ENVIRONMENTAL • GEOTECHNICAL
BUILDING SCIENCES • MATERIALS TESTING

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

September 11, 2018

Mathew Sam
Detroit Public Schools
1601 Farnsworth
Detroit, Michigan 48202

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

SUBJECT: **Drinking Water Screening Report**
Detroit International Academy for Young Women
9026 Woodward Avenue
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 7 of the samples analyzed were above the EPA recommended limits of 15 micrograms per liter (ug/L) for lead. None 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 (September 6, 2018)

Sample Number	Location	Description	Total Lead (ug/l)	Total Copper (ug/l)
2-Hall@Office-DWF-1	Hall to the left of office and stairs	Drinking Water Fountain	1.5 ug/L	131 ug/L
1-Kitchen-KF-11	Kitchen (room 138)	Kitchen - Left	4.1 ug/L	171 ug/L
1-Kitchen-KF-12	Kitchen (room 138)	Kitchen Faucet - Middle	**42.7 ug/L**	923 ug/L
1-Kitchen-KF-13	Kitchen (room 138)	Kitchen Faucet - Right	1.8 ug/L	330 ug/L
1-Kitchen-KF-15	Kitchen (room 138) - Center	Kitchen Faucet - Left	**96.0 ug/L**	206 ug/L
1-Kitchen-KF-16	Kitchen (room 138) - Center	Kitchen Faucet - Right	7.5 ug/L	138 ug/L
1-Kitchen-KF-17	Kitchen (room 138) - Near ovens	Kitchen Faucet	<1.0 ug/L	111 ug/L
1-Kitchen-DWF-19	Kitchen (room 138) - Near restrooms	Drinking Water Fountain	7.8 ug/L	924 ug/L
2-243-KF-20	Room 243 (teacher's lounge)	Kitchen Faucet	12.3 ug/L	579 ug/L

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Sample Number	Location	Description	Total Lead (ug/l)	Total Copper (ug/l)
3-Hall@Stair-B-26	Hall to the right of stairwell	Bubbler	1.0 ug/L	7 ug/L
3-Hall@Stair-B-27	Hall to the left of stairwell	Bubbler	11.3 ug/L	9.1 ug/L
3-Hall@318-DWF-28	Hall to the left of room 318	Drinking Water Fountain	3.1 ug/L	25.5 ug/L
3-Hall@319-DWF-29	Hall to the left of room 319	Drinking Water Fountain	6.1 ug/L	55.2 ug/L
2-Hall@216-DWF-32	Hall to the left of room 216	Drinking Water Fountain	2.3 ug/L	84.4 ug/L
1-Hall@109-B-34	Hall across from room 109	Bubbler	5.1 ug/L	7.9 ug/L
1-Hall@134-B-37	Hall to the left of room 134	Bubbler - Left	**15.2 ug/L**	196 ug/L
1-Hall@134-B-38	Hall to the left of room 134	Bubbler - Center	**17.5 ug/L**	145 ug/L
1-Hall@134-B-39	Hall to the left of room 134	Bubbler - Right	7.2 ug/L	81.6 ug/L
2-Hall@260-B-43	Hall to the left of room 260	Bubbler - Left	**93.7 ug/L**	721 ug/L
2-Hall@259-B-45	Hall to the right of room 259	Bubbler - Left	**19 ug/L**	382 ug/L
2-Hall@259-B-46	Hall to the right of room 259	Bubbler - Right	**18.9 ug/L**	510 ug/L
3-Hall@336-B-50	Hall to the left of room 336 (women's restroom)	Bubbler - Right	6.3 ug/L	82.8 ug/L
2-Gym-B-51	Gym Left	Bubbler	4.2 ug/L	80.2 ug/L
1-Kitchen-KF-14	Kitchen (room 138) - Near door/coffee prep area	Kitchen Faucet (hand washing)	174 ug/L	245 ug/L

Key: NA - Not Analyzed

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

Analysis of samples of the kitchen faucets in room 138 (middle sink), handwashing sink, left center sink, left & center bubblers located next to room 134, left bubbler near room 260 and both bubblers near room 259 indicate that lead levels were above the MCL. No samples indicate that copper levels were above the MCL. See recommendations below.

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

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Attachments

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

School Name: Detroit International Academy for Young Women

Address 9026 Woodward Avenue, Detroit, MI 48202

Fixture Identification	Fixture Location	Fixture Description	Photo #
2-Hall@Office-DWF-1	Hall to the left of office and stairs	Drinking Water Fountain	1
1-103-CF-2	Room 103 (Pre K)	Classroom Faucet	2
1-103-B-3	Room 103 (Pre K)	Bubbler- Not Accessible	3
1-105-CF-4	Room 105 (Pre K)	Classroom Faucet	4
1-105-B-5	Room 105 (Pre K)	Bubbler- Not Accessible	5
1-Kitchen-KF-6	Kitchen - Serving Room	Kitchen Faucet	6
1-Kitchen-KF-7	Kitchen - Payment Room	Kitchen Faucet	7
1-118-CF-8	Room 118 (Pre K)	Classroom Faucet	8
1-STAFF-KF-9	Staff dining room at the dining hall	Kitchen Faucet	9
1-Kitchen-KF-10	Kitchen (room 138)	Kitchen Faucet (hand washing)	10
1-Kitchen-KF-11	Kitchen (room 138)	Kitchen - Left	11

School Name: Detroit International Academy for Young Women

Address 9026 Woodward Avenue, Detroit, MI 48202

Fixture Identification	Fixture Location	Fixture Description	Photo #
1-Kitchen-KF-12	Kitchen (room 138)	Kitchen Faucet - Middle	12
1-Kitchen-KF-13	Kitchen (room 138)	Kitchen Faucet - Right	13
1-Kitchen-KF-14	Kitchen (room 138) - Near door/coffee prep area	Kitchen Faucet (hand washing)	14
1-Kitchen-KF-15	Kitchen (room 138) - Center	Kitchen Faucet - Left	15
1-Kitchen-KF-16	Kitchen (room 138) - Center	Kitchen Faucet - Right	16
1-Kitchen-KF-17	Kitchen (room 138) - Near ovens	Kitchen Faucet	17
1-Kitchen-KF-18	Kitchen (room 138) - Near restrooms	Kitchen Faucet (hand washing)	18
1-Kitchen-DWF-19	Kitchen (room 138) - Near restrooms	Drinking Water Fountain	19
2-243-KF-20	Room 243 (teacher's lounge)	Kitchen Faucet	20
3-343-KF-21	Room 343 (teacher's lounge)	Kitchen Faucet	21
3-300-KF-22	Room 300 (library)	Kitchen Faucet	22

School Name: Detroit International Academy for Young Women

Address 9026 Woodward Avenue, Detroit, MI 48202

Fixture Identification	Fixture Location	Fixture Description	Photo #
4-XXX-KF-23	Unnumbered room to the left of room 401 (inaccessible)	Kitchen Faucet- Not Working	23
4-Hall@401-DWF-24	Hall down from room 401	Drinking Water Fountain - Left- Not Working	24
4-Hall@401-DWF-25	Hall down from room 401	Drinking Water Fountain - Right- Not Working	25
3-Hall@Stair-B-26	Hall to the right of stairwell	Bubbler	26
3-Hall@Stair-B-27	Hall to the left of stairwell	Bubbler	27
3-Hall@318-DWF-28	Hall to the left of room 318	Drinking Water Fountain	28
3-Hall@319-DWF-29	Hall to the left of room 319	Drinking Water Fountain	29
2-Hall@Office-B-30	Hall to the right of the office and stairwell	Bubbler - Not Working	30
2-Hall@217-DWF-31	Hall to the right of room 217	Drinking Water Fountain- Not Working	31
2-Hall@216-DWF-32	Hall to the left of room 216	Drinking Water Fountain	32
1-Hall@103-DWF-33	Hall to the right of room 103	Drinking Water Fountain	33

School Name: Detroit International Academy for Young Women

Address 9026 Woodward Avenue, Detroit, MI 48202

Fixture Identification	Fixture Location	Fixture Description	Photo #
1-Hall@109-B-34	Hall across from room 109	Bubbler	34
1-Hall@102-MF-35	Hall to the left of room 102	Missing Fixture	35
1-Hall@107-DWF-36	Hall across from room 107	Drinking Water Fountain- Not Working	36
1-Hall@134-B-37	Hall to the left of room 134	Bubbler - Left	37
1-Hall@134-B-38	Hall to the left of room 134	Bubbler - Center	38
1-Hall@134-B-39	Hall to the left of room 134	Bubbler - Right	39
1-Hall@148-B-40	Hall to the left of room 148	Bubbler- Not Working	40
1-Hall@153-B-41	Hall to the right of room 153	Bubbler - Left- Not Working	41
1-Hall@153-B-42	Hall to the right of room 153	Bubbler - Right- Not Working	42
2-Hall@260-B-43	Hall to the left of room 260	Bubbler - Left	43
2-Hall@260-B-44	Hall to the left of room 260	Bubbler - Right- Not Working	44

School Name: Detroit International Academy for Young Women

Address 9026 Woodward Avenue, Detroit, MI 48202

Fixture Identification	Fixture Location	Fixture Description	Photo #
2-Hall@259-B-45	Hall to the right of room 259	Bubbler - Left	45
2-Hall@259-B-46	Hall to the right of room 259	Bubbler - Right	46
2-Hall@237-B-47	Hall across from room 237 near the doors	Bubbler - Left- Not Working	47
2-Hall@237-B-48	Hall across from room 237 near the doors	Bubbler - Right- Not Working	48
3-Hall@336-B-49	Hall to the left of room 336 (women's restroom)	Bubbler - Left- Not Working	49
3-Hall@336-B-50	Hall to the left of room 336 (women's restroom)	Bubbler - Right	50
2-Gym-B-51	Gym Left	Bubbler	51
2-Gym-B-52	Gym Right	Bubbler- Not Working	52

Photo 1: Drinking water fountain, located in a 2nd floor hall, to the left of the office and stairs.

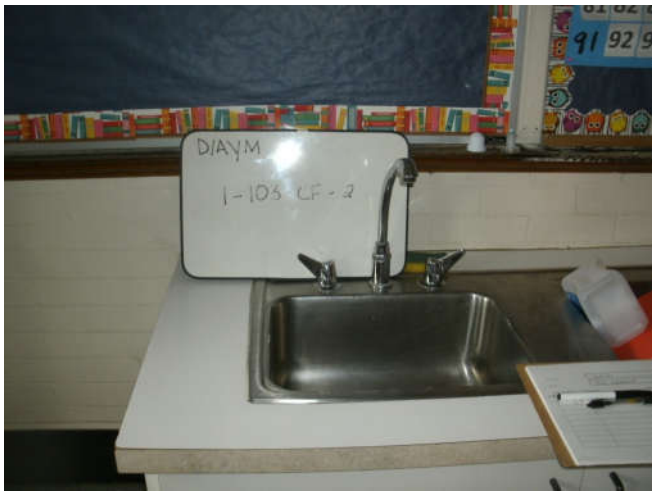

Photo 2: Classroom faucet, located on the 1st floor, in room 103.

Photo 3: Bubbler, located on the 1st floor, in room 103.

Photo 4: Classroom faucet, located on the 1st floor, in room 105.

Photo 5: Bubbler, located on the 1st floor, in room 105.

Photo 6: Kitchen faucet, located on the 1st floor, in the serving room (hand washing).

Photo 7: Kitchen faucet, located on the 1st floor, in the payment room (hand washing).

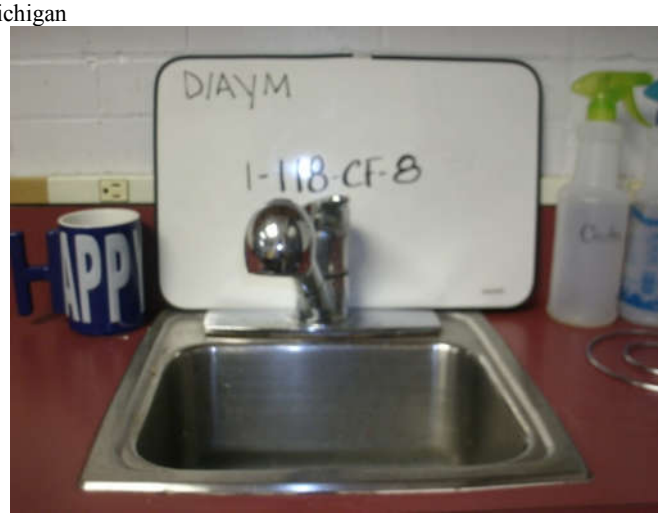

Photo 8: Classroom faucet, located on the 1st floor, in room 118 (Pre K).

Photo 9: Kitchen faucet, located on the 1st floor, in the staff dining room.

Photo 10: Kitchen faucet, located on the 1st floor, in the kitchen (room 138) (hand washing).

Photo 11: Kitchen faucet, located on the 1st floor, in the kitchen (room 138) – left fixture (dish washing).

Photo 12: Kitchen faucet, located on the 1st floor, in the kitchen (room 138) – center fixture (dish washing).

Photo 13: Kitchen faucet, located on the 1st floor, in the kitchen (room 138) – right fixture (dish washing).

Photo 14: Kitchen faucet, located on the 1st floor, in the kitchen (room 138) – near door.

Photo 15: Kitchen faucet, located on the 1st floor, in the kitchen (room 138), center island – left fixture.

Photo 16: Kitchen faucet, located on the 1st floor, in the kitchen (room 138), center island – right fixture.

Photo 17: Kitchen faucet, located on the 1st floor, in the kitchen (room 138), near ovens.

Photo 18: Kitchen faucet, located on the 1st floor, in the kitchen (room 138), near restrooms (hand washing).

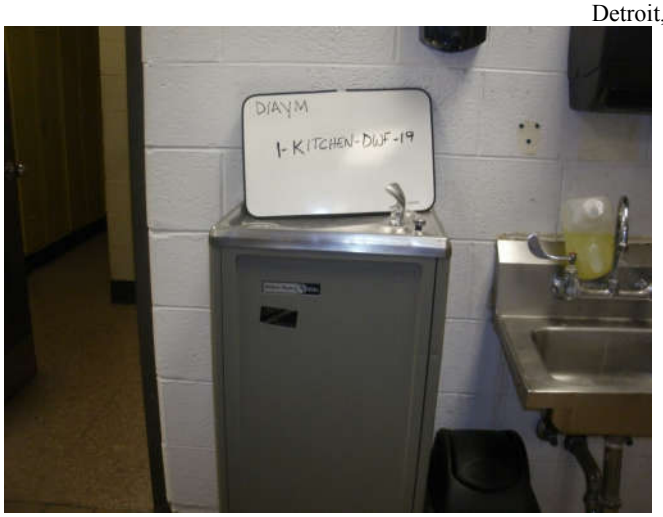

Photo 19: Drinking water fountain, located on the 1st floor, in the kitchen (room 138), near restrooms.

Photo 20: Kitchen faucet, located on the 2nd floor, in room 243 (teacher's lounge).

Photo 21: Kitchen faucet, located on the 3rd floor, in room 343 (teacher's lounge).

Photo 22: Kitchen faucet, located on the 3rd floor, in room 300 (library).

Room Inaccessible

Photo 23: Kitchen faucet, located on the 4th floor, in an unnumbered room (teacher's lounge) next to room 401.

Photo 24: Drinking water fountain, located in a 4th floor hall, down from room 401 (left fixture).

Photo 25: Drinking water fountain, located in a 4th floor hall, down from room 401 (right fixture).

Photo 26: Bubbler, located in a 3rd floor hall, to the right of the stairs.

Photo 27: Bubbler, located in a 3rd floor hall, to the left of the stairs.

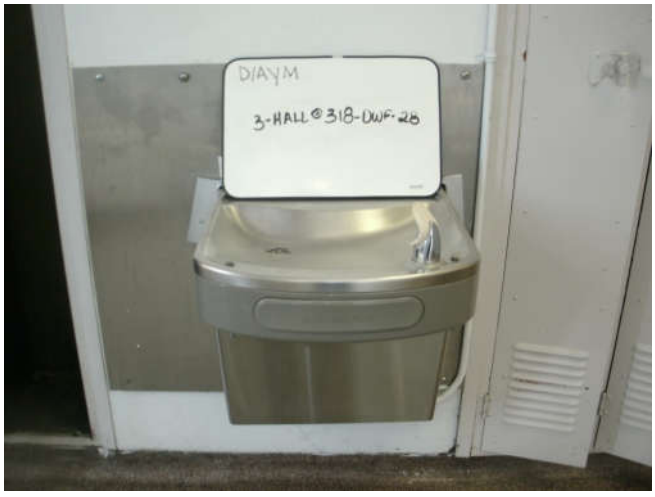

Photo 28: Drinking water fountain, located in a 3rd floor hall, left of room 318.

Photo 29: Drinking water fountain, located in a 3rd floor hall, left of room 319.

Photo 30: Bubbler, located in a 2nd floor hall, to the left of the office and stairs.

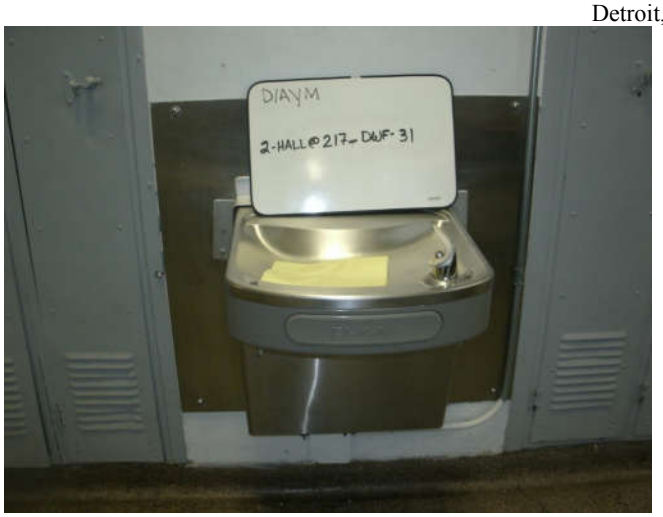

Photo 31: Drinking water fountain, located in a 2nd floor hall, right of room 217.

Photo 32: Drinking water fountain, located in a 2nd floor hall, left of room 216.

Photo 33: Drinking water fountain, located in a 1st floor hall, to the right of room 103.

Photo 34: Bubbler, located in a 1st floor hall, across from room 109.

Photo 35: Drinking water fountain, located in a 1st floor hall, to the left of room 102.

Photo 36: Drinking water fountain, located in a 1st floor hall, across from room 107.

Photo 37: Bubbler, located in a 1st floor hall, to the left of room 134 (left fixture).

Photo 38: Bubbler, located in a 1st floor hall, to the left of room 134 (center fixture).

Photo 39: Bubbler, located in a 1st floor hall, to the left of room 134 (right fixture).

Photo 40: Bubbler, located in a 1st floor hall, to the left of room 148.

Photo 41: Bubbler, located in a 1st floor hall, to the right of room 153 (left fixture).

Photo 42: Bubbler, located in a 1st floor hall, to the right of room 153 (right fixture).

Photo 43: Bubbler, located in a 2nd floor hall, to the left of room 260 (left fixture).

Photo 44: Bubbler, located in a 2nd floor hall, to the left of room 260 (right fixture).

Photo 45: Bubbler, located in a 2nd floor hall, to the right of room 259 (left fixture).

Photo 46: Bubbler, located in a 2nd floor hall, to the right of room 259 (right fixture).

Photo 47: Bubbler, located in a 2nd floor hall, across from room 237, near doors (left fixture).

Photo 48: Bubbler, located in a 2nd floor hall, across from room 237, near doors (right fixture).

Photo 49: Bubbler, located in a 3rd floor hall, to the left of room 336, near women's restroom (left fixture).

Photo 50: Bubbler, located in a 3rd floor hall, to the left of room 336, near women's restroom (right fixture).

Photo 51: Bubbler, located on the 2nd floor, in the gym.

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

September 06, 2018

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

RE: Project: DW-DIAYW
Pace Project No.: 4616830

Dear Robert Smith:
Enclosed are the analytical results for sample(s) received by the laboratory on August 23, 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-DIAYW
Pace Project No.: 4616830

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-DIAYW
Pace Project No.: 4616830

Lab ID	Sample ID	Matrix	Date Collected	Date Received
4616830001	**2-Hall@Office-DWF-1**	Drinking Water	08/14/18 07:47	08/23/18 19:45
4616830002	**1-Kitchen-KF-11**	Drinking Water	08/14/18 07:57	08/23/18 19:45
4616830003	**1-Kitchen-KF-12**	Drinking Water	08/14/18 07:58	08/23/18 19:45
4616830004	**1-Kitchen-KF-13**	Drinking Water	08/14/18 07:59	08/23/18 19:45
4616830005	**1-Kitchen-KF-15**	Drinking Water	08/14/18 08:01	08/23/18 19:45
4616830006	**1-Kitchen-KF-16**	Drinking Water	08/14/18 08:02	08/23/18 19:45
4616830007	**1-Kitchen-KF-17**	Drinking Water	08/14/18 08:03	08/23/18 19:45
4616830008	**1-Kitchen-DWF-19**	Drinking Water	08/14/18 08:04	08/23/18 19:45
4616830009	**2-243-KF-20**	Drinking Water	08/14/18 08:06	08/23/18 19:45
4616830010	**3-Hall@Stair-B-26**	Drinking Water	08/14/18 08:10	08/23/18 19:45
4616830011	**3-Hall@Stair-B-27**	Drinking Water	08/14/18 08:12	08/23/18 19:45
4616830012	**3-Hall@318-DWF-28**	Drinking Water	08/14/18 08:13	08/23/18 19:45
4616830013	**3-Hall@319-DWF-29**	Drinking Water	08/14/18 08:15	08/23/18 19:45
4616830014	**2-Hall@216-DWF-32**	Drinking Water	08/14/18 08:20	08/23/18 19:45
4616830015	**1-Hall@109-B-34**	Drinking Water	08/14/18 08:22	08/23/18 19:45
4616830016	**1-Hall@134-B-37**	Drinking Water	08/14/18 08:27	08/23/18 19:45
4616830017	**1-Hall@134-B-38**	Drinking Water	08/14/18 08:28	08/23/18 19:45
4616830018	**1-Hall@134-B-39**	Drinking Water	08/14/18 08:30	08/23/18 19:45
4616830019	**2-Hall@260-B-43**	Drinking Water	08/14/18 08:35	08/23/18 19:45
4616830020	**2-Hall@259-B-45**	Drinking Water	08/14/18 08:39	08/23/18 19:45
4616830021	**2-Hall@259-B-46**	Drinking Water	08/14/18 08:40	08/23/18 19:45
4616830022	**3-Hall@336-B-50**	Drinking Water	08/14/18 08:46	08/23/18 19:45
4616830023	**2-Gym-B-51**	Drinking Water	08/14/18 08:49	08/23/18 19:45
4616830024	**1-Kitchen-KF-14**	Drinking Water	08/14/18 08:00	08/23/18 19:45

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

SAMPLE ANALYTE COUNT

Project: DW-DIAYW
Pace Project No.: 4616830

Lab ID	Sample ID	Method	Analysts	Analytes Reported
4616830001	**2-Hall@Office-DWF-1**	EPA 200.8	NHAM	2
4616830002	**1-Kitchen-KF-11**	EPA 200.8	NHAM	2
4616830003	**1-Kitchen-KF-12**	EPA 200.8	NHAM	2
4616830004	**1-Kitchen-KF-13**	EPA 200.8	NHAM	2
4616830005	**1-Kitchen-KF-15**	EPA 200.8	NHAM	2
4616830006	**1-Kitchen-KF-16**	EPA 200.8	NHAM	2
4616830007	**1-Kitchen-KF-17**	EPA 200.8	NHAM	2
4616830008	**1-Kitchen-DWF-19**	EPA 200.8	NHAM	2
4616830009	**2-243-KF-20**	EPA 200.8	NHAM	2
4616830010	**3-Hall@Stair-B-26**	EPA 200.8	NHAM	2
4616830011	**3-Hall@Stair-B-27**	EPA 200.8	NHAM	2
4616830012	**3-Hall@318-DWF-28**	EPA 200.8	NHAM	2
4616830013	**3-Hall@319-DWF-29**	EPA 200.8	NHAM	2
4616830014	**2-Hall@216-DWF-32**	EPA 200.8	NHAM	2
4616830015	**1-Hall@109-B-34**	EPA 200.8	NHAM	2
4616830016	**1-Hall@134-B-37**	EPA 200.8	NHAM	2
4616830017	**1-Hall@134-B-38**	EPA 200.8	NHAM	2
4616830018	**1-Hall@134-B-39**	EPA 200.8	NHAM	2
4616830019	**2-Hall@260-B-43**	EPA 200.8	NHAM	2
4616830020	**2-Hall@259-B-45**	EPA 200.8	NHAM	2
4616830021	**2-Hall@259-B-46**	EPA 200.8	NHAM	2
4616830022	**3-Hall@336-B-50**	EPA 200.8	NHAM	2
4616830023	**2-Gym-B-51**	EPA 200.8	NHAM	2
4616830024	**1-Kitchen-KF-14**	EPA 200.8	NHAM	2

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: DW-DIAYW
Pace Project No.: 4616830

Sample: 2-Hall@Office-DWF-1 **Lab ID: 4616830001** Collected: 08/14/18 07:47 Received: 08/23/18 19:45 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	**131**	ug/L	1.0	1300	1		09/05/18 13:42	7440-50-8	
Lead	**1.5**	ug/L	1.0	15	1		09/05/18 13:42	7439-92-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: DW-DIAYW
Pace Project No.: 4616830

Sample: 1-Kitchen-KF-11 **Lab ID: 4616830002** Collected: 08/14/18 07:57 Received: 08/23/18 19:45 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	**171**	ug/L	1.0	1300	1		09/05/18 13:43	7440-50-8	
Lead	**4.1**	ug/L	1.0	15	1		09/05/18 13:43	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: DW-DIAYW
Pace Project No.: 4616830

Sample: 1-Kitchen-KF-12 **Lab ID: 4616830003** Collected: 08/14/18 07:58 Received: 08/23/18 19:45 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	**923**	ug/L	10.0	1300	10		09/05/18 15:15	7440-50-8	
Lead	**42.7**	ug/L	1.0	15	1		09/05/18 13:44	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: DW-DIAYW
Pace Project No.: 4616830

Sample: 1-Kitchen-KF-13 **Lab ID: 4616830004** Collected: 08/14/18 07:59 Received: 08/23/18 19:45 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	**330**	ug/L	5.0	1300	5		09/05/18 15:16	7440-50-8	
Lead	**1.8**	ug/L	1.0	15	1		09/05/18 13:49	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: DW-DIAYW
Pace Project No.: 4616830

Sample: 1-Kitchen-KF-15 **Lab ID: 4616830005** Collected: 08/14/18 08:01 Received: 08/23/18 19:45 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	**206**	ug/L	5.0	1300	5		09/05/18 15:17	7440-50-8	
Lead	**96.0**	ug/L	5.0	15	5		09/05/18 15:17	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: DW-DIAYW
Pace Project No.: 4616830

Sample: 1-Kitchen-KF-16 **Lab ID: 4616830006** Collected: 08/14/18 08:02 Received: 08/23/18 19:45 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	**138**	ug/L	1.0	1300	1		09/05/18 13:54	7440-50-8	
Lead	**7.5**	ug/L	1.0	15	1		09/05/18 13:54	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: DW-DIAYW
Pace Project No.: 4616830

Sample: 1-Kitchen-KF-17 **Lab ID: 4616830007** Collected: 08/14/18 08:03 Received: 08/23/18 19:45 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	**111**	ug/L	1.0	1300	1		09/05/18 13:55	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		09/05/18 13:55	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: DW-DIAYW
Pace Project No.: 4616830

Sample: 1-Kitchen-DWF-19 **Lab ID: 4616830008** Collected: 08/14/18 08:04 Received: 08/23/18 19:45 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	**924**	ug/L	50.0	1300	50		09/05/18 15:24	7440-50-8	
Lead	**7.8**	ug/L	1.0	15	1		09/05/18 13:56	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: DW-DIAYW
Pace Project No.: 4616830

Sample: 2-243-KF-20 **Lab ID: 4616830009** Collected: 08/14/18 08:06 Received: 08/23/18 19:45 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	**579**	ug/L	10.0	1300	10		09/05/18 15:25	7440-50-8	
Lead	**12.3**	ug/L	1.0	15	1		09/05/18 13:57	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: DW-DIAYW
Pace Project No.: 4616830

Sample: 3-Hall@Stair-B-26 **Lab ID: 4616830010** Collected: 08/14/18 08:10 Received: 08/23/18 19:45 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	**7.0**	ug/L	1.0	1300	1		09/05/18 13:58	7440-50-8	
Lead	**1.0**	ug/L	1.0	15	1		09/05/18 13:58	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: DW-DIAYW
Pace Project No.: 4616830

Sample: 3-Hall@Stair-B-27 **Lab ID: 4616830011** Collected: 08/14/18 08:12 Received: 08/23/18 19:45 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	**9.1**	ug/L	1.0	1300	1		09/05/18 14:02	7440-50-8	
Lead	**11.3**	ug/L	1.0	15	1		09/05/18 14:02	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: DW-DIAYW
Pace Project No.: 4616830

Sample: 3-Hall@318-DWF-28 **Lab ID: 4616830012** Collected: 08/14/18 08:13 Received: 08/23/18 19:45 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	**25.5**	ug/L	1.0	1300	1		09/05/18 14:03	7440-50-8	
Lead	**3.1**	ug/L	1.0	15	1		09/05/18 14:03	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: DW-DIAYW
Pace Project No.: 4616830

Sample: 3-Hall@319-DWF-29 **Lab ID: 4616830013** Collected: 08/14/18 08:15 Received: 08/23/18 19:45 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	**55.2**	ug/L	1.0	1300	1		09/05/18 14:04	7440-50-8	
Lead	**6.1**	ug/L	1.0	15	1		09/05/18 14:04	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: DW-DIAYW
Pace Project No.: 4616830

Sample: 2-Hall@216-DWF-32 **Lab ID: 4616830014** Collected: 08/14/18 08:20 Received: 08/23/18 19:45 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	**84.4**	ug/L	1.0	1300	1		09/05/18 14:05	7440-50-8	
Lead	**2.3**	ug/L	1.0	15	1		09/05/18 14:05	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: DW-DIAYW
Pace Project No.: 4616830

Sample: 1-Hall@109-B-34 **Lab ID: 4616830015** Collected: 08/14/18 08:22 Received: 08/23/18 19:45 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	**7.9**	ug/L	1.0	1300	1		09/05/18 14:08	7440-50-8	
Lead	**5.1**	ug/L	1.0	15	1		09/05/18 14:08	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: DW-DIAYW
Pace Project No.: 4616830

Sample: 1-Hall@134-B-37 **Lab ID: 4616830016** Collected: 08/14/18 08:27 Received: 08/23/18 19:45 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	**196**	ug/L	1.0	1300	1		09/05/18 14:15	7440-50-8	
Lead	**15.2**	ug/L	1.0	15	1		09/05/18 14:15	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: DW-DIAYW
Pace Project No.: 4616830

Sample: 1-Hall@134-B-38 **Lab ID: 4616830017** Collected: 08/14/18 08:28 Received: 08/23/18 19:45 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	**145**	ug/L	1.0	1300	1		09/05/18 14:16	7440-50-8	
Lead	**17.5**	ug/L	1.0	15	1		09/05/18 14:16	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: DW-DIAYW
Pace Project No.: 4616830

Sample: 1-Hall@134-B-39 **Lab ID: 4616830018** Collected: 08/14/18 08:30 Received: 08/23/18 19:45 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	**81.6**	ug/L	1.0	1300	1		09/05/18 14:17	7440-50-8	
Lead	**7.2**	ug/L	1.0	15	1		09/05/18 14:17	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: DW-DIAYW
Pace Project No.: 4616830

Sample: 2-Hall@260-B-43 **Lab ID: 4616830019** Collected: 08/14/18 08:35 Received: 08/23/18 19:45 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	**721**	ug/L	10.0	1300	10		09/05/18 15:27	7440-50-8	
Lead	**93.7**	ug/L	1.0	15	1		09/05/18 14:18	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: DW-DIAYW
Pace Project No.: 4616830

Sample: 2-Hall@259-B-45 **Lab ID: 4616830020** Collected: 08/14/18 08:39 Received: 08/23/18 19:45 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	**382**	ug/L	5.0	1300	5		09/05/18 15:28	7440-50-8	
Lead	**19.0**	ug/L	1.0	15	1		09/05/18 14:19	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: DW-DIAYW
Pace Project No.: 4616830

Sample: 2-Hall@259-B-46 **Lab ID: 4616830021** Collected: 08/14/18 08:40 Received: 08/23/18 19:45 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	**510**	ug/L	5.0	1300	5		09/05/18 15:29	7440-50-8	
Lead	**18.9**	ug/L	1.0	15	1		09/05/18 14:20	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: DW-DIAYW
Pace Project No.: 4616830

Sample: 3-Hall@336-B-50 **Lab ID: 4616830022** Collected: 08/14/18 08:46 Received: 08/23/18 19:45 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	**82.8**	ug/L	1.0	1300	1		09/05/18 14:21	7440-50-8	
Lead	**6.3**	ug/L	1.0	15	1		09/05/18 14:21	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: DW-DIAYW
Pace Project No.: 4616830

Sample: 2-Gym-B-51 **Lab ID: 4616830023** Collected: 08/14/18 08:49 Received: 08/23/18 19:45 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	**80.2**	ug/L	1.0	1300	1		09/05/18 14:22	7440-50-8	
Lead	**4.2**	ug/L	1.0	15	1		09/05/18 14:22	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: DW-DIAYW
Pace Project No.: 4616830

Sample: 1-Kitchen-KF-14 **Lab ID: 4616830024** Collected: 08/14/18 08:00 Received: 08/23/18 19:45 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	**245**	ug/L	1.0	1300	1		09/05/18 14:23	7440-50-8	
Lead	**174**	ug/L	5.0	15	5		09/05/18 15:31	7439-92-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: DW-DIAYW
Pace Project No.: 4616830

QC Batch: 32427 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: ICPMS Metals, No Prep
Associated Lab Samples: 4616830001, 4616830002, 4616830003, 4616830004, 4616830005, 4616830006, 4616830007, 4616830008, 4616830009, 4616830010, 4616830011, 4616830012, 4616830013, 4616830014

METHOD BLANK: 130834 Matrix: Water
Associated Lab Samples: 4616830001, 4616830002, 4616830003, 4616830004, 4616830005, 4616830006, 4616830007, 4616830008, 4616830009, 4616830010, 4616830011, 4616830012, 4616830013, 4616830014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Copper	ug/L	<1.0	1.0	09/05/18 13:28	
Lead	ug/L	<1.0	1.0	09/05/18 13:28	

LABORATORY CONTROL SAMPLE: 130835

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	ug/L	20	21.7	108	85-115	
Lead	ug/L	20	22.0	110	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 130836 130837

Parameter	Units	4616822012 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	ug/L	170	20	20	192	192	107	106	70-130	0	20	
Lead	ug/L	33.2	20	20	54.5	55.1	107	109	70-130	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 130839 130840

Parameter	Units	4616830005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	ug/L	206	100	100	324	324	119	118	70-130	0	20	
Lead	ug/L	96.0	100	100	204	207	108	111	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

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QUALITY CONTROL DATA

Project: DW-DIAYW
Pace Project No.: 4616830

QC Batch: 32428 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: ICPMS Metals, No Prep
Associated Lab Samples: 4616830015, 4616830016, 4616830017, 4616830018, 4616830019, 4616830020, 4616830021, 4616830022, 4616830023, 4616830024

METHOD BLANK: 130848 Matrix: Water
Associated Lab Samples: 4616830015, 4616830016, 4616830017, 4616830018, 4616830019, 4616830020, 4616830021, 4616830022, 4616830023, 4616830024

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Copper	ug/L	<1.0	1.0	09/05/18 14:06	
Lead	ug/L	<1.0	1.0	09/05/18 14:06	

LABORATORY CONTROL SAMPLE: 130849

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	ug/L	20	21.2	106	85-115	
Lead	ug/L	20	21.5	107	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 130850 130851

Parameter	Units	4616830015 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	ug/L	7.9	20	20	28.8	29.3	104	107	70-130	2	20	
Lead	ug/L	5.1	20	20	27.0	26.9	109	109	70-130	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 130853 130854

Parameter	Units	4616831001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	ug/L	146	20	20	168	160	111	71	70-130	5	20	
Lead	ug/L	<1.0	20	20	22.2	22.5	107	108	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

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QUALIFIERS

Project: DW-DIAYW
Pace Project No.: 4616830

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: DW-DIAYW
Pace Project No.: 4616830

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
4616830001	**2-Hall@Office-DWF-1**	EPA 200.8	32427		
4616830002	**1-Kitchen-KF-11**	EPA 200.8	32427		
4616830003	**1-Kitchen-KF-12**	EPA 200.8	32427		
4616830004	**1-Kitchen-KF-13**	EPA 200.8	32427		
4616830005	**1-Kitchen-KF-15**	EPA 200.8	32427		
4616830006	**1-Kitchen-KF-16**	EPA 200.8	32427		
4616830007	**1-Kitchen-KF-17**	EPA 200.8	32427		
4616830008	**1-Kitchen-DWF-19**	EPA 200.8	32427		
4616830009	**2-243-KF-20**	EPA 200.8	32427		
4616830010	**3-Hall@Stair-B-26**	EPA 200.8	32427		
4616830011	**3-Hall@Stair-B-27**	EPA 200.8	32427		
4616830012	**3-Hall@318-DWF-28**	EPA 200.8	32427		
4616830013	**3-Hall@319-DWF-29**	EPA 200.8	32427		
4616830014	**2-Hall@216-DWF-32**	EPA 200.8	32427		
4616830015	**1-Hall@109-B-34**	EPA 200.8	32428		
4616830016	**1-Hall@134-B-37**	EPA 200.8	32428		
4616830017	**1-Hall@134-B-38**	EPA 200.8	32428		
4616830018	**1-Hall@134-B-39**	EPA 200.8	32428		
4616830019	**2-Hall@260-B-43**	EPA 200.8	32428		
4616830020	**2-Hall@259-B-45**	EPA 200.8	32428		
4616830021	**2-Hall@259-B-46**	EPA 200.8	32428		
4616830022	**3-Hall@336-B-50**	EPA 200.8	32428		
4616830023	**2-Gym-B-51**	EPA 200.8	32428		
4616830024	**1-Kitchen-KF-14**	EPA 200.8	32428		

WO# : 4616830

4616830

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document # 19888

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

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:	

Required Project Information:

Report To:	Robert Smith
Copy To:	
Purchase Order #:	
Project Name:	Lead & Copper Testing
Project #:	DIAYW

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

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 Y/N	Lead & Copper	Residual Chlorine (Y/N)	
1	2-Hall@Office-DWF-1	DW	G	8/14/18	7:47				1			X							X		(19-6)
2	#2 Not Used																				CART 6
3	#3 Not Used																				
4	1-Kitchen-KF-11	DW	G	8/14/18	7:57				1			X							X		
5	1-Kitchen-KF-12	DW	G	8/14/18	7:58				1			X							X		
6	1-Kitchen-KF-13	DW	G	8/14/18	7:59				1			X							X		
7	1-Kitchen-KF-15	DW	G	8/14/18	8:01				1			X							X		
8	1-Kitchen-KF-16	DW	G	8/14/18	8:02				1			X							X		
9	1-Kitchen-KF-17	DW	G	8/14/18	8:03				1			X							X		
10	1-Kitchen-DWF-19	DW	G	8/14/18	8:04				1			X							X		
11	2-243-KF-20	DW	G	8/14/18	8:06				1			X							X		
12	3-Hall@Stair-B-26	DW	G	8/14/18	8:10				1			X							X		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Dmc	8-23-18	1945	D. Nardin	8-23-18	1522	
					8-23-18	1945	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Dominique Greer

SIGNATURE of SAMPLER: [signature] DATE Signed: 8/14/2018

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

WO# 46116830

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document #19889

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

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 #:	DIAYW

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	Requested Analysis Filtered (Y/N) Y/N	Analyses Test: Lead & Copper	Residual Chlorine (Y/N)
13	3-Hall@Stair-B-27	DW	G	8/14/18	8:12				1			X							X	
14	3-Hall@318-DWF-28	DW	G	8/14/18	8:13				1			X							X	
15	3-Hall@319-DWF-29	DW	G	8/14/18	8:15				1			X							X	
16	#16 Not Used																			
17	2-Hall@216-DWF-32	DW	G	8/14/18	8:20				1			X							X	
18	#18 Not Used																			
19	1-Hall@109-B-34	DW	G	8/14/18	8:22				1			X							X	
20	1-Hall@134-B-37	DW	G	8/14/18	8:27				1			X							X	
21	1-Hall@134-B-38	DW	G	8/14/18	8:28				1			X							X	
22	1-Hall@134-B-39	DW	G	8/14/18	8:30				1			X							X	
23	2-Hall@260-B-43	DW	G	8/14/18	8:35				1			X							X	
24	2-Hall@259-B-45	DW	G	8/14/18	8:39				1			X							X	

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Dime	8-23-18	1945	Dime	8-23-18	1522	
				D. Rardin	8-23-18	1945	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Dominique Greer

SIGNATURE of SAMPLER: [signature]

DATE Signed: 8/14/2018

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

WO# 46116830

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document # 19890

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

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	ATC Group Services LLC	Report To:	Robert Smith	Attention:	
Address:	46555 Humboldt Drive, Suite 100	Copy To:		Company Name:	
Novi, MI 48377				Address:	
Email:	robert.smith@atcgs.com	Purchase Order #:		Pace Quote:	
Phone:	248-669-5140 Fax: 248-669-5147	Project Name:	Lead & Copper Testing	Pace Project Manager:	Will Cole
Requested Due Date:		Project #:	DIAYW	Pace Profile #:	Profile 236 - Line 2

Regulatory Agency:

State / Location: MI

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	Requested Analysis Filtered (Y/N) Y/N	Analyses Test: Lead & Copper	Residual Chlorine (Y/N)
25	2-Hall@259-B-46	DW	G	8/14/18	8:40				1			X							X	
26	3-Hall@336-B-50	DW	G	8/14/18	8:46				1			X							X	
27	2-Gym-B-51	DW	G	8/14/18	8:49				1			X							X	
28	#28 Not Used																			
29	1-Kitchen-KF-14	DW	G	8/14/18	8:00				1			X							X	

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	SAMPLE CONDITIONS
	Drum	8-23-18	1945	D. Riordin	8-23-18	1945	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Dominique Greer

SIGNATURE of SAMPLER:

DATE Signed: 8/14/2018

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: QTC	Work Order #: 46116830
Receipt Record Page/Line #: 19-6	

Recorded by (initials/date): DN 8-24-18 am

☑ Cooler ☐ Box ☐ Other

Qty Received: 1

Thermometer Used: ☑ IR Gun (#202) ☐ Digital Thermometer (#54) ☐ IR Gun (#402)

	Cooler 1	Cooler 2	Cooler 3	Cooler 4
Cooler # / Time	D0006 / 1257			
Custody Seals	☑ None ☐ Present / Intact ☐ Present / Not Intact	☐ None ☐ Present / Intact ☐ Present / Not Intact	☐ None ☐ Present / Intact ☐ Present / Not Intact	☐ None ☐ Present / Intact ☐ Present / Not Intact
Coolant Type	☐ Loose Ice ☐ Bagged Ice ☐ Blue Ice ☑ None	☐ Loose Ice ☐ Bagged Ice ☐ Blue Ice ☐ None	☐ Loose Ice ☐ Bagged Ice ☐ Blue Ice ☐ None	☐ Loose Ice ☐ Bagged Ice ☐ Blue Ice ☐ None
Coolant Location	Dispersed / Top / Middle / Bottom	Dispersed / Top / Middle / Bottom	Dispersed / Top / Middle / Bottom	Dispersed / Top / Middle / Bottom
Temp Blank Present	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
If Present, Temperature Blank Location is	☐ Representative ☐ Not Representative	☐ Representative ☐ Not Representative	☐ Representative ☐ Not Representative	☐ Representative ☐ Not Representative

Cooler 1:

	Observed °C	Correction Factor °C	Actual °C
Temp Blank:			
Sample 1:		0	24.8
Sample 2:		0	24.2
Sample 3:		0	24.4

When above 6 °C take a 3 Sample Average °C: 24.5

☐ VOC Trip Blank received?

Coolers 2–4:

	Observed °C	Correction Factor °C	Actual °C
Temp Blank:			
Sample 1:			
Sample 2:			
Sample 3:			

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

☐ VOC Trip Blank received?

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: 19888, 19889, 19890

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 08/24/18

Pace Analytical®

AQUEOUS SAMPLE PRESERVATION VERIFICATION

Client: QTC

Work Order #: 4616830

Receipt Log #: 19-6

Completed By (Initials/date): DR 8-24-18 QTC

COC ID #: 19888

Adjusted by: _____

Date: _____

pH Strip Reagent or Lot #

☑ HC739245

☐ Other _____

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:

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 #: 19889

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

Pace Analytical® AQUEOUS SAMPLE PRESERVATION VERIFICATION

Client: CTC

Work Order #: 4116830

Receipt Log #: 19-6

Completed By (initials/date): DN 8-24-18

COC ID #: 19896

Adjusted by: _____

Date: _____

pH Strip Reagent or Lot #

☐ HC739245

☐ Other _____

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:

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 #

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