eurofins | Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 180-111757-1
Client Project/Site: JOF_SES_20201001_1B

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

Attn: Amanda Cover

Authorized for release by:
11/16/2020 5:44:19 PM

Jennifer Rumble, Project Manager I
(412)963-7058
Jennifer.Rumble@Eurofinset.com

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: 180-111757-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Revised COC appended to the laboratory report

Narrative

Job Narrative
180-111757-1

Receipt
The samples were received on 10/2/2020 9:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.5º C.

RAD
Method 901.1: Gamma prep batch 160-486236:
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

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.
JOF-SES-01-20201001 ~ AOI1 (180-111757-1), JOF-SES-01-20201001 ~ AOI1 (180-111757-1[DU]), (LCS 160-486236/2-A) and (MB 160-486236/1-A)

Method 901.1: Gamma Prep Batch 160-486234
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

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.
JOF-SES-FB01-20201001 ~ AOI1 (180-111757-2), JOF-SES-EB01-20201001 ~ AOI1 (180-111757-3) and (180-111757-B-2-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: JOF_SES_20201001_1B

Job ID: 180-111757-1

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
CFU	Colony Forming Unit
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)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
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)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: Environmental Standards Inc.
Project/Site: JOF_SES_20201001_1B

Job ID: 180-111757-1

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	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-22
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-21
California	State	2886	06-30-21
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-21
HI - RadChem Recognition	State	n/a	06-30-21
Illinois	NELAP	004553	11-30-20
Iowa	State	373	12-01-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-21
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-21
MI - RadChem Recognition	State	9005	06-30-21
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-21
New Jersey	NELAP	MO002	06-30-21
New York	NELAP	11616	04-01-21
North Dakota	State	R-207	06-30-21
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-21
Oregon	NELAP	4157	09-01-21
Pennsylvania	NELAP	68-00540	02-28-21
South Carolina	State	85002001	06-30-21
Texas	NELAP	T104704193-19-13	07-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542019-11	07-31-21
Virginia	NELAP	10310	06-14-21
Washington	State	C592	08-30-21
West Virginia DEP	State	381	10-31-21

Sample Summary

Client: Environmental Standards Inc.
Project/Site: JOF_SES_20201001_1B

Job ID: 180-111757-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-111757-1	JOF-SES-01-20201001 ~ AOI1	Solid	10/01/20 12:00	10/02/20 09:00	
180-111757-2	JOF-SES-FB01-20201001 ~ AOI1	Water	10/01/20 10:30	10/02/20 09:00	
180-111757-3	JOF-SES-EB01-20201001 ~ AOI1	Water	10/01/20 10:40	10/02/20 09:00	

Method Summary

Client: Environmental Standards Inc.
Project/Site: JOF_SES_20201001_1B

Job ID: 180-111757-1

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: JOF_SES_20201001_1B

Job ID: 180-111757-1

Client Sample ID: JOF-SES-01-20201001 ~ AOI1

Lab Sample ID: 180-111757-1
Date Collected: 10/01/20 12:00
Matrix: Solid
Date Received: 10/02/20 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	485696	10/14/20 15:05	AK	TAL SL
Total/NA	Prep	Fill_Geo-21			278.4 g	1.0 g	486236	10/19/20 18:37	HRT	TAL SL
Total/NA	Analysis	901.1		1			488942	11/12/20 13:17	JCB	TAL SL
	Instrument ID:	GAMMAVISION								

Client Sample ID: JOF-SES-FB01-20201001 ~ AOI1

Lab Sample ID: 180-111757-2
Date Collected: 10/01/20 10:30
Matrix: Water
Date Received: 10/02/20 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	486234	10/19/20 18:32	HRT	TAL SL
Total/NA	Analysis	901.1		1			488953	11/12/20 18:16	JCB	TAL SL
	Instrument ID:	GAMMAVISION								

Client Sample ID: JOF-SES-EB01-20201001 ~ AOI1

Lab Sample ID: 180-111757-3
Date Collected: 10/01/20 10:40
Matrix: Water
Date Received: 10/02/20 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	486234	10/19/20 18:32	HRT	TAL SL
Total/NA	Analysis	901.1		1			488943	11/12/20 20:58	JCB	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
  - AK = Amanda Kraus
- Batch Type: Prep
  - HRT = Hannah Tomasovic
- Batch Type: Analysis
  - JCB = Jacob Boyd

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: JOF_SES_20201001_1B

Job ID: 180-111757-1

Client Sample ID: JOF-SES-01-20201001 ~ AOI1

Lab Sample ID: 180-111757-1

Date Collected: 10/01/20 12:00

Matrix: Solid

Date Received: 10/02/20 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	1.25		0.224	0.259	1.00	0.169	pCi/g	10/19/20 18:37	11/12/20 13:17	1
Radium-228	0.944		0.232	0.251		0.142	pCi/g	10/19/20 18:37	11/12/20 13:17	1
Radium 226 and 228 (positive only)	2.19		0.322	0.361			pCi/g	10/19/20 18:37	11/12/20 13:17	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: JOF_SES_20201001_1B

Job ID: 180-111757-1

Client Sample ID: JOF-SES-FB01-20201001 ~ AOI1

Lab Sample ID: 180-111757-2

Date Collected: 10/01/20 10:30

Matrix: Water

Date Received: 10/02/20 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 Radium 228	39.2	U	40.0	40.2			pCi/L	10/19/20 18:32	11/12/20 18:16	1
Radium-226	**28.0**		19.6	19.9	50.0	24.1	pCi/L	10/19/20 18:32	11/12/20 18:16	1
Radium-228	11.2	U	34.9	34.9	50.0	50.0	pCi/L	10/19/20 18:32	11/12/20 18:16	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: JOF_SES_20201001_1B

Job ID: 180-111757-1

Client Sample ID: JOF-SES-EB01-20201001 ~ AOI1

Lab Sample ID: 180-111757-3

Date Collected: 10/01/20 10:40

Matrix: Water

Date Received: 10/02/20 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 Radium 228	10.3	U	32.8	33.0			pCi/L	10/19/20 18:32	11/12/20 20:58	1
Radium-226	10.3	U	14.8	14.8	50.0	18.9	pCi/L	10/19/20 18:32	11/12/20 20:58	1
Radium-228	-25.2	U	29.3	29.5	50.0	41.5	pCi/L	10/19/20 18:32	11/12/20 20:58	1

QC Sample Results

Client: Environmental Standards Inc.
Project/Site: JOF_SES_20201001_1B

Job ID: 180-111757-1

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

Lab Sample ID: MB 160-486234/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 488943 — **Prep Batch: 486234**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.5089	U	0.715	0.718	50.0	37.7	pCi/L	10/19/20 18:32	11/12/20 18:13	1
Radium 226 and Radium 228	0.0000	U	11.8	11.8			pCi/L	10/19/20 18:32	11/12/20 18:13	1
Radium-228	-5.028	U	11.8	11.8	50.0	41.5	pCi/L	10/19/20 18:32	11/12/20 18:13	1

Lab Sample ID: LCS 160-486234/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 488944 — **Prep Batch: 486234**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium-241	136000	135300		15900		343	pCi/L	100	90 - 111
Cesium-137	43100	44090		5190		88.7	pCi/L	102	90 - 111
Cobalt-60	24300	25130		2960		67.2	pCi/L	103	89 - 110

Lab Sample ID: 180-111757-2 DU — **Client Sample ID: JOF-SES-FB01-20201001 ~ AOI1**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 488944 — **Prep Batch: 486234**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-226	28.0		15.78	U	14.6	50.0	17.8	pCi/L	0.35	1
Radium 226 and Radium 228	39.2	U	20.51	U	19.4			pCi/L	0.31	
Radium-228	11.2	U	4.734	U	12.8	50.0	37.2	pCi/L	0.14	1

Lab Sample ID: MB 160-486236/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 488940 — **Prep Batch: 486236**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.06956	U	0.0622	0.0626	1.00	0.422	pCi/g	10/19/20 18:37	11/12/20 13:18	1
Radium 226 and 228 (positive only)	0.2037	U	0.189	0.190			pCi/g	10/19/20 18:37	11/12/20 13:18	1
Radium-228	0.1341	U	0.179	0.179		0.230	pCi/g	10/19/20 18:37	11/12/20 13:18	1

Lab Sample ID: LCS 160-486236/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 488941 — **Prep Batch: 486236**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium-241	96.4	90.96		9.56		1.07	pCi/g	94	87 - 116
Cesium-137	26.8	25.23		2.68		0.156	pCi/g	94	87 - 120
Cobalt-60	9.57	8.824		0.927		0.0624	pCi/g	92	87 - 115

QC Sample Results

Client: Environmental Standards Inc.
Project/Site: JOF_SES_20201001_1B

Job ID: 180-111757-1

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

Lab Sample ID: 180-111757-1 DU
Matrix: Solid
Analysis Batch: 488953

Client Sample ID: JOF-SES-01-20201001 ~ AOI1
Prep Type: Total/NA
Prep Batch: 486236

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-226	1.25			1.507		0.300	1.00	0.140	pCi/g			0.46	1
Radium-228	0.944			0.9422		0.303		0.156	pCi/g			0	1
Radium 226 and 228 (positive only)	2.19			2.449		0.426			pCi/g			0.32	

QC Association Summary

Client: Environmental Standards Inc.
Project/Site: JOF_SES_20201001_1B

Job ID: 180-111757-1

Rad

Leach Batch: 485218

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-111757-1 DU	JOF-SES-01-20201001 ~ AOI1	Total/NA	Solid	Dry and Grind	

Leach Batch: 485696

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-111757-1	JOF-SES-01-20201001 ~ AOI1	Total/NA	Solid	Dry and Grind	

Prep Batch: 486234

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-111757-2	JOF-SES-FB01-20201001 ~ AOI1	Total/NA	Water	Fill_Geo-21	
180-111757-3	JOF-SES-EB01-20201001 ~ AOI1	Total/NA	Water	Fill_Geo-21	
MB 160-486234/1-A	Method Blank	Total/NA	Water	Fill_Geo-21	
LCS 160-486234/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-21	
180-111757-2 DU	JOF-SES-FB01-20201001 ~ AOI1	Total/NA	Water	Fill_Geo-21	

Prep Batch: 486236

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-111757-1	JOF-SES-01-20201001 ~ AOI1	Total/NA	Solid	Fill_Geo-21	485696
MB 160-486236/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	
LCS 160-486236/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
180-111757-1 DU	JOF-SES-01-20201001 ~ AOI1	Total/NA	Solid	Fill_Geo-21	485218

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 1
COC No:	JOF_SES_20201001_1B
1 of 1 Pages	
Task Desc:	JOF_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
Lab Email:	Gail.Lage@eurofinset.com

Required Project Information:			
Site ID #:	Johnsonville Fossil Plant		
Project #:	175568286		
Site Address	535 Steam Plant Road		
City	New Johnsonville	State, Zip: TN	37134
Site PM Name:	Roy Quinn		
Phone/Fax:	423-751-3753		
Site PM Email:	jrquinn@tva.gov		

Required Sampler Information			
Sampler:	Courtnae Ramser, Chris Knabel		
Sampling Company:	Stantec		
Address	601 Grassmere Park Rd, Ste 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: 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 (None)	Preserve (HNO3)	Analysis: SEEP_SOIL_RAD	Analysis: SEEP_SOIL_BLANKS_RAD
1	JOF-SeS-01-20201001	AOI1	4"	4"	SES	C	N	10/1/2020	1200	6	MS/MSD	☑	N			X	
2	JOF-SeS-FB01-20201001	AOI1	NA	NA	AQ	G	FB	10/1/2020	1030	~~2~~ 3	None	☐	N				X
3	JOF-SeS-EB01-20201001	AOI1	NA	NA	AQ	G	EB	10/1/2020	1040	~~2~~ 3	None	☐	N				X
4												☐					
5												☐					
6												☐					
7												☐					
8												☐					
9												☐					
10												☐					
11												☐					
12												☐					
13												☐					

CR 10/1/20

180-111757 Chain of Custody

Additional Comments/Special Instructions:

Additional volume collected should be used for laboratory duplicate analysis.

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Courtnae Ramser / Stantec / Courtnae Ramser	10/1/20	1600	[illegible]	10/2/20	900

SHIPPING METHOD:	SAMPLER NAME AND SIGNATURE
FedEx	Courtnae Ramser Courtnae Ramser

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

180-111757 Waybill

eurofins | Environment Testing
TestAmerica

Part # 159470-434 RIT2 EXP 06/21

ORIGIN ID:PHDA (330) 966-9677
COURTNAE RAMSER
STANTEC
1216 W END STATION DRIVE

LEBANON, TN 37078
UNITED STATES US

SHIP DATE: 22SEP20
ACTWGT: 10.00 LB MAN
CAD: 0562065/CAFE3406

TO SAMPLE RECEIVING
TESTAMERICA PITTSBURGH
301 ALPHA DRIVE
RIDC PARK
PITTSBURGH PA 15238
(412) 963-7058
REF: S180-64217

RMA:

FedEx Express

FedEx.

FRI - 02 OCT AA
PRIORITY OVERNIGHT

TRK# 0221 9235 2418 7218

15238
PA-US
PIT

XH AGCA

Uncorrected temp 15 °C
Thermometer ID 14
CF 0 Initials JB
PT-WI-SR-001 effective 11/8/18

FID: 3651983 01Oct2020 MQYA 56DG2/A27E/05A2

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 America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rumble, Jennifer L	Carrier Tracking No(s):	COC No: 180-414058.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Jennifer.Rumble@Eurofinset.com	State of Origin: Tennessee	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 180-111757-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 10/14/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: JOF_SES_20201001_1B	Project #: 18020000			
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 Positive Combined Radium-226/228	901.1_Ra/Fill_Geo_21 Positive Combined Radium-226/228	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
JOF-SES-01-20201001 ~ AOI1 (180-111757-1)	10/1/20	12:00 Central		Solid			X		3	TVA - Batch alone. Contact PM if insufficient volume for Tuna
JOF-SES-01-20201001 ~ AOI1 (180-111757-1DU)	10/1/20	12:00 Central	DU	Solid			X		3	TVA - Batch alone. Contact PM if insufficient volume for Tuna
JOF-SES-FB01-20201001 ~ AOI1 (180-111757-2)	10/1/20	10:30 Central		Water				X	3	TVA - Batch alone
JOF-SES-EB01-20201001 ~ AOI1 (180-111757-3)	10/1/20	10:40 Central		Water				X	3	TVA - Batch alone

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica 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 Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

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: 10/6/20 1500	Company: Brandy	Received by: FED EX	Date/Time:	Company
Relinquished by: FED EX	Date/Time:	Company	Received by: Mona Konuhing	Date/Time: OCT 07 2020 09:19	Company: ETA SR
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: 01/16/2019

Login Sample Receipt Checklist

Client: Environmental Standards Inc.

Job Number: 180-111757-1

Login Number: 111757
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.	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: 180-111757-1

Login Number: 111757
List Number: 2
Creator: Korrinhizer, Micha L

List Source: Eurofins TestAmerica, St. Louis
List Creation: 10/08/20 07:15 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.	True	
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	
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: 180-111757-1

Login Number: 111757
List Number: 3
Creator: Korrinhizer, Micha L

List Source: Eurofins TestAmerica, St. Louis
List Creation: 10/08/20 07:16 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.	True	
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	
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	

TVA Environmental Investigations

Rev. 1 (CR 1/8/2021)

Rev 2 BJ 6/3/2021 BJ 6/9/2021 Rev 3

TVA 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 | |

COC No: JOF_SES_20201001_1B

1 of 1 Pages

Task Desc: JOF_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
Lab Email: Gail.Lage@eurofinset.com

Required Project Information:

Site ID #: Johnsonville Fossil Plant
Project #: 175568286
Site Address: 535 Steam Plant Road
City: New Johnsonville State, Zip: TN 37134
Site PM Name: Roy Quinn
Phone/Fax: 423-751-3753
Site PM Email: jrquinn@tva.gov

Required Sampler Information

Sampler: Courtnae Ramser, Chris Knabel
Sampling Company: Stantec
Address: 601 Grassmere Park Rd, Ste 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	Filtered N	Filtered N	Preserve None	Preserve HNO3	Analysis SEEP_SOIL_RAD	Analysis SEEP_SOIL_BLANKS_RAD
1	JOF-SeS-01-20201001	~~AOI1~~			~~4"~~	~~4"~~	SES	C	N	10/1/2020	1200	6	MS/MSD	☐					X	
2	JOF-SeS-FB01-20201001	~~AOI1~~			NA	NA	AQ	G	FB	10/1/2020	1030	23	None	☐						X
3	JOF-SeS-EB01-20201001	~~AOI1~~			NA	NA	AQ	G	EB	10/1/2020	1040	23	None	☐						X
4	AOI01 (CR 1/8/21)													☐						
5	AOI01 (CR 1/8/21)													☐						
6	AOI01 (CR 1/8/21)													☐						
7														☐						
8														☐						
9														☐						
10														☐						
11														☐						
12														☐						
13														☐						

~~0.34~~ BJ 6/3/2021

BJ 6/9/2021

180-111757 Chain of Custody

Additional Comments/Special Instructions:

Additional volume collected should be used for laboratory duplicate analysis.

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Courtnae Ramser / Stantec /	10/1/20	1600		10/2/20	900

SHIPPING METHOD:	SAMPLER NAME AND SIGNATURE
FedEx	Courtnae Ramser

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 30067A