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Mold Assessment
and Remediation

April 18, 2016

Health/Safety and
Environmental
Regulatory
Compliance

Mr. Dan Gallagher
Superintendent of Schools
Bound Brook Board of Education
111 West Union Avenue
Bound Brook, NJ 08805

Right-To-Know

re: **Drinking Water Sampling for Lead and Copper**

OSHA/EPA/DOT
Training Programs

Dear Mr. Gallagher,

Asbestos and Lead
Management

Attached is our report on the water sampling that was performed at the Bound Brook School District on March 15, 2016 and includes the follow-up sampling at the High School on April 1, 2016. The sampling was conducted for information purposes to determine if either Lead or Copper was present in the drinking water at the School.

Industrial Hygiene/
OSHA Compliance

Sampling results generally were acceptable with low Copper levels, and low or no detectible levels of Lead in most of the water samples collected. Two sample locations had measured Copper levels at 1.4 mg/L, just slightly above the Action Level of 1.3 mg/L for Copper. It is recommended that these locations be inspected for and cleaned of line sediment.

Indoor Air Quality

Underground/
Aboveground
Storage Tanks

In addition, there were three locations where sample results for Lead exceeded its Action Level of 0.015 mg/L. The water line to the ice maker in the High School Kitchen has been cleaned and the filter changed, and is acceptable to use. The other location at the High School, the water fountain in the Gym outside the Girls Locker Room still had high Lead reading on the re-test. Since this location does not appear to be used regularly, it may be best just to shut off and not use.

Environmental
Site Assessment

Finally, a sample location collected in the Lafayette School Boiler Room on a tap on the service line had a Lead content of 0.068 mg/L. Since the tap typically is never used, this would allow line sediment to accumulate. It is believed that the sediment has caused a false reading of the actual Lead content in the service water

Hazardous/
Medical Waste
Management

Environmental
Audits

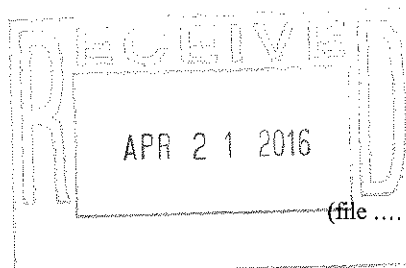
Based on these sampling results, it is apparent that there are no concerns with the drinking water in the building. If you have any questions, please don't hesitate to call us.

Expert Witness/
Litigation Support

Sincerely,

Patrick D. McGuinness, MS, P.E.
Vice President
PDM/

Customized
Software



(file Reports\Watertest\Bound Brook-161)

Sampling Results - Lead and Copper in Drinking Water Bound Brook Public Schools

1. Introduction and Summary

A total of 72 water samples were collected initially on March 15, 2016 at the various District Buildings. Sampling results generally were acceptable with low Copper levels and low or no detectible levels of Lead in most of the water samples collected.

Two locations at the High School identified had measured Lead levels above the current Action Level of 0.015 mg/L for Lead. Both locations were opened for inspection and cleaning prior to collecting a pair of re-test water samples on April 01, 2016 to measure what effect the line cleaning had on the measured levels of Lead and Copper.

One of the locations was in the Kitchen on the line to the ice maker that had acceptable re-test results for both the "First Draw" and the "Flushed" water re-tests. The other location had acceptable results only on the flushed sample. It is recommended that this location in the High School Gymnasium, just outside the Girl's Locker Room be shut off and not used. If this location is to be used regularly, it is important that the line be flushed every morning for at least 2 minutes prior to Staff and student entering the building.

A sample that was collected from a tap on the service main in the Boiler Room of the Lafayette School had a measured Lead content of 0.068 mg/L. This compares with the action level of 0.015 mg/L. This anomaly is not considered significant for two reasons. First, the sample location is not a drinking water delivery point. Second, since the sample was collected from a side tap off the main service line, it is a dead-ended line that typically is never used. This would allow water and sediment to accumulate in the tap and provide a false sampling result. Visual observation of the sample location showed significant sediment present.

All samples are otherwise acceptable. This indicates that the potable water supply is not very aggressive as it relates to its ability to draw either Lead or Copper from the water distribution piping system.

2. Water Sampling Procedures

Sampling protocols and procedures follow EPA guidelines that were developed for schools. They recognize that the typical school building is actually a conglomeration of an original building with one or more additions, each of which may have a different water distribution system. Implicit in this reality is that the older sections of some school buildings may still have Lead service piping. In addition, sections constructed before 1986 are likely constructed using leaded solders and fluxes on Copper water lines.

Other potential sources of Lead in drinking water include brass faucets, fittings, and valves that are used in the municipal and building piping distribution systems. It is important to note that "lead-

Free” pipe, faucets, pipe fittings, and valves used since 1986 may actually contain up to 8% Lead by weight. In January 2014, this limit was lowered from 8% to 0.2% Lead.

The sampling protocol requires that water be collected prior to any water use at the building to ensure that "first draw water" was taken; that is water that has been standing in the service lines for at least 8 hours (usually overnight). Except for the samples collected from the utility service tap connection in the Boiler Room, only delivery points that could conceivably be used for drinking or cooking were sampled.

All samples were collected in contaminant free, 1,000-ml containers. Laboratory analysis of the water samples was performed by Analytical Laboratory Services, Inc. of Middletown, PA (NJ DEP Certification No. PA010). The analytical method is per EPA 600/4-79-020, Method 200.8 via atomic absorption, platform furnace technique.

3. Drinking Water Standards for Lead and Copper

Drinking water quality standards promulgated by the EPA and the NJ Department of Environmental Protection (NJDEP) define maximum contaminant levels (MCL). The MCL is the maximum permissible amount of any regulated contaminants allowed in public drinking water. EPA has also developed MCL goals (or MCLG) that are non-enforceable health goals at levels where no adverse health effects would be expected.

In addition to the MCL, drinking water regulations under “The Lead and Copper Rule” also identify Action Levels. Current MCLG and Action Levels for Lead and Copper are as follows:

	<u>Action Level</u>	<u>MCLG</u>
Lead (mg/l)	0.015	0.0
Copper (mg/l)	1.30	1.30

Action levels for Lead and Copper are distinguished from MCL in that the source of the metals can be from the water delivery system itself. Since neither Lead nor Copper rarely occur in significant quantities in the raw water supplies, its primary source is typically from corrosion of Copper and/or Lead piping.

Finally, the action levels in “The Lead and Copper Rule” apply to the 90th percentile sample for Lead and Copper. The implication of this is that up to 10% of the total sample population can exceed the respective action levels and still be in compliance with the regulation.

4. Sample Results and Discussion

Sampling results for each building are listed on the next pages in **Tables 1 thru 7**. The complete laboratory analytical report and water sampling log are also appended to this report. All results are expressed as milligrams of Lead or Copper per liter of water (mg/L).

4.1 Bound Brook High School

A total of 16 water samples were collected initially in the building on March 15, 2016. As shown in **Table 1** on the attached results tables, two of the samples had measured Lead levels in excess of the Action Level. One of the water samples was collected in the kitchen at the filter on the water line into the ice maker while the other was on a seldom used water fountain in the Gym, outside the Girl's Locker Room. All other water samples had acceptable levels of Lead and Copper.

Upon receiving the results the District was advised to shut off these two locations until the lines could be cleaned and re-tested. The lines at both locations were cleaned and the water filter into the ice maker was replaced. Four water samples were collected on April 01, 2016 to measure the effect of the line cleaning on the measured Lead levels. Two of the re-test samples were collected as a 1st draw while the other two were collected after the lines were flushed for about 2 minutes.

The re-test results are shown in **Table 1A**. Both samples collected in the Kitchen at the ice maker showed acceptable results for both Lead and Copper. The 1st draw water sample collected in the Gym showed the same numeric level of Lead at 0.052 mg/L while the flushed sample showed much lower and acceptable results for Lead. Since it appears that this water tap location is not used frequently, it was recommended that this water tap either be shut off and not be used further. Alternately, if the water tap will be used, it is necessary to ensure that this location is adequately flushed every morning prior to students and staff arriving at the building.

Finally, one sample (sample No. 031516-HS15) collected from the Hallway water fountain by Room 310 had a measured Copper level of 1.4 mg/L. This is just slightly above the 1.3 action level, would meet the 90% criteria, and does not require further action. It is, however, recommended that this location be inspected for line sediment that could cause the higher Copper measurement.

4.2 LaMonte Elementary School

A total of seven (7) drinking water samples were collected at the LaMonte Elementary School. All seven water samples had no detectible levels of Lead. However, one sample (sample No. 031516-LM06) collected from the Hallway water fountain by Room 21 had a measured Copper level of 1.4 mg/L. This is also just slightly above the 1.3 action level, would also meet the 90% criteria, and not require further action. It is, however, also recommended that this location be inspected for line sediment that could cause the higher Copper measurement.

4.3 LaMonte Annex School

Seven (7) drinking water samples were collected at the LaMonte Annex School and all water samples had no detectible levels of Lead. In addition, the copper levels were all low and acceptable. No further action is required.

4.4 Community School

Nine (9) water samples were collected at the Community School. All water samples had low and acceptable levels of Copper while 8 of the 9 samples had no detectible levels of Lead. No further action is required.

4.5 Smalley School

Eight out of the ten (10) water samples were collected at the Smalley School had no detectible levels of Lead while all water samples had low and acceptable levels of Copper. No further action is required.

4.6 Lafayette School

A total of twenty (20) water samples were collected at the Lafayette School. Nineteen of the samples were collected from the various drinking water delivery points throughout the school building and all had acceptable levels of Lead and Copper. In fact, 9 of the 19 water samples had no detectible levels of Lead while the other 10 samples were well below the 0.015 mg/L action level. No further action is required.

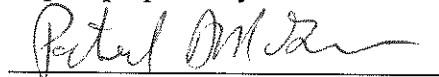
One of the samples (LAF 0315-20) had a Lead content that exceeds the Action Level of 0.015 mg/L. The tap where this sample was collected is a short line with a valve that is connected to the service main piping. Because it is very rarely used, it appears the some pipe slag or sediment accumulated on the leg and impacted the Lead sampling results. This is not considered to be significant since the location is not a possible drinking water delivery point. It is believed that the sediment has caused a false reading of the actual Lead content in the service water

4.7 Field House

All three (3) water samples collected at the Field House had acceptable levels of Lead and Copper. No further action is required.

Based on these sampling results, it is apparent that there are no concerns with the drinking water in the building. However, it is recommended that the school consider repeating this sampling every five (5) years.

Report prepared by:



Patrick D. McGuinness, MS, P.E.

Table 1: Bound Brook High School – March 15, 2016

Sample No.	Type	Sample Location	Time	Results (mg/L)	
				Cu	Pb
031516-HS01	1st	Hallway Fountain by Room 18	06:11	0.44	ND
031516-HS02	1st	Hallway Fountain by Room 21A	06:14	0.82	0.010
031516-HS03	1st	Hallway Fountain outside of Gym Door	06:16	0.47	ND
031516-HS04	1st	Hallway Fountain by Room 30	06:18	0.57	0.003
031516-HS05	1st	Fountain in Gym outside Girl's Locker Room 23A	06:22	0.43	0.052
031516-HS06	1st	Kitchen Sink Faucet along outside wall	06:26	0.18	0.0026
031516-HS07	1st	Kitchen Sink Faucet btwn outside wall & ice maker	06:27	0.24	0.0034
031516-HS08	1st	Kitchen water line into Ice Machine	06:28	0.16	0.019
031516-HS09	1st	Cafeteria Fountain next to Kitchen Door	06:32	0.75	ND
031516-HS10	1st	Hallway Fountain by Room 113	06:36	1.1	ND
031516-HS11	1st	Hallway Fountain by Room 116	06:38	0.59	ND
031516-HS12	1st	Hallway Fountain by Room 104	06:43	0.48	0.0022
031516-HS13	1st	Hallway Fountain by Room 216	06:47	0.63	ND
031516-HS14	1st	Hallway Fountain by Room 204	06:48	0.45	ND
031516-HS15	1st	Hallway Fountain by Room 310	06:52	1.4	ND
031516-HS16	1st	Tap in Service Room	06:58	0.0084	0.0023

Table 1A: High School Re-Test on April 01, 2016

Sample No.	Type	Sample Location	Time	Results (mg/L)	
				Cu	Pb
031516-HS01	1st	Kitchen water line into Ice Machine	06:35	0.15	0.0053
031516-HS02	Flushed	Kitchen water line into Ice Machine	06:37	0.033	ND
031516-HS03	1st	Fountain in Gym outside Girl's Locker Room 23A	06:42	0.38	0.052
031516-HS04	Flushed	Fountain in Gym outside Girl's Locker Room 23A	06:46	0.24	0.0071

- Notes: 1. ND means Not Detected at or above the Reliability Detection Limit (RDL) of 0.0020 for Lead.
 2. Sample Types: 1st: First Draw sample collected after water sat in pipe between 8 and 18 hours.
 Flushed: water flushed through tap for at least 2 minutes.

Table 2: LaMonte Elementary School - March 15, 2016

Sample No.	Type	Sample Location	Time	Results (mg/L)	
				Cu	Pb
031516-LM01	1st	Hallway Fountain outside Boiler Room	07:16	0.54	ND
031516-LM02	1st	Hallway Fountain outside Cafeteria	07:18	0.33	ND
031516-LM03	1st	Kitchen Faucet next to Outside Wall	07:20	0.32	ND
031516-LM04	1st	Hallway Fountain outside Room 14	07:23	0.92	ND
031516-LM05	1st	Hallway Fountain outside Room 12	07:25	0.57	ND
031516-LM06	1st	Hallway Fountain outside Room 21	07:27	1.4	ND
031516-LM07	1st	Hallway Fountain outside Room 25	07:29	1.0	ND

Table 3: LaMonte Annex School - March 15, 2016

Sample No.	Type	Sample Location	Time	Results (mg/L)	
				Cu	Pb
031516-LA01	1st	Stairwell Fountain outside Cafeteria	07:32	0.35	ND
031516-LA02	1st	Kitchen Faucet - Rear	07:33	0.65	ND
031516-LA03	1st	Kitchen Faucet - Side	07:35	0.27	ND
031516-LA04	1st	Hallway Fountain outside Room 17	07:39	0.50	ND
031516-LA05	1st	Hallway Fountain outside Room 15	07:40	0.44	ND
031516-LA06	1st	Hallway Fountain outside Room 23	07:43	0.37	ND
031516-LA07	1st	Hallway Fountain outside Room 21	07:44	0.26	ND

Table 4: Community School - March 15, 2016

Sample No.	Type	Sample Location	Time	Results (mg/L)	
				Cu	Pb
031516-CM01	1st	Kitchen Sink - Front	07:55	0.70	ND
031516-CM02	1st	Kitchen Faucet - Side	07:57	0.93	ND
031516-CM03	1st	Hallway Fountain outside Room 119 (left)	08:05	0.49	ND
031516-CM04	1st	Hallway Fountain outside Room 119 (right)	08:06	0.27	ND
031516-CM05	1st	Hallway Fountain outside Room 213 (left)	08:08	0.62	ND
031516-CM06	1st	Hallway Fountain outside Room 213 (right)	08:09	0.33	ND
031516-CM07	1st	Gym outside Men's Room (left)	08:11	0.27	ND
031516-CM08	1st	Gym outside Men's Room (right)	08:12	0.21	ND
031516-CM09	1st	Kitchen Sink (next to Gym)	08:16	0.62	0.0092

- Notes: 1. ND means Not Detected at or above the Reliability Detection Limit (RDL) of 0.0020 for Lead.
2. Sample Types: 1st: First Draw sample collected after water sat in pipe between 8 and 18 hours.
Flushed: water flushed through tap for at least 2 minutes.

Table 5: Smalley Elementary School - March 15, 2016

Sample No.	Type	Sample Location	Time	Results (mg/L)	
				Cu	Pb
SES 0315-01	1st	Kitchen Sink by Storage Room	06:12	0.20	ND
SES 0315-02	1st	Kitchen Sink by Exit Door	06:14	0.35	ND
SES 0315-03	1st	Faculty Room Sink	06:17	0.31	ND
SES 0315-04	1st	Fountain across from Gym in Hall	06:19	0.37	0.011
SES 0315-05	1st	Fountain next to Faculty Bathroom in hall	06:20	0.22	ND
SES 0315-06	1st	Fountain in hall across from Rooms 8 & 7	06:23	0.18	ND
SES 0315-07	1st	Fountain in hall next to Room 9	06:26	0.40	ND
SES 0315-08	1st	Fountain in Room 14	06:32	0.13	ND
SES 0315-09	1st	Fountain in Room 16	06:35	0.29	ND
SES 0315-10	1st	Boiler Room at Water Meter	06:40	0.13	0.011

Table 6: Lafayette School - March 15, 2016

Sample No.	Type	Sample Location	Time	Results (mg/L)	
				Cu	Pb
LAF 0315-01	1st	Fountain next to Main Entrance	06:57	0.19	ND
LAF 0315-02	1st	Fountain in Gym	07:00	0.38	ND
LAF 0315-03	1st	Kitchen Sink by Exit	07:03	0.32	0.0047
LAF 0315-04	1st	Kitchen Sink in Center	07:02	0.19	0.0024
LAF 0315-05	1st	Nurse's Office Sink	07:10	0.40	0.0028
LAF 0315-06	1st	Hall Fountain across from Room 102	07:14	0.37	ND
LAF 0315-07	1st	Room 101 Sink Fountain	07:18	0.61	ND
LAF 0315-08	1st	Room 102 Sink Fountain	07:20	0.71	ND
LAF 0315-09	1st	Room 104 Sink Fountain	07:24	0.65	ND
LAF 0315-10	1st	Room 210 Sink Fountain	07:27	0.83	ND
LAF 0315-11	1st	Room 208 Sink Fountain	07:32	0.41	0.0033
LAF 0315-12	1st	Room 209 Sink Fountain	07:34	0.91	0.0027
LAF 0315-13	1st	Room 206 Sink Fountain	07:37	0.58	0.0023
LAF 0315-14	1st	Room 207 Sink Fountain	07:40	0.45	0.0050
LAF 0315-15	1st	Hall Fountain across from Room 207	07:41	0.31	ND
LAF 0315-16	1st	Hall Fountain across from Room 203	07:45	0.27	ND
LAF 0315-17	1st	Room 203 Sink Fountain	07:47	0.39	0.0029
LAF 0315-18	1st	Room 202 Sink Fountain	07:51	0.36	0.0025
LAF 0315-19	1st	Room 201 Sink Fountain	07:53	0.51	0.0033
LAF 0315-20	1st	Boiler Room from Water Meter	08:00	0.096	0.068

Table 7: Field House - March 15, 2016

Sample No.	Type	Sample Location	Time	Results (mg/L)	
				Cu	Pb
031516-FH01	1st	Service Tap next to Entrance	08:33	0.80	ND
031516-FH02	1st	Fountain in Locker Room	08:35	0.022	0.0028
031516-FH03	1st	Training Room Ice Machine	08:37	0.045	0.0042

- Notes: 1. ND means Not Detected at or above the Reliability Detection Limit (RDL) of 0.0020 for Lead.
2. Sample Types: 1st: First Draw sample collected after water sat in pipe between 8 and 18 hours.
Flushed: water flushed through tap for at least 2 minutes.