



November 14, 2016

Mr. Steve Thompson
Director, Buildings & Grounds
Byram Hills Central School District
41 Wampus Ave.
Armonk, NY 10504

Re: Testing for Lead in Water at Wampus Elementary School

Dear Mr. Thompson,

At your request on behalf of the Byram Hills Central School District (BHCSD), Louis Berger has conducted a testing program for lead in water at the Wampus Elementary School. Louis Berger's team, led by Certified Industrial Hygienist Mr. Joseph L. Sbarra, CIH conducted the testing on September 17, 2016.

Background

On September 06, 2016, Governor Andrew Cuomo signed legislation requiring that school districts and boards of cooperative educational services test their water for lead. Also on September 06, 2016, the NY State Department of Health issued emergency regulations (Subpart 67-4 of Title 10 [Health] of the Official Compilation of Codes, Rules and Regulations of the State of NY) pursuant to new legislation, requiring that school districts test their water for lead contamination:

- ◇ By September 30, 2016, all school buildings serving children in pre-K through grade 5 were required collect a sample from each outlet for testing.
- ◇ By October 31, 2016, all school buildings serving children in grades 6 through 12 must collect a sample from each outlet for testing.

Key Definitions in the Law/Regulations

- ◇ Outlet means a potable water fixture currently or potentially used for drinking or cooking purposes, including but not limited to a bubbler, drinking fountain, or faucets.
- ◇ Action level means 15 parts per billion (ppb). Where exceedances of the Action Level are found, schools are required to develop and implement a lead remediation plan, where applicable.

The NY State Department of Health regulations **do not follow** the EPA program guidelines and criteria established by the "3Ts for Reducing Lead in Drinking Water in Schools". This has resulted in testing and inclusion of outlets that are not used for drinking or cooking purposes: such as bathroom sinks, science/art room sinks, sinks in classrooms with drinking fountains, and hose bibs.

The inclusion of these "outlets" has cost taxpayers in New York State millions of dollars for sampling and analysis of water sources from which children do not drink.

Sampling Methodology

1. The NY DOH Emergency Regulation, Section 67-4.3 – Monitoring states:
 - ◇ First-draw samples shall be collected from all outlets. A first-draw sample volume shall be 250 milliliters (mL), collected from a cold water outlet before any water is used. The water shall be motionless in the pipes for a minimum of 8 hours, but not more than 18 hours, before sample collection. Note: The NY DOH stated during a webinar that for outlets which did not have regular use and water was motionless in the pipes for > 18 hours, the outlets were to be sampled as well (to represent “normal use patterns”).
 - ◇ Any first-draw sampling conducted consistent Emergency Regulation that occurred after January 1, 2015 shall satisfy the initial first-draw sampling requirement.
 - ◇ All first-draw samples shall be analyzed by a laboratory approved to perform such analyses by the Department’s Environmental Laboratory Approval Program (ELAP).

Although not required by the NY DOH Emergency Regulation, Louis Berger also followed methodologies included in EPA’s document entitled “3Ts for Reducing Lead in Drinking Water in Schools”.

2. Sampling Plan

- ◇ In developing a sampling plan before testing took place at the School, Louis Berger determined the location of the water service line. Sampling at the School started from location closest to the service line entrance and proceeded outwards from that point.
 - ◇ A map, depicting location of the service line entrance and arrows indicating the direction of sampling was provided to and used by the sampling team. The sampling team verified the location of the service line entrance prior to sampling.
 - ◇ Louis Berger also included testing of ice machines and plumbed coffee machines, if present, even though they were not required by the NY DOH Emergency Regulation (since they do not meet the definition of an outlet).
3. Laboratory Analysis – Samples were submitted to RJ Lee Group for analysis while maintaining chain-of-custody; RJ Lee Group is NY State Department of Health approved for analysis of lead in potable water.

Results Discussion

The Assessment Results Exceedance Table provided on the following page details the date of sampling, sample identification, location and laboratory results that exceeded 15 ppb. A copy of the full laboratory results and the chain of custody are presented at the end of this report in Appendix A. Laboratory approvals can be found in Appendix B.

- ◇ For the September 17, 2016 sampling event conducted at the School, 31 (27.0 %) of the 115 samples collected had a lead concentration above 15 ppb. Of the 31 samples that were above 15 ppb, 7 were drinking fountains.

Assessment Results Exceedance Table

Wampus Elementary School				
Date	Sample ID	Floor	Location	Lead Level (ppb)
09/17/16	11-WES	1 st	Sink in Boiler Room	35.1
09/17/16	14-WES	1 st	Sink (left side) in Girls' Restroom	413
09/17/16	15-WES	1 st	Sink (middle) in Girls' Restroom	4370
09/17/16	16-WES	1 st	Sink (right side) in Girls' Restroom	361
09/17/16	17-WES	1 st	Sink in Lab	167
09/17/16	18-WES	1 st	Drinking Fountain in Room 9	37.1
09/17/16	19-WES	1 st	Sink in Room 9	18.8
09/17/16	20-WES	1 st	Drinking Fountain in Room 10	26.9
09/17/16	21-WES	1 st	Sink in Room 10	54.1
09/17/16	22-WES	1 st	Drinking Fountain in Room 11	19.5
09/17/16	23-WES	1 st	Sink in Room 11	29.2
09/17/16	24-WES	1 st	Sink in Room 18 Work Room	17.1
09/17/16	25-WES	1 st	Sink in Room 12 (drinking fountain not working)	30.5
09/17/16	26-WES	1 st	Sink in Room 13	41.4
09/17/16	27-WES	1 st	Drinking Fountain in Room 14	17.8
09/17/16	28-WES	1 st	Sink in Room 14	15.1
09/17/16	29-WES	1 st	Drinking Fountain in Room 15	26.1
09/17/16	44-WES	1 st	Sink (right side) in Room 43	46.7
09/17/16	45-WES	1 st	Sink (left side) in Room T17 Girls' Restroom	184
09/17/16	46-WES	1 st	Sink (middle) in Room T17 Girls' Restroom	147
09/17/16	47-WES	1 st	Sink (right side) in Room T17 Girls' Restroom	92.4
09/17/16	50-WES	1 st	Sink (middle) in Room T18 Boys' Restroom	74.9
09/17/16	51-WES	1 st	Sink (right side) in Room T18 Boys' Restroom	56.8
09/17/16	52-WES	1 st	Drinking Fountain in Room 42	32.3
09/17/16	55-WES	1 st	Sink (left side) in Room 41	43.2
09/17/16	63-WES	1 st	Sink (left side) in Room T7 Boys' Restroom	107
09/17/16	64-WES	1 st	Sink (middle) in Room T7 Boys' Restroom	20.6
09/17/16	65-WES	1 st	Sink (right side) in Room T7 Boys' Restroom	16.1
09/17/16	66-WES	1 st	Drinking Fountain on Stage	34.1
09/17/16	104-WES	1 st	Hose bib (next to the field) Outside	15.5
09/17/16	105-WES	1 st	Hose bib (near room 14) Outside	97.9

Upon receipt of the results, Louis Berger made the following recommendations to the BHCSD as required by Subpart 67-4 of Title 10 (Health) of the Official Compilation of Codes, Rules and Regulations of the State of New York:

- ✓ Remove the drinking fountains from service.
- ✓ Either remove sinks from service or keep them in service. If sinks remain in service, signage must be posted (NOT FOR DRINKING + picture, such as a cup with a line through it). For bathrooms, add (HANDWASHING ONLY) to the signage.
- ✓ Either remove hose bibs from service or keep them in service. If hose bibs remain in service, signage must be posted (NOT FOR DRINKING + picture, such as a cup with a line through it).
- ✓ Report the test results to the local health department within 1 business day of receipt of results.
- ✓ Notify all staff and all persons in parental relation to students of the test results, in writing, as soon as practicable but no more than 10 business days after receiving the laboratory report.

Summary and Recommendations

A total of 31 (27.0 %) of the 115 samples collected had a lead concentration above 15 ppb. Of the 31 samples that were above 15 ppb, 7 were drinking fountains.

Remediation Plan

As there were outlets where 15 ppb was exceeded, Louis Berger makes the following recommendations to BHCS D for remediation:

- ✓ Consider removal of drinking fountains in classrooms and install centralized drinking fountain/bottle filling stations at strategic locations in hallways. Prices range from \$800 - \$2500 for these types of stations, depending upon the model. Manufacturers include: Elkay, Oasis, Halsey Taylor, Murdock, and Filtrine.
- ✓ If drinking fountains are to be repaired, replace plumbing/fixtures as needed. Verify that replacement pipes/joints/solder/fixtures are certified lead-free. On January 4, 2014 EPA changed the definition of lead free from not more than 8% lead content, to not more than a weighted average of 0.25% lead with respect to the wetted surfaces of pipes, pipe fittings, plumbing fittings, and plumbing fixtures. (Note: post-remediation testing for any repaired fountains is required)
- ✓ For the sink in the **Room 18 Work Room**, consider replacing the fixtures/piping or installing a water filter system to reduce lead levels.
 - ◇ If replacing plumbing/fixtures, verify that replacement pipes/joints/solder/fixtures are certified lead-free.
 - ◇ If choosing the filter system option, **below counter** water filters are recommended, as faucet attached filters are far less effective at reducing lead levels. Prices range from \$150 - \$700 for these types of systems, depending upon the model. Manufacturers include: GE, Whirlpool, Aquasana, Everpure, 3M, and Watts. These systems will also need periodic maintenance and filter changes, which will also have a cost, typically ½ of the system cost.
- ✓ For sinks and hose bibs not used or potentially used for drinking water or for food preparation – these may remain in service with permanent signage:
 - ◇ NOT FOR DRINKING + picture, such as a cup with a line through it.
 - ◇ For bathrooms, add (HANDWASHING ONLY) to the signage.

These include sinks in restrooms, laboratories, art rooms, and custodial areas where access can be controlled and limited.

Limitations, Exceptions and Assumptions

Louis Berger advises the BHCS D that it is possible that not every outlet in the School was tested, as some were not working at the date/time of testing. Therefore, Louis Berger cannot act as insurers and cannot “certify” that all drinking water outlets within the School have been identified or are “safe”. The BHCS D should thoroughly review the testing data to identify any outlets not tested and arrange for additional testing if/when those outlets are put into service.

Opinions and recommendations presented in this report apply to site conditions and features as they existed at the time of Louis Berger’s site visits, and those reasonably foreseeable. They cannot necessarily apply to conditions and features of which Louis Berger is unaware and has not had the opportunity to evaluate.

The conclusions presented in this report are professional opinions based solely upon Louis Berger’s visual observations of accessible areas, laboratory test data, and current regulatory requirements. These conclusions are intended exclusively for the purpose state herein, at the sites indicated, and for the project indicated.

No expressed or implied representation or warranty is included or intended in our reports, except that our services were performed, within the limits prescribed by our client, with the customary thoroughness and competence of our profession.

If you have any questions concerning this information, please feel free to contact me at (212) 612-7943 or Mr. Craig Napolitano, CHMM at (212) 612-7961.

Sincerely,

Joseph L. Sbarra, CIH

Joseph L. Sbarra, CIH
Manager, Industrial Hygiene

cc: C. Napolitano