ENVIRONMENTAL • GEOTECHNICAL
BUILDING SCIENCES • MATERIALS TESTING

46555 Humboldt Drive
Novi, Michigan 48377
Telephone 248-669-5140
www.atcgroupservices.com

September 6, 2018

Mathew Sam
Detroit Public Schools
1601 Farnsworth
Detroit, Michigan 48202

SUBMITTED VIA EMAIL TO: mathew.sam@detroitk12.org

SUBJECT: **Drinking Water Screening Report**
Bethune Elementary-Middle School
8145 Puritian
Detroit, Michigan

Dear Mr. Sam:

ATC Group Services, LLC (ATC) is pleased to submit this Drinking Water Screening Report for the subject school. The drinking water samples collected from the school were submitted to Pace Analytical Services, LLC, for Michigan Department of Environmental Quality (MDEQ) Drinking Water Certified lead and copper analysis.

SCOPE OF WORK

At the request of the Detroit Public Schools (DPS), ATC collected drinking water samples as a general screening for copper and lead at the subject school. The water sampling conducted included the sampling of fixtures within teacher's lounges, kitchens, water fountains and pre-k classrooms. One (1) sample was collected at each outlet: a first draw (Primary) sample. The Primary samples were collected from outlets that had been inactive for a minimum of eight to eighteen hours. The fixture inventory locations including the sample locations are shown on the Fixture Inventory Locations Map included under Attachment A and fixture inventory photos including the sample location photos are included in a Fixture Inventory Photo Log under Attachment B.

The drinking water samples were collected in 125 milliliter, wide-mouth sample containers, containing nitric acid (preservative). Each sample container was labeled utilizing a unique coding system that identified: the type of drinking outlet sampled as well as the location.

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The samples were transported under chain of custody to Pace Analytical Services, LLC, located at 5560 Corporate Exchange Ct. SE Grand Rapids, MI for MDEQ drinking water certified lead and copper analysis, using analytical method EPA 200.8 rev 5.4.

FINDINGS

Analytical results indicate that 3 of the samples analyzed were above the EPA recommended limits of 15 micrograms per liter (ug/L) for lead. Additionally, six (6) of the samples analyzed were above the EPA recommended limits of 1300 micrograms per liter (ug/L) for copper. The table below summarizes the analytical results for the samples submitted. The laboratory analytical reports and chain of custody are provided in Attachment C.

Table 1 – Water Testing Results (August 22, 2018)

Sample Number	Location	Description	Total Lead (ug/l)	Total Copper (ug/l)
2-HW-B-1	located on the 2nd floor between 230 A & boys restrooms (left)	Bubbler	1.1 ug/L	341 ug/L
2-HW-B-2	located on the 2nd floor between 230 A & boys restrooms (right)	Bubbler	6.0 ug/L	789 ug/L
2-HW-B-3	located on the 2nd floor across from room 214 (left)	Bubbler	**24.8 ug/L**	**16900 ug/L**
2-HW-B-4	located on the 2nd floor across from room 214 (right)	Bubbler	12.0 ug/L	**8750 ug/L**
2-HW-B-5	located on the 2nd floor next room 213 (left)	Bubbler	<1.0 ug/L	321 ug/L
2-HW-B-6	located on the 2nd floor next to room 213 (right)	Bubbler	<1.0 ug/L	366 ug/L
1-HW-B-7	located on the 1st floor between Rm 117 & 113 (left)	Bubbler	4.1 ug/L	**4170 ug/L**
1-HW-B-8	located on the 1st floor between Rm 117 & 113 (right)	Bubbler	3.8 ug/L	**2880 ug/L**
1-HW-B-9	located on the 1st floor across fromRm 114 (left)	Bubbler	<1.0 ug/L	350 ug/L
1-HW-B-10	located on the 1st floor across fromRm 114 (right)	Bubbler	<1.0 ug/L	559 ug/L

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Sample Number	Location	Description	Total Lead (ug/l)	Total Copper (ug/l)
1-124-B-12	located on the 1st floor, in (K) close to door #10	Bubbler	<1.0 ug/L	357 ug/L
1-126-B-14	located on the 1st floor, in (K) across from elevator	Bubbler	2.3 ug/L	341 ug/L
1-132-B-16	located on the 1st floor in Pre-K next to Rm 126A	Bubbler	1.7 ug/L	65.0 ug/L
1-HW-B-17	located on the 1st floor between boys & Rm 130A (left)	Bubbler	<1.0 ug/L	428 ug/L
1-HW-B-18	located on the 1st floor between boys & Rm 130A (right)	Bubbler	<1.0 ug/L	435 ug/L
1-140-B-20	located on the 1st floor in Pre-K across from Rm 130 & stairs #6	Bubbler	<1.0 ug/L	361 ug/L
1-HW-DWF-23	located on the 1st floor across from gym (right)	drinking water fouantain	<1.0 ug/L	540 ug/L
1-HW-B-24	located on the 1st floor next to kitchen (104A) (left)	Bubbler	**20.9 ug/L**	**27300 ug/L**
1-HW-B-25	located on the 1st floor next to kitchen (104A) (right)	Bubbler	**31.2 ug/L**	**38800 ug/L**
1-104A (K)-KS-26	located on the 1st floor in kitchen	hand wash	9.6 ug/L	49.8 ug/L
1-104A(K)-KS-27	located on the 1st floor in kitchen disho washing station (left)	kitchen faucet	<1.0 ug/L	46.2 ug/L
1-104A(K)-KS-28	located on the 1st floor in kitchen disho washing station (right)	kitchen faucet	2.5 ug/L	76.9 ug/L

Key: NA - Not Analyzed

ug/L- micrograms per liter /parts per billion (ppb)

Analysis of samples of the left bubbler located on the 2nd floor across from room 214 and the bubblers, located on the 1st floor next to kitchen (104A) indicate that lead levels were above the MCL. Additionally, analysis of the samples bubblers located on the 2nd floor across from room 214, the bubblers located on the 1st floor between Rm 117 & 113 and the bubblers located on the 1st floor next to kitchen (104A) indicate that copper levels were above the MCL. See recommendations below.

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RECOMMENDATIONS

For drinking water fixtures that exceed the MCL after the initial sampling, ATC recommends the following:

1. Implement a plan in accordance with MDEQ Guidance on Drinking Water Sampling for Lead and Copper, April, 2016 Version2; OR
2. Remove fixture from service.
3. Implement a flush plan for fixtures that exceed the MCL of the initial sample according to MDEQ Guidance and the EPA's 3T's for Reducing Lead in Drinking Water in Schools.

LIMITATIONS

The sampling and analysis completed was: a preliminary screening for lead and copper only, to assess lead and copper concentrations (ug/L) at drinking water outlets in the school designated as high use by DPS, and may not be representative of all drinking water outlets within the school. If lead or copper concentrations were identified above their respective MCL's at any of the drinking water outlets tested, further review of the plumping system, fixtures affected, and testing may be completed to assess the source of the elevated levels of lead and/or copper, as well as, any other response actions deemed necessary by DPS.

Future drinking water evaluation and sampling in accordance with the recommendations may be predicated on applicable guidelines by the MDEQ or EPA and will be determined prior to developing a sampling plan for the school.

Sincerely,

ATC Group Services, LLC

Martin K. Gamble
Senior Project Manager

Robert C. Smith
Building Science Department Manager

Attachments

Attachment A: Fixture Inventory Locations Map/Form
Attachment B: Fixture Inventory Photo Log
Attachment C: Laboratory Analytical Report

School Name: Bethune Elementary-Middle School

Address 8145 Puritian, Detroit, MI

Fixture Identification	Fixture Location	Fixture Description	Photo #
2-HW-B-1	located on the 2nd floor between 230 A & boys restrooms (left)	Bubbler	1
2-HW-B-2	located on the 2nd floor between 230 A & boys restrooms (right)	Bubbler	2
2-HW-B-3	located on the 2nd floor across from room 214 (left)	Bubbler	3
2-HW-B-4	located on the 2nd floor across from room 214 (right)	Bubbler	4
2-HW-B-5	located on the 2nd floor next room 213 (left)	Bubbler	5
2-HW-B-6	located on the 2nd floor next to room 213 (right)	Bubbler	6
1-HW-B-7	located on the 1st floor between Rm 117 & 113 (left)	Bubbler	7
1-HW-B-8	located on the 1st floor between Rm 117 & 113 (right)	Bubbler	8
1-HW-B-9	located on the 1st floor across fromRm 114 (left)	Bubbler	9
1-HW-B-10	located on the 1st floor across fromRm 114 (right)	Bubbler	10

School Name: Bethune Elementary-Middle School

Address 8145 Puritian, Detroit, MI

Fixture Identification	Fixture Location	Fixture Description	Photo #
1-124-CF-11	located on the 1st floor, in (K) close to door #10	classroom faucet	11
1-124-B-12	located on the 1st floor, in (K) close to door #10	Bubbler	12
1-126-CF-13	located on the 1st floor, in (K) across from elevator	classroom faucet	13
1-126-B-14	located on the 1st floor, in (K) across from elevator	Bubbler	14
1-132-CF-15	located on the 1st floor in Pre-K next to Rm 126A	classroom faucet	15
1-132-B-16	located on the 1st floor in Pre-K next to Rm 126A	Bubbler	16
1-HW-B-17	located on the 1st floor between boys & Rm 130A (left)	Bubbler	17
1-HW-B-18	located on the 1st floor between boys & Rm 130A (right)	Bubbler	18
1-140-CF-19	located on the 1st floor in Pre-K across from Rm 130 & stairs #6	classroom faucet	19
1-140-B-20	located on the 1st floor in Pre-K across from Rm 130 & stairs #6	Bubbler	20
1-138-CF-21	located on the 1st floor in Pre-K across from stairs #6	classroom faucet	21

School Name: Bethune Elementary-Middle School

Address 8145 Puritian, Detroit, MI

Fixture Identification	Fixture Location	Fixture Description	Photo #
1-HW-DWF-22	located on the 1st floor across from gym (left)	drinking water fouantain- Not Working	22
1-HW-DWF-23	located on the 1st floor across from gym (right)	drinking water fouantain	23
1-HW-B-24	located on the 1st floor next to kitchen (104A) (left)	Bubbler	24
1-HW-B-25	located on the 1st floor next to kitchen (104A) (right)	Bubbler	25
1-104A (K)-KS-26	located on the 1st floor in kitchen	hand wash	26
1-104A(K)-KS-27	located on the 1st floor in kitchen disho washing station (left)	kitchen faucet	27
1-104A(K)-KS-28	located on the 1st floor in kitchen disho washing station (right)	kitchen faucet	28

Photo 1: Bubbler, located in 2nd floor between 230 A & boys restrooms (left)

Photo 2: Bubbler, located in 2nd floor between 230 A & boys restrooms (right)

Photo 3: Bubbler, located in 2nd floor across from room 214 (left)

Photo 4: Bubbler, located in 2nd floor across from room 214 (right)

Photo 5: Bubbler, located in 2nd floor next room 213 (left)

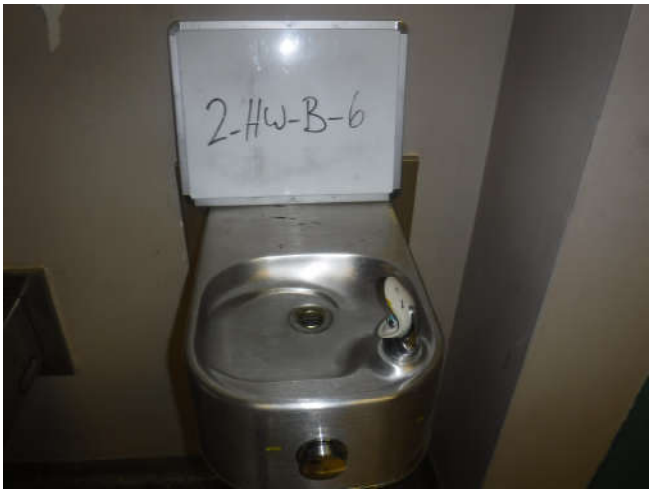

Photo 6 Bubbler, located in 2nd floor next room 213 (left)

Photo 7: Bubbler, located on the 1st floor between Rm 117 & 113 (left)

Photo 8: Bubbler, located on the 1st floor between Rm 117 & 113 (right)

Photo 9: Bubbler, located on the 1st floor across from Rm 114 (left)

Photo 10: Bubbler, located on the 1st floor across from Rm 114 (right)

Photo 11: Classroom faucet, located on the 1st floor, in (K) close to door #10

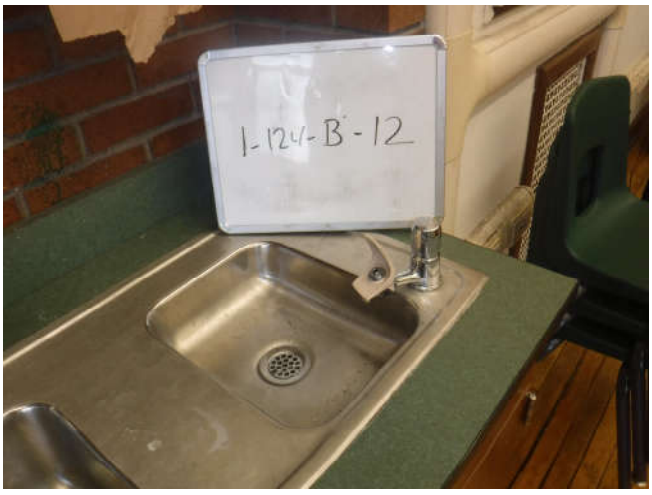

Photo 12: Bubbler, located on the 1st floor, in (K) close to door #10

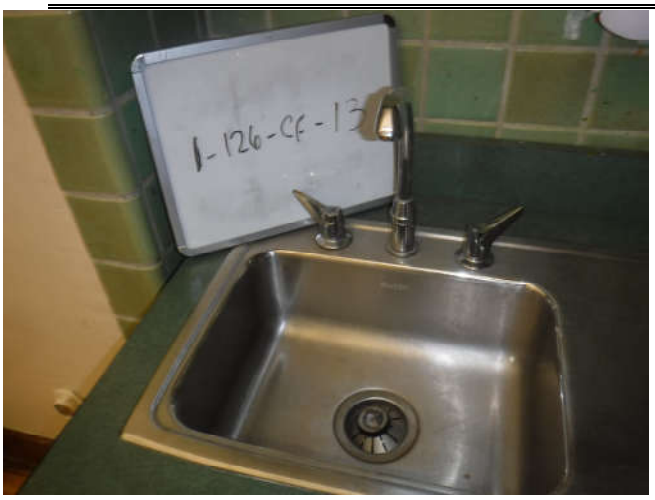

Photo 13: Class room faucet, located on the 1st floor, in (K) across from elevator

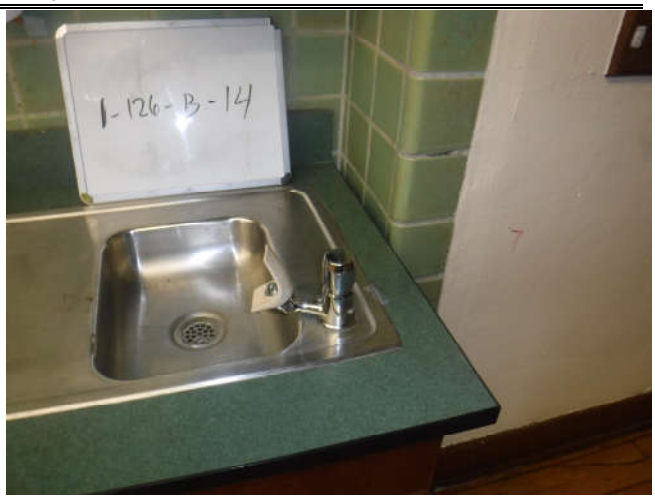

Photo 14: Bubbler, located on the 1st floor, in (K) across from elevator

Photo 15: Classroom faucet, located on the 1st floor, in (K) next to Rm 126A

Photo 16: Bubbler, located on the 1st floor, in (K) next to Rm 126A

Photo 17: Bubbler, located on the 1st floor between boys & Rm 130A (left)

Photo 18: Bubbler, located on the 1st floor between boys & Rm 130 (right)

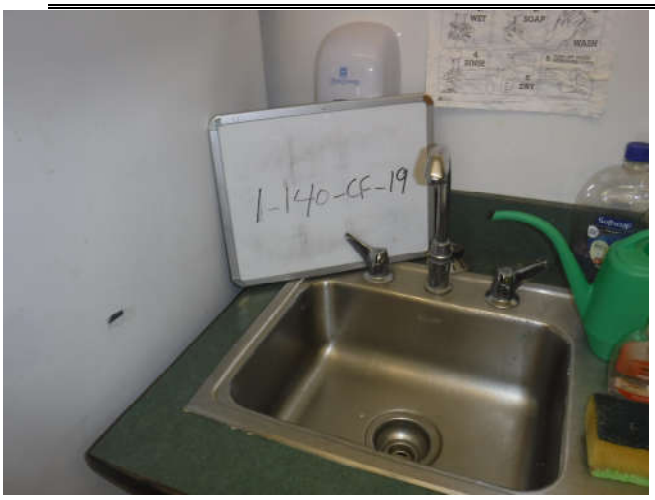

Photo 19: Class room faucet, located on the 1st floor in Pre-K across from Rm 130 & stairs #6

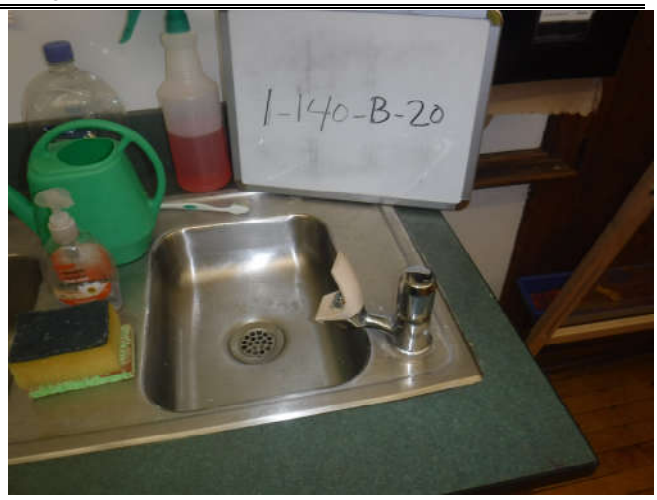

Photo 20: Bubbler, located on the 1st floor in Pre-K across from Rm 130 & stairs #6

Photo 21: Classroom faucet, located on the 1st floor in Pre-K across from stairs #6

Photo 22: Drinking water fountain, located on the 1st floor across from gym (left)

Photo 23: Drinking water fountain, located on the 1st floor across from gym (right)

Photo 24: Bubbler, located on the 1st floor next to kitchen (104A) (left)

Photo 25: Bubbler, located on the 1st floor next to kitchen (104A) (right)

Photo 26: Hand wash faucet, located on the 1st floor in kitchen

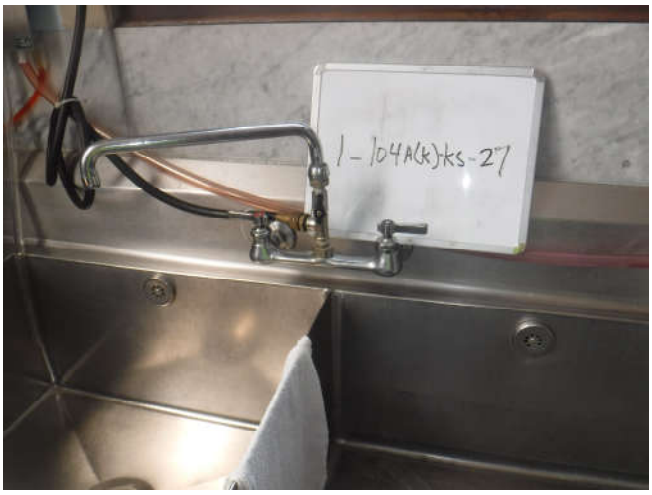

Photo 27: kitchen faucet, located on the 1st floor in kitchen @ dish washing station (left)

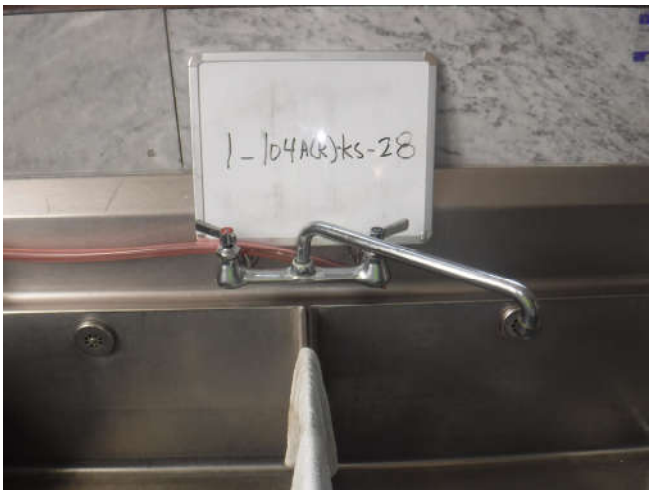

Photo 28 kitchen faucet, located on the 1st floor in kitchen @ dish washing station (right)

Pace Analytical Services, LLC
5560 Corporate Exchange Ct. SE
Grand Rapids, MI 49512
(616)975-4500

August 22, 2018

Robert Smith
ATC Group Services
46555 Humboldt
Suite 100
Novi, MI 48377

RE: Project: DW-Bethune ES-MS
Pace Project No.: 4616078

Dear Robert Smith:
Enclosed are the analytical results for sample(s) received by the laboratory on August 08, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Will Cole
will.cole@pacelabs.com
(616)975-4500
Project Manager

Enclosures

cc: AP c/o Abigail Jardine, ATC Group Services
Michael Hauswirth, ATC Group Services

Pace Analytical Services, LLC
5560 Corporate Exchange Ct. SE
Grand Rapids, MI 49512
(616)975-4500

CERTIFICATIONS

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

Grand Rapids Certification ID's

5560 Corporate Exchange Ct SE, Grand Rapids, MI 49512
Minnesota Department of Health, Certificate #1385941
Arkansas Department of Environmental Quality, Certificate #18-046-0
Georgia Environmental Protection Division, Stipulation
Illinois Environmental Protection Agency, Certificate #004325
Michigan Department of Environmental Quality, Laboratory #0034
New York State Department of Health, Serial #57971 and 57972
North Carolina Division of Water Resources, Certificate #659
Virginia Department of General Services, Certificate #9780
Wisconsin Department of Natural Resources, Laboratory #999472650
U.S. Department of Agriculture Permit to Receive Soil, Permit #P330-17-00278

Pace Analytical Services, LLC
5560 Corporate Exchange Ct. SE
Grand Rapids, MI 49512
(616)975-4500

SAMPLE SUMMARY

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

Lab ID	Sample ID	Matrix	Date Collected	Date Received
4616078001	**2-HW-B-1**	Drinking Water	08/08/18 08:11	08/08/18 17:35
4616078002	**2-HW-B-2**	Drinking Water	08/08/18 08:13	08/08/18 17:35
4616078003	**2-HW-B-3**	Drinking Water	08/08/18 08:15	08/08/18 17:35
4616078004	**2-HW-B-4**	Drinking Water	08/08/18 08:16	08/08/18 17:35
4616078005	**2-HW-B-5**	Drinking Water	08/08/18 08:18	08/08/18 17:35
4616078006	**2-HW-B-6**	Drinking Water	08/08/18 08:19	08/08/18 17:35
4616078007	**1-HW-B-7**	Drinking Water	08/08/18 08:21	08/08/18 17:35
4616078008	**1-HW-B-8**	Drinking Water	08/08/18 08:22	08/08/18 17:35
4616078009	**1-HW-B-9**	Drinking Water	08/08/18 08:24	08/08/18 17:35
4616078010	**1-HW-B-10**	Drinking Water	08/08/18 08:25	08/08/18 17:35
4616078011	**1-124-B-12**	Drinking Water	08/08/18 08:28	08/08/18 17:35
4616078012	**1-126-B-14**	Drinking Water	08/08/18 08:30	08/08/18 17:35
4616078013	**1-132-B-16**	Drinking Water	08/08/18 08:32	08/08/18 17:35
4616078014	**1-HW-B-17**	Drinking Water	08/08/18 08:34	08/08/18 17:35
4616078015	**1-HW-B-18**	Drinking Water	08/08/18 08:35	08/08/18 17:35
4616078016	**1-140-B-20**	Drinking Water	08/08/18 08:37	08/08/18 17:35
4616078017	**1-HW-DWF-23**	Drinking Water	08/08/18 08:40	08/08/18 17:35
4616078018	**1-HW-B-24**	Drinking Water	08/08/18 08:42	08/08/18 17:35
4616078019	**1-HW-B-25**	Drinking Water	08/08/18 08:44	08/08/18 17:35
4616078020	**1-104A(K)-KS-26**	Drinking Water	08/08/18 08:48	08/08/18 17:35
4616078021	**1-104A(K)-KS-27**	Drinking Water	08/08/18 08:46	08/08/18 17:35
4616078022	**1-104A(K)-KS-28**	Drinking Water	08/08/18 08:47	08/08/18 17:35

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
5560 Corporate Exchange Ct. SE
Grand Rapids, MI 49512
(616)975-4500

SAMPLE ANALYTE COUNT

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

Lab ID	Sample ID	Method	Analysts	Analytes Reported
4616078001	**2-HW-B-1**	EPA 200.8	CKD	2
4616078002	**2-HW-B-2**	EPA 200.8	CKD	2
4616078003	**2-HW-B-3**	EPA 200.8	DWJ	2
4616078004	**2-HW-B-4**	EPA 200.8	DWJ	2
4616078005	**2-HW-B-5**	EPA 200.8	CKD	2
4616078006	**2-HW-B-6**	EPA 200.8	CKD	2
4616078007	**1-HW-B-7**	EPA 200.8	DWJ	2
4616078008	**1-HW-B-8**	EPA 200.8	DWJ	2
4616078009	**1-HW-B-9**	EPA 200.8	CKD	2
4616078010	**1-HW-B-10**	EPA 200.8	CKD	2
4616078011	**1-124-B-12**	EPA 200.8	CKD	2
4616078012	**1-126-B-14**	EPA 200.8	CKD	2
4616078013	**1-132-B-16**	EPA 200.8	CKD	2
4616078014	**1-HW-B-17**	EPA 200.8	CKD	2
4616078015	**1-HW-B-18**	EPA 200.8	CKD	2
4616078016	**1-140-B-20**	EPA 200.8	CKD	2
4616078017	**1-HW-DWF-23**	EPA 200.8	CKD	2
4616078018	**1-HW-B-24**	EPA 200.8	DWJ	2
4616078019	**1-HW-B-25**	EPA 200.8	DWJ	2
4616078020	**1-104A(K)-KS-26**	EPA 200.8	CKD	2
4616078021	**1-104A(K)-KS-27**	EPA 200.8	CKD	2
4616078022	**1-104A(K)-KS-28**	EPA 200.8	CKD	2

Pace Analytical Services, LLC
5560 Corporate Exchange Ct. SE
Grand Rapids, MI 49512
(616)975-4500

ANALYTICAL RESULTS

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

Sample: 2-HW-B-1 **Lab ID: 4616078001** Collected: 08/08/18 08:11 Received: 08/08/18 17:35 Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS Drinking Water	Analytical Method: EPA 200.8								
Copper	**341**	ug/L	5.0	1300	5		08/21/18 17:47	7440-50-8	
Lead	**1.1**	ug/L	1.0	15	1		08/21/18 14:47	7439-92-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
5560 Corporate Exchange Ct. SE
Grand Rapids, MI 49512
(616)975-4500

ANALYTICAL RESULTS

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

Sample: 2-HW-B-2 **Lab ID: 4616078002** Collected: 08/08/18 08:13 Received: 08/08/18 17:35 Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS Drinking Water	Analytical Method: EPA 200.8								
Copper	**789**	ug/L	10.0	1300	10		08/21/18 17:58	7440-50-8	
Lead	**6.0**	ug/L	1.0	15	1		08/21/18 14:51	7439-92-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
5560 Corporate Exchange Ct. SE
Grand Rapids, MI 49512
(616)975-4500

ANALYTICAL RESULTS

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

Sample: 2-HW-B-3 **Lab ID: 4616078003** Collected: 08/08/18 08:15 Received: 08/08/18 17:35 Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 ICPMS Metals, Total	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Copper	**16900**	ug/L	500	1300	500	08/13/18 07:20	08/14/18 09:34	7440-50-8	
Lead	**24.8**	ug/L	1.0	15	1	08/13/18 07:20	08/14/18 08:35	7439-92-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
5560 Corporate Exchange Ct. SE
Grand Rapids, MI 49512
(616)975-4500

ANALYTICAL RESULTS

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

Sample: 2-HW-B-4 **Lab ID: 4616078004** Collected: 08/08/18 08:16 Received: 08/08/18 17:35 Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 ICPMS Metals, Total	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Copper	**8750**	ug/L	200	1300	200	08/13/18 07:20	08/14/18 09:35	7440-50-8	
Lead	**12.0**	ug/L	1.0	15	1	08/13/18 07:20	08/14/18 08:36	7439-92-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
5560 Corporate Exchange Ct. SE
Grand Rapids, MI 49512
(616)975-4500

ANALYTICAL RESULTS

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

Sample: 2-HW-B-5 **Lab ID: 4616078005** Collected: 08/08/18 08:18 Received: 08/08/18 17:35 Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS Drinking Water	Analytical Method: EPA 200.8								
Copper	**321**	ug/L	5.0	1300	5		08/21/18 17:59	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/21/18 14:52	7439-92-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
5560 Corporate Exchange Ct. SE
Grand Rapids, MI 49512
(616)975-4500

ANALYTICAL RESULTS

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

Sample: 2-HW-B-6 **Lab ID: 4616078006** Collected: 08/08/18 08:19 Received: 08/08/18 17:35 Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS Drinking Water	Analytical Method: EPA 200.8								
Copper	**366**	ug/L	5.0	1300	5		08/21/18 18:00	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/21/18 14:55	7439-92-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
5560 Corporate Exchange Ct. SE
Grand Rapids, MI 49512
(616)975-4500

ANALYTICAL RESULTS

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

Sample: 1-HW-B-7 **Lab ID: 4616078007** Collected: 08/08/18 08:21 Received: 08/08/18 17:35 Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 ICPMS Metals, Total	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Copper	**4170**	ug/L	100	1300	100	08/13/18 07:20	08/14/18 09:36	7440-50-8	
Lead	**4.1**	ug/L	1.0	15	1	08/13/18 07:20	08/14/18 08:37	7439-92-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Grand Rapids, MI 49512
(616)975-4500

ANALYTICAL RESULTS

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

Sample: 1-HW-B-8 **Lab ID: 4616078008** Collected: 08/08/18 08:22 Received: 08/08/18 17:35 Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 ICPMS Metals, Total	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Copper	**2880**	ug/L	100	1300	100	08/13/18 07:20	08/14/18 09:37	7440-50-8	
Lead	**3.8**	ug/L	1.0	15	1	08/13/18 07:20	08/14/18 08:38	7439-92-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(616)975-4500

ANALYTICAL RESULTS

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

Sample: 1-HW-B-9 **Lab ID: 4616078009** Collected: 08/08/18 08:24 Received: 08/08/18 17:35 Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS Drinking Water	Analytical Method: EPA 200.8								
Copper	**350**	ug/L	5.0	1300	5		08/21/18 18:01	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/21/18 14:56	7439-92-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

Sample: 1-HW-B-10 **Lab ID: 4616078010** Collected: 08/08/18 08:25 Received: 08/08/18 17:35 Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS Drinking Water	Analytical Method: EPA 200.8								
Copper	**559**	ug/L	10.0	1300	10		08/21/18 18:02	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/21/18 14:57	7439-92-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(616)975-4500

ANALYTICAL RESULTS

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

Sample: 1-124-B-12 **Lab ID: 4616078011** Collected: 08/08/18 08:28 Received: 08/08/18 17:35 Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS Drinking Water	Analytical Method: EPA 200.8								
Copper	**357**	ug/L	5.0	1300	5		08/21/18 18:03	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/21/18 14:59	7439-92-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Grand Rapids, MI 49512
(616)975-4500

ANALYTICAL RESULTS

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

Sample: 1-126-B-14 **Lab ID: 4616078012** Collected: 08/08/18 08:30 Received: 08/08/18 17:35 Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS Drinking Water	Analytical Method: EPA 200.8								
Copper	**341**	ug/L	5.0	1300	5		08/21/18 18:04	7440-50-8	
Lead	**2.3**	ug/L	1.0	15	1		08/21/18 15:00	7439-92-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Grand Rapids, MI 49512
(616)975-4500

ANALYTICAL RESULTS

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

Sample: 1-132-B-16 **Lab ID: 4616078013** Collected: 08/08/18 08:32 Received: 08/08/18 17:35 Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS Drinking Water	Analytical Method: EPA 200.8								
Copper	**65.0**	ug/L	1.0	1300	1		08/21/18 15:01	7440-50-8	
Lead	**1.7**	ug/L	1.0	15	1		08/21/18 15:01	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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(616)975-4500

ANALYTICAL RESULTS

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

Sample: 1-HW-B-17 **Lab ID: 4616078014** Collected: 08/08/18 08:34 Received: 08/08/18 17:35 Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS Drinking Water	Analytical Method: EPA 200.8								
Copper	**428**	ug/L	5.0	1300	5		08/21/18 18:05	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/21/18 15:02	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

Sample: 1-HW-B-18 **Lab ID: 4616078015** Collected: 08/08/18 08:35 Received: 08/08/18 17:35 Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS Drinking Water	Analytical Method: EPA 200.8								
Copper	**435**	ug/L	10.0	1300	10		08/21/18 18:06	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/21/18 15:03	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

Sample: 1-140-B-20 **Lab ID: 4616078016** Collected: 08/08/18 08:37 Received: 08/08/18 17:35 Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS Drinking Water	Analytical Method: EPA 200.8								
Copper	**361**	ug/L	5.0	1300	5		08/21/18 18:13	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/21/18 15:10	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

Sample: 1-HW-DWF-23 **Lab ID: 4616078017** Collected: 08/08/18 08:40 Received: 08/08/18 17:35 Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS Drinking Water	Analytical Method: EPA 200.8								
Copper	**540**	ug/L	10.0	1300	10		08/21/18 18:14	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/21/18 15:11	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

Sample: 1-HW-B-24 **Lab ID: 4616078018** Collected: 08/08/18 08:42 Received: 08/08/18 17:35 Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 ICPMS Metals, Total	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Copper	**27300**	ug/L	500	1300	500	08/13/18 07:20	08/14/18 09:38	7440-50-8	
Lead	**20.9**	ug/L	1.0	15	1	08/13/18 07:20	08/14/18 08:39	7439-92-1	

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ANALYTICAL RESULTS

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

Sample: 1-HW-B-25 **Lab ID: 4616078019** Collected: 08/08/18 08:44 Received: 08/08/18 17:35 Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 ICPMS Metals, Total	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Copper	**38800**	ug/L	1000	1300	1000	08/13/18 07:20	08/14/18 09:39	7440-50-8	
Lead	**31.2**	ug/L	1.0	15	1	08/13/18 07:20	08/14/18 08:44	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

Sample: 1-104A(K)-KS-26 **Lab ID: 4616078020** Collected: 08/08/18 08:48 Received: 08/08/18 17:35 Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS Drinking Water	Analytical Method: EPA 200.8								
Copper	**49.8**	ug/L	1.0	1300	1		08/21/18 15:12	7440-50-8	
Lead	**9.6**	ug/L	1.0	15	1		08/21/18 15:12	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

Sample: 1-104A(K)-KS-27 **Lab ID: 4616078021** Collected: 08/08/18 08:46 Received: 08/08/18 17:35 Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS Drinking Water	Analytical Method: EPA 200.8								
Copper	**46.2**	ug/L	1.0	1300	1		08/21/18 15:15	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/21/18 15:15	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

Sample: 1-104A(K)-KS-28 **Lab ID: 4616078022** Collected: 08/08/18 08:47 Received: 08/08/18 17:35 Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS Drinking Water	Analytical Method: EPA 200.8								
Copper	**76.9**	ug/L	1.0	1300	1		08/21/18 15:22	7440-50-8	
Lead	**2.5**	ug/L	1.0	15	1		08/21/18 15:22	7439-92-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

QC Batch: 31293 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: ICPMS Metals, No Prep
Associated Lab Samples: 4616078001, 4616078002, 4616078005, 4616078006, 4616078009, 4616078010, 4616078011, 4616078012, 4616078013, 4616078014, 4616078015, 4616078016, 4616078017, 4616078020

METHOD BLANK: 126147 Matrix: Water
Associated Lab Samples: 4616078001, 4616078002, 4616078005, 4616078006, 4616078009, 4616078010, 4616078011, 4616078012, 4616078013, 4616078014, 4616078015, 4616078016, 4616078017, 4616078020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Copper	ug/L	<1.0	1.0	08/21/18 14:45	
Lead	ug/L	<1.0	1.0	08/21/18 14:45	

LABORATORY CONTROL SAMPLE: 126148

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	ug/L	20	21.1	106	85-115	
Lead	ug/L	20	20.6	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 126149 126150

Parameter	Units	4616078001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	ug/L	341	100	100	438	435	97	94	70-130	1	20	
Lead	ug/L	1.1	20	20	22.2	22.4	106	107	70-130	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 126152 126153

Parameter	Units	4616078015 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	ug/L	435	200	200	644	632	104	98	70-130	2	20	
Lead	ug/L	<1.0	20	20	21.4	21.4	105	105	70-130	0	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

QC Batch: 31294 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: ICPMS Metals, No Prep
Associated Lab Samples: 4616078021, 4616078022

METHOD BLANK: 126155 Matrix: Water
Associated Lab Samples: 4616078021, 4616078022

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Copper	ug/L	<1.0	1.0	08/21/18 15:13	
Lead	ug/L	<1.0	1.0	08/21/18 15:13	

LABORATORY CONTROL SAMPLE: 126156

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	ug/L	20	20.8	104	85-115	
Lead	ug/L	20	21.4	107	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 126157 126158

Parameter	Units	4616078021 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	ug/L	46.2	20	20	67.0	66.4	104	101	70-130	1	20	
Lead	ug/L	<1.0	20	20	22.0	21.9	106	105	70-130	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 126160 126161

Parameter	Units	4616080009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	ug/L	6.2	20	20	26.3	26.4	100	101	70-130	1	20	
Lead	ug/L	8.6	20	20	29.4	29.7	104	105	70-130	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Grand Rapids, MI 49512
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QUALITY CONTROL DATA

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

QC Batch: 30382 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 4616078003, 4616078004, 4616078007, 4616078008, 4616078018, 4616078019

METHOD BLANK: 122303 Matrix: Water
Associated Lab Samples: 4616078003, 4616078004, 4616078007, 4616078008, 4616078018, 4616078019

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Copper	ug/L	<1.0	1.0	08/14/18 08:33	
Lead	ug/L	<1.0	1.0	08/14/18 08:33	

LABORATORY CONTROL SAMPLE: 122304

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	ug/L	50	50.4	101	85-115	
Lead	ug/L	50	51.8	104	85-115	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
5560 Corporate Exchange Ct. SE
Grand Rapids, MI 49512
(616)975-4500

QUALIFIERS

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

Pace Analytical Services, LLC
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Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: DW-Bethune ES-MS
Pace Project No.: 4616078

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
4616078001	**2-HW-B-1**	EPA 200.8	31293		
4616078002	**2-HW-B-2**	EPA 200.8	31293		
4616078005	**2-HW-B-5**	EPA 200.8	31293		
4616078006	**2-HW-B-6**	EPA 200.8	31293		
4616078009	**1-HW-B-9**	EPA 200.8	31293		
4616078010	**1-HW-B-10**	EPA 200.8	31293		
4616078011	**1-124-B-12**	EPA 200.8	31293		
4616078012	**1-126-B-14**	EPA 200.8	31293		
4616078013	**1-132-B-16**	EPA 200.8	31293		
4616078014	**1-HW-B-17**	EPA 200.8	31293		
4616078015	**1-HW-B-18**	EPA 200.8	31293		
4616078016	**1-140-B-20**	EPA 200.8	31293		
4616078017	**1-HW-DWF-23**	EPA 200.8	31293		
4616078020	**1-104A(K)-KS-26**	EPA 200.8	31293		
4616078021	**1-104A(K)-KS-27**	EPA 200.8	31294		
4616078022	**1-104A(K)-KS-28**	EPA 200.8	31294		
4616078003	**2-HW-B-3**	EPA 200.8	30382	EPA 200.8	30608
4616078004	**2-HW-B-4**	EPA 200.8	30382	EPA 200.8	30608
4616078007	**1-HW-B-7**	EPA 200.8	30382	EPA 200.8	30608
4616078008	**1-HW-B-8**	EPA 200.8	30382	EPA 200.8	30608
4616078018	**1-HW-B-24**	EPA 200.8	30382	EPA 200.8	30608
4616078019	**1-HW-B-25**	EPA 200.8	30382	EPA 200.8	30608

Pace Analytical

WO# : 4616078

4616078

IAIN-OF-CUSTODY / Analytical Request Document

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

#20228

Page : 1 Of 2

Section A
Required Client Information:

Company:	ATC Group Services LLC
Address:	46555 Humboldt Drive, Suite 100
	Novi, MI 48377
Email:	robert.smith@atcgs.com
Phone:	248-669-5140 Fax: 248-669-5147
Requested Due Date:	

Report To:	Robert Smith
Copy To:	
Purchase Order #:	
Project Name:	Lead & Copper Testing
Project #:	Bethune ES-MS

Section C
Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	Will Cole
Pace Profile #:	Profile 236 - Line 2

Regulatory Agency

State / Location
MI

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test: Lead & Copper	Residual Chlorine (Y/N)
1	2-HW-B-1	DW	G	8/7/18	8:11				1			X						X	
2	2-HW-B-2	DW	G	8/7/18	8:13				1			X						X	
3	2-HW-B-3	DW	G	8/7/18	8:15				1			X						X	
4	2-HW-B-4	DW	G	8/7/18	8:16				1			X						X	
5	2-HW-B-5	DW	G	8/7/18	8:18				1			X						X	
6	2-HW-B-6	DW	G	8/7/18	8:19				1			X						X	
7	1-HW-B-7	DW	G	8/7/18	8:21				1			X						X	
8	1-HW-B-8	DW	G	8/7/18	8:22				1			X						X	
9	1-HW-B-9	DW	G	8/7/18	8:24				1			X						X	
10	1-HW-B-10	DW	G	8/7/18	8:25				1			X						X	
11	1-124-B-12	DW	G	8/7/18	8:28				1			X						X	
12	1-126-B-14	DW	G	8/7/18	8:30				1			X						X	

40-43

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
					8/8/18	1400
		8/8/18	1735	Pace	08/08/18	1735

SAMPLE CONDITIONS

TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Dominique Greer

SIGNATURE of SAMPLER:

DATE Signed: 8/7/2018

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

#20229

Page : 2 Of 2

Section A — Required Client Information:

Company:	ATC Group Services LLC
Address:	46555 Humboldt Drive, Suite 100
	Novi, MI 48377
Email:	robert.smith@atcgs.com
Phone:	248-669-5140 Fax: 248-669-5147
Requested Due Date:	

Section B — Required Project Information:

Report To:	Robert Smith
Copy To:	
Purchase Order #:	
Project Name:	Lead & Copper Testing
Project #:	Bethune ES-MS

Section C — Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	Will Cole
Pace Profile #:	Profile 236 - Line 2

Regulatory Agency:

State / Location: MI

SAMPLE ID
One Character per box.
(A-Z, 0-9 / , -)
Sample Ids must be unique

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Lead & Copper	Residual Chlorine (Y/N)
13	1-132-B-16	DW	G	8/7/18	8:32				1			X							X	
14	1-HW-B-17	DW	G	8/7/18	8:34				1			X							X	
15	1-HW-B-18	DW	G	8/7/18	8:35				1			X							X	
16	1-140-B-20	DW	G	8/7/18	8:37				1			X							X	
17	1-HW-DWF-23	DW	G	8/7/18	8:40				1			X							X	
18	1-HW-B-24	DW	G	8/7/18	8:42				1			X							X	
19	1-HW-B-25	DW	G	8/7/18	8:44				1			X							X	
20	1-104A (K)-KS-26	DW	G	8/7/18	8:48				1			X							X	
21	1-104A(K)-KS-27	DW	G	8/7/18	8:46				1			X							X	
22	1-104A(K)-KS-28	DW	G	8/7/18	8:47				1			X							X	

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
					8/8/18	1400	
		8/8/18	1735	Watts/Pace	08/08/18	1735	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Dominique Greer

SIGNATURE of SAMPLER:

DATE Signed: 8/7/2018

TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLE RECEIVING / LOG-IN CHECKLIST

Pace Analytical®

Client: ATC – Bethune		Work Order #: 4616078
Receipt Record Page/Line #: (4043)		
Recorded by (initials/date): AW 08/08/18	☑ Cooler ☐ Box ☐ Other____ — Qty Received: 1	Thermometer Used: ☑ IR Gun (#202) ☐ Digital Thermometer (#54) ☐ IR Gun (#402)

Cooler # — Time 1856	Cooler # — Time	Cooler # — Time	Cooler # — Time
Custody Seals: ☑ None ☐ Present / Intact ☐ Present / Not Intact	Custody Seals: ☐ None ☐ Present / Intact ☐ Present / Not Intact	Custody Seals: ☐ None ☐ Present / Intact ☐ Present / Not Intact	Custody Seals: ☐ None ☐ Present / Intact ☐ Present / Not Intact
Coolant Type: ☐ Loose Ice ☐ Bagged Ice ☐ Blue Ice ☑ None	Coolant Type: ☐ Loose Ice ☐ Bagged Ice ☐ Blue Ice ☐ None	Coolant Type: ☐ Loose Ice ☐ Bagged Ice ☐ Blue Ice ☐ None	Coolant Type: ☐ Loose Ice ☐ Bagged Ice ☐ Blue Ice ☐ None
Coolant Location: Dispersed / Top / Middle / Bottom	Coolant Location: Dispersed / Top / Middle / Bottom	Coolant Location: Dispersed / Top / Middle / Bottom	Coolant Location: Dispersed / Top / Middle / Bottom
Temp Blank Present: ☐ Yes ☑ No	Temp Blank Present: ☐ Yes ☐ No	Temp Blank Present: ☐ Yes ☐ No	Temp Blank Present: ☐ Yes ☐ No
If Present, Temperature Blank Location is: ☐ Representative ☐ Not Representative	If Present, Temperature Blank Location is: ☐ Representative ☐ Not Representative	If Present, Temperature Blank Location is: ☐ Representative ☐ Not Representative	If Present, Temperature Blank Location is: ☐ Representative ☐ Not Representative

Cooler 1	Observed °C	Correction Factor °C	Actual °C
Temp Blank:	—		—
Sample 1:	28.3	/	28.3
Sample 2:	27.5	/	27.5
Sample 3:	27.9	/	27.9

When above 6 °C take a 3 Sample Average °C: 27.9

Coolers 2–4: Temp Blank, Sample 1, Sample 2, Sample 3 — blank. When above 6 °C take a 3 Sample Average °C: (blank)

☐ VOC Trip Blank received? (each cooler)

If any shaded areas checked, complete Sample Receiving Non-Conformance

Paperwork Received

Yes	No	
☑	☐	Chain of Custody record(s)? If No, Initiated By ____
☑		Received for Lab Signed/Date/Time?
☐	☑	USDA Soil Documents?
☐	☑	Sampling / Field Forms?
☐	☑	Other ____

COC Information

☑ Pace COC ☐ Other____

COC ID Numbers:

Check COC for Accuracy

Yes	No	
☑	☐	Analysis Requested?
☑	☐	Sample ID matches COC?
☑	☐	Sample Date and Time matches COC?
☑	☐	All containers indicated are received?

Sample Condition Summary

N/A	Yes	No	
	☐	☑	Broken containers/lids?
	☐	☑	Missing or incomplete labels?
	☐	☑	Illegible information on labels?
	☐	☑	Low volume received?
	☐	☑	Inappropriate or non-Pace containers received?
☑	☐	☐	VOC vials have headspace?
	☐	☑	Extra sample locations?
	☐	☑	Containers not listed on COC?

Check Sample Preservation

N/A	Yes	No	
	☑	☐	Temperature Blank OR average sample temperature, ≥6° C?
☐	☑	☐	If "Yes" was thermal preservation required?
☐	☑	☐	If "Yes" were ALL samples collected the same day as receipt?
☐	☑		Completed Sample Preservation Verification Form?
☐	☑	☐	Samples chemically preserved correctly?
☑	☐		If "No", add wire tag and fill out Non-Conformance Form?
☑	☐		Received unpreserved Terracore kit?
			If "Yes" unpreserved vials must be frozen

Work Order Not Logged In with Short Hold / Rush

☐ Copies of COC To Lab Areas

Notes

Yes	No	
☑	☐	Were all samples logged into Epic?
☑	☐	Were all samples labelled?
☑	☐	Were samples placed on scan locations?

Initial / Date : AW 08/08/18

Pace Analytical® AQUEOUS SAMPLE PRESERVATION VERIFICATION

Client: ATC - Bethune (40-43)

Receipt Log #:

Completed By (initials/date): AW 08/08/18

Work Order #: 4616078

COC ID #: 20228

Adjusted by: _____

Date: _____

Container Type	BP3C or AG3O		BP1-4S		AG2S		BP1-4N Total		BP1-4N Dissolved			
Preservative	NaOH >12		H_2SO_4 <2		H_2SO_4 <2		HNO_3 <2		HNO_3 <2			
pH	Received	Adjusted	Received	Adjusted	Received	Adjusted	Received	Adjusted	Received	Adjusted	Received	Adjusted
COC Line #1							✓					
COC Line #2							✓					
COC Line #3							✓					
COC Line #4							✓					
COC Line #5							✓					
COC Line #6							✓					
COC Line #7							✓					
COC Line #8							✓					
COC Line #9							✓					
COC Line #10							✓					
COC Line #11							✓					
COC Line #12							✓					

Comments:

pH Strip Reagent or Lot #

☑ HC739245

☐ Other _____

Place a check mark in the Received box if pH is acceptable. If pH is not acceptable, document the Received and Adjusted pH values in the appropriate columns (project manager will review all adjustments at work order release). Never add more than 2x the default preservation volume (see table below for default volumes). Complete and attach a wire tag to all adjusted samples. A Sample Receiving Non-Conformance Report must be completed if a pH adjustment was required.

COC ID #: 20229

Adjusted by: _____

Date: _____

Container Type	BP3C or AG3O		BP1-4S		AG2S		BP1-4N Total		BP1-4N Dissolved			
Preservative	NaOH >12		H_2SO_4 <2		H_2SO_4 <2		HNO_3 <2		HNO_3 <2			
pH	Received	Adjusted	Received	Adjusted	Received	Adjusted	Received	Adjusted	Received	Adjusted	Received	Adjusted
COC Line #1							✓					
COC Line #2							✓					
COC Line #3							✓					
COC Line #4							✓					
COC Line #5							✓					
COC Line #6							✓					
COC Line #7							✓					
COC Line #8							✓					
COC Line #9							✓					
COC Line #10												
COC Line #11												
COC Line #12												

Comments:

Container Size (mL)	Default Preservative Volume (mL)
Container Types 5 / 23	NaOH
250	1.3
Container Type 4	H_2SO_4
125	0.5
250	1.0
500	2.0
1000	4.0
Container Type 13	H_2SO_4
500	2.5
Container Types 6 / 15	HNO_3
125	0.7
250	1.25
500	2.5
1000	5.0