



16-Jun-2018

Robert Koehn
City of Battle Creek
250 Brigden Dr.
Battle Creek, MI 49014

Re: **(City of Battle Creek) Verona Pump Station**

Work Order: **18061033**

Dear Robert,

ALS Environmental received 52 samples on 15-Jun-2018 06:00 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 71.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

A handwritten signature in black ink that reads "Les Arnold".

Electronically approved by: Les Arnold

Les Arnold
Senior Project Manager

Report of Laboratory Analysis

Certificate No: MI: 0022

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental ALS

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Work Order: 18061033

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
18061033-01	██████████	Water		6/15/2018 14:02	6/15/2018 18:00	<input type="checkbox"/>
18061033-02	██████████	Water		6/15/2018 14:16	6/15/2018 18:00	<input type="checkbox"/>
18061033-03	300 North Ave	Water		6/15/2018 14:50	6/15/2018 18:00	<input type="checkbox"/>
18061033-04	██████████████████	Water		6/15/2018 15:19	6/15/2018 18:00	<input type="checkbox"/>
18061033-05	██████████	Water		6/15/2018 14:35	6/15/2018 18:00	<input type="checkbox"/>
18061033-06	7475 B Drive N	Water		6/15/2018 15:03	6/15/2018 18:00	<input type="checkbox"/>
18061033-07	██████████	Water		6/15/2018 14:24	6/15/2018 18:00	<input type="checkbox"/>
18061033-08	1103 Michigan Ave ██████████	Water		6/15/2018 14:48	6/15/2018 18:00	<input type="checkbox"/>
18061033-09	██████████████████	Water		6/15/2018 14:08	6/15/2018 18:00	<input type="checkbox"/>
18061033-10	██████████████████	Water		6/15/2018 13:53	6/15/2018 18:00	<input type="checkbox"/>
18061033-11	Rite Aid	Water		6/15/2018 13:25	6/15/2018 18:00	<input type="checkbox"/>
18061033-12	Credit Union	Water		6/15/2018 13:42	6/15/2018 18:00	<input type="checkbox"/>
18061033-13	Calhoun Co. Med. Center	Water		6/15/2018 14:00	6/15/2018 18:00	<input type="checkbox"/>
18061033-14	Speedway	Water		6/15/2018 14:15	6/15/2018 18:00	<input type="checkbox"/>
18061033-15	Casino	Water		6/15/2018 14:44	6/15/2018 18:00	<input type="checkbox"/>
18061033-16	Harper Creek Middle	Water		6/15/2018 15:08	6/15/2018 18:00	<input type="checkbox"/>
18061033-17	Beckley Station	Water		6/15/2018 15:25	6/15/2018 18:00	<input type="checkbox"/>
18061033-18	City of Springfield	Water		6/15/2018 15:44	6/15/2018 18:00	<input type="checkbox"/>
18061033-19	La Mora School	Water		6/15/2018 16:05	6/15/2018 18:00	<input type="checkbox"/>
18061033-20	Well #13 250 Brigden	Water		6/15/2018 14:10	6/15/2018 18:00	<input type="checkbox"/>
18061033-21	Well #36 250 Brigden	Water		6/15/2018 14:18	6/15/2018 18:00	<input type="checkbox"/>
18061033-22	Well #44 250 Brigden	Water		6/15/2018 14:30	6/15/2018 18:00	<input type="checkbox"/>
18061033-23	Well #42 250 Brigden	Water		6/15/2018 14:40	6/15/2018 18:00	<input type="checkbox"/>
18061033-24	Well #43 250 Brigden	Water		6/15/2018 14:45	6/15/2018 18:00	<input type="checkbox"/>
18061033-25	Well #41 250 Brigden	Water		6/15/2018 14:50	6/15/2018 18:00	<input type="checkbox"/>
18061033-26	Well #40 250 Brigden	Water		6/15/2018 15:00	6/15/2018 18:00	<input type="checkbox"/>
18061033-27	Well #39 250 Brigden	Water		6/15/2018 15:05	6/15/2018 18:00	<input type="checkbox"/>
18061033-28	Well #38 250 Brigden	Water		6/15/2018 15:15	6/15/2018 18:00	<input type="checkbox"/>
18061033-29	Well #37 250 Brigden	Water		6/15/2018 15:20	6/15/2018 18:00	<input type="checkbox"/>
18061033-30	Well #17	Water		6/15/2018 14:02	6/15/2018 18:00	<input type="checkbox"/>
18061033-31	Well #15	Water		6/15/2018 14:08	6/15/2018 18:00	<input type="checkbox"/>
18061033-32	Well #14	Water		6/15/2018 14:12	6/15/2018 18:00	<input type="checkbox"/>
18061033-33	Well #49	Water		6/15/2018 14:25	6/15/2018 18:00	<input type="checkbox"/>
18061033-34	Well #48	Water		6/15/2018 14:30	6/15/2018 18:00	<input type="checkbox"/>
18061033-35	Well #46	Water		6/15/2018 14:33	6/15/2018 18:00	<input type="checkbox"/>
18061033-36	Well #47	Water		6/15/2018 14:37	6/15/2018 18:00	<input type="checkbox"/>
18061033-37	Well #45	Water		6/15/2018 14:40	6/15/2018 18:00	<input type="checkbox"/>
18061033-38	Well #54	Water		6/15/2018 14:47	6/15/2018 18:00	<input type="checkbox"/>
18061033-39	Well #50	Water		6/15/2018 14:53	6/15/2018 18:00	<input type="checkbox"/>

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Work Order: 18061033

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
18061033-40	[REDACTED]	Water		6/15/2018 13:45	6/15/2018 18:00	<input type="checkbox"/>
18061033-41	[REDACTED]	Water		6/15/2018 13:35	6/15/2018 18:00	<input type="checkbox"/>
18061033-42	[REDACTED]	Water		6/15/2018 14:05	6/15/2018 18:00	<input type="checkbox"/>
18061033-43	[REDACTED]	Water		6/15/2018 14:15	6/15/2018 18:00	<input type="checkbox"/>
18061033-44	[REDACTED]	Water		6/15/2018 14:38	6/15/2018 18:00	<input type="checkbox"/>
18061033-45	[REDACTED]	Water		6/15/2018 14:32	6/15/2018 18:00	<input type="checkbox"/>
18061033-46	[REDACTED]	Water		6/15/2018 15:20	6/15/2018 18:00	<input type="checkbox"/>
18061033-47	[REDACTED]	Water		6/15/2018 15:06	6/15/2018 18:00	<input type="checkbox"/>
18061033-48	[REDACTED]	Water		6/15/2018 14:51	6/15/2018 18:00	<input type="checkbox"/>
18061033-49	[REDACTED]	Water		6/15/2018 14:15	6/15/2018 18:00	<input type="checkbox"/>
18061033-50	Well #51	Water		6/15/2018 14:58	6/15/2018 18:00	<input type="checkbox"/>
18061033-51	Well #52	Water		6/15/2018 15:04	6/15/2018 18:00	<input type="checkbox"/>
18061033-52	Well #53	Water		6/15/2018 15:08	6/15/2018 18:00	<input type="checkbox"/>

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Work Order: 18061033

Case Narrative

Samples for the above noted Work Order were received on 06/15/2018. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

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Metals:

Batch 119908, Method ICP_200.8_DW, Sample 18061033-38A: The concentration in the Method Blank was greater than the quantitation limit. The sample result was greater than 10x the concentration in the Method Blank; therefore, no qualification is necessary for this analyte: Mn

Batch 119908, Method ICP_200.8_DW, Sample 18061033-39A: The concentration in the Method Blank was greater than the quantitation limit. The sample result was greater than 10x the concentration in the Method Blank; therefore, no qualification is necessary for this analyte: Mn

Batch 119908, Method ICP_200.8_DW, Sample 18061033-50A: The concentration in the Method Blank was greater than the quantitation limit. The sample result was greater than 10x the concentration in the Method Blank; therefore, no qualification is necessary for this analyte: Mn

No other deviations were noted.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: [REDACTED]
Collection Date: 6/15/2018 02:02 PM

Work Order: 18061033
Lab ID: 18061033-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: JF
Manganese	0.033		0.00026	0.00056	mg/L	1	6/16/2018 08:29

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: [REDACTED]
Collection Date: 6/15/2018 02:16 PM

Work Order: 18061033
Lab ID: 18061033-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: RH
Manganese	0.034		0.00026	0.00056	mg/L	1	6/16/2018 00:29

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: 300 North Ave
Collection Date: 6/15/2018 02:50 PM

Work Order: 18061033
Lab ID: 18061033-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: RH
Manganese	0.0068		0.00026	0.00056	mg/L	1	6/16/2018 00:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: [REDACTED]
Collection Date: 6/15/2018 03:19 PM

Work Order: 18061033
Lab ID: 18061033-04
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: RH
Manganese	0.0012		0.00026	0.00056	mg/L	1	6/16/2018 00:33

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: [REDACTED]
Collection Date: 6/15/2018 02:35 PM

Work Order: 18061033
Lab ID: 18061033-05
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: RH
Manganese	0.00061		0.00026	0.00056	mg/L	1	6/16/2018 00:35

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: 7475 B Drive N
Collection Date: 6/15/2018 03:03 PM

Work Order: 18061033
Lab ID: 18061033-06
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: RH
Manganese	0.014		0.00026	0.00056	mg/L	1	6/16/2018 00:37

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: [REDACTED]
Collection Date: 6/15/2018 02:24 PM

Work Order: 18061033
Lab ID: 18061033-07
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: RH
Manganese	0.00032	J	0.00026	0.00056	mg/L	1	6/16/2018 00:39

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: 1103 Michigan Ave [REDACTED]
Collection Date: 6/15/2018 02:48 PM

Work Order: 18061033
Lab ID: 18061033-08
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: RH
Manganese	U		0.00026	0.00056	mg/L	1	6/16/2018 00:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: [REDACTED]
Collection Date: 6/15/2018 02:08 PM

Work Order: 18061033
Lab ID: 18061033-09
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: RH
Manganese	0.0010		0.00026	0.00056	mg/L	1	6/16/2018 00:47

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: [REDACTED]
Collection Date: 6/15/2018 01:53 PM

Work Order: 18061033
Lab ID: 18061033-10
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: RH
Manganese	0.0029		0.00026	0.00056	mg/L	1	6/16/2018 00:49

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Rite Aid
Collection Date: 6/15/2018 01:25 PM

Work Order: 18061033
Lab ID: 18061033-11
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: JF
Manganese	0.0011		0.00026	0.00056	mg/L	1	6/16/2018 08:35

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Credit Union
Collection Date: 6/15/2018 01:42 PM

Work Order: 18061033
Lab ID: 18061033-12
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: RH
Manganese	0.0041		0.00026	0.00056	mg/L	1	6/16/2018 00:56

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Calhoun Co. Med. Center
Collection Date: 6/15/2018 02:00 PM

Work Order: 18061033
Lab ID: 18061033-13
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: RH
Manganese	0.0036		0.00026	0.00056	mg/L	1	6/16/2018 00:58

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Speedway
Collection Date: 6/15/2018 02:15 PM

Work Order: 18061033
Lab ID: 18061033-14
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: RH
Manganese	0.00027	J	0.00026	0.00056	mg/L	1	6/16/2018 01:00

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Casino
Collection Date: 6/15/2018 02:44 PM

Work Order: 18061033
Lab ID: 18061033-15
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: RH
Manganese	0.00031	J	0.00026	0.00056	mg/L	1	6/16/2018 01:02

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Harper Creek Middle
Collection Date: 6/15/2018 03:08 PM

Work Order: 18061033
Lab ID: 18061033-16
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8			Prep: E200.8 / 6/16/18	Analyst: JF
Manganese	0.013		0.00026	0.00056	mg/L	1	6/16/2018 08:55

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Beckley Station
Collection Date: 6/15/2018 03:25 PM

Work Order: 18061033
Lab ID: 18061033-17
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: RH
Manganese	0.0063		0.00026	0.00056	mg/L	1	6/16/2018 01:04

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: City of Springfield
Collection Date: 6/15/2018 03:44 PM

Work Order: 18061033
Lab ID: 18061033-18
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: RH
Manganese	0.0015		0.00026	0.00056	mg/L	1	6/16/2018 01:12

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: La Mora School
Collection Date: 6/15/2018 04:05 PM

Work Order: 18061033
Lab ID: 18061033-19
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: RH
Manganese	0.0018		0.00026	0.00056	mg/L	1	6/16/2018 01:14

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Well #13 250 Brigden
Collection Date: 6/15/2018 02:10 PM

Work Order: 18061033
Lab ID: 18061033-20
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8			Prep: E200.8 / 6/16/18	Analyst: JF
Manganese	0.56		0.00026	0.00056	mg/L	1	6/16/2018 09:00

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Well #36 250 Brigden
Collection Date: 6/15/2018 02:18 PM

Work Order: 18061033
Lab ID: 18061033-21
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8			Prep: E200.8 / 6/16/18	Analyst: JF
Manganese	0.31		0.00026	0.00056	mg/L	1	6/16/2018 09:02

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Well #44 250 Brigden
Collection Date: 6/15/2018 02:30 PM

Work Order: 18061033
Lab ID: 18061033-22
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8			Prep: E200.8 / 6/16/18	Analyst: JF
Manganese	0.15		0.00026	0.00056	mg/L	1	6/16/2018 09:04

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Well #42 250 Brigden
Collection Date: 6/15/2018 02:40 PM

Work Order: 18061033
Lab ID: 18061033-23
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8			Prep: E200.8 / 6/16/18	Analyst: JF
Manganese	0.30		0.00026	0.00056	mg/L	1	6/16/2018 09:06

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Well #43 250 Brigden
Collection Date: 6/15/2018 02:45 PM

Work Order: 18061033
Lab ID: 18061033-24
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8			Prep: E200.8 / 6/16/18	Analyst: JF
Manganese	0.31		0.00026	0.00056	mg/L	1	6/16/2018 09:07

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Well #41 250 Brigden
Collection Date: 6/15/2018 02:50 PM

Work Order: 18061033
Lab ID: 18061033-25
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8			Prep: E200.8 / 6/16/18	Analyst: JF
Manganese	0.15		0.00026	0.00056	mg/L	1	6/16/2018 09:09

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Well #40 250 Brigden
Collection Date: 6/15/2018 03:00 PM

Work Order: 18061033
Lab ID: 18061033-26
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: JF
Manganese	0.038		0.00026	0.00056	mg/L	1	6/16/2018 09:17

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Well #39 250 Brigden
Collection Date: 6/15/2018 03:05 PM

Work Order: 18061033
Lab ID: 18061033-27
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: RH
Manganese	U		0.00026	0.00056	mg/L	1	6/16/2018 01:15

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Well #38 250 Brigden
Collection Date: 6/15/2018 03:15 PM

Work Order: 18061033
Lab ID: 18061033-28
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8			Prep: E200.8 / 6/16/18	Analyst: JF
Manganese	0.28		0.00026	0.00056	mg/L	1	6/16/2018 09:19

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Well #37 250 Brigden
Collection Date: 6/15/2018 03:20 PM

Work Order: 18061033
Lab ID: 18061033-29
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8			Prep: E200.8 / 6/16/18	Analyst: JF
Manganese	0.23		0.00026	0.00056	mg/L	1	6/16/2018 09:21

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Well #17
Collection Date: 6/15/2018 02:02 PM

Work Order: 18061033
Lab ID: 18061033-30
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8			Prep: E200.8 / 6/16/18	Analyst: JF
Manganese	0.092		0.00026	0.00056	mg/L	1	6/16/2018 09:23

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Well #15
Collection Date: 6/15/2018 02:08 PM

Work Order: 18061033
Lab ID: 18061033-31
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8			Prep: E200.8 / 6/16/18	Analyst: JF
Manganese	0.023		0.00026	0.00056	mg/L	1	6/16/2018 09:25

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Well #14
Collection Date: 6/15/2018 02:12 PM

Work Order: 18061033
Lab ID: 18061033-32
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8			Prep: E200.8 / 6/16/18	Analyst: JF
Manganese	0.071		0.00026	0.00056	mg/L	1	6/16/2018 09:27

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Well #49
Collection Date: 6/15/2018 02:25 PM

Work Order: 18061033
Lab ID: 18061033-33
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8			Prep: E200.8 / 6/16/18	Analyst: JF
Manganese	0.12		0.00026	0.00056	mg/L	1	6/16/2018 09:29

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Well #48
Collection Date: 6/15/2018 02:30 PM

Work Order: 18061033
Lab ID: 18061033-34
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8			Prep: E200.8 / 6/16/18	Analyst: JF
Manganese	0.17		0.00026	0.00056	mg/L	1	6/16/2018 09:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Well #46
Collection Date: 6/15/2018 02:33 PM

Work Order: 18061033
Lab ID: 18061033-35
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8			Prep: E200.8 / 6/16/18	Analyst: JF
Manganese	0.17		0.00026	0.00056	mg/L	1	6/16/2018 09:33

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Well #47
Collection Date: 6/15/2018 02:37 PM

Work Order: 18061033
Lab ID: 18061033-36
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8			Prep: E200.8 / 6/16/18	Analyst: JF
Manganese	0.13		0.00026	0.00056	mg/L	1	6/16/2018 09:34

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Well #45
Collection Date: 6/15/2018 02:40 PM

Work Order: 18061033
Lab ID: 18061033-37
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8			Prep: E200.8 / 6/16/18	Analyst: JF
Manganese	0.061		0.00026	0.00056	mg/L	1	6/16/2018 09:46

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Well #54
Collection Date: 6/15/2018 02:47 PM

Work Order: 18061033
Lab ID: 18061033-38
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8			Prep: E200.8 / 6/16/18	Analyst: JF
Manganese	0.070	B	0.00026	0.00056	mg/L	1	6/16/2018 09:51

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Well #50
Collection Date: 6/15/2018 02:53 PM

Work Order: 18061033
Lab ID: 18061033-39
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8			Prep: E200.8 / 6/16/18	Analyst: JF
Manganese	0.28	B	0.00026	0.00056	mg/L	1	6/16/2018 09:53

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: [REDACTED]
Collection Date: 6/15/2018 01:45 PM

Work Order: 18061033
Lab ID: 18061033-40
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: RH
Manganese	0.0059		0.00026	0.00056	mg/L	1	6/16/2018 01:17

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: [REDACTED]
Collection Date: 6/15/2018 01:35 PM

Work Order: 18061033
Lab ID: 18061033-41
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: JF
Manganese	0.0061		0.00026	0.00056	mg/L	1	6/16/2018 08:41

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: [REDACTED]
Collection Date: 6/15/2018 02:05 PM

Work Order: 18061033
Lab ID: 18061033-42
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: RH
Manganese	0.0081		0.00026	0.00056	mg/L	1	6/16/2018 01:24

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: [REDACTED]
Collection Date: 6/15/2018 02:15 PM

Work Order: 18061033
Lab ID: 18061033-43
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: RH
Manganese	0.0019		0.00026	0.00056	mg/L	1	6/16/2018 01:26

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: [REDACTED]
Collection Date: 6/15/2018 02:38 PM

Work Order: 18061033
Lab ID: 18061033-44
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: RH
Manganese	0.00071		0.00026	0.00056	mg/L	1	6/16/2018 01:28

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: [REDACTED]
Collection Date: 6/15/2018 02:32 PM

Work Order: 18061033
Lab ID: 18061033-45
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: RH
Manganese	0.0015		0.00026	0.00056	mg/L	1	6/16/2018 01:35

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: [REDACTED]
Collection Date: 6/15/2018 03:20 PM

Work Order: 18061033
Lab ID: 18061033-46
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: RH
Manganese	0.0027		0.00026	0.00056	mg/L	1	6/16/2018 01:36

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: [REDACTED]
Collection Date: 6/15/2018 03:06 PM

Work Order: 18061033
Lab ID: 18061033-47
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: RH
Manganese	0.0019		0.00026	0.00056	mg/L	1	6/16/2018 01:38

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: [REDACTED]
Collection Date: 6/15/2018 02:51 PM

Work Order: 18061033
Lab ID: 18061033-48
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: RH
Manganese	0.00040	J	0.00026	0.00056	mg/L	1	6/16/2018 01:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: [REDACTED]
Collection Date: 6/15/2018 02:15 PM

Work Order: 18061033
Lab ID: 18061033-49
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8				Analyst: RH
Manganese	0.00083		0.00026	0.00056	mg/L	1	6/16/2018 01:41

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Well #51
Collection Date: 6/15/2018 02:58 PM

Work Order: 18061033
Lab ID: 18061033-50
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8			Prep: E200.8 / 6/16/18	Analyst: JF
Manganese	0.077	B	0.00026	0.00056	mg/L	1	6/16/2018 09:54

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Well #52
Collection Date: 6/15/2018 03:04 PM

Work Order: 18061033
Lab ID: 18061033-51
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8			Prep: E200.8 / 6/16/18	Analyst: JF
Manganese	0.063	B	0.00026	0.00056	mg/L	1	6/16/2018 09:56

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 16-Jun-18

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
Sample ID: Well #53
Collection Date: 6/15/2018 03:08 PM

Work Order: 18061033
Lab ID: 18061033-52
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: E200.8			Prep: E200.8 / 6/16/18	Analyst: JF
Manganese	0.058	B	0.00026	0.00056	mg/L	1	6/16/2018 09:58

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: City of Battle Creek
Project: (City of Battle Creek) Verona Pump Station
WorkOrder: 18061033

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
mg/L	Milligrams per Liter

Client: City of Battle Creek
Work Order: 18061033
Project: (City of Battle Creek) Verona Pump Station

QC BATCH REPORT

Batch ID: **119907** Instrument ID **ICPMS3** Method: **E200.8**

MBLK		Sample ID: MBLK-119907-119907				Units: mg/L		Analysis Date: 6/16/2018 08:46 AM		
Client ID:		Run ID: ICPMS3_180616B				SeqNo: 5094134		Prep Date: 6/16/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Manganese 0.00041 0.00056 J

LCS		Sample ID: LCS-119907-119907				Units: mg/L		Analysis Date: 6/16/2018 08:54 AM		
Client ID:		Run ID: ICPMS3_180616B				SeqNo: 5094138		Prep Date: 6/16/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Manganese 0.09745 0.00056 0.1 0 97.4 85-115 0

MS		Sample ID: 18061033-16AMS				Units: mg/L		Analysis Date: 6/16/2018 08:57 AM		
Client ID: Harper Creek Middle		Run ID: ICPMS3_180616B				SeqNo: 5094140		Prep Date: 6/16/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Manganese 0.1088 0.00056 0.1 0.01288 96 70-130 0

MS		Sample ID: 18061033-36AMS				Units: mg/L		Analysis Date: 6/16/2018 09:42 AM		
Client ID: Well #47		Run ID: ICPMS3_180616B				SeqNo: 5094164		Prep Date: 6/16/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Manganese 0.2297 0.00056 0.1 0.1341 95.6 70-130 0

MSD		Sample ID: 18061033-16AMSD				Units: mg/L		Analysis Date: 6/16/2018 08:59 AM		
Client ID: Harper Creek Middle		Run ID: ICPMS3_180616B				SeqNo: 5094141		Prep Date: 6/16/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Manganese 0.1104 0.00056 0.1 0.01288 97.5 70-130 0.1088 1.38 20

MSD		Sample ID: 18061033-36AMSD				Units: mg/L		Analysis Date: 6/16/2018 09:44 AM		
Client ID: Well #47		Run ID: ICPMS3_180616B				SeqNo: 5094165		Prep Date: 6/16/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Manganese 0.2368 0.00056 0.1 0.1341 103 70-130 0.2297 3.05 20

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: City of Battle Creek
Work Order: 18061033
Project: (City of Battle Creek) Verona Pump Station

QC BATCH REPORT

Batch ID: **119907** Instrument ID **ICPMS3** Method: **E200.8**

The following samples were analyzed in this batch:

18061033-16A	18061033-20A	18061033-21A
18061033-22A	18061033-23A	18061033-24A
18061033-25A	18061033-28A	18061033-29A
18061033-30A	18061033-31A	18061033-32A
18061033-33A	18061033-34A	18061033-35A
18061033-36A	18061033-37A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: City of Battle Creek
 Work Order: 18061033
 Project: (City of Battle Creek) Verona Pump Station

QC BATCH REPORT

Batch ID: **119908** Instrument ID **ICPMS3** Method: **E200.8**

MBLK	Sample ID: MBLK-119908-119908		Units: mg/L		Analysis Date: 6/16/2018 09:48 AM					
Client ID:	Run ID: ICPMS3_180616B		SeqNo: 5094167		Prep Date: 6/16/2018 DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Manganese 0.00067 0.00056

LCS	Sample ID: LCS-119908-119908		Units: mg/L		Analysis Date: 6/16/2018 09:49 AM					
Client ID:	Run ID: ICPMS3_180616B		SeqNo: 5094168		Prep Date: 6/16/2018 DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Manganese 0.09079 0.00056 0.1 0 90.8 85-115 0 B

MS	Sample ID: 1806958-05CMS		Units: mg/L		Analysis Date: 6/16/2018 10:08 AM					
Client ID:	Run ID: ICPMS3_180616B		SeqNo: 5094178		Prep Date: 6/16/2018 DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Manganese 1.875 0.00056 0.1 1.714 161 70-130 0 BSEO

MSD	Sample ID: 1806958-05CMSD		Units: mg/L		Analysis Date: 6/16/2018 10:10 AM					
Client ID:	Run ID: ICPMS3_180616B		SeqNo: 5094179		Prep Date: 6/16/2018 DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Manganese 1.849 0.00056 0.1 1.714 135 70-130 1.875 1.41 20 BSEO

The following samples were analyzed in this batch:

18061033-38A	18061033-39A	18061033-50A
18061033-51A	18061033-52A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: City of Battle Creek
 Work Order: 18061033
 Project: (City of Battle Creek) Verona Pump Station

QC BATCH REPORT

Batch ID: **R5093846A** Instrument ID **ICPMS3** Method: **E200.8**

MS		Sample ID: 18061033-01AMS				Units: mg/L		Analysis Date: 6/16/2018 08:31 AM		
Client ID: [REDACTED]		Run ID: ICPMS3_180616B				SeqNo: 5094126		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Manganese 0.1318 0.00056 0.1 0.03262 99.2 70-130 0

MS		Sample ID: 18061033-11AMS				Units: mg/L		Analysis Date: 6/16/2018 08:37 AM		
Client ID: Rite Aid		Run ID: ICPMS3_180616B				SeqNo: 5094129		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Manganese 0.09565 0.00056 0.1 0.001055 94.6 70-130 0

MSD		Sample ID: 18061033-01AMSD				Units: mg/L		Analysis Date: 6/16/2018 08:33 AM		
Client ID: [REDACTED]		Run ID: ICPMS3_180616B				SeqNo: 5094127		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Manganese 0.1315 0.00056 0.1 0.03262 98.9 70-130 0.1318 0.228 20

MSD		Sample ID: 18061033-11AMSD				Units: mg/L		Analysis Date: 6/16/2018 08:39 AM		
Client ID: Rite Aid		Run ID: ICPMS3_180616B				SeqNo: 5094130		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Manganese 0.09708 0.00056 0.1 0.001055 96 70-130 0.09565 1.48 20

The following samples were analyzed in this batch:

18061033-01A	18061033-11A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: City of Battle Creek
Work Order: 18061033
Project: (City of Battle Creek) Verona Pump Station

QC BATCH REPORT

Batch ID: **R5093846B** Instrument ID **ICPMS3** Method: **E200.8**

MS		Sample ID: 18061033-41AMS				Units: mg/L		Analysis Date: 6/16/2018 08:43 AM			
Client ID: [REDACTED]		Run ID: ICPMS3_180616B				SeqNo: 5094132		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Manganese 0.1017 0.00056 0.1 0.006077 95.6 70-130 0

MSD		Sample ID: 18061033-41AMSD				Units: mg/L		Analysis Date: 6/16/2018 08:44 AM			
Client ID: [REDACTED]		Run ID: ICPMS3_180616B				SeqNo: 5094133		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Manganese 0.1039 0.00056 0.1 0.006077 97.8 70-130 0.1017 2.13 20

The following samples were analyzed in this batch:

18061033-41A



Cincinnati, OH
+1 513 733 5336

Fort Collins, CO
+1 970 490 1511

Everett, WA
+1 425 356 2600

Holland, MI
+1 616 399 6070

Chain of Custody Form

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COC ID: 40690

Houston, TX
+1 281 530 5656

Spring City, PA
+1 610 948 4903

Middletown, PA
+1 717 944 5541

Salt Lake City, UT
+1 801 266 7700

South Charleston, WV
+1 304 356 3168

York, PA
+1 717 505 5280

ALS Project Manager:

ALS Work Order #: 18061033

Customer Information		Project Information		Parameter/Method Request for Analysis											
Purchase Order		Project Name	DRINKING WATER - MI	A	MI - 2008										
Work Order		Project Number		B	Turbidity										
Company Name	City of Battle Creek	Bill To Company	City of Battle Creek	C	Metal Prep (as needed)										
Send Report To	Robert Koell	Invoice Attn	Robert Koell	D											
Address	250 Bridger Dr.	Address	250 Bridger Dr.	E											
				F											
City/State/Zip	Battle Creek, MI 49014	City/State/Zip	Battle Creek, MI 49014	G											
Phone	(269) 966-3309	Phone	(269) 966-3309	H											
Fax		Fax		I											
e-Mail Address		e-Mail Address		J											

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	[Redacted]	6-15-18	2:02 pm														
2	[Redacted]	6-15-18	2:16 pm														
3	300 North Ave	6-15-18	2:50 pm														
4	[Redacted]	6-15-18	3:19 pm														
5	[Redacted]	6-15-18	2:35 pm														
6	7475 B Drive N	6-15-18	3:03 pm														
7	[Redacted]	6-15-18	2:24 pm														
8	1103 Michigan Ave	6-15-18	2:48 pm														
9	[Redacted]	6-15-18	2:08 pm														
10	[Redacted]	6-15-18	1:53 pm														

Sampler(s) Please Print & Sign: _____ Shipment Method: _____ Turnaround Time in Business Days (BD) 10 BD 5 BD 3 BD 2 BD 1 BD Other _____ Results Due Date: _____

Relinquished by: <u>Matthew Miller</u>	Date: <u>6-15-18</u>	Time: <u>3:52 pm</u>	Received by: <u>CHRISTOPHER</u>	Notes:
Relinquished by: <u>[Signature]</u>	Date: <u>6-15-18</u>	Time: <u>1800</u>	Received by (Laboratory): <u>[Signature]</u>	Cooler ID
Logged by (Laboratory): <u>[Signature]</u>	Date:	Time:	Checked by (Laboratory):	Cooler Temp
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035				QC Package: (Check One Box Below)
				<input type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP Checklist
				<input type="checkbox"/> Level III Std QC/Raw Date <input type="checkbox"/> TRRP Level IV
				<input type="checkbox"/> Level IV SW846/CLP
				<input type="checkbox"/> Other _____



CINCINNATI, OH
+1 513 733 5336

Everett, WA
+1 425 356 2600

FORT COLLINS, CO
+1 970 490 1511

Holland, MI
+1 616 399 6070

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COC ID: 40692

HOUSTON, TX
+1 281 530 5656

Middletown, PA
+1 717 944 5541

Spring City, PA
+1 610 948 4903

Salt Lake City, UT
+1 801 266 7700

South Charleston, WV
+1 304 356 3168

York, PA
+1 717 505 5280

ALS Project Manager: _____

ALS Work Order #: 19061033

Customer Information		Project Information		Parameter/Method Request for Analysis											
Purchase Order		Project Name	DRINKING WATER - MI	A	MI - 2008										
Work Order		Project Number		B	Turbidity										
Company Name	City of Battle Creek	Bill To Company	City of Battle Creek	C	Metals Prep (as needed)										
Send Report To	Robert Koehn	Invoice Attn	Robert Koehn	D											
Address	250 Briden Dr.	Address	250 Briden Dr.	E											
				F											
City/State/Zip	Battle Creek, MI 49014	City/State/Zip	Battle Creek, MI 49014	G											
Phone	(269) 966-3339	Phone	(269) 966-3339	H											
Fax		Fax		I											
e-Mail Address		e-Mail Address		J											

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Well #17	6-15-18	2:02	H ₂ O													
2	Well #15	6-15-18	2:08	H ₂ O													
3	Well #14	6-15-18	2:12	H ₂ O													
4	Well #49	6-15-18	2:25	H ₂ O													
5	Well #48	6-15-18	2:30	H ₂ O													
6	Well #46	6-15-18	2:33	H ₂ O													
7	Well #47	6-15-18	2:37	H ₂ O													
8	Well #45	6-15-18	2:40	H ₂ O													
9	Well #54	6-15-18	2:47	H ₂ O													
10	Well #50	6-15-18	2:53	H ₂ O													

Sampler(s) Please Print & Sign <i>John Hyndman</i>		Shipment Method		Turnaround Time in Business Days (BD) <input type="checkbox"/> Other _____				Results Due Date:	
				<input type="checkbox"/> 10 BD <input type="checkbox"/> 5 BD <input type="checkbox"/> 3 BD <input type="checkbox"/> 2 BD <input type="checkbox"/> 1 BD					
Relinquished by: <i>Robert J Koehn</i>	Date: 6/15/18	Time: 3:55 PM	Received by: <i>CHRISTOPHER HUG</i>	Notes:					
Relinquished to: <i>John D. Hyndman</i>	Date: 6/15/18	Time: 1:00	Received by (Laboratory): <i>[Signature]</i>	Cooler ID	Cooler Temp	QC Package: (Check One Box Below)			
Logged by (Laboratory): <i>[Signature]</i>	Date:	Time:	Checked by (Laboratory):			<input type="checkbox"/> Level II Std QC <input type="checkbox"/> TRAP Checklist <input type="checkbox"/> Level III Std QC/Raw Date <input type="checkbox"/> TRAP Level IV <input type="checkbox"/> Level IV SW846/CLP <input type="checkbox"/> Other _____			
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₅ 6-NaHSO ₄ 7-Other 8-4°C 9-5035									

608



18061033

Well #51 6-15-18 2:58 pm JPH

Well #52 6-15-18 3:04 pm JPH

Well #53 6-15-18 3:08 pm JPH

143 Ave C 6-15-18 1:45pm C. Rose

Relinquished By Robert Keelin 6/15/18 Time 4:20 PM
"  6/15/18  REC'D BY CHRISTOPHER HUG

Sample Receipt Checklist

Client Name: **BATTLECREEK**

Date/Time Received: **15-Jun-18 18:00**

Work Order: **18061033**

Received by: **LA**

Checklist completed by Diane Shaw 15-Jun-18
eSignature Date

Reviewed by: Les Arnold 15-Jun-18
eSignature Date

Matrices: Drinking Water

Carrier name: Client

Shipping container/cooler in good condition? Yes No Not Present

Custody seals intact on shipping container/cooler? Yes No Not Present

Custody seals intact on sample bottles? Yes No Not Present

Chain of custody present? Yes No

Chain of custody signed when relinquished and received? Yes No

Chain of custody agrees with sample labels? Yes No

Samples in proper container/bottle? Yes No

Sample containers intact? Yes No

Sufficient sample volume for indicated test? Yes No

All samples received within holding time? Yes No

Container/Temp Blank temperature in compliance? Yes No

Sample(s) received on ice? Yes No

Temperature(s)/Thermometer(s): Ambient

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage: 6/15/18 1830

Water - VOA vials have zero headspace? Yes No No VOA vials submitted

Water - pH acceptable upon receipt? Yes No N/A

pH adjusted? Yes No N/A

pH adjusted by:

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction: