collected should be used for laboratory duplicate analysis.

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Suama Belden / Stantec	5/16/2019	16:00			

SHIPPING METHOD:	SAMPLER NAME AND SIGNATURE
Courier	Suama Belden /
	Anna Wilson /
	Dominic Norman /

Sample Receipt Conditions

Temperature in °C	Sample on Ice?	Sample Intact?	Trip Blank?
Yes / No	Yes / No	Yes / No	Yes / No
Yes / No	Yes / No	Yes / No	Yes / No
Yes / No	Yes / No	Yes / No	Yes / No
Yes / No	Yes / No	Yes / No	Yes / No

BJ 7/17/19

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Form TVA 30067A

TVA Environmental Investigations

Tennessee Valley Authority

Chain-of-Custody / Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate

COOLER No.:	3 of 6
COC No:	BRF_SES_20190515_1B
1 of 1 Pages	
Task Desc:	BRF_SES

Rev 1
BJ
5/26/19
Rev 2
BJ 7/19/19

Required Ship to Lab:

Lab Name:	TestAmerica Pittsburgh
Lab Address:	301 Alpha Drive Pittsburgh, PA 15238

Lab Manager Contact Information

Lab PM:	Gail Lage
Phone/Fax:	615-301-5741/615-726-3404
Lab Email:	Gail.Lage@testamericainc.com

Required Project Information:

Site ID #:	Bull Run Fossil Plant
Project #:	NA
Site Address	1265 Edgemoor Rd
City	Clinton State, Zip: TN, 37716
Site PM Name:	Roy Quinn
Phone/Fax:	423-751-3753
Site PM Email:	[illegible]

Required Sampler Information

Sampler:	S Bolden, A Wilson & D. Norman
Sampling Company:	Stantec
Address	601 Grassmere Park Road, Suite 22
City/State	Nashville, TN Phone: (615) 885-1144
Sampling Team Number:	1
Send EDD/Hard Copy to:	[illegible]

Analysis Turnaround Time

- CALENDAR DAYS
- WORKING DAYS

TAT if different from Below _____

- ☐ 24 Hours
- ☐ 3 Business Days
- ☐ 5 Business Days
- ☑ 10 Business Days

ITEMS #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	Sample Depth Start Depth (Depth Unit)	Sample Depth End Depth (Select Unit)	MATRIX CODE	G= GRAB C=COMP	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	# OF CONTAINERS	Comments/ Lab Sample I.D.	MS/MSD	Analysis: SEEP_SOIL_RAD	Analysis: SEEP_SOIL_BLANKS_RAD	Filtered? N	Preserve Name: HNO3
1	BRF-SeS-04-20190515	~~SeS04~~ A104	0.0	0.3	SES	C	N	5/15/2019	0915	2		·	X		N	
2	BRF-SeS-DUP01-20190515	NA	NA	NA	SES	C	FD	5/15/2019	NA	1		·	X		N	
3	BRF-SeS-FB01-20190515	~~SeS04~~ A104	NA	NA	AQ	G	FB	5/15/2019	1104	3		·		X		
4	BRF-SeS-01-20190515	~~SeS01~~ A101	0.0	0.3	SES	C	N	5/15/2019	1352	1		·	X			
5	BRF-SeS-02-20190515	~~SeS02~~ A102	0.0	0.3	SES	C	N	5/15/2019	1515	2		·	X			
6	BRF-SeS-03-20190515	~~SeS03~~ A103	0.0	0.3	SES	C	N	5/15/2019	1547	3		X	X			
7	BRF-SeS-EB01-20190515	~~SeS03~~ A103	NA	NA	AQ	G	EB	5/15/2019	1802	3		·		X		

BJ 5/26/19

AW 5/16/2019

AW 5/16/2019

AW 5/16/2019

Additional Comments/Special Instructions:

Additional volume collected should be used for laboratory duplicate analysis.

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Suama Bolden / Stantec	5/16/2019	15:00			

Sample Receipt Conditions

Temperature in °C	Sample on Ice?	Sample Intact?	Trip Blank?
· Yes · No	· Yes · No	· Yes · No	· Yes · No
· Yes · No	· Yes · No	· Yes · No	· Yes · No
· Yes · No	· Yes · No	· Yes · No	· Yes · No
· Yes · No	· Yes · No	· Yes · No	· Yes · No

SHIPPING METHOD:	SAMPLER NAME AND SIGNATURE
Courier	Suama Bolden /
	Anna Wilson /
	Dominic Norman /

BJ 7/19/19

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A0I04
A0I01
A0I02
A0I03
A0I03

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Form TVA 20097A

TVA Environmental Investigations

Tennessee Valley Authority

Chain-of-Custody / Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate

COOLER No.:	4 of 5
COC No:	BRF_SES_20190515_1B
1 of 1 Pages	
Task Desc:	BRF_SES

Rev 1 BJ 5/26/19 Rev 2 7/19/19 BJ

Required Ship to Lab:

Lab Name:	TestAmerica Pittsburgh
Lab Address:	301 Alpha Drive, Pittsburgh, PA 15238

Lab Manager Contact Information

Lab PM:	Gail Lage
Phone/Fax:	615-301-5741/615-726-3404
Lab Email:	Gail.Lage@testamericainc.com

Required Project Information:

Site ID #:	Bull Run Fossil Plant
Project #:	NA
Site Address	1265 Edgemoor Rd
City	Clinton, State, Zip: TN, 37716
Site PM Name:	Roy Quinn
Phone/Fax:	423-751-3753
Site PM Email:	

Required Sampler Information

Sampler:	S Belden, A Wilson & D Norman
Sampling Company:	Stantec
Address	601 Grassmere Park Road, Suite 22
City/State	Nashville, TN Phone: (615) 885-1144
Sampling Team Number:	1
Send EDD/Hard Copy to:	tva_deliverables@stantec.com

Analysis Turnaround Time

CALENDAR DAYS / WORKING DAYS

TAT if different from Below _____

- ☐ 24 Hours
- ☐ 3 Business Days
- ☐ 5 Business Days
- ☑ 10 Business Days

ITEMS #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	Sample Depth: Depth Unit	Sample Depth: Select Unit	MATRIX CODE	G= GRAB C=COMP	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	# OF CONTAINERS	Comments/ Lab Sample I.D.	MS/MSD	Analysis: SEEP_SOIL_BAID	Analysis: SEEP_TOTAL_BLANKS_BAID	Filtered N	Filtered N	Preserve None	Preserve HNO3
1	BRF-SeS-04-20190515	~~SeS04~~ A104	0.0	0.3	SES	C	N	5/15/2019	0915	2		·	X					
2	BRF-SeS-DUP01-20190515	NA	NA	NA	SES	C	FD	5/15/2019	NA	1		·	X					
3	BRF-SeS-FB01-20190515	~~SeS04~~ A101	NA	NA	AQ	G	FB	5/15/2019	1104	3		·		X				
4	BRF-SeS-01-20190515	~~SeS01~~ A101	0.0	0.3	SES	C	N	5/15/2019	1352	1		·	X					
5	BRF-SeS-02-20190515	~~SeS02~~ A102	0.0	0.3	SES	C	N	5/15/2019	1515	2		·	X					
6	BRF-SeS-03-20190515	~~SeS03~~ A103	0.0	0.3	SES	C	N	5/15/2019	1547	3		X	X					
7	BRF-SeS-EB01-20190515	~~SeS03~~ A103	NA	NA	AQ	G	EB	5/15/2019	1802	3		·		X				

BJ 5/26/19

AOI 04 AOI 04 AOI 01 AOI 02 AOI 03 AOI 03

BJ 7/19/19

Additional Comments/Special Instructions:

Additional volume collected should be used for laboratory duplicate analysis.

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Suama Belden / Stantec	5/16/2019	15:00			

SHIPPING METHOD:	SAMPLER NAME AND SIGNATURE
Courier	Suama Belden /
	Anna Wilson /
	Dominic Norman /

Sample Receipt Conditions

Temperature in °C	Sample on Ice?	Sample Intact?	Trip Blank?
· Yes · No	· Yes · No	· Yes · No	· Yes · No
· Yes · No	· Yes · No	· Yes · No	· Yes · No
· Yes · No	· Yes · No	· Yes · No	· Yes · No
· Yes · No	· Yes · No	· Yes · No	· Yes · No

Form TVA 30057A

TVA Environmental Investigations

Tennessee Valley Authority

Chain-of-Custody / Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate

COOLER No.:	5 of 5
COC No:	BRF_SES_20190515_1B
1 of 1 Pages	
Task Desc:	BRF_SES

Rev 1 BJ 5/26/19
Rev 2 BJ 7/19/19

Required Ship to Lab:
Lab Name: TestAmerica Pittsburgh
Lab Address: 301 Alpha Drive, Pittsburgh, PA 15238

Lab Manager Contact Information
Lab PM: Gail Lage
Phone/Fax: 615-301-5741/615-726-3404
Lab Email: Gail.Lage@testamericainc.com

Required Project Information:
Site ID #: Bull Run Fossil Plant
Project #: NA
Site Address: 1265 Edgemoor Rd
City: Clinton State, Zip: TN, 37716
Site PM Name: Roy Quinn
Phone/Fax: 423-751-3753
Site PM Email: rquinn@tva.gov

Required Sampler Information
Sampler: S Bolden, A Wilson & D. Norman
Sampling Company: Stantec
Address: 601 Grassmere Park Road, Suite 22
City/State: Nashville, TN Phone: (615) 885-1144
Sampling Team Number: 1
Send EDD/Hard Copy to: bul_dwr@stantec@envirod.com

Analysis Turnaround Time
CALENDAR DAYS WORKING DAYS
TAT if different from Below _____
24 Hours
3 Business Days
5 Business Days
10 Business Days

ITEMS #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	Sample Depth: Depth Unit / Select Unit: Start Depth	End Depth	MATRIX CODE	G= GRAB C=COMP	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	# OF CONTAINERS	Comments/ Lab Sample I.D.	MS/MSD	Analysis: SEEP_SOIL_RAD	SEEP_SOIL_BLANKS_RAD	Filtered N	Preserve None	HNO3
1	BRF-SeS-04-20190515	~~SeS04~~ A104	0.0	0.3	SES	C	N	5/15/2019	0915	2			X				
2	BRF-SeS-DUP01-20190515	NA	NA	NA	SES	C	FD	5/15/2019	NA	1			X				
3	BRF-SeS-FB01-20190515	~~SeS04~~ A104	NA	NA	AQ	G	FB	5/15/2019	1104	3				X			
4	BRF-SeS-01-20190515	~~SeS01~~ A101	0.0	0.3	SES	C	N	5/15/2019	1352	1			X				
5	BRF-SeS-02-20190515	~~SeS02~~ A102	0.0	0.3	SES	C	N	5/15/2019	1515	2			X				
6	BRF-SeS-03-20190515	~~SeS03~~ A103	0.0	0.3	SES	C	N	5/15/2019	1547	3		X	X				
7	BRF-SeS-EB01-20190515	~~SeS03~~ A103	NA	NA	AQ	G	EB	5/15/2019	1802	3				X			

BJ 05/26/19

BJ 7/19/19 A0I04 A0I04 A0I01 A0I02 A0I03 A0I03

Additional Comments/Special Instructions:
Additional volume collected should be used for laboratory duplicate analysis.

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Susana Bolden / Stantec	5/16/2019	15:00			

Sample Receipt Conditions

Temperature in °C	Sample on Ice?	Sample Intact?	Trip Blank?
Yes / No	Yes / No	Yes / No	Yes / No
Yes / No	Yes / No	Yes / No	Yes / No
Yes / No	Yes / No	Yes / No	Yes / No
Yes / No	Yes / No	Yes / No	Yes / No

SHIPPING METHOD:	SAMPLER NAME AND SIGNATURE
Courier	Susana Bolden /
	Anna Wilson /
	Dominic Norman /

Page 1 of 1

Form TVA 39967A

TVA Environmental Investigations

Tennessee Valley Authority

Chain-of-Custody / Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate

COOLER No.:	of 5
COC No:	BRF_SES_20190515_1B
1 of 1 Pages	
Task Desc:	BRF_SES

Required Ship to Lab:

Lab Name:	TestAmerica Pittsburgh
Lab Address:	301 Alpha Drive Pittsburgh, PA 15238

Lab Manager Contact Information

Lab PM:	Gail Lage
Phone/Fax:	615-301-5741/615-726-3404
Lab Email:	Gail.Lage@testamericainc.com

Required Project Information:

Site ID #:	Bull Run Fossil Plant		
Project #:	NA		
Site Address	1265 Edgemoor Rd		
City	Clinton	State, Zip:	TN, 37716
Site PM Name:	Roy Quinn		
Phone/Fax:	423-751-3753		
Site PM Email:	jrquinn@tva.gov		

Required Sampler Information

Sampler:	S.Bolden, A.Wilson & D. Norman		
Sampling Company:	Stantec		
Address	601 Grassmere Park Road, Suite 22		
City/State	Nashville, TN	Phone:	(615) 885-1144
Sampling Team Number:	1		
Send EDD/Hard Copy to:	tva_deliverables@envstd.com		

Analysis Turnaround Time

• CALENDAR DAYS • WORKING DAYS

TAT if different from Below _____

- ☐ 24 Hours
- ☐ 3 Business Days
- ☐ 5 Business Days
- ☑ **10 Business Days**

ITEMS #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	Sample Depth: Depth Unit	Sample Depth: Select Unit	MATRIX CODE	G= GRAB C=COMP	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	# OF CONTAINERS	Comments/ Lab Sample I.D.	MS/MSD	Filtered: N	Filtered: N	Preserve: None	Preserve: HNO3	Analysis: SEEP_SOIL_RAD	Analysis: SEEP_SOIL_BLANKS_RAD
1	BRF-SeS-04-20190515	SeS04	0.0	0.3	SES	C	N	5/15/2019	0915	2		•					X	
2	BRF-SeS-DUP01-20190515	NA	NA	NA	SES	C	FD	5/15/2019	NA	1		•					X	
3	BRF-SeS-FB01-20190515	SeS04	NA	NA	AQ	G	FB	5/15/2019	1104	3		•						X
4	BRF-SeS-01-20190515	SeS01	0.0	0.3	SES	C	N	5/15/2019	1352	1		•					X	
5	BRF-SeS-02-20190515	SeS02	0.0	0.3	SES	C	N	5/15/2019	1515	2		•					X	
6	BRF-SeS-03-20190515	SeS03	0.0	0.3	SES	C	N	5/15/2019	1547	3		X					X	
7	BRF-SeS-EB01-20190515	SeS03	NA	NA	AQ	G	EB	5/15/2019	1802	3		•						X

AW 5/16/2019

Additional Comments/Special Instructions:

Additional volume collected should be used for laboratory duplicate analysis.

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Suama Bolden / Stantec	5/16/2019	15:00	AW/TBB		
			5/17/19	0900	

Sample Receipt Conditions

Temperature in °C	Sample on Ice?	Sample Intact?	Trip Blank?
• Yes • No	• Yes • No	• Yes • No	• Yes • No
• Yes • No	• Yes • No	• Yes • No	• Yes • No
• Yes • No	• Yes • No	• Yes • No	• Yes • No
• Yes • No	• Yes • No	• Yes • No	• Yes • No

SHIPPING METHOD:	SAMPLER NAME AND SIGNATURE
Courier	Suama Bolden /
	Anna Wilson /
	Dominic Norman /

9582 - 3.0
7341 - 3.0
7352 - 2.8
7363 - 2.6
7374 - 2.4

180-90260 Chain of Custody

Form TVA 30067A

TVA Environmental Investigations

Tennessee Valley Authority

Chain-of-Custody / Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate

COOLER No.:	2 of 5
COC No:	BRF_SES_20190515_1B
1 of 1 Pages	
Task Desc:	BRF_SES

Required Ship to Lab:		Required Project Information:		Required Sampler Information	
Lab Name:	TestAmerica Pittsburgh	Site ID #:	Bull Run Fossil Plant	Sampler:	S.Bolden, A.Wilson & D. Norman
Lab Address:	301 Alpha Drive	Project #:	NA	Sampling Company:	Stantec
	Pittsburgh, PA 15238	Site Address	1265 Edgemoor Rd	Address	601 Grassmere Park Road, Suite 22
		City	Clinton State, Zip: TN, 37716	City/State	Nashville, TN Phone: (615) 885-1144
Lab Manager Contact Information		Site PM Name:	Roy Quinn		
Lab PM:	Gail Lage	Phone/Fax:	423-751-3753	Sampling Team Number:	1
Phone/Fax:	615-301-5741/615-726-3404	Site PM Email:	jrquinn@tva.gov	Send EDD/Hard Copy to:	tva_deliverables@envstd.com
Lab Email:	Gail.Lage@testamericainc.com				

Analysis Turnaround Time

• CALENDAR DAYS • WORKING DAYS

TAT if different from Below _____

- ☐ 24 Hours
- ☐ 3 Business Days
- ☐ 5 Business Days
- ☑ **10 Business Days**

ITEMS #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	Sample Depth: Start Depth	Sample Depth: End Depth	MATRIX CODE	G= GRAB C=COMP	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	# OF CONTAINERS	Comments/ Lab Sample I.D.	MS/MSD	Analysis: SEEP_SOIL_RAD	Analysis: SEEP_SOIL_BLANKS_RAD	Filtered: N	Filtered: N	Preserve: None	Preserve: HNO3
1	BRF-SeS-04-20190515	SeS04	0.0	0.3	SES	C	N	5/15/2019	0915	2		•	X					
2	BRF-SeS-DUP01-20190515	NA	NA	NA	SES	C	FD	5/15/2019	NA	1		•	X					
3	BRF-SeS-FB01-20190515	SeS04	NA	NA	AQ	G	FB	5/15/2019	1104	3		•		X				
4	BRF-SeS-01-20190515	SeS01	0.0	0.3	SES	C	N	5/15/2019	1352	1		•	X					
5	BRF-SeS-02-20190515	SeS02	0.0	0.3	SES	C	N	5/15/2019	1515	2		•	X					
6	BRF-SeS-03-20190515	SeS03	0.0	0.3	SES	C	N	5/15/2019	1547	3		X	X					
7	BRF-SeS-EB01-20190515	SeS03	NA	NA	AQ	G	EB	5/15/2019	1802	3		•		X				

AW 5/16/2019

AW 5/16/2019

AW 5/16/2019

Additional Comments/Special Instructions:

Additional volume collected should be used for laboratory duplicate analysis.

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Suama Bolden / Stantec	5/16/2019	15:00			

Sample Receipt Conditions

Temperature in °C	Sample on Ice?	Sample Intact?	Trip Blank?
• Yes • No	• Yes • No	• Yes • No	• Yes • No
• Yes • No	• Yes • No	• Yes • No	• Yes • No
• Yes • No	• Yes • No	• Yes • No	• Yes • No
• Yes • No	• Yes • No	• Yes • No	• Yes • No

SHIPPING METHOD:	SAMPLER NAME AND SIGNATURE
Courier	Suama Bolden /
	Anna Wilson /
	Dominic Norman /

Page 1 of 1

Form TVA 30067A

TVA Environmental Investigations

Tennessee Valley Authority

Chain-of-Custody / Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate

COOLER No.:	3 of 5
COC No:	BRF_SES_20190515_1B
1 of 1 Pages	
Task Desc:	BRF_SES

Required Ship to Lab:		Required Project Information:		Required Sampler Information	
Lab Name:	TestAmerica Pittsburgh	Site ID #:	Bull Run Fossil Plant	Sampler:	S.Bolden, A.Wilson & D. Norman
Lab Address:	301 Alpha Drive	Project #:	NA	Sampling Company:	Stantec
	Pittsburgh, PA 15238	Site Address	1265 Edgemoor Rd	Address	601 Grassmere Park Road, Suite 22
		City	Clinton State, Zip: TN, 37716	City/State	Nashville, TN Phone: (615) 885-1144
Lab Manager Contact Information		Site PM Name:	Roy Quinn		
Lab PM:	Gail Lage	Phone/Fax:	423-751-3753	Sampling Team Number:	1
Phone/Fax:	615-301-5741/615-726-3404	Site PM Email:	jrquinn@tva.gov	Send EDD/Hard Copy to:	tva_deliverables@enystd.com
Lab Email:	Gail.Lage@testamericainc.com				

Analysis Turnaround Time

• CALENDAR DAYS • WORKING DAYS

TAT if different from Below _____

☐ 24 Hours
☐ 3 Business Days
☐ 5 Business Days
☑ **10 Business Days**

ITEMS #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	Sample Depth: Depth Unit	Sample Depth: Select Unit	MATRIX CODE	G= GRAB C=COMP	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	# OF CONTAINERS	Comments/ Lab Sample I.D.	MS/MSD	Filtered: N	Filtered: N	Preserve: None	Preserve: HNO3	Analysis: SEEP_SOIL_RAD	Analysis: SEEP_SOIL_BLANKS_RAD
1	BRF-SeS-04-20190515	SeS04	0.0	0.3	SES	C	N	5/15/2019	0915	2		•					X	
2	BRF-SeS-DUP01-20190515	NA	NA	NA	SES	C	FD	5/15/2019	NA	1		•					X	
3	BRF-SeS-FB01-20190515	SeS04	NA	NA	AQ	G	FB	5/15/2019	1104	3		•						X
4	BRF-SeS-01-20190515	SeS01	0.0	0.3	SES	C	N	5/15/2019	1352	1		•					X	
5	BRF-SeS-02-20190515	SeS02	0.0	0.3	SES	C	N	5/15/2019	1515	2		•					X	
6	BRF-SeS-03-20190515	SeS03	0.0	0.3	SES	C	N	5/15/2019	1547	3		X					X	
7	BRF-SeS-EB01-20190515	SeS03	NA	NA	AQ	G	EB	5/15/2019	1802	3		•						X

AW 5/16/2019

Additional Comments/Special Instructions:

Additional volume collected should be used for laboratory duplicate analysis.

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Suama Bolden / Stantec	5/16/2019	15:00			

Sample Receipt Conditions

Temperature in °C	Sample on Ice?	Sample Intact?	Trip Blank?
• Yes • No	• Yes • No	• Yes • No	• Yes • No
• Yes • No	• Yes • No	• Yes • No	• Yes • No
• Yes • No	• Yes • No	• Yes • No	• Yes • No
• Yes • No	• Yes • No	• Yes • No	• Yes • No

SHIPPING METHOD:	SAMPLER NAME AND SIGNATURE
Courier	Suama Bolden /
	Anna Wilson /
	Dominic Norman /

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Form TVA 30067A

TVA Environmental Investigations

Tennessee Valley Authority

Chain-of-Custody / Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate

COOLER No.:	4 of 5
COC No:	BRF_SES_20190515_1B
1 of 1 Pages	
Task Desc:	BRF_SES

Required Ship to Lab:

Lab Name:	TestAmerica Pittsburgh
Lab Address:	301 Alpha Drive Pittsburgh, PA 15238

Lab Manager Contact Information

Lab PM:	Gail Lage
Phone/Fax:	615-301-5741/615-726-3404
Lab Email:	Gail.Lage@testamericainc.com

Required Project Information:

Site ID #:	Bull Run Fossil Plant		
Project #:	NA		
Site Address	1265 Edgemoor Rd		
City	Clinton	State, Zip:	TN, 37716
Site PM Name:	Roy Quinn		
Phone/Fax:	423-751-3753		
Site PM Email:	jrquinn@tva.gov		

Required Sampler Information

Sampler:	S.Bolden, A.Wilson & D. Norman		
Sampling Company:	Stantec		
Address	601 Grassmere Park Road, Suite 22		
City/State	Nashville, TN	Phone:	(615) 885-1144
Sampling Team Number:	1		
Send EDD/Hard Copy to:	tva_deliverables@envstd.com		

Analysis Turnaround Time

• CALENDAR DAYS • WORKING DAYS

TAT if different from Below _____

- ☐ 24 Hours
- ☐ 3 Business Days
- ☐ 5 Business Days
- ☑ **10 Business Days**

ITEMS #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	Sample Depth: Depth Unit	Sample Depth: Select Unit	Start Depth	End Depth	MATRIX CODE	G= GRAB C=COMP	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	# OF CONTAINERS	Comments/ Lab Sample I.D.	MS/MSD	Analysis: SEEP_SOIL_RAD (Filtered N, Preserve None)	Analysis: SEEP_SOIL_BLANKS_RAD (Filtered N, Preserve HNO3)
1	BRF-SeS-04-20190515	SeS04			0.0	0.3	SES	C	N	5/15/2019	0915	2		•	X	
2	BRF-SeS-DUP01-20190515	NA			NA	NA	SES	C	FD	5/15/2019	NA	1		•	X	
3	BRF-SeS-FB01-20190515	SeS04			NA	NA	AQ	G	FB	5/15/2019	1104	3		•		X
4	BRF-SeS-01-20190515	SeS01			0.0	0.3	SES	C	N	5/15/2019	1352	1		•	X	
5	BRF-SeS-02-20190515	SeS02			0.0	0.3	SES	C	N	5/15/2019	1515	2		•	X	
6	BRF-SeS-03-20190515	SeS03			0.0	0.3	SES	C	N	5/15/2019	1547	3		X	X	
7	BRF-SeS-EB01-20190515	SeS03			NA	NA	AQ	G	EB	5/15/2019	1802	3		•		X

AW 5/16/2019

AW 5/16/2019

AW 5/16/2019

Additional Comments/Special Instructions:

Additional volume collected should be used for laboratory duplicate analysis.

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Suama Bolden / Stantec	5/16/2019	15:00			

Sample Receipt Conditions

Temperature in °C	Sample on Ice?	Sample Intact?	Trip Blank?
• Yes • No	• Yes • No	• Yes • No	• Yes • No
• Yes • No	• Yes • No	• Yes • No	• Yes • No
• Yes • No	• Yes • No	• Yes • No	• Yes • No
• Yes • No	• Yes • No	• Yes • No	• Yes • No

SHIPPING METHOD:	SAMPLER NAME AND SIGNATURE
Courier	Suama Bolden /
	Anna Wilson /
	Dominic Norman /

Page 1 of 1

Form TVA 30067A

TVA Environmental Investigations

Tennessee Valley Authority

COOLER No.:	5	of	5
COC No:	BRF_SES_20190515_1B		
1 of 1 Pages			
Task Desc:	BRF_SES		

Chain-of-Custody / Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate

Required Ship to Lab:		Required Project Information:		Required Sampler Information	
Lab Name:	TestAmerica Pittsburgh	Site ID #:	Bull Run Fossil Plant	Sampler:	S.Bolden, A.Wilson & D. Norman
Lab Address:	301 Alpha Drive	Project #:	NA	Sampling Company:	Stantec
	Pittsburgh, PA 15238	Site Address	1265 Edgemoor Rd	Address	601 Grassmere Park Road, Suite 22
		City	Clinton State, Zip: TN, 37716	City/State	Nashville, TN Phone: (615) 885-1144
Lab Manager Contact Information		Site PM Name:	Roy Quinn		
Lab PM:	Gail Lage	Phone/Fax:	423-751-3753	Sampling Team Number:	1
Phone/Fax:	615-301-5741/615-726-3404	Site PM Email:	trquinn@tva.gov	Send EDD/Hard Copy to:	tva_deliverables@envstd.com
Lab Email:	Gail.Lage@testamericainc.com				

Analysis Turnaround Time

• CALENDAR DAYS • WORKING DAYS

TAT if different from Below _____

- ☐ 24 Hours
- ☐ 3 Business Days
- ☐ 5 Business Days
- ☑ **10 Business Days**

ITEMS #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	Sample Depth: Depth Unit	Sample Depth: Select Unit	MATRIX CODE	G= GRAB C=COMP	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	# OF CONTAINERS	Comments/ Lab Sample I.D.	MS/MSD	Filtered	Preserve	Analysis: SEEP_SOIL_RAD	Analysis: SEEP_SOIL_BLANKS_RAD
			Start Depth	End Depth										None / HNO3		
1	BRF-SeS-04-20190515	SeS04	0.0	0.3	SES	C	N	5/15/2019	0915	2		·	N		X	
2	BRF-SeS-DUP01-20190515	NA	NA	NA	SES	C	FD	5/15/2019	NA	1		·	N		X	
3	BRF-SeS-FB01-20190515	SeS04	NA	NA	AQ	G	FB	5/15/2019	1104	3		·				X
4	BRF-SeS-01-20190515	SeS01	0.0	0.3	SES	C	N	5/15/2019	1352	1		·			X	
5	BRF-SeS-02-20190515	SeS02	0.0	0.3	SES	C	N	5/15/2019	1515	2		·			X	
6	BRF-SeS-03-20190515	SeS03	0.0	0.3	SES	C	N	5/15/2019	1547	3		X			X	
7	BRF-SeS-EB01-20190515	SeS03	NA	NA	AQ	G	EB	5/15/2019	1802	3		·				X

AW 5/16/2019

AW 5/16/2019

AW 5/16/2019

Additional Comments/Special Instructions:

Additional volume collected should be used for laboratory duplicate analysis.

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Suama Bolden / Stantec	5/16/2019	15:00			

Sample Receipt Conditions			
• Yes • No	• Yes • No	• Yes • No	• Yes • No
• Yes • No	• Yes • No	• Yes • No	• Yes • No
• Yes • No	• Yes • No	• Yes • No	• Yes • No
• Yes • No	• Yes • No	• Yes • No	• Yes • No
Temperature in °C	Sample on Ice?	Sample Intact?	Trip Blank?

SHIPPING METHOD:	SAMPLER NAME AND SIGNATURE
Courier	Suama Bolden /
	Anna Wilson /
	Dominic Norman /

Page 1 of 1

Form TVA 30067A

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rumble, Jennifer L	Carrier Tracking No(s):	COC No: 180-363537.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: jennifer.rumble@testamericainc.com	State of Origin: Tennessee	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 180-90260-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 6/19/2019			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: BRF_SES_20190515_1B	Project #: 18019624			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	901.1_Ra/Dry_Grind Radium-226/228	901.1_Ra/Fill_Geo_21 Radium-226/228	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
BRF-SES-04-20190515 (180-90260-1)	5/15/19	09:15 Eastern		Solid			X		2	TVA - Batch alone. Quarantine zone soil. Contact PM if insufficient volume for Tuna
BRF-SES-DUP01-20190515 (180-90260-2)	5/15/19	Eastern		Solid			X		1	TVA - Batch alone. Quarantine zone soil. Contact PM if insufficient volume for Tuna
BRF-SES-FB01-20190515 (180-90260-3)	5/15/19	11:04 Eastern		Water				X	3	TVA - batch alone
BRF-SES-01-20190515 (180-90260-4)	5/15/19	13:52 Eastern		Solid			X		1	TVA - Batch alone. Quarantine zone soil. Contact PM if insufficient volume for Tuna
BRF-SES-02-20190515 (180-90260-5)	5/15/19	15:15 Eastern		Solid			X		2	TVA - Batch alone. Quarantine zone soil. Contact PM if insufficient volume for Tuna
BRF-SES-03-20190515 (180-90260-6)	5/15/19	15:47 Eastern		Solid			X		1	TVA - Batch alone. Quarantine zone soil. Contact PM if insufficient volume for Tuna
BRF-SES-03-20190515 (180-90260-6DU)	5/15/19	15:47 Eastern	DU	Solid			X		2	TVA - Batch alone. Quarantine zone soil. Contact PM if insufficient volume for Tuna
BRF-SES-EB01-20190515 (180-90260-7)	5/15/19	18:02 Eastern		Water				X	3	TVA - batch alone

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
[signature]	5/22/19 1100	MSH	[signature]	5-23-19 0830	TA STL

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Environmental Standards Inc.

Job Number: 180-90260-1

Login Number: 90260
List Number: 1
Creator: DiNardo, Nicholas J

List Source: Eurofins TestAmerica, Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Environmental Standards Inc.

Job Number: 180-90260-1

Login Number: 90260
List Number: 2
Creator: Hellm, Michael

List Source: Eurofins TestAmerica, St. Louis
List Creation: 05/23/19 10:49 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Environmental Standards Inc.

Job Number: 180-90260-1

Login Number: 90260
List Number: 3
Creator: Hellm, Michael

List Source: Eurofins TestAmerica, St. Louis
List Creation: 05/23/19 10:52 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	20.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	