eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 180-87843-1
Client Project/Site: JSF_CCR_20190319_1A

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

Attn: Amanda Cover

Authorized for release by:
4/4/2019 9:37:07 AM

Gail Lage, Senior Project Manager
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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: 180-87843-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-87843-1

Comments
No additional comments.

Receipt
The samples were received on 3/20/2019 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.3º C.

GC Semi VOA
Method(s) Lloyd Kahn: The matrix spike/matrix spike duplicate (MS/MSD) recoveries for analytical batch 180-274106 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) Lloyd Kahn: The sample duplicate (DUP) precision for analytical batch 180-274106 was outside control limits. Sample matrix interference is suspected.

Method(s) Lloyd Kahn: Please note that the reporting limit for Lloyd Kahn TOC analysis is a nominal value and does not reflect adjustments in sample mass processed on an individual basis.
JSF-CCR-TW10-36.5/38.5-20190319 (180-87843-1), (180-87843-E-1 DU), (180-87843-E-1 MS) and (180-87843-E-1 MSD)

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

Metals
Method(s) 7470A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 180-273591 and 180-273698.

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

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

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

Definitions/Glossary

Client: Environmental Standards Inc.
Project/Site: JSF_CCR_20190319_1A

Job ID: 180-87843-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F1	MS and/or MSD Recovery is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
F3	Duplicate RPD exceeds the control limit
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

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: JSF_CCR_20190319_1A

Job ID: 180-87843-1

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	04-04-19 *
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	01-28-19 *
Pennsylvania	NELAP	3	02-00416	04-30-19
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.

Sample Summary

Client: Environmental Standards Inc.
Project/Site: JSF_CCR_20190319_1A

TestAmerica Job ID: 180-87843-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-87843-1	JSF-CCR-TW10-36.5/38.5-20190319	Solid	03/19/19 10:25	03/20/19 09:00
180-87843-2	JSF-CCR-FB05-20190319	Water	03/19/19 11:07	03/20/19 09:00

Method Summary

Client: Environmental Standards Inc.
Project/Site: JSF_CCR_20190319_1A

Job ID: 180-87843-1

Method	Method Description	Protocol	Laboratory
EPA 9056A	Anions, Ion Chromatography	SW846	TAL PIT
EPA 6020A	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
EPA 7471B	Mercury (CVAA)	SW846	TAL PIT
2540G	SM 2540G	SM22	TAL PIT
EPA 9045D	pH	SW846	TAL PIT
EPA 9060A	Organic Carbon, Total (TOC)	SW846	TAL PIT
EPA-Lloyd Kahn	Organic Carbon, Total (TOC)	EPA	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
3010A	Preparation, Total Metals	SW846	TAL PIT
3050B	Preparation, Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT
7471B	Preparation, Mercury	SW846	TAL PIT
DI Leach	Deionized Water Leaching Procedure	ASTM	TAL PIT
EPA 1312	SPLP Extraction	SW846	TAL PIT

Protocol References:

ASTM = ASTM International
EPA = US Environmental Protection Agency
SM22 = Standard Methods For The Examination Of Water And Wastewater, 22nd Edition
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: JSF_CCR_20190319_1A

Job ID: 180-87843-1

Client Sample ID: JSF-CCR-TW10-36.5/38.5-20190319 — Lab Sample ID: 180-87843-1

Date Collected: 03/19/19 10:25 — **Matrix: Solid**
Date Received: 03/20/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
SPLP East	Leach	EPA 1312			100 g	2000 mL	273591	03/21/19 14:27	TAH	TAL PIT
SPLP East	Prep	3010A			50 mL	50 mL	273681	03/22/19 11:41	NAM	TAL PIT
SPLP East	Analysis	EPA 6020A		1			274416	03/29/19 13:24	RSK	TAL PIT
	Instrument ID: A									
SPLP East	Leach	EPA 1312			100 g	2000 mL	273591	03/21/19 14:27	TAH	TAL PIT
SPLP East	Prep	7470A			50 mL	50 mL	273698	03/22/19 13:19	KAK	TAL PIT
SPLP East	Analysis	EPA 7470A		1			273823	03/25/19 11:18	KAK	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	2540G		1			274119	03/27/19 13:33	TAM	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Analysis	EPA 9045D		1	20.16 g	20 mL	274201	03/28/19 08:49	JMS	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: JSF-CCR-TW10-36.5/38.5-20190319 — Lab Sample ID: 180-87843-1

Date Collected: 03/19/19 10:25 — **Matrix: Solid**
Date Received: 03/20/19 09:00 — **Percent Solids: 76.9**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			10.43 g	100 mL	274136	03/27/19 15:34	CMR	TAL PIT
Soluble	Analysis	EPA 9056A		1			274035	03/28/19 02:37	CMR	TAL PIT
	Instrument ID: CHICS2000									
Total/NA	Prep	3050B			1.01 g	100 mL	273695	03/22/19 12:48	NAM	TAL PIT
Total/NA	Analysis	EPA 6020A		1			274215	03/28/19 02:08	WTR	TAL PIT
	Instrument ID: M									
Total/NA	Prep	3050B			1.03 g	100 mL	274272	03/28/19 15:32	NAM	TAL PIT
Total/NA	Analysis	EPA 6020A		1			274454	03/29/19 20:07	WTR	TAL PIT
	Instrument ID: M									
Total/NA	Prep	7471B			0.72 g	100 mL	273947	03/26/19 10:34	RJR	TAL PIT
Total/NA	Analysis	EPA 7471B		1			274251	03/28/19 11:34	RJR	TAL PIT
	Instrument ID: HGY									
Total/NA	Analysis	EPA-Lloyd Kahn		1	20.4 mg	20.4 mg	274106	03/26/19 16:42	JBF	TAL PIT
	Instrument ID: FLASHEA									

Client Sample ID: JSF-CCR-FB05-20190319 — Lab Sample ID: 180-87843-2

Date Collected: 03/19/19 11:07 — **Matrix: Water**
Date Received: 03/20/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			274238	03/28/19 18:29	CMR	TAL PIT
	Instrument ID: CHICS2000									
Total Recoverable	Prep	3005A			50 mL	50 mL	273629	03/22/19 07:33	RJR	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			274416	03/29/19 14:42	RSK	TAL PIT
	Instrument ID: A									
Total/NA	Prep	7470A			50 mL	50 mL	273844	03/25/19 13:22	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			274277	03/28/19 17:50	KAK	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: JSF-CCR-FB05-20190319

Lab Sample ID: 180-87843-2

Date Collected: 03/19/19 11:07

Matrix: Water

Date Received: 03/20/19 09:00

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PIT

- Batch Type: Leach
  - CMR = Carl Reagle
  - TAH = Todd Harteis
- Batch Type: Prep
  - KAK = Kayla Kalamasz
  - NAM = Nicole Marfisi
  - RJR = Ron Rosenbaum
- Batch Type: Analysis
  - CLL = Cheryl Loheyde
  - CMR = Carl Reagle
  - JBF = Joshua Fritsch
  - JMS = Jessica Scalise
  - KAK = Kayla Kalamasz
  - RJR = Ron Rosenbaum
  - RSK = Robert Kurtz
  - TAM = Tessa Mastalski
  - WTR = Bill Reinheimer

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: JSF_CCR_20190319_1A

Job ID: 180-87843-1

Client Sample ID: JSF-CCR-TW10-36.5/38.5-20190319

Lab Sample ID: 180-87843-1

Date Collected: 03/19/19 10:25
Date Received: 03/20/19 09:00

Matrix: Solid
Percent Solids: 76.9

Method: EPA 9056A - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.93	J	12.5	4.84	mg/Kg	☼		03/28/19 02:37	1
Fluoride	5.27		1.25	0.848	mg/Kg	☼		03/28/19 02:37	1
Sulfate	341		12.5	8.47	mg/Kg	☼		03/28/19 02:37	1

Method: EPA 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	2.37		0.258	0.0798	mg/Kg	☼	03/22/19 12:48	03/28/19 02:08	1
Arsenic	215		0.129	0.0335	mg/Kg	☼	03/22/19 12:48	03/28/19 02:08	1
Barium	466		1.29	0.165	mg/Kg	☼	03/22/19 12:48	03/28/19 02:08	1
Beryllium	4.81		0.129	0.00966	mg/Kg	☼	03/22/19 12:48	03/28/19 02:08	1
Boron	85.7		10.3	1.74	mg/Kg	☼	03/22/19 12:48	03/28/19 02:08	1
Cadmium	1.47		0.129	0.0219	mg/Kg	☼	03/22/19 12:48	03/28/19 02:08	1
Calcium	5550		64.4	11.5	mg/Kg	☼	03/22/19 12:48	03/28/19 02:08	1
Chromium	36.8		0.258	0.107	mg/Kg	☼	03/22/19 12:48	03/28/19 02:08	1
Cobalt	15.9		0.0644	0.0107	mg/Kg	☼	03/22/19 12:48	03/28/19 02:08	1
Copper	91.2		0.258	0.146	mg/Kg	☼	03/22/19 12:48	03/28/19 02:08	1
Iron	16400		6.44	3.17	mg/Kg	☼	03/22/19 12:48	03/28/19 02:08	1
Lead	46.7		0.129	0.0451	mg/Kg	☼	03/22/19 12:48	03/28/19 02:08	1
Lithium	52.4		0.631	0.349	mg/Kg	☼	03/28/19 15:32	03/29/19 20:07	1
Manganese	73.7		0.644	0.295	mg/Kg	☼	03/22/19 12:48	03/28/19 02:08	1
Molybdenum	10.6		0.644	0.210	mg/Kg	☼	03/22/19 12:48	03/28/19 02:08	1
Nickel	39.4		0.129	0.0786	mg/Kg	☼	03/22/19 12:48	03/28/19 02:08	1
Selenium	8.81		0.644	0.157	mg/Kg	☼	03/22/19 12:48	03/28/19 02:08	1
Silver	0.231		0.129	0.0348	mg/Kg	☼	03/22/19 12:48	03/28/19 02:08	1
Thallium	4.73		0.129	0.0322	mg/Kg	☼	03/22/19 12:48	03/28/19 02:08	1
Vanadium	110		0.129	0.0824	mg/Kg	☼	03/22/19 12:48	03/28/19 02:08	1
Zinc	85.7		0.644	0.430	mg/Kg	☼	03/22/19 12:48	03/28/19 02:08	1

Method: EPA 6020A - Metals (ICP/MS) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	3.47		2.00	0.378	ug/L		03/22/19 11:41	03/29/19 13:24	1
Arsenic	304		1.00	0.323	ug/L		03/22/19 11:41	03/29/19 13:24	1
Barium	35.9		10.0	1.49	ug/L		03/22/19 11:41	03/29/19 13:24	1
Beryllium	ND		1.00	0.155	ug/L		03/22/19 11:41	03/29/19 13:24	1
Boron	361		80.0	30.3	ug/L		03/22/19 11:41	03/29/19 13:24	1
Cadmium	ND		1.00	0.125	ug/L		03/22/19 11:41	03/29/19 13:24	1
Calcium	16500		500	116	ug/L		03/22/19 11:41	03/29/19 13:24	1
Chromium	2.45		2.00	1.53	ug/L		03/22/19 11:41	03/29/19 13:24	1
Cobalt	ND		0.500	0.0750	ug/L		03/22/19 11:41	03/29/19 13:24	1
Copper	1.03	J	2.00	0.627	ug/L		03/22/19 11:41	03/29/19 13:24	1
Iron	40.9	J	50.0	14.1	ug/L		03/22/19 11:41	03/29/19 13:24	1
Lead	ND		1.00	0.128	ug/L		03/22/19 11:41	03/29/19 13:24	1
Lithium	9.10		5.00	3.14	ug/L		03/22/19 11:41	03/29/19 13:24	1
Manganese	4.98	J	5.00	1.35	ug/L		03/22/19 11:41	03/29/19 13:24	1
Molybdenum	226		5.00	0.610	ug/L		03/22/19 11:41	03/29/19 13:24	1
Nickel	0.410	J	1.00	0.312	ug/L		03/22/19 11:41	03/29/19 13:24	1
Selenium	27.5		5.00	2.62	ug/L		03/22/19 11:41	03/29/19 13:24	1
Silver	ND		1.00	0.121	ug/L		03/22/19 11:41	03/29/19 13:24	1
Thallium	ND		1.00	0.128	ug/L		03/22/19 11:41	03/29/19 13:24	1
Vanadium	124		1.00	0.899	ug/L		03/22/19 11:41	03/29/19 13:24	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: JSF_CCR_20190319_1A

Job ID: 180-87843-1

Client Sample ID: JSF-CCR-TW10-36.5/38.5-20190319

Lab Sample ID: 180-87843-1

Date Collected: 03/19/19 10:25
Date Received: 03/20/19 09:00

Matrix: Solid
Percent Solids: 76.9

Method: EPA 6020A - Metals (ICP/MS) - SPLP East (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	ND		5.00	3.22	ug/L		03/22/19 11:41	03/29/19 13:24	1

Method: EPA 7470A - Mercury (CVAA) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		03/22/19 13:19	03/25/19 11:18	1

Method: EPA 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.143**		0.0358	0.0155	mg/Kg	☼	03/26/19 10:34	03/28/19 11:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	**35600**	**F1**	1300	970	mg/Kg	☼		03/26/19 16:42	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**23.1**		0.1	0.1	%			03/27/19 13:33	1
Percent Solids	**76.9**		0.1	0.1	%			03/27/19 13:33	1
pH	**8.1**	**HF**	0.1	0.1	SU			03/28/19 08:49	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: JSF_CCR_20190319_1A

Job ID: 180-87843-1

Client Sample ID: JSF-CCR-FB05-20190319

Lab Sample ID: 180-87843-2

Date Collected: 03/19/19 11:07
Date Received: 03/20/19 09:00

Matrix: Water

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.00	0.715	mg/L			03/28/19 18:29	1
Fluoride	ND		0.100	0.0263	mg/L			03/28/19 18:29	1
Sulfate	**0.700**	**J**	1.00	0.380	mg/L			03/28/19 18:29	1

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.00200	0.000378	mg/L		03/22/19 07:33	03/29/19 14:42	1
Arsenic	ND		0.00100	0.000323	mg/L		03/22/19 07:33	03/29/19 14:42	1
Barium	ND		0.0100	0.00149	mg/L		03/22/19 07:33	03/29/19 14:42	1
Beryllium	ND		0.00100	0.000155	mg/L		03/22/19 07:33	03/29/19 14:42	1
Boron	ND		0.0800	0.0303	mg/L		03/22/19 07:33	03/29/19 14:42	1
Cadmium	ND		0.00100	0.000125	mg/L		03/22/19 07:33	03/29/19 14:42	1
Calcium	ND		0.500	0.116	mg/L		03/22/19 07:33	03/29/19 14:42	1
Chromium	**0.00200**		0.00200	0.00153	mg/L		03/22/19 07:33	03/29/19 14:42	1
Cobalt	ND		0.000500	0.0000750	mg/L		03/22/19 07:33	03/29/19 14:42	1
Copper	ND		0.00200	0.000627	mg/L		03/22/19 07:33	03/29/19 14:42	1
Iron	ND		0.0500	0.0141	mg/L		03/22/19 07:33	03/29/19 14:42	1
Lead	ND		0.00100	0.000128	mg/L		03/22/19 07:33	03/29/19 14:42	1
Lithium	ND		0.00500	0.00314	mg/L		03/22/19 07:33	03/29/19 14:42	1
Manganese	ND		0.00500	0.00135	mg/L		03/22/19 07:33	03/29/19 14:42	1
Molybdenum	ND		0.00500	0.000610	mg/L		03/22/19 07:33	03/29/19 14:42	1
Nickel	ND		0.00100	0.000312	mg/L		03/22/19 07:33	03/29/19 14:42	1
Selenium	ND		0.00500	0.00262	mg/L		03/22/19 07:33	03/29/19 14:42	1
Silver	ND		0.00100	0.000121	mg/L		03/22/19 07:33	03/29/19 14:42	1
Thallium	ND		0.00100	0.000128	mg/L		03/22/19 07:33	03/29/19 14:42	1
Vanadium	**0.00194**		0.00100	0.000899	mg/L		03/22/19 07:33	03/29/19 14:42	1
Zinc	ND		0.00500	0.00322	mg/L		03/22/19 07:33	03/29/19 14:42	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000101	mg/L		03/25/19 13:22	03/28/19 17:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Quad	ND		1.00	0.508	mg/L			03/28/19 17:40	1

QC Sample Results

Client: Environmental Standards Inc.
Project/Site: JSF_CCR_20190319_1A

Job ID: 180-87843-1

Method: EPA 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 180-274238/6
Matrix: Water
Analysis Batch: 274238

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.00	0.715	mg/L			03/28/19 13:41	1
Fluoride	ND		0.100	0.0263	mg/L			03/28/19 13:41	1
Sulfate	ND		1.00	0.380	mg/L			03/28/19 13:41	1

Lab Sample ID: LCS 180-274238/5
Matrix: Water
Analysis Batch: 274238

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	25.53		mg/L		102	80 - 120
Fluoride	1.25	1.173		mg/L		94	80 - 120
Sulfate	25.0	21.39		mg/L		86	80 - 120

Lab Sample ID: 180-88102-A-5 MS
Matrix: Water
Analysis Batch: 274238

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	ND		625	710.9		mg/L		114	80 - 120
Fluoride	ND		31.3	32.40		mg/L		104	80 - 120
Sulfate	941		625	1553		mg/L		98	80 - 120

Lab Sample ID: 180-88102-A-5 MSD
Matrix: Water
Analysis Batch: 274238

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	ND		625	700.3		mg/L		112	80 - 120	1	15
Fluoride	ND		31.3	31.92		mg/L		102	80 - 120	1	15
Sulfate	941		625	1500		mg/L		90	80 - 120	3	15

Lab Sample ID: MB 180-274136/1-A
Matrix: Solid
Analysis Batch: 274035

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		10.0	3.88	mg/Kg			03/28/19 02:03	1
Fluoride	ND		1.00	0.680	mg/Kg			03/28/19 02:03	1
Sulfate	ND		10.0	6.79	mg/Kg			03/28/19 02:03	1

Lab Sample ID: LCS 180-274136/2-A
Matrix: Solid
Analysis Batch: 274035

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	250	273.2		mg/Kg		109	80 - 120
Fluoride	12.5	12.58		mg/Kg		101	80 - 120
Sulfate	250	229.2		mg/Kg		92	80 - 120

Method: EPA 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: 180-88019-B-15-H MS
Matrix: Solid
Analysis Batch: 274035

Client Sample ID: Matrix Spike
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	ND		436	450.5		mg/Kg	☼	103	80 - 120
Fluoride	1.42	J F1	21.8	14.61	F1	mg/Kg	☼	60	80 - 120
Sulfate	22.5		436	400.2		mg/Kg	☼	87	80 - 120

Lab Sample ID: 180-88019-B-15-I MSD
Matrix: Solid
Analysis Batch: 274035

Client Sample ID: Matrix Spike Duplicate
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	ND		446	455.4		mg/Kg	☼	102	80 - 120	1	15
Fluoride	1.42	J F1	22.3	16.14	F1	mg/Kg	☼	66	80 - 120	10	15
Sulfate	22.5		446	405.0		mg/Kg	☼	86	80 - 120	1	15

Method: EPA 6020A - Metals (ICP/MS)

Lab Sample ID: MB 180-273681/1-A
Matrix: Solid
Analysis Batch: 274416

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 273681

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00	0.378	ug/L		03/22/19 11:41	03/29/19 12:54	1
Arsenic	ND		1.00	0.323	ug/L		03/22/19 11:41	03/29/19 12:54	1
Barium	ND		10.0	1.49	ug/L		03/22/19 11:41	03/29/19 12:54	1
Beryllium	ND		1.00	0.155	ug/L		03/22/19 11:41	03/29/19 12:54	1
Boron	ND		80.0	30.3	ug/L		03/22/19 11:41	03/29/19 12:54	1
Cadmium	ND		1.00	0.125	ug/L		03/22/19 11:41	03/29/19 12:54	1
Calcium	ND		500	116	ug/L		03/22/19 11:41	03/29/19 12:54	1
Chromium	ND		2.00	1.53	ug/L		03/22/19 11:41	03/29/19 12:54	1
Cobalt	ND		0.500	0.0750	ug/L		03/22/19 11:41	03/29/19 12:54	1
Copper	ND		2.00	0.627	ug/L		03/22/19 11:41	03/29/19 12:54	1
Iron	ND		50.0	14.1	ug/L		03/22/19 11:41	03/29/19 12:54	1
Lead	ND		1.00	0.128	ug/L		03/22/19 11:41	03/29/19 12:54	1
Lithium	ND		5.00	3.14	ug/L		03/22/19 11:41	03/29/19 12:54	1
Manganese	ND		5.00	1.35	ug/L		03/22/19 11:41	03/29/19 12:54	1
Molybdenum	ND		5.00	0.610	ug/L		03/22/19 11:41	03/29/19 12:54	1
Nickel	ND		1.00	0.312	ug/L		03/22/19 11:41	03/29/19 12:54	1
Selenium	ND		5.00	2.62	ug/L		03/22/19 11:41	03/29/19 12:54	1
Silver	ND		1.00	0.121	ug/L		03/22/19 11:41	03/29/19 12:54	1
Thallium	ND		1.00	0.128	ug/L		03/22/19 11:41	03/29/19 12:54	1
Vanadium	ND		1.00	0.899	ug/L		03/22/19 11:41	03/29/19 12:54	1
Zinc	ND		5.00	3.22	ug/L		03/22/19 11:41	03/29/19 12:54	1

Lab Sample ID: LCS 180-273681/2-A
Matrix: Solid
Analysis Batch: 274416

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 273681

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	500	518.3		ug/L		104	80 - 120
Arsenic	40.0	38.80		ug/L		97	80 - 120

Method: EPA 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 180-273681/2-A
Matrix: Solid
Analysis Batch: 274416

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 273681

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	2000	2079		ug/L		104	80 - 120
Beryllium	50.0	46.19		ug/L		92	80 - 120
Boron	1000	942.4		ug/L		94	80 - 120
Cadmium	50.0	53.92		ug/L		108	80 - 120
Calcium	50000	50880		ug/L		102	80 - 120
Chromium	200	213.6		ug/L		107	80 - 120
Cobalt	500	489.4		ug/L		98	80 - 120
Copper	250	251.9		ug/L		101	80 - 120
Iron	11000	11710		ug/L		106	80 - 120
Lead	20.0	21.02		ug/L		105	80 - 120
Lithium	50.0	49.78		ug/L		100	80 - 120
Manganese	500	509.4		ug/L		102	80 - 120
Molybdenum	1000	1014		ug/L		101	80 - 120
Nickel	500	496.7		ug/L		99	80 - 120
Selenium	10.0	9.787		ug/L		98	80 - 120
Silver	50.0	51.34		ug/L		103	80 - 120
Thallium	50.0	52.66		ug/L		105	80 - 120
Vanadium	500	520.9		ug/L		104	80 - 120
Zinc	500	477.5		ug/L		96	80 - 120

Lab Sample ID: LCSD 180-273681/3-A
Matrix: Solid
Analysis Batch: 274416

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 273681

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	500	522.2		ug/L		104	80 - 120	1	20
Arsenic	40.0	38.97		ug/L		97	80 - 120	0	20
Barium	2000	2074		ug/L		104	80 - 120	0	20
Beryllium	50.0	47.26		ug/L		95	80 - 120	2	20
Boron	1000	966.6		ug/L		97	80 - 120	3	20
Cadmium	50.0	54.47		ug/L		109	80 - 120	1	20
Calcium	50000	51060		ug/L		102	80 - 120	0	20
Chromium	200	212.9		ug/L		106	80 - 120	0	20
Cobalt	500	494.1		ug/L		99	80 - 120	1	20
Copper	250	253.4		ug/L		101	80 - 120	1	20
Iron	11000	12000		ug/L		109	80 - 120	2	20
Lead	20.0	20.96		ug/L		105	80 - 120	0	20
Lithium	50.0	50.41		ug/L		101	80 - 120	1	20
Manganese	500	510.6		ug/L		102	80 - 120	0	20
Molybdenum	1000	1017		ug/L		102	80 - 120	0	20
Nickel	500	501.8		ug/L		100	80 - 120	1	20
Selenium	10.0	9.633		ug/L		96	80 - 120	2	20
Silver	50.0	50.85		ug/L		102	80 - 120	1	20
Thallium	50.0	52.47		ug/L		105	80 - 120	0	20
Vanadium	500	517.1		ug/L		103	80 - 120	1	20
Zinc	500	481.5		ug/L		96	80 - 120	1	20

Method: EPA 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 180-273695/1-A
Matrix: Solid
Analysis Batch: 274215

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 273695

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.200	0.0620	mg/Kg		03/22/19 12:48	03/28/19 01:17	1
Arsenic	ND		0.100	0.0260	mg/Kg		03/22/19 12:48	03/28/19 01:17	1
Barium	ND		1.00	0.128	mg/Kg		03/22/19 12:48	03/28/19 01:17	1
Beryllium	ND		0.100	0.00750	mg/Kg		03/22/19 12:48	03/28/19 01:17	1
Boron	ND		8.00	1.35	mg/Kg		03/22/19 12:48	03/28/19 01:17	1
Cadmium	ND		0.100	0.0170	mg/Kg		03/22/19 12:48	03/28/19 01:17	1
Calcium	ND		50.0	8.95	mg/Kg		03/22/19 12:48	03/28/19 01:17	1
Chromium	ND		0.200	0.0830	mg/Kg		03/22/19 12:48	03/28/19 01:17	1
Cobalt	ND		0.0500	0.00830	mg/Kg		03/22/19 12:48	03/28/19 01:17	1
Copper	ND		0.200	0.113	mg/Kg		03/22/19 12:48	03/28/19 01:17	1
Iron	ND		5.00	2.46	mg/Kg		03/22/19 12:48	03/28/19 01:17	1
Lead	ND		0.100	0.0350	mg/Kg		03/22/19 12:48	03/28/19 01:17	1
Manganese	ND		0.500	0.229	mg/Kg		03/22/19 12:48	03/28/19 01:17	1
Molybdenum	ND		0.500	0.163	mg/Kg		03/22/19 12:48	03/28/19 01:17	1
Nickel	ND		0.100	0.0610	mg/Kg		03/22/19 12:48	03/28/19 01:17	1
Selenium	ND		0.500	0.122	mg/Kg		03/22/19 12:48	03/28/19 01:17	1
Silver	ND		0.100	0.0270	mg/Kg		03/22/19 12:48	03/28/19 01:17	1
Thallium	ND		0.100	0.0250	mg/Kg		03/22/19 12:48	03/28/19 01:17	1
Vanadium	ND		0.100	0.0640	mg/Kg		03/22/19 12:48	03/28/19 01:17	1
Zinc	ND		0.500	0.334	mg/Kg		03/22/19 12:48	03/28/19 01:17	1

Lab Sample ID: LCS 180-273695/2-A
Matrix: Solid
Analysis Batch: 274215

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 273695

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	100	89.13		mg/Kg		89	80 - 120
Arsenic	4.00	3.735		mg/Kg		93	80 - 120
Barium	200	187.7		mg/Kg		94	80 - 120
Beryllium	5.00	4.896		mg/Kg		98	80 - 120
Boron	100	91.35		mg/Kg		91	80 - 120
Cadmium	5.00	5.233		mg/Kg		105	80 - 120
Calcium	5000	5000		mg/Kg		100	80 - 120
Chromium	20.0	19.85		mg/Kg		99	80 - 120
Cobalt	50.0	49.90		mg/Kg		100	80 - 120
Copper	25.0	25.26		mg/Kg		101	80 - 120
Iron	1100	1098		mg/Kg		100	80 - 120
Lead	2.00	2.037		mg/Kg		102	80 - 120
Manganese	50.0	52.24		mg/Kg		104	80 - 120
Molybdenum	200	179.0		mg/Kg		90	80 - 120
Nickel	50.0	49.40		mg/Kg		99	80 - 120
Selenium	1.00	0.9226		mg/Kg		92	80 - 120
Silver	5.00	5.092		mg/Kg		102	80 - 120
Thallium	5.00	4.966		mg/Kg		99	80 - 120
Vanadium	50.0	48.37		mg/Kg		97	80 - 120
Zinc	50.0	48.52		mg/Kg		97	80 - 120

Method: EPA 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: 180-87845-A-4-E MS
Matrix: Solid
Analysis Batch: 274215

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 273695

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	ND	F1	124	61.89	F1	mg/Kg	☼	50	75 - 125
Arsenic	4.60	F1	4.97	15.41	F1	mg/Kg	☼	218	75 - 125
Barium	248		248	474.1		mg/Kg	☼	91	75 - 125
Beryllium	1.01		6.21	6.983		mg/Kg	☼	96	75 - 125
Boron	5.22	J	124	108.2		mg/Kg	☼	83	75 - 125
Cadmium	0.0513	J	6.21	6.079		mg/Kg	☼	97	75 - 125
Calcium	2380		6210	7688		mg/Kg	☼	86	75 - 125
Chromium	33.8		24.8	59.48		mg/Kg	☼	103	75 - 125
Cobalt	17.1		62.1	69.18		mg/Kg	☼	84	75 - 125
Copper	38.4	F1	31.0	49.60	F1	mg/Kg	☼	36	75 - 125
Iron	27700		1370	31460	4	mg/Kg	☼	276	75 - 125
Lead	9.90		2.48	12.32		mg/Kg	☼	97	75 - 125
Manganese	844		62.1	784.5	4	mg/Kg	☼	-95	75 - 125
Molybdenum	ND	F1	248	203.9		mg/Kg	☼	82	75 - 125
Nickel	37.0		62.1	88.51		mg/Kg	☼	83	75 - 125
Selenium	1.85	F1	1.24	2.648	F1	mg/Kg	☼	64	75 - 125
Silver	ND		6.21	6.042		mg/Kg	☼	97	75 - 125
Thallium	0.282		6.21	6.068		mg/Kg	☼	93	75 - 125
Vanadium	26.9		62.1	75.64		mg/Kg	☼	79	75 - 125
Zinc	59.1		62.1	113.5		mg/Kg	☼	88	75 - 125

Lab Sample ID: 180-87845-A-4-F MSD
Matrix: Solid
Analysis Batch: 274215

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 273695

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	ND	F1	129	69.23	F1	mg/Kg	☼	54	75 - 125	11	20
Arsenic	4.60	F1	5.17	12.81	F1	mg/Kg	☼	159	75 - 125	18	20
Barium	248		259	474.6		mg/Kg	☼	88	75 - 125	0	20
Beryllium	1.01		6.46	7.229		mg/Kg	☼	96	75 - 125	3	20
Boron	5.22	J	129	111.2		mg/Kg	☼	82	75 - 125	3	20
Cadmium	0.0513	J	6.46	6.442		mg/Kg	☼	99	75 - 125	6	20
Calcium	2380		6460	7939		mg/Kg	☼	86	75 - 125	3	20
Chromium	33.8		25.9	53.72		mg/Kg	☼	77	75 - 125	10	20
Cobalt	17.1		64.6	69.69		mg/Kg	☼	81	75 - 125	1	20
Copper	38.4	F1	32.3	59.95	F1	mg/Kg	☼	67	75 - 125	19	20
Iron	27700		1420	28410	4	mg/Kg	☼	51	75 - 125	10	20
Lead	9.90		2.59	12.12		mg/Kg	☼	86	75 - 125	2	20
Manganese	844		64.6	910.4	4	mg/Kg	☼	104	75 - 125	15	20
Molybdenum	ND	F1	259	192.2	F1	mg/Kg	☼	74	75 - 125	6	20
Nickel	37.0		64.6	88.18		mg/Kg	☼	79	75 - 125	0	20
Selenium	1.85	F1	1.29	2.877		mg/Kg	☼	79	75 - 125	8	20
Silver	ND		6.46	6.191		mg/Kg	☼	96	75 - 125	2	20
Thallium	0.282		6.46	6.142		mg/Kg	☼	91	75 - 125	1	20
Vanadium	26.9		64.6	75.59		mg/Kg	☼	75	75 - 125	0	20
Zinc	59.1		64.6	110.3		mg/Kg	☼	79	75 - 125	3	20

Method: EPA 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 180-274272/1-A
Matrix: Solid
Analysis Batch: 274454

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 274272

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.500	0.276	mg/Kg		03/28/19 15:32	03/29/19 19:28	1

Lab Sample ID: LCS 180-274272/2-A
Matrix: Solid
Analysis Batch: 274454

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 274272

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	5.00	4.937		mg/Kg		99	80 - 120

Lab Sample ID: 180-87845-A-4-H MS
Matrix: Solid
Analysis Batch: 274454

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 274272

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	21.5	F1	6.53	33.10	F1	mg/Kg	☼	177	75 - 125

Lab Sample ID: 180-87845-A-4-I MSD
Matrix: Solid
Analysis Batch: 274454

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 274272

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium	21.5	F1	6.53	33.80	F1	mg/Kg	☼	188	75 - 125	2	20

Lab Sample ID: MB 180-273629/1-A
Matrix: Water
Analysis Batch: 274416

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 273629

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.00200	0.000378	mg/L		03/22/19 07:33	03/29/19 13:31	1
Arsenic	ND		0.00100	0.000323	mg/L		03/22/19 07:33	03/29/19 13:31	1
Barium	ND		0.0100	0.00149	mg/L		03/22/19 07:33	03/29/19 13:31	1
Beryllium	ND		0.00100	0.000155	mg/L		03/22/19 07:33	03/29/19 13:31	1
Boron	ND		0.0800	0.0303	mg/L		03/22/19 07:33	03/29/19 13:31	1
Cadmium	ND		0.00100	0.000125	mg/L		03/22/19 07:33	03/29/19 13:31	1
Calcium	ND		0.500	0.116	mg/L		03/22/19 07:33	03/29/19 13:31	1
Chromium	ND		0.00200	0.00153	mg/L		03/22/19 07:33	03/29/19 13:31	1
Cobalt	ND		0.000500	0.0000750	mg/L		03/22/19 07:33	03/29/19 13:31	1
Copper	ND		0.00200	0.000627	mg/L		03/22/19 07:33	03/29/19 13:31	1
Iron	ND		0.0500	0.0141	mg/L		03/22/19 07:33	03/29/19 13:31	1
Lead	ND		0.00100	0.000128	mg/L		03/22/19 07:33	03/29/19 13:31	1
Lithium	ND		0.00500	0.00314	mg/L		03/22/19 07:33	03/29/19 13:31	1
Manganese	ND		0.00500	0.00135	mg/L		03/22/19 07:33	03/29/19 13:31	1
Molybdenum	ND		0.00500	0.000610	mg/L		03/22/19 07:33	03/29/19 13:31	1
Nickel	ND		0.00100	0.000312	mg/L		03/22/19 07:33	03/29/19 13:31	1
Selenium	ND		0.00500	0.00262	mg/L		03/22/19 07:33	03/29/19 13:31	1
Silver	ND		0.00100	0.000121	mg/L		03/22/19 07:33	03/29/19 13:31	1
Thallium	ND		0.00100	0.000128	mg/L		03/22/19 07:33	03/29/19 13:31	1
Vanadium	ND		0.00100	0.000899	mg/L		03/22/19 07:33	03/29/19 13:31	1
Zinc	ND		0.00500	0.00322	mg/L		03/22/19 07:33	03/29/19 13:31	1

Method: EPA 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 180-273629/2-A
Matrix: Water
Analysis Batch: 274416

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 273629

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.500	0.5422		mg/L		108	80 - 120
Arsenic	0.0400	0.04029		mg/L		101	80 - 120
Barium	2.00	2.134		mg/L		107	80 - 120
Beryllium	0.0500	0.04748		mg/L		95	80 - 120
Boron	1.00	0.9646		mg/L		96	80 - 120
Cadmium	0.0500	0.05594		mg/L		112	80 - 120
Calcium	50.0	52.64		mg/L		105	80 - 120
Chromium	0.200	0.2213		mg/L		111	80 - 120
Cobalt	0.500	0.5113		mg/L		102	80 - 120
Copper	0.250	0.2650		mg/L		106	80 - 120
Iron	11.0	11.91		mg/L		108	80 - 120
Lead	0.0200	0.02158		mg/L		108	80 - 120
Lithium	0.0500	0.05108		mg/L		102	80 - 120
Manganese	0.500	0.5260		mg/L		105	80 - 120
Molybdenum	1.00	1.052		mg/L		105	80 - 120
Nickel	0.500	0.5177		mg/L		104	80 - 120
Selenium	0.0100	0.01018		mg/L		102	80 - 120
Silver	0.0500	0.05289		mg/L		106	80 - 120
Thallium	0.0500	0.05369		mg/L		107	80 - 120
Vanadium	0.500	0.5359		mg/L		107	80 - 120
Zinc	0.500	0.5020		mg/L		100	80 - 120

Lab Sample ID: 180-87911-I-1-B MS
Matrix: Water
Analysis Batch: 274416

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 273629

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	ND		0.500	0.5361		mg/L		107	75 - 125
Arsenic	ND		0.0400	0.03936		mg/L		98	75 - 125
Barium	ND		2.00	2.104		mg/L		105	75 - 125
Beryllium	ND		0.0500	0.04756		mg/L		95	75 - 125
Boron	ND		1.00	0.9595		mg/L		96	75 - 125
Cadmium	ND		0.0500	0.05592		mg/L		112	75 - 125
Calcium	ND		50.0	52.48		mg/L		105	75 - 125
Chromium	0.00209		0.200	0.2197		mg/L		109	75 - 125
Cobalt	ND		0.500	0.5051		mg/L		101	75 - 125
Copper	ND		0.250	0.2621		mg/L		105	75 - 125
Iron	ND		11.0	11.85		mg/L		108	75 - 125
Lead	ND		0.0200	0.02138		mg/L		107	75 - 125
Lithium	ND		0.0500	0.05087		mg/L		102	75 - 125
Manganese	ND		0.500	0.5212		mg/L		104	75 - 125
Molybdenum	ND		1.00	1.042		mg/L		104	75 - 125
Nickel	ND		0.500	0.5139		mg/L		103	75 - 125
Selenium	ND		0.0100	0.01010		mg/L		101	75 - 125
Silver	ND		0.0500	0.05189		mg/L		104	75 - 125
Thallium	ND		0.0500	0.05335		mg/L		107	75 - 125
Vanadium	0.00159		0.500	0.5320		mg/L		106	75 - 125
Zinc	ND		0.500	0.4926		mg/L		99	75 - 125

Method: EPA 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: 180-87911-I-1-C MSD
Matrix: Water
Analysis Batch: 274416

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 273629

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	ND		0.500	0.5364		mg/L		107	75 - 125	0	20
Arsenic	ND		0.0400	0.03978		mg/L		99	75 - 125	1	20
Barium	ND		2.00	2.123		mg/L		106	75 - 125	1	20
Beryllium	ND		0.0500	0.04733		mg/L		95	75 - 125	0	20
Boron	ND		1.00	0.9701		mg/L		97	75 - 125	1	20
Cadmium	ND		0.0500	0.05578		mg/L		112	75 - 125	0	20
Calcium	ND		50.0	52.40		mg/L		105	75 - 125	0	20
Chromium	0.00209		0.200	0.2206		mg/L		109	75 - 125	0	20
Cobalt	ND		0.500	0.5146		mg/L		103	75 - 125	2	20
Copper	ND		0.250	0.2650		mg/L		106	75 - 125	1	20
Iron	ND		11.0	11.92		mg/L		108	75 - 125	1	20
Lead	ND		0.0200	0.02140		mg/L		107	75 - 125	0	20
Lithium	ND		0.0500	0.05093		mg/L		102	75 - 125	0	20
Manganese	ND		0.500	0.5206		mg/L		104	75 - 125	0	20
Molybdenum	ND		1.00	1.057		mg/L		106	75 - 125	1	20
Nickel	ND		0.500	0.5205		mg/L		104	75 - 125	1	20
Selenium	ND		0.0100	0.01011		mg/L		101	75 - 125	0	20
Silver	ND		0.0500	0.05300		mg/L		106	75 - 125	2	20
Thallium	ND		0.0500	0.05357		mg/L		107	75 - 125	0	20
Vanadium	0.00159		0.500	0.5313		mg/L		106	75 - 125	0	20
Zinc	ND		0.500	0.5004		mg/L		100	75 - 125	2	20

Lab Sample ID: LB 180-273591/1-C
Matrix: Solid
Analysis Batch: 274416

Client Sample ID: Method Blank
Prep Type: SPLP East
Prep Batch: 273681

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00	0.378	ug/L		03/22/19 11:41	03/29/19 12:57	1
Arsenic	ND		1.00	0.323	ug/L		03/22/19 11:41	03/29/19 12:57	1
Barium	ND		10.0	1.49	ug/L		03/22/19 11:41	03/29/19 12:57	1
Beryllium	ND		1.00	0.155	ug/L		03/22/19 11:41	03/29/19 12:57	1
Boron	ND		80.0	30.3	ug/L		03/22/19 11:41	03/29/19 12:57	1
Cadmium	ND		1.00	0.125	ug/L		03/22/19 11:41	03/29/19 12:57	1
Calcium	ND		500	116	ug/L		03/22/19 11:41	03/29/19 12:57	1
Chromium	ND		2.00	1.53	ug/L		03/22/19 11:41	03/29/19 12:57	1
Cobalt	ND		0.500	0.0750	ug/L		03/22/19 11:41	03/29/19 12:57	1
Copper	ND		2.00	0.627	ug/L		03/22/19 11:41	03/29/19 12:57	1
Iron	ND		50.0	14.1	ug/L		03/22/19 11:41	03/29/19 12:57	1
Lead	ND		1.00	0.128	ug/L		03/22/19 11:41	03/29/19 12:57	1
Lithium	ND		5.00	3.14	ug/L		03/22/19 11:41	03/29/19 12:57	1
Manganese	ND		5.00	1.35	ug/L		03/22/19 11:41	03/29/19 12:57	1
Molybdenum	ND		5.00	0.610	ug/L		03/22/19 11:41	03/29/19 12:57	1
Nickel	ND		1.00	0.312	ug/L		03/22/19 11:41	03/29/19 12:57	1
Selenium	ND		5.00	2.62	ug/L		03/22/19 11:41	03/29/19 12:57	1
Silver	ND		1.00	0.121	ug/L		03/22/19 11:41	03/29/19 12:57	1
Thallium	ND		1.00	0.128	ug/L		03/22/19 11:41	03/29/19 12:57	1
Vanadium	ND		1.00	0.899	ug/L		03/22/19 11:41	03/29/19 12:57	1
Zinc	ND		5.00	3.22	ug/L		03/22/19 11:41	03/29/19 12:57	1

QC Sample Results

Client: Environmental Standards Inc.
Project/Site: JSF_CCR_20190319_1A

Job ID: 180-87843-1

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-273698/1-A
Matrix: Solid
Analysis Batch: 273823

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 273698

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		03/22/19 13:19	03/25/19 11:14	1

Lab Sample ID: LCS 180-273698/2-A
Matrix: Solid
Analysis Batch: 273823

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 273698

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	2.50	2.412		ug/L		96	80 - 120

Lab Sample ID: LCSD 180-273698/3-A
Matrix: Solid
Analysis Batch: 273823

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 273698

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	2.50	2.382		ug/L		95	80 - 120	1	20

Lab Sample ID: MB 180-273844/1-A
Matrix: Water
Analysis Batch: 274277

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 273844

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000101	mg/L		03/25/19 13:22	03/28/19 16:36	1

Lab Sample ID: LCS 180-273844/2-A
Matrix: Water
Analysis Batch: 274277

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 273844

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00250	0.002267		mg/L		91	80 - 120

Lab Sample ID: 180-87833-G-4-C MS
Matrix: Water
Analysis Batch: 274277

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 273844

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		0.00100	0.0009060		mg/L		91	75 - 125

Lab Sample ID: 180-87833-G-4-D MSD
Matrix: Water
Analysis Batch: 274277

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 273844

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.00100	0.0008910		mg/L		89	75 - 125	2	20

Lab Sample ID: LB 180-273591/1-D
Matrix: Solid
Analysis Batch: 273823

Client Sample ID: Method Blank
Prep Type: SPLP East
Prep Batch: 273698

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		03/22/19 13:19	03/25/19 11:17	1

QC Sample Results

Client: Environmental Standards Inc.
Project/Site: JSF_CCR_20190319_1A

Job ID: 180-87843-1

Method: EPA 7471B - Mercury (CVAA)

Lab Sample ID: MB 180-273947/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 274251 — **Prep Batch: 273947**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0330	0.0143	mg/Kg		03/26/19 10:34	03/28/19 11:12	1

Lab Sample ID: LCS 180-273947/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 274251 — **Prep Batch: 273947**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.417	0.4007		mg/Kg		96	80 - 120

Lab Sample ID: 180-87946-A-1-F MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 274251 — **Prep Batch: 273947**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.0899		0.166	0.2624		mg/Kg	☼	104	80 - 120

Lab Sample ID: 180-87946-A-1-G MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 274251 — **Prep Batch: 273947**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.0899		0.181	0.2688		mg/Kg	☼	99	80 - 120	2	20

Method: 2540G - SM 2540G

Lab Sample ID: 180-87843-1 DU — **Client Sample ID: JSF-CCR-TW10-36.5/38.5-20190319**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 274119

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Moisture	23.1		24.0		%		4	10
Percent Solids	76.9		76.0		%		1	10

Method: EPA 9045D - pH

Lab Sample ID: LCS 180-274201/1 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 274201

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.0		SU		101	99 - 101

Lab Sample ID: 180-87835-B-9 DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 274201

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	6.8		6.8		SU		0.1	2

QC Sample Results

Client: Environmental Standards Inc.
Project/Site: JSF_CCR_20190319_1A

Job ID: 180-87843-1

Method: EPA 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 180-274541/6 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 274541

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Quad	ND		1.00	0.508	mg/L			03/28/19 16:52	1

Lab Sample ID: LCS 180-274541/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 274541

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Quad	20.0	19.35		mg/L		97	85 - 115

Lab Sample ID: LCSD 180-274541/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 274541

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Quad	20.0	19.24		mg/L		96	85 - 115	1	20

Method: EPA-Lloyd Kahn - Organic Carbon, Total (TOC)

Lab Sample ID: MB 180-274106/3 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 274106

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	ND		1000	746	mg/Kg			03/26/19 16:21	1

Lab Sample ID: LCS 180-274106/4 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 274106

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	37800	34430		mg/Kg		91	75 - 125

Lab Sample ID: 180-87843-1 MS — **Client Sample ID: JSF-CCR-TW10-36.5/38.5-20190319**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 274106

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	35600	F1	25400	70690	F1	mg/Kg	☼	138	75 - 125

Lab Sample ID: 180-87843-1 MSD — **Client Sample ID: JSF-CCR-TW10-36.5/38.5-20190319**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 274106

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Duplicates	35600	F1	25400	69310	F1	mg/Kg	☼	133	75 - 125	2	20

QC Sample Results

Client: Environmental Standards Inc.
Project/Site: JSF_CCR_20190319_1A

Job ID: 180-87843-1

Method: EPA-Lloyd Kahn - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: 180-87843-1 DU
Matrix: Solid
Analysis Batch: 274106

Client Sample ID: JSF-CCR-TW10-36.5/38.5-20190319
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Organic Carbon - Duplicates	35600	F1		45300	F3	mg/Kg	☼			24	20

QC Association Summary

Client: Environmental Standards Inc.
Project/Site: JSF_CCR_20190319_1A

Job ID: 180-87843-1

HPLC/IC

Analysis Batch: 274035

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-87843-1	JSF-CCR-TW10-36.5/38.5-20190319	Soluble	Solid	EPA 9056A	274136
MB 180-274136/1-A	Method Blank	Soluble	Solid	EPA 9056A	274136
LCS 180-274136/2-A	Lab Control Sample	Soluble	Solid	EPA 9056A	274136
180-88019-B-15-H MS	Matrix Spike	Soluble	Solid	EPA 9056A	274136
180-88019-B-15-I MSD	Matrix Spike Duplicate	Soluble	Solid	EPA 9056A	274136

Leach Batch: 274136

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-87843-1	JSF-CCR-TW10-36.5/38.5-20190319	Soluble	Solid	DI Leach	
MB 180-274136/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 180-274136/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
180-88019-B-15-H MS	Matrix Spike	Soluble	Solid	DI Leach	
180-88019-B-15-I MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 274238

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-87843-2	JSF-CCR-FB05-20190319	Total/NA	Water	EPA 9056A	
MB 180-274238/6	Method Blank	Total/NA	Water	EPA 9056A	
LCS 180-274238/5	Lab Control Sample	Total/NA	Water	EPA 9056A	
180-88102-A-5 MS	Matrix Spike	Total/NA	Water	EPA 9056A	
180-88102-A-5 MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 9056A	

Metals

Leach Batch: 273591

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-87843-1	JSF-CCR-TW10-36.5/38.5-20190319	SPLP East	Solid	EPA 1312	
LB 180-273591/1-C	Method Blank	SPLP East	Solid	EPA 1312	
LB 180-273591/1-D	Method Blank	SPLP East	Solid	EPA 1312	

Prep Batch: 273629

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-87843-2	JSF-CCR-FB05-20190319	Total Recoverable	Water	3005A	
MB 180-273629/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-273629/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-87911-I-1-B MS	Matrix Spike	Total Recoverable	Water	3005A	
180-87911-I-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

Prep Batch: 273681

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-87843-1	JSF-CCR-TW10-36.5/38.5-20190319	SPLP East	Solid	3010A	273591
LB 180-273591/1-C	Method Blank	SPLP East	Solid	3010A	273591
MB 180-273681/1-A	Method Blank	Total/NA	Solid	3010A	
LCS 180-273681/2-A	Lab Control Sample	Total/NA	Solid	3010A	
LCSD 180-273681/3-A	Lab Control Sample Dup	Total/NA	Solid	3010A	

Prep Batch: 273695

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-87843-1	JSF-CCR-TW10-36.5/38.5-20190319	Total/NA	Solid	3050B	
MB 180-273695/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 180-273695/2-A	Lab Control Sample	Total/NA	Solid	3050B	

Metals (Continued)

Prep Batch: 273695 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-87845-A-4-E MS	Matrix Spike	Total/NA	Solid	3050B	
180-87845-A-4-F MSD	Matrix Spike Duplicate	Total/NA	Solid	3050B	

Prep Batch: 273698

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-87843-1	JSF-CCR-TW10-36.5/38.5-20190319	SPLP East	Solid	7470A	273591
LB 180-273591/1-D	Method Blank	SPLP East	Solid	7470A	273591
MB 180-273698/1-A	Method Blank	Total/NA	Solid	7470A	
LCS 180-273698/2-A	Lab Control Sample	Total/NA	Solid	7470A	
LCSD 180-273698/3-A	Lab Control Sample Dup	Total/NA	Solid	7470A	

Analysis Batch: 273823

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-87843-1	JSF-CCR-TW10-36.5/38.5-20190319	SPLP East	Solid	EPA 7470A	273698
LB 180-273591/1-D	Method Blank	SPLP East	Solid	EPA 7470A	273698
MB 180-273698/1-A	Method Blank	Total/NA	Solid	EPA 7470A	273698
LCS 180-273698/2-A	Lab Control Sample	Total/NA	Solid	EPA 7470A	273698
LCSD 180-273698/3-A	Lab Control Sample Dup	Total/NA	Solid	EPA 7470A	273698

Prep Batch: 273844

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-87843-2	JSF-CCR-FB05-20190319	Total/NA	Water	7470A	
MB 180-273844/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-273844/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-87833-G-4-C MS	Matrix Spike	Dissolved	Water	7470A	
180-87833-G-4-D MSD	Matrix Spike Duplicate	Dissolved	Water	7470A	

Prep Batch: 273947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-87843-1	JSF-CCR-TW10-36.5/38.5-20190319	Total/NA	Solid	7471B	
MB 180-273947/1-A	Method Blank	Total/NA	Solid	7471B	
LCS 180-273947/2-A	Lab Control Sample	Total/NA	Solid	7471B	
180-87946-A-1-F MS	Matrix Spike	Total/NA	Solid	7471B	
180-87946-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	7471B	

Analysis Batch: 274215

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-87843-1	JSF-CCR-TW10-36.5/38.5-20190319	Total/NA	Solid	EPA 6020A	273695
MB 180-273695/1-A	Method Blank	Total/NA	Solid	EPA 6020A	273695
LCS 180-273695/2-A	Lab Control Sample	Total/NA	Solid	EPA 6020A	273695
180-87845-A-4-E MS	Matrix Spike	Total/NA	Solid	EPA 6020A	273695
180-87845-A-4-F MSD	Matrix Spike Duplicate	Total/NA	Solid	EPA 6020A	273695

Analysis Batch: 274251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-87843-1	JSF-CCR-TW10-36.5/38.5-20190319	Total/NA	Solid	EPA 7471B	273947
MB 180-273947/1-A	Method Blank	Total/NA	Solid	EPA 7471B	273947
LCS 180-273947/2-A	Lab Control Sample	Total/NA	Solid	EPA 7471B	273947
180-87946-A-1-F MS	Matrix Spike	Total/NA	Solid	EPA 7471B	273947
180-87946-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	EPA 7471B	273947

QC Association Summary

Client: Environmental Standards Inc.
Project/Site: JSF_CCR_20190319_1A

Job ID: 180-87843-1

Metals

Prep Batch: 274272

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-87843-1	JSF-CCR-TW10-36.5/38.5-20190319	Total/NA	Solid	3050B	
MB 180-274272/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 180-274272/2-A	Lab Control Sample	Total/NA	Solid	3050B	
180-87845-A-4-H MS	Matrix Spike	Total/NA	Solid	3050B	
180-87845-A-4-I MSD	Matrix Spike Duplicate	Total/NA	Solid	3050B	

Analysis Batch: 274277

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-87843-2	JSF-CCR-FB05-20190319	Total/NA	Water	EPA 7470A	273844
MB 180-273844/1-A	Method Blank	Total/NA	Water	EPA 7470A	273844
LCS 180-273844/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	273844
180-87833-G-4-C MS	Matrix Spike	Dissolved	Water	EPA 7470A	273844
180-87833-G-4-D MSD	Matrix Spike Duplicate	Dissolved	Water	EPA 7470A	273844

Analysis Batch: 274416

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-87843-1	JSF-CCR-TW10-36.5/38.5-20190319	SPLP East	Solid	EPA 6020A	273681
180-87843-2	JSF-CCR-FB05-20190319	Total Recoverable	Water	EPA 6020A	273629
LB 180-273591/1-C	Method Blank	SPLP East	Solid	EPA 6020A	273681
MB 180-273629/1-A	Method Blank	Total Recoverable	Water	EPA 6020A	273629
MB 180-273681/1-A	Method Blank	Total/NA	Solid	EPA 6020A	273681
LCS 180-273629/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020A	273629
LCS 180-273681/2-A	Lab Control Sample	Total/NA	Solid	EPA 6020A	273681
LCSD 180-273681/3-A	Lab Control Sample Dup	Total/NA	Solid	EPA 6020A	273681
180-87911-I-1-B MS	Matrix Spike	Total Recoverable	Water	EPA 6020A	273629
180-87911-I-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	EPA 6020A	273629

Analysis Batch: 274454

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-87843-1	JSF-CCR-TW10-36.5/38.5-20190319	Total/NA	Solid	EPA 6020A	274272
MB 180-274272/1-A	Method Blank	Total/NA	Solid	EPA 6020A	274272
LCS 180-274272/2-A	Lab Control Sample	Total/NA	Solid	EPA 6020A	274272
180-87845-A-4-H MS	Matrix Spike	Total/NA	Solid	EPA 6020A	274272
180-87845-A-4-I MSD	Matrix Spike Duplicate	Total/NA	Solid	EPA 6020A	274272

General Chemistry

Analysis Batch: 274106

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-87843-1	JSF-CCR-TW10-36.5/38.5-20190319	Total/NA	Solid	EPA-Lloyd Kahn	
MB 180-274106/3	Method Blank	Total/NA	Solid	EPA-Lloyd Kahn	
LCS 180-274106/4	Lab Control Sample	Total/NA	Solid	EPA-Lloyd Kahn	
180-87843-1 MS	JSF-CCR-TW10-36.5/38.5-20190319	Total/NA	Solid	EPA-Lloyd Kahn	
180-87843-1 MSD	JSF-CCR-TW10-36.5/38.5-20190319	Total/NA	Solid	EPA-Lloyd Kahn	
180-87843-1 DU	JSF-CCR-TW10-36.5/38.5-20190319	Total/NA	Solid	EPA-Lloyd Kahn	

Analysis Batch: 274119

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-87843-1	JSF-CCR-TW10-36.5/38.5-20190319	Total/NA	Solid	2540G	
180-87843-1 DU	JSF-CCR-TW10-36.5/38.5-20190319	Total/NA	Solid	2540G	

QC Association Summary

Client: Environmental Standards Inc.
Project/Site: JSF_CCR_20190319_1A

Job ID: 180-87843-1

General Chemistry

Analysis Batch: 274201

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-87843-1	JSF-CCR-TW10-36.5/38.5-20190319	Total/NA	Solid	EPA 9045D	
LCS 180-274201/1	Lab Control Sample	Total/NA	Solid	EPA 9045D	
180-87835-B-9 DU	Duplicate	Total/NA	Solid	EPA 9045D	

Analysis Batch: 274541

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-87843-2	JSF-CCR-FB05-20190319	Total/NA	Water	EPA 9060A	
MB 180-274541/6	Method Blank	Total/NA	Water	EPA 9060A	
LCS 180-274541/4	Lab Control Sample	Total/NA	Water	EPA 9060A	
LCSD 180-274541/5	Lab Control Sample Dup	Total/NA	Water	EPA 9060A	

TVA Environmental Investigations

Tennessee Valley Authority

COOLER No.:	1	of	1
COC No:	JSF_CCR_20190319_1A		
1 of 1 Pages			
Task Desc:	JSF_CCR		

Chain-of-Custody / Analytical Request Document

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

Required Ship to Lab:		Required Project Information:				Required Sampler Information			
Lab Name:	TestAmerica Pittsburgh	Site ID #:	John Sevier Fossil Plant			Sampler:	Matthew Knickelbine & Elizabeth Dilbone		
Lab Address:	301 Alpha Drive	Project #:	175568225			Sampling Company:	Stantec		
	Pittsburgh, PA 15238	Site Address	611 Old Highway 70 S			Address	601 Grassmere Park, Suite 22		
		City	Rogersville	State, Zip:	TN, 37857	City/State	Nashville, TN	Phone:	615-885-1144
Lab Manager Contact Information		Site PM Name:	Roy Quinn						
Lab PM:	Gail Lage	Phone/Fax:	423-751-3753			Sampling Team Number:	1		
Phone/Fax:	615-301-5741/615-726-3404	Site PM Email:	jrquinn@tva.gov			Send EDD/Hard Copy to:	tva_deliverables@envstd.com		
Lab Email:	Gail.Lage@testamericainc.com								

Analysis Turnaround Time

☐ CALENDAR DAYS ☒ WORKING DAYS

TAT if different from Below _____

☐ 24 Hours
☐ 3 Business Days
☐ 5 Business Days
☒ 10 Business Days (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	Filtered	Preserve (see comments)	Preserve (see comments)	Analysis: CCR_MATERIALS	Analysis: CCR_MATERIALS_BLANKS
1	JSF-CCR-TW10-36.5/38.5-20190319	TW10	36.5	38.5	CCR	G	N	03/19/19	1025	5	NA	☐	N			X	
2	JSF-CCR-FB05-20190319	TW10	NA	NA	AQ	G	FB	03/19/19	1107	4	NA	☐	N				X

3/19/2019

3/19/19

Additional Comments/Special Instructions:

Additional volume collected should be used for MS/MSDs.

CCR MATERIALS: Perform MS/MSD on sample identified above

CCR MATERIALS_BLANKS: Anions – unpreserved; Metals – preserved w/ HNO3 to pH<2

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Elizabeth Dilbone	3/19/2019	1800	JMSI	3/20	900
BLD 3/19/19					

SHIPPING METHOD:	SAMPLER NAME AND SIGNATURE
Fedex	Elizabeth Dilbone
	Matthew Knickelbine

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

180-87843 Chain of Custody

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Form TVA 30067A

Login Sample Receipt Checklist

Client: Environmental Standards Inc.

Job Number: 180-87843-1

Login Number: 87843
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	