August 19, 2019

Guilford County Schools
c/o Mr. Scott McCully
120 Franklin Boulevard
Greensboro, North Carolina 27401

ECS Project No. 49-8287-A

Reference: Lead and Copper-in-Drinking Water Testing Services
Guilford County Public Schools
Guilford County, North Carolina

Dear Mr. McCully:

ECS Southeast, LLP (ECS) is pleased to provide Guilford County Public Schools with the laboratory results for the water samples collected at 12 school facilities in May 2019. Services were performed as requested in general accordance with ECS Proposal No. 49:13648-P dated March 13, 2019.

Project Description

ECS was requested to provide lead and copper-in-drinking water testing services for 12 school facilities. Sample protocols were performed following US EPA's 3Ts document (reference October 2018 document - 3Ts for Reducing Lead in Drinking Water in Schools: Revised Technical Guidance) For each facility, water samples were requested to be collected from drinking or water consumption source locations. The following schools/facilities were tested for this project phase.

1) Lindley Elementary School
2) Alamance Elementary School
3) Sedalia Elementary School
4) Gillespie Park Elementary School
5) Brooks Global Elementary School
6) Bessemer Elementary School
7) Sedgefield Elementary School
8) Stokesdale Elementary School
9) Jones Elementary School
10) Wiley Elementary School
11) Oak Hill Elementary School
12) Joyner Elementary School

In general, water is provided at the facilities by water fountains, classroom faucets, ice makers, water lines to fill kitchen cooking equipment and other various faucets. For each facility, water samples were requested to be collected from primary drinking or cooking water source locations.

The buildings are serviced by public water provided by the City of Greensboro or City of High Point (Public Water Systems or PWSs). The US EPA recommended action levels for lead in drinking water for a PWS is 15 ppb (parts per billion) for lead and 1.3 parts per million (ppm) for copper. For the purpose of this survey, and based on conversations with the Guilford County School System, ECS used 10 ppb as an action level for lead and 1.3 ppm as an action level for copper.

Sample Methods

As noted previously, ECS was requested to perform sampling at select locations within each facility for various water source locations. Samples collected were focused on primary drinking water units such as fountains, kitchen faucets (for food prep/cooking), ice makers and various other faucets. It is our understanding that all of the water sources sampled were flushed approximately 6 to 8 hrs. (approx.) prior to sampling. Guilford County Public Schools employees generally observed the survey and sample locations during field collection as part of training for the school staff to potentially collect samples in the future.

During sampling, initial draw samples were collected for analysis of lead and copper in drinking water. Efforts were made to collect each sample prior to regular water use within the building. Initial samples collected within each building were focused on where water service first enters the building and then expanded from this point. The collected samples were placed directly into laboratory grade containers and transported to an accredited laboratory per chain of custody protocol for analysis per EPA Methodology for lead in drinking water. The collected samples were submitted to Pace Analytical Services, LLC in Huntersville, North Carolina per chain of custody protocol.

Samples were provided with unique identification labels, including the school initials and sample location number.

Analytical Results of Initial Draw Samples

The laboratory results of the collected water samples from each sampling event at the above-referenced school buildings are summarized in the attachments. A copy of the analytical results and chain of custodies are attached to this report.

Approximately 304 water sources were sampled from the school facilities. Based on the analytical results: (1) the collected samples were below the 1.3 ppm action level for copper; and (2) the lead levels of the collected samples were generally reported to be below the action levels of 10 ppb for lead, with the exception of the following locations, for which laboratory results were reported to be at or above the 10 ppb action level for lead:

School	Location	Lead Concentration (ppb)
Bessemer Elementary	Drinking Station, Room 3	63.6
Brooks Global Elementary	Ice Maker, Kitchen	20.6
Joyner Elementary	Drinking Station, Room 3	35.0
Sedalia Elementary	Drinking Station, Room 19	19.7
Sedgefield Elementary	Drinking Station, Room 39	27.0
Stokesdale Elementary	Drinking Station, Right-Hand, Between Rooms C103 and C101	29.2
Stokesdale Elementary	Drinking Station, Left-Hand, Between C103 and C101	242
Stokesdale Elementary	Drinking Station, Room B106	9.9

Key – ppb – parts per billion

Follow-up Sampling, Analytical Results, and Remedial Measures

With respect to each of the eight fixtures identified above, additional sampling and/or remedial measures were undertaken as described below.

Bessemer Elementary
The Room 3 Drinking Station at Bessemer Elementary was immediately taken out of service on May 14, 2019, following the lead first draw sample result of 63.6 ppb. On May 15, 2019 a flush sample was taken and no lead was detected indicating that the fixture was likely the cause of the elevated lead concentration. It was permanently removed from service June 5, 2019.

Brooks Global Elementary
The Ice Machine located in the Kitchen at Brooks Global Elementary had a first draw sample result of 20.6 ppb and was immediately taken out of service and bagged on May 15, 2019. The water line to the ice machine was reportedly disconnected and a cut-off valve was installed to facilitate flushing for sampling purposes. ECS recommended removing the valve and reconnection the ice machine. Ice was removed from the machine and allowed to recharge prior to additional sampling. On May 21, 2019, a sample was collected from the Ice Machine after being allowed to recharge. No lead was detected indicating that the valve was the likely cause of the elevated lead concentration. The Ice Machine was place back into service on June 4, 2019.

Joyner Elementary
The Room 3 Drinking Station at Joyner Elementary was immediately taken out of service on May 29, 2019, following the lead first draw sample result of 35.0 ppb. On May 30, 2019 a flush sample was taken and no lead was detected indicating that the fixture was likely the cause of the elevated lead concentration. It was permanently removed from service June 18, 2019.

Sedalia Elementary
The Room 19 Drinking Station at Sedalia Elementary was immediately taken out of service on May 20, 2019, following the lead first draw sample result of 27.0 ppb. On May 21, 2019 a flush sample was taken and no lead was detected indicating that the fixture was likely the cause of the elevated lead concentration. It was permanently removed from service June 6, 2019.

Sedgefield Elementary
The Room 39 Drinking Station at Sedgefield Elementary was immediately taken out of service on May 21, 2019, following the lead first draw sample result of 63.6 ppb. On May 22, 2019 a flush sample was taken and no lead was detected indicating that the fixture was likely the cause of the elevated lead concentration. It was permanently removed from service June 5, 2019.

Stokesdale Elementary
The Room B06 Drinking Station at Stokesdale Elementary was immediately taken out of service on May 22, 2019, following the lead first draw sample result of 9.9 ppb. The Right-Hand Drinking Station located between Rooms C103 and C101 at Stokesdale Elementary was immediately taken out of service on May 22, 2019, following the lead first draw sample result of 29.2 ppb. The Left-Hand Drinking Station located between Rooms C103 and C101 at Stokesdale Elementary was immediately taken out of service on May 22, 2019, following the lead first draw sample result of 242 ppb. On May 22, 2019 a flush sample was taken from each of these three fixtures and no lead was detected indicating that the fixtures were likely the cause of the elevated lead concentrations. They were permanently removed from service June 7, 2019.

Additional Considerations

Certain locations were not sampled. These locations either were not in operation or it did not appear likely that they would be used as a source of drinking water. These locations are listed below:

- Select restroom and classroom faucets, including science classrooms faucets, in all schools
- Janitorial closet faucets
- Exterior faucets
- Select Fountains (these were not operable).

Recommendations

A total of eight fixtures were found to have elevated levels of lead. These fixtures were either taken out of service permanently or repaired. Based on the laboratory data, ECS does not have further recommendations for these eight fixtures.

ECS recommends continuing a periodic School-Wide Flushing Protocol, such as after week-long recesses (e.g., Christmas, Spring, Summer).

In the 3 Ts document, routine control measures are recommended (not required) as general good practice for over-all drinking water safety. Measures to be considered include, but are not limited to, the following:

- Clean debris from all accessible screens routinely. If you discover sediments in faucet screens, have the sediments tested for lead and continue to clean your screens frequently, even if the analysis finds no lead.
- Use only cold water for food and beverage preparation. Hot water will dissolve lead more quickly than cold water and is likely to contain increased lead levels. If hot water is needed, it should be taken from the cold water tap and heated on a stove or in a microwave oven.
- US EPA recommends public notification of the findings of this sample event to the public and school staff. EPA has described procedures for dissemination of this information which are described in Section III.6 of the 3 Ts document.

Qualifications

The conclusions presented within this report are based upon a reasonable level of investigation within normal bounds and standards of professional practice for a site in this particular geographic and geologic setting. All observations, conclusions, and recommendations pertaining to environmental conditions at the subject site are limited to conditions observed, and or materials reviewed at the time this study was undertaken. No other warranty, expressed or implied, is made with regard to the conclusions and recommendations presented within this report. It is also important to note that lead content in drinking water samples can vary based on a variety of factors and the sample findings for this study are only reflective of the time/date on which the samples were collected and under the conditions sampled.

This letter is provided for the exclusive use of Client and their prospective partners. This letter is not intended to be used or relied upon in connection with other projects or by other unidentified third parties. The use of this letter by any undesignated third party or parties would be at such party's sole risk and ECS disclaims liability for any such third party use or reliance. ECS has not completed or used any form of predetermined language to report the conclusions of this work and it is our understanding that we will not be required to do so.

It has been our pleasure to be of service to you on this project. Should you have any questions or comments with regard to the findings and recommendations, please feel free to contact us at your convenience.

Respectfully submitted,

ECS SOUTHEAST, LLP

Ryan C. Abrahamson
Environmental Project Manager

Brian E. Maas, REM
Environmental Principal

Attachments: School Summary Sheets
Laboratory Analytical Results & Chains of Custody

School Name: Alamance Elementary School	**Report Date (s): 5/14/2019; 8/19/2019**
Date Test Conducted: 5/1/2019	**Date Results Received:** 5/14/19
Number of Faucets Tested: 25 (all GCS identified faucets used for drinking/food preparation)	
Lead Results	**Copper Results**
Results 15 ppb and above: 0	**Results 1.3 ppm and above:** 0
Results 10 ppb to below 15 ppb: 0	**Detectable results below 1.3 ppm:** 25
Detectable results below 10 ppb: 0	**Results below detection level:** 0
Results below detection level: 25	
Number of Faucets Requiring Remedial Action: 0	

Daily School-Wide Flushing:

__ Continue with protocol

__ Discontinue flushing protocol: mm/dd/yyyy

x Other (Describe: Perform Periodic Flushing)

This is a summary report prepared by ECS. ECS suggests that the full report be referred to with regards to findings, recommendations, and technical limitations for this sampling event.

School Name: Bessemer Elementary	**Report Date (s): 6/17/2019; 8/19/2019**
Date Test Conducted: 5/1/19	**Date Results Received:** 5/13/19; 6/3/19
Number of Faucets Tested: 35 (all GCS identified faucets used for drinking/food preparation)	
Lead Results	**Copper Results**
Results 15 ppb and above: 1	**Results 1.3 ppm and above:** 0
Results 10 ppb to below 15 ppb: 0	**Detectable results below 1.3 ppm:** 35
Detectable results below 10 ppb: 2	**Results below detection level:** 0
Results below detection level: 32	

Number of Faucets Requiring Remedial Action: 1

Location of Faucet	Action Taken
Sample ID: BES-009 Location description: Room 3 Drinking Station	X Temporarily Taken Out of Service: 5/14/19 X Permanently Taken Out of Service: 6/5/19 X Flush Tested: 5/15/19 Flush Test Result 6/3/19: ND (Lead) __ Replaced: mm/dd/yyyy __ Retest: mm/dd/yyyy Retest Result: #### __ Other: _____mm/dd/yyyy __ Placed Back in Service on: mm/dd/yyyy

Daily School-Wide Flushing:

__ Continue with protocol

__ Discontinue flushing protocol: mm/dd/yyyy

_X_ Other (Describe: Perform Periodic Flushing)

This is a summary report prepared by ECS. ECS suggests that the full report be referred to with regards to findings, recommendations, and technical limitations for this sampling event.

School Name: Brooks Global	**Report Date (s): 6/17/19; 8/19/19**
Date Test Conducted: 5/3/19	**Date Results Received:** 5/14/19; 6/1/19
Number of Faucets Tested: 19 (all GCS identified faucets used for drinking/food preparation)	
Lead Results	**Copper Results**
Results 15 ppb and above: 1	**Results 1.3 ppm and above:** 0
Results 10 ppb to below 15 ppb: 0	**Detectable results below 1.3 ppm:** 19
Detectable results below 10 ppb: 1	**Results below detection level:** 0
Results below detection level: 17	

Number of Faucets Requiring Remedial Action: 1

Location of Faucet	Action Taken
Sample ID: BGS-005 Location description: Kitchen Ice Maker The water line to the ice machine was disconnected and a cut-off valve was installed to facilitate flushing. ECS recommended removing the valve and reconnecting the ice machine. The ice maker was emptied of ice and allowed to recharge. A sample was then collected from the recharged ice.	X Temporarily Taken Out of Service: 5/15/19 __ Permanently Taken Out of Service: mm/dd/yyyy __ Flush Tested: mm/dd/yyyy Flush Test Result: #### x Replaced: 5/17/19 x Retest: 5/21/19 Retest Result: 6/1/19: ND (Lead) __ Other: _____mm/dd/yyyy x Placed Back in Service on: 6/4/19

Daily School-Wide Flushing:

__ Continue with protocol

__ Discontinue flushing protocol: mm/dd/yyyy

_X_ Other (Describe: Perform Periodic Flushing)

This is a summary report prepared by ECS. ECS suggests that the full report be referred to with regards to findings, recommendations, and technical limitations for this sampling event.

School Name: Gillespie Park ES	**Report Date (s): 5/14/2019; 8/19/2019**
Date Test Conducted: 5/2/19	**Date Results Received:** 5/13/19
Number of Faucets Tested: 39 (all GCS identified faucets used for drinking/food preparation)	
Lead Results	**Copper Results**
Results 15 ppb and above: 0	**Results 1.3 ppm and above:** 0
Results 10 ppb to below 15 ppb: 0	**Detectable results below 1.3 ppm:** 39
Detectable results below 10 ppb:3	**Results below detection level:** 0
Results below detection level: 36	
Number of Faucets Requiring Remedial Action: 0	

Daily School-Wide Flushing:

__ Continue with protocol

__ Discontinue flushing protocol: mm/dd/yyyy

x Other (Describe: Perform Periodic Flushing)

This is a summary report prepared by ECS. ECS suggests that the full report be referred to with regards to findings, recommendations, and technical limitations for this sampling event.

School Name: Jones Elementary School	**Report Date (s): 5/16/19; 8/19/2019**
Date Test Conducted: 5/3/19	**Date Results Received:** 5/13/19
Number of Faucets Tested: 38 (all GCS identified faucets used for drinking/food preparation)	
Lead Results	**Copper Results**
Results 15 ppb and above: 0	**Results 1.3 ppm and above:** 0
Results 10 ppb to below 15 ppb: 0	**Detectable results below 1.3 ppm:** 37
Detectable results below 10 ppb: 1	**Results below detection level: 1**
Results below detection level: 37	
Number of Faucets Requiring Remedial Action: 0	

Daily School-Wide Flushing:

__ Continue with protocol

__ Discontinue flushing protocol: mm/dd/yyyy

x Other (Describe: Perform Periodic Flushing)

This is a summary report prepared by ECS. ECS suggests that the full report be referred to with regards to findings, recommendations, and technical limitations for this sampling event.

School Name: Joyner Elementary	**Report Date (s): 6/18/19; 8/19/19**
Date Test Conducted: 5/9/19	**Date Results Received:** 5/24/19
Number of Faucets Tested: 23 (all GCS identified faucets used for drinking/food preparation)	
Lead Results	**Copper Results**
Results 15 ppb and above: 1	**Results 1.3 ppm and above:** 0
Results 10 ppb to below15 ppb: 0	**Detectable results below 1.3 ppm:** 22
Detectable results below 10 ppb: 7	**Results below detection level: 1**
Results below detection level: 15	

Number of Faucets Requiring Remedial Action: 1

Location of Faucet	Action Taken
Sample ID: JES-007 (Lead @ 35 ppb) Location description: Drinking Station, Classroom 3	X Temporarily Taken Out of Service: 5/29/19 X Permanently Taken Out of Service: 6/18/19 X Flush Tested: 5/30/19 Flush Test Result: 6/15/19 ND (Lead) __ Replaced: mm/dd/yyyy __ Retest: mm/dd/yyyy Retest Result: #### __ Other: _____mm/dd/yyyy __ Placed Back in Service on: mm/dd/yyyy

Daily School-Wide Flushing:

__ Continue with protocol

__ Discontinue flushing protocol: mm/dd/yyyy

_X_ Other (Describe: Perform Periodic Flushing)

This is a summary report prepared by ECS. ECS suggests that the full report be referred to with regards to findings, recommendations, and technical limitations for this sampling event.

School Name: Lindley Elementry	**Report Date (s): 5/22/19; 8/19/2019**
Date Test Conducted: 5/8/19	**Date Results Received:** 5/21/19
Number of Faucets Tested: 23 (all GCS identified faucets used for drinking/food preparation)	
Lead Results	**Copper Results**
Results 15 ppb and above: 0	**Results 1.3 ppm and above:** 0
Results 10 ppb to below 15 ppb: 0	**Detectable results below 1.3 ppm:** 22
Detectable results below 10 ppb: 0	**Results below detection level: 1**
Results below detection level: 23	
Number of Faucets Requiring Remedial Action: 0	

Daily School-Wide Flushing:

__ Continue with protocol

__ Discontinue flushing protocol: mm/dd/yyyy

x Other (Describe: Perform Periodic Flushing)

This is a summary report prepared by ECS. ECS suggests that the full report be referred to with regards to findings, recommendations, and technical limitations for this sampling event.

School Name: Oak Hill Elementary	**Report Date (s): 5/28/19; 8/19/2019**
Date Test Conducted: 5/9/19	**Date Results Received:** 5/24/19
Number of Faucets Tested: 19 (all GCS identified faucets used for drinking/food preparation)	
Lead Results	**Copper Results**
Results 15 ppb and above: 0	**Results 1.3 ppm and above:** 0
Results 10 ppb to below 15 ppb: 0	**Detectable results below 1.3 ppm:** 18
Detectable results below 10 ppb: 3	**Results below detection level:** 1
Results below detection level: 16	
Number of Faucets Requiring Remedial Action: 0	

Daily School-Wide Flushing:

__ Continue with protocol

__ Discontinue flushing protocol: mm/dd/yyyy

x Other (Describe: Perform Periodic Flushing)

This is a summary report prepared by ECS. ECS suggests that the full report be referred to with regards to findings, recommendations, and technical limitations for this sampling event.

School Name: Sedalia Elementary	**Report Date (s): 6/17/19; 8/19/9**
Date Test Conducted: 5/8/19	**Date Results Received:** 5/17/19
Number of Faucets Tested: 33 (all GCS identified faucets used for drinking/food preparation)	
Lead Results	**Copper Results**
Results 15 ppb and above: 1	**Results 1.3 ppm and above:** 0
Results 10 ppb to below 15 ppb: 0	**Detectable results below 1.3 ppm:** 33
Detectable results below 10 ppb: 1	**Results below detection level:** 0
Results below detection level: 31	

Number of Faucets Requiring Remedial Action: 1	
Location of Faucet	**Action Taken**
Sample ID: 017 (19.7 ug/L) Location description: Room 19 Drinking Station	x Temporarily Taken Out of Service: 5/20/19 x Permanently Taken Out of Service: 6/6/19 x Flush Tested: 5/21/19 Flush Test Result 6/1/19: ND (Lead) __ Replaced: mm/dd/yyyy __ Retest: mm/dd/yyyy Retest Result: #### __ Other: _____mm/dd/yyyy __ Placed Back in Service on: mm/dd/yyyy

Daily School-Wide Flushing:

__ Continue with protocol

__ Discontinue flushing protocol: mm/dd/yyyy

_X_ Other (Describe: Perform Periodic Flushing)

This is a summary report prepared by ECS. ECS suggests that the full report be referred to with regards to findings, recommendations, and technical limitations for this sampling event.

School Name: Sedgefield ES	**Report Date (s): 6/17/19; 8/9/19**
Date Test Conducted: 5/7/19	**Date Results Received:** 5/18/19
Number of Faucets Tested: 46 (all GCS identified faucets used for drinking/food preparation)	
Lead Results	**Copper Results**
Results 15 ppb and above: 1	**Results 1.3 ppm and above:** 0
Results 10 ppb to below 15 ppb: 0	**Detectable results below 1.3 ppm: 46**
Detectable results below 10 ppb: 2	**Results below detection level:** 0
Results below detection level: 43	

Number of Faucets Requiring Remedial Action: 1	
Location of Faucet	**Action Taken**
Sample ID: 135-SGE (27.0 ppb) Location description: Classroom 39 Drinking Station	x Temporarily Taken Out of Service: 5/21/19 x Permanently Taken Out of Service: 6/5/19 x Flush Tested: 5/22/19 Flush Test Result 6/1/19: ND (Lead) __ Replaced: mm/dd/yyyy __ Retest: mm/dd/yyyy Retest Result: #### __ Other: _____mm/dd/yyyy __ Placed Back in Service on: mm/dd/yyyy

Daily School-Wide Flushing:

__ Continue with protocol

__ Discontinue flushing protocol: mm/dd/yyyy

_X_ Other (Describe: Perform Periodic Flushing)

This is a summary report prepared by ECS. ECS suggests that the full report be referred to with regards to findings, recommendations, and technical limitations for this sampling event.

School Name: Stokesdale Elementary	**Report Date (s): 5/22/19; 8/19/19**
Date Test Conducted: 5/7/19	**Date Results Received:** 5/21/19
Number of Faucets Tested: 30 (all GCS identified faucets used for drinking/food preparation)	
Lead Results	**Copper Results**
Results 15 ppb and above: 2	**Results 1.3 ppm and above:** 0
Results 10 ppb to below 15 ppb: 1	**Detectable results below 1.3 ppm:** 29
Detectable results below 10 ppb: 2	**Results below detection level:** 1
Results below detection level: 25	

Number of Faucets Requiring Remedial Action: 3

Location of Faucet	Action Taken
Sample ID: 012 (Lead 9.9 ppb) Location description: Room B06 Drinking Station	x Temporarily Taken Out of Service: 5/22/19 x Permanently Taken Out of Service: 6/7/19 x Flush Tested: 5/23/19 Flush Test Result 6/1/19: ND (Lead) __ Replaced: mm/dd/yyyy __ Retest: mm/dd/yyyy Retest Result: #### __ Other: _____mm/dd/yyyy __ Placed Back in Service on: mm/dd/yyyy
Sample ID: 021R (**Lead 29.2 ppb**) Location description: Right-hand Drinking Station between Rooms C103 and C101	x Temporarily Taken Out of Service: 5/22/19 x Permanently Taken Out of Service: 6/7/19 x Flush Tested: 5/23/19 Flush Test Result 6/1/19: ND (Lead) __ Replaced: mm/dd/yyyy __ Retest: mm/dd/yyyy Retest Result: #### __ Other: _____mm/dd/yyyy __ Placed Back in Service on: mm/dd/yyyy
Sample ID: 022L (**Lead 242 ppb**) Location description: Left-hand Drinking Station between Rooms C103 and C101	x Temporarily Taken Out of Service: 5/22/19 x Permanently Taken Out of Service: 6/7/19 x Flush Tested: 5/23/19 Flush Test Result 6/1/19: ND (Lead) __ Replaced: mm/dd/yyyy __ Retest: mm/dd/yyyy Retest Result: #### __ Other: _____mm/dd/yyyy __ Placed Back in Service on: mm/dd/yyyy

Daily School-Wide Flushing:

__ Continue with protocol

__ Discontinue flushing protocol: mm/dd/yyyy

_X_ Other (Describe: Perform Periodic Flushing)

This is a summary report prepared by ECS. ECS suggests that the full report be referred to with regards to findings, recommendations, and technical limitations for this sampling event.

School Name: Wiley Elementary	**Report Date (s): 5/16/19; 8/19/2019**
Date Test Conducted: 5/3/19	**Date Results Received:** 5/14/19
Number of Faucets Tested: 22 (all GCS identified faucets used for drinking/food preparation)	
Lead Results	**Copper Results**
Results 15 ppb and above: 0	**Results 1.3 ppm and above:** 0
Results 10 ppb to below 15 ppb: 0	**Detectable results below 1.3 ppm:** 20
Detectable results below 10 ppb:0	**Results below detection level:** 2
Results below detection level: 22	
Number of Faucets Requiring Remedial Action: 0	

Daily School-Wide Flushing:

__ Continue with protocol

__ Discontinue flushing protocol: mm/dd/yyyy

x Other (Describe: Perform Periodic Flushing)

This is a summary report prepared by ECS. ECS suggests that the full report be referred to with regards to findings, recommendations, and technical limitations for this sampling event.