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Mold Assessment
 and Remediation

May 3, 2017

Health/Safety and
 Environmental
 Regulatory
 Compliance

Ms. Dannielle Mancuso
 Board Secretary/Business Administrator
 Bound Brook Board of Education
 111 West Union Avenue
 Bound Brook, NJ 08805

Right-To-Know

re: **Water Sampling for Compliance with N.J.A.C. 6A:26-12.4
 Lead in Drinking Water**

OSHA/EPA/DOT
 Training Program

Dear Ms. Mancuso,

Asbestos and Lead
 Management

We enclose the following documents and related information for compliance with the new NJ Department of Education Regulation related to Lead in Drinking Water in school buildings:

Industrial Hygiene
 OSHA Compliance

- | | |
|---|----------|
| 1. Project Report | |
| Sampling Report Narrative | 4 pages |
| Water Sampling Log and Results | 7 pages |
| Notification Letter (modified from NJDEP letter template) | 2 pages |
| Laboratory Analytical Report | 92 pages |

Indoor Air Quality

Underground/
 Aboveground
 Storage Tanks

Related project documents including the Sampling Plan Drawings and Quality Assurance Project Plan will be sent separately and follow at a later date.

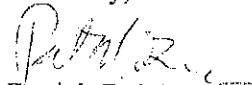
Environmental
 Site Assessment

Since there were two (2) water samples that exceeded the 0.015 mg/L standard, the new regulation requires certain responses by the District. As noted in section 2 of the report, public notification along with completing the recommended remedial actions are required.

Hazardous/
 Medical Waste
 Management

If you have any questions, please don't hesitate to call us.

Environmental
 Audits

Sincerely,

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

Expert Witness/
 Litigation Support

PDM/

(file \Reports\Watertest\Bound Brook-171)

Customized
 Software

Sampling Report - Lead in Drinking Water
Bound Brook School District

1. Sampling Results Summary

Sample Collection Date	April 05, 2017
Number of Buildings Sampled	7
Total Number of Samples Collected	70
Number of Samples with No Detectible Lead	43
Number of Samples Exceeding 5 PPB	10
Number of Samples Exceeding 15 PPB (0.015 mg/L) Standard	2
High School Fountain in Gym outside Girl's Locker Room 23A	36 PPB
Lafayette School Room 210 Sink Fountain	27 PPB

2. Required Response for Sample Results Exceeding 15 PPB Standard

The rules promulgated under the new NJDOE "Safe Drinking Water" regulation N.J.A.C. 6A:26-12.4 require certain actions by the School District when the measured Lead content in any sample results exceeds the 0.015 mg/L standard. As indicated in the summary above, this level is equivalent to 15 parts per billion (PPB) and two samples had results in excess of this level.

Within 24 hours after the District has reviewed the sample results, the District shall provide written notification to the parents and guardians of all students attending the affected facilities. The notification must include the following:

- A description of the measures taken by the School District to immediately end use of each affected water outlet;
- If necessary, measures taken to provide alternate drinking water;
- Information regarding health effects of Lead.

Appended to this report is a sample notification letter. It was taken from a template created by the NJDOE and has been modified to include our recommended responses as shown below:

Sample Location	Results (µg/l or ppb)	Remedial Action
High School Fountain in Gym outside Girl's Locker Room 23A	36	It has been determined that the water outlet is rarely used. Outlet will be permanently shut down.
Lafayette School Room 210 Sink Fountain	27	Outlet has been shut down and will be replaced. It will be re-sampled prior to use.

3. Water Sampling Procedures

Sampling protocols and procedures follow the EPA "3-T's Program" that was developed for schools and Child Care centers. They recognize that the typical school building is actually a conglomeration

of an original building with one or more additions, each of which typically having different plumbing system materials.

In addition, building sections constructed before 1986 likely have plumbing systems that used leaded solders on Copper water lines. Very old buildings and public water supply systems may also still have lead piping. Other potential sources of Lead in drinking water systems 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" plumbing components 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 as a "First-Draw" to ensure that the water sample has been standing for at least 8 hours. This is intended to replicate a "worst-case" situation since both the Lead and Copper levels are usually lowered significantly after running the water even for a few moments.

Drinking water samples were collected early on a weekday or Saturday morning before staff and students arrived for classes to represent water that has sat idle in the building piping system overnight.

Laboratory analysis of the water samples was performed for both Lead and Copper since both could be sourced from the building plumbing and both are indicators of system corrosion.

All samples were collected in 250 ml contaminant-free 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.

4. Sample Results and Discussion

Sampling results are discussed below. Water sampling logs and the complete laboratory analytical report are appended to this report. All results are expressed as milligrams of Lead or Copper per liter of water (mg/L) and compared against the current 0.015 mg/L Action Level. Results could also be expressed in equivalent terms of parts per billion (ppb) where the Action level translates to 15 ppb.

A total of 70 water samples were collected on April 05, 2017. As noted above, two (2) sample results exceeded the 0.015 mg/L Action Level. However, 43 of the 70 water samples had no detectible levels of lead present. These sample results indicate that the potable water supply is not aggressive as it relates to its ability to draw either Lead from the water distribution piping system.

5. Additional Recommendations and Future Work

All water sample results showed acceptable results for Lead content. The following responses include those required by N.J.A.C. 6A:26-12.4 and our recommendations to maintain the drinking water quality as it relates to Lead contamination.

The NJDOE regulations requires that:

- These sampling results be made publically available at the school building and on the School District's website.
- The School District shall collect drinking water samples and analyze for Lead at any drinking water outlet that has been replaced or after any alterations to the plumbing or service lines to the outlet. Do not consume or cook with water from the affected outlet until acceptable Lead results are obtained.
- Repeat water sampling within 6 years or before July 2023.

In addition, we suggest that the following responses to minimize the potential for Lead contamination of drinking water:

Administrative Responses:

- There are several factors that influence the Lead corrosion potential in drinking water piping systems. These include the chemistry of the water supplied to the building, temperature and water velocity, the age and condition of the plumbing, and the amount of time the water sits "stagnant" in contact with piping and drinking water fixtures. This last factor is the only one that a building owner has any control of.
- School building codes require a minimum of one (1) drinking water tap for every 100 students of building capacity. Wherever a larger number of water taps exists, the usage factor for each tap decreases. This, in turn, increases the "stagnation time" along with the increased potential for Lead corrosion. It is recommended that the need for all the water taps be investigated and reduced where appropriate while maintaining the minimum of 1 tap per 100 students.
- Consider implementing a program to shut-off and replace (if needed) any drinking water fixture of appliance that is more than 30 years old (was installed before the 1986 Lead Ban took effect).

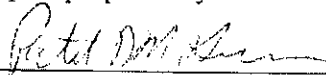
Operational and Maintenance Responses:

- It is recommended all five (5) water taps where the measured Lead content exceeded 5 parts per billion (PPB) or 0.005 mg/L be inspected and cleaned of line sediment to eliminate potential sources of Lead contamination.
- Use cold water only for drinking or cooking. As noted above, higher water temperature can increase its corrosion potential.
- As noted above, the accumulation of line sediment on aerators and screens at the water taps is frequently the cause of higher measured levels of both Lead and Copper. It is recommended that a program be established to regularly inspect for the presence of line sediment at all drinking water taps. Initially, an annual inspection is suggested. The inspection frequency should then be adjusted depending upon the amounts of sediment

that is found and where it is found. Higher usage taps may accumulate sediment more quickly and need to be cleaned more often.

- It is known that flushing water through drinking water taps will reduce the levels of both Lead and Copper present in the drinking water. It is also recommended that a program be established to run water at all drinking or cooking taps for at least one minute before students and staff return to school after long breaks, especially after the Summer recess.

Report prepared by:



Patrick D. McGuinness, MS, P.E.

Vice President

Water Sampling Log

Name of Building Bound Brook High School
 Building Owner Bound Brook Board of Education

Date Collected 5-Apr-17
 Sample Collected by PD McGuinness

Sample No.	Tap No.	Sample Type	Type of Outlet	Manufacturer		Time	Results (mg/L)	
							Cu	Pb
040517-01	1	1st	Chiller	Elkay	Hallway Fountain by Room 18	05:58	0.43	ND
040517-02	2	1st	Chiller	Elkay	Hallway Fountain by Room 21A	06:02	0.89	0.0082
040517-03	3	1st	Chiller	Elkay	Hallway Fountain outside of Gym Door	06:04	0.35	ND
040517-04	4	1st	Chiller	Elkay	Hallway Fountain by Room 30	06:06	0.50	0.0022
040517-05	5	1st	Bubbler	---	Fountain in Gym outside Girl's Locker Room 23A	06:07	0.35	0.036
040517-06	6	1st	Faucet	---	Kitchen Sink Faucet along outside wall	06:09	0.20	0.0032
040517-07	7	1st	Ice Machine	---	Kitchen water line into Ice Machine	06:10	0.0064	ND
040517-08	8	1st	Faucet	---	Kitchen Sink Faucet btwn outside wall & ice maker	06:12	0.29	ND
040517-09	9	1st	Chiller	Elkay	Cafeteria Fountain next to Kitchen Door	06:14	0.56	ND
040517-10	10	1st	Chiller	Elkay	Hallway Fountain by Room 113	06:16	0.87	ND
040517-11	11	1st	Chiller	Elkay	Hallway Fountain by Room 116	06:17	0.44	ND
040517-12	12	1st	Chiller	Elkay	Hallway Fountain by Room 104	06:18	0.46	0.0023
040517-13	13	1st	Chiller	Elkay	Hallway Fountain by Room 216	06:21	0.55	ND
040517-14	14	1st	Chiller	Elkay	Hallway Fountain by Room 204	06:23	0.42	ND
040517-15	15	1st	Chiller	Elkay	Hallway Fountain by Room 310	06:26	1.3	ND

Sample Type: **1st:** First Draw sample collected after water sat in pipe between 8 and 18 hours
FL: Water flushed through tap for at least 2 minutes
ND: means Not Detected at or above the Reliability Detection Limit (RDL) of 0.0020 mg/L for Lead.

Water Sampling Log

Name of Building
Building Owner

Community School
Bound Brook Board of Education

Date Collected
Sample Collected by

5-Apr-17

PD McGuinness

Sample No.	Tap No.	Sample Type	Type of Outlet	Mfg./Model Serial No.	Location	Time	Results (mg/L)	
							Cu	Pb
040517-21	1	1st	Faucet		Kitchen Sink - Front	07:12	0.19	ND
040517-22	2	1st	Faucet		Kitchen Faucet - Side	07:14	0.52	ND
040517-23	3	1st	Chiller	Elkay	Hallway Fountain outside Room 119 (left)	07:23	0.39	ND
040517-24	4	1st	Chiller	Elkay	Hallway Fountain outside Room 119 (right)	07:24	0.43	ND
040517-25	5	1st	Chiller	Elkay	Hallway Fountain outside Room 213 (left)	07:26	0.32	ND
040517-26	6	1st	Chiller	Elkay	Hallway Fountain outside Room 213 (right)	07:27	0.28	ND
040517-27	7	1st	Chiller	Elkay	Gym outside Men's Room (left)	07:28	0.19	ND
040517-28	8	1st	Chiller	Elkay	Gym outside Men's Room (right)	07:29	0.27	ND
040517-29	9	1st	Faucet		Kitchen Sink (next to Gym)	07:30	0.48	0.0060

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

Water Sampling Log

Name of Building Field House
 Building Owner Bound Brook Board of Education

Date Collected 5-Apr-17
 Sample Collected by PD McGuinness

Sample No.	Tap No.	Sample Type	Type of Outlet	Mfg/Model Serial No.	Location	Time	Results (mg/L)	
							Cu	Pb
040517-31	1	1st			Not Used	--	--	--
040517-32	2	1st	Chiller	Halsey Taylor	Fountain in Locker Room	07-14	0.60	ND
040517-33	3	1st	Ice Machine	Scotsman	Training Room Ice Machine	07-15	0.025	ND

Sample Type: **1st:** First Draw sample collected after water sat in pipe between 8 and 18 hours
Fl: Water flushed through tap for at least 2 minutes
ND: means Not Detected at or above the Reliability Detection Limit (RDL) of 0.0020 mg/L for Lead.

Water Sampling Log

Name of Building: LaMonte Annex Date Collected: 5-Apr-17
 Building Owner: Bound Brook Board of Education Sample Collected by: PD McGuinness

Sample No.	Tap No.	Sample Type	Type of Outlet	Mfg/Model Serial No.	Location	Time	Results (mg/L)	
							Cu	Pb
040517-41	1	1st	Chiller	Elkay	Stairwell Fountain outside Cafeteria	06:50	0.25	ND
040517-42	2	1st	Faucet		Kitchen Faucet - Rear	06:53	0.53	0.0037
040517-43	3	1st	Faucet		Kitchen Faucet - Side	06:53	0.43	0.0024
040517-44	4	1st	Chiller	Elkay	Hallway Fountain outside Room 17	06:55	0.44	ND
040517-45	5	1st	Chiller	Elkay	Hallway Fountain outside Room 15	06:56	0.27	ND
040517-46	6	1st	Chiller	Elkay	Hallway Fountain outside Room 23	06:58	0.27	ND
040517-47	7	1st	Chiller	Elkay	Hallway Fountain outside Room 21	06:59	0.24	ND
040517-48	8						1.4	0.0024

Sample Type: **1st:** First Draw sample collected after water sat in pipe between 8 and 18 hours
FL: Water flushed through tap for at least 2 minutes
ND: means Not Detected at or above the Reliability Detection Limit (RDL) of 0.0020 mg/L for Lead.

Water Sampling Log

Name of Building LaMonte School
 Building Owner Bound Brook Board of Education

Date Collected 5-Apr-17
 Sample Collected by PD McGuinness

Sample No.	Tap No.	Sample Type	Type of Outlet	Mfg./Model Serial No.	Location	Time	Results (mg/L)	
							Cu	Pb
040517-51	1	1st	Chiller	Elkay	Hallway Fountain outside Boiler Room	06:38	0.38	ND
040517-52	2	1st	Chiller	Elkay	Hallway Fountain outside Cafeteria	06:39	0.28	ND
040517-53	3	1st	Faucet		Kitchen Faucet next to Outside Wall	06:40	0.13	ND
040517-54	4	1st	Chiller	Elkay	Hallway Fountain outside Room 14	06:42	1.6	ND
040517-55	5	1st	Chiller	Elkay	Hallway Fountain outside Room 12	06:43	0.98	ND
040517-56	6	1st	Chiller	Elkay	Hallway Fountain outside Room 21	06:46	1.3	ND
040517-57	7	1st	Chiller	Elkay	Hallway Fountain outside Room 24/25	06:47	1.2	ND
040517-58	8						0.68	0.0020

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

Water Sampling Log

Name of Building Smallley School Date Collected 5-Apr-17
 Building Owner Bound Brook Board of Education Sample Collected by JS Gilbert

Sample No.	Tap No.	Sample Type	Type of Outlet	Mfg/Model Serial No.	Location	Time	Results (mg/L)	
							Cu	Pb
040517-61	1	1st	Faucet		Kitchen Sink by Storage Room	06:02	0.26	ND
040517-62	2	1st	Faucet		Kitchen Sink by Exit Door	06:03	0.28	0.0033
040517-63	3	1st	Faucet		Faculty Room Sink	06:10	0.29	0.0029
040517-64	4	1st	Chiller		Fountain across from Gym in Hall	06:11	0.30	0.0035
040517-65	5	1st	Chiller		Fountain next to Faculty Bathroom in hall	06:12	0.17	ND
040517-66	6	1st	Chiller		Fountain in hall across from Rooms 8 & 7	06:14	0.11	ND
040517-67	7	1st	Chiller		Fountain in hall next to Room 9	06:15	0.29	0.0035
040517-68	8	1st	Bubbler		Fountain in Room 14	06:16	0.38	0.0063
040517-69	9	1st	Bubbler		Fountain in Room 16	06:18	0.52	0.012

Sample Type: **1st:** First Draw sample collected after water sat in pipe between 8 and 18 hours
FL: Water flushed through tap for at least 2 minutes
ND: means Not Detected at or above the Reliability Detection Limit (RDL) of 0.0020 mg/L for Lead.

Water Sampling Log

Name of Building Lafayette School
 Building Owner Bound Brook Board of Education

Date Collected 5-Apr-17
 Sample Collected by JS Gilbert

Sample No.	Tap No.	Sample Type	Type of Outlet	Mfg/Model Serial No.	Location	Time	Results (mg/L)	
							Cu	Pb
040517-81	1	1st	Chiller	Eikay	Fountain next to Main Entrance	06:39	0.18	ND
040517-82	2	1st	Chiller	Eikay	Fountain in Gym	06:40	0.37	0.0023
040517-83	3	1st	Faucet		Kitchen Sink by Exit	06:42	0.26	0.0076
040517-84	4	1st	Faucet		Kitchen Sink in Center	06:45	0.19	0.0030
040517-85	5	1st	Faucet		Nurse's Office Sink	06:46	0.66	ND
040517-86	6	1st	Chiller	Eikay	Hall Fountain across from Room 102	06:47	0.33	ND
040517-87	7	1st	Bubbler		Room 101 Sink Fountain	06:48	0.59	ND
040517-88	8	1st	Bubbler		Room 102 Sink Fountain	06:49	0.59	ND
040517-89	9	1st	Bubbler		Room 104 Sink Fountain	06:50	0.64	ND
040517-90	10	1st	Bubbler		Room 210 Sink Fountain	06:52	1.1	0.028
040517-91	11	1st	Bubbler		Room 208 Sink Fountain	06:53	0.30	0.0051
040517-93	12	1st	Bubbler		Room 209 Sink Fountain	06:54	0.55	0.0045
040517-93	13	1st	Bubbler		Room 206 Sink Fountain	06:55	0.70	0.0074
040517-94	14	1st	Bubbler		Room 207 Sink Fountain	06:56	0.48	0.0063
040517-95	15	1st	Chiller		Hall Fountain across from Room 207	07:00	0.35	ND
040517-96	16	1st	Chiller		Hall Fountain across from Room 203	07:03	0.26	ND
040517-97	17	1st	Bubbler		Room 203 Sink Fountain	07:05	0.39	0.0074
040517-98	18	1st	Bubbler		Room 202 Sink Fountain	07:06	0.30	0.0034
040517-99	19	1st	Bubbler		Room 201 Sink Fountain	07:07	0.36	0.012

Sample Type: **1st:** First Draw sample collected after water sat in pipe between 8 and 18 hours

FL: Water flushed through tap for at least 2 minutes

ND: means Not Detected at or above the Reliability Detection Limit (RDL) of 0.0020 mg/L for Lead.