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ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-84152-1
Client Project/Site: BRF_BS_20181113_1B
Revision: 3

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

Attn: Amanda Cover

Authorized for release by:
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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: 180-84152-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-84152-1

Revised Report
This report was revised to correct the solid sample results for dry weight using the dry weight results from TA-Pittsburgh. This replaces the previous final report.

Receipt
The samples were received on 11/19/2018 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 7 coolers at receipt time were 1.1º C, 2.6º C, 2.9º C, 3.9º C, 3.9º C, 3.9º C and 4.3º C.

RAD
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_BS_20181113_1B

Job ID: 180-84152-1

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_BS_20181113_1B

Job ID: 180-84152-1

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	06-27-19
California	State Program	9	2891	04-30-19 *
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-20
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-20
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-20
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	02-06-20
Pennsylvania	NELAP	3	02-00416	04-30-20
South Carolina	State Program	4	89014	04-30-19 *
Texas	NELAP	6	T104704528-15-2	03-31-20
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19 *
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-20
Wisconsin	State Program	5	998027800	08-31-19

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

Accreditation/Certification Summary

Client: Environmental Standards Inc.
Project/Site: BRF_BS_20181113_1B

Job ID: 180-84152-1

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	DoD / DOE		L2305	04-06-22
Arizona	State Program	9	AZ0813	12-08-19
California	State Program	9	2886	06-30-19 *
Connecticut	State Program	1	PH-0241	03-31-21
Florida	NELAP	4	E87689	06-30-19 *
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	06-30-19
Louisiana (DW)	NELAP	6	LA011	12-31-19
Maryland	State Program	3	310	09-30-19
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	06-30-19 *
New York	NELAP	2	11616	03-31-20
North Dakota	State Program	8	R207	06-30-19 *
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-19
Pennsylvania	NELAP	3	68-00540	02-28-20
South Carolina	State Program	4	85002001	06-30-19
Texas	NELAP	6	T104704193-18-13	07-31-19
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	06-14-19 *
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_BS_20181113_1B

Job ID: 180-84152-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-84152-1	BRF-BS-BG18-1.5/3.5-20181113	Solid	11/13/18 10:29	11/19/18 09:30
180-84152-2	BRF-BS-BG18-6.5/8.5-20181113	Solid	11/13/18 10:46	11/19/18 09:30
180-84152-3	BRF-BS-BG18-10.0/11.6-20181113	Solid	11/13/18 11:43	11/19/18 09:30
180-84152-4	BRF-BS-BG18-0.0/0.5-20181113	Solid	11/13/18 11:59	11/19/18 09:30
180-84152-5	BRF-BS-FB06-20181113	Water	11/13/18 13:07	11/19/18 09:30
180-84152-6	BRF-BS-BG17-1.1/3.1-20181114	Solid	11/14/18 09:37	11/17/18 09:30
180-84152-7	BRF-BS-BG17-0.0/0.5-20181114	Solid	11/14/18 09:49	11/17/18 09:30
180-84152-8	BRF-BS-FB07-20181114	Water	11/14/18 09:25	11/19/18 09:30
180-84152-9	BRF-BS-BG06-1.0/3.0-20181114	Solid	11/14/18 12:46	11/17/18 09:30
180-84152-10	BRF-BS-BG06-0.0/0.5-20181114	Solid	11/14/18 13:04	11/17/18 09:30
180-84152-11	BRF-BS-BG07-3.0/5.0-20181114	Solid	11/14/18 14:49	11/17/18 09:30
180-84152-12	BRF-BS-BG07-7.5/9.5-20181114	Solid	11/14/18 15:12	11/17/18 09:30
180-84152-13	BRF-BS-BG07-13.0/15.0-20181114	Solid	11/14/18 15:24	11/17/18 09:30
180-84152-14	BRF-BS-BG07-16.5/18.5-20181114	Solid	11/14/18 15:35	11/17/18 09:30
180-84152-15	BRF-BS-BG07-21.5/23.5-20181114	Solid	11/14/18 15:59	11/17/18 09:30
180-84152-16	BRF-BS-BG07-26.5/28.5-20181114	Solid	11/14/18 16:04	11/17/18 09:30
180-84152-17	BRF-BS-BG07-31.5/33.5-20181114	Solid	11/14/18 16:41	11/17/18 09:30
180-84152-18	BRF-BS-BG07-36.5/38.5-20181114	Solid	11/14/18 16:49	11/17/18 09:30
180-84152-19	BRF-BS-BG07-0.0/0.5-20181114	Solid	11/14/18 17:07	11/17/18 09:30

Method Summary

Client: Environmental Standards Inc.
Project/Site: BRF_BS_20181113_1B

Job ID: 180-84152-1

Method	Method Description	Protocol	Laboratory
901.1	Radium-226 & Other Gamma Emitters (GS)	EPA	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_BS_20181113_1B

Job ID: 180-84152-1

Client Sample ID: BRF-BS-BG18-1.5/3.5-20181113 — Lab Sample ID: 180-84152-1

Date Collected: 11/13/18 10:29 — **Matrix: Solid**
Date Received: 11/19/18 09:30

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			297.1 g	1.0 g	403090	11/28/18 10:53	PK	TAL SL
Total/NA	Analysis	901.1		1			406526	12/19/18 11:11	KLS	TAL SL
	Instrument ID:	GAMMAVISION								

Client Sample ID: BRF-BS-BG18-6.5/8.5-20181113 — Lab Sample ID: 180-84152-2

Date Collected: 11/13/18 10:46 — **Matrix: Solid**
Date Received: 11/19/18 09:30

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			308.4 g	1.0 g	403090	11/28/18 10:53	PK	TAL SL
Total/NA	Analysis	901.1		1			406518	12/19/18 11:11	KLS	TAL SL
	Instrument ID:	GAMMAVISION								

Client Sample ID: BRF-BS-BG18-10.0/11.6-20181113 — Lab Sample ID: 180-84152-3

Date Collected: 11/13/18 11:43 — **Matrix: Solid**
Date Received: 11/19/18 09:30

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			318.3 g	1.0 g	403090	11/28/18 10:53	PK	TAL SL
Total/NA	Analysis	901.1		1			406519	12/19/18 11:17	KLS	TAL SL
	Instrument ID:	GAMMAVISION								

Client Sample ID: BRF-BS-BG18-0.0/0.5-20181113 — Lab Sample ID: 180-84152-4

Date Collected: 11/13/18 11:59 — **Matrix: Solid**
Date Received: 11/19/18 09:30

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			295.8 g	1.0 g	403090	11/28/18 10:53	PK	TAL SL
Total/NA	Analysis	901.1		1			406512	12/19/18 11:11	KLS	TAL SL
	Instrument ID:	GAMMAVISION								

Client Sample ID: BRF-BS-FB06-20181113 — Lab Sample ID: 180-84152-5

Date Collected: 11/13/18 13:07 — **Matrix: Water**
Date Received: 11/19/18 09:30

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	403262	11/29/18 10:28	PK	TAL SL
Total/NA	Analysis	901.1		1			406787	12/20/18 15:07	KLS	TAL SL
	Instrument ID:	GAMMAVISION								

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: BRF_BS_20181113_1B

Job ID: 180-84152-1

Client Sample ID: BRF-BS-BG17-1.1/3.1-20181114 — Lab Sample ID: 180-84152-6

Date Collected: 11/14/18 09:37 — **Matrix: Solid**
Date Received: 11/17/18 09:30

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			337.1 g	1.0 g	403090	11/28/18 10:53	PK	TAL SL
Total/NA	Analysis	901.1		1			406515	12/19/18 11:12	KLS	TAL SL
	Instrument ID:	GAMMAVISION								

Client Sample ID: BRF-BS-BG17-0.0/0.5-20181114 — Lab Sample ID: 180-84152-7

Date Collected: 11/14/18 09:49 — **Matrix: Solid**
Date Received: 11/17/18 09:30

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			444.5 g	1.0 g	403090	11/28/18 10:53	PK	TAL SL
Total/NA	Analysis	901.1		1			406514	12/19/18 11:14	KLS	TAL SL
	Instrument ID:	GAMMAVISION								

Client Sample ID: BRF-BS-FB07-20181114 — Lab Sample ID: 180-84152-8

Date Collected: 11/14/18 09:25 — **Matrix: Water**
Date Received: 11/19/18 09:30

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	403262	11/29/18 10:28	PK	TAL SL
Total/NA	Analysis	901.1		1			406787	12/20/18 17:29	KLS	TAL SL
	Instrument ID:	GAMMAVISION								

Client Sample ID: BRF-BS-BG06-1.0/3.0-20181114 — Lab Sample ID: 180-84152-9

Date Collected: 11/14/18 12:46 — **Matrix: Solid**
Date Received: 11/17/18 09:30

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			273.1 g	1.0 g	403090	11/28/18 10:53	PK	TAL SL
Total/NA	Analysis	901.1		1			406513	12/19/18 11:15	KLS	TAL SL
	Instrument ID:	GAMMAVISION								

Client Sample ID: BRF-BS-BG06-0.0/0.5-20181114 — Lab Sample ID: 180-84152-10

Date Collected: 11/14/18 13:04 — **Matrix: Solid**
Date Received: 11/17/18 09:30

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			294.1 g	1.0 g	403192	11/28/18 14:55	PK	TAL SL
Total/NA	Analysis	901.1		1			406514	12/19/18 11:58	KLS	TAL SL
	Instrument ID:	GAMMAVISION								

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: BRF_BS_20181113_1B

Job ID: 180-84152-1

Client Sample ID: BRF-BS-BG07-3.0/5.0-20181114 — Lab Sample ID: 180-84152-11

Date Collected: 11/14/18 14:49 — **Matrix: Solid**
Date Received: 11/17/18 09:30

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			302.5 g	1.0 g	403192	11/28/18 14:55	PK	TAL SL
Total/NA	Analysis	901.1		1			406515	12/19/18 12:00	KLS	TAL SL
	Instrument ID:	GAMMAVISION								

Client Sample ID: BRF-BS-BG07-7.5/9.5-20181114 — Lab Sample ID: 180-84152-12

Date Collected: 11/14/18 15:12 — **Matrix: Solid**
Date Received: 11/17/18 09:30

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			244.6 g	1.0 g	403192	11/28/18 14:55	PK	TAL SL
Total/NA	Analysis	901.1		1			406527	12/19/18 11:56	KLS	TAL SL
	Instrument ID:	GAMMAVISION								

Client Sample ID: BRF-BS-BG07-13.0/15.0-20181114 — Lab Sample ID: 180-84152-13

Date Collected: 11/14/18 15:24 — **Matrix: Solid**
Date Received: 11/17/18 09:30

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			253.6 g	1.0 g	403192	11/28/18 14:55	PK	TAL SL
Total/NA	Analysis	901.1		1			406526	12/19/18 11:59	KLS	TAL SL
	Instrument ID:	GAMMAVISION								

Client Sample ID: BRF-BS-BG07-16.5/18.5-20181114 — Lab Sample ID: 180-84152-14

Date Collected: 11/14/18 15:35 — **Matrix: Solid**
Date Received: 11/17/18 09:30

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			277.1 g	1.0 g	403192	11/28/18 14:55	PK	TAL SL
Total/NA	Analysis	901.1		1			406518	12/19/18 11:57	KLS	TAL SL
	Instrument ID:	GAMMAVISION								

Client Sample ID: BRF-BS-BG07-21.5/23.5-20181114 — Lab Sample ID: 180-84152-15

Date Collected: 11/14/18 15:59 — **Matrix: Solid**
Date Received: 11/17/18 09:30

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			234.8 g	1.0 g	403192	11/28/18 14:55	PK	TAL SL
Total/NA	Analysis	901.1		1			406519	12/19/18 11:58	KLS	TAL SL
	Instrument ID:	GAMMAVISION								

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: BRF_BS_20181113_1B

Job ID: 180-84152-1

Client Sample ID: BRF-BS-BG07-26.5/28.5-20181114 — Lab Sample ID: 180-84152-16

Date Collected: 11/14/18 16:04 — **Matrix: Solid**
Date Received: 11/17/18 09:30

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			237.5 g	1.0 g	403192	11/28/18 14:55	PK	TAL SL
Total/NA	Analysis	901.1		1			406512	12/19/18 11:59	KLS	TAL SL
	Instrument ID:	GAMMAVISION								

Client Sample ID: BRF-BS-BG07-31.5/33.5-20181114 — Lab Sample ID: 180-84152-17

Date Collected: 11/14/18 16:41 — **Matrix: Solid**
Date Received: 11/17/18 09:30

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			288.2 g	1.0 g	403192	11/28/18 14:55	PK	TAL SL
Total/NA	Analysis	901.1		1			406514	12/19/18 12:38	KLS	TAL SL
	Instrument ID:	GAMMAVISION								

Client Sample ID: BRF-BS-BG07-36.5/38.5-20181114 — Lab Sample ID: 180-84152-18

Date Collected: 11/14/18 16:49 — **Matrix: Solid**
Date Received: 11/17/18 09:30

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			338 g	1.0 g	403192	11/28/18 14:55	PK	TAL SL
Total/NA	Analysis	901.1		1			406515	12/19/18 12:39	KLS	TAL SL
	Instrument ID:	GAMMAVISION								

Client Sample ID: BRF-BS-BG07-0.0/0.5-20181114 — Lab Sample ID: 180-84152-19

Date Collected: 11/14/18 17:07 — **Matrix: Solid**
Date Received: 11/17/18 09:30

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			348.9 g	1.0 g	403192	11/28/18 14:55	PK	TAL SL
Total/NA	Analysis	901.1		1			406527	12/19/18 12:37	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: Prep
  - PK = Pranav Kasinadhuni
- Batch Type: Analysis
  - KLS = Kody Saulters

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: BRF_BS_20181113_1B

Job ID: 180-84152-1

Client Sample ID: BRF-BS-BG18-1.5/3.5-20181113

Lab Sample ID: 180-84152-1

Date Collected: 11/13/18 10:29

Matrix: Solid

Date Received: 11/19/18 09:30

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	0.896		0.223	0.241	1.00	0.198	pCi/g	11/28/18 10:53	12/19/18 11:11	1
Radium-228	1.69		0.404	0.439		0.235	pCi/g	11/28/18 10:53	12/19/18 11:11	1
Radium 226 and Radium 228	2.59		0.461	0.501			pCi/g	11/28/18 10:53	12/19/18 11:11	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: BRF_BS_20181113_1B

Job ID: 180-84152-1

Client Sample ID: BRF-BS-BG18-6.5/8.5-20181113

Lab Sample ID: 180-84152-2

Date Collected: 11/13/18 10:46

Matrix: Solid

Date Received: 11/19/18 09:30

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	0.783		0.234	0.248	1.00	0.262	pCi/g	11/28/18 10:53	12/19/18 11:11	1
Radium-228	1.02		0.535	0.545		0.555	pCi/g	11/28/18 10:53	12/19/18 11:11	1
Radium 226 and Radium 228	1.80		0.584	0.599			pCi/g	11/28/18 10:53	12/19/18 11:11	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: BRF_BS_20181113_1B

Job ID: 180-84152-1

Client Sample ID: BRF-BS-BG18-10.0/11.6-20181113

Lab Sample ID: 180-84152-3

Date Collected: 11/13/18 11:43
Date Received: 11/19/18 09:30

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	0.846		0.225	0.241	1.00	0.204	pCi/g	11/28/18 10:53	12/19/18 11:17	1
Radium-228	1.41		0.259	0.296		0.204	pCi/g	11/28/18 10:53	12/19/18 11:17	1
Radium 226 and Radium 228	2.26		0.343	0.382			pCi/g	11/28/18 10:53	12/19/18 11:17	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: BRF_BS_20181113_1B

Job ID: 180-84152-1

Client Sample ID: BRF-BS-BG18-0.0/0.5-20181113

Lab Sample ID: 180-84152-4

Date Collected: 11/13/18 11:59

Matrix: Solid

Date Received: 11/19/18 09:30

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	0.781		0.300	0.313	1.00	0.293	pCi/g	11/28/18 10:53	12/19/18 11:11	1
Radium-228	1.04		0.303	0.325		0.173	pCi/g	11/28/18 10:53	12/19/18 11:11	1
Radium 226 and Radium 228	1.82		0.426	0.451			pCi/g	11/28/18 10:53	12/19/18 11:11	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: BRF_BS_20181113_1B

Job ID: 180-84152-1

Client Sample ID: BRF-BS-FB06-20181113

Lab Sample ID: 180-84152-5

Date Collected: 11/13/18 13:07

Matrix: Water

Date Received: 11/19/18 09:30

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	**44.1**		15.9	16.5	50.0	16.5	pCi/L	11/29/18 10:28	12/20/18 15:07	1
Radium-228	2.80	U	7.16	7.16	50.0	43.1	pCi/L	11/29/18 10:28	12/20/18 15:07	1
Radium 226 and Radium 228	**46.9**		17.4	18.0			pCi/L	11/29/18 10:28	12/20/18 15:07	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: BRF_BS_20181113_1B

Job ID: 180-84152-1

Client Sample ID: BRF-BS-BG17-1.1/3.1-20181114

Lab Sample ID: 180-84152-6

Date Collected: 11/14/18 09:37
Date Received: 11/17/18 09:30

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	0.795		0.198	0.215	1.00	0.156	pCi/g	11/28/18 10:53	12/19/18 11:12	1
Radium-228	1.50		0.320	0.355		0.135	pCi/g	11/28/18 10:53	12/19/18 11:12	1
Radium 226 and Radium 228	2.30		0.376	0.415			pCi/g	11/28/18 10:53	12/19/18 11:12	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: BRF_BS_20181113_1B

Job ID: 180-84152-1

Client Sample ID: BRF-BS-BG17-0.0/0.5-20181114

Lab Sample ID: 180-84152-7

Date Collected: 11/14/18 09:49
Date Received: 11/17/18 09:30

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	0.807		0.167	0.187	1.00	0.113	pCi/g	11/28/18 10:53	12/19/18 11:14	1
Radium-228	1.25		0.244	0.276		0.217	pCi/g	11/28/18 10:53	12/19/18 11:14	1
Radium 226 and Radium 228	2.06		0.296	0.333			pCi/g	11/28/18 10:53	12/19/18 11:14	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: BRF_BS_20181113_1B

Job ID: 180-84152-1

Client Sample ID: BRF-BS-FB07-20181114

Lab Sample ID: 180-84152-8

Date Collected: 11/14/18 09:25

Matrix: Water

Date Received: 11/19/18 09:30

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	10.5	U	9.24	9.30	50.0	45.6	pCi/L	11/29/18 10:28	12/20/18 17:29	1
Radium-228	14.3	U	19.9	20.0	50.0	24.9	pCi/L	11/29/18 10:28	12/20/18 17:29	1
Radium 226 and Radium 228	24.8	U	21.9	22.1			pCi/L	11/29/18 10:28	12/20/18 17:29	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: BRF_BS_20181113_1B

Job ID: 180-84152-1

Client Sample ID: BRF-BS-BG06-1.0/3.0-20181114

Lab Sample ID: 180-84152-9

Date Collected: 11/14/18 12:46

Matrix: Solid

Date Received: 11/17/18 09:30

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	0.600		0.246	0.253	1.00	0.280	pCi/g	11/28/18 10:53	12/19/18 11:15	1
Radium-228	1.54		0.424	0.452		0.223	pCi/g	11/28/18 10:53	12/19/18 11:15	1
Radium 226 and Radium 228	2.14		0.490	0.518			pCi/g	11/28/18 10:53	12/19/18 11:15	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: BRF_BS_20181113_1B

Job ID: 180-84152-1

Client Sample ID: BRF-BS-BG06-0.0/0.5-20181114

Lab Sample ID: 180-84152-10

Date Collected: 11/14/18 13:04

Matrix: Solid

Date Received: 11/17/18 09:30

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	0.637		0.211	0.221	1.00	0.182	pCi/g	11/28/18 14:55	12/19/18 11:58	1
Radium-228	0.754		0.316	0.325		0.463	pCi/g	11/28/18 14:55	12/19/18 11:58	1
Radium 226 and Radium 228	1.39		0.380	0.393			pCi/g	11/28/18 14:55	12/19/18 11:58	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: BRF_BS_20181113_1B

Job ID: 180-84152-1

Client Sample ID: BRF-BS-BG07-3.0/5.0-20181114

Lab Sample ID: 180-84152-11

Date Collected: 11/14/18 14:49

Matrix: Solid

Date Received: 11/17/18 09:30

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	0.473		0.171	0.178	1.00	0.176	pCi/g	11/28/18 14:55	12/19/18 12:00	1
Radium-228	1.10		0.328	0.347		0.180	pCi/g	11/28/18 14:55	12/19/18 12:00	1
Radium 226 and Radium 228	1.57		0.370	0.390			pCi/g	11/28/18 14:55	12/19/18 12:00	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: BRF_BS_20181113_1B

Job ID: 180-84152-1

Client Sample ID: BRF-BS-BG07-7.5/9.5-20181114

Lab Sample ID: 180-84152-12

Date Collected: 11/14/18 15:12

Matrix: Solid

Date Received: 11/17/18 09:30

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	0.204	U	0.133	0.135	1.00	0.605	pCi/g	11/28/18 14:55	12/19/18 11:56	1
Radium-228	**1.22**		0.303	0.328		0.144	pCi/g	11/28/18 14:55	12/19/18 11:56	1
Radium 226 and Radium 228	**1.42**		0.331	0.355			pCi/g	11/28/18 14:55	12/19/18 11:56	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: BRF_BS_20181113_1B

Job ID: 180-84152-1

Client Sample ID: BRF-BS-BG07-13.0/15.0-20181114

Lab Sample ID: 180-84152-13

Date Collected: 11/14/18 15:24

Matrix: Solid

Date Received: 11/17/18 09:30

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	0.735		0.239	0.250	1.00	0.264	pCi/g	11/28/18 14:55	12/19/18 11:59	1
Radium-228	1.84		0.341	0.389		0.180	pCi/g	11/28/18 14:55	12/19/18 11:59	1
Radium 226 and Radium 228	2.58		0.416	0.462			pCi/g	11/28/18 14:55	12/19/18 11:59	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: BRF_BS_20181113_1B

Job ID: 180-84152-1

Client Sample ID: BRF-BS-BG07-16.5/18.5-20181114

Lab Sample ID: 180-84152-14

Date Collected: 11/14/18 15:35

Matrix: Solid

Date Received: 11/17/18 09:30

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	0.707		0.218	0.230	1.00	0.206	pCi/g	11/28/18 14:55	12/19/18 11:57	1
Radium-228	1.15		0.298	0.321		0.164	pCi/g	11/28/18 14:55	12/19/18 11:57	1
Radium 226 and Radium 228	1.86		0.369	0.395			pCi/g	11/28/18 14:55	12/19/18 11:57	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: BRF_BS_20181113_1B

Job ID: 180-84152-1

Client Sample ID: BRF-BS-BG07-21.5/23.5-20181114

Lab Sample ID: 180-84152-15

Date Collected: 11/14/18 15:59

Matrix: Solid

Date Received: 11/17/18 09:30

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	0.530		0.284	0.289	1.00	0.322	pCi/g	11/28/18 14:55	12/19/18 11:58	1
Radium-228	1.14		0.329	0.349		0.176	pCi/g	11/28/18 14:55	12/19/18 11:58	1
Radium 226 and Radium 228	1.67		0.435	0.453			pCi/g	11/28/18 14:55	12/19/18 11:58	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: BRF_BS_20181113_1B

Job ID: 180-84152-1

Client Sample ID: BRF-BS-BG07-26.5/28.5-20181114

Lab Sample ID: 180-84152-16

Date Collected: 11/14/18 16:04

Matrix: Solid

Date Received: 11/17/18 09:30

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	1.07		0.301	0.326	1.00	0.267	pCi/g	11/28/18 14:55	12/19/18 11:59	1
Radium-228	1.61		0.417	0.456		0.394	pCi/g	11/28/18 14:55	12/19/18 11:59	1
Radium 226 and Radium 228	2.68		0.514	0.561			pCi/g	11/28/18 14:55	12/19/18 11:59	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: BRF_BS_20181113_1B

Job ID: 180-84152-1

Client Sample ID: BRF-BS-BG07-31.5/33.5-20181114

Lab Sample ID: 180-84152-17

Date Collected: 11/14/18 16:41

Matrix: Solid

Date Received: 11/17/18 09:30

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	-0.0218	U	0.113	0.113	1.00	0.537	pCi/g	11/28/18 14:55	12/19/18 12:38	1
Radium-228	**1.13**		0.354	0.372		0.462	pCi/g	11/28/18 14:55	12/19/18 12:38	1
Radium 226 and Radium 228	**1.13**		0.354	0.372			pCi/g	11/28/18 14:55	12/19/18 12:38	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: BRF_BS_20181113_1B

Job ID: 180-84152-1

Client Sample ID: BRF-BS-BG07-36.5/38.5-20181114

Lab Sample ID: 180-84152-18

Date Collected: 11/14/18 16:49

Matrix: Solid

Date Received: 11/17/18 09:30

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	0.416		0.165	0.171	1.00	0.179	pCi/g	11/28/18 14:55	12/19/18 12:39	1
Radium-228	0.608		0.226	0.235		0.440	pCi/g	11/28/18 14:55	12/19/18 12:39	1
Radium 226 and Radium 228	1.02		0.280	0.291			pCi/g	11/28/18 14:55	12/19/18 12:39	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: BRF_BS_20181113_1B

Job ID: 180-84152-1

Client Sample ID: BRF-BS-BG07-0.0/0.5-20181114

Lab Sample ID: 180-84152-19

Date Collected: 11/14/18 17:07

Matrix: Solid

Date Received: 11/17/18 09:30

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	0.266	U	0.0982	0.102	1.00	0.447	pCi/g	11/28/18 14:55	12/19/18 12:37	1
Radium-228	**0.641**		0.211	0.221		0.153	pCi/g	11/28/18 14:55	12/19/18 12:37	1
Radium 226 and Radium 228	**0.907**		0.233	0.243			pCi/g	11/28/18 14:55	12/19/18 12:37	1

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

Lab Sample ID: MB 160-403090/1-A
Matrix: Solid
Analysis Batch: 406519

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 403090

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.1635	U	0.105	0.107	1.00	0.455	pCi/g	11/28/18 10:53	12/19/18 08:26	1
Radium-228	0.08823	U	0.161	0.162		0.193	pCi/g	11/28/18 10:53	12/19/18 08:26	1
Radium 226 and Radium 228	0.08823	U	0.161	0.162			pCi/g	11/28/18 10:53	12/19/18 08:26	1

Lab Sample ID: LCS 160-403090/2-A
Matrix: Solid
Analysis Batch: 406512

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 403090

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium-241	96.7	100.9		13.1		1.27	pCi/g	104	87 - 116
Cesium-137	28.0	31.11		3.70		0.352	pCi/g	111	87 - 120
Cobalt-60	12.3	13.92		1.70		0.135	pCi/g	113	87 - 115

Lab Sample ID: 160-31952-A-1-H DU
Matrix: Solid
Analysis Batch: 406527

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 403090

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-226	0.604		0.5674		0.128	1.00	0.0864	pCi/g	0.13	1
Radium-228	0.204	U	0.2000	U	0.0961		0.234	pCi/g	0.01	1
Radium 226 and Radium 228	0.808		0.7674		0.160			pCi/g	0.1	

Lab Sample ID: MB 160-403192/1-A
Matrix: Solid
Analysis Batch: 406516

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 403192

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.09686	U	0.0757	0.0763	1.00	0.310	pCi/g	11/28/18 14:55	12/19/18 12:39	1
Radium-228	0.05888	U	0.210	0.210		0.281	pCi/g	11/28/18 14:55	12/19/18 12:39	1
Radium 226 and Radium 228	0.1557	U	0.223	0.223			pCi/g	11/28/18 14:55	12/19/18 12:39	1

Lab Sample ID: LCS 160-403192/2-A
Matrix: Solid
Analysis Batch: 406513

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 403192

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium-241	96.7	98.98		10.4		1.22	pCi/g	102	87 - 116
Cesium-137	28.0	27.93		3.01		0.223	pCi/g	100	87 - 120
Cobalt-60	12.3	12.30		1.31		0.117	pCi/g	100	87 - 115

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

Lab Sample ID: 180-84152-10 DU — **Client Sample ID: BRF-BS-BG06-0.0/0.5-20181114**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 406513 — **Prep Batch: 403192**

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-226	0.637			0.9528		0.317	1.00	0.309	pCi/g			0.59	1
Radium-228	0.754			1.464		0.492		0.576	pCi/g			0.87	1
Radium 226 and Radium 228	1.39			2.417		0.585			pCi/g			1.05	

Lab Sample ID: MB 160-403262/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 406794 — **Prep Batch: 403262**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-9.168	U	21.5	21.5	50.0	36.5	pCi/L	11/29/18 10:28	12/20/18 10:39	1
Radium-228	22.33		16.1	16.2	50.0	18.5	pCi/L	11/29/18 10:28	12/20/18 10:39	1
Radium 226 and Radium 228	22.33	U	16.1	16.2			pCi/L	11/29/18 10:28	12/20/18 10:39	1

Lab Sample ID: LCS 160-403262/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 406795 — **Prep Batch: 403262**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Americium-241			136000	130300		15100		279	pCi/L	96	90 - 111		
Cesium-137			45100	44270		4430		73.7	pCi/L	98	90 - 111		
Cobalt-60			31200	30160		2980		46.8	pCi/L	97	89 - 110		

Lab Sample ID: 490-163317-A-9-B DU — **Client Sample ID: Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 406794 — **Prep Batch: 403262**

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-226	-12.2	U		7.337	U	16.1	50.0	17.2	pCi/L			0.54	1
Radium-228	23.2			10.88	U	19.8	50.0	30.7	pCi/L			0.32	1
Radium 226 and Radium 228	23.2	U		18.22	U	25.5			pCi/L			0.09	

QC Association Summary

Client: Environmental Standards Inc.
Project/Site: BRF_BS_20181113_1B

Job ID: 180-84152-1

Rad

Leach Batch: 402013

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-31952-A-1-H DU	Duplicate	Total/NA	Solid	Dry and Grind	

Prep Batch: 403090

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-84152-1	BRF-BS-BG18-1.5/3.5-20181113	Total/NA	Solid	Fill_Geo-21	
180-84152-2	BRF-BS-BG18-6.5/8.5-20181113	Total/NA	Solid	Fill_Geo-21	
180-84152-3	BRF-BS-BG18-10.0/11.6-20181113	Total/NA	Solid	Fill_Geo-21	
180-84152-4	BRF-BS-BG18-0.0/0.5-20181113	Total/NA	Solid	Fill_Geo-21	
180-84152-6	BRF-BS-BG17-1.1/3.1-20181114	Total/NA	Solid	Fill_Geo-21	
180-84152-7	BRF-BS-BG17-0.0/0.5-20181114	Total/NA	Solid	Fill_Geo-21	
180-84152-9	BRF-BS-BG06-1.0/3.0-20181114	Total/NA	Solid	Fill_Geo-21	
MB 160-403090/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	
LCS 160-403090/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
160-31952-A-1-H DU	Duplicate	Total/NA	Solid	Fill_Geo-21	402013

Prep Batch: 403192

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-84152-10	BRF-BS-BG06-0.0/0.5-20181114	Total/NA	Solid	Fill_Geo-21	
180-84152-11	BRF-BS-BG07-3.0/5.0-20181114	Total/NA	Solid	Fill_Geo-21	
180-84152-12	BRF-BS-BG07-7.5/9.5-20181114	Total/NA	Solid	Fill_Geo-21	
180-84152-13	BRF-BS-BG07-13.0/15.0-20181114	Total/NA	Solid	Fill_Geo-21	
180-84152-14	BRF-BS-BG07-16.5/18.5-20181114	Total/NA	Solid	Fill_Geo-21	
180-84152-15	BRF-BS-BG07-21.5/23.5-20181114	Total/NA	Solid	Fill_Geo-21	
180-84152-16	BRF-BS-BG07-26.5/28.5-20181114	Total/NA	Solid	Fill_Geo-21	
180-84152-17	BRF-BS-BG07-31.5/33.5-20181114	Total/NA	Solid	Fill_Geo-21	
180-84152-18	BRF-BS-BG07-36.5/38.5-20181114	Total/NA	Solid	Fill_Geo-21	
180-84152-19	BRF-BS-BG07-0.0/0.5-20181114	Total/NA	Solid	Fill_Geo-21	
MB 160-403192/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	
LCS 160-403192/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
180-84152-10 DU	BRF-BS-BG06-0.0/0.5-20181114	Total/NA	Solid	Fill_Geo-21	

Prep Batch: 403262

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-84152-5	BRF-BS-FB06-20181113	Total/NA	Water	Fill_Geo-21	
180-84152-8	BRF-BS-FB07-20181114	Total/NA	Water	Fill_Geo-21	
MB 160-403262/1-A	Method Blank	Total/NA	Water	Fill_Geo-21	
LCS 160-403262/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-21	
490-163317-A-9-B DU	Duplicate	Total/NA	Water	Fill_Geo-21	

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 7
COC No: BRF_BS_20181113_1B
1 of 2 Pages SB 11/15/18
Task Desc: 2 BRF_BS
DC 11/21/18

Rev. 1
DC 11/21/18

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 #: 175568274
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: W.Padgett, S.Bolden, M.Edmunds
Sampling Company:
Address: Warehouse Row North 1110 Market Street, Suite
City/State: Chattanooga Phone: 317-220-9374
Sampling Team Number: 1
Send EDD/Hard Copy to: tva_deliverables@erysid.com

Analysis Turnaround Time
☐ CALENDAR DAYS ☑ WORKING DAYS
TAT if different from Below
☐ 24 Hours
☐ 3 Business Days
☐ 5 Business Days
☑ 10 Business Days (Standard)

SB 11/15/2018

180-84152 Chain of Custody

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: BACKGROUNDSOIL_RAD	Analysis: BACKGROUNDSOIL_BLANKS_RAD	Preserve: None	Preserve: HNO3	Filtered
1	BRF-BS-BG18-1.5/3.5-20181113	BRF-BG-18	1.5	3.5	S	G	N	11/13/2018	1029	1		☐	X				N
2	BRF-BS-BG18-6.5/8.5-20181113	BRF-BG-18	6.5	8.5	S	G	N	11/13/2018	1046	1		☐	X				N
3	BRF-BS-BG18-10.0/11.6-20181113	BRF-BG-18	10.0	11.6	S	G	N	11/13/2018	1143	1		☐	X				
4	BRF-BS-BG18-0.0/0.5-20181113	BRF-BG-18	0.0	0.5	S	G	N	11/13/2018	1159	1		☐	X				
5	BRF-BS-FB06-20181113	BRF-BG-13	NA	NA	S	G	FB	11/13/2018	1307	3		☐		X			
6	BRF-BS-BG17-1.1/3.1-20181114	BRF-BG-17	1.1	3.1	S	G	N	11/14/2018	0937	1		☐	X				
7	BRF-BS-BG17-0.0/0.5-20181114	BRF-BG-17	0.0	0.5	S	G	N	11/14/2018	0949	1		☐	X				
8	BRF-BS-FB07-20181114	BRF-BG-17	NA	NA	S	G	FB	11/14/2018	0925	3		☐		X			
9	BRF-BS-BG06-1.0/3.0-20181114	BRF-BG-06	1.0	3	S	G	N	11/14/2018	1246	1		☐	X				
10	BRF-BS-BG06-0.0/0.5-20181114	BRF-BG-06	0.0	0.5	S	G	N	11/14/2018	1304	1		☐	X				

Additional Comments/Special Instructions:

SB 11/15/2018

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Walker Padgett (Stantec) Walker Padgett	11/15/2018	1700	SB 11/15/18 S Bolden	SB 11/15/18	
SB 11/15/2018					
DC 11/21/18					
SB 11/15/2018					
				11/15/18	1930

SHIPPING METHOD	SAMPLER NAME AND SIGNATURE
Courier	Walker Padgett
	Suama Bolden
	Matthew Edmunds

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

Page 1 of 3 SB 11/13/18

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.: 1 of 7
COC No: BRF_BS_20181113_2B
2 of 3 Pages SB 11/15/18 [redacted]
Task Desc: 2 BRF_BS
DC 11/21/18

Rev-1
DC 11/21/18

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 #: 175566274
Site Address: 1265 Edgemoor Rd
City: Clinton State, Zip: TN 37716
Site PM Name: Roy Quinn
Phone/Fax: 423-751-3753
Site PM Email: jquinn@tva.gov

Required Sampler Information
Sampler: W.Padgett, S Bolden, M Edmunds
Sampling Company: Stantec
Address: Warehouse Row North 1110 Market Street, Suite
City/State: Chattanooga Phone: 317-220-9374
Sampling Team Number: 1
Send EDD/Hard Copy to: tva_deliverables@envyld.com

Analysis Turnaround Time
☐ CALENDAR DAYS ☑ WORKING DAYS
TAT if different from Below _____
☐ 24 Hours
☐ 3 Business Days
☐ 5 Business Days
☑ 10 Business Days (Standard)

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 BACKGROUNDSOIL_RAD	Analysis BACKGROUNDSOIL_BLANCS_RAD	Preserve None	Preserve HNO3	Filtered N	Filtered N
1	BRF-BS-BG07-3.0/5.0-20181114	BRF-BG-07	3.0	5.0	S	G	N	11/14/2018	1449	1		☐	X					
2	BRF-BS-BG07-7.5/9.5-20181114	BRF-BG-07	7.5	9.5	S	G	N	11/14/2018	1512	1		☐	X					
3	BRF-BS-BG07-13.0/15.0-20181114	BRF-BG-07	13.0	15.0	S	G	N	11/14/2018	1524	1		☐	X					
4	BRF-BS-BG07-16.5/18.5-20181114	BRF-BG-07	16.5	18.5	S	G	N	11/14/2018	1535	1		☐	X					
5	BRF-BS-BG07-21.5/23.5-20181114	BRF-BG-07	21.5	23.5	S	G	N	11/14/2018	1559	1		☐	X					
6	BRF-BS-BG07-26.5/28.5-20181114	BRF-BG-07	26.5	28.5	S	G	N	11/14/2018	1604	1		☐	X					
7	BRF-BS-BG07-31.5/33.5-20181114	BRF-BG-07	31.5	33.5	S	G	N	11/14/2018	1641	1		☐	X					
8	BRF-BS-BG07-36.5/38.5-20181114	BRF-BG-07	36.5	38.5	S	G	N	11/14/2018	1649	1		☐	X					
9	BRF-BS-BG07-0.0/0.5-20181114	BRF-BG-07	0.0	0.5	S	G	N	11/14/2018	1707	1		☐	X					

SB 11/15/2018

Additional Comments/Special Instructions: SB 11/15/2018

SB 11/15/2018

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Suama Bolden SBolden (Stantec)	11/14/2018	1700	[illegible]		
SB 11/15/2018					
SB 11/15/2018					
			[illegible]	11/15/18	930

SHIPPING METHOD	SAMPLER NAME AND SIGNATURE
Courier	Walker Padgett Walker Padgett
	Suama Bolden SBolden
	Matthew Edmunds MEdmunds

Sample Receipt Conditions

Temperature in °C	Sample on Ice?	Sample Intact?	Trip Blank?
☐ ☐	☐ ☐	☐ ☐	☐ ☐
☐ ☐	☐ ☐	☐ ☐	☐ ☐
☐ ☐	☐ ☐	☐ ☐	☐ ☐
☐ ☐	☐ ☐	☐ ☐	☐ ☐
☐ ☐	☐ ☐	☐ ☐	☐ ☐

Page 2 of 3 SB 11/15/18

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.: 1 of 7

COC No: BRF_BS_20181113_1B

1 of 3 Pages SB 11/13/18

Task Desc: BRF_BS

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 #: 175568274
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: W Padgett, S Bolden, M Edmunds
Sampling Company:
Address: Warehouse Row North 1110 Market Street, Suite
City/State: Chattanooga Phone: 317-220-9374
Sampling Team Number: 1
Send EDD/Hard Copy to: tva_deliverables@enystd.com

Analysis Turnaround Time

☐ CALENDAR DAYS ☒ WORKING DAYS

TAT if different from Below

☐ 24 Hours
☐ 3 Business Days
☐ 5 Business Days
☒ 10 Business Days (Standard)

180-84152 Chain of Custody

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: BACKGROUNDSOIL_RAD	Analysis: BACKGROUNDSOIL_BLANKS_RAD	Filtered	Preserve: None	Preserve: HNO3
1	BRF-BS-BG18-1.5/3.5-20181113	BRF-BG-18	1.5	3.5	S	G	N	11/13/2018	1029	1		☐	X		N		
2	BRF-BS-BG18-6.5/8.5-20181113	BRF-BG-18	6.5	8.5	S	G	N	11/13/2018	1046	1		☐	X				
3	BRF-BS-BG18-10.0/11.6-20181113	BRF-BG-18	10.0	11.6	S	G	N	11/13/2018	1143	1		☐	X				
4	BRF-BS-BG18-0.0/0.5-20181113	BRF-BG-18	0.0	0.5	S	G	N	11/13/2018	1159	1		☐	X				
5	BRF-BS-FB06-20181113	BRF-BG-13	NA	NA	S	G	FB	11/13/2018	1307	3		☐		X			
6	BRF-BS-BG17-1.1/3.1-20181114	BRF-BG-17	1.1	3.1	S	G	N	11/14/2018	0937	1		☐	X				
7	BRF-BS-BG17-0.0/0.5-20181114	BRF-BG-17	0.0	0.5	S	G	N	11/14/2018	0949	1		☐	X				
8	BRF-BS-FB07-20181114	BRF-BG-17	NA	NA	S	G	FB	11/14/2018	0925	3		☐		X			
9	BRF-BS-BG06-1.0/3.0-20181114	BRF-BG-06	1.0	3	S	G	N	11/14/2018	1246	1		☐	X				
10	BRF-BS-BG06-0.0/0.5-20181114	BRF-BG-06	0.0	0.5	S	G	N	11/14/2018	1304	1		☐	X				

Additional Comments/Special Instructions:

SB 11/15/2018

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Walker Padgett (Stantec)	11/15/2018	1700 1800	SB 11/15/18 S Bolden		
SB 11/15/2018					
SB 11/15/2018				11/16/18	1730

SHIPPING METHOD:	SAMPLER NAME AND SIGNATURE
Courier	Walker Padgett
	Suama Bolden
	Matthew Edmunds

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?

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.: 1 of 7
COC No: BRF_BS_20181113_2B
2 of 3 Pages SB 11/15/18
Task Desc: BRF_BS

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 #:	175568274		
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:	W.Padgett, S Bolden, M Edmunds		
Sampling Company:	Stantec		
Address	Warehouse Row North 1110 Market Street, Suite		
City/State	Chattanooga	Phone:	317-220-9374
Sampling Team Number:	1		
Send EDD/Hard Copy to:	tva_deliverables@envsta.com		

Analysis Turnaround Time

☐ CALENDAR DAYS ☑ WORKING DAYS

TAT if different from Below _____

☐ 24 Hours
☐ 3 Business Days
☐ 5 Business Days
☑ 10 Business Days (Standard)

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: BACKGROUNDSOIL_RAD	Analysis: BACKGROUNDSOIL_BLANKS_RAD	Preserve: None	Preserve: HNO3	Filtered: N	Filtered: N
1	BRF-BS-BG07-3 0/5 0-20181114	BRF-BG-07	3.0	5.0	S	G	N	11/14/2018	1449	1		☐	X					
2	BRF-BS-BG07-7 5/9 5-20181114	BRF-BG-07	7.5	9.5	S	G	N	11/14/2018	1512	1		☐	X					
3	BRF-BS-BG07-13 0/15 0-20181114	BRF-BG-07	13.0	15.0	S	G	N	11/14/2018	1524	1		☐	X					
4	BRF-BS-BG07-16 5/18 5-20181114	BRF-BG-07	16.5	18.5	S	G	N	11/14/2018	1535	1		☐	X					
5	BRF-BS-BG07-21 5/23 5-20181114	BRF-BG-07	21.5	23.5	S	G	N	11/14/2018	1559	1		☐	X					
6	BRF-BS-BG07-26 5/28 5-20181114	BRF-BG-07	26.5	28.5	S	G	N	11/14/2018	1604	1		☐	X					
7	BRF-BS-BG07-31 5/33 5-20181114	BRF-BG-07	31.5	33.5	S	G	N	11/14/2018	1641	1		☐	X					
8	BRF-BS-BG07-36 5/38 5-20181114	BRF-BG-07	36.5	38.5	S	G	N	11/14/2018	1649	1		☐	X					
9	BRF-BS-BG07-0 0/0 5-20181114	BRF-BG-07	0.0	0.5	S	G	N	11/14/2018	1707	1		☐	X					

SB 11/15/2018

Additional Comments/Special Instructions: SB 11/15/2018

SB 11/15/2018

RELINQUISHED BY / AFFILIATION		DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Suama Bolden	Bolden (Stantec)	11/14/2018	1700 ~~1800~~	SB 11/15/18		
	SB 11/15/2018					
	SB 11/15/2018					
				Jamie	11/15/18	930

SHIPPING METHOD:	SAMPLER NAME AND SIGNATURE	
Courier	Walker Padgett	Walker Padgett
	Suama Bolden	Bolden
	Matthew Edmunds	

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

Page 2 of 3 SB 11/15/18

Form TVA 30087A

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Lage, Gail	Carrier Tracking No(s):	COC No: 180-348345.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: gail.lage@testamericainc.com	State of Origin: Tennessee	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 180-84152-2
Address: 13715 Rider Trail North, ,	Due Date Requested: 12/20/2018			
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_EI_WATERSOURCE_20181113_4B	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)	904.0/PrecSep_0 Standard Target List	903.0/PrecSep_21 Standard Target List	Ra226_228GFPC_P	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
BRF-WQ-WATER SUPPLY-11152018 (180-84152-20)	11/15/18	11:20 Eastern		Water			X	X	X	3	Analysis must follow TVA Protocol, Count after 7 days, recount if activity is above the
BRF-WQ-FB01-11152018 (180-84152-21)	11/15/18	11:30 Eastern		Water			X	X	X	3	Analysis must follow TVA Protocol, Count after 7 days, recount if activity is above the

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: 11/26/18 1700	Company: VA Pitt	Received by:	Date/Time: 11/27/18 0950	Company: TASTL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 09/20/2016

4/30/2019 (Rev. 3)

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

180-84263 Login
PM: Lage, Gail
Company: Environmental Standards Inc.

CONDITION UPON RECEIPT FORM

Client: Pittsburgh

Initiated by: [illegible] Date: 11/27/18 Time: 0950 Shipper: FE Package Quantity: 4

*Numbered shipping lines correspond to Numbered Cooler and Sample Temp lines

**Sample must be received at < 6°- If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid; Rad tests- Liquid or Solids; Perchlorate

Shipping #(s):*	Thermometer #:	Package Temp:**	Document #:
1. 4241 3170 3991	1. 17	1. 18.0°C	1.
2. 4241 3170 4005	2. 17	2. 18.0°C	2.
3. 4027	3. 19	3. 0.1°C	3.
4. 4016	4. 19	4. 0.4°C	4.
5.	5.	5.	5.
6.	6.	6.	6.
7.	7.	7.	7.
8.	8.	8.	8.
9.	9.	9.	9.

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	Y N	Are there custody seals present on the cooler?	8.	Y N	Are there custody seals present on bottles?
2.	Y N N/A	Do custody seals on cooler appear to be tampered with?	9.	Y N N/A	Do custody seals on bottles appear to be tampered with?
3.	Y N	Were contents of cooler frisked after opening, but before unpacking?	10.	Y N N/A	Was sample received with proper pH[1]? (If not, make note below) pH strip lot #: HC854592
4.	Y N	Sample received with Chain of Custody?	11.	Y N N/A	Containers for Rn-222, C-14, Cl-36, H-3 & I-129/131 marked with "Do Not Preserve" label?
5.	Y N N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	Y N	Sample received in proper containers?
6.	Y N	Was sample received broken?	13.	Y N N/A	Headspace in VOA, or Rn-222 liquid samples? (>6mm) (If Yes, note sample ID's below)
7.	Y N	Is sample volume sufficient for analysis?	14.	Y N N/A	Soil containers for C-14, H-3,Tc-99 & I-129/131 marked with "Do Not Dry" label?

[1] For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, TOX, Oil & Grease, Rn-222 and soils.

Notes: Samples 180-84118-3 & 4 received but not listed on COC

Sample Labels Applied By: TA Pittsburgh

Labels 2nd Reviewed By: [illegible]

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

FOR SAMPLES THAT HAVE pH ADJUSTED, THE FOLLOWING INFORMATION MUST BE INCLUDED: INITIAL AND FINAL pH, pH STRIP LOT #, PRESERVATIVE LOT #, DATE/TIME OF PRESERVATION, AND AMOUNT OF PRESERVATIVE ADDED.

Login Sample Receipt Checklist

Client: Environmental Standards Inc.

Job Number: 180-84152-1

Login Number: 84152
List Number: 1
Creator: Say, Thomas C

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.	False	
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: 180-84152-1

Login Number: 84152
List Number: 2
Creator: Kovitch, Christina M

List Source: Eurofins TestAmerica, Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
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: 180-84152-1

Login Number: 84152
List Number: 3
Creator: Dupart, Lacee S

List Source: Eurofins TestAmerica, St. Louis
List Creation: 11/27/18 04:51 PM

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	18.0
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").	True	
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: 180-84152-1

Login Number: 84152
List Number: 4
Creator: Dupart, Lacee S

List Source: Eurofins TestAmerica, St. Louis
List Creation: 11/27/18 04:55 PM

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	18.0
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").	True	
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: 180-84152-1

Login Number: 84152
List Number: 5
Creator: Dupart, Lacee S

List Source: Eurofins TestAmerica, St. Louis
List Creation: 11/27/18 04:58 PM

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	0.4
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").	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	