# WATER POLLUTION CONTROL EAST TANK CLEANING

### **ADDENDUM**

July 28, 2022

To: Lauren Rowley, Purchasing Manager

From: John Florshinger, Water Pollution Control

Proposal: P23-505 – Cleanout of East Sludge Tank

This addendum has been issued due to a modification in the Scope of Services. Items are to be amended as follows:

### **QUESTIONS:**

1. Do the contents of the East tank have to be hauled offsite to be dewatered?

**Answer:** No. The bid was intended to state that the City does not have dewatering

facilities that can be used by the Contractor. Solids dewatered onsite

must be contained and then transported to an acceptable landfill.

2. In the base bid it states approximately 1400 cubic yards of waste will be removed. If the amount runs over how will that be handled?

**Answer:** The Contractor shall also submit a minimum base bid with the per ton

cost on volume over the 1400 cubic yard approximation.

**3.** Can a copy of the sludge profile testing be provided?

**Answer:** Yes, see attached.

**4.** What hours of operation can be entertained?

**Answer:** The gate is open Monday – Friday, 6:30am to 7:00pm. Anything other

than this will have to be coordinated. Plant staff are onsite 24/7.

Contractor must sign in and out daily while onsite.

**5.** What is the projected start date?

**Answer:** The anticipated a start date is no later than September 15, 2022.

**6.** Does the East tank have personnel access points?

Answer: Yes, there are two access hatches – One on the North side and one on the South side – both are roughly 4' by 4'.

**7.** Is this a prevailing wage job?

**Answer:** No.

**8.** Will a performance or bid bond be required?

**Answer:** The City is not requiring bonding at this time.

**9.** Can the contractors get a copy of the East tank drawings?

Answer: See attached. Drawings 50 and 55 are the originals that show the tank construction, piping has been replaced. Level drawing shows the height of wall, cone, and radar measurements, and the process shows the new mixing piping.

**10.** Are the contractors required to clean the nozzles and the piping?

**Answer:** No, that is the City's responsibility.

11. Is 480 Volt 3-phase power available at 400 amps.

Answer: In the digester building next to the East Tank there is a 480-volt motor control center that should have adequate power available.

**12.** The bid states email bid and deliver two hard copies. Can just an email bid be provided?

Answer: Yes. Bidders must submit bids via email <u>and</u> deliver two-(2) hard copies as stated in the RFP page 2.

**13.** Please provide us the type of polymer the plant currently uses.

**Answer:** Polymer type Clarifloc CE-1536 is supplied by Polydyne Inc.

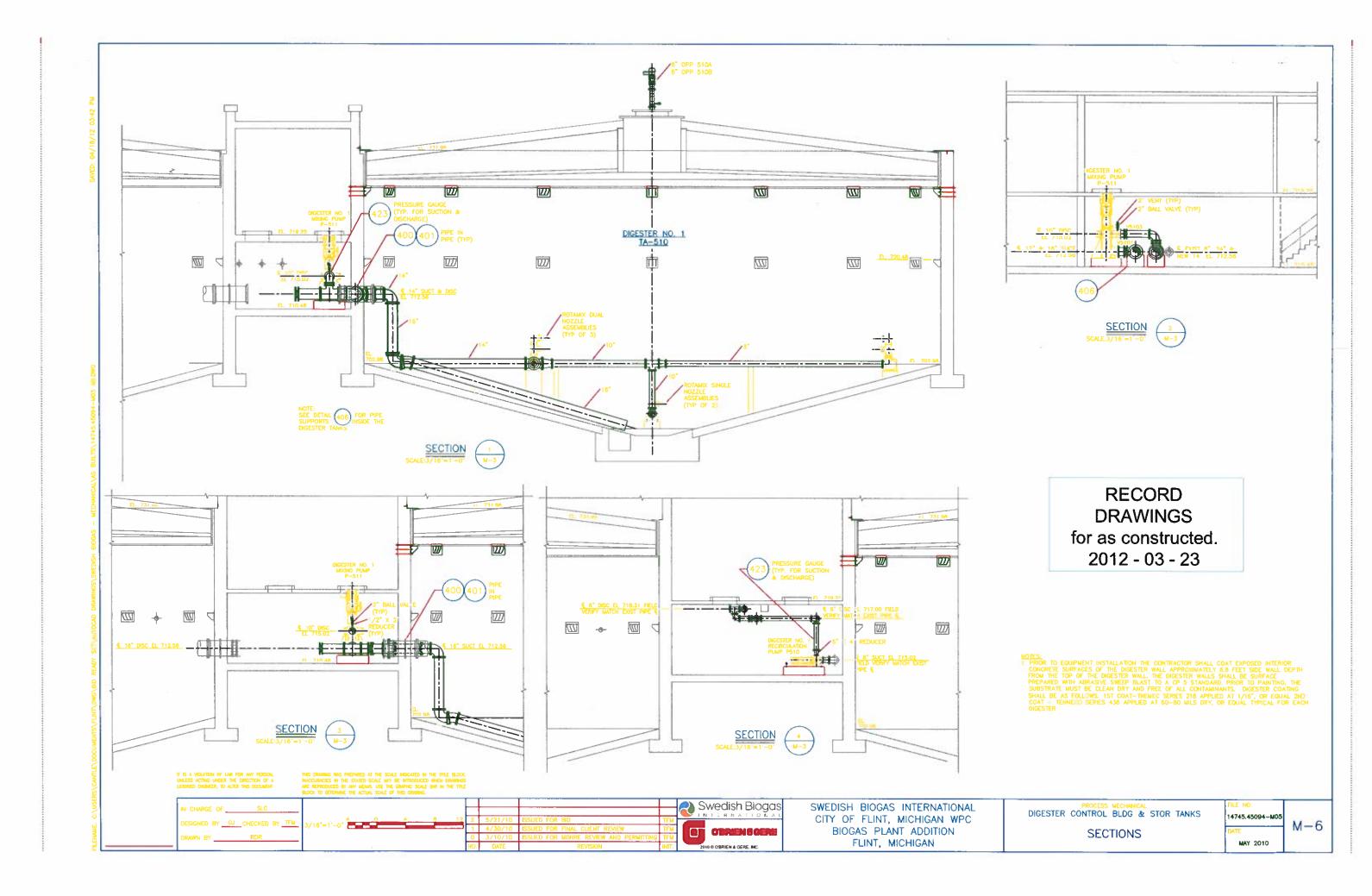
**14.** Bid states that contractor must start within 7 days of being notified by the City. Is there any wiggle room on this?

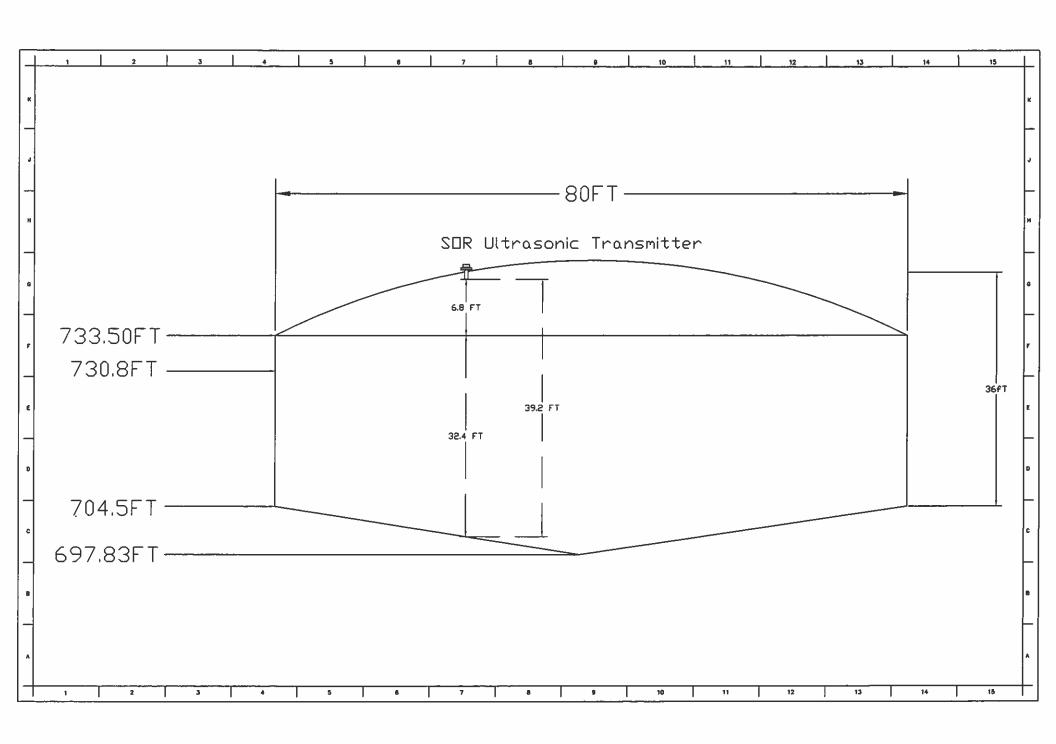
**Answer:** The City reserves the right to negotiate an extension and/or

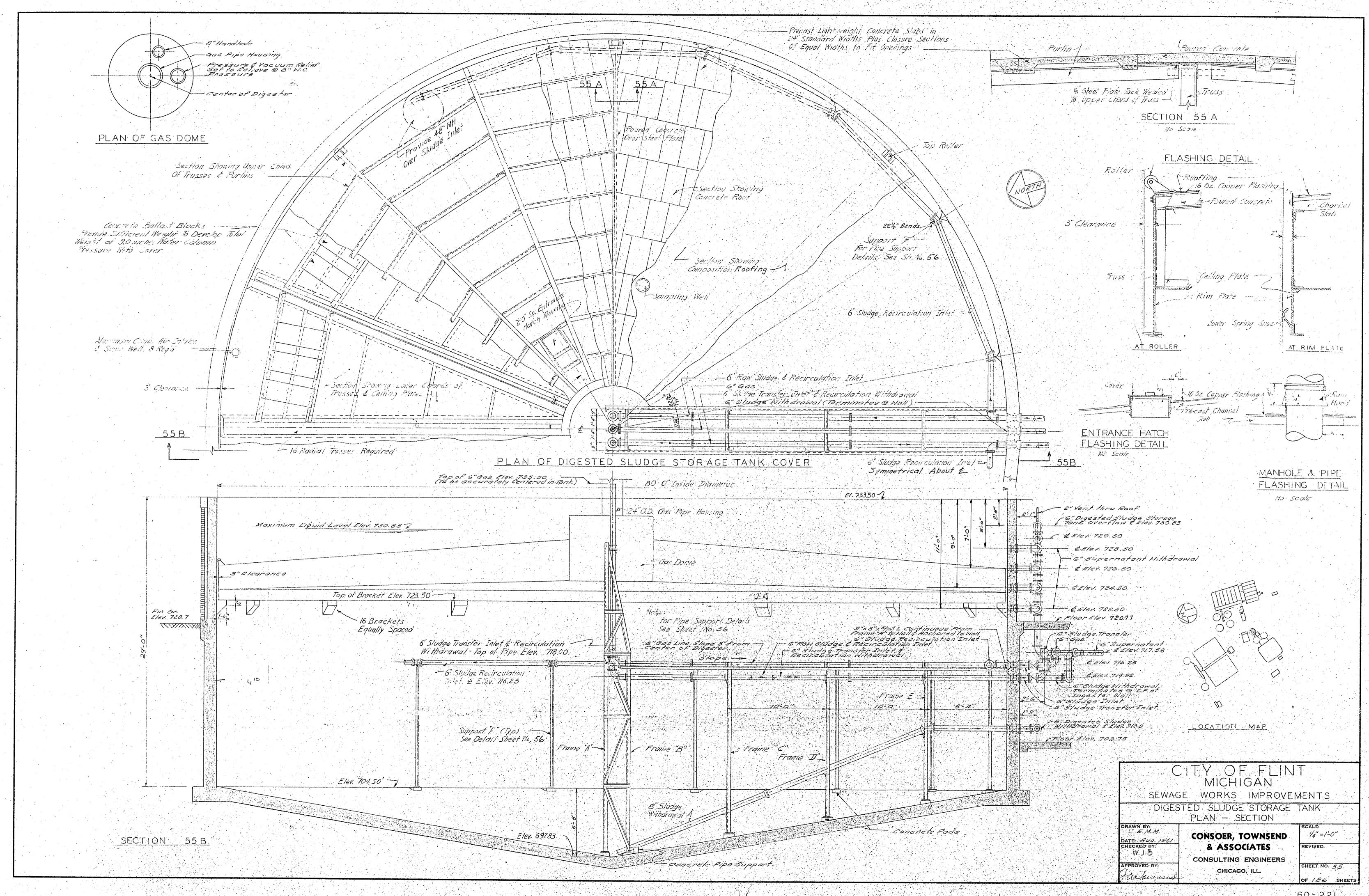
modifications to the project timeline with the Contractor.

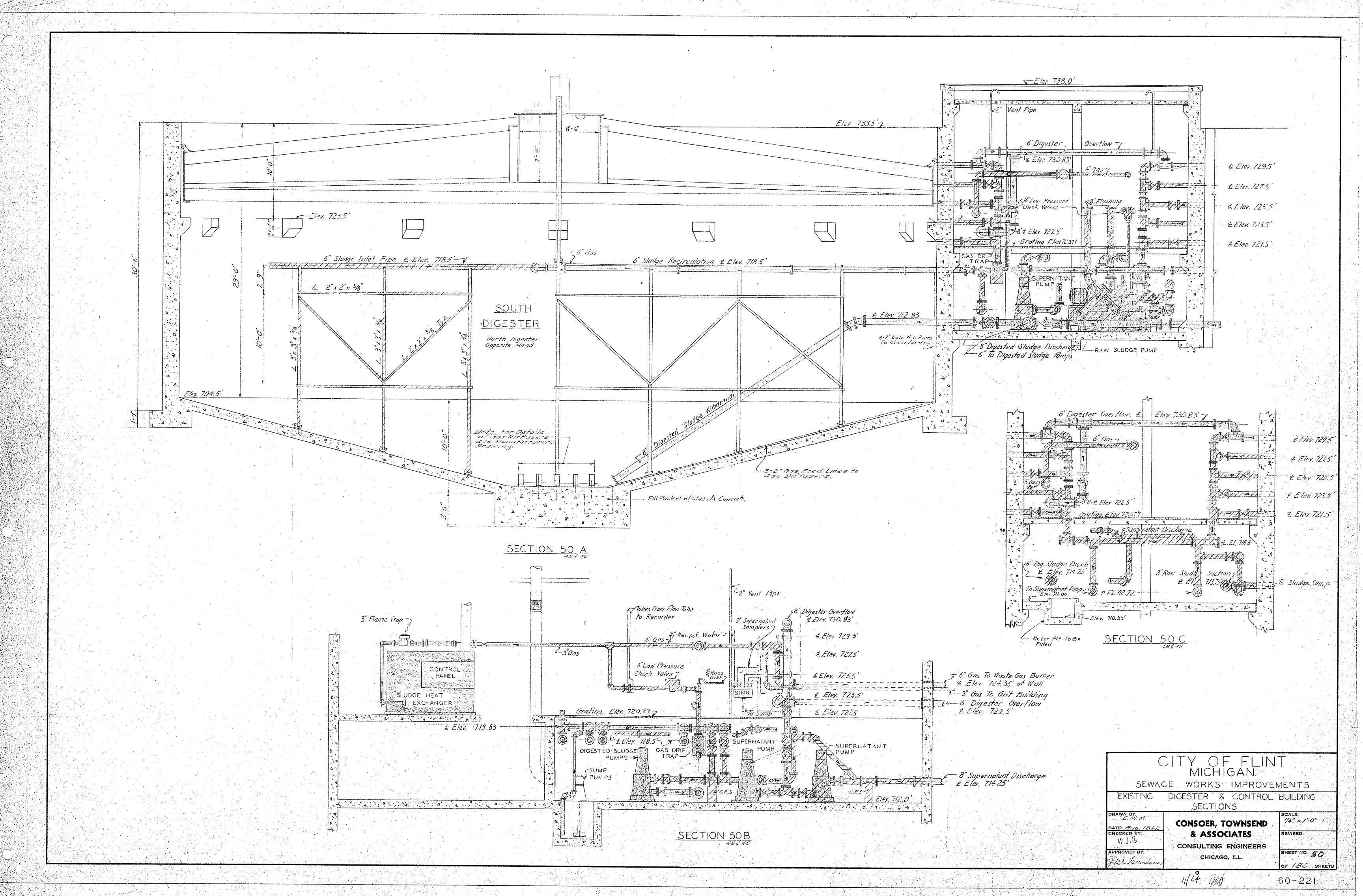
Let me know if you have any additional questions.

Thank you











# ANALYTICAL REPORT

Eurofins TestAmerica, Michigan 10448 Citation Drive Suite 200 Brighton, MI 48116

Tel: (810)229-2763

Laboratory Job ID: 190-25606-1

Client Project/Site: Filter Cake 2021-04-02-D

For:

City of Flint **PO BOX 246** 

Flint, Michigan 48501-4246

Attn: Eric Brubaker

Sue Schafer

Authorized for release by: 4/19/2021 2:30:57 PM

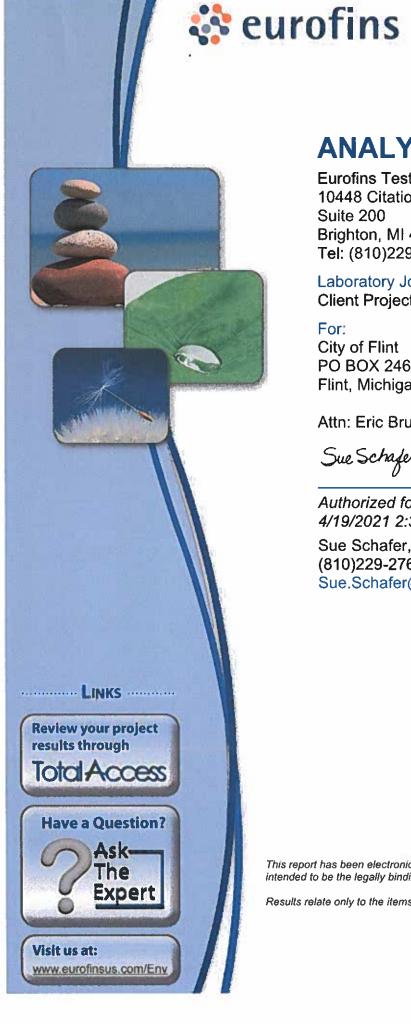
Sue Schafer, Project Manager II (810)229-2763

Sue.Schafer@Eurofinset.com

Data Qualifiers Ved 28 4/20/21 QAIQC Audit EB 4/20/21 Spreadohoet : 88 4/20/21

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.



Laboratory Job ID: 190-25606-1

Client: City of Flint Project/Site: Filter Cake 2021-04-02-D

# **Table of Contents**

Cover Page	1
Table of Contents	
Sample Summary	
Case Narrative	4
Client Sample Results	
QC Sample Results	
QC Association Summary	
Lab Chronicle	
Method Summary	
Definitions/Glossary	
Chain of Custody	
Method Summary	26

### Sample Summary

Client: City of Flint Project/Site: Filter Cake 2021-04-02-D

Lab Sample ID Client Sample ID Collected Received Matrix Asset ID 190-25606-1 CITY OF FLINT WPC FILTER BELT PRESS 03/31/21 00:00 04/03/21 08:00 Solid

Job ID: 190-25606-1

### **Case Narrative**

Client: City of Flint

Project/Site: Filter Cake 2021-04-02-D

Job ID: 190-25606-1

Laboratory: Eurofins TestAmerica, Michigan

**Narrative** 

Job Narrative 190-25606-1

#### Comments

No additional comments,

#### Receipt

The sample was received on 4/3/2021 8:00 AM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.5° C.

#### **GC/MS VOA**

Method 8260B: The continuing calibration verification (CCV) associated with batch 240-481055 recovered above the upper control limit for Vinyl Chloride. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. CITY OF FLINT WPC FILTER BELT PRESS (190-25606-1) and (CCVIS 240-481055/3)

Method 8260B: The laboratory control sample (LCS) for preparation batch 240-480603 and analytical batch 240-481055 recovered outside control limits for the following analytes: Vinyl Chloride. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported. CITY OF FLINT WPC FILTER BELT PRESS (190-25606-1) and (LCS 240-481055/11) ✓

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

#### GC/MS Semi VOA

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

### GC Semi VOA

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

#### Metals

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

#### **General Chemistry**

Methods 9045C, 9045D: A deviation from the Standard Operating Procedure (SOP) occurred. Details are as follows: less than 10 grams of sample was utilized due to the sample matrix 🗸

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

#### **Organic Prep**

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

#### **VOA Prep**

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

Job ID: 190-25606-1

### **Client Sample Results**

Client: City of Flint Job ID: 190-25606-1

Project/Site: Filter Cake 2021-04-02-D

### **Client Sample ID: CITY OF FLINT WPC FILTER BELT PRESS**

Date Collected: 03/31/21 00:00 /

Lab Sample ID: 190-25606-1 Matrix: Solid

Date Received: 04/03/21 08:00

Analyte	Result Qualifler	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	<0.025 ✓	0.025	mg/L			04/14/21 15:16	1
1,2-Dichloroethane	<0.025 🗸	0.025	mg/L			04/14/21 15:16	1
2-Butanone (MEK)	<0.25 🗸	0.25	mg/L			04/14/21 15:16	1
Benzene 🖍	<0.025 🗸	0.025	mg/L			04/14/21 15:16	1
Carbon tetrachloride	<0.025	0.025	mg/L			04/14/21 15:16	1
Chlorobenzene 🛩	<0.025 ✓	0.025	mg/L			04/14/21 15:16	1
Chloroform >	<0.025 🗸	0.025	mg/L			04/14/21 15:16	1
Tetrachloroethene	<0.025 🗸	0.025	mg/L			04/14/21 15:16	1
Trichloroethene /	<0.025 🗸	0.025	mg/L			04/14/21 15:16	1
Vinyl chloride /	<0.025 **+	0.025	mg/L			04/14/21 15:16	, 1
Surrogate	%Recovery Qualifier	Limits			Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	114 /	74 - 124				04/14/21 15:16	1
4-Bromofluorobenzene (Surr)	107 🗸	77 - 120				04/14/21 15:16 -	- 1
Toluene-d8 (Surr)	96 🗸	80 - 120				04/14/21 15:16	- 1
Dibromofluoromethane (Surr)	107 🗸	80 - 120				04/14/21 15:16	1

Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	DII Fac
1,4-Dichlorobenzene	<0.0040 🗸	0.0040	mg/L		04/07/21 06:30	04/09/21 14:34	/ 1
2,4-Dinitrotoluene	<0.0040	0.0040	mg/L		04/07/21 06:30	04/09/21 14:34	1
Hexachlorobenzene	<0.00080	0.00080	mg/L		04/07/21 06:30	04/09/21 14:34	1
Hexachlorobutadiene 🗸 💮	<0.0040	0.0040	mg/L		04/07/21 06:30	04/09/21 14:34	1
Hexachloroethane	<0.0040 🗸	0.0040	mg/L		04/07/21 06:30	04/09/21 14:34	1
2-Methylphenol 🗸	<0.0040 🗸	0.0040	mg/L		04/07/21 06:30	04/09/21 14:34	1
3 & 4 Methylphenol	<0.0040	0.0040	mg/L		04/07/21 06:30	04/09/21 14:34	1
Nitrobenzene	<0.0040	0.0040	mg/L		04/07/21 06:30	04/09/21 14:34	1
Pentachlorophenol 🗸	<0.016 🗸	0.016	mg/L		04/07/21 06:30	04/09/21 14:34	1
Pyridine	<0.0040 🗸	0,0040	mg/L		04/07/21 06:30	04/09/21 14:34	1
2,4,5-Trichlorophenol	<0.0040 🗸	0.0040	mg/L		04/07/21 06:30	04/09/21 14:34	, 1
2,4,6-Trichtorophenol	<0.0040 🛩	0.0040	mg/L		04/07/21 06:30	04/09/21 14:34	1
Surrogate	%Recovery Qualifier	Limits			Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	46 /	39 - 120			04/07/21 06:30	04/09/21 14:34	- 1
2-Fluorophenol (Surr)	39 🗸	10 - 120			04/07/21 06:30	104/09/21 14:34	/ 1
Nitrobenzene-d5 (Surr)	45 🔧	33 - 120			04/07/21 06:30	04/09/21 14:34	/
Phenol-d5 (Surr)	37 🗸	10 - 120			04/07/21 06:30	04/09/21 14:34	/
Terphenyl-d14 (Surr)	59 ✓	36 - 122			04/07/21 06:30	04/09/21 14:34	/
2,4,6-Tribromophenol (Surr)	46	33 - 120			04/07/21 06:30	104/09/21 14:34	/

Analyte	Result Qualifier	RL	Unit	D Prepared	Analyzed	Dil Fac
Chlordane (technical)	<0.0050	0.0050	mg/L	04/13/21 08:00	√04/14/21 18:07 ·	1
Endrin /	<0.00050	0.00050	mg/L	04/13/21 08:00	04/14/21 18:07	1
gamma-BHC (Lindane)	<0.00050 🗸	0.00050	mg/L	04/13/21 08:00	04/14/21 18:07	1
Heptachlor 🗸	<0.00050 🗸	0.00050	mg/L	04/13/21 08:00	04/14/21 18:07	1
Heptachlor epoxide /	<0.00050	0.00050	mg/L	04/13/21 08:00	04/14/21 18:07	1
Methoxychlor	<0.0010 🗸	0.0010	mg/L	04/13/21 08:00	04/14/21 18:07	1
Toxaphene /	<0.020 ✓	0.020	mg/L	04/13/21 08:00	04/14/21 18:07	, 1

Eurofins TestAmerica, Michigan

Page 5 of 26 4/19/2021

# **Client Sample Results**

Client: City of Flint

Project/Site: Filter Cake 2021-04-02-D

Client Sample ID: CITY OF FLINT WPC FILTER BELT PRESS Date Collected: 03/31/21 00:00 /

Lab Sample ID: 190-25606-1

Matrix: Solid

Job ID: 190-25606-1

Surrogate	%Recovery Qualifier	Limits			Prepared	Analyzed	Dil Fa
DCB Decachlorobiphenyl	70 🗸	21 - 135				04/14/21 18:07	
Tetrachloro-m-xylene	55 /	33 - 123				04/14/21 18:07	
Method: 8151A - Herbicides	s (GC) - TCLP						
Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fa
2,4-D	<0.040	0.040 /	mg/L	_ <u>_</u>		04/08/21 20:02	
Silvex (2,4,5-TP)	<0.010	0.010 /	mg/L			04/08/21 20:02	
Surrogate	%Recovery Qualifier	Limits			Prepared	Analyzed	DII Fa
2,4-Dichlorophenylacetic acid	83	41 - 130				04/08/21 20:02	DII Fa
Method: 6010B - Metals (IC	P) - TCLP /						
Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fa
Arsenic /	<0.050 🗸	0.050	mg/L		04/06/21 14:00		
Barium 🗸	<0.50	0.50	mg/L		04/06/21 14:00		
Cadmium 🖊	<0.050 🗸	0.050	mg/L			04/07/21 16:37	
Chromium /	<0.050 🖊	0.050	mg/L		53	04/07/21 16:37	
_ead /	<0.050 🗸	0.050	mg/L		200	04/07/21 16:37	
Selenium 🖊	<0.050 🛩	0.050	mg/L		04/06/21 14:00		
Silver 🗸	<0.050 🛩	0.050	mg/L		04/06/21 14:00		,
Method: 7470A - Mercury (C	CVAA) - TCLP /						
Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	D0 E-
Mercury /	<0.0020	0.0020	mg/L	- =	04/06/21 12:00 <b>*</b>		Dil Fac
General Chemistry							
Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Flashpoint	>200	1.00	Degrees F			04/07/21 13:24	
ρΗ	8.0 HF	0.1	SU			04/06/21 12:06	
Free Liquid	CNF	0.10	NONE			04/16/21 03:49	
Percent Solids	18.3	0.1	%			04/13/21 12:43	
Percent Moisture	81.7	0.1	%			04/13/21 12:43	

Client Sample ID: CITY OF FLINT WPC FILTER BELT PRESS

Date Collected: 03/31/21 00:00 /

Date Received: 04/03/21 08:00

Lab Sample ID: 190-25606-1 Matrix: Solid

Percent Solids: 18.3

General Chemistry				
Analyte	Result Qualifier	RL	Unit	D Prepared Analyzed Dil Fac
Cyanide, Total	6.3	2.7	mg/Kg	© 04/08/21 08:26 /04/08/21 11:55 / 1
Sulfide /	1500	160	mg/Kg	o 04/06/21 08:55 <b>0</b> 4/06/21 13:04 <b>1</b>

### **UC** Sample Kesults

Client: City of Flint

Project/Site: Filter Cake 2021-04-02-D

Job ID: 190-25606-1

## Method: 8260B - Volatile Organic Compounds (GC/MS) /

Lab Sample ID: LCS 240-481055/11

Matrix: Solid

Analysis Batch: 481055

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

	Spike	LCS L	.CS				%Rec.	
Analyte	Added	Result C	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene	1.00	1.22		mg/L		122 🗸	80 - 128	
1,2-Dichloroethane	1.00	1.16		mg/L		116 🗹	67 - 125	
Benzene	1.00	1.15		mg/L		115 🗹	80 - 122	
Carbon tetrachloride	1.00	1.14		mg/L		114 🛫	67 - 126	
Chlorobenzene	1.00	1.06		mg/L		106 🚩	80 - 120	
Chloroform	1.00	1.18		mg/L		118 🔨	80 - 120	
Tetrachloroethene	1.00	0.997		mg/L		100 🖍	76 - 120	
Trichloroethene	1.00	0.994		mg/L		99 🗸	77 - 120	
Vinyl chloride	1.00	1.46 *-	+ *	mg/L		146	60 - 134	

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	101		74 - 124
4-Bromofluorobenzene (Surr)	108		77 - 120
Toluene-d8 (Surr)	95		80 - 120
Dibromofluoromethane (Surr)	97		80 - 120

Lab Sample ID: LB 240-480603/1-A MB

Matrix: Solid

Analysis Batch: 481055

Client Sample ID: Method Blank

**Prep Type: TCLP** 

	МВ МВ					
Analyte	Result Qualifier	RL	Unit	D Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	<0.025 🖊	0.025	mg/L		04/14/21 11:10	/ 1
1,2-Dichloroethane	<0.025	0.025	mg/L		04/14/21 11:10	1
2-Butanone (MEK)	<0.25	0.25	mg/L		04/14/21 11:10	1
Benzene	<0.025	0.025	mg/L		04/14/21 11:10	1
Carbon tetrachloride	<0.025	0.025	mg/L		04/14/21 11:10	1
Chlorobenzene	<0.025	0.025	mg/L		04/14/21 11:10	1
Chloroform	<0.025	0.025	mg/L		04/14/21 11:10	1
Tetrachloroethene	<0.025	0.025	mg/L		04/14/21 11:10	1
Trichloroethene	<0.025	0.025	mg/L		04/14/21 11:10	1
Vinyl chloride	<0.025	0.025	mg/L		04/14/21 11:10	1

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepare	d Analyzed	Dii Fac
1,2-Dichloroethane-d4 (Surr)	109		74 - 124		04/14/21 11:10	1
4-Bromofluorobenzene (Surr)	103		77 - 120		04/14/21 11:10	1
Toluene-d8 (Surr)	94		80 - 120		04/14/21 11:10	1
Dibromofluoromethane (Surr)	105		80 - 120		04/14/21 11:10	1

Lab Sample ID: 240-147149-C-1-A MS

Matrix: Solid

Analysis Batch: 481055

Client Sample ID: Matrix Spike **Prep Type: TCLP** 

	Sample	Sample	Spike	MS	MS				%Rec.
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
1,1-Dichloroethene	<0.025		1.00	1.15		mg/L		115 🗸	80 - 130
1,2-Dichloroethane	< 0.025		1.00	1.15		mg/L		115 🗸	72 - 124
Benzene	<0.025		1.00	1.13		mg/L		113 🗸	80 - 122
Carbon tetrachloride	< 0.025		1.00	1.06		mg/L		106 🛩	68 - 126
Chlorobenzene	<0.025		1.00	1.01		mg/L		101 🛩	80 - 120

\* BIK in control. Brossed high, but Still non-detect.
EB. Page 7 of 26

Eurofins TestAmerica, Michigan

4/19/2021

# **QC Sample Results**

Client: City of Flint

Project/Site: Filter Cake 2021-04-02-D

Job ID: 190-25606-1

# Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-147149-C-1-A MS

**Matrix: Solid** 

Analysis Batch: 481055

Client Sample ID: Matrix Spike

**Prep Type: TCLP** 

	Sample	Sample	Spike	MS	MS				%Rec.
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
Chloroform	<0.025		1.00	1.15		mg/L		115 🗸	80 - 122
Tetrachloroethene	<0.025		1.00	0.929		mg/L		93 -	73 - 120
Trichloroethene	<0.025		1.00	0.940		mg/L		94 /	69 - 129
Vinyl chloride	<0.025	F1 *+	1.00	1.42	F1 🗚	mg/L		142	58 - 141

MS MS

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	100		74 - 124
4-Bromofluorobenzene (Surr)	108		77 - 120
Toluene-d8 (Surr)	96		80 - 120
Dibromofluoromethane (Surr)	97		80 - 120

Lab Sample ID: 240-147149-C-1-A MSD

Matrix: Solid

Analysis Batch: 481055

Client Sample ID: Matrix Spike Duplicate

**Prep Type: TCLP** 

	Sample Samı	ple Spike	MSD	MSD				%Rec.		RPD
Analyte	Result Quali	ifier Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,1-Dichloroethene	<0.025	1.00	1,22		mg/L		122	80 - 130	6	12
1,2-Dichloroethane	<0.025	1.00	1.21		mg/L			72 - 124	6	11
Benzene	<0.025	1.00	1,17		mg/L			80 - 122	4 -	11
Carbon tetrachloride	<0.025	1.00	1.12		mg/L		112		6 ×	
Chlorobenzene	<0.025	1.00	1.04		mg/L		104		3 🗸	
Chloroform	< 0.025	1.00	1.20		mg/L		120		4	11
Tetrachloroethene	<0.025	1.00	0.976		mg/L		98		5	14
Trichloroethene	<0.025	1.00	0.994		mg/L		99	69 - 129	6	12
Vinyl chloride	<0.025 F1 *+			F1 🦞	mg/L		142	58 - 141	0	12

MSD MSD

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	99		74 - 124
4-Bromofluorobenzene (Surr)	110		77 - 120
Toluene-d8 (Surr)	95		80 - 120
Dibromofluoromethane (Surr)	99		80 - 120

# Method: 8270C - Semivolatile Organic Compounds (GC/MS) >

Lab Sample ID: MB 240-480020/13-A

Matrix: Solid

Analysis Batch: 480463

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

Prep Batch: 480020

	мв мв						
Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	<0.0040 🗸	0.0040 🗸	mg/L		04/07/21 06:30	04/09/21 10:17	1-1
2,4-Dinitrotoluene	<0.0040 🗸	0.0040 /	mg/L			04/09/21 10:17	
Hexachlorobenzene	<0.00080 🗸	0.00080 🗸	mg/L			04/09/21 10:17	1
Hexachlorobutadiene	<0.0040 🗸	0.0040 🗸	mg/L			04/09/21 10:17	1
Hexachloroethane	<0.0040	0.0040 <	mg/L			04/09/21 10:17	1
2-Methylphenol	<0.0040 🗸	0.0040	mg/L		04/07/21 06:30	AT/	1
3 & 4 Methylphenol	<0.0040	0.0040 🔨	mg/L		04/07/21 06:30	22	1
Nitrobenzene	<0.0040	0.0040 🗸	mg/L			04/09/21 10:17	1
Pentachlorophenol	<0.016 🗸	0,016	mg/L		04/07/21 06:30		1
			•				, ·

\* BIK is in control. Result braised high, but still non-defect.

Eurofins TestAmerica, Michigan

Page 8 of 26

### **UC** Sample Results

Client: City of Flint

Project/Site: Filter Cake 2021-04-02-D

Job ID: 190-25606-1

### Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued) 🗡

MB MB

< 0.0040 >

96

75

Result Qualifier

Lab Sample ID: MB 240-480020/13-A

**Matrix: Solid** 

Analyte

Pyridine

Analysis Batch: 480463

Client Sample ID: Method Blank

04/07/21 06:30 04/09/21 10:17

Analyzed

Prepared

Prep Type: Total/NA

**Prep Batch: 480020** 

**Dil Fac** 

2,4,5-Trichlorophenol	<0.0040	0.0040	mg/L	04/07/21 06:30	04/09/21 10:17	<u></u>
2,4,6-Trichlorophenol	<0.0040	0.0040	mg/L	04/07/21 06:30	04/09/21 10:17	1
	MB MB					
Surrogate	%Recovery Qualifier	Limits		Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	75	39 - 120		04/07/21 06:30	04/09/21 10:17	1
2-Fluorophenol (Surr)	64	10 - 120		04/07/21 06:30	04/09/21 10:17	1
Nitrobenzene-d5 (Surr)	76	33 - 120		04/07/21 06:30	04/09/21 10:17	1
Phenol-d5 (Surr)	51	10 - 120		04/07/21 06:30	04/09/21 10:17	1

36 - 122

33 - 120

RL

0.0040

Unit

mg/L

Lab Sample ID: LCS 240-480020/14-A

**Matrix: Solid** 

Terphenyl-d14 (Surr)

2,4,6-Tribromophenol (Surr)

Analysis Batch: 480463

**Client Sample ID: Lab Control Sample** 

04/07/21 06:30 04/09/21 10:17

04/07/21 06:30 04/09/21 10:17

Prep Type: Total/NA

**Prep Batch: 480020** 

	Spike	LCS LCS			%Rec.	
Analyte	Added	Result Qualifie	r Unit	D %Rec	Limits	
1,4-Dichlorobenzene	0.0800	0.0552	mg/L	69 🗸	46 - 120	
2,4-Dinitrotoluene	0.0800	0.0842	mg/L	105 🗹	66 - 120	
Hexachlorobenzene	0.0800	0.0663	mg/L	83 🗸	57 - 120	
Hexachlorobutadiene	0.0800	0.0554	mg/L	69 <	39 - 120	
Hexachloroethane	0.0800	0.0567	mg/L	71 🦿	40 - 120	
2-Methylphenol	0.0800	0.0577	mg/L	72 🐔	50 - 120	
3 & 4 Methylphenol	0.0800	0.0552	mg/L	69 🗸	45 - 120	
Nitrobenzene	0.0800	0.0589	mg/L	74 🗸	56.120	
Pentachlorophenol	0.160	0.126	mg/L	78 🗸	32 - 120	
Pyridine	0.160	0.0709	mg/L	44 🛫	18 - 120	
2,4,5-Trichlorophenol	0.0800	0.0631	mg/L	79 🗸	61 - 120	
2,4,6-Trichlorophenol	0.0800	0.0608	mg/L	76	63 - 120	

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
2-Fluorobiphenyl (Surr)	71		39 - 120
2-Fluorophenol (Surr)	62		10-120
Nitrobenzene-d5 (Surr)	71		33 - 120
Phenol-d5 (Surr)	52		10 - 120
Terphenyl-d14 (Surr)	101		36 - 122
2,4,6-Tribromophenol (Surr)	79		33 - 120

Lab Sample ID: 240-146894-B-1-G MS

**Matrix: Solid** 

Analysis Batch: 480463

Client Sample ID: Matrix Spike Prep Type: TCLP

**Prep Batch: 480020** 

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifler	Unit	D	%Rec	Limits	
1,4-Dichlorobenzene	<0.0040		0.0800	0.0541		mg/L		68 🗸	30 - 120	
2,4-Dinitrotoluene	<0.0040		0.0800	0.0742		mg/L		93 🚽	52 - 120	
Hexachlorobenzene	<0.00080		0.0800	0.0595		mg/L		74	37 - 120	
Hexachlorobutadiene	<0.0040		0.0800	0.0501		mg/L		63 🚩	19 - 120	
Hexachloroethane	<0.0040		0.0800	0.0645		mg/L		81	20 - 120	

Eurofins TestAmerica, Michigan

Page 9 of 26 4/19/2021

# **QC Sample Results**

Client: City of Flint

Project/Site: Filter Cake 2021-04-02-D

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued) /

Lab Sample ID: 240-146894-B-1-G MS

Matrix: Solid

Analysis Batch: 480463

Client Sample ID: Matrix Spike

**Prep Type: TCLP** Prep Batch: 480020

Job ID: 190-25606-1

	Sample S	Sample	Spike	MS	MS				%Rec.
Analyte	Result (	Qualifler	Added	Result	Qualifier	Unit	D	%Rec	Limits
2-Methylphenol	<0.0040		0.0800	0.0488		mg/L		61 ~	
3 & 4 Methylphenol	<0.0040		0.0800	0.0525		mg/L		65 /	
Nitrobenzene	<0.0040		0.0800	0.0560		mg/L		70 -	40 - 120
Pentachlorophenol	<0.016		0.160	0.116		mg/L		72 -	24 - 120
Pyridine	<0.0040		0.160	0.0644		mg/L		40 -	10 - 120
2,4,5-Trichlorophenol	< 0.0040		0.0800	0.0603		mg/L		75 /	51 - 120
2,4,6-Trichlorophenol	<0.0040		0.0800	0.0583		mg/L		73	48 - 120

MS MS

Surrogate	%Recovery	Qualifier	Limits
2-Fluorobiphenyl (Surr)	65		39 - 120
2-Fluorophenol (Surr)	56		10 - 120
Nitrobenzene-d5 (Surr)	66		33 - 120
Phenol-d5 (Surr)	47		10 - 120
Terphenyl-d14 (Surr)	88		36 - 122
2,4,6-Tribromophenol (Surr)	74		33 - 120

Method: 8081A - Organochlorine Pesticides (GC) /

Lab Sample ID: MB 240-480888/7-A

Matrix: Solid

Analysis Batch: 481164

Client Sample ID: Method Blank

Prep Type: Total/NA **Prep Batch: 480888** 

	MB MB					riep batcii.	400000
Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	<0.0050	0.0050	mg/L			04/14/21 16:49	
Endrin	<0.00050	0.00050 🔀	mg/L		0.0		
gamma-BHC (Lindane)	<0.00050	0.00050 🐷	mg/L		100	04/14/21 16:49	
Heptachior	<0.00050	0.00050 🗸	mg/L		50.7	04/14/21 16:49	ý .
Heptachlor epoxide	<0.00050	0.00050	mg/L		22.0	04/14/21 16:49	
Methoxychlor	<0.0010	0.0010	mg/L		memoral to the	04/14/21 16:49	
Toxaphene	<0.020	0.020	mg/L		5.40 W	04/14/21 16:49	1

		IND IND				
Surrogate		%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlo	robiphenyl	105	21.135	04/13/21 08:00	200000	
Tetrachloro-m-	xylene	100	33 - 123	04/13/21 08:00	Nico.	-

Lab Sample ID: LCS 240-480888/8-A

Matrix: Solid

Analysis Batch: 481164

Client Sample ID: Lab Control Sample

Prep Type: Total/NA **Prep Batch: 480888** 

	<i>э</i> ріке	LCS	LCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
Endrin	0.00100	0.00114		mg/L		114	36 - 124
gamma-BHC (Lindane)	0.00100	0.000948		mg/L		95 -	23 - 120
Heptachlor	0.00100	0.00114		mg/L			37 - 120
Heptachlor epoxide	0.00100	0.00105		mg/L			44 - 120
Methoxychlor	0.00100	0.00117		mg/L			36 - 120

LCS LCS

Surrogate	%Recovery Qualifier	Limits
DCB Decachlorobiphenyl	101	21 - 135

Eurofins TestAmerica, Michigan

Page 10 of 26

4/19/2021

### **UU** Sample Kesults

Client: City of Flint

Project/Site: Filter Cake 2021-04-02-D

Method: 8081A - Organochlorine Pesticides (GC) (Continued) 🗸

Lab Sample ID: LCS 240-480888/8-A

**Matrix: Solid** 

Analysis Batch: 481164

LCS LCS

Surrogate **%Recovery Qualifier** Tetrachloro-m-xylene 95

Limits

33 - 123

Method: 8151A - Herbicides (GC) /

Lab Sample ID: MB 240-480025/7-A

Matrix: Solid

Analysis Batch: 480323

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 480025

Job ID: 190-25606-1

Prep Type: Total/NA

**Prep Batch: 480888** 

MB MB Analyte Result Qualifier RL Unit Prepared Analyzed **Dil Fac** 2.4-D 0.040 04/07/21 06:49 04/08/21 20:45 <0.040 / mg/L Silvex (2,4,5-TP) 04/07/21 06:49 04/08/21 20:45 <0.010 0.010 mg/L

MB MB

Surrogate **%Recovery Qualifier** Limits Prepared Analyzed Dil Fac 2,4-Dichlorophenylacetic acid 89 41 - 130 04/07/21 06:49 04/08/21 20:45

Lab Sample ID: LCS 240-480025/8-A

**Matrix: Solid** 

Analysis Batch: 480323

Client Sample ID: Lab Control Sample

Prep Type: Total/NA Prep Batch: 480025

%Rec.

Spike LCS LCS **Analyte** Added Result Qualifier Unit D %Rec Limits 2,4-D 0.100 118 / 42 - 120 0.118 mg/L Silvex (2,4,5-TP) 0.0250 0.0249 mg/L 100 41 - 120

LCS LCS

Sample Sample

Surrogate %Recovery Qualifier Limits 2,4-Dichlorophenylacetic acid 93 41 - 130

Lab Sample ID: 240-146929-E-1-G MS

**Matrix: Solid** 

Analysis Batch: 480323

Client Sample ID: Matrix Spike

Prep Type: TCLP

Prep Batch: 480025

%Rec.

Analyte Result Qualifier Added Result Qualifier Unit D %Rec Limits 2,4-D <0.040 0.100 0.111 mg/L 111 🖊 38 - 120 Silvex (2,4,5-TP) < 0.010 0.0250 0.0232mg/L 93 4 36 - 120

Spike

MS MS

MS MS

Surrogate %Recovery Qualifier Limits 2,4-Dichlorophenylacetic acid 85 41 - 130

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 240-479883/2-A

Matrix: Solid

Analysis Batch: 480119

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

**Prep Batch: 479883** 

	MB MB			•
Analyte	Result Qualifier	RL	Unit	D Prepared Analyzed Dil Fac
Arsenic	<0.050	0.050	mg/L	04/06/21 14:00 /04/07/21 15:17 / 1
Barium	<0.50	0.50	mg/L	04/06/21 14:00 / 04/07/21 15:17 / 1
Cadmium	<0.050 🖍	0.050	mg/L	04/06/21 14:00 /04/07/21 15:17 / 1
Chromium	<0.050 🗹	0.050	mg/L	04/06/21 14:00 104/07/21 15:17 1

Eurofins TestAmerica, Michigan

Page 11 of 26

4/19/2021

# **QC Sample Results**

Client: City of Flint

Project/Site: Filter Cake 2021-04-02-D

Method: 6010B - Metals (ICP) (Continued) 🗸

Lab Sample ID: MB 240-479883/2-A

Matrix: Solid

Analysis Batch: 480119

Client Sample ID: Method Blank

Prep Type: Total/NA

Job ID: 190-25606-1

Prep Batch: 479883

	MIO MID							
Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	c
Lead	<0.050 🗸	0.050	mg/L		04/06/21 14:00	04/07/21 15:17		1
Selenium	<0.050	0.050	mg/L		04/06/21 14:00	04/07/21 15:17	/ 1	1
Silver	<0.050	0.050	mg/L		04/06/21 14:00	<b>1</b> 04/07/21 15:17	/	1

Lab Sample ID: LCS 240-479883/3-A

Matrix: Solid

Analysis Batch: 480119

Client Sample ID: Lab Control Sample

Prep Type: Total/NA Prep Batch: 479883

	Spike	LCS	LCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
Arsenic	2.00	2.08		mg/L		104	50 - 150
Barium	2.00	1.93		mg/L		97	50 - 150
Cadmium	1.00	1.01		mg/L		101 /	50 - 150
Chromium	1.00	0.975		mg/L		97 🗸	50 - 150
Lead	1.00	0.894		mg/L		89 -	50 - 150
Selenium	2.00	2.12		mg/L		106	50 - 150
Silver	0.100	0.107		mg/L		107	50 - 150

Lab Sample ID: LB 240-479756/1-B

Matrix: Solid

Analysis Batch: 480119

Client Sample ID: Method Blank

Prep Type: TCLP

**Prep Batch: 479883** 

	LB	L
nalyte	Result	(

Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.050	0.050	mg/L		04/06/21 14:00	04/07/21 15:13	
Barium	<0.50	0.50	mg/L		100	717.	
Cadmium	<0.050 🗸	0.050 🗸	mg/L		30	04/07/21 15:13	
Chromium	<0.050	0.050	mg/L		40 PM	04/07/21 15:13	1
Lead	<0.050	0.050	mg/L		120	04/07/21 15:13	1
Selenium	<0.050	0.050 🗸	mg/L			04/07/21 15:13	1
Silver	<0.050	0.050 💉	mg/L		500 M	04/07/21 15:13	•

Lab Sample ID: 240-146752-B-1-G MS ^5

Matrix: Solid

Analysis Batch: 480119

Client Sample ID: Matrix Spike

Prep Type: TCLP

**Prep Batch: 479883** 

	Sample Sar	mple Spike	MS	MS				%Rec.
Analyte	Result Qua	alifier Added	Result	Qualifier	Unit	D	%Rec	Limits
Arsenic	<0.050	5.00	5.12		mg/L		102	75 - 125
Barium	<0.50	50.0	47.4		mg/L		94	
Cadmium	<0.050	1.00	1.00		mg/L		- 129	75 - 125
Chromium	<0.050	5.00	4.75		mg/L		95 /	75 - 125
Lead	<0.050	5.00	4.63		mg/L		93 /	75 - 125
Selenium	< 0.050	1.00	1.01		mg/L		101	75 - 125
Silver	<0.050	1.00	0.990		mg/L		99 -	75 - 125

Lab Sample ID: 240-146752-B-1-H MSD ^5

**Matrix: Solid** 

Analysis Batch: 480119

Client Sample ID: Matrix Spike Duplicate

Prep Type: TCLP

Prep Batch: 479883 Sample Sample Spike MSD MSD %Rec. **RPD** Analyte Result Qualifier Added Result Qualifier Unit D %Rec Limits RPD Limit Arsenic <0.050 5.00 5,19 mg/L 104 / 75 - 125 1/ 20 Barium < 0.50 50.0 48.5 96 / 75 - 125 mg/L

Eurofins TestAmerica, Michigan

Page 12 of 26

### **UC Sample Results**

Client: City of Flint

**Matrix: Solid** 

Analysis Batch: 480119

Method: 6010B - Metals (ICP) (Continued) <

Lab Sample ID: 240-146752-B-1-H MSD ^5

Project/Site: Filter Cake 2021-04-02-D

Client Sample ID: Matrix Spike Duplicate Prep Type: TCLP

Prep Type: Total/NA

**Prep Batch: 479886** 

**Prep Batch: 479886** 

**Prep Batch: 479886** 

Job ID: 190-25606-1

		O. 1 OE.
	Prep Batch	479883
	%Rec.	RPD
1111	 4.1	

Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	Ð	%Rec	Limits	RPD	Lir	mit
Cadmium	<0.050		1.00	1.01		mg/L		101 🗸	75 - 125	1	/	20
Chromium	< 0.050		5.00	4.80		mg/L		96 🗸	75 - 125	1.9	-	20
Lead	< 0.050		5,00	4.63		mg/L		93 🐔	75 - 125	0	-	20
Selenium	<0.050		1.00	1.03		mg/L		103 🛩	75 - 125	2 .	1	20
Silver	<0.050		1.00	0.996		mg/L		100 🗸	75 - 125	1	1	20

MSD MSD

Spike

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-479886/2-A Client Sample ID: Method Blank

**Matrix: Solid** 

Analysis Batch: 480250

MB MB

Sample Sample

**Analyte** Result Qualifier RL Unit Prepared Analyzed Dil Fac Mercury <0.0020 ~ 0.0020 mg/L 04/06/21 12:00 04/07/21 14:13

Lab Sample ID: LCS 240-479886/3-A Client Sample ID: Lab Control Sample Matrix: Solid Prep Type: Total/NA

Analysis Batch: 480250

Spike LCS LCS

%Rec. Added Result Qualifier Unit Limits **Analyte** %Rec Mercury 0.00500 0.00495 mg/L 99 🗸 80 - 120

Lab Sample ID: LB 240-479756/1-C Client Sample ID: Method Blank Prep Type: TCLP

Matrix: Solid Analysis Batch: 480250

LB LB

Prepared **Analyte** Result Qualifier RL Unit Analyzed **Dil Fac** 04/06/21 12:00 <04/07/21 14:11 < Mercury <0.0020 0.0020 mg/L

Lab Sample ID: 240-146752-B-1-J MS Client Sample ID: Matrix Spike

Matrix: Solid

**Prep Type: TCLP** Analysis Batch: 480250 **Prep Batch: 479886** 

Spike MS MS Sample Sample %Rec. Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits

0.00500 102 🗹 80 - 120 Mercury < 0.0020 0.00509 mg/L

Lab Sample ID: 240-146752-B-1-K MSD

Matrix: Solid

Analysis Batch: 480250

**Prep Type: TCLP** Prep Batch: 479886 Sample Sample Spike MSD MSD %Rec. RPD

Analyte Result Qualifier Added Result Qualifier %Rec Limite RPD Unit Limit <0.0020 0,00500 Mercury 0.00518 mg/L 104 80 - 120 20

Method: 1010 - Ignitability, Pensky-Martens Closed-Cup Method

Lab Sample ID: LCS 240-480120/1 Client Sample ID: Lab Control Sample Matrix: Solid Prep Type: Total/NA

Analysis Batch: 480120

Spike LCS LCS %Rec. Added **Analyte** Result Qualifier Unit D %Rec I imite Flashpoint 81.0 81.00 Degrees F 100 / 97 - 103

Eurofins TestAmerica, Michigan

Client Sample ID: Matrix Spike Duplicate

Page 13 of 26

4/19/2021

## QC Sample Results

Client: City of Flint Job ID: 190-25606-1

Project/Site: Filter Cake 2021-04-02-D

Method: 1010 - Ignitability, Pensky-Martens Closed-Cup Method >

Lab Sample ID: 240-146959-B-1 DU

Matrix: Solid

Analysis Batch: 480120

Client Sample ID: Duplicate Prep Type: Total/NA

Sample Sample DU DU **RPD Analyte** Result Qualifier Result Qualifier Unit D RPD Limit Flashpoint >200 >200.0 Degrees F NC > 20

Method: 9012A - Cyanide, Total and/or Amenable -

Lab Sample ID: MB 240-480257/1-A Client Sample ID: Method Blank Matrix: Solid Prep Type: Total/NA

Analysis Batch: 480343

MB MB

**Analyte** Result Qualifier RL Unit Prepared Analyzed Dil Fac Cyanide, Total <0.50 / 0.50 / 04/08/21 08:26 /04/08/21 11:47 / mg/Kg

Lab Sample ID: LCS 240-480257/2-A

Matrix: Solid

Analysis Batch: 480343

**Prep Batch: 480257** Spike LCS LCS %Rec. **Analyte** Added Result Qualifier Unit D %Rec Limits

Cyanide, Total 5.71 5.60 mg/Kg 65 - 128

Lab Sample ID: 240-146674-B-4-F MS

Matrix: Solid

Analysis Batch: 480343

Prep Batch: 480257 Sample Sample Spike MS MS %Rec. **Analyte** Result Qualifier Added Result Qualifier Unit D %Rec Limits Cyanide, Total < 0.50 0.960 0.977 mg/Kg 102 / 24 - 140

Lab Sample ID: 240-146674-B-4-G MSD

Matrix: Solid

Analysis Batch: 480343

**Prep Batch: 480257** Sample Sample Spike MSD MSD %Rec. RPD **Analyte** Result Qualifier Added Result Qualifier Unit D %Rec Limits **RPD** Limit Cyanide, Total <0.50 0.923 0.882 mg/Kg 96 / 24 - 140 10 / 40

Method: 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

Lab Sample ID: MB 240-479834/1-A

Matrix: Solid

Prep Type: Total/NA Analysis Batch: 479908 **Prep Batch: 479834** MB MB

Analyte Result Qualifier RL Unit Prepared Analyzed **Dil Fac** Sulfide <30 🧳 30 / mg/Kg 04/06/21 08:55 04/06/21 12:29

Lab Sample ID: LCS 240-479834/2-A

Matrix: Solid

Analysis Batch: 479908

Prep Batch: 479834 Spike LCS LCS %Rec. **Analyte** Added Result Qualifier Unit %Rec Limits Sulfide 96.9 74.4 mg/Kg 77 🗸 56.120

Eurofins TestAmerica, Michigan

**Prep Batch: 480257** 

Prep Type: Total/NA

Prep Type: Total/NA

Prep Type: Total/NA

Prep Type: Total/NA

Client Sample ID: Lab Control Sample

Client Sample ID: Matrix Spike Duplicate

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Client Sample ID: Matrix Spike

#### WO Sample Results

Client: City of Flint

Project/Site: Filter Cake 2021-04-02-D

Job ID: 190-25606-1

Method: 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric) (Continued)

Lab Sample ID: 310-203499-B-1-B MS **Matrix: Solid** 

Lab Sample ID: 310-203499-B-1-C MSD

Analysis Batch: 479908

Sample Sample **Analyte Result Qualifier** Sulfide

<32

Added 102

Spike

MS MS Result Qualifier 48.8

Unit mg/Kg D %Rec 48 🗸

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

Prep Type: Total/NA

**Prep Batch: 479834** 

Client Sample ID: Matrix Spike

%Rec.

Limits

10-143

Prep Batch: 479834 RPD

MSD MSD %Rec. Sample Sample Spike Result Qualifier Added Result Qualifier Unit %Rec Limits RPD Limit Sulfide <32 101 10 - 143 25 48.4 mg/Kg 48 1/

Method: 9045C - pH ~

Analysis Batch: 479908

Lab Sample ID: LCS 240-479898/2

Lab Sample ID: 240-146959-B-1 DU

Matrix: Solid

Matrix: Solid

Analysis Batch: 479898

Analyte

Spike Added 8.47

LCS LCS Result Qualifier 8.5

Unit SU

%Rec. D %Rec Limits 100 / 97 - 103

Client Sample ID: Lab Control Sample

Client Sample ID: Duplicate

Prep Type: Total/NA

Prep Type: Total/NA

**Matrix: Solid** 

Analysis Batch: 479898

**Analyte** ρH

рΗ

Sample Sample Result Qualifier 7.3

DU DU Result Qualifier 7.5

D

Client Sample ID: CITY OF FLINT WPC FILTER BELT PRESS

D

D

**RPD** RPD Limit 2 /

20

Method: 9095A - Paint Filter

Lab Sample ID: 190-25606-1 DU

Matrix: Solid

**Analyte** 

Analyte

**Percent Solids** 

Percent Moisture

Free Liquid

Analysis Batch: 481437

Sample Sample Result Qualifier CNF /

Sample Sample

18.3

81.7

Result Qualifier

DU DU Result Qualifier CNF/

Unit NONE

Unit

%

%

Unit

SU

Prep Type: Total/NA **RPD** 

> RPD Limit NC /

Method: Moisture - Percent Moisture 🗸

Lab Sample ID: 190-25606-1 DU Matrix: Solid

Analysis Batch: 480956

Client Sample ID: CITY OF FLINT WPC FILTER BELT PRESS

DU DU

17.4

82.6

Result Qualifier

Prep Type: Total/NA

RPD

RPD Limit 6 / 20 20 1

Eurofins TestAmerica, Michigan

Page 15 of 26

4/19/2021

### **QC** Association Summary

Client: City of Flint

Project/Site: Filter Cake 2021-04-02-D

### **GC/MS VOA**

	480603

Lab Sample (D	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-25606-1	CITY OF FLINT WPC FILTER BELT PRESS	TCLP	Solid	1311	- Top Butter
LB 240-480603/1-A MB	Method Blank	TCLP	Solid	1311	
240-147149-C-1-A MS	Matrix Spike	TCLP	Solid	1311	
240-147149-C-1-A MSD	Matrix Spike Duplicate	TCLP	Solid	1311	

### Analysis Batch: 481055

Lab Sample ID	Client Sample (D	Prep Type	Matrix	Method	Prep Batch
190-25606-1	CITY OF FLINT WPC FILTER BELT PRESS	TCLP	Solid	8260B	480603
LB 240-480603/1-A MB	Method Blank	TCLP	Solid	8260B	480603
LCS 240-481055/11	Lab Control Sample	Total/NA	Solid	8260B	400003
240-147149-C-1-A MS	Matrix Spike	TCLP	Solid	8260B	480603
240-147149-C-1-A MSD	Matrix Spike Duplicate	TCLP	Solid	8260B	480603

### GC/MS Semi VOA

### Leach Batch: 479756

Lab Sample (D	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-25606-1	CITY OF FLINT WPC FILTER BELT PRESS	TCLP	Solid	1311	Trep Dateil
240-146894-B-1-G MS	Matrix Spike	TCLP	Solid	1311	
		, 021	3010	1311	

### Prep Batch: 480020

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-25606-1	CITY OF FLINT WPC FILTER BELT PRESS	TCLP	Solid	3510C	479756
MB 240-480020/13-A	Method Blank	Total/NA	Solid	3510C	
LCS 240-480020/14-A	Lab Control Sample	Total/NA	Solid	3510C	
240-146894-B-1-G MS	Matrix Spike	TCLP	Solid	3510C	479756

### Analysis Batch: 480463

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-25606-1	CITY OF FLINT WPC FILTER BELT PRESS	TCLP	Solid	8270C	480020
MB 240-480020/13-A	Method Blank	Total/NA	Solid	8270C	480020
LCS 240-480020/14-A	Lab Control Sample	Total/NA	Solid	8270C	480020
240-146894-B-1-G MS	Matrix Spike	TCLP	Solid	8270C	480020

### GC Semi VOA

#### Leach Batch: 479756

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-25606-1	CITY OF FLINT WPC FILTER BELT PRESS	TCLP	Solid	1311	
240-146929-E-1-G MS	Matrix Spike	TCLP	Solid	1311	

### **Prep Batch: 480025**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-25606-1	CITY OF FLINT WPC FILTER BELT PRESS	TCLP	Solid	8151A	479756
MB 240-480025/7-A	Method Blank	Total/NA	Solid	8151A	
LCS 240-480025/8-A	Lab Control Sample	Total/NA	Solid	8151A	
240-146929-E-1-G MS	Matrix Spike	TCLP	Solid	8151A	479756

### Analysis Batch: 480323

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Drom Datah
190-25606-1	CITY OF FLINT WPC FILTER BELT PRESS	TCLP	Solid	8151A	Prep Batch 480025
MB 240-480025/7-A	Method Blank	Total/NA	Solid	8151A	480025

Eurofins TestAmerica, Michigan

Job ID: 190-25606-1

Page 16 of 26 4/19/2021

### **QU** Association Summary

Client: City of Flint

Project/Site: Filter Cake 2021-04-02-D

### **GC Semi VOA (Continued)**

<b>Analysis</b>	Batch:	480323	(Continued)
-----------------	--------	--------	-------------

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 240-480025/8-A	Lab Control Sample	Total/NA	Solid	8151A	480025
240-146929-E-1-G MS	Matrix Spike	TCLP	Solid	8151A	480025

### **Prep Batch: 480888**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-25606-1	CITY OF FLINT WPC FILTER BELT PRESS	TCLP	Solid	3510C	479756
MB 240-480888/7-A	Method Blank	Total/NA	Solid	3510C	
LCS 240-480888/8-A	Lab Control Sample	Total/NA	Solid	3510C	

### Analysis Batch: 481164

Lab	Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-	25606-1	CITY OF FLINT WPC FILTER BELT PRESS	TCLP	Solid	8081A	480888
MB 2	240-480888/7-A	Method Blank	Total/NA	Solid	8081A	480888
LCS	240-480888/8-A	Lab Control Sample	Total/NA	Solid	8081A	480888

### **Metals**

#### Processed Batch: 479059

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-146752-B-1-G MS ^5	Matrix Spike	TCLP	Solid	Part Size Red	
240-146752-B-1-H MSD ^5	Matrix Spike Duplicate	TCLP	Solid	Part Size Red	
240-146752-B-1-J MS	Matrix Spike	TCLP	Solid	Part Size Red	
240-146752-B-1-K MSD	Matrix Spike Duplicate	TCLP	Solid	Part Size Red	

#### Leach Batch: 479756

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-25606-1	CITY OF FLINT WPC FILTER BELT PRESS	TCLP	Solid	1311	<u> </u>
LB 240-479756/1-B	Method Blank	TCLP	Solid	1311	
LB 240-479756/1-C	Method Blank	TCLP	Solid	1311	
240-146752-B-1-G MS ^5	Matrix Spike	TCLP	Solid	1311	479059
240-146752-B-1-H MSD ^5	Matrix Spike Duplicate	TCLP	Solid	1311	479059
240-146752-B-1-J MS	Matrix Spike	TCLP	Solid	1311	479059
240-146752-B-1-K MSD	Matrix Spike Duplicate	TCLP	Solid	1311	479059

### **Prep Batch: 479883**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-25606-1	CITY OF FLINT WPC FILTER BELT PRESS	TCLP	Solid	3010A	479756
LB 240-479756/1-B	Method Blank	TCLP	Solid	3010A	479756
MB 240-479883/2-A	Method Blank	Total/NA	Solid	3010A	
LCS 240-479883/3-A	Lab Control Sample	Total/NA	Solid	3010A	
240-146752-B-1-G MS ^5	Matrix Spike	TCLP	Solid	3010A	479756
240-146752-B-1-H MSD ^5	Matrix Spike Duplicate	TCLP	Solid	3010A	479756

### **Prep Batch: 479886**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-25606-1	CITY OF FLINT WPC FILTER BELT PRESS	TCLP	Solid	7470A	479756
LB 240-479756/1-C	Method Blank	TCLP	Solid	7470A	479756
MB 240-479886/2-A	Method Blank	Total/NA	Solid	7470A	
LCS 240-479886/3-A	Lab Control Sample	Total/NA	Solid	7470A	
240-146752-B-1-J MS	Matrix Spike	TCLP	Solid	7470A	479756
240-146752-B-1-K MSD	Matrix Spike Duplicate	TCLP	Solid	7470A	479756

Eurofins TestAmerica, Michigan

Job ID: 190-25606-1

Page 17 of 26 4/19/2021

# **QC Association Summary**

Client: City of Flint

Project/Site: Filter Cake 2021-04-02-D

**Metals** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-25606-1	CITY OF FLINT WPC FILTER BELT PRESS	TCLP	Solid	6010B	479883
LB 240-479756/1-B	Method Blank	TCLP	Solid	6010B	479883
MB 240-479883/2-A	Method Blank	Total/NA	Solid	6010B	479883
LCS 240-479883/3-A	Lab Control Sample	Total/NA	Solid	6010B	479883
240-146752-B-1-G MS ^5	Matrix Spike	TCLP	Solid	6010B	479883
240-146752-B-1-H MSD ^5	Matrix Spike Duplicate	TCLP	Solid	6010B	479883

### Analysis Batch: 480250

Lab Sample ID 190-25606-1 LB 240-479756/1-C MB 240-479886/2-A LCS 240-479886/3-A	Client Sample ID CITY OF FLINT WPC FILTER BELT PRESS Method Blank Method Blank Lab Control Sample	Prep Type TCLP TCLP Total/NA Total/NA	Matrix Solid Solid Solid Solid	Method 7470A 7470A 7470A 7470A	Prep Batch 479886 479886 479886 479886
LCS 240-479886/3-A	Lab Control Sample	Total/NA	Solid	7470A	479886
240-146752-B-1-J MS	Matrix Spike	TCLP	Solid	7470A	479886
240-146752-B-1-K MSD	Matrix Spike Duplicate	TCLP	Solid	7470A	479886

### **General Chemistry**

### Prep Batch: 479834

Lab Sample ID 190-25606-1	Client Sample ID CITY OF FLINT WPC FILTER BELT PRESS	Prep Type Total/NA	Matrix Solid	Method 9030B	Prep Batch
MB 240-479834/1-A	Method Blank	Total/NA	Solid	9030B	
LCS 240-479834/2-A	Lab Control Sample	Total/NA	Solid	9030B	
310-203499-B-1-B MS	Matrix Spike	Total/NA	Solid	9030B	
310-203499-B-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	9030B	

### Analysis Batch: 479898

<b>Lab Sample ID</b> 190-25606-1	Client Sample ID CITY OF FLINT WPC FILTER BELT PRESS	Prep Type Total/NA	Matrix Solid	Method 9045C	Prep Batch
LCS 240-479898/2	Lab Control Sample	Total/NA	Solid	9045C	
240-146959-B-1 DU	Duplicate	Total/NA	Solid	9045C	

### Analysis Batch: 479908

Lab Sample ID	Client Sample ID CITY OF FLINT WPC FILTER BELT PRESS Method Blank Lab Control Sample	Prep Type	Matrix	Method	Prep Batch
190-25606-1		Total/NA	Solid	9034	479834
MB 240-479834/1-A		Total/NA	Solid	9034	479834
LCS 240-479834/2-A		Total/NA	Solid	9034	479834
310-203499-B-1-B MS 310-203499-B-1-C MSD	Matrix Spike  Matrix Spike Duplicate	Total/NA Total/NA Total/NA	Solid Solid Solid	9034 9034 9034	479834 479834 479834

### Analysis Batch: 480120

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-25606-1	CITY OF FLINT WPC FILTER BELT PRESS	Total/NA	Solid	1010	
LCS 240-480120/1	Lab Control Sample	Total/NA	Solid	1010	
240-146959-B-1 DU	Duplicate	Total/NA	Solid	1010	

### **Prep Batch: 480257**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-25606-1	CITY OF FLINT WPC FILTER BELT PRESS	Total/NA			Frep Batch
	OTH OF FEMALES	TOTALIVA	Solid	9012A	
MB 240-480257/1-A	Method Blank	Total/NA	Solid	9012A	
LCS 240-480257/2-A	1-6-0-4-10-4	1997	00110	OUIEN	
LU3 240-46025772-A	Lab Control Sample	Total/NA	Solid	9012A	

Eurofins TestAmerica, Michigan

Page 18 of 26

4/19/2021

Job ID: 190-25606-1

### **QC** Association Summary

Client: City of Flint Job ID: 190-25606-1

Project/Site: Filter Cake 2021-04-02-D

## **General Chemistry (Continued)**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-146674-B-4-F MS	Matrix Spike	Total/NA	Solid	9012A	
240-146674-B-4-G MSD	Matrix Spike Duplicate	Total/NA	Solid	9012A	

### Analysis Batch: 480343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-25606-1	CITY OF FLINT WPC FILTER BELT PRESS	Total/NA	Solid	9012A	480257
MB 240-480257/1-A	Method Blank	Total/NA	Solid	9012A	480257
LCS 240-480257/2-A	Lab Control Sample	Total/NA	Solid	9012A	480257
240-146674-B-4-F MS	Matrix Spike	Total/NA	Solid	9012A	480257
240-146674-B-4-G MSD	Matrix Spike Duplicate	Total/NA	Solid	9012A	480257

### Analysis Batch: 480956

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-25606-1	CITY OF FLINT WPC FILTER BELT PRESS	Total/NA	Solid	Moisture	
190-25606-1 DU	CITY OF FLINT WPC FILTER BELT PRESS	Total/NA	Solid	Moisture	

### Analysis Batch: 481437

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-25606-1	CITY OF FLINT WPC FILTER BELT PRESS	Total/NA	Solid	9095A	
190-25606-1 DU	CITY OF FLINT WPC FILTER BELT PRESS	Total/NA	Solid	9095A	

### **Lab Chronicle**

Client: City of Flint

Project/Site: Filter Cake 2021-04-02-D

Client Sample ID: CITY OF FLINT WPC FILTER BELT PRESS

Lab Sample ID: 190-25606-1

Matrix: Solid

Job ID: 190-25606-1

Date Collected: 03/31/21 00:00 Date Received: 04/03/21 08:00

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
TCLP	Leach	1311			480603	04/09/21 15:15	ALJ	TAL CAN
TCLP	Analysis	8260B		1	481055	04/14/21 15:16	HMB	TAL CAN
TCLP	Leach	1311			479756	04/05/21 16:00	DRJ	TAL CAN
TCLP	Prep	3510C			480020	04/07/21 06:30	MDH	TAL CAN
TCLP	Analysis	8270C		1	480463	04/09/21 14:34	JMG	TAL CAN
TCLP	Leach	1311			479756	04/05/21 16:00	DRJ	TAL CAN
TCLP	Prep	3510C			480888	04/13/21 08:00	MDH	TAL CAN
TCLP	Analysis	8081A		1	481164	04/14/21 18:07	врм	TAL CAN
TCLP	Leach	1311			479756	04/05/21 16:00	DRJ	TAL CAN
TCLP	Prep	8151A			480025	04/07/21 06:49	MDH	TAL CAN
TCLP	Analysis	8151A		1	480323	04/08/21 20:02	LKG	TAL CAN
TCLP	Leach	1311			479756	04/05/21 16:00	DRJ	TAL CAN
TCLP	Prep	3010A			479883	04/06/21 14:00	MRL	TAL CAN
TCLP	Analysis	6010B		1	480119	04/07/21 16:37	RKT	TAL CAN
TCLP	Leach	1311			479756	04/05/21 16:00	DRJ	TAL CAN
TCLP	Prep	7470A			479886	04/06/21 12:00	MRL	TAL CAN
TCLP	Analysis	7470A		1	480250	04/07/21 14:43	SLD	TAL CAN
Total/NA	Analysis	1010		1	480120	04/07/21 13:24	JMR	TAL CAN
Total/NA	Analysis	9045C		1	479898	04/06/21 12:06	KLR	TAL CAN
Total/NA	Analysis	9095A		1	481437	04/16/21 03:49	TPH	TAL CAN
Total/NA	Analysis	Moisture		1	480956	04/13/21 12:43	JR	TAL CAN

Client Sample ID: CITY OF FLINT WPC FILTER BELT PRESS

Date Collected: 03/31/21 00:00 Date Received: 04/03/21 08:00 Lab Sample ID: 190-25606-1
Matrix: Solid

Percent Solids: 18.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9012A			480257	04/08/21 08:26	JR	TAL CAN
Total/NA	Analysis	9012A		1	480343	04/08/21 11:55	JR	TAL CAN
Total/NA	Prep	9030B			479834	04/06/21 08:55	KLR	TAL CAN
Total/NA	Analysis	9034		1	479908	04/06/21 13:04	KLR	TAL CAN

### **Laboratory References:**

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

#### **Analyst References:**

Lab: TAL CAN

**Batch Type: Leach** 

ALJ = Adam Judson

DRJ = Diane Jones

Batch Type: Prep

JR = Jason Ritter

KLR = Kendall Reidenbach

MDH = Matthew Howell

MRL = Matthew Loeb

Batch Type: Analysis

**BPM = Brandon Matthews** 

HMB = Heather Bosworth

JMG = John Gruber

JMR = Jacob Rodgers

JR = Jason Ritter

KLR = Kendall Reidenbach

LKG = Lucas Grossman

RKT = Roger Toth

SLD = Samuel Dillon

TPH = Tom Harshman

# **Method Summary**

Client: City of Flint

Project/Site: Filter Cake 2021-04-02-D

Method	Method Description	Protocol	Laboratory
3260B /	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
3270C 🗸	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CAN
3081A 🗸	Organochlorine Pesticides (GC)	SW846	TAL CAN
3151A 🛩	Herbicides (GC)	SW846	TAL CAN
010B 🗸	Metals (ICP)	SW846	TAL ÇAN
470A 🗸	Mercury (CVAA)	SW846	TAL CAN
010 🖊	Ignitability, Pensky-Martens Closed-Cup Method	SW846	TAL CAN
012A 🗸	Cyanide, Total and/or Amenable	SW846	TAL CAN
034 🖊	Sulfide, Acid soluble and Insoluble (Titrimetric)	SW846	TAL CAN
045C 🖊	рН	SW846	TAL CAN
)95A 🗸	Paint Filter	SW846	TAL CAN
oisture 🗸	Percent Moisture	EPA	TAL CAN
311 🗸	TCLP Extraction	SW846	TAL CAN
10A 🗸	Preparation, Total Metals	SW846	TAL CAN
510C 🗸	Liquid-Liquid Extraction (Separatory Funnel)	SW846	
0308 🗸	Purge and Trap	SW846	TAL CAN
470A 🗸	Preparation, Mercury		TAL CAN
I51A /	Extraction (Herbicides)	SW846	TAL CAN
12A 🗸	Cyanide, Total and/or Amenable, Distillation	SW846	TAL CAN
30B 🗸	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	TAL CAN
		SW846	TAL CAN

#### **Protocol References:**

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

### Laboratory References:

TAL CAN ≈ Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Job ID: 190-25606-1

#### Delillillolis/Glossaly

Client: City of Flint

Job ID: 190-25606-1

Project/Site: Filter Cake 2021-04-02-D

Qualifiers

**GC/MS VOA** 

Qualifier **Qualifier Description** 

LCS and/or LCSD is outside acceptance limits, high biased.

F1 MS and/or MSD recovery exceeds control limits.

**General Chemistry** 

Qualifier **Qualifier Description** 

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 **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 MOL 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** 

RFR 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) Toxicity Equivalent Quotient (Dioxin) TEQ

TNTC Too Numerous To Count

				CITY ( ENVIRON	OF FLINT W	CITY OF FLINT WATER POLLUTION CONTROL FACILITIES ENVIRONMENTAL LABORATORY SERVICES SHIPPER/PECENTED	ON CONTROL FRVICES SHIPE	FACILITIES SEVERCENCED	MIC	MICHIGAN
PRO	PROJECT NUMBER: 2021-04-02-D	: 2021-04-02-E		PURCHASE ORDI	IDER: 20-002739	PROJECT N	AMF. Eliat Wace	LIVECTIVER		2
į			SAMPLE					Services	Services	
ğ	GERMIN	TH AC	L			SAMPLING	NUMBER OF	ANALYTIGAL		PRICE
		218	IIME	TYPE	MEDIUM	LOCATION	CONTAINERS	PARAMETERS	UNIT	EXTENDED
-		03/31/21	N/A	24 HC	Filter Cake	City of Flint WPC Filter Belt Press	1 bottle	Hazardous waste characteristics:	\$13.00	613.00
								Curiosivity and Free Liquids		913.00
-		03/31/21	N/A	24 HC	Filter Cake	City of Flint WPC Filter Belt Press	1 bottle	nazardous waste characteristics: Ignitability, total cyanide; total sulfide; TCLP metals (As. Ba, Cd, Cr, Pb, Hg, Se, and Ag); volatiles; semi-	\$613.00	\$613.00
								volatiles; pesticides, and herbicides		
									TOTAL	\$626.00
									1000	

DATE: 04/02/2 DATE: 04/02/2 Ompliance Super	SAMPLE LOCATION:		
RECINQUISHED BY:  DATE: 04/02/21 TIME:  RECEIVED BY:  DATE: 04/02/21 TIME:  Q US  RELINGUISHED BY:  SPECIAL REQUESTS:  REPORT TO: Brad Hill, Environmental Compilance Supervisor, Water Pollut  OC report audited by S.			
RECEIVED BY:  RELINGUISHED BY:  SPECIAL REQUESTS:  REPORT TO: Brad Hill, Environmental Compilance Supervisor, Water Pollut  OC report audited by Co.	ME: 05 RECEIVED BY:	DATE:	TIME:
SPECIAL REQUESTS:  REPORT TO: Brad Hill, Environmental Compilance Supervisor, Water Pollut	RELINGUISHED BY:	DATE:	TIME:
REPORT TO: Brad Hill, Environmental Compilance Supervisor, Water Pollut OC renort audited by	RECEIVED BY:	DATE:	7:05 TIME:
REPORT TO: Brad Hill, Environmental Compilance Supervisor, Water Pollut OC renort audited by	Hawk poured	+ 4-5/2 ( DEA	5080
11/12/11	Wisor, Water Pollution Control Facilities, G-4652 Beecher Rd., Flint, MI 48532; 810-230-3152 Inhonal and 810-220 ases (4-1)	int, MI 48532; 810-230-3152 In	hope) and 840,000,0454 (4)
7777	. Invoice checked and forwarded by $\mathcal{E}_{00}$ on $4/26/21$	21 . Data entered by &B	8 4/20/2/
19000078 AG Solide Waste Char	Characterization		



Eurofins TestAmerica Canton Sample Receipt Form/Narrative Canton Facility	Login # : 190	1-256C/c
Client OF Pollution Site Name	Cooler unpack	ced by:
Cooler Received on 4-3-21 Opened on 4-3-21	Adam	Elentit
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier	Other	- way
Receipt After-hours: Drop-off Date/Time Storage Location		
TestAmerica Cooler # TA Foam Box Client Cooler Box Other		
Packing material used: Rubble Wrap Foam Plastic Bag None Other		-
-Were the seals on the outside of the cooler(s) signed & dated?  -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?  -Were tamper/custody seals intact and uncompromised?  3. Shippers' packing slip attached to the cooler(s)?  4. Did custody papers accompany the sample(s)?  5. Were the custody papers relinquished & signed in the appropriate place?  6. Was/were the person(s) who collected the samples clearly identified on the COC?  7. Did all bottles arrive in good condition (Unbroken)?  8. Could all bottle labels (ID/Date/Time) be reconciled with the COC?  9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and satisfied to the correct bottle(s) used for the test(s) indicated?  10. Were correct bottle(s) used for the test(s) indicated?  11. Sufficient quantity received to perform indicated analyses?  12. Are these work share samples and all listed on the COC?	Temp. °C Temp. °C S No S No NA S NO NA S NO NA S NO NA S NO NO S NO NO S NO	ests that are not becked for pH by ecciving:  OAs il and Grease  OC
14. Were VOAs on the COC?  15. Were air bubbles >6 mm in any VOA vials?  4 Larger than this.  Yes  16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #  Yes	(E) (A) (E) (A) (A) (A) (A) (A) (A) (A) (A) (A) (A	ip Lot# <u>HC022887</u>
18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES  additional next page		-
19. SAMPLE CONDITION  Sample(s) were received after the recommended holding sample(s) were received with bubble >6 mm in	ng time had expired	d.
20. SAMPLE PRESERVATION		
Sample(s) were furn	ther preserved in th	e laboratory.
Sample(s) were furn Time preserved:Preservative(s) added/Lot number(s):	-	n 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
VOA Sample Preservation - Date/Time VOAs Frozen:		

WI-NC-099

## **Method Summary**

Client: City of Flint

Project/Site: Filter Cake 2021-04-02-D

Method **Method Description Protocol** Laboratory 8260B / Volatile Organic Compounds (GC/MS) SW846 TAL CAN Semivolatile Organic Compounds (GC/MS) 8270C / SW846 TAL CAN 8081A 🗸 Organochlorine Pesticides (GC) SW846 TAL CAN 8151A / Herbicides (GC) SW846 TAL CAN 6010B ~ Metals (ICP) SW846 TAL CAN 7470A ~ Mercury (CVAA) SW846 TAL CAN 1010 / Ignitability, Pensky-Martens Closed-Cup Method SW846 TAL CAN 9012A -Cyanide, Total and/or Amenable SW846 **TAL CAN** Sulfide, Acid soluble and Insoluble (Titrimetric) 9034 🗸 SW846 TAL CAN 9045C v pН SW846 TAL CAN 9095A 🗸 Paint Filter SW846 TAL CAN Moisture > Percent Moisture **EPA** TAL CAN 1311 🔽 **TCLP Extraction** SW846 **TAL CAN** 3010A < Preparation, Total Metals SW846 TAL CAN 3510C < Liquid-Liquid Extraction (Separatory Funnel) SW846 TAL CAN 5030B 🗸 Purge and Trap SW846 TAL CAN 7470A × Preparation, Mercury SW846 TAL CAN 8151A 🛩 Extraction (Herbicides) SW846 TAL CAN

#### **Protocol References:**

9012A

9030B <

EPA = US Environmental Protection Agency

Cyanide, Total and/or Amenable, Distillation

Sulfide, Distillation (Acid Soluble and Insoluble)

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### **Laboratory References:**

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

SW846

SW846

Job ID: 190-25606-1

TAL CAN

TAL CAN



# ANALYTICAL REPORT

Eurofins TestAmerica, Michigan 10448 Citation Drive Suite 200 Brighton, MI 48116

Tel: (810)229-2763

Laboratory Job ID: 190-25606-2

Client Project/Site: Filter Cake 2021-04-02-D

For:

City of Flint **PO BOX 246** Flint, Michigan 48501-4246

Attn: Eric Brubaker

Sue Schafer

Authorized for release by: 5/4/2021 5:46:33 PM

Sue Schafer, Project Manager II (810)229-2763 Sue.Schafer@Eurofinset.com

> I spoke w/ Sue and had Sulfate & Total Sulfor added to this job.

Data Qualifie /21 EB 5/6/21 QA/QC Audit EB 5/6/21

Have a Question?

Review your project results through

Total Access

LINKS .....

Ask-

Visit us at: www.eurofinsus.com/Env

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.

Laboratory Job ID: 190-25606-2

Client: City of Flint Project/Site: Filter Cake 2021-04-02-D

# **Table of Contents**

Cover Page	1
Table of Contents	2
Sample Summary	3
Case Narrative	4
Client Sample Results	5
QC Sample Results	6
QC Association Summary	8
Lab Chronicle	9
Method Summary	10
Definitions/Glossary	11
Chain of Custody	12
Method Summary	16

# **Sample Summary**

Client: City of Flint Project/Site: Filter Cake 2021-04-02-D

Job ID: 190-25606-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
190-25606-1	CITY OF FLINT WPC FILTER BELT PRESS	Solid	03/31/21 00:00 🗸	4/03/21 08:00	/

### **Case Narrative**

Client: City of Flint

Project/Site: Filter Cake 2021-04-02-D

Job ID: 190-25606-2

Laboratory: Eurofins TestAmerica, Michigan

Narrative

Job Narrative 190-25606-2

#### Comments

Sulfur and Sulfate added by client 🔀

No additional comments.

### Receipt

The sample was received on 4/3/2021 8:00 AM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.5° C.

#### Metals

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

#### **General Chemistry**

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

Job ID: 190-25606-2

#### **Client Sample Results**

Client: City of Flint Job ID: 190-25606-2

Project/Site: Filter Cake 2021-04-02-D

Date Collected: 03/31/21 00:00

Date Received: 04/03/21 08:00

Client Sample ID: CITY OF FLINT WPC FILTER BELT PRESS

Lab Sample ID: 190-25606-1

Matrix: Solid

Percent Solids: 18.3

Method: 6010C - Metals (ICP)					
Analyte	Result Qualifier	RL	Unit	D	Prepared

 Analyte
 Result Sulfur
 Qualifier
 RL
 Unit mg/Kg
 D Prepared
 Analyzed Analyzed Dil Fac Dil F

General Chemistry - Soluble

Analyte Result Qualifier RL Unit D Prepared Analyzed Dil Fac
Sulfate 9800 270 mg/Kg 05/03/21 18:21 1/5

#### **QC Sample Results**

Client: City of Flint Job ID: 190-25606-2

Project/Site: Filter Cake 2021-04-02-D

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 310-313776/1-A

**Matrix: Solid** 

**Analyte** 

Analysis Batch: 314327

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

Unit

Unit

mg/Kg

mg/Kg

Unit

Prep Batch: 313776

Prep Type: Total/NA

**Prep Batch: 313776** 

Prep Type: Total/NA

**Prep Batch: 313776** 

Prep Type: Total/NA

Prep Batch: 313776

Prep Type: Total/NA

Prep Batch: 313776

RPD

77

RPD

1/

**RPD** 

Limit

20

**RPD** 

Limit

Dil Fac

20

%Rec.

Limits

80-120

%Rec.

Limits

75 - 125

%Rec.

Limits

75 - 125

Client Sample ID: Duplicate

Client Sample ID: Matrix Spike

D %Rec

D

D

%Rec

%Rec

109

106

Client Sample ID: Matrix Spike Duplicate

109 /

Prepared Analyzed Dil Fac

Sulfur <22 22 / mg/Kg 04/27/21 10:00 104/28/21 11:02 Client Sample ID: Lab Control Sample

1770

Spike

Added

24500

Spike

Added

23600

RL

MB MB

Sample Sample

Sample Sample

Sample Sample

25

Result Qualifier

MR MR

<10 📝

Result Qualifier

Result Qualifier

2200

2200

Result Qualifier

Result Qualifier

Lab Sample ID: LCS 310-313776/2-A Matrix: Solid

Analysis Batch: 314327

**Analyte** 

Sulfur

Lab Sample ID: 310-204937-B-1-B MS Matrix: Solid

Analysis Batch: 314327

Analyte

Sulfur

Lab Sample ID: 310-204937-B-1-C MSD Matrix: Solid

Analysis Batch: 314327

**Analyte** 

Lab Sample ID: 310-204974-B-4-C DU **Matrix: Solid** 

Analysis Batch: 314327

Analyte

Sulfur

**Analyte** 

Sulfur

Method: 9056A - Anions, Ion Chromatography Lab Sample ID: MB 240-483872/1-A

Matrix: Solid

Analysis Batch: 483880

Sulfate

Matrix: Solid Analysis Batch: 483880

**Analyte** 

Lab Sample ID: LCS 240-483872/2-A

Sulfate

Spike LCS LCS Added Result Qualifier

1930

MS MS Result Qualifier

28100

MSD MSD

Result Qualifier 27800

DU DU

55.9 F3

LCS LCS

479

Result Qualifier

Result Qualifier

Unit

mg/Kg

Unit

mg/Kg

Unit D

mg/Kg

ö

D

Client Sample ID: Method Blank **Prep Type: Soluble** 

Client Sample ID: Lab Control Sample

**Prep Type: Soluble** %Rec.

**Analyzed** 

05/03/21 16:40 4

Unit %Rec Limits mg/Kg 100 / 90 - 110

Prepared

RL

Spike

Added

481

10 /

#### **QC Sample Results**

Client: City of Flint Job ID: 190-25606-2

Project/Site: Filter Cake 2021-04-02-D

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

Lab Sample ID: 190-25606-1 MS Client Sample ID: CITY OF FLINT WPC FILTER BELT PRESS **Matrix: Solid Prep Type: Soluble** 

Analysis Batch: 483880

Spike Sample Sample MS MS %Rec. Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits Sulfate 9800 13600 23400 80 - 120 Ø 100 < mg/Kg

Lab Sample ID: 190-25606-1 MSD Client Sample ID: CITY OF FLINT WPC FILTER BELT PRESS

**Matrix: Solid Prep Type: Soluble** 

Analysis Batch: 483880

MSD MSD Sample Sample Spike %Rec. **RPD Analyte** Result Qualifier Added Limit Result Qualifier Unit D %Rec Limits RPD Sulfate 9800 13600 102 23700 80 - 120 1/ 15 mg/Kg

#### **QC Association Summary**

Client: City of Flint

Job ID: 190-25606-2 Project/Site: Filter Cake 2021-04-02-D

#### Metals

#### **Prep Batch: 313776**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-25606-1	CITY OF FLINT WPC FILTER BELT PRESS	Total/NA	Solid	3050B	
MB 310-313776/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 310-313776/2-A	Lab Control Sample	Total/NA	Solid	3050B	
310-204937-B-1-B MS	Matrix Spike	Total/NA	Solid	30508	
310-204937-B-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	3050B	
310-204974-B-4-C DU	Duplicate	Total/NA	Solid	3050B	

#### Analysis Batch: 314327

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-25606-1	CITY OF FLINT WPC FILTER BELT PRESS	Total/NA	Solid	6010C	313776
MB 310-313776/1-A	Method Blank	Total/NA	Solid	6010C	313776
LCS 310-313776/2-A	Lab Control Sample	Total/NA	Solid	6010C	313776
310-204937-B-1-B MS	Matrix Spike	Total/NA	Solid	6010C	313776
310-204937-B-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	6010C	313776
310-204974-B-4-C DU	Duplicate	Total/NA	Solid	6010C	313776

#### **General Chemistry**

#### Leach Batch: 483872

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-25606-1	CITY OF FLINT WPC FILTER BELT PRESS	Soluble	Solid	DI Leach	<u>_</u>
MB 240-483872/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 240-483872/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
190-25606-1 MS	CITY OF FLINT WPC FILTER BELT PRESS	Soluble	Solid	DI Leach	
190-25606-1 MSD	CITY OF FLINT WPC FILTER BELT PRESS	Soluble	Solid	DI Leach	

#### Analysis Batch: 483880

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-25606-1	CITY OF FLINT WPC FILTER BELT PRESS	Soluble	Solid	9056A	483872
MB 240-483872/1-A	Method Blank	Soluble	Solid	9056A	483872
LCS 240-483872/2-A	Lab Control Sample	Soluble	Solid	9056A	483872
190-25606-1 MS	CITY OF FLINT WPC FILTER BELT PRESS	Soluble	Solid	9056A	483872
190-25606-1 MSD	CITY OF FLINT WPC FILTER BELT PRESS	Soluble	Solid	9056A	483872

Page 8 of 16

#### **Lab Chronicle**

Job ID: 190-25606-2 Client: City of Flint

Project/Site: Filter Cake 2021-04-02-D

Client Sample ID: CITY OF FLINT WPC FILTER BELT PRESS

Lab Sample ID: 190-25606-1

Date Collected: 03/31/21 00:00 Matrix: Solid Date Received: 04/03/21 08:00

Percent Solids: 18.3

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			313776	04/27/21 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	314327	04/28/21 11:17	CTB	TAL CF
Soluble	Leach	DI Leach			483872	05/03/21 14:55	JWW	TAL CAN
Soluble	Analysis	9056A		5	483880	05/03/21 18:21	JMB	TAL CAN

#### **Laboratory References:**

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396 TAL CF = Eurofins TestAmerica, Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

#### **Analyst References:**

Lab: TAL CAN

Batch Type: Leach

JWW = Joshua Weimer

Batch Type: Analysis

JMB = Jill Burns

Lab: TAL CF

Batch Type: Prep

JNR = Jaclyn Rosenwinkle

Batch Type: Analysis

CTB = Christopher Britt

#### **Method Summary**

Client: City of Flint

Project/Site: Filter Cake 2021-04-02-D

Job ID: 190-25606-2

Method	Method Description	Protocol	Laboratory
6010C 🗸	Metals (ICP)	SW846	TAL CF
9056A 🖊	Anions, Ion Chromatography	SW846	TAL CAN
3050B 🖊	Preparation, Metals	SW846	TAL CF
DI Leach	Deionized Water Leaching Procedure	ASTM	TAL CAN

#### **Protocol References:**

ASTM = ASTM International

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396 TAL CF = Eurofins TestAmerica, Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

#### **Definitions/Glossary**

Client: City of Flint Job ID: 190-25606-2

Project/Site: Filter Cake 2021-04-02-D

#### **Qualifiers**

**Metals** 

Qualifier Qualifier Description

F3 Duplicate RPD exceeds the control 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

$\Gamma$
4
$\overline{Z}$
d'

				CITY	OF FLINT W	CITY OF FLINT WATER POLLUTION CONTROL FACILITIES ENVIRONMENTAL LABORATORY SERVICES SHIPPER/RECEIVER	ON CONTROL	FACILITIES PER/RECEIVER		MIC'HIGAN
PROJ	PROJECT NUMBER: 2021-04-02-D	R: 2021-04-0		CHASE ORD	PURCHASE ORDER: 20-002739	PROJECT N	AME: Flint WPCF	PROJECT NAME: Flint WPCF Contract Environmental Maciscon		
			SAMPLE							
È						SAMPLING	NUMBER OF	ANALYTICAL	<b>a</b> .	PRICE
	NUMBER	DATE	TIME	TYPE	MEDIUM	LOCATION	CONTAINERS	PARAMETERS	UNIT	EXTENDED
-		03/31/21	N/A	24 HC	Filter Cake	City of Flint WPC Filter Belt Press	1 bottle	Hazardous waste characteristics:	\$13.00	\$13.00
								מונים בולחומים		
-		03/31/21	N/A	24 HC	Filter Cake	City of Flint WPC Filter Belt Press	1 bottle	Hazardous waste characteristics: Ignitability: total cyanide; total sulfide; TCLP metals (As. Ba. Cd., Cr. Pb, Hg. Se, and Ag); volatiles; semi-	\$613.00	\$613.00
								volumes, pesudotes, and nerologes		
									TOTAL	\$626.00

SAMPLE CONDITION:			CAMPICIOCATION		
god Kalah			SAMITE LUCATION:		
RELINGUISHED BY:	DATE: 04/02/21	TIME: 05	RECEIVED BY:	DATE:	TIME:
REGENTED BY:	DATE: 04/02/21	TIME:	RELINQUISHED BY:	DATE: 4/3/21	TIME:
RÉLINGBISHED BY:	DATE:	TIME:		DATE: (27)	TIME:
SPECIAL REQUESTS:			John Deway	800	0000
REPORT TO: Brad Hill, Environmental Compliance Super	ental Compliance Supervisor	r, Water Pollution Control Fac	ilities, G-4652 Beecher Rd., Flin	visor, Water Pollution Control Facilities, G-4652 Beecher Rd., Flint, M1 48532; 810-230-3152 (phone) and 810-230-3154 (fax).	ne) and 810-230-3154 (fax).
QC report audited by	on 5/6/21 In	. Invoice checked and forwarded by ${\cal SB}$	by 28 on 5/6/21	Data entered by	on 5/6/2/
19000078 AG SOLIDE	Was	te Characterization	ナ・ロハ		



Canton Facility		190-2560k
Client CUF Pollution Site Name	Cooler	inpacked by:
Cooler Received on 4-3-21 Opened on 4-3-21	Add	im Plantit
FedEx: 1* Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Co	ourier Other	J-prog
Receipt After-hours: Drop-off Date/Time Storage Loc	cation	
TestAmerica Cooler # TA Foam Box Client Cooler Box Ot	her	<u>-</u>
	her	
COOLANT: Wet Toe Blue Ice Dry Ice Water None		
1. Cooler temperature upon receipt IR GUN# IR-11 (CF +0.1 °C) Observed Cooler Temp. 2.4 °C Corrected (Cooler Temp. 2.4 °C)	Cooler Form	~
IR GUN#IR-12 (CF +0.1°C) Observed Cooler Temp. 2.7 °C Corrected IR GUN #IR-12 (CF +0.2°C) Observed Cooler Temp. °C Corrected	Cooler Temp.	<u>&gt;_</u> °C _°C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity		
-Were the seals on the outside of the cooler(s) signed & dated?	Zes No NA	Tests that are not
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes ®	checked for pH by
-Were tamper/custody seals intact and uncompromised?	Cos No NA	Receiving:
3. Shippers' packing slip attached to the cooler(s)?	Yes No	VOAs
4. Did custody papers accompany the sample(s)?	Ves No	Oil and Grease
5. Were the custody papers relinquished & signed in the appropriate place?	Ces No	TOC
6. Was/were the person(s) who collected the samples clearly identified on the COC?	(Yes) No	<u> </u>
7. Did all bottles arrive in good condition (Unbroken)?	No No	+
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC?	Yes No	-
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N)		grab/comp(Y)N)?
10. Were correct bottle(s) used for the test(s) indicated?	(Cs) No	
11. Sufficient quantity received to perform indicated analyses?	No No	
12. Are these work share samples and all listed on the COC?	Yes 🕅	
If yes, Questions 13-17 have been checked at the originating laboratory.	v. v @	
13. Were all preserved sample(s) at the correct pH upon receipt?  14. Were VOAs on the COC?		pH Strip Lot# <u>HC022887</u>
15. Were air bubbles >6 mm in any VOA vials? Larger than this.	Yes (No) Yes No (NA)	
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #	Yes No	
17. Was a LL Hg or Me Hg trip blank present?	Yes (No)	
Contacted PM Date by via Ve	erbal Voice Mail Of	ther
18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES  additional next p	page Samples pro	ocessed by:
		<u></u>
9. SAMPLE CONDITION		
sample(s) were received after the recommended	d holding time had e	expired.
Sample(s) were re	ceived in a broken o	ontainer,
Sample(s) were received with bubble >6	6 mm in diameter. (N	Notify PM)
0. SAMPLE PRESERVATION		
ample(s)	ere further preserved	in the laboratory
	The second of th	

WI-NC-099



### Environment Testing TestAmerica



#### Cooler/Sample Receipt and Temperature Log Form

Client Information	MELSON N	IF PARK	Will and William	A LA CAMPAGNA PARENT	<b>30.25.40度图的</b> 图1	OFFILE DAY
	UB		TRACT			
City/State: CTQDA	K FA	us	STATE	Project: F10	-TER CHICE	
Receibt Information		200		A CONTRACTOR OF THE PARTY OF TH		
Date/Time Received:	4/u	/21	3930	Received By:	Cy	
Delivery Type: UPS	1	FedEx	I	FedEx Ground	US Mail	Spee-Dee
Lab (	Courier [	Lab Fie	eld Services (	Client Drop-off	Other:	
Condition of Cooler/Conta	alners		124 14 5		ALTERNATION OF THE SECOND	1
Sample(s) received in Co	poler?	Yes	□No	If yes: Cooler ID:	CRA	
Multiple Coolers?	nouser.	Yes	⊠No	If yes: Cooler#_	of	
Cooler Custody Seals Pro	esent?	☐ Yes	№ No	If yes: Cooler custo	ody seals intact?	Yes No
Sample Custody Seals P	resent?	☐ Yes	No	If yes: Sample cus	tody seals intact?	Yes No
Trip Blank Present?		☐ Yes	No	If yes: Which VOA	samples are in coole	r? ↓
						7
Temperaturé Record	: 64素 法库	251239 346	INTERESTOR	(リカンを)を発展を行われる。	na venancia especial de la como	SECTION FRANCES
Coolant:	District in the same of	ue ice	Dry ice	Other:	П иои	
						1
Thermometer ID:	0			Correction Factor (		
Thermometer ID:  • Temp Blank Temperature		np blank, ör		Correction Factor (	C): 0.0	
		np blank, ör		Correction Factor (	C): 0, 0	
Temp Blank Temperature	÷lf no ten	er for the r	temp blank tem	Correction Factor (* perature above criteria, pr Corrected Temp (*C	C): O, O oceed to Sample Contáin	er Temperature
Temp Blank Temperature Uncorrected Temp (°C):	rature	JER 1	temp blank tem	Correction Factor (*Corrected Temp (*C	C): O, O oceed to Sample Contáin	er Temperature
Temp Blank Temperature Uncorrected Temp (°C):     Sample Container Temperature	rature	JER 1	temp blank tem	Correction Factor (*Corrected Temp (*C	C): O, O oceed to Sample Contáin	er Temperature
Temp Blank Temperature Uncorrected Temp (°C):     Sample Container Tempe Container(s) used:	rature	JER 1	temp blank tem	Correction Factor (*Corrected Temp (*C	C): O, O oceed to Sample Contáin	er Temperature
Temp Blank Temperature Uncorrected Temp (°C):     Sample Container Tempe Container(s) used: Uncorrected Temp (°C):	if no ten	NER 1	temp blank tem	Correction Factor (*Contected Temp (*Con	C): 0, 0 oceed to Sample Contáin C):	er Temperature
• Temp Blank Temperature Uncorrected Temp (°C): • Sample Container Tempe Container(s) used: Uncorrected Temp (°C): Corrected Temp (°C):	irature CONTAIN	NER 1	temp blank tem	Correction Factor (*Contected Temp (*Con	C): 0, 0 oceed to Sample Contáin C): INER 2 pling?	er Temperature
• Temp Blank Temperature Uncorrected Temp (°C): • Sample Container Tempe Container(s) used: Uncorrected Temp (°C): Corrected Temp (°C): Exceptions Noted  1) If temperature exceeds	rature CONTAIN s criteria, idence the	was same at the childre obvious	temp blank tem	Correction Factor (*Corrected Temp (*Contacted Temp (*Con	C): 0. 0 occed to Sample Contáine C): INER 2  Dling?   Yes   Yes   C Yes   C Yes   C Containers is compression of the containers in the containers is compression of the containers in the containers	er Temperature
Temp Blank Temperature Uncorrected Temp (°C): Sample Container Tempe Container(s) used: Uncorrected Temp (°C): Corrected Temp (°C): Exceptions Noted  1) If temperature exceeds a) If yes: Is there evidence, bulging septa, b  Note: If yes, contact PM	rature CONTAIN s criteria, idence the roken/cra	was same the children obvious acked botto	temp blank tem	Correction Factor (*Corrected Temp (*Contacted Temp (*Con	C): 0. 0 occed to Sample Contáine C): INER 2  Diling?	er Temperature  No No No No No
• Temp Blank Temperature Uncorrected Temp (°C): • Sample Container Tempe Container(s) used: Uncorrected Temp (°C): Corrected Temp (°C): Exceptions Noted  1) If temperature exceeds a) If yes: Is there evidence, bulging septa, b	rature CONTAIN s criteria, idence the roken/cra	was same the children obvious acked botto	temp blank tem	Correction Factor (*Corrected Temp (*Contacted Temp (*Con	C): 0. 0 occed to Sample Contáine C): INER 2  Dling?   Yes   Yes   C Yes   C Yes   C Containers is compression of the containers in the containers is compression of the containers in the containers	er Temperature  No No No No No
Temp Blank Temperature Uncorrected Temp (°C): Sample Container Tempe Container(s) used: Uncorrected Temp (°C): Corrected Temp (°C): Exceptions Noted  1) If temperature exceeds a) If yes: Is there evidence, bulging septa, b  Note: If yes, contact PM	rature CONTAIN s criteria, idence the roken/cra	was same the children obvious acked botto	temp blank tem	Correction Factor (*Corrected Temp (*Contacted Temp (*Con	C): 0. 0 occed to Sample Contáine C): INER 2  Diling?	er Temperature  No No No No No
Temp Blank Temperature Uncorrected Temp (°C): Sample Container Tempe Container(s) used: Uncorrected Temp (°C): Corrected Temp (°C): Exceptions Noted  1) If temperature exceeds a) If yes: Is there evidence, bulging septa, b  Note: If yes, contact PM	rature CONTAIN s criteria, idence the roken/cra	was same the children obvious acked botto	temp blank tem	Correction Factor (*Corrected Temp (*Contacted Temp (*Con	C): 0. 0 occed to Sample Contáine C): INER 2  Diling?	er Temperature  No No No No No

Document: CF-LG-WI-002

Revision: 25 Date: 06/17/2019

**Eurofins TestAmerica, Cedar Falls** 

General temperature criteria is 0 to 6°C Bacteria temperature criteria is 0 to 10°C

# **Chain of Custody Record**

Eurofins TestAmerica, Canton

4101 Shuffel Street NW North Canton. OH 44720 Phone: 330-497-9396 Fax: 330-497-0772

프프로	
====	
===	

🛟 eurofins

Client Information (Sub Contract Lab)				Scha	Schafer, Sue							240-135311.1	-	888
	Phone			E-Mail:	1				State of Ongin			Page		
Shipping/Receiving				Sue	Sue Schafer@Eurofinset.com	urofinset.	com	-	Michigan			Page 1 of 1		
ompany. estAmerica Laboratories, Inc					Accreditations Required (See note)	Required (S	See note):	!				Job # 190-25606-2		
doless	Due Date Requested:	ë										Preservation Codes:	Codes:	
3019 Venture Way.	5/4/2021						Analy	Analysis Kequested	rested		Ì	A . #C	M - Hexane	
iky. Sedar Fails	TAT Requested (days	Ë									URREL	B - NaOH C - Zn Acetate		
A, 50613												D - Nitric Acid E - NaHSO4		
hore. 119-277-2401(Tel) 319-277-2425(Fax)	*0				(							G - Amchior	R - Na2S203 S - H2S04 T - TCD Dote-prefets	o market
agu:	WO #													
roset Name ilter Cake 2021-04-02-D	Project # 19000078										aoujep	K-EDTA L-EDA	W - pH 4-5 Z - other (specify)	(Å
ide	SSOWN				Y) OS					•	,00 ju	Other		
		Sample	Sample Type (C=comp,	Matrix (seconds)	old Filtened S Morning Marking 10C/3050B SU					7	sedmulti late	0)		
Sample Identification - Client ID (Lab ID)	Sample Date		Gagrab) en-mess. A-As Preservation Code:	tion Code:	u X	100 miles	V.			3		_ 8	Special Instructions/Note:	ote:
SITY OF FLINT WPC FILTER BELT PRESS (190-25608-1)	3/31/21	Eastern		Solid	×			7			-			
									+		- 1000			
								F			-			
									-					
- Andrew Control of the Control of t														
											25			
											75			
tote: Since laboratory accreditations are subject to change. Eurofins TestAmerica places the ownerthip of naintein accreditation in the State of Ongin lasted above for enalysistlessbringtry being analyzed, the samp festAmerica attention intrinediately. If all requested accreditations are current to date, return the signed Of	places the ownership eing analyzed, the sa ate, return the signed		method, analyta & accreditation compliance upon out subcontract lab was must be shaped back to the Eurofina TestAmerica laborationy of or hain of Custody aftesting to said complicance to Eurofins TestAmerica	iston complian o the Eurofins said complicar	ice upon out s TestAmerica I ice to Eurofini	ubcontract la aboratory or i TestAmeric	iboratories. other instru-	This sample from will be	shipment is provided. A	forwarded u	nder chain- to accredita	of-custody. If the lion status should	method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently less 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 in of Custody aftesting to said complicance to Eurofins TestAmerica.	mently
Possible Hazard Identification					Sample	Disposal	(A fee n	ney be as	sessed II	samples	are retail	Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)	in 1 month)	
Inconfirmed					֖֓֓֞֟֝֞֓֓֓֓֟֟֝֟֝֟֓֓֟֟֟֓֓֓֓֟֟֓֓֓֟֟֓֓֟֟֓֓֟֟֓֓֟	Return To Client	Slient	]	Disposal By Lab	7ep	¥ ]	Archive For	Months	
Jeliverable Requested: I, II, III, IV, Other (specify)	Primary Deliverable Rank: 2	ble Rank: 2			Special	Special Instructions/QC Requirements:	1s/QC Re	quirement			Î			
Empty Kit Relinquished by:		뜵			Time:				Method	Method of Shipment				
Reinquished by	スープナ A	100		Haramon H	Rece	Received by	2	17		Date O	12/26 Barago	220	(M3 Company	

Ver: 11/01/2020 1

Date/Time,

Cooler Temperature(s) °C and Other Remarks:

teceived by:

d peuspeu

Custody Seals Intact: Custody Seal No.

#### **Method Summary**

Client: City of Flint

Project/Site: Filter Cake 2021-04-02-D

Job ID: 190-25606-2

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CF
9056A	Anions, Ion Chromatography	SW846	TAL CAN
3050B	Preparation, Metals	SW846	TAL CF
DI Leach	Deionized Water Leaching Procedure	ASTM	TAL CAN

#### **Protocol References:**

ASTM = ASTM International

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### **Laboratory References:**

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396 TAL CF = Eurofins TestAmerica, Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401



#### ANALYTICAL REPORT

Eurofins TestAmerica, Michigan 10448 Citation Drive Suite 200 Brighton, MI 48116 Tel: (810)229-2763

Laboratory Job ID: 190-25923-1

Client Project/Site: Filter Cake 2021-05-14-A

For:

💸 eurofins

City of Flint PO BOX 246 Flint Michigan 48501

Flint, Michigan 48501-4246

Attn: Eric Brubaker

Sue Schafer

Authorized for release by: 5/28/2021 10:35:25 AM

Sue Schafer, Project Manager II (810)229-2763 Sue.Schafer@Eurofinset.com

> Data Qualifiers Ned EB 6/11/21 QA/QC Audit: EB 6/11/21

LINKS

Review your project results through

Total Access

Have a Question?



Visit us at:

www.eurofinsus.com/Env

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.

Laboratory Job ID: 190-25923-1

Client: City of Flint Project/Site: Filter Cake 2021-05-14-A

#### **Table of Contents**

Cover Page	1
Table of Contents	2
Sample Summary	3
Case Narrative	4
Client Sample Results	5
QC Sample Results	6
QC Association Summary	7
Lab Chronicle	8
Method Summary	9
Definitions/Glossary	10
Chain of Custody	11
	15

#### **Sample Summary**

Client: City of Flint

Project/Site: Filter Cake 2021-05-14-A

Job ID: 190-25923-1

Lab Sample IDClient Sample IDMatrixCollectedReceivedAsset ID190-25923-1City of Flint WPC Filter Belt PressSolid05/09/21 00:00 05/14/21 15:09

#### **Case Narrative**

Client: City of Flint

Project/Site: Filter Cake 2021-05-14-A

\_\_\_\_

Job ID: 190-25923-1

Laboratory: Eurofins TestAmerica, Michigan

**Narrative** 

Job Narrative 190-25923-1

#### Comments

No additional comments.

#### Receipt

The sample was received on 5/14/2021 3:09 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 6.5° C.

#### **General Chemistry**

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

Eurofins TestAmerica, Michigan 5/28/2021

Job ID: 190-25923-1

#### **Client Sample Results**

Client: City of Flint Job ID: 190-25923-1

Project/Site: Filter Cake 2021-05-14-A

Client Sample ID: City of Flint WPC Filter Belt Press Lab Sample ID: 190-25923-1

Date Collected: 05/09/21 00:00 / Matrix: Solid

Date Received: 05/14/21 15:09

**General Chemistry** Result Qualifier RL Analyte Unit Prepared Analyzed Dil Fac **Percent Solids** 18.6 / 0.1 % 05/26/21 13:19 % 05/26/21 13:19 **Percent Moisture** 81.4 0.1

Client Sample ID: City of Flint WPC Filter Belt Press Lab Sample ID: 190-25923-1

Date Collected: 05/09/21 00:00 /

Matrix: Solid Percent Solids: 18.6

Date Received: 05/14/21 15:09

General Chemistry - Soluble

Analyte Result Qualifier RL Unit D Prepared Analyzed Dil Fac Sulfate ✓ 7900 ✓ 54 mg/Kg □ 05/21/21 09:25 ✓ 1

#### **QC Sample Results**

Client: City of Flint Job ID: 190-25923-1

Project/Site: Filter Cake 2021-05-14-A

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 240-486844/1-A

Matrix: Solid

Analyte

Sulfate

Analysis Batch: 486845

Client Sample ID: Method Blank

**Prep Type: Soluble** 

MB MB Result Qualifier RL Unit Prepared Analyzed Dil Fac <10 / 10 / mg/Kg 05/21/21 05:23

Lab Sample ID: LCS 240-486844/2-A Client Sample ID: Lab Control Sample

**Matrix: Solid Prep Type: Soluble** 

Analysis Batch: 486845

Spike LCS LCS %Rec. Analyte Added Result Qualifier Unit D %Rec Limits Sulfate 500 522 mg/Kg 104 / 90 - 110

Method: Moisture - Percent Moisture

Lab Sample ID: 240-150071-D-5 DU **Client Sample ID: Duplicate** Prep Type: Total/NA

**Matrix: Solid** 

Analysis Batch: 487659

Sample Sample DU DU **RPD Analyte** Result Qualifier Result Qualifier Unit RPD D Limit Percent Solids 86.8 86.7 % 0.1 20 0.9 Percent Moisture 13.2 13.3 %

Page 6 of 15

#### **QC Association Summary**

Client: City of Flint

Job ID: 190-25923-1 Project/Site: Filter Cake 2021-05-14-A

#### **General Chemistry**

Leach Batch: 486844	Leach	Batch:	486844
---------------------	-------	--------	--------

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-25923-1	City of Flint WPC Filter Belt Press	Soluble	Solid	DI Leach	
MB 240-486844/1	-A Method Blank	Soluble	Solid	DI Leach	
LCS 240-486844/	2-A Lab Control Sample	Soluble	Solid	DI Leach	

#### Analysis Batch: 486845

Lab Şample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-25923-1	City of Flint WPC Filter Belt Press	Soluble	Solid	9056A	486844
MB 240-486844/1-A	Method Blank	Soluble	Solid	9056A	486844
LCS 240-486844/2-A	Lab Control Sample	Soluble	Solid	9056A	486844

#### Analysis Batch: 487659

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-25923-1	City of Flint WPC Filter Belt Press	Total/NA	Solid	Moisture	
240-150071-D-5 DU	Duplicate	Total/NA	Solid	Moisture	

Page 7 of 15

#### Lab Chronicle

Client: City of Flint Job ID: 190-25923-1

Project/Site: Filter Cake 2021-05-14-A

Client Sample ID: City of Flint WPC Filter Belt Press

Date Collected: 05/09/21 00:00

Date Received: 05/14/21 15:09

Lab Sample ID: 190-25923-1

Matrix: Solid

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	487659	05/26/21 13:19	AJ	TAL CAN

Client Sample ID: City of Flint WPC Filter Belt Press

Lab Sample ID: 190-25923-1

**Matrix: Solid** 

Date Collected: 05/09/21 00:00 Date Received: 05/14/21 15:09 Percent Solids: 18.6

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			486844	05/20/21 23:09	AGC	TAL CAN
Soluble	Analysis	9056A		1	486845	05/21/21 09:25	JMB	TAL CAN

#### **Laboratory References:**

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

#### **Analyst References:**

Lab: TAL CAN

Batch Type: Leach

AGC = Alyssa Crowley

Batch Type: Analysis

AJ = Allison Jackson

JMB = Jill Burns

Eurofins TestAmerica, Michigan

Page 8 of 15

#### **Method Summary**

Client: City of Flint

Project/Site: Filter Cake 2021-05-14-A

Job ID: 190-25923-1

Method	Method Description	Protocol	Laboratory
9056A 🗸	Anions, Ion Chromatography	SW846	TAL CAN
Moisture	Percent Moisture	EPA	TAL CAN
DI Leach	Deionized Water Leaching Procedure	ASTM	TAL CAN

#### **Protocol References:**

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### **Laboratory References:**

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Page 9 of 15

#### **Definitions/Glossary**

Client: City of Flint

Job ID: 190-25923-1 Project/Site: Filter Cake 2021-05-14-A

#### 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

			7 = 1.0	CITY	OF FLINT W	CITY OF FLINT WATER POLLUTION CONTROL FACILITIES ENVIRONMENTAL LABORATORY SERVICES SHIPPER/RECEIVER	ON CONTROL F	'ACILITIES ER/RECEIVER		
PROJ	ECT NUMBER	PROJECT NUMBER: 2021-05-14-A PURCHASE ORDER: 20-002739	PUR	CHASE ORD	ER: 20-002739	PROJECT N	AME: Flint WPCF	PROJECT NAME: Flint WPCF Contract Environmental Monitoring Services	g Services	
			SAMPLE							PRICE
<u></u>	NUMBER	DATE	TIME	TYPE	MEDIUM	LOCATION	CONTAINERS	ANALYTICAL PARAMETERS	TIND	EXTENDED
		05/09/21	N/A	24 HC	Filter Cake	City of Flint WPC Filter Belt Press	1 bottle	Total Sulfates	\$30.00	\$30.00
		AR AR AR AR	-U						TOTAL	\$30.00

RECEINQUISHED BY:  DATE: 05/14/21 TIME:  PS 2.M. L.		
Settly DATE: 05/14/21 TIME: RELINQUISHED BY:		TIME:
O A DATE: I TIME. BECEIVED BY:		TIME:
July 1450	BY: DATE:	TIME:

Project:19000078 4G-FIHA Cake/Grit (pick 9056 only)

MICHIGAN 190



eurofins En inchatent (Extense Tast America		ancie	S		Client ID: City of Flint Work Oder #: 190-25923
Cooler / Sample Receipt			dr (	12-Da	ay 3-Day 5-Day Other:
After hours receipt: complete gray	Receipt Eval	uatio	n Per	forme	ed by: Initials: TRH Date: 5-14-21 Time: 1509
areas. Place cooler in walk-in, place	н іп			(#1	
form in Receiving box. Date: Time:					
					36 4 -0 -11 - 7
Method of Shipment:  Walk-In Client Eurofins TA Field/Cou Other Client / 3 <sup>rd</sup> Party Courier:  Fed Ex Tracking #:  UPS Tracking #: Other:		lone lone ackir Plastic ubble ackin	ng M Bag Wra	Box Other aterias F p F anuts	ainer Type: Custody Seals Intact:  Yes No  No  NA'(not used or required)  als: Cooling Materials:  Foam Ace (Solid) Clce (Melted)  Paper Blue Ice None  None Other:
Bacteriological Temp Corrected (°C)	Frozen				Within 2 Hrs? Sample Flagged?
Samples	Yes	No		Yes	s No Yes No
Received on same day sampled? Yes Receipt Temperatures Thermometer ID Observed (°C) Corrected (°C) CP313207 6.5		Sam	ple T	емр —	Acceptable Cooler ID Affected Samples  Y _ N  Y _ N  Y _ N  Y _ N
Receipt Questions**		ΙΥ	N	NA	"No" answers require additional comment
CoC present and ETA receipt signature, date, and till documented?	me properly	V			
Containers and Labels in good condition? (unbroken appropriately filled, labels legible & attached)	, not leaking,	/			
Appropriate containers used and adequate volume p	rovided?	V			Preserved bottles checked for pH?* Yes No
Number of sample containers match CoC?		V			pH strip lot #
Samples received within hold?		1			
Samples submitted for GRO and Volatiles analysis (1524) received without headspace?	3260, 624.				
Was a Trip Blank received with VOA samples?				-	
Were the samples free of any questionable physical conformities? (i.e., field duplicates or multiple bottles sample do not significantly vary in appearance – colo proportions, etc.)	of the same or, solid	/			=
Were the CoC bottle labels and all other items free of discrepancies or issues that would need to be address the Project Manager and/or Client?	f all other ssed with	/	/		
**May not be applicable if samples are not for compli	ance testing				*Excludes FOG. VOAs, TOC Vials, HEM
Client Contact Record					
Contact Via: Phone Email Other: Discrepancy allowance agreement	Perso	on Co	ntact	ed: _	Date/Time:
Discussion / Resolution					bralage urg
Any additional documentation and clarification f directory.  Reviewed by	rom the clien  Date: 57	1		noted	I in the narrative and/or scanned into the CoC  WI-MI-010_020720

# Eurofins TestAmerica, Michigan (17) Brighton, Mt 48116 Phone: 810-229-2763 Fax: 810-229-0000

**Chain of Custody Record** 

& eurofins Environment Testing America

Client Information (Sub Contract Lab)				Schafer, Sue	Sue						190-29384.1	
Chent Contact	Phone			E-Mad	for@E	ofice of por		State of Ongan			Page:	
Shipping/receiving				306.301	CHECK CO.	Successful Control Control	, and	MICHIGAN			0 - 2594	
TestAmerica Laboratones, Inc.					CHI MICHIEL CO.	aeci naurina	note).	200			190-25923-1	
Address 4101 Shuffel Street NW.	Due Date Requested: 5/27/2021						Analysis F	Analysis Requested		37110000	Preservation Codes	
Cry. North Canton Seaso Zoo	TAT Requested (days)										B NaOH C Zn Acetate D Natric Acid	M - Hexane N - None O - AsNaO2 P - Na2O4S
State, 200 OH, 44720	80			T	20007						E - NaHSO4 F - MeOH	
330-497-9396(Tel) 330-497-0772(Fax)	2	6		(0)							G - Amchlor H - Ascorbic Ac	
Email	#OM		2007		-						J - Di Water	U - Acetone V - MCAA
Project Name. 2021-05-14-A/Filter Cake	Project #: 19000078				isilus I	stute					and the second	W - pH 4-5 Z - other (specify)
.2916	SSOW#	10 00 0			LEACI	olf tri					Other:	
Sample Identification - Client ID (Lab ID)	Sample Date	al din	Sample (wm. Type (wm. C=comp, o-ms Gegrab)	Matrix (Vermes) Proble Omeranio Face, pede)	MRM midheq Ididas_Aacoe	Moisture Perce					Pedmuk latoT	Special Instructions/Note:
		1	00	ode: X								V
City of Flint WPC Filter Belt Press (190-25923-1)	5/9/21 E	Eastern	S	Solid	×	×				-		25) 211 2
			+	T	1				+			1301
					П							
		1										
Note Since laboratory acceptiations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & acceptiation compliance upon out subcontract laboratores. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain acceptation analysis/lests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica acceptations will be provided. Any changes to acceptation status should be brought to Eurofins TestAmerica acceptation will be provided. Any changes to acceptations are current to date, return the signed Chain of Custody attesting to said complicance attention winderloady. If all requested acceptations are current to date, return the signed Chain of Custody attesting to said complicance.	imerica places the ownership of natrix being analyzed, the semp ent to date, return the signed Cl	method, analytides must be ship ten of Custody in	e & accreditation pped back to the attesting to said	compliance u Eurofins Test complicance t	pon out su America la 5 Eurofins	bcontract tab boratory or of TestAmerica	oratones. This	sample shipment:	is forwarded Any change	under chais to accred	n-of-custody. If the	laboratory does not currently is be brought to Eurofins
Possible Hazard Identification				ľ	ample (	) isposal (	A fee may t	e assessed if	samples	are retai	Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)	n 1 month)
Unconfirmed						Return To Client	Jut	Disposal By Lab	Lab	Arc	Archive For	Months
Deliverable Requested 1, il, III, IV, Other (specify)	Primary Deliverable Rank: 2	Rank: 2		0)	pecial fr	structions/	Special Instructions/QC Requirements	i				b.
Empty Kit Relinquished by:	Date	te:		Time				Method	Method of Shipment.	÷.		
Reinqushed by L. Ha O	Shylow	1579		γu	Recen	SCALL BOOK	ETA (	ETA CANTON	- 2	-	5 2021	Company
Retinquished by	DateTrine	+	Company	ny	Received by	ed by			Date/Time	me		Company
Reinquished by	Date/Time		Company	Αu	Received by	ed by			Date/Tune	je i		Company
					Cooler	Temperature	Cooler Temperature(s) "C and Other Remarks.	r Remarks.				からいないのである。
A res A No					-							And the Company

Eurofins TestAmerica Canton Sample Receipt Form/Narrative Canton Facility	Login#:	
Client Site Name	Cooler unp	acked by:
	MJS	ETA CANTON
Cooler Received on MAY 1.5 2021 Opened on MAY 1.5 2021  FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier		EIN CAITION
Receipt After-hours: Drop-off Date/Time Storage Location	Other	
Packing material used: Bubble Wrap Foam Plastic Bag None Other		<del></del>
COOLANT: Wet Ice Blue Ice Dry Ice Water None		·
1. Cooler temperature upon receipt See Multiple Cooler For	m a c	
IR GUN# IR-11 (CF +0.1 °C) Observed Cooler Temp. // C Corrected Cooler 7	Temp. C & o	rC .
IR GUN #IR-12 (CF +0.2°C) Observed Cooler Temp. °C Corrected Cooler	Γemp	°C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity	No F	
-Were the seals on the outside of the cooler(s) signed & dated?	No NA	Tests that are not checked for pH by
	(No	Receiving:
	No NA	
	> No ∥	VOAs Oil and Grease
	No	TOC
5. Were the custody papers relinquished & signed in the appropriate place?		100
	No	
		_
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC?  9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and say	, IND male time of or	nh/namm/VAD2
10. Were correct bottle(s) used for the test(s) indicated?		au/comp( 1/14):
11. Sufficient quantity received to perform indicated analyses?		
	No	
If yes, Questions 13-17 have been checked at the originating laboratory.	- 110	
	No NA off	Strip Lot# HC022887
Add the deal of the second of	No	
15. Were air bubbles >6 mm in any VOA vials? Larger than this.	NA NA	
	No	
17. Was a LL Hg or Me Hg trip blank present?	No \	
Contacted PM Date by via Verbal Vo	oice Mail Othe	,
Concerning		
18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES  additional next page	Samples proce	essed by:
19. SAMPLE CONDITION	25	
Sample(s) were received after the recommended holding		
Sample(s) were received		
Sample(s) were received with bubble >6 mm in	diameter. (No	tify PM)
20. SAMPLE PRESERVATION	· · · · · · · · · · · · · · · · · · ·	
Sample(s) were furt	her preserved in	n the laboratory
Sample(s) were furt Time preserved: Preservative(s) added/Lot number(s):	tier preserved i	The laboratory.
VOA Sample Preservation - Date/Time VOAs Frozen;		

WI-NC-099

#### **Method Summary**

Client: City of Flint

Project/Site: Filter Cake 2021-05-14-A

Job ID: 190-25923-1

Method	Method Description	Protocol	Laboratory
9056A /	Anions, Ion Chromatography	SW846	TAL CAN
Moisture	Percent Moisture	EPA	TAL CAN
DI Leach	Delonized Water Leaching Procedure	ASTM	TAL CAN

#### **Protocol References:**

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### **Laboratory References:**

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Eurofins TestAmerica, Michigan

Page 15 of 15



## **Environment Testing America**

#### **ANALYTICAL REPORT**

Eurofins Michigan 10448 Citation Drive Suite 200 Brighton, MI 48116 Tel: (810)229-2763

Laboratory Job ID: 190-27760-2

Client Project/Site: 2022-01-12-C/Filter Cake

For:

City of Flint PO BOX 246

Flint, Michigan 48501-4246

Attn: Eric Brubaker

Sue Schafer

Authorized for release by: 2/15/2022 2:15:32 PM

Sue Schafer, Project Manager II (810)229-2763
Sue.Schafer@Eurofinset.com

LINKS .....

Review your project results through

**Total Access** 

**Have a Question?** 



Visit us at:

www.eurofinsus.com/Env

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.

Laboratory Job ID: 190-27760-2

Client: City of Flint Project/Site: 2022-01-12-C/Filter Cake

#### **Table of Contents**

over Page	1
able of Contents	2
ample Summary	2
ase Narrative	3
lient Sample Results	4
C Sample Results	6
C Association Summany	7
C Association Summary	8
Ab Chronicle	9
Method Summary	10
efinitions/Glossary	11
hain of Custody	12
ethod Summary	14

#### **Sample Summary**

Client: City of Flint

Project/Site: 2022-01-12-C/Filter Cake

Job ID: 190-27760-2

Lab Sample tD Client Sample ID Matrix Collected
190-27760-3 City of Flint WPC Filter Belt Press Solid 01/11/22 00:0

Collected Received 01/11/22 00:00 01/12/22 11:50

Client: City of Flint

Project/Site: 2022-01-12-C/Filter Cake

Job ID: 190-27760-2

Laboratory: Eurofins Michigan

Narrative

Job Narrative 190-27760-2

#### Comments

The 901.1 Radium-226 & Other Gamma Emitters analysis was performed at the Eurofins Environment Testing, St. Louis laboratory.

The samples were received on 1/12/2022 11:50 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 5.0° C.

#### Receipt Exceptions

A Chain-of-Custody (COC) was not received with these samples: City of Flint WPC Filter Belt Press (190-27760-2).

#### RAD

Method 901.1: Gamma Prep Batch 160-546242

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:

	Topontod to
Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211
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.

City of Flint WPC Filter Belt Press (190-27760-3) and (190-27760-A-3-B DU)

Method 901.1: Gamma prep batch 160-546242

The detection goal of 1.0 pCi/g was not met for Ra-226 for the following sample. An elevated MDC can occur when higher background counts are applied to a peak ROI. This is due to the relatively small size of the peak or subsequent "force-fit" of the non-existent peak which resulted in higher than normal background counts due to statistical fluctuations in the Compton baseline. The laboratory does not believe this adversely affects the data, the Ra-226 is well below the RL and MDC.

City of Flint WPC Filter Belt Press (190-27760-3)

Job ID: 190-27760-2

#### **Case Narrative**

Client: City of Flint

Project/Site: 2022-01-12-C/Filter Cake

Job ID: 190-27760-2 (Continued)

**Laboratory: Eurofins Michigan (Continued)** 

Method Fill\_Geo-21: Gamma Prep Batch 160-546242:

Due to sample matrix the following samples are under the target prep weight 260g: City of Flint WPC Filter Belt Press (190-27760-3) and (190-27760-A-3 DU).

The samples are low density solid.

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

Job ID: 190-27760-2

#### **Client Sample Results**

Client: City of Flint

Project/Site: 2022-01-12-C/Filter Cake

Job ID: 190-27760-2

Client Sample ID: City of Flint WPC Filter Belt Press

Date Collected: 01/11/22 00:00 Date Received: 01/12/22 11:50 Lab Sample ID: 190-27760-3

Matrix: Solid

Method: 901.1 - Radium-226	8	Other Gamma Emitters (GS	1
----------------------------	---	--------------------------	---

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Drawand		
Lead-210	-3.58	U	3.37	2.40				Prepared	Analyzed	Dii Fac
Radium-228	-0.424	_	0.333	3,40 0,337	1.00		pCi/g	01/13/22 14:44		
Radium-228	0.191	11	77.00	-0.00	1.00	1.04	pCi/g	01/13/22 14:44	02/04/22 18:37	1
	0.191	U	0.332	0.333		0.703	pCi/g	01/13/22 14:44		

#### **QC Sample Results**

Client: City of Flint

Project/Site: 2022-01-12-C/Filter Cake

Job ID: 190-27760-2

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

Lab Sample ID: MB 160-546242/1-A

Matrix: Solid

Analysis Batch: 549191

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 546242

and the star Va			Count	Total					A STANDARD	
	MB	MB	Uncert.	Uncert.						
Analyte	Result	Qualifier	(20+/-)	(20+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Lead-210	1,474	U	1.71	1.72		2.44	pCVg	01/13/22 14:44	02/04/22 18:55	1
Radium-228	0.05385	U	0.0407	0.0411	1.00	0.346	pCVg	01/13/22 14:44	02/04/22 18:55	1
Radium-228	0.01234	U	0.0438	0.0439		0.230	pCi/g	01/13/22 14:44	02/04/22 18:55	1

Lab Sample ID: LCS 160-546242/2-A

Matrix: Solid

Analysis Batch: 549200

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 546242

				Total						
	Spike	LCS	LCS	Uncert.					%Rec.	
Analyte	Added	Result	Qual	(20+/-)	RL	MDC	Unit	%Rec	Limits	
Americium-241	96.3	95.80	ATTENDED TO	11,5		1.14	pCi/g	100	75 - 125	
Cesium-137	26.0	26.62		3.25		0.275	pCi/g	102	75 - 125	
Cobalt-60	8.14	8.301		1.05		0.177	pCi/g	102	75 - 125	

Lab Sample ID: 190-27760-3 DU

Matrix: Solid

Analysis Batch: 549192

Client Sample ID: City of Flint WPC Filter Belt Press

Prep Type: Total/NA

Prep Batch: 546242

					Total					
	Sample	Sample	DU	DU	Uncert.					RER
Analyte	Result	Qual	Result	Qual	(20+/-)	RL	MDC	Unit	RER	Limit
Lead-210	-3.58	U	0.4982	U	1.53	WELL TO	2.64	pCl/g	0.83	1
Radium-226	-0.424	UG	0.1076	U	0.298	1.00	0.528	pCVg	0.84	44.1
Radium-228	0.191	U	0.2512	U	0.237		0.269	pCi/g	0.11	1

#### **QC Association Summary**

Client: City of Flint Project/Site: 2022-01-12-C/Filter Cake

Job ID: 190-27760-2

#### Rad

#### Prep Batch: 546242

Lab Sample ID 190-27760-3	Cilent Sample ID City of Flint WPC Filter Belt Press	Prep Type	Matrix	Method	Prep Batch
MB 160-546242/1-A		TotaVNA	Solid	Fill_Geo-21	
	Method Blank	Total/NA	Solid	Fill Geo-21	
LCS 160-546242/2-A 190-27760-3 DU	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
100 21700-3 00	City of Filnt WPC Filter Belt Press	Total/NA	Solid	Fill_Geo-21	

#### Lab Chronicle

Client: City of Flint

Project/Site: 2022-01-12-C/Filter Cake

Lab Sample ID: 190-27760-3

Matrix: Solid

Job ID: 190-27760-2

Client Sample ID: City of Flint WPC Filter Belt Press

Date Collected: 01/11/22 00:00 Date Received: 01/12/22 11:50

	Batch	Batch		Ditution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			546242	01/13/22 14:44	SRE	TAL SL
Total/NA	Analysis	901.1		1	549199	02/04/22 18:37	CAH	TAL SL

**Laboratory References:** 

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

**Analyst References:** 

Lab: TAL SL

Batch Type: Prep

SRE = Sabrina Early

**Batch Type: Analysis** 

CAH = Chris Hough

#### **Method Summary**

Client: City of Flint

Project/Site: 2022-01-12-C/Filter Cake

Job ID: 190-27760-2

 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 St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

#### **Definitions/Glossary**

Client: City of Flint

Project/Site: 2022-01-12-C/Filter Cake

Job ID: 190-27760-2

#### Qualifiers

Nau	

U

Qualifier Qualifier Description

G The Sample MDC is greater than the requested RL.

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

	CT NUMBER	PROJECT NUMBER: 2022-01-12-C		PURCHASE ORD	ORDER: 22-003989		AME: Flint WPCF	PROJECT NAME: Flint WPCF Contract Environmental Monitoring Services	Services	
1			SAMPLE			CAMO		The state of the s		PRICE
	NUMBER	DATE	TIME	TYPE	MEDIUM	LOCATION	CONTAINERS	PARAMETERS	LIND	EXTENDED
93.	Total III	01/11/22	NA	24 HC	Fitter Cake	City of Flint WPC Filter Belt Press	1 bottle	Hazardous waste characteristics: Corroshrity and Free Liquids	\$13.00	\$13.00
New York	The second	01/1/22	¥2	24 HC	Fitter Cake	City of Flint WPC Filter Belt Press	1 bottle	Hazardous waste characteristics: ignitability; Total Cyanide; Total Sulfide; Reactive Sulfide; Total Sulfide; Total Sulfide; Total Sulfide; Ba, Cd, Cr, Pb, Hg, Se, and Ag); volatiles; semi-votaties; PCBs, perticities & handicides	\$763.00	\$763.00
		01/11/22	NA	24 HC	Filter Cake	City of Flint WPC Fitter Belt Press	1 bottle	TENORM	\$100.00	\$100.00

REGINGUISHED BY:  REGINGUISHED BY:  REGINGUISHED BY:  RELINQUISHED BY:  DATE: 01/12/22 TIME:  RECEIVED BY:  RECEIVED BY:	100	
DATE: 01/12/22 TIME: RELINQU	0	227
DATE: TIME:	/ S	//50 TIME:
Day 1044	SVED BY: DATE:	

& eurofins	Environment Testing TestAmerica	☐ Discreps	ancie: old	8			Client ID: _ Work Oder	#: 180-	2714
Cooler / Samp After hours recel areas. Place coole form in Receiving	pt: complete gray r in walk-in, place	Rush Receipt Eval	24 H uation	Ir 🗀	2-Da	ay [] 3-Day [] ad by: Initials: ]	5-Day Dote:	ther:	(150
Fed Ex Tracking			ooler lone lone lockin lastic ubble acking	g Ma Bag Wra g Pea	Box Other ateria s F p F anuts	cam C	Yes	t used or recenterials:    Ice (M	ulred)
Bacteriological Samples	Temp Corrected (*C)	Frozen Yes	? No	ı	Rec'd Yes	Within 2 Hrs? No	Sample Yes	Flagged? No	
Receipt Temper	ne day sampled? Ye stures Observed (°C) Corrected (°C)  5.0  5.0		Sam	ple To	emp	Acceptable Co	oler ID Affe	cted Samples	
Receipt Temper Thermometer ID C C 313201	atures  bserved (°C)   Corrected (°C)		Sam	ple To	emp	_Y _N _			
Receipt Temper Thermometer ID C C 313201  Receipt Questions* CoC present and ET	atures Observed (°C) Corrected (°C)  5.0 S.0  A receipt signature, date, an	C) Temp Blank	Sam		<u>-</u>	_Y _N _ _Y _N _			
Receipt Temper Thermometer ID THE STATE OF T	atures  Observed (°C) Corrected (°C)  5.0 S.0  A receipt signature, date, and is in good condition? (unbroubels legible & attached)	C) Temp Blank	Sem		<u>-</u>	Y N L Y N L Y N L	require addi	itional comm	ent
Receipt Temper Thermometer ID C P31320-1  Receipt Questions* COC present and ET ocumented? Containers and Labe appropriately filled, is	atures Observed (°C) Corrected (°C)  5.0 S.Q  A receipt signature, date, and is in good condition? (unbroubels legible & attached) Trailing used and adequate volumers.	C) Temp Blank	Sem		<u>-</u>	Y N Y N Y N Y N Y N Y N Y N Y N Y N Y N	require addi	itional comm	ent
Receipt Temper Thermometer ID P313201  Receipt Questions* CoC present and ET- locumented? Containers and Labe appropriately filled, its Appropriately filled, its Appropriates contained.	A receipt signature, date, an abels legible & attached) rs used and adequate volumentainers match CoC?	C) Temp Blank	Sem		<u>-</u>	Y N L Y N L Y N L	require addi	itional comm	ent
Receipt Temper Thermometer ID C P313201  Receipt Questions* CoC present and ET. locumented? Containers and Labe appropriately filled, its Appropriately filled, its Appropriates contained furnities of sample of samples received with the propriate submitted for the propriate submitte	A receipt signature, date, an is in good condition? (unbroabels legible & attached) is used and adequate volumentainers match CoC? (inin hold?)	Temp Blank  In the property  Id time property  Iken, not leaking,  The provided?	Sam		NA NA	Y N Y N Y N Y N Y N Y N Y N Y N Y N Y N	require addi	itional comm	ent
Receipt Temper Thermometer ID C P31320-1  Receipt Questions* CoC present and ET focumented? Containers and Labe appropriately filled, its Appropriately filled, its Appropriately filled for the policy of sample of sample of samples are celved without the property of samples submitted for the property of the pr	atures  Observed (°C) Corrected (°C)  5.0 S.0  A receipt signature, date, and is in good condition? (unbroabels legible & attached)  Its used and adequate volumentainers match CoC?  (hin hold?  Or GRO and Volatiles analys)  I headspace?	Temp Blank  In the property  Id time property  Iken, not leaking,  The provided?	Sam		<u>-</u>	Y N Y N Y N Y N Y N Y N Y N Y N Y N Y N	require addi	itional comm	ent
Receipt Temper Thermometer ID C P313201  Receipt Questions* CoC present and ET focumented? Containers and Lebe appropriately filled, for Appropriate	atures  Observed (°C) Corrected (°C)  5.0 S.0  A receipt signature, date, and is in good condition? (unbroubels legible & attached)  Its used and adequate volume antainers match CoC?  Ithin hold?  Or GRO and Volatiles analysis headspace?  eived with VOA samples?	c) Temp Blank  d time properly  ken, not leaking, ne provided?	Sam		NA NA	Y N Y N Y N Y N Y N Y N Y N Y N Y N Y N	require addi	itional comm	ent
Receipt Temper Thermometer ID P313201  Receipt Questions* CoC present and ET. documented? Containers and Labe appropriately filled, for Appropriately filled, for Appropriate containers sumples received without Was a Trip Blank received without	atures Observed (°C) Corrected (°C)  5.0 S.0  A receipt signature, date, and is in good condition? (unbroable) legible & attached) Its used and adequate volumentainers match CoC? Inin hold? Or GRO and Volatiles analysis headspace? In the of any questionable physical duplicates or mutilple bott cantly vary in appearance—	c) Temp Blank  d time properly  ken, not leaking, ne provided?  is (8260, 624,  cal ties of the same color, solid	Sam		NA NA	Y N Y N Y N Y N Y N Y N Y N Y N Y N Y N	require addi	itional comm	ent
Receipt Temper Thermometer ID P313201  Receipt Questions* CoC present and ET. documented? Containers and Labe appropriately filled, it Samples received without Was a Trip Blank rec Vere the samples free conformities? (i.e.; file ample do not significant reportions, etc.) Vere the CoC bottle inscrepancies or issue the Presided Manager	atures Observed (°C) Corrected (°C)  5.0 S.0  A receipt signature, date, and is in good condition? (unbroable) legible & attached) Its used and adequate volume intainers match CoC? Inin hold?  Or GRO and Volatiles analysis headspace?  elved with VOA samples?  It headspace?  elved with VOA samples?  It headspace?  It hea	c) Temp Blank d time properly ken, not leaking, ne provided? is (8260, 624, cal ties of the same color, solid re of all other dressed with	Sam		NA NA	Y N Y N Y N Y N N Y N N Y N N Y N Y N Y	require addi	itional comm	ent
Receipt Temper Thermometer ID Thermo	atures  Observed (°C) Corrected (°C)  S.0 S.0  A receipt signature, date, and is in good condition? (unbroubels legible & attached)  Is used and adequate volumentainers match CoC?  Ithin hold?  Or GRO and Volatiles analysis headspace?  eived with VOA samples?	c) Temp Blank d time properly ken, not leaking, ne provided? is (8260, 624, cal ties of the same color, solid re of all other dressed with	Sam		NA NA	Y N Y N Y N Y N Y N Y N Y N Y N Y N Y N	require addi	itional comm	ent
Receipt Temper Thermometer ID C P313201  Receipt Questions* CoC present and ET- locumented? Containers and Labe appropriately filled, is amples received without Vas a Trip Blank rec Vere the samples free conformities? (i.e.; file ample do not significate reportions, etc.) Vere the CoC bottle iscrepancies or issue the Project Manager 'May not be applicated.'	atures  Observed (°C) Corrected (°C)  S.0 S.0  A receipt signature, date, and is in good condition? (unbroubels legible & attached)  Is used and adequate volumentainers match CoC?  Ithin hold?  Or GRO and Volatiles analysis headspace?  eived with VOA samples?	d time properly ken, not leaking, ne provided?  is (8260, 624,  cal ties of the same color, solid ne of all other dressed with mpliance testing	Y	N	NA V	Y N Y N Y N Y N Y N Y N Y N Y N Y N Y N	les checked fo	itional comm	ent No

Any additional documentation and clarification from the client must be noted in the narrative end/or scanned into the CoC directory. Date: 1-12-22

Reviewed by

WI-MI-010\_020720

#### **Method Summary**

Client: City of Flint

Project/Site: 2022-01-12-C/Filter Cake

Job ID: 190-27760-2

Method 901.1

**Method Description** 

Radium-226 & Other Gamma Emitters (GS)

Protocol

Laboratory

Fill\_Geo-21

Fill Geometry, 21-Day In-Growth

EPA None

TAL SL TAL SL

**Protocol References:** 

EPA = US Environmental Protection Agency

None = None

Laboratory References:

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