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 **and** deliver two-(2) hard copies as stated in the RFP page 2.

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

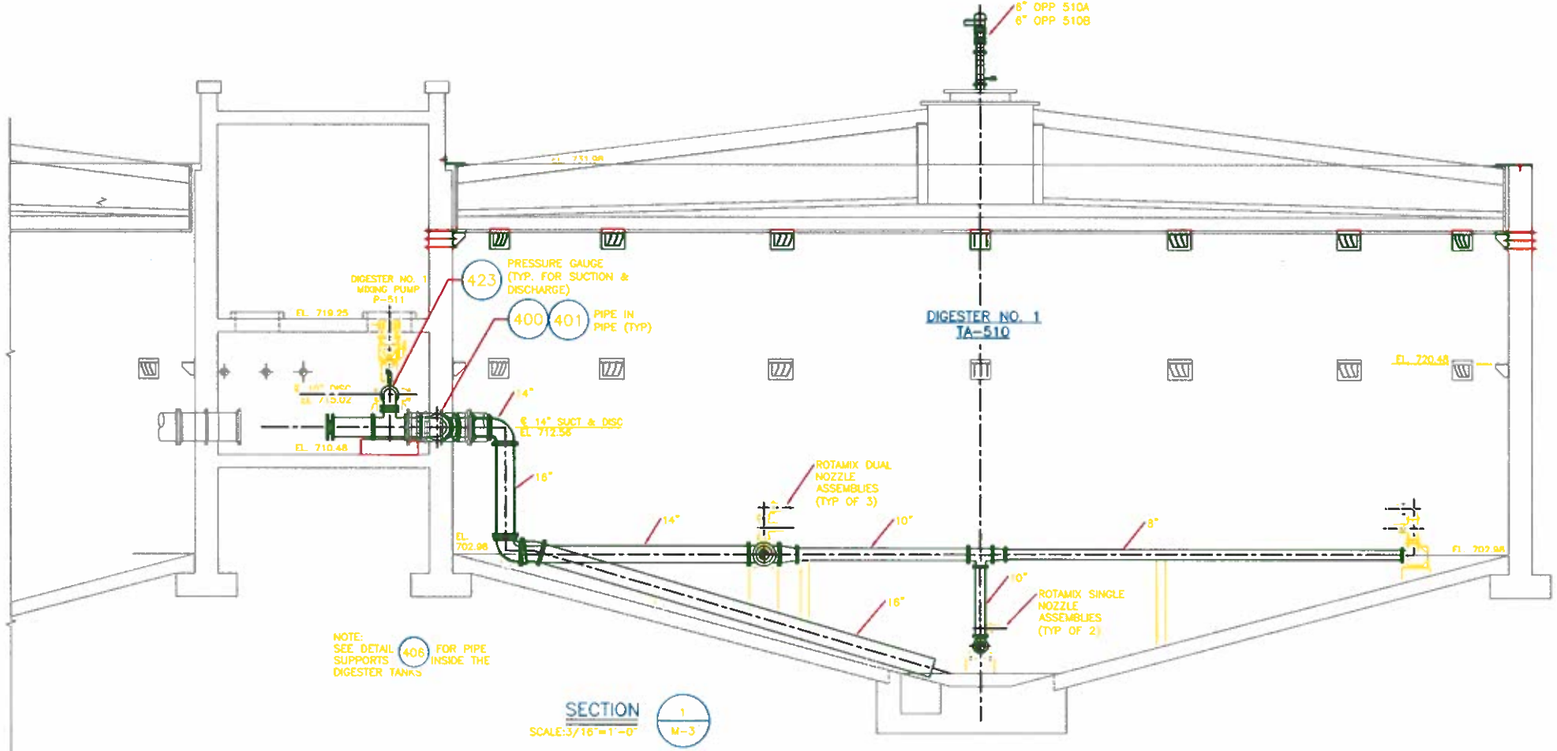
Answer: Polymer type Clarifloc CE-1536 is supplied by Polydyne Inc.

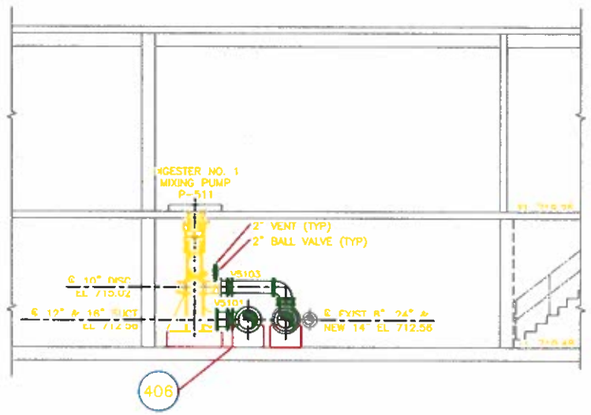
14. Bid states that contractor must start within 7 days of being notified by the City. Is there any wiggle room on this?

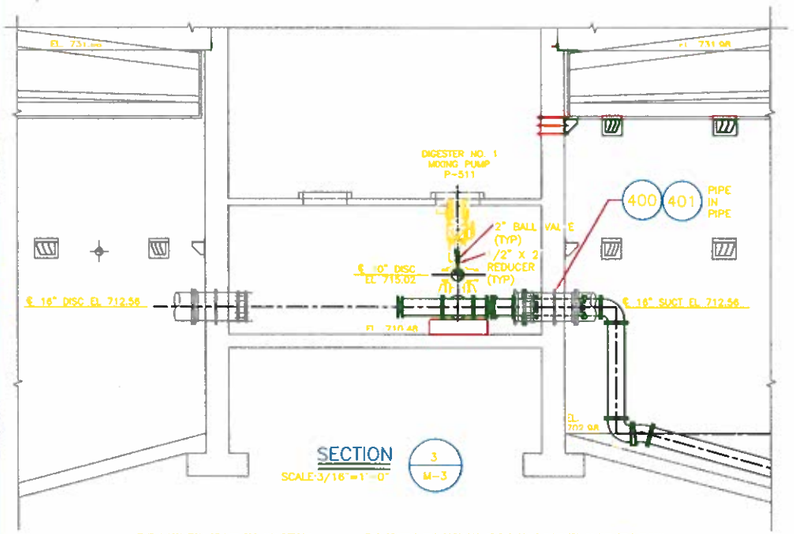
Answer: The City reserves the right to negotiate an extension and/or modifications to the project timeline with the Contractor.

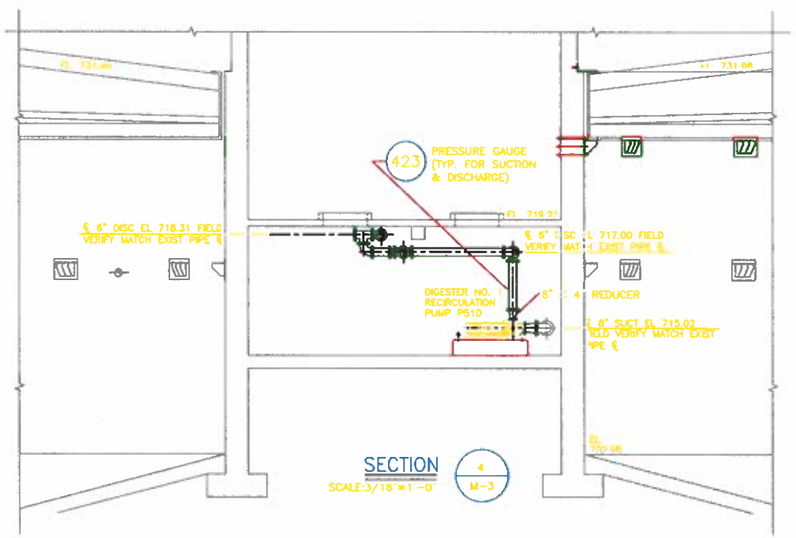
Let me know if you have any additional questions.

Thank you









RECORD
DRAWINGS
for as constructed.
2012 - 03 - 23

NOTES:
1. PRIOR TO EQUIPMENT INSTALLATION THE CONTRACTOR SHALL COAT EXPOSED INTERIOR CONCRETE SURFACES OF THE DIGESTER WALL APPROXIMATELY 6.6 FEET SIDE WALL DEPTH FROM THE TOP OF THE DIGESTER WALL. THE DIGESTER WALLS SHALL BE SURFACE PREPARED WITH ABRASIVE SWEEP BLAST TO A CP 5 STANDARD. PRIOR TO PAINTING, THE SUBSTRATE MUST BE CLEAN DRY AND FREE OF ALL CONTAMINANTS. DIGESTER COATING SHALL BE AS FOLLOWS. 1ST COAT- TNEMEC SERIES 218 APPLIED AT 1/16", OR EQUAL 2ND COAT - TENNEMEC SERIES 436 APPLIED AT 60-80 MILS DRY, OR EQUAL TYPICAL FOR EACH DIGESTER

IN CHARGE OF SLC
DESIGNED BY GJ CHECKED BY TFM
DRAWN BY RDR

3/16"=1'-0" 4 0 4 8 12

NO.	DATE	REVISION	INIT.
2	5/21/10	ISSUED FOR BID	TFM
1	4/30/10	ISSUED FOR FINAL CLIENT REVIEW	TFM
0	3/10/10	ISSUED FOR MDNRE REVIEW AND PERMITTING	TFM

Swedish Biogas INTERNATIONAL
O'BRIEN & GERE

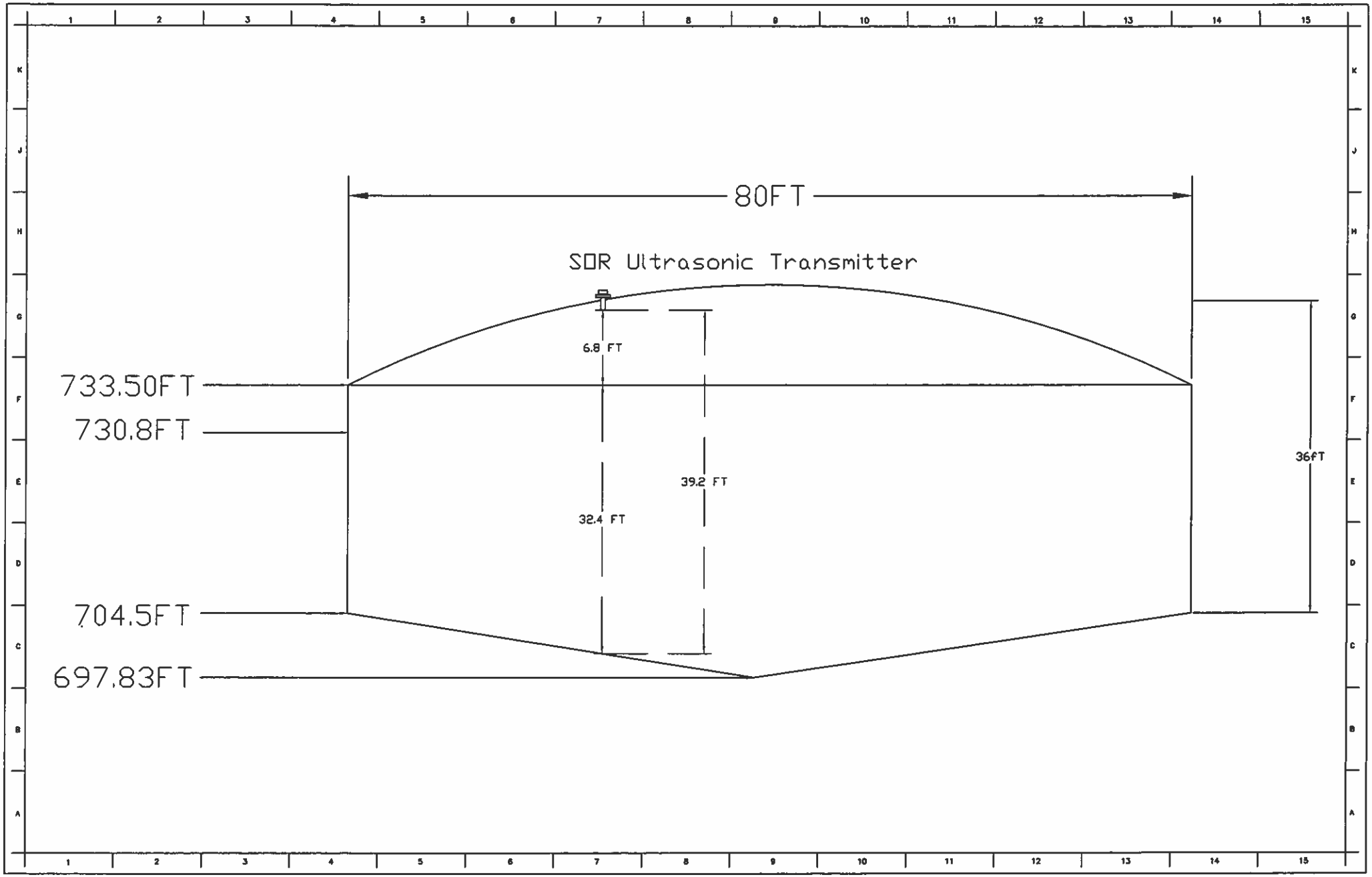
SWEDISH BIOGAS INTERNATIONAL
CITY OF FLINT, MICHIGAN WPC
BIOGAS PLANT ADDITION
FLINT, MICHIGAN

PROCESS MECHANICAL
DIGESTER CONTROL BLDG & STOR TANKS
SECTIONS

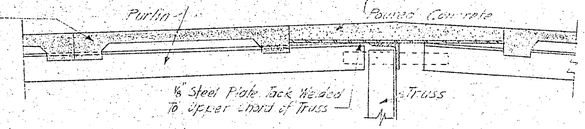
FILE NO. 14745.45094-M05
DATE MAY 2010

M-6

FILENAME: C:\USERS\CAMTLE_DOCUMENTS\FLINT\DWGS\BID READY SET\AUTOCAD DRAWINGS\SWEDISH BIOGAS - MECHANICAL\AS BUILTS\14745.45094-M05 #6.DWG
SAVED: 04/18/12 03:42 PM

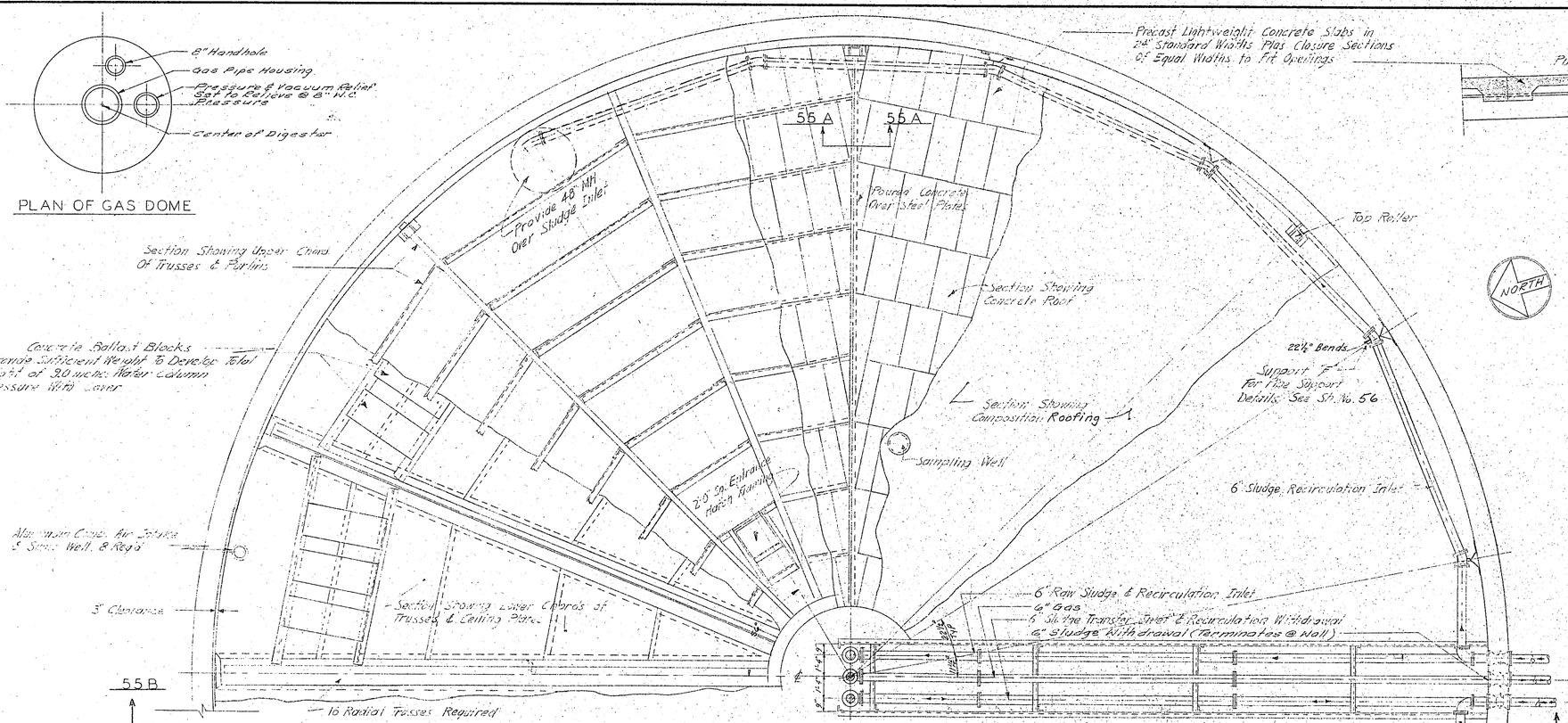

80FT
SOR Ultrasonic Transmitter
6.8 FT
733.50FT
730.8FT
39.2 FT
32.4 FT
36FT
704.5FT
697.83FT

PLAN OF GAS DOME

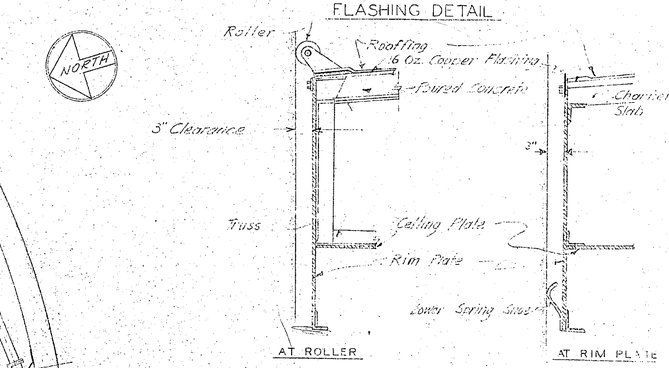


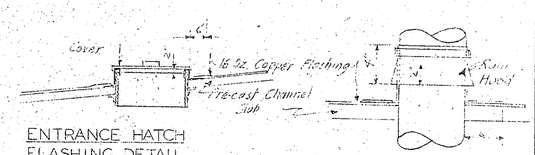
SECTION 55 A

No Scale



PLAN OF DIGESTED SLUDGE STORAGE TANK COVER



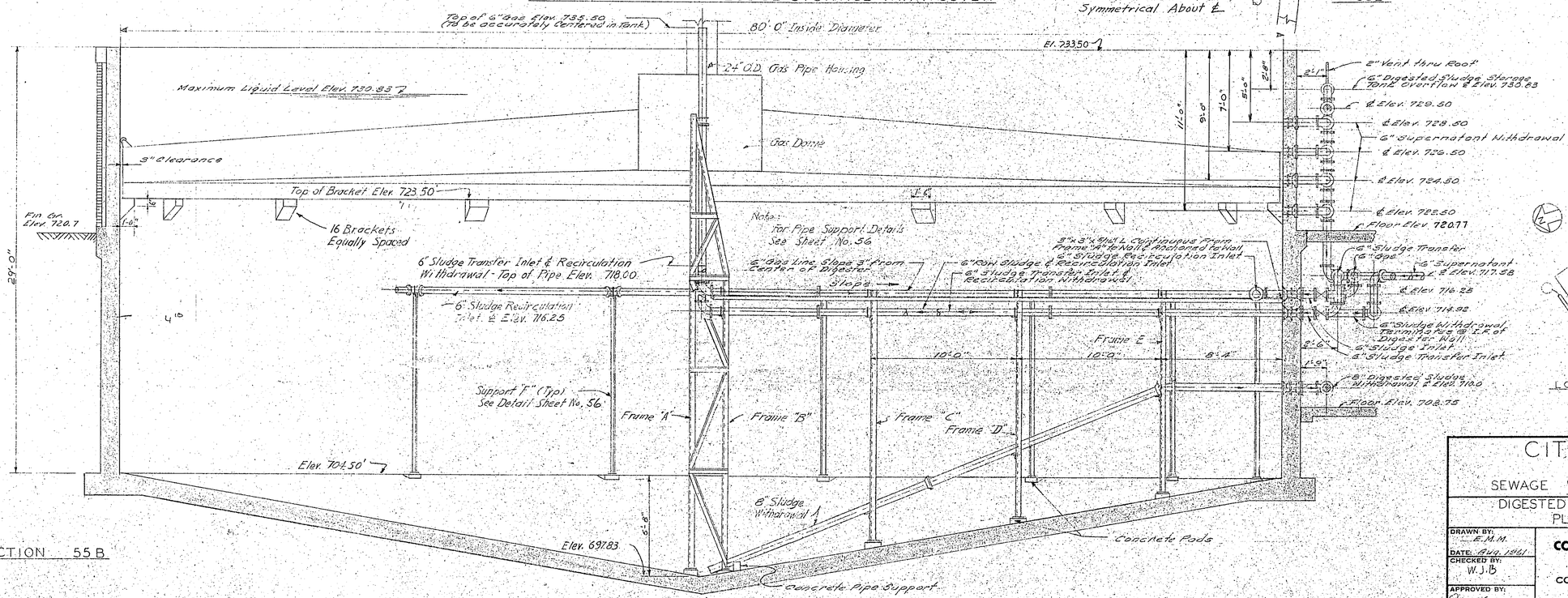


ENTRANCE HATCH FLASHING DETAIL

No Scale

MANHOLE & PIPE FLASHING DETAIL

No Scale



SECTION 55 B

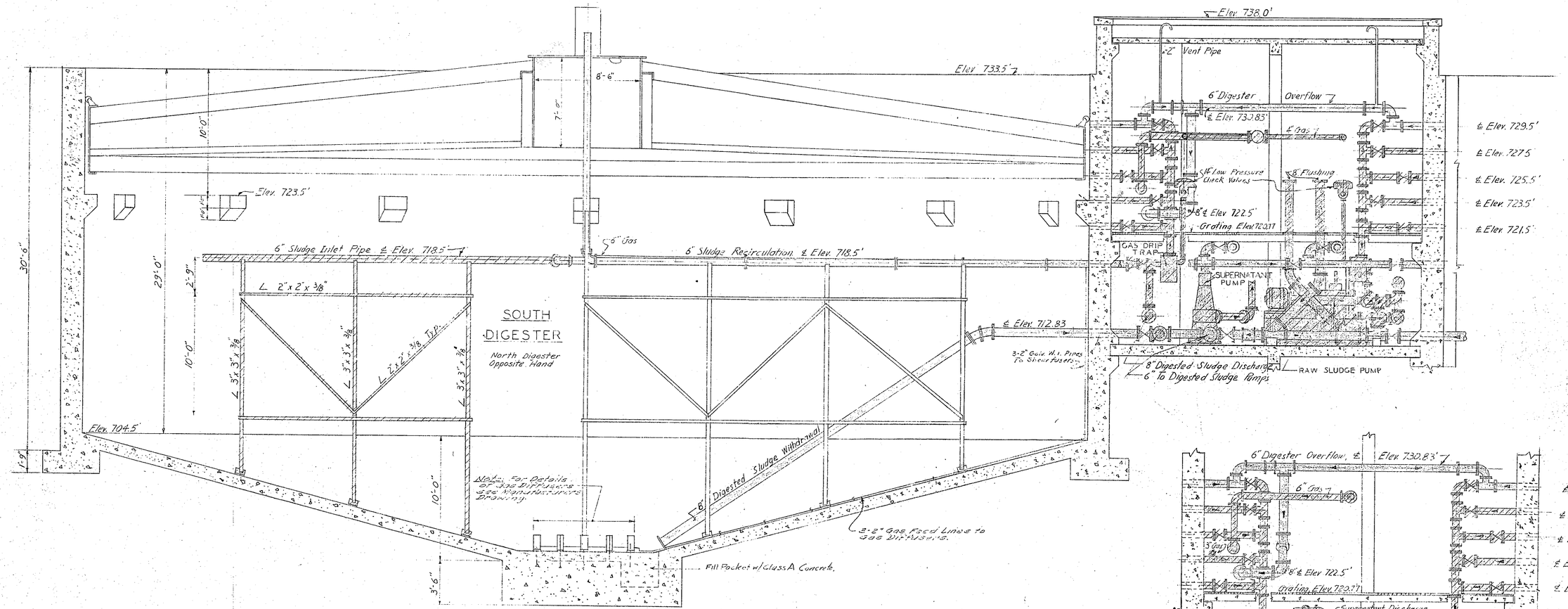
LOCATION MAP

CITY OF FLINT
MICHIGAN
SEWAGE WORKS IMPROVEMENTS

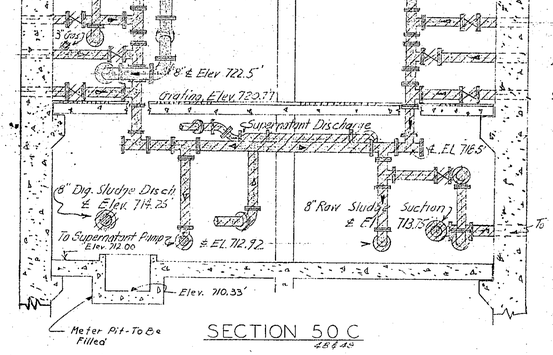
DIGESTED SLUDGE STORAGE TANK
PLAN – SECTION

DRAWN BY: E.M.M.	CONSOER, TOWNSEND & ASSOCIATES	SCALE: 1/4" = 1'-0"
DATE: AUG. 1961		REVISED:
CHECKED BY: W.J.B	CONSULTING ENGINEERS	SHEET NO. 55
APPROVED BY:	CHICAGO, ILL.	OF 186 SHEETS

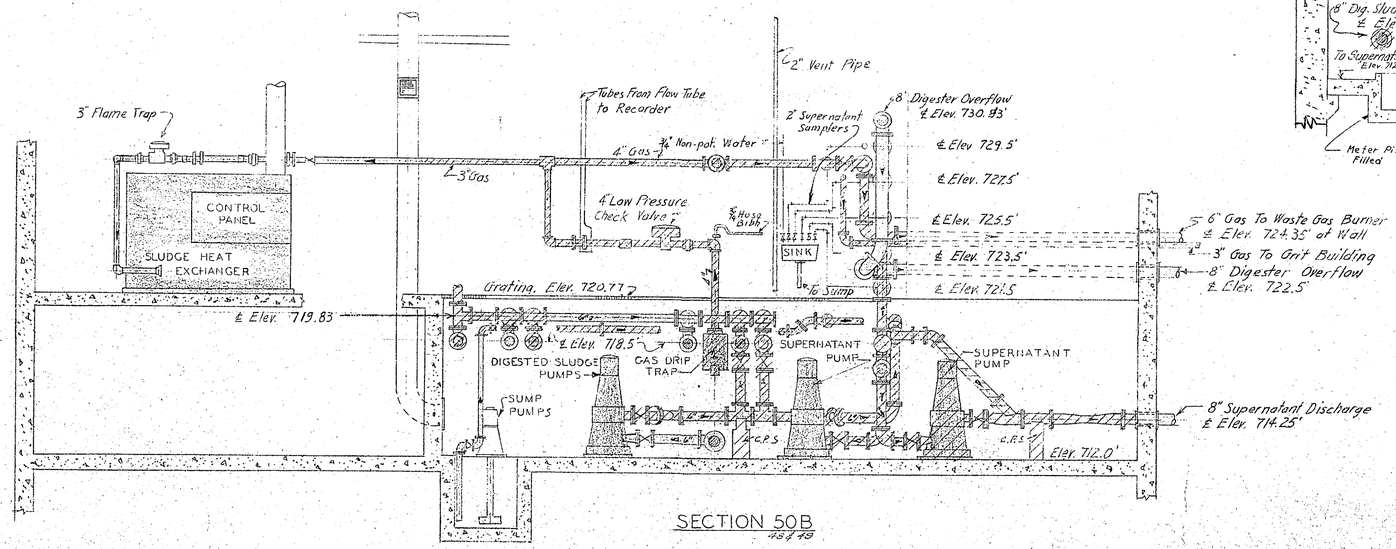
60-221



SECTION 50 A
48 & 49



SECTION 50 C
48 & 49



SECTION 50B
48 & 49

CITY OF FLINT
MICHIGAN
SEWAGE WORKS IMPROVEMENTS

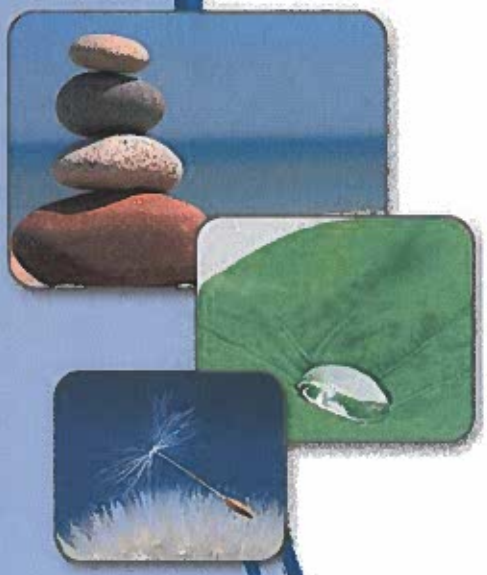
EXISTING DIGESTER & CONTROL BUILDING SECTIONS

DRAWN BY: E.M.M.	CONSOER, TOWNSEND & ASSOCIATES	SCALE: 1/4" = 1'-0"
DATE: Aug. 1961		REVISED:
CHECKED BY: W.J.B	CONSULTING ENGINEERS	
APPROVED BY: [signature]	CHICAGO, ILL.	SHEET NO. 50 OF 186 SHEETS

11/64

60-221

eurofins | Environment Testing America



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 Vid EB 4/20/21
QA/QC Audit EB 4/20/21
Spreadsheet: EB 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.

Table of Contents

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

Job ID: 190-25606-1

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	04/03/21 08:00	

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.

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

Job ID: 190-25606-1

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

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

Analyte	Result	Qualifier	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*

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

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 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-Trichlorophenol	<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*	*04/09/21 14:34*	*1*
Nitrobenzene-d5 (Surr)	*45*		*33 - 120*	*04/07/21 06:30*	*04/09/21 14:34*	*1*
Phenol-d5 (Surr)	*37*		*10 - 120*	*04/07/21 06:30*	*04/09/21 14:34*	*1*
Terphenyl-d14 (Surr)	*59*		*36 - 122*	*04/07/21 06:30*	*04/09/21 14:34*	*1*
2,4,6-Tribromophenol (Surr)	*46*		*33 - 120*	*04/07/21 06:30*	*04/09/21 14:34*	*1*

Method: 8081A - Organochlorine Pesticides (GC) - TCLP

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

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	70		21 - 135	04/13/21 08:00	04/14/21 18:07	1
Tetrachloro-m-xylene	55		33 - 123	04/13/21 08:00	04/14/21 18:07	1

Method: 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	<0.040		0.040	mg/L		04/07/21 06:49	04/08/21 20:02	1
Silvex (2,4,5-TP)	<0.010		0.010	mg/L		04/07/21 06:49	04/08/21 20:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	83		41 - 130	04/07/21 06:49	04/08/21 20:02	1

Method: 6010B - Metals (ICP) - TCLP

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 16:37	1
Barium	<0.50		0.50	mg/L		04/06/21 14:00	04/07/21 16:37	1
Cadmium	<0.050		0.050	mg/L		04/06/21 14:00	04/07/21 16:37	1
Chromium	<0.050		0.050	mg/L		04/06/21 14:00	04/07/21 16:37	1
Lead	<0.050		0.050	mg/L		04/06/21 14:00	04/07/21 16:37	1
Selenium	<0.050		0.050	mg/L		04/06/21 14:00	04/07/21 16:37	1
Silver	<0.050		0.050	mg/L		04/06/21 14:00	04/07/21 16:37	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.0020		0.0020	mg/L		04/06/21 12:00	04/07/21 14:43	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Flashpoint	>200		1.00	Degrees F			04/07/21 13:24	1
pH	8.0	HF	0.1	SU			04/06/21 12:06	1
Free Liquid	CNF		0.10	NONE			04/16/21 03:49	1
Percent Solids	18.3		0.1	%			04/13/21 12:43	1
Percent Moisture	81.7		0.1	%			04/13/21 12:43	1

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	☼	04/06/21 08:55	04/06/21 13:04	1

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%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

Surrogate	*LCS %Recovery*	*LCS 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

Analyte	MB Result	MB 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

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil 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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%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

* BLK in control. Biased high, but still non-detect. EB.

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%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

Surrogate	*MS %Recovery*	*MS 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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	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		121	72 - 124	6	11
Benzene	<0.025		1.00	1.17		mg/L		117	80 - 122	4	11
Carbon tetrachloride	<0.025		1.00	1.12		mg/L		112	68 - 126	6	13
Chlorobenzene	<0.025		1.00	1.04		mg/L		104	80 - 120	3	11
Chloroform	<0.025		1.00	1.20		mg/L		120	80 - 122	4	11
Tetrachloroethene	<0.025		1.00	0.976		mg/L		98	73 - 120	5	14
Trichloroethene	<0.025		1.00	0.994		mg/L		99	69 - 129	6	12
Vinyl chloride	<0.025	F1 *+	1.00	1.42	F1 *	mg/L		142	58 - 141	0	12

Surrogate	*MSD %Recovery*	*MSD 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

Analyte	MB Result	MB 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
2,4-Dinitrotoluene	<0.0040		0.0040	mg/L		04/07/21 06:30	04/09/21 10:17	1
Hexachlorobenzene	<0.00080		0.00080	mg/L		04/07/21 06:30	04/09/21 10:17	1
Hexachlorobutadiene	<0.0040		0.0040	mg/L		04/07/21 06:30	04/09/21 10:17	1
Hexachloroethane	<0.0040		0.0040	mg/L		04/07/21 06:30	04/09/21 10:17	1
2-Methylphenol	<0.0040		0.0040	mg/L		04/07/21 06:30	04/09/21 10:17	1
3 & 4 Methylphenol	<0.0040		0.0040	mg/L		04/07/21 06:30	04/09/21 10:17	1
Nitrobenzene	<0.0040		0.0040	mg/L		04/07/21 06:30	04/09/21 10:17	1
Pentachlorophenol	<0.016		0.016	mg/L		04/07/21 06:30	04/09/21 10:17	1

* BLK is in control. Result biased high, but still non-detect.

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

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Pyridine	<0.0040		0.0040	mg/L		04/07/21 06:30	04/09/21 10:17	1
2,4,5-Trichlorophenol	<0.0040		0.0040	mg/L		04/07/21 06:30	04/09/21 10:17	1
2,4,6-Trichlorophenol	<0.0040		0.0040	mg/L		04/07/21 06:30	04/09/21 10:17	1

Surrogate	*MB %Recovery*	*MB 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*
Terphenyl-d14 (Surr)	*96*		*36 - 122*	*04/07/21 06:30*	*04/09/21 10:17*	*1*
2,4,6-Tribromophenol (Surr)	*75*		*33 - 120*	*04/07/21 06:30*	*04/09/21 10:17*	*1*

Lab Sample ID: LCS 240-480020/14-A
Matrix: Solid
Analysis Batch: 480463

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 480020

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%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

Surrogate	*LCS %Recovery*	*LCS 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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%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

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Methylphenol	<0.0040		0.0800	0.0488		mg/L		61	30 - 120
3 & 4 Methylphenol	<0.0040		0.0800	0.0525		mg/L		65	25 - 120
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

Surrogate	*MS %Recovery*	*MS 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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	<0.0050		0.0050	mg/L		04/13/21 08:00	04/14/21 16:49	1
Endrin	<0.00050		0.00050	mg/L		04/13/21 08:00	04/14/21 16:49	1
gamma-BHC (Lindane)	<0.00050		0.00050	mg/L		04/13/21 08:00	04/14/21 16:49	1
Heptachlor	<0.00050		0.00050	mg/L		04/13/21 08:00	04/14/21 16:49	1
Heptachlor epoxide	<0.00050		0.00050	mg/L		04/13/21 08:00	04/14/21 16:49	1
Methoxychlor	<0.0010		0.0010	mg/L		04/13/21 08:00	04/14/21 16:49	1
Toxaphene	<0.020		0.020	mg/L		04/13/21 08:00	04/14/21 16:49	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*105*		*21 - 135*	*04/13/21 08:00*	*04/14/21 16:49*	*1*
Tetrachloro-m-xylene	*100*		*33 - 123*	*04/13/21 08:00*	*04/14/21 16:49*	*1*

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%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		114	37 - 120
Heptachlor epoxide	0.00100	0.00105		mg/L		105	44 - 120
Methoxychlor	0.00100	0.00117		mg/L		117	36 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl	*101*		*21 - 135*

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

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

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	95		33 - 123

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 240-480025/7-A
Matrix: Solid
Analysis Batch: 480323

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 480025

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	<0.040		0.040	mg/L		04/07/21 06:49	04/08/21 20:45	1
Silvex (2,4,5-TP)	<0.010		0.010	mg/L		04/07/21 06:49	04/08/21 20:45	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	89		41 - 130	04/07/21 06:49	04/08/21 20:45	1

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

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

Surrogate	LCS %Recovery	LCS 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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%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	0.0232		mg/L		93	36 - 120

Surrogate	MS %Recovery	MS 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

Analyte	MB Result	MB 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	04/07/21 15:17	1

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
Prep Batch: 479883

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
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
Silver	<0.050		0.050	mg/L		04/06/21 14:00	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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%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

Analyte	LB Result	LB 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	1
Barium	<0.50		0.50	mg/L		04/06/21 14:00	04/07/21 15:13	1
Cadmium	<0.050		0.050	mg/L		04/06/21 14:00	04/07/21 15:13	1
Chromium	<0.050		0.050	mg/L		04/06/21 14:00	04/07/21 15:13	1
Lead	<0.050		0.050	mg/L		04/06/21 14:00	04/07/21 15:13	1
Selenium	<0.050		0.050	mg/L		04/06/21 14:00	04/07/21 15:13	1
Silver	<0.050		0.050	mg/L		04/06/21 14:00	04/07/21 15:13	1

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	<0.050		5.00	5.12		mg/L		102	75 - 125
Barium	<0.50		50.0	47.4		mg/L		94	75 - 125
Cadmium	<0.050		1.00	1.00		mg/L		100	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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	<0.050		5.00	5.19		mg/L		104	75 - 125	1	20
Barium	<0.50		50.0	48.5		mg/L		96	75 - 125	2	20

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

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
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	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	20
Silver	<0.050		1.00	0.996		mg/L		100	75 - 125	1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-479886/2-A
Matrix: Solid
Analysis Batch: 480250

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 479886

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.0020		0.0020	mg/L		04/06/21 12:00	04/07/21 14:13	1

Lab Sample ID: LCS 240-479886/3-A
Matrix: Solid
Analysis Batch: 480250

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 479886

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00500	0.00495		mg/L		99	80 - 120

Lab Sample ID: LB 240-479756/1-C
Matrix: Solid
Analysis Batch: 480250

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 479886

Analyte	LB Result	LB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.0020		0.0020	mg/L		04/06/21 12:00	04/07/21 14:11	1

Lab Sample ID: 240-146752-B-1-J MS
Matrix: Solid
Analysis Batch: 480250

Client Sample ID: Matrix Spike
Prep Type: TCLP
Prep Batch: 479886

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	<0.0020		0.00500	0.00509		mg/L		102	80 - 120

Lab Sample ID: 240-146752-B-1-K MSD
Matrix: Solid
Analysis Batch: 480250

Client Sample ID: Matrix Spike Duplicate
Prep Type: TCLP
Prep Batch: 479886

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	<0.0020		0.00500	0.00518		mg/L		104	80 - 120	2	20

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

Lab Sample ID: LCS 240-480120/1
Matrix: Solid
Analysis Batch: 480120

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

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

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	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
Matrix: Solid
Analysis Batch: 480343

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 480257

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.50		0.50	mg/Kg		04/08/21 08:26	04/08/21 11:47	1

Lab Sample ID: LCS 240-480257/2-A
Matrix: Solid
Analysis Batch: 480343

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 480257

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	5.71	5.60		mg/Kg		98	65 - 128

Lab Sample ID: 240-146674-B-4-F MS
Matrix: Solid
Analysis Batch: 480343

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 480257

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%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

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 480257

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	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
Analysis Batch: 479908

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 479834

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<30		30	mg/Kg		04/06/21 08:55	04/06/21 12:29	1

Lab Sample ID: LCS 240-479834/2-A
Matrix: Solid
Analysis Batch: 479908

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 479834

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	96.9	74.4		mg/Kg		77	56 - 120

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

Lab Sample ID: 310-203499-B-1-B MS
Matrix: Solid
Analysis Batch: 479908

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 479834

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	<32		102	48.8		mg/Kg	☼	48	10 - 143

Lab Sample ID: 310-203499-B-1-C MSD
Matrix: Solid
Analysis Batch: 479908

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 479834

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

Method: 9045C - pH

Lab Sample ID: LCS 240-479898/2
Matrix: Solid
Analysis Batch: 479898

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	8.47	8.5		SU		100	97 - 103

Lab Sample ID: 240-146959-B-1 DU
Matrix: Solid
Analysis Batch: 479898

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.3		7.5		SU		2	20

Method: 9095A - Paint Filter

Lab Sample ID: 190-25606-1 DU
Matrix: Solid
Analysis Batch: 481437

Client Sample ID: CITY OF FLINT WPC FILTER BELT PRESS
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Free Liquid	CNF		CNF		NONE		NC	20

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
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	18.3		17.4		%		6	20
Percent Moisture	81.7		82.6		%		1	20

GC/MS VOA

Leach Batch: 480603

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	
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 ID	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	
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 ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-25606-1	CITY OF FLINT WPC FILTER BELT PRESS	TCLP	Solid	1311	
240-146894-B-1-G MS	Matrix Spike	TCLP	Solid	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	Prep Batch
190-25606-1	CITY OF FLINT WPC FILTER BELT PRESS	TCLP	Solid	8151A	480025
MB 240-480025/7-A	Method Blank	Total/NA	Solid	8151A	480025

GC Semi VOA (Continued)

Analysis 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 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	
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

Metals

Analysis Batch: 480119

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	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-25606-1	CITY OF FLINT WPC FILTER BELT PRESS	TCLP	Solid	7470A	479886
LB 240-479756/1-C	Method Blank	TCLP	Solid	7470A	479886
MB 240-479886/2-A	Method Blank	Total/NA	Solid	7470A	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	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-25606-1	CITY OF FLINT WPC FILTER BELT PRESS	Total/NA	Solid	9030B	
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

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	9045C	
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	Prep Type	Matrix	Method	Prep Batch
190-25606-1	CITY OF FLINT WPC FILTER BELT PRESS	Total/NA	Solid	9034	479834
MB 240-479834/1-A	Method Blank	Total/NA	Solid	9034	479834
LCS 240-479834/2-A	Lab Control Sample	Total/NA	Solid	9034	479834
310-203499-B-1-B MS	Matrix Spike	Total/NA	Solid	9034	479834
310-203499-B-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	9034	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	Solid	9012A	
MB 240-480257/1-A	Method Blank	Total/NA	Solid	9012A	
LCS 240-480257/2-A	Lab Control Sample	Total/NA	Solid	9012A	

General Chemistry (Continued)

Prep Batch: 480257 (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	

Client Sample ID: CITY OF FLINT WPC FILTER BELT PRESS

Lab Sample ID: 190-25606-1

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

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared 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	BPM	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

Lab Sample ID: 190-25606-1

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

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

Job ID: 190-25606-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8270C	Semivolatile Organic Compounds (GC/MS)	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
9034	Sulfide, Acid soluble and Insoluble (Titrimetric)	SW846	TAL CAN
9045C	pH	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
9012A	Cyanide, Total and/or Amenable, Distillation	SW846	TAL CAN
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	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

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
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

d-412

MICHIGAN
190

CITY OF FLINT WATER POLLUTION CONTROL FACILITIES
ENVIRONMENTAL LABORATORY SERVICES SHIPPER/RECEIVER

PROJECT NUMBER: 2021-04-02-D | **PURCHASE ORDER:** 20-002739 | **PROJECT NAME:** Flint WPCF Contract Environmental Monitoring Services

QTY	SAMPLE NUMBER	SAMPLE DATE	SAMPLE TIME	SAMPLE TYPE	SAMPLE MEDIUM	SAMPLING LOCATION	NUMBER OF CONTAINERS	ANALYTICAL PARAMETERS	PRICE UNIT	PRICE EXTENDED
1		03/31/21	N/A	24 HC	Filter Cake	City of Flint WPC Filter Belt Press	1 bottle	Hazardous waste characteristics: Corrosivity and Free Liquids	$13.00	$13.00
1		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-volatiles; pesticides, and herbicides	$613.00	$613.00
									TOTAL PRICE	$626.00

SAMPLE CONDITION: Joel Kalash

SAMPLE LOCATION:

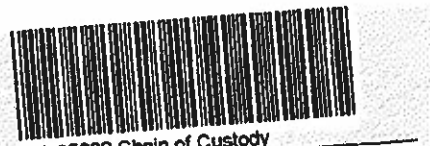
RELINQUISHED BY: Joel Kalash	**DATE:** 04/02/21	**TIME:** 9:05	**RECEIVED BY:**	**DATE:**	**TIME:**
RECEIVED BY: Colby Mole	**DATE:** 04/02/21	**TIME:** 9:05	**RELINQUISHED BY:** Colby Mole	**DATE:** 4/2/21	**TIME:** 9:05
RELINQUISHED BY:	**DATE:**	**TIME:**	**RECEIVED BY:** Adam Powell	**DATE:** 4-5-21 ETM	**TIME:** 0800

SPECIAL REQUESTS:

REPORT TO: Brad Hill, Environmental Compliance Supervisor, Water Pollution Control Facilities, G-4652 Beecher Rd., Flint, MI 48532; 810-230-3152 (phone) and 810-230-3154 (fax).

QC report audited by EB on 4/20/21. Invoice checked and forwarded by EB on 4/20/21. Data entered by EB on 4/20/21.

19000078 AG Solid Waste Characterization



Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # : 190-25606**
Canton Facility

Client CT DEP Pollution Site Name

Cooler Received on 4-3-21 Opened on 4-3-21

Cooler unpacked by: Adam Gentry

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # TA Foam Box Client Cooler Box Other

Packing material used: Bubble Wrap Foam Plastic Bag None Other

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-11 (CF +0.1 °C) Observed Cooler Temp. 2.4 °C Corrected Cooler Temp. 2.5 °C
   IR GUN #IR-12 (CF +0.2°C) Observed Cooler Temp. °C Corrected Cooler Temp. °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	Yes	No
-Were the seals on the outside of the cooler(s) signed & dated?	Yes	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	No
-Were tamper/custody seals intact and uncompromised?	Yes	No NA
3. Shippers' packing slip attached to the cooler(s)?	Yes	No
4. Did custody papers accompany the sample(s)?	Yes	No
5. Were the custody papers relinquished & signed in the appropriate place?	Yes	No
6. Was/were the person(s) who collected the samples clearly identified on the COC?	Yes	No
7. Did all bottles arrive in good condition (Unbroken)?	Yes	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), and sample type of grab/comp (Y/N)?		
10. Were correct bottle(s) used for the test(s) indicated?	Yes	No
11. Sufficient quantity received to perform indicated analyses?	Yes	No
12. Are these work share samples and all listed on the COC?	Yes	No
If yes, Questions 13-17 have been checked at the originating laboratory.		
13. Were all preserved sample(s) at the correct pH upon receipt?	Yes	No NA pH Strip Lot# HC022887
14. Were VOAs on the COC?	Yes	No
15. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	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

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM Date by via Verbal Voice Mail Other

Concerning

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page

Samples processed by:

19. SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.
Sample(s) were received in a broken container.
Sample(s) were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory.
Time preserved: Preservative(s) added/Lot number(s):

VOA Sample Preservation - Date/Time VOAs Frozen:

WI-NC-099

Method Summary

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

Job ID: 190-25606-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8270C	Semivolatile Organic Compounds (GC/MS)	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
9034	Sulfide, Acid soluble and Insoluble (Titrimetric)	SW846	TAL CAN
9045C	pH	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
9012A	Cyanide, Total and/or Amenable, Distillation	SW846	TAL CAN
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	TAL CAN

Protocol References:

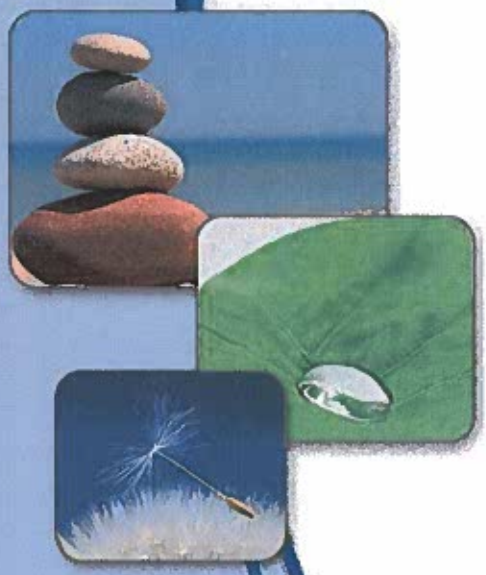
EPA = US Environmental Protection Agency

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

eurofins | Environment Testing America



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 Sulfur added to this job.

Data Qualifiers rvd EB 5/6/21
QA/QC Audit EB 5/6/21

Table of Contents

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	04/03/21 08:00	

Case Narrative

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

Job ID: 190-25606-2

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.

Client Sample Results

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

Job ID: 190-25606-2

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

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfur	21000		130		mg/Kg	☼	04/27/21 10:00	04/28/21 11:17	1

General Chemistry - Soluble

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

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 310-313776/1-A
Matrix: Solid
Analysis Batch: 314327

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 313776

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfur	<22		22	mg/Kg		04/27/21 10:00	04/28/21 11:02	1

Lab Sample ID: LCS 310-313776/2-A
Matrix: Solid
Analysis Batch: 314327

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 313776

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfur	1770	1930		mg/Kg		109	80 - 120

Lab Sample ID: 310-204937-B-1-B MS
Matrix: Solid
Analysis Batch: 314327

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 313776

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfur	2200		24500	28100		mg/Kg	☼	106	75 - 125

Lab Sample ID: 310-204937-B-1-C MSD
Matrix: Solid
Analysis Batch: 314327

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 313776

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfur	2200		23600	27800		mg/Kg	☼	109	75 - 125	1	20

Lab Sample ID: 310-204974-B-4-C DU
Matrix: Solid
Analysis Batch: 314327

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 313776

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfur	25		55.9	F3	mg/Kg	☼	77	20

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 240-483872/1-A
Matrix: Solid
Analysis Batch: 483880

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<10		10	mg/Kg			05/03/21 16:40	1

Lab Sample ID: LCS 240-483872/2-A
Matrix: Solid
Analysis Batch: 483880

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	481	479		mg/Kg		100	90 - 110

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

Lab Sample ID: 190-25606-1 MS
Matrix: Solid
Analysis Batch: 483880

Client Sample ID: CITY OF FLINT WPC FILTER BELT PRESS
Prep Type: Soluble

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

Lab Sample ID: 190-25606-1 MSD
Matrix: Solid
Analysis Batch: 483880

Client Sample ID: CITY OF FLINT WPC FILTER BELT PRESS
Prep Type: Soluble

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

QC Association Summary

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

Job ID: 190-25606-2

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	3050B	
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	
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

Lab Chronicle

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

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared 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

d-412

MICHIGAN

190

CITY OF FLINT WATER POLLUTION CONTROL FACILITIES
ENVIRONMENTAL LABORATORY SERVICES SHIPPER/RECEIVER

PROJECT NUMBER: 2021-04-02-D | **PURCHASE ORDER:** 20-002739 | **PROJECT NAME:** Flint WPCF Contract Environmental Monitoring Services

QTY	SAMPLE NUMBER	SAMPLE DATE	SAMPLE TIME	SAMPLE TYPE	SAMPLE MEDIUM	SAMPLING LOCATION	NUMBER OF CONTAINERS	ANALYTICAL PARAMETERS	PRICE UNIT	PRICE EXTENDED
1		03/31/21	N/A	24 HC	Filter Cake	City of Flint WPC Filter Belt Press	1 bottle	Hazardous waste characteristics: Corrosivity and Free Liquids	$13.00	$13.00
1		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-volatiles; pesticides, and herbicides	$613.00	$613.00
									TOTAL PRICE	$626.00

SAMPLE CONDITION: Joel Kalish

SAMPLE LOCATION:

RELINQUISHED BY: Joel Kalish	**DATE:** 04/02/21	**TIME:** 9:05	**RECEIVED BY:**	**DATE:**	**TIME:**
RECEIVED BY: Colby Mole	**DATE:** 04/02/21	**TIME:** 9:05	**RELINQUISHED BY:** Colby Mole	**DATE:** 4/2/21	**TIME:** 9:05
RELINQUISHED BY:	**DATE:**	**TIME:**	**RECEIVED BY:** Adam Spencer	**DATE:** 4-3-21 ETM	**TIME:** 0800

SPECIAL REQUESTS:

REPORT TO: Brad Hill, Environmental Compliance Supervisor, Water Pollution Control Facilities, G-4652 Beecher Rd., Flint, MI 48532; 810-230-3152 (phone) and 810-230-3154 (fax).

QC report audited by EB on 5/6/21. Invoice checked and forwarded by EB on 5/6/21. Data entered by EB on 5/6/21.

19000078 AG Solid Waste Characterization

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # : 190-256066**
Canton Facility

Client CUF Pollution Site Name _____ Cooler unpacked by: Adam Gentry

Cooler Received on 4-3-21 Opened on 4-3-21

FedEx: 1st Grd Exp UPS FAS (Clipper) Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # T4 Foam Box Client Cooler Box Other _____

Packing material used: (Bubble Wrap) Foam Plastic Bag None Other _____

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-11 (CF +0.1 °C) Observed Cooler Temp. 2.4 °C Corrected Cooler Temp. 2.5 °C
   IR GUN #IR-12 (CF +0.2°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 (Yes) No
   -Were the seals on the outside of the cooler(s) signed & dated? (Yes) No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes (No)
   -Were tamper/custody seals intact and uncompromised? (Yes) No NA
3. Shippers' packing slip attached to the cooler(s)? Yes (No)
4. Did custody papers accompany the sample(s)? (Yes) No
5. Were the custody papers relinquished & signed in the appropriate place? (Yes) No
6. Was/were the person(s) who collected the samples clearly identified on the COC? (Yes) No
7. Did all bottles arrive in good condition (Unbroken)? (Yes) 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), and sample type of grab/comp (Y/N)?
10. Were correct bottle(s) used for the test(s) indicated? (Yes) No
11. Sufficient quantity received to perform indicated analyses? (Yes) No
12. Are these work share samples and all listed on the COC? Yes (No)
    If yes, Questions 13-17 have been checked at the originating laboratory.
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No (NA) pH Strip Lot# HC022887
14. Were VOAs on the COC? Yes (No)
15. Were air bubbles >6 mm in any VOA vials? ● ← Larger than this. 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)

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page

Samples processed by:

19. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

WI-NC-099

eurofins | Environment Testing TestAmerica

190-25606 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: TA SUB CONTRACT

City/State: CITY CEDAR FALLS STATE IA | Project: FILTER CHICC

Receipt Information

Date/Time Received: DATE 4/22/21 TIME 0930 | Received By: RM

Delivery Type: ☐ UPS ☒ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes ☐ No	*If yes:* Cooler ID: CRA
Multiple Coolers?	☐ Yes ☒ No	*If yes:* Cooler # _____ of _____
Cooler Custody Seals Present?	☐ Yes ☒ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes ☒ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes ☒ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☐ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: 0 | Correction Factor (°C): 0.0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): | Corrected Temp (°C):

• **Sample Container Temperature**

	CONTAINER 1	CONTAINER 2
Container(s) used:	OUT CF / 25606	
Uncorrected Temp (°C):	4.6	
Corrected Temp (°C):	4.6	

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

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

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Schafer, Sue	Carrier Tracking No(s):	COC No: 240-135311.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Sue.Schafer@Eurofinset.com	State of Origin: Michigan	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc		Accreditations Required (See note):		Job #: 190-25606-2
Address: 3019 Venture Way,	Due Date Requested: 5/4/2021			
City: Cedar Falls	TAT Requested (days):			
State, Zip: IA, 50613				
Phone: 319-277-2401(Tel) 319-277-2425(Fax)	PO #:			
Email:	WO #:			
Project Name: Filter Cake 2021-04-02-D	Project #: 19000078			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C/30508 SULFUR	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
CITY OF FLINT WPC FILTER BELT PRESS (190-25606-1)	3/31/21	Eastern		Solid			X	1	

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

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

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

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	[signature]	4-21-21 1807	ETA	[signature]	4/22/21 0930	
2	Relinquished by:	Date/Time	Company	Received by:	Date/Time	Company
3	Relinquished by:	Date/Time	Company	Received by:	Date/Time	Company

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

Ver: 11/01/2020

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

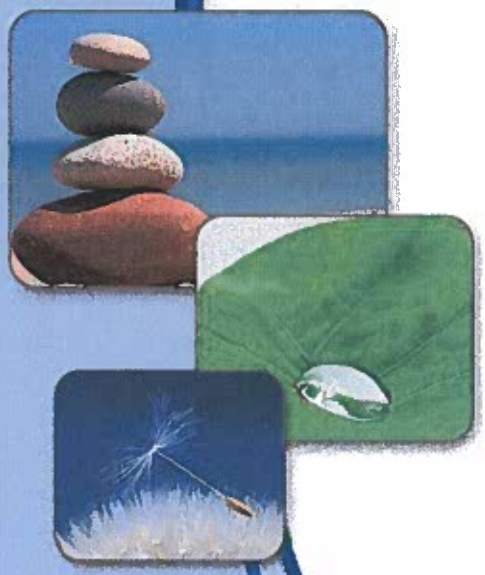
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

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

eurofins | Environment Testing America



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:
City of Flint
PO BOX 246
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 Red EB 6/11/21
QA/QC Audit: EB 6/11/21

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

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.

Table of Contents

Sample Summary

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

Job ID: 190-25923-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
190-25923-1	City of Flint WPC Filter Belt Press	Solid	05/09/21 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

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.

Client Sample Results

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

Job ID: 190-25923-1

Client Sample ID: City of Flint WPC Filter Belt Press

Lab Sample ID: 190-25923-1

Date Collected: 05/09/21 00:00 ✓
Date Received: 05/14/21 15:09

Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	18.6 ✓		0.1 ✓	%			05/26/21 13:19 ✓	1
Percent Moisture	81.4		0.1	%			05/26/21 13:19	1

Client Sample ID: City of Flint WPC Filter Belt Press

Lab Sample ID: 190-25923-1

Date Collected: 05/09/21 00:00 ✓
Date Received: 05/14/21 15:09

Matrix: Solid
Percent Solids: 18.6

General Chemistry - Soluble

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

Method: 9056A - Anions, Ion Chromatography ✓

Lab Sample ID: MB 240-486844/1-A
Matrix: Solid
Analysis Batch: 486845

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<10 ✓		10 ✓	mg/Kg			05/21/21 05:23 ✓	1

Lab Sample ID: LCS 240-486844/2-A
Matrix: Solid
Analysis Batch: 486845

Client Sample ID: Lab Control Sample
Prep Type: Soluble

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

Method: Moisture - Percent Moisture

Lab Sample ID: 240-150071-D-5 DU
Matrix: Solid
Analysis Batch: 487659

Client Sample ID: Duplicate
Prep Type: Total/NA

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

QC Association Summary

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

Job ID: 190-25923-1

General Chemistry

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 Sample 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	

Lab Chronicle

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

Job ID: 190-25923-1

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

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared 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

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared 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

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

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

CITY OF FLINT WATER POLLUTION CONTROL FACILITIES
ENVIRONMENTAL LABORATORY SERVICES SHIPPER/RECEIVER

PROJECT NUMBER: 2021-05-14-A | **PURCHASE ORDER:** 20-002739 | **PROJECT NAME:** Flint WPCF Contract Environmental Monitoring Services

QTY	SAMPLE					SAMPLING LOCATION	NUMBER OF CONTAINERS	ANALYTICAL PARAMETERS	PRICE	
	NUMBER	DATE	TIME	TYPE	MEDIUM				UNIT	EXTENDED
1		05/09/21	N/A	24 HC	Filter Cake	City of Flint WPC Filter Belt Press	1 bottle	Total Sulfates	$30.00	$30.00
									TOTAL PRICE	$30.00

SAMPLE CONDITION:			SAMPLE LOCATION:		
RELINQUISHED BY: Eric Brubaker	DATE: 05/14/21	TIME: 9:58 a.m.	RECEIVED BY: Jeff Hall	DATE: 5/14/21	TIME: 1509
RECEIVED BY: Amanda Bathke	DATE: 05/14/21	TIME: 10:00 am	RELINQUISHED BY:	DATE:	TIME:
RELINQUISHED BY: Amanda Bathke	DATE: 5/14/21	TIME: 1450	RECEIVED BY:	DATE:	TIME:

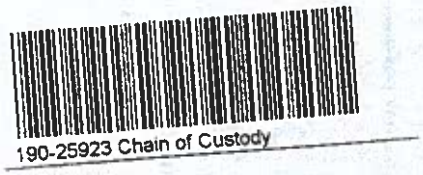
SPECIAL REQUESTS:

REPORT TO: Eric Brubaker, Laboratory Supervisor, Water Pollution Control Facilities, G-4652 Beecher Rd., Flint, MI 48532; 810-230-3152 (phone) and 810-230-3154 (fax).

QC report audited by EB on 6/11/21. Invoice checked and forwarded by EB on 6/11/21. Data entered by EB on 6/11/21

Project: 19000078
AG - Filter Cake/Grit (pick 9056 only)

MICHIGAN
190



eurofins | Environment Testing TestAmerica

☐ SDS or Known Hazard Information Supplied by Client
☐ Discrepancies
☐ Short Hold
☐ Rush ☐ 24 Hr ☐ 2-Day ☐ 3-Day ☐ 5-Day ☐ Other: _____

Client ID: City of Flint
Work Oder #: 190-25923

Receipt Evaluation Performed by: Initials: TRH Date: 5-14-21 Time: 1509

Cooler / Sample Receipt

After hours receipt: complete gray areas. Place cooler in walk-in, place form in Receiving box. Date: _____ Time: _____

Method of Shipment:
Walk-In Client Eurofins TA Field/Courier
Other Client / 3rd Party Courier: _____
Fed Ex Tracking #: _____
UPS Tracking #: _____
Other: _____

Shipping Container Type:
☑ Cooler ☐ Box
☐ None ☐ Other: _____

Custody Seals Intact:
☐ Yes ☐ No
☑ NA (not used or required)

Packing Materials:
☐ Plastic Bags ☐ Foam
☑ Bubble Wrap ☐ Paper
☐ Packing Peanuts ☐ None
☐ Other: _____

Cooling Materials:
☑ Ice (Solid) ☐ Ice (Melted)
☐ Blue Ice ☐ None
☐ Other: _____

Bacteriological Samples	Temp Corrected (°C)	Frozen? Yes	Frozen? No	Rec'd Within 2 Hrs? Yes	Rec'd Within 2 Hrs? No	Sample Flagged? Yes	Sample Flagged? No

Received on same day sampled? Yes (No) Additional Sheets Required? (Yes) No

Receipt Temperatures

Thermometer ID	Observed (°C)	Corrected (°C)	Temp Blank	Sample Temp	Acceptable	Cooler ID	Affected Samples
CP313209	6.5	6.5		✓	✓ Y _ N		
					_ Y _ N		
					_ Y _ N		

Receipt Questions**	Y	N	NA	"No" answers require additional comment
CoC present and ETA receipt signature, date, and time properly documented?	✓			
Containers and Labels in good condition? *(unbroken, not leaking, appropriately filled, labels legible & attached)*	✓			
Appropriate containers used and adequate volume provided?	✓			Preserved bottles checked for pH?* Yes No
Number of sample containers match CoC?	✓			pH strip lot # _____
Samples received within hold?	✓			
Samples submitted for GRO and Volatiles analysis (8260, 624, 524) received without headspace?			✓	
Was a Trip Blank received with VOA samples?			✓	
Were the samples free of any questionable physical conformities? (i.e., field duplicates or multiple bottles of the same sample do not significantly vary in appearance – color, solid proportions, etc.)	✓			
Were the CoC bottle labels and all other items free of all other discrepancies or issues that would need to be addressed with the Project Manager and/or Client?	✓			
**May not be applicable if samples are not for compliance testing				*Excludes FOG, VOAs, TOC Vials, HEM

Client Contact Record

Contact Via: ☐ Phone ☐ Email ☐ Other: _____ Person Contacted: _____ Date/Time: _____
☐ Discrepancy allowance agreement is on record in the client project file

Discussion / Resolution

Any additional documentation and clarification from the client must be noted in the narrative and/or scanned into the CoC directory.

Reviewed by Jen Hall Date 5/14/21

WI-MI-010 020720

Eurofins TestAmerica, Michigan
10448 Citation Drive Suite 200
Brighton, MI 48116
Phone: 810-229-2763 Fax: 810-229-0000

0-7106

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler	Lab PM: Schafer, Sue	Carrier Tracking No(s):	COC No: 190-29384.1
Client Contact: Shipping/Receiving	Phone	E-Mail: Sue.Schafer@Eurofinset.com	State of Origin: Michigan	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 190-25923-1
Address: 4101 Shuffel Street NW,	Due Date Requested: 5/27/2021	Analysis Requested		Preservation Codes:
City: North Canton	TAT Requested (days):			A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Z - other (specify)
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			Other:
Email:	WO #:			
Project Name: 2021-05-14-A/Filter Cake	Project #: 19000078			
Site:	SSOW#:			

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9056A_28D/DI_LEACH Sulfate	Moisture/ Percent Moisture	Total Number of containers	Special Instructions/Note:
			Preservation Code:							W060
City of Flint WPC Filter Belt Press (190-25923-1)	5/9/21	Eastern		Solid			X	X	1	

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

Possible Hazard Identification: Unconfirmed	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

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

Relinquished by	Date/Time: 5/14/2021 1519	Company	Received by: MJS ETA CANTON	Date/Time: MAY 15 2021	Company
Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Relinquished by	Date/Time	Company	Received by	Date/Time	Company

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

Ver. 11/01/2020

Page 13 of 15

5/28/2021

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # :** _____
Canton Facility

Client ETA Michigan Site Name _____ Cooler unpacked by: MJS ETA CANTON

Cooler Received on MAY 15 2021 Opened on MAY 15 2021

FedEx: 1st Grd Exp UPS FAS (Clipper) Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # 1B Foam Box Client Cooler Box Other _____

Packing material used: (Bubble Wrap) Foam ~~Plastic Bag~~ None Other _____

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-11 (CF +0.1 °C) Observed Cooler Temp. 0.7 °C Corrected Cooler Temp. 0.8 °C
   IR GUN #IR-12 (CF +0.2°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 (Yes) No
   -Were the seals on the outside of the cooler(s) signed & dated? (Yes) No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes (No)
   -Were tamper/custody seals intact and uncompromised? (Yes) No NA
3. Shippers' packing slip attached to the cooler(s)? (Yes) No
4. Did custody papers accompany the sample(s)? (Yes) No
5. Were the custody papers relinquished & signed in the appropriate place? (Yes) No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes (No)
7. Did all bottles arrive in good condition (Unbroken)? (Yes) 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), and sample type of grab/comp (Y/N)? (Y) (Y) (Y)
10. Were correct bottle(s) used for the test(s) indicated? (Yes) No
11. Sufficient quantity received to perform indicated analyses? (Yes) No
12. Are these work share samples and all listed on the COC? Yes No
    If yes, Questions 13-17 have been checked at the originating laboratory.
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC022887
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. 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)

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page

Samples processed by:

19. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

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

eurofins | 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

Table of Contents

Sample Summary

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

Job ID: 190-27760-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
190-27760-3	City of Flint WPC Filter Belt Press	Solid	01/11/22 00:00	01/12/22 11:50

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.
Receipt
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:

Inferred from	Reported to Analyte
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 (Continued)

Laboratory: Eurofins Michigan (Continued)

Method FII_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.

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 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Lead-210	-3.58	U	3.37	3.40		6.08	pCi/g	01/13/22 14:44	02/04/22 18:37	1
Radium-226	-0.424	U G	0.333	0.337	1.00	1.04	pCi/g	01/13/22 14:44	02/04/22 18:37	1
Radium-228	0.191	U	0.332	0.333		0.703	pCi/g	01/13/22 14:44	02/04/22 18:37	1

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

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Lead-210	1.474	U	1.71	1.72		2.44	pCi/g	01/13/22 14:44	02/04/22 18:55	1
Radium-226	0.05385	U	0.0407	0.0411	1.00	0.346	pCi/g	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

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium-241	96.3	95.80		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

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Lead-210	-3.58	U	0.4982	U	1.53		2.64	pCi/g	0.83	1
Radium-226	-0.424	U G	0.1076	U	0.298	1.00	0.528	pCi/g	0.84	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	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-27760-3	City of Flint WPC Filter Belt Press	Total/NA	Solid	Fill_Geo-21	
MB 160-546242/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	
LCS 160-546242/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
190-27760-3 DU	City of Flint WPC Filter Belt Press	Total/NA	Solid	Fill_Geo-21	

Lab Chronicle

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

Lab Sample ID: 190-27760-3
Matrix: Solid

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

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared 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

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

Glossary

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

CITY OF FLINT WATER POLLUTION CONTROL FACILITIES
ENVIRONMENTAL LABORATORY SERVICES SHIPPER/RECEIVER

PROJECT NUMBER: 2022-01-12-C | **PURCHASE ORDER:** 22-003989 | **PROJECT NAME:** Flint WPCF Contract Environmental Monitoring Services

QTY	SAMPLE					SAMPLING LOCATION	NUMBER OF CONTAINERS	ANALYTICAL PARAMETERS	PRICE	
	NUMBER	DATE	TIME	TYPE	MEDIUM				UNIT	EXTENDED
1		01/11/22	N/A	24 HC	Filter Cake	City of Flint WPC Filter Belt Press	1 bottle	Hazardous waste characteristics: Corrosivity and Free Liquids	$13.00	$13.00
1		01/11/22	N/A	24 HC	Filter Cake	City of Flint WPC Filter Belt Press	1 bottle	Hazardous waste characteristics: Ignitability; Total Cyanide; Total Sulfide; Reactive Sulfide; Total Sulfates; Total Sulfur; TCLP metals (As, Ba, Cd, Cr, Pb, Hg, Se, and Ag); volatiles; semi-volatiles; PCBs, pesticides, & herbicides	$763.00	$763.00
1		01/11/22	N/A	24 HC	Filter Cake	City of Flint WPC Filter Belt Press	1 bottle	TENORM	$100.00	$100.00
									TOTAL PRICE	$876.00

SAMPLE CONDITION:			**SAMPLE LOCATION:**		
RELINQUISHED BY:	**DATE:** 01/12/22	**TIME:** 9:43	**RECEIVED BY:**	**DATE:** 1-12-22	**TIME:** 1150
RECEIVED BY:	**DATE:** 01/12/22	**TIME:** 9:46	**RELINQUISHED BY:**	**DATE:**	**TIME:**
RELINQUISHED BY:	**DATE:** 1-12-22	**TIME:** 1044	**RECEIVED BY:**	**DATE:**	**TIME:**

SPECIAL REQUESTS:

REPORT TO: Brad Hill, Environmental Compliance Supervisor, Water Pollution Control Facilities, G-4652 Beecher Rd., Flint, MI 48532; 810-230-3152 (phone) and 810-230-3154 (fax).

QC report audited by _____ on _____. Invoice checked and forwarded by _____ on _____. Data entered by _____ on _____.

190-27760 Chain of Custody

eurofins | Environment Testing TestAmerica

☐ SDS or Known Hazard Information Supplied by Client
☐ Discrepancies
☐ Short Hold
☐ Rush ☐ 24 Hr ☐ 2-Day ☐ 3-Day ☐ 5-Day ☐ Other: _____

Client ID: CI Flint
Work Oder #: 180-27760

Receipt Evaluation Performed by: Initials: TH Date: 1-12-12 Time: 1150

Cooler / Sample Receipt

After hours receipt: complete gray areas. Place cooler in walk-in, place form in Receiving box. Date: _____ Time: _____

Method of Shipment:
Walk-In Client Eurofins TA Field/Courier
Other Client / 3rd Party Courier: _____
Fed Ex Tracking #: _____
UPS Tracking #: _____
Other: _____

Shipping Container Type:
☑ Cooler ☐ Box
☐ None ☐ Other: _____

Custody Seals Intact:
☐ Yes ☐ No
☑ NA (not used or required)

Packing Materials:
☐ Plastic Bags ☐ Foam
☑ Bubble Wrap ☐ Paper
☐ Packing Peanuts ☐ None
☐ Other: _____

Cooling Materials:
☑ Ice (Solid) ☐ Ice (Melted)
☐ Blue Ice ☐ None
☐ Other: _____

Bacteriological Samples	Temp Corrected (°C)	Frozen? Yes	Frozen? No	Rec'd Within 2 Hrs? Yes	Rec'd Within 2 Hrs? No	Sample Flagged? Yes	Sample Flagged? No

Received on same day sampled? Yes (No) Additional Sheets Required? Yes (No)

Receipt Temperatures

Thermometer ID	Observed (°C)	Corrected (°C)	Temp Blank	Sample Temp	Acceptable	Cooler ID	Affected Samples
CP3S2071	5.0	5.0			Y N		
					Y N		
					Y N		

Receipt Questions**	Y	N	NA	"No" answers require additional comment
CoC present and ETA receipt signature, date, and time properly documented?	✓			
Containers and Labels in good condition? *(unbroken, not leaking, appropriately filled, labels legible & attached)*	✓			
Appropdate containers used and adequate volume provided?	✓			Preserved bottles checked for pH?* Yes No
Number of sample containers match CoC?	✓			pH strip lot # _____
Samples received within hold?	✓			
Samples submitted for GRO and Volatiles analysis (8260, 624, 524) received without headspace?			✓	
Was a Trip Blank received with VOA samples?			✓	
Were the samples free of any questionable physical conformities? (i.e.; field duplicates or multiple bottles of the same sample do not significantly vary in appearance – color, solid proportions, etc.)	✓			
Were the CoC bottle labels and all other items free of all other discrepancies or issues that would need to be addressed with the Project Manager and/or Client?	✓			
**May not be applicable if samples are not for compliance testing				*Excludes FOG, VOAs, TOC Vials, HEM

Client Contact Record

Contact Via: ☐ Phone ☐ Email ☐ Other: _____ Person Contacted: _____ Date/Time: _____
☐ Discrepancy allowance agreement is on record in the client project file

Discussion / Resolution

Any additional documentation and clarification from the client must be noted in the narrative and/or scanned into the CoC directory.

Reviewed by Litke Date: 1-12-22

WI-MI-010_020720

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