ENVIRONMENTAL • GEOTECHNICAL
BUILDING SCIENCES • MATERIALS TESTING

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

September 5, 2018

Mathew Sam
Detroit Public Schools
1601 Farnsworth
Detroit, Michigan 48202

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

SUBJECT: **Drinking Water Screening Report**
Denby High School
12800 Kelly Road
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 2 of the samples analyzed were above the EPA recommended limits of 15 micrograms per liter (ug/L) for lead. Additionally, four (4) 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)
1-K-KS- 1	Kitchen	Handsink, closest to the rear door.	4.9 ug/L	257 ug/L
1-K-KS- 2	Kitchen	2 chamber sink	2.8 ug/L	239 ug/L
1-K-KS- 3	Kitchen	hand sink	6.0 ug/L	397 ug/L
1-K-KS- 4	Kitchen	2 chamber sink	1.3 ug/L	254 ug/L
1-K-KS- 5	Kitchen	3 chamber sink	<1.0 ug/L	220 ug/L
1-K-KS- 6	Kitchen	3 chamber sink	1.1 ug/L	290 ug/L
1-K-KS- 7	Kitchen	hand sink	**38.3 ug/L**	440 ug/L
1-Hall-DWF- 8	Across from health center	left	<1.0 ug/L	590 ug/L
1-Hall-DWF- 9	Across from health center	right	<1.0 ug/L	615 ug/L
1-K-KS- 10	Kitchen	Hand sink	2.1 ug/L	121 ug/L

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Sample Number	Location	Description	Total Lead (ug/l)	Total Copper (ug/l)
1-Hall-DWF- 11	Next to girls locker room	left	<1.0 ug/L	753 ug/L
1-Hall-DWF- 12	Next to girls locker room	right	<1.0 ug/L	832 ug/L
1-GL- B- 13	Girls locker room	Bubbler	**35.7 ug/L**	613 ug/L
1-Hall-DWF- 14	Next to stairwell 7	left	<1.0 ug/L	402 ug/L
1-Hall-DWF- 15	Next to stairwell 7	right	<1.0 ug/L	724ug/L
1-Hall-DWF- 16	Across from 101A	left	<1.0 ug/L	448 ug/L
1-Hall-DWF-17	Across from 101A	right	<1.0 ug/L	464 ug/L
1-Hall-DWF-18	Across from 111	left	<1.0 ug/L	193 ug/L
1-Hall-DWF-19	Across from 111	right	<1.0 ug/L	169 ug/L
2-Hall-DWF-20	Next to 205	left	<1.0 ug/L	475 ug/L
2-Hall-DWF-21	Next to 205	right	<1.0 ug/L	601 ug/L
2-Hall-DWF-22	Next to 217B	left	<1.0 ug/L	670 ug/L
2-Hall-DWF-23	Next to 217B	right	<1.0 ug/L	741 ug/L
2-Hall-DWF-24	Next to 227	left	<1.0 ug/L	609 ug/L
2-Hall-DWF-25	Next to 227	right	<1.0 ug/L	538 ug/L
2-Hall-DWF-26	Next to stairwell 6	left	<1.0 ug/L	1080 ug/L

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Sample Number	Location	Description	Total Lead (ug/l)	Total Copper (ug/l)
2-Hall-DWF-27	Next to stairwell 6	right	<1.0 ug/L	1170 ug/L
2-Hall-DWF-29	Across from 202	right	<1.0 ug/L	649 ug/L
3-Hall-DWF-30	Across from 302	left	<1.0 ug/L	793 ug/L
3-Hall-DWF-31	Across from 302	right	<1.0 ug/L	918 ug/L
3-Hall-DWF-32	Next to stairwell 8	left	<1.0 ug/L	971 ug/L
3-Hall-DWF-33	Next to stairwell 8	right	<1.0 ug/L	**1480 ug/L**
3-Hall-DWF-34	Next to stairwell 7	left	<1.0 ug/L	**1600 ug/L**
3-Hall-DWF-35	Next to stairwell 7	right	<1.0 ug/L	**2140 ug/L**
3-Hall-DWF-36	Next to 317B	left	<1.0 ug/L	727 ug/L
3-Hall-DWF-37	Next to 317B	right	<1.0 ug/L	876 ug/L
3-Hall-DWF-38	Next to 305	left	<1.0 ug/L	1240 ug/L
3-Hall-DWF-39	Next to 305	right	<1.0 ug/L	**1680 ug/L**

Key: NA - Not Analyzed

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

Analysis of samples of the kitchen hand sink, girl's locker room bubbler indicate that lead levels were above the MCL. Additionally, the analysis of the right drinking water fountain next to stairwell 8, both drinking water fountains next to stairwell 7 and the right drinking water fountain next to room 305 samples 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: Denby High School

Address 12800 Kelly

Fixture Identification	Fixture Location	Fixture Description	Photo #
1-K-KS- 1	Kitchen	Handsink, closest to the rear door.	1
1-K-KS- 2	Kitchen	2 chamber sink	2
1-K-KS- 3	Kitchen	hand sink	3
1-K-KS- 4	Kitchen	2 chamber sink	4
1-K-KS- 5	Kitchen	3 chamber sink	5
1-K-KS- 6	Kitchen	3 chamber sink	6
1-K-KS- 7	Kitchen	hand sink	7
1-Hall-DWF- 8	Across from health center	left	8
1-Hall-DWF- 9	Across from health center	right	9
1-K-KS- 10	Kitchen	Hand sink	10
1-Hall-DWF- 11	Next to girls locker room	left	11
1-Hall-DWF- 12	Next to girls locker room	right	12

1-GL- B- 13	Girls locker room		13
1-Hall-DWF- 14	Next to stairwell 7	left	14
1-Hall-DWF- 15	Next to stairwell 7	right	15
1-Hall-DWF- 16	Across from 101A	left	16
1-Hall-DWF-17	Across from 101A	right	17
1-Hall-DWF-18	Across from 111	left	18
1-Hall-DWF-19	Across from 111	right	19
2-Hall-DWF-20	Next to 205	left	20
2-Hall-DWF-21	Next to 205	right	21
2-Hall-DWF-22	Next to 217B	left	22
2-Hall-DWF-23	Next to 217B	right	23
2-Hall-DWF-24	Next to 227	left	24
2-Hall-DWF-25	Next to 227	right	25
2-Hall-DWF-26	Next to stairwell 6	left	26
2-Hall-DWF-27	Next to stairwell 6	right	27
2-Hall-DWF-28	Across from 202	left- Not Working	28
2-Hall-DWF-29	Across from 202	right	29
3-Hall-DWF-30	Across from 302	left	30
3-Hall-DWF-31	Across from 302	right	31
3-Hall-DWF-32	Next to stairwell 8	left	32
3-Hall-DWF-33	Next to stairwell 8	right	33
3-Hall-DWF-34	Next to stairwell 7	left	34
3-Hall-DWF-35	Next to stairwell 7	right	35
3-Hall-DWF-36	Next to 317B	left	36
3-Hall-DWF-37	Next to 317B	right	37
3-Hall-DWF-38	Next to 305	left	38
3-Hall-DWF-39	Next to 305	right	39
1-BL-B-40	Boys locker room	Not Working	40

Photo 1: Kitchen sink, located on the 1st floor in the kitchen, closest to the rear door.

Photo 2: Kitchen sink, located on the 1st floor in the kitchen. From left to right, starting at the rear exit.

Photo 3: Kitchen sink, located on the 1st floor in the kitchen.

Photo 4: Kitchen sink, located on the 1st floor in the kitchen.

Photo 5: Kitchen sink, located on the 1st floor in the kitchen.

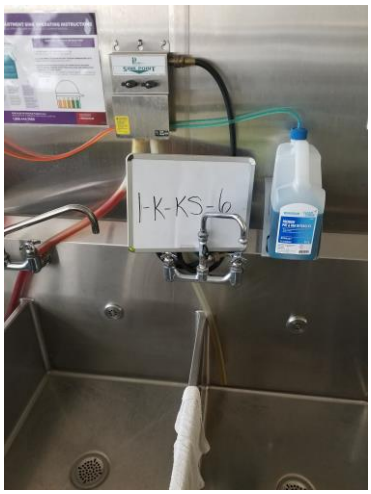

Photo 6: Kitchen sink, located on the 1st floor in the kitchen.

Photo 7: Kitchen sink, located on the 1st floor in the kitchen.

Photo 8: Drinking water fountain, across from health center.

Photo 9: Drinking water fountain, across from health center.

Photo 10: Kitchen sink, located on the 1st floor in the kitchen, in the retail area.

Photo 11: Drinking water fountain, near the girl's locker room.

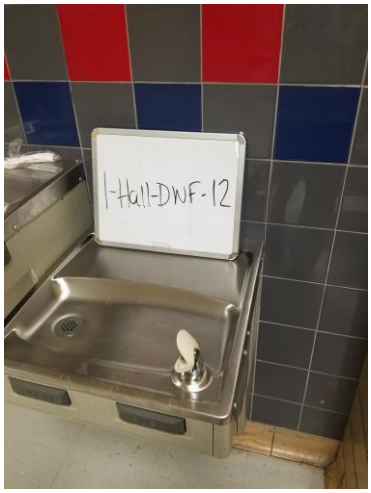

Photo 12: Drinking water fountain, near the girl's locker room.

Photo 13: Bubbler located in the girls locker room on the 1st floor.

Photo 14: Drinking water fountain, near stairwell 7.

Photo 15: Drinking water fountain, near stairwell 7.

Photo 16: Drinking water fountain, near 101A.

Photo 17: Drinking water fountain, near 101A.

Photo 18: Drinking water fountain, near 111.

Photo 19: Drinking water fountain, near 111.

Photo 20: Drinking water fountain, near 205.

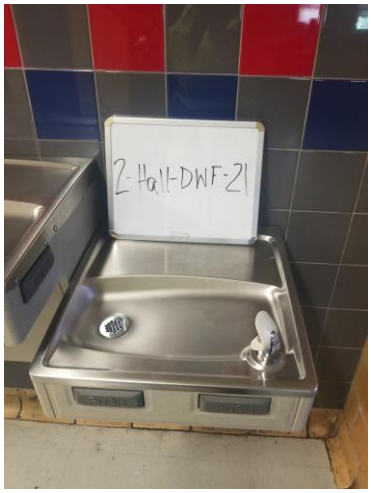

Photo 21: Drinking water fountain, near 205.

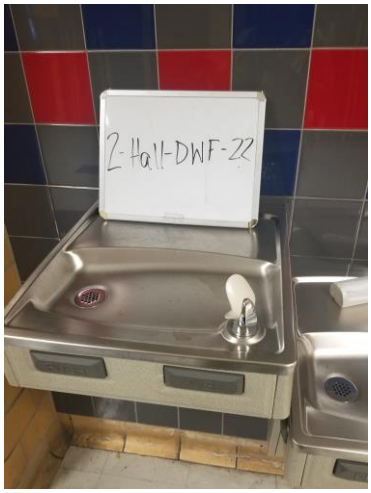

Photo 22: Drinking water fountain, near 217B.

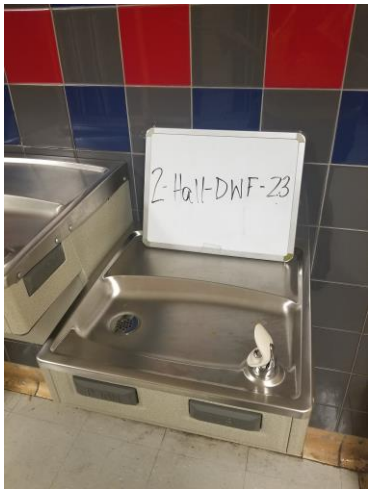

Photo 23: Drinking water fountain, near 217B.

Photo 24: Drinking water fountain, near 227.

Photo 25: Drinking water fountain, near 227.

Photo 26: Drinking water fountain, near stairwell 6.

Photo 27: Drinking water fountain, near stairwell 6.

Photo 28: Drinking water fountain, near 202.

Photo 29: Drinking water fountain, near 202.

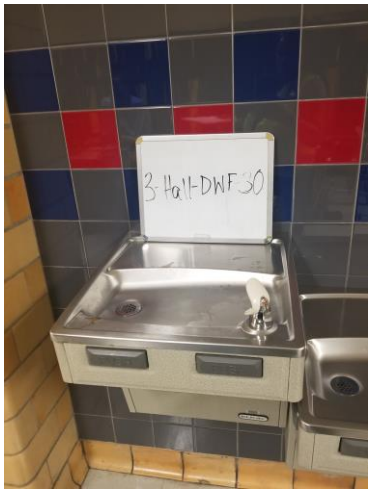

Photo 30: Drinking water fountain, near 302.

Photo 31: Drinking water fountain, near 302.

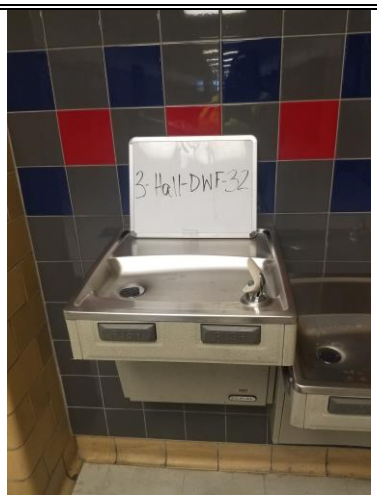

Photo 32: Drinking water fountain, near stairwell 8.

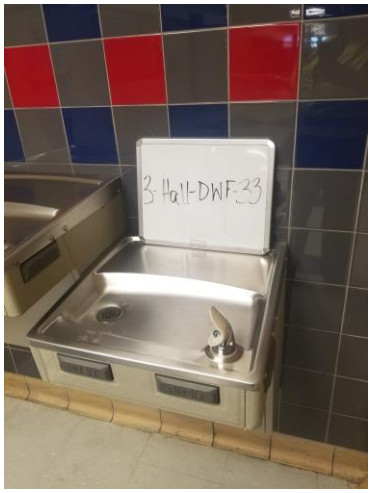

Photo 33: Drinking water fountain, near stairwell 8.

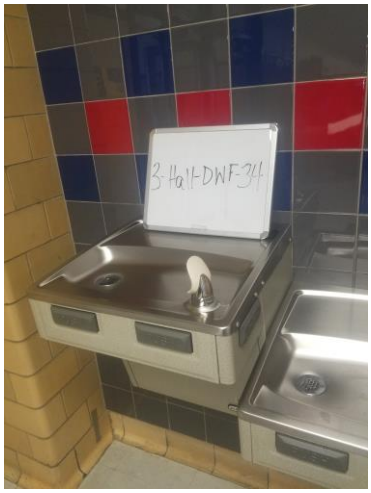

Photo 34: Drinking water fountain, near stairwell 7.

Photo 35: Drinking water fountain, near stairwell 7.

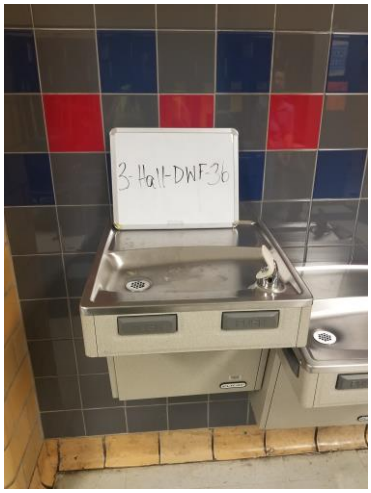

Photo 36: Drinking water fountain, near 317B.

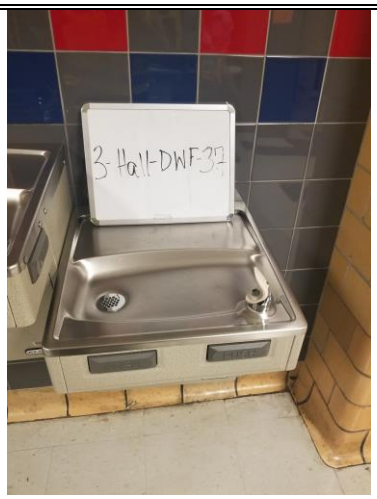

Photo 37: Drinking water fountain, near 317B.

Photo 38: Drinking water fountain, near 305.

Photo 39: Drinking water fountain, near 305.

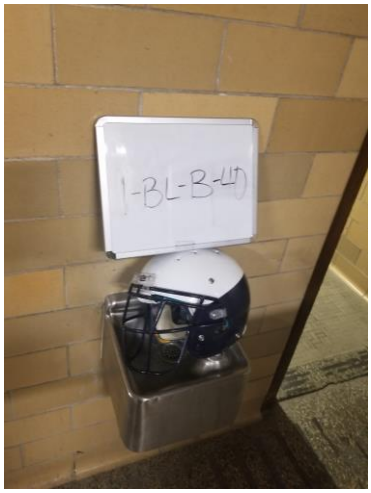

Photo 40: Bubbler, located in the boys locker-room.

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: Denby
Pace Project No.: 4616087

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

REPORT OF LABORATORY ANALYSIS

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

CERTIFICATIONS

Project: Denby
Pace Project No.: 4616087

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: Denby
Pace Project No.: 4616087

Lab ID	Sample ID	Matrix	Date Collected	Date Received
4616087001	**1-K-KS-1**	Drinking Water	08/01/18 07:03	08/08/18 17:35
4616087002	**1-K-KS-2**	Drinking Water	08/01/18 07:04	08/08/18 17:35
4616087003	**1-K-KS-3**	Drinking Water	08/01/18 07:05	08/08/18 17:35
4616087004	**1-K-KS-4**	Drinking Water	08/01/18 07:06	08/08/18 17:35
4616087005	**1-K-KS-5**	Drinking Water	08/01/18 07:07	08/08/18 17:35
4616087006	**1-K-KS-6**	Drinking Water	08/01/18 07:08	08/08/18 17:35
4616087007	**1-K-KS-7**	Drinking Water	08/01/18 07:09	08/08/18 17:35
4616087008	**1-Hall-DWF-8**	Drinking Water	08/01/18 07:12	08/08/18 17:35
4616087009	**1-Hall-DWF-9**	Drinking Water	08/01/18 07:13	08/08/18 17:35
4616087010	**1-K-KS-10**	Drinking Water	08/01/18 07:10	08/08/18 17:35
4616087011	**1-Hall-DWF-11**	Drinking Water	08/01/18 07:15	08/08/18 17:35
4616087012	**1-Hall-DWF-12**	Drinking Water	08/01/18 07:16	08/08/18 17:35
4616087013	**1-GL-B-13**	Drinking Water	08/01/18 07:18	08/08/18 17:35
4616087014	**1-Hall-DWF-14**	Drinking Water	08/01/18 07:20	08/08/18 17:35
4616087015	**1-Hall-DWF-15**	Drinking Water	08/01/18 07:21	08/08/18 17:35
4616087016	**1-Hall-DWF-16**	Drinking Water	08/01/18 07:24	08/08/18 17:35
4616087017	**1-Hall-DWF-17**	Drinking Water	08/01/18 07:25	08/08/18 17:35
4616087018	**1-Hall-DWF-18**	Drinking Water	08/01/18 07:28	08/08/18 17:35
4616087019	**1-Hall-DWF-19**	Drinking Water	08/01/18 07:29	08/08/18 17:35
4616087020	**2-Hall-DWF-20**	Drinking Water	08/01/18 07:32	08/08/18 17:35
4616087021	**2-Hall-DWF-21**	Drinking Water	08/01/18 07:33	08/08/18 17:35
4616087022	**2-Hall-DWF-22**	Drinking Water	08/01/18 07:35	08/08/18 17:35
4616087023	**2-Hall-DWF-23**	Drinking Water	08/01/18 07:36	08/08/18 17:35
4616087024	**2-Hall-DWF-24**	Drinking Water	08/01/18 07:37	08/08/18 17:35
4616087025	**2-Hall-DWF-25**	Drinking Water	08/01/18 07:38	08/08/18 17:35
4616087026	**2-Hall-DWF-26**	Drinking Water	08/01/18 07:40	08/08/18 17:35
4616087027	**2-Hall-DWF-27**	Drinking Water	08/01/18 07:41	08/08/18 17:35
4616087028	**2-Hall-DWF-29**	Drinking Water	08/01/18 07:45	08/08/18 17:35
4616087029	**3-Hall-DWF-30**	Drinking Water	08/01/18 07:46	08/08/18 17:35
4616087030	**3-Hall-DWF-31**	Drinking Water	08/01/18 07:47	08/08/18 17:35
4616087031	**3-Hall-DWF-32**	Drinking Water	08/01/18 07:49	08/08/18 17:35
4616087032	**3-Hall-DWF-33**	Drinking Water	08/01/18 07:50	08/08/18 17:35
4616087033	**3-Hall-DWF-34**	Drinking Water	08/01/18 07:52	08/08/18 17:35
4616087034	**3-Hall-DWF-35**	Drinking Water	08/01/18 07:53	08/08/18 17:35
4616087035	**3-Hall-DWF-36**	Drinking Water	08/01/18 07:55	08/08/18 17:35
4616087036	**3-Hall-DWF-37**	Drinking Water	08/01/18 07:56	08/08/18 17:35
4616087037	**3-Hall-DWF-38**	Drinking Water	08/01/18 07:58	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 SUMMARY

Project: Denby
Pace Project No.: 4616087

Lab ID	Sample ID	Matrix	Date Collected	Date Received
4616087038	**3-Hall-DWF-39**	Drinking Water	08/01/18 07:59	08/08/18 17:35

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

SAMPLE ANALYTE COUNT

Project: Denby
Pace Project No.: 4616087

Lab ID	Sample ID	Method	Analysts	Analytes Reported
4616087001	1-K-KS-1	EPA 200.8	CKD	2
4616087002	1-K-KS-2	EPA 200.8	CKD	2
4616087003	1-K-KS-3	EPA 200.8	CKD	2
4616087004	1-K-KS-4	EPA 200.8	CKD	2
4616087005	1-K-KS-5	EPA 200.8	CKD	2
4616087006	1-K-KS-6	EPA 200.8	CKD	2
4616087007	1-K-KS-7	EPA 200.8	CKD	2
4616087008	1-Hall-DWF-8	EPA 200.8	CKD	2
4616087009	1-Hall-DWF-9	EPA 200.8	CKD	2
4616087010	1-K-KS-10	EPA 200.8	CKD	2
4616087011	1-Hall-DWF-11	EPA 200.8	CKD	2
4616087012	1-Hall-DWF-12	EPA 200.8	CKD	2
4616087013	1-GL-B-13	EPA 200.8	CKD	2
4616087014	1-Hall-DWF-14	EPA 200.8	CKD	2
4616087015	1-Hall-DWF-15	EPA 200.8	CKD	2
4616087016	1-Hall-DWF-16	EPA 200.8	CKD	2
4616087017	1-Hall-DWF-17	EPA 200.8	CKD	2
4616087018	1-Hall-DWF-18	EPA 200.8	CKD	2
4616087019	1-Hall-DWF-19	EPA 200.8	CKD	2
4616087020	2-Hall-DWF-20	EPA 200.8	CKD	2
4616087021	2-Hall-DWF-21	EPA 200.8	CKD	2
4616087022	2-Hall-DWF-22	EPA 200.8	CKD	2
4616087023	2-Hall-DWF-23	EPA 200.8	CKD	2
4616087024	2-Hall-DWF-24	EPA 200.8	CKD	2
4616087025	2-Hall-DWF-25	EPA 200.8	CKD	2
4616087026	2-Hall-DWF-26	EPA 200.8	CKD	2
4616087027	2-Hall-DWF-27	EPA 200.8	CKD	2
4616087028	2-Hall-DWF-29	EPA 200.8	CKD	2
4616087029	3-Hall-DWF-30	EPA 200.8	CKD	2
4616087030	3-Hall-DWF-31	EPA 200.8	CKD	2
4616087031	3-Hall-DWF-32	EPA 200.8	CKD	2
4616087032	3-Hall-DWF-33	EPA 200.8	CKD	2
4616087033	3-Hall-DWF-34	EPA 200.8	CKD	2
4616087034	3-Hall-DWF-35	EPA 200.8	CKD	2
4616087035	3-Hall-DWF-36	EPA 200.8	CKD	2
4616087036	3-Hall-DWF-37	EPA 200.8	CKD	2
4616087037	3-Hall-DWF-38	EPA 200.8	CKD	2

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SAMPLE ANALYTE COUNT

Project: Denby
Pace Project No.: 4616087

Lab ID	Sample ID	Method	Analysts	Analytes Reported
4616087038	**3-Hall-DWF-39**	EPA 200.8	CKD	2

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 1-K-KS-1 **Lab ID: 4616087001** Collected: 08/01/18 07:03 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	**257**	ug/L	5.0	1300	5		08/20/18 17:37	7440-50-8	
Lead	**4.9**	ug/L	1.0	15	1		08/20/18 13:53	7439-92-1	

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 1-K-KS-2 **Lab ID: 4616087002** Collected: 08/01/18 07:04 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	**239**	ug/L	5.0	1300	5		08/20/18 17:39	7440-50-8	
Lead	**2.8**	ug/L	1.0	15	1		08/20/18 13:54	7439-92-1	

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 1-K-KS-3 **Lab ID: 4616087003** Collected: 08/01/18 07:05 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	**397**	ug/L	5.0	1300	5		08/20/18 17:40	7440-50-8	
Lead	**6.0**	ug/L	1.0	15	1		08/20/18 13:57	7439-92-1	

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 1-K-KS-4 **Lab ID: 4616087004** Collected: 08/01/18 07:06 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	**254**	ug/L	5.0	1300	5		08/20/18 17:41	7440-50-8	
Lead	**1.3**	ug/L	1.0	15	1		08/20/18 13:58	7439-92-1	

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 1-K-KS-5 **Lab ID: 4616087005** Collected: 08/01/18 07:07 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	**220**	ug/L	5.0	1300	5		08/20/18 17:44	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 13:59	7439-92-1	

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 1-K-KS-6 **Lab ID: 4616087006** Collected: 08/01/18 07:08 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	**290**	ug/L	5.0	1300	5		08/20/18 17:48	7440-50-8	
Lead	**1.1**	ug/L	1.0	15	1		08/20/18 14:04	7439-92-1	

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 1-K-KS-7 **Lab ID: 4616087007** Collected: 08/01/18 07:09 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	**440**	ug/L	5.0	1300	5		08/20/18 17:49	7440-50-8	
Lead	**38.3**	ug/L	1.0	15	1		08/20/18 14:05	7439-92-1	

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 1-Hall-DWF-8 **Lab ID: 4616087008** Collected: 08/01/18 07:12 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	**590**	ug/L	10.0	1300	10		08/20/18 17:50	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 14:06	7439-92-1	

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 1-Hall-DWF-9 **Lab ID: 4616087009** Collected: 08/01/18 07:13 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	**615**	ug/L	10.0	1300	10		08/20/18 17:51	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 14:07	7439-92-1	

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 1-K-KS-10 **Lab ID: 4616087010** Collected: 08/01/18 07:10 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	**121**	ug/L	5.0	1300	5		08/20/18 17:52	7440-50-8	
Lead	**2.1**	ug/L	1.0	15	1		08/20/18 14:10	7439-92-1	

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 1-Hall-DWF-11 **Lab ID: 4616087011** Collected: 08/01/18 07:15 Received: 08/08/18 17:35 Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS Drinking Water	Analytical Method: EPA 200.8								
Copper	**753**	ug/L	10.0	1300	10		08/20/18 17:53	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 14:11	7439-92-1	

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 1-Hall-DWF-12 **Lab ID: 4616087012** Collected: 08/01/18 07:16 Received: 08/08/18 17:35 Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS Drinking Water	Analytical Method: EPA 200.8								
Copper	**832**	ug/L	10.0	1300	10		08/20/18 17:56	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 14:12	7439-92-1	

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 1-GL-B-13 **Lab ID: 4616087013** Collected: 08/01/18 07:18 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	**613**	ug/L	10.0	1300	10		08/20/18 17:57	7440-50-8	
Lead	**35.7**	ug/L	1.0	15	1		08/20/18 14:13	7439-92-1	

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 1-Hall-DWF-14 **Lab ID: 4616087014** Collected: 08/01/18 07:20 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	**402**	ug/L	5.0	1300	5		08/20/18 17:58	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 14:14	7439-92-1	

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 1-Hall-DWF-15 **Lab ID: 4616087015** Collected: 08/01/18 07:21 Received: 08/08/18 17:35 Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS Drinking Water	Analytical Method: EPA 200.8								
Copper	**724**	ug/L	10.0	1300	10		08/20/18 17:59	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 14:17	7439-92-1	

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 1-Hall-DWF-16 **Lab ID: 4616087016** Collected: 08/01/18 07:24 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	**448**	ug/L	10.0	1300	10		08/20/18 18:03	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 14:23	7439-92-1	

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 1-Hall-DWF-17 **Lab ID: 4616087017** Collected: 08/01/18 07:25 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	**464**	ug/L	10.0	1300	10		08/20/18 18:05	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 14:24	7439-92-1	

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 1-Hall-DWF-18 **Lab ID: 4616087018** Collected: 08/01/18 07:28 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	**193**	ug/L	5.0	1300	5		08/20/18 18:06	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 14:25	7439-92-1	

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 1-Hall-DWF-19 **Lab ID: 4616087019** Collected: 08/01/18 07:29 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	**169**	ug/L	5.0	1300	5		08/20/18 18:09	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 14:26	7439-92-1	

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 2-Hall-DWF-20 **Lab ID: 4616087020** Collected: 08/01/18 07:32 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	**475**	ug/L	10.0	1300	10		08/20/18 18:10	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 14:27	7439-92-1	

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 2-Hall-DWF-21 **Lab ID: 4616087021** Collected: 08/01/18 07:33 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	**601**	ug/L	10.0	1300	10		08/20/18 18:11	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 14:29	7439-92-1	

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 2-Hall-DWF-22 **Lab ID: 4616087022** Collected: 08/01/18 07:35 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	**670**	ug/L	10.0	1300	10		08/20/18 18:12	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 14:30	7439-92-1	

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 2-Hall-DWF-23 **Lab ID: 4616087023** Collected: 08/01/18 07:36 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	**741**	ug/L	10.0	1300	10		08/20/18 18:13	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 14:31	7439-92-1	

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 2-Hall-DWF-24 **Lab ID: 4616087024** Collected: 08/01/18 07:37 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	**609**	ug/L	10.0	1300	10		08/20/18 18:14	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 14:32	7439-92-1	

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 2-Hall-DWF-25 **Lab ID: 4616087025** Collected: 08/01/18 07:38 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	**538**	ug/L	10.0	1300	10		08/20/18 18:15	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 14:35	7439-92-1	

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 2-Hall-DWF-26 **Lab ID: 4616087026** Collected: 08/01/18 07:40 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	**1080**	ug/L	20.0	1300	20		08/20/18 18:22	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 14:39	7439-92-1	

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 2-Hall-DWF-27 **Lab ID: 4616087027** Collected: 08/01/18 07:41 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	**1170**	ug/L	20.0	1300	20		08/20/18 18:23	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 14:40	7439-92-1	

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 2-Hall-DWF-29 **Lab ID: 4616087028** Collected: 08/01/18 07:45 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	**649**	ug/L	10.0	1300	10		08/20/18 18:25	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 14:41	7439-92-1	

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 3-Hall-DWF-30 **Lab ID: 4616087029** Collected: 08/01/18 07:46 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	**793**	ug/L	10.0	1300	10		08/20/18 18:26	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 14:42	7439-92-1	

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ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 3-Hall-DWF-31 **Lab ID: 4616087030** Collected: 08/01/18 07:47 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	**918**	ug/L	20.0	1300	20		08/20/18 18:27	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 14:43	7439-92-1	

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

ANALYTICAL RESULTS

Project: Denby
Pace Project No.: 4616087

Sample: 3-Hall-DWF-32 **Lab ID: 4616087031** Collected: 08/01/18 07:49 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	**971**	ug/L	20.0	1300	20		08/20/18 18:28	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 14:44	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: Denby
Pace Project No.: 4616087

Sample: 3-Hall-DWF-33 **Lab ID: 4616087032** Collected: 08/01/18 07:50 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	**1480**	ug/L	20.0	1300	20		08/20/18 18:29	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 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: Denby
Pace Project No.: 4616087

Sample: 3-Hall-DWF-34 **Lab ID: 4616087033** Collected: 08/01/18 07:52 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	**1600**	ug/L	20.0	1300	20		08/20/18 18:30	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 14:48	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: Denby
Pace Project No.: 4616087

Sample: 3-Hall-DWF-35 **Lab ID: 4616087034** Collected: 08/01/18 07:53 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	**2140**	ug/L	50.0	1300	50		08/20/18 18:31	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 14:49	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: Denby
Pace Project No.: 4616087

Sample: 3-Hall-DWF-36 **Lab ID: 4616087035** Collected: 08/01/18 07:55 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	**727**	ug/L	10.0	1300	10		08/20/18 18:32	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 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: Denby
Pace Project No.: 4616087

Sample: 3-Hall-DWF-37 **Lab ID: 4616087036** Collected: 08/01/18 07:56 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	**876**	ug/L	20.0	1300	20		08/20/18 18:39	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 14:57	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: Denby
Pace Project No.: 4616087

Sample: 3-Hall-DWF-38 **Lab ID: 4616087037** Collected: 08/01/18 07:58 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	**1240**	ug/L	20.0	1300	20		08/20/18 18:40	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 15:01	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: Denby
Pace Project No.: 4616087

Sample: 3-Hall-DWF-39 **Lab ID: 4616087038** Collected: 08/01/18 07:59 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	**1680**	ug/L	20.0	1300	20		08/20/18 18:41	7440-50-8	
Lead	**<1.0**	ug/L	1.0	15	1		08/20/18 15:02	7439-92-1	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: Denby
Pace Project No.: 4616087

QC Batch: 31184 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: ICPMS Metals, No Prep
Associated Lab Samples: 4616087001, 4616087002, 4616087003, 4616087004, 4616087005, 4616087006, 4616087007, 4616087008, 4616087009, 4616087010, 4616087011, 4616087012, 4616087013, 4616087014

METHOD BLANK: 125681 Matrix: Water
Associated Lab Samples: 4616087001, 4616087002, 4616087003, 4616087004, 4616087005, 4616087006, 4616087007, 4616087008, 4616087009, 4616087010, 4616087011, 4616087012, 4616087013, 4616087014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Copper	ug/L	<1.0	1.0	08/20/18 13:39	
Lead	ug/L	<1.0	1.0	08/20/18 13:39	

LABORATORY CONTROL SAMPLE: 125682

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	ug/L	20	21.5	107	85-115	
Lead	ug/L	20	21.0	105	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 125683 125684

Parameter	Units	4616086021 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	ug/L	390	100	100	486	489	96	99	70-130	1	20	
Lead	ug/L	<1.0	20	20	21.8	22.0	107	108	70-130	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 125686 125687

Parameter	Units	4616087005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	ug/L	220	100	100	326	325	107	106	70-130	0	20	
Lead	ug/L	<1.0	20	20	21.9	21.7	106	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
5560 Corporate Exchange Ct. SE
Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA

Project: Denby
Pace Project No.: 4616087

QC Batch: 31185 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: ICPMS Metals, No Prep
Associated Lab Samples: 4616087015, 4616087016, 4616087017, 4616087018, 4616087019, 4616087020, 4616087021, 4616087022, 4616087023, 4616087024, 4616087025, 4616087026, 4616087027, 4616087028, 4616087029, 4616087030, 4616087031, 4616087032, 4616087033, 4616087034

METHOD BLANK: 125689 Matrix: Water
Associated Lab Samples: 4616087015, 4616087016, 4616087017, 4616087018, 4616087019, 4616087020, 4616087021, 4616087022, 4616087023, 4616087024, 4616087025, 4616087026, 4616087027, 4616087028, 4616087029, 4616087030, 4616087031, 4616087032, 4616087033, 4616087034

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Copper	ug/L	<1.0	1.0	08/20/18 14:15	
Lead	ug/L	<1.0	1.0	08/20/18 14:15	

LABORATORY CONTROL SAMPLE: 125690

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	ug/L	20	21.5	108	85-115	
Lead	ug/L	20	21.1	105	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 125691 125692

Parameter	Units	4616087015 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	ug/L	724	200	200	929	926	102	101	70-130	0	20	
Lead	ug/L	<1.0	20	20	21.5	21.6	104	104	70-130	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 125694 125695

Parameter	Units	4616087025 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	ug/L	538	200	200	744	724	103	93	70-130	3	20	
Lead	ug/L	<1.0	20	20	21.0	20.9	103	103	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
5560 Corporate Exchange Ct. SE
Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA

Project: Denby
Pace Project No.: 4616087

QC Batch: 31187 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: ICPMS Metals, No Prep
Associated Lab Samples: 4616087035, 4616087036, 4616087037, 4616087038

METHOD BLANK: 125697 Matrix: Water
Associated Lab Samples: 4616087035, 4616087036, 4616087037, 4616087038

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Copper	ug/L	<1.0	1.0	08/20/18 14:50	
Lead	ug/L	<1.0	1.0	08/20/18 14:50	

LABORATORY CONTROL SAMPLE: 125698

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	ug/L	20	21.2	106	85-115	
Lead	ug/L	20	21.0	105	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 125699 125700

Parameter	Units	4616087035 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	ug/L	727	200	200	935	918	104	96	70-130	2	20	
Lead	ug/L	<1.0	20	20	21.2	21.1	106	105	70-130	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 125702 125703

Parameter	Units	4616088007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	ug/L	391	100	100	504	503	113	112	70-130	0	20	
Lead	ug/L	4.2	20	20	25.2	25.4	105	106	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

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

QUALIFIERS

Project: Denby
Pace Project No.: 4616087

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: Denby
Pace Project No.: 4616087

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
4616087001	**1-K-KS-1**	EPA 200.8	31184		
4616087002	**1-K-KS-2**	EPA 200.8	31184		
4616087003	**1-K-KS-3**	EPA 200.8	31184		
4616087004	**1-K-KS-4**	EPA 200.8	31184		
4616087005	**1-K-KS-5**	EPA 200.8	31184		
4616087006	**1-K-KS-6**	EPA 200.8	31184		
4616087007	**1-K-KS-7**	EPA 200.8	31184		
4616087008	**1-Hall-DWF-8**	EPA 200.8	31184		
4616087009	**1-Hall-DWF-9**	EPA 200.8	31184		
4616087010	**1-K-KS-10**	EPA 200.8	31184		
4616087011	**1-Hall-DWF-11**	EPA 200.8	31184		
4616087012	**1-Hall-DWF-12**	EPA 200.8	31184		
4616087013	**1-GL-B-13**	EPA 200.8	31184		
4616087014	**1-Hall-DWF-14**	EPA 200.8	31184		
4616087015	**1-Hall-DWF-15**	EPA 200.8	31185		
4616087016	**1-Hall-DWF-16**	EPA 200.8	31185		
4616087017	**1-Hall-DWF-17**	EPA 200.8	31185		
4616087018	**1-Hall-DWF-18**	EPA 200.8	31185		
4616087019	**1-Hall-DWF-19**	EPA 200.8	31185		
4616087020	**2-Hall-DWF-20**	EPA 200.8	31185		
4616087021	**2-Hall-DWF-21**	EPA 200.8	31185		
4616087022	**2-Hall-DWF-22**	EPA 200.8	31185		
4616087023	**2-Hall-DWF-23**	EPA 200.8	31185		
4616087024	**2-Hall-DWF-24**	EPA 200.8	31185		
4616087025	**2-Hall-DWF-25**	EPA 200.8	31185		
4616087026	**2-Hall-DWF-26**	EPA 200.8	31185		
4616087027	**2-Hall-DWF-27**	EPA 200.8	31185		
4616087028	**2-Hall-DWF-29**	EPA 200.8	31185		
4616087029	**3-Hall-DWF-30**	EPA 200.8	31185		
4616087030	**3-Hall-DWF-31**	EPA 200.8	31185		
4616087031	**3-Hall-DWF-32**	EPA 200.8	31185		
4616087032	**3-Hall-DWF-33**	EPA 200.8	31185		
4616087033	**3-Hall-DWF-34**	EPA 200.8	31185		
4616087034	**3-Hall-DWF-35**	EPA 200.8	31185		
4616087035	**3-Hall-DWF-36**	EPA 200.8	31187		
4616087036	**3-Hall-DWF-37**	EPA 200.8	31187		
4616087037	**3-Hall-DWF-38**	EPA 200.8	31187		
4616087038	**3-Hall-DWF-39**	EPA 200.8	31187		

WO# : 4616087

4616087

CHAIN-OF-CUSTODY / Analytical Request Document 19798

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 #:	Denby	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: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS	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)	
1	1-K-KS- 1	DW	G	8/1/18	7:03				1			X							X		(4-1-17 CRT 6
2	1-K-KS- 2	DW	G	8/1/18	7:04				1			X							X		
3	1-K-KS- 3	DW	G	8/1/18	7:05				1			X							X		
4	1-K-KS- 4	DW	G	8/1/18	7:06				1			X							X		
5	1-K-KS- 5	DW	G	8/1/18	7:07				1			X							X		
6	1-K-KS- 6	DW	G	8/1/18	7:08				1			X							X		
7	1-K-KS- 7	DW	G	8/1/18	7:09				1			X							X		
8	1-Hall-DWF- 8	DW	G	8/1/18	7:12				1			X							X		
9	1-Hall-DWF- 9	DW	G	8/1/18	7:13				1			X							X		
10	1-K-KS- 10	DW	G	8/1/18	7:10				1			X							X		
11	1-Hall-DWF- 11	DW	G	8/1/18	7:15				1			X							X		
12	1-Hall-DWF- 12	DW	G	8/1/18	7:16				1			X							X		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
		8/1/18	1735	D. Martin	8/1/18	1400	
					8-1-18	1735	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Dominique Greer

SIGNATURE of SAMPLER: DG

DATE Signed: 8/1/2018

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

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document 19799

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 #:	Denby	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	1-GL- B- 13	DW	G	8/1/18	7:18				1			X							X	
14	1-Hall-DWF- 14	DW	G	8/1/18	7:20				1			X							X	
15	1-Hall-DWF- 15	DW	G	8/1/18	7:21				1			X							X	
16	1-Hall-DWF- 16	DW	G	8/1/18	7:24				1			X							X	
17	1-Hall-DWF-17	DW	G	8/1/18	7:25				1			X							X	
18	1-Hall-DWF-18	DW	G	8/1/18	7:28				1			X							X	
19	1-Hall-DWF-19	DW	G	8/1/18	7:29				1			X							X	
20	2-Hall-DWF-20	DW	G	8/1/18	7:32				1			X							X	
21	2-Hall-DWF-21	DW	G	8/1/18	7:33				1			X							X	
22	2-Hall-DWF-22	DW	G	8/1/18	7:35				1			X							X	
23	2-Hall-DWF-23	DW	G	8/1/18	7:36				1			X							X	
24	2-Hall-DWF-24	DW	G	8/1/18	7:37				1			X							X	

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
		8/1/18	1755	J. Martin	8-2-18	1735	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Dominique Greer

SIGNATURE of SAMPLER: DATE Signed: 8/1/2018

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

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document 19800

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 #:	Denby

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)
																		Requested Analysis Filtered (Y/N)		
25	2-Hall-DWF-25	DW	G	8/1/18	7:38				1			X							X	
26	2-Hall-DWF-26	DW	G	8/1/18	7:40				1			X							X	
27	2-Hall-DWF-27	DW	G	8/1/18	7:41				1			X							X	
28	2-Hall-DWF-29	DW	G	8/1/18	7:45				1			X							X	
29	3-Hall-DWF-30	DW	G	8/1/18	7:46				1			X							X	
30	3-Hall-DWF-31	DW	G	8/1/18	7:47				1			X							X	
31	3-Hall-DWF-32	DW	G	8/1/18	7:49				1			X							X	
32	3-Hall-DWF-33	DW	G	8/1/18	7:50				1			X							X	
33	3-Hall-DWF-34	DW	G	8/1/18	7:52				1			X							X	
34	3-Hall-DWF-35	DW	G	8/1/18	7:53				1			X							X	
35	3-Hall-DWF-36	DW	G	8/1/18	7:55				1			X							X	
36	3-Hall-DWF-37	DW	G	8/1/18	7:56				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		8-8-18	1735	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Dominique Greer

SIGNATURE of SAMPLER:

DATE Signed: 8/1/2018

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

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document 19801

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 #:	Denby

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)

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)
37	3-Hall-DWF-38	DW	G	8/1/18	7:58				1			X							X	
38	3-Hall-DWF-39	DW	G	8/1/18	7:59				1			X							X	

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
		8/8/18	1735		8/8/18	1400	
					8-8-18	1735	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Dominique Greer

SIGNATURE of SAMPLER:

DATE Signed: 8/1/2018

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 #: 4616087
Receipt Record Page/Line #: 41-17

Recorded by (initials/date): JN 8-8-18

☑ Cooler ☐ Box ☐ Other ______
Qty Received: 1

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

Cooler # 000190 Time 2300	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:		0	35.1
Sample 2:		0	35.0
Sample 3:		0	35.2

When above 6 °C take a 3 Sample Average °C: 35.1

☐ 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: 19798, 19799, 19780, 19781

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: TS 8/9/18

Pace Analytical®

AQUEOUS SAMPLE PRESERVATION VERIFICATION

Client: CTC

Work Order #: 461b087

Receipt Log #: 41-17

Completed By (initials/date): DW 8-8-17

COC ID #: 19798

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 #: 19799

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: QTC

Work Order #: 4616087

Receipt Log #: 41-17

Completed By (initials/date): JW 8-8-18

COC ID #: 19800

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 #: 19801

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