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Health/Safety and  
Environmental  
Regulatory  
Compliance

April 22, 2016

email: Collis@leoniaschools.org

Right-To-Know

Mr. Michael Collis  
Building & Grounds Supervisor  
Leonia Board of Education  
570 Grand Ave.  
Leonia, NJ 07605

OSHA/EPA/DOT  
Training Programs

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

Asbestos and Lead  
Management

Dear Mr. Collis,

Industrial Hygiene/  
OSHA Compliance

Attached is our report on the water sampling that was performed at the Leonia Public Schools on April 2, 2016. The sampling was conducted for information purposes to determine if either Lead or Copper was present in the drinking water at the Schools.

Indoor Air Quality

Sampling results generally were acceptable with low Copper levels, and low or no detectible levels of Lead in most of the water samples collected. One sample location had a measured Copper level at 1.6 mg/L, just slightly above the Action Level of 1.3 mg/L for Copper. In addition, there were seven locations where sample results for Lead exceeded its Action Level of 0.015 mg/L and an eighth was at the Action Level.

Underground/  
Aboveground  
Storage Tanks

It was recommended in our April 08, 2013 email correspondence that these locations be taken out of service until they can be inspected, cleaned and retested prior to being returned to service. Other than the locations noted in the report, there are no other concerns with the drinking water in the building.

Environmental  
Site Assessment

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

Hazardous/  
Medical Waste  
Management

Sincerely,

Environmental  
Audits

R. Craig Ellis, BS, MBA  
Environmental Health and Safety Specialist

Expert Witness/  
Litigation Support

RCE/PDM

(file .... \Reports\Watertest\Leonia BOE (16-034)-161)

Customized  
Software

**Sampling Results - Lead and Copper in Drinking Water**  
**Leonia Public Schools – Leonia, NJ**

**1. Introduction and Summary**

A total of 98 water samples were collected on April, 2016 at three schools, the High School Annex, and the Board of Education office. Sampling results generally were acceptable with low Copper levels and low or no detectible levels of Lead in most of the water samples collected.

Three locations at the High School, two locations at the Middle School, and two locations at the Anna C. Scott School had measured Lead levels above the current Action Level of 0.015 mg/L for Lead. One of these two locations at the Scott School also had a measured Copper level in excess of its Action Level. In addition, another location at the Anna C. Scott School had measured Lead level just at the Action Level. Both samples at the High School Annex and the Board of Education Office had acceptable levels of Lead and Copper. All samples are otherwise acceptable.

Based on the overall results, it appears that potable water supply is not particularly aggressive as it relates to its ability to draw either Lead or Copper from the water distribution piping system.

It is believed that the unacceptable sampling results are caused by either a buildup of line sediment in the aerators and screens, irregular use of the particular water tap, or a combination of both factors. Because of this, the District was advised that all these locations be taken out of service until they can be inspected, cleaned and retested to determine if they can be returned to service or permanently disconnected.

**2. Water Sampling Procedures**

Sampling protocols and procedures follow EPA guidelines that were developed specially 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 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**

There are no current requirements for schools being served by Public Water systems to test for Lead and Copper in their building's Drinking Water. Because of this, the standards referenced below come from the EPA's Lead and Copper Rule which requires Public Water utilities to periodically sample the water in their delivery systems for Lead and Copper at the user's end point taps in their homes rather than upstream at the Treatment Plant.

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 "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 90<sup>th</sup> percentile sample for Lead and Copper. The implication of this is that up to 10% of the total sample population within the water delivery system can exceed the respective action levels and the system would 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 5**. 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 Leonia High School**

A total of 30 water samples were collected on April 2, 2016. As shown in **Table 1** results (attached), three of the samples had measured Lead levels in excess of the Action Level. Two of the samples were from the Café sinks.

Both the first Café sink sample (HS-040216-14: the right-most sink of the four sink bay on the East Wall) and the center Café sink sample (HS-040216-18) each had a Lead level of 0.026 mg/L. The third sample was collected from the Teacher's Lounge sink (HS-040216-25) and had a Lead level of 0.019 mg/L.

It was recommended that these locations be taken out of service until they can be inspected, cleaned and retested prior to being returned to service. All the remaining water samples had acceptable levels of Lead and Copper while 12 of the 30 samples collected at the High School had no detectible levels of Lead.

#### 4.2 Leonia Middle School

A total of 28 water samples were collected with the results as shown in **Table 2**. Two of the samples had measured Lead levels in excess of the Action Level. These were the Library Conference Room sink sample (MS-040216-18) with a measured Lead level of 0.29 mg/L, and the sink in Rm 302 (MS-040216-28) just barely over the Action Level at of 0.016 mg/L.

Again, it was recommended that these locations be taken out of service until they can be inspected, cleaned and retested prior to being returned to service. All the remaining water samples had acceptable levels of Lead with 14 of the 28 samples having no detectible levels of Lead. All the water samples had acceptable levels of Copper.

#### 4.3 Anna C. Scott School

A total of 38 water samples were collected with the results as shown in **Table 3**. One of the samples had both Lead and Copper measurements in excess of the Action Level. This sample was collected from the bubbler in the hallway next to Rm 100H (AS-040216-09) with measured level of 0.14 mg/L and 1.60 mg/L for Lead and Copper, respectively.

A second location, the bubbler in the hallway opposite Rm 113 (AS-040216-26) had a Lead level of 0.082 mg/L. One additional sample, the bubbler in the Rm 107H sink had a measured Lead level just at the 0.015 mg/L Action level. All the remaining water samples had acceptable levels of Lead and Copper while 21 of the Lead samples had no detectible levels of Lead.

It was recommended that these three location be taken out of service until it can be inspected, cleaned and retested prior to being returned to service.

#### 4.4 Leonia High School Annex

**Table 4** shows that the single water sample collected had no detectible level of Lead and an acceptable level of Copper. No further action is required.

#### 4.5 Leonia BOE

The single water sample collected had acceptable levels of Lead and Copper as shown in **Table 5**. 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. It is recommended, however, that the school consider repeating this sampling every five (5) years.

Report prepared by:

Approved by:

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R. Craig Ellis, BS, MBA  
Environmental Health and Safety Specialist

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

**Table 1: Water Sampling Data**  
**Leonia High School: April 2, 2016**

Sample No.	Sample Type	Sample Location	Time	Results (mg/L)	
				Cu	Pb
HS-040216-01	1 <sup>st</sup>	Rms 104-105 North Faucet	07:18	0.096	ND
HS-040216-02	1 <sup>st</sup>	Rms 104-105 East Wall 1st sink	07:20	0.040	ND
HS-040216-03	1 <sup>st</sup>	Rms 104-105 East Wall 2nd sink	07:22	0.028	ND
HS-040216-04	1 <sup>st</sup>	Rms 104-105 South Wall 1st sink	07:23	0.034	ND
HS-040216-05	1 <sup>st</sup>	Rms 104-105 South Wall 2nd sink	07:24	0.043	ND
HS-040216-06	1 <sup>st</sup>	Rms 104-105 South Wall 3rd sink	07:25	0.040	ND
HS-040216-07	1 <sup>st</sup>	Hallway opposite Rm 112 - left side	07:28	0.058	0.0038
HS-040216-08	1 <sup>st</sup>	Hallway opposite Rm 112 - right side	07:29	0.037	0.0021
HS-040216-09	1 <sup>st</sup>	Hallway opposite AD Office - left side	07:34	0.031	0.0029
HS-040216-10	1 <sup>st</sup>	Hallway opposite AD Office - right side	07:35	0.028	0.0025
HS-040216-11	1 <sup>st</sup>	Girls Locker Room	07:37	0.033	0.0021
HS-040216-12	1 <sup>st</sup>	Hallway opposite Rm 1109 - left side	07:40	0.031	ND
HS-040216-13	1 <sup>st</sup>	Hallway opposite Rm 1109 - right side	07:41	0.047	ND
HS-040216-14	1 <sup>st</sup>	Café East Wall - 1st sink	07:48	0.180	<b>0.026</b>
HS-040216-15	1 <sup>st</sup>	Café East Wall - 2nd sink	07:49	0.055	0.0031
HS-040216-16	1 <sup>st</sup>	Café East Wall - 3rd sink	07:50	0.037	ND
HS-040216-17	1 <sup>st</sup>	Café East Wall - 4th sink	07:51	0.043	0.0020
HS-040216-18	1 <sup>st</sup>	Café Center Sink	07:52	0.15	<b>0.026</b>
HS-040216-19	1 <sup>st</sup>	Hallway opposite Cafeteria North Entrance	07:54	0.062	0.0046
HS-040216-20	1 <sup>st</sup>	Supervisor Office Kitchen Sink	07:56	0.180	0.0086
HS-040216-21	1 <sup>st</sup>	Hallway next to Women Faculty Rm - left side	07:58	0.027	0.0021
HS-040216-22	1 <sup>st</sup>	Hallway next to Women Faculty Rm - right side	07:59	0.019	ND
HS-040216-23	1 <sup>st</sup>	Hallway opposite Rm 220 - left side	08:03	0.032	0.0040
HS-040216-24	1 <sup>st</sup>	Hallway opposite Rm 220 - right side	08:04	0.027	0.0033
HS-040216-25	1 <sup>st</sup>	Teachers' Lounge sink	08:06	0.320	<b>0.019</b>
HS-040216-26	1 <sup>st</sup>	Hallway opposite Rm 2207 - left side	08:08	0.14	0.0024
HS-040216-27	1 <sup>st</sup>	Hallway opposite Rm 2207 - right side	08:09	0.12	0.0022
HS-040216-28	1 <sup>st</sup>	Administration Kitchen Sink	08:15	0.069	ND
HS-040216-29	1 <sup>st</sup>	Nurse's Office Sink (pH 6.6)	10:23	0.029	ND
HS-040216-30	1 <sup>st</sup>	Hallway Slop Sink opposite Gym	10:26	0.032	0.0024

**Note:**

1. ND means Not Detected at or above the Reliability Detection Limit (RDL) of 0.0020 for Lead.
2. The sample result that exceeds the numeric action level is shown in **Bold** lettering in the data above.
3. Sample Types: 1<sup>st</sup>: 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: Water Sampling Data**  
**Leonia Middle School: April 2, 2016**

Sample No.	Sample Type	Sample Location	Time	Results (mg/L)	
				Cu	Pb
MS-040216-01	1 <sup>st</sup>	Staff Custodial Bathroom sink (pH 6.6)	08:53	0.380	0.0039
MS-040216-02	1 <sup>st</sup>	Café South Sink - left side	09:00	0.17	ND
MS-040216-03	1 <sup>st</sup>	Café South Sink - right side	09:01	0.16	ND
MS-040216-04	1 <sup>st</sup>	Café center sink	09:02	0.14	ND
MS-040216-05	1 <sup>st</sup>	Café back sink	09:03	0.44	ND
MS-040216-06	1 <sup>st</sup>	Café serving area	09:04	0.18	ND
MS-040216-07	1 <sup>st</sup>	Hallway (left station) opposite Rm 1108 - left side	09:07	0.21	ND
MS-040216-08	1 <sup>st</sup>	Hallway (left station) opposite Rm 1108 - right side	09:08	0.17	0.0023
MS-040216-09	1 <sup>st</sup>	Hallway (right station) opposite Rm 1108 - left side	09:09	0.56	ND
MS-040216-10	1 <sup>st</sup>	Hallway (right station) opposite Rm 1108 - right side	09:10	0.44	0.0049
MS-040216-11	1 <sup>st</sup>	Hallway next to Rm B-6 - left side	09:18	0.054	0.0024
MS-040216-12	1 <sup>st</sup>	Hallway next to Rm B-6 - right side	09:19	0.056	0.0024
MS-040216-13	1 <sup>st</sup>	Rm B-6 sink	09:20	0.14	0.0055
MS-040216-14	1 <sup>st</sup>	Faculty Resource Rm B-3 sink	09:22	0.32	0.0042
MS-040216-15	1 <sup>st</sup>	Nurse's Office Rm B-4 sink	09:24	0.22	0.011
MS-040216-16	1 <sup>st</sup>	Hallway opposite Rms 2205-2204 - left side	09:28	0.25	ND
MS-040216-17	1 <sup>st</sup>	Hallway opposite Rms 2205-2204 - right side	09:29	0.21	ND
MS-040216-18	1 <sup>st</sup>	Library Conf Room sink	09:35	0.22	<b>0.29</b>
MS-040216-19	1 <sup>st</sup>	Hallway next to Rm 103 - left side	09:37	0.045	0.0027
MS-040216-20	1 <sup>st</sup>	Hallway next to Rm 103 - right side	09:38	0.050	0.0031
MS-040216-21	1 <sup>st</sup>	Hallway opposite Rm 106 - left side	09:40	0.052	ND
MS-040216-22	1 <sup>st</sup>	Hallway opposite Rm 106 - right side	09:41	0.064	ND
MS-040216-23	1 <sup>st</sup>	Rm 206 sink bubbler	09:50	0.18	ND
MS-040216-24	1 <sup>st</sup>	Hallway next to Rm 210 - left side	09:52	0.093	0.0031
MS-040216-25	1 <sup>st</sup>	Hallway next to Rm 210 - right side	09:53	0.092	0.0032
MS-040216-26	1 <sup>st</sup>	Hallway opposite Rm 218 - left side	09:56	0.10	ND
MS-040216-27	1 <sup>st</sup>	Hallway opposite Rm 218 - right side	09:57	0.10	ND
MS-040216-28	1 <sup>st</sup>	Rm 302 sink	10:00	0.094	<b>0.016</b>

**Note:** 1. ND means **Not Detected** at or above the **Reliability Detection Limit (RDL)** of 0.0020 for Lead.  
2. The sample result that exceeds the numeric action level is shown in **Bold** lettering in the data above.  
3. Sample Types: 1<sup>st</sup>: 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 3: Water Sampling Data**  
**Anna C. Scott School: April 2, 2016**

Sample No.	Sample Type	Sample Location	Time	Results (mg/L)	
				Cu	Pb
AS-040216-01	1 <sup>st</sup>	Café sink north wall (pH 6.5)	10:52	0.22	ND
AS-040216-02	1 <sup>st</sup>	Café sink center front	10:54	0.14	ND
AS-040216-03	1 <sup>st</sup>	Café sink center back	10:55	0.29	ND
AS-040216-04	1 <sup>st</sup>	Café sink south wall	10:56	0.17	ND
AS-040216-05	1 <sup>st</sup>	Café back sinks	10:57	0.16	ND
AS-040216-06	1 <sup>st</sup>	Main Office sink	10:59	0.11	ND
AS-040216-07	1 <sup>st</sup>	Hallway next to Rm 101 (Café) - left side	11:00	0.033	ND
AS-040216-08	1 <sup>st</sup>	Hallway next to Rm 101 (Café) - right side	11:01	0.038	ND
AS-040216-09	1 <sup>st</sup>	Hallway next to Rm 100H	11:04	<b>1.60</b>	<b>0.14</b>
AS-040216-10	1 <sup>st</sup>	Hallway opposite Rm 107C	11:08	0.19	ND
AS-040216-11	1 <sup>st</sup>	Hallway right of Gym Door	11:10	0.26	ND
AS-040216-12	1 <sup>st</sup>	Hallway opposite Rm 207C	11:15	0.35	0.0020
AS-040216-13	1 <sup>st</sup>	Hallway opposite Rm 205C	11:18	0.11	ND
AS-040216-14	1 <sup>st</sup>	Rm 201 sink bubbler	11:22	0.084	ND
AS-040216-15	1 <sup>st</sup>	Rm 202 sink bubbler	11:24	0.079	ND
AS-040216-16	1 <sup>st</sup>	Rm 203 sink bubbler	11:26	0.21	ND
AS-040216-17	1 <sup>st</sup>	Hallway next to Rm 206 - left side	11:28	0.076	ND
AS-040216-18	1 <sup>st</sup>	Hallway next to Rm 206 - right side	11:29	0.092	ND
AS-040216-19	1 <sup>st</sup>	Rm 208 sink bubbler	11:32	0.071	ND
AS-040216-20	1 <sup>st</sup>	Rm 209 sink bubbler	11:33	0.097	ND
AS-040216-21	1 <sup>st</sup>	Nurse's Office sink	11:38	0.11	ND
AS-040216-22	1 <sup>st</sup>	Rm 107H sink bubbler	11:40	0.17	0.015
AS-040216-23	1 <sup>st</sup>	Hallway opposite Rm 106H	11:42	0.064	0.0073
AS-040216-24	1 <sup>st</sup>	Rm 111H sink bubbler	11:46	0.11	ND
AS-040216-25	1 <sup>st</sup>	Rm 112H sink bubbler	11:48	0.056	0.0047
AS-040216-26	1 <sup>st</sup>	Hallway opposite Rm 113	11:52	0.057	<b>0.082</b>
AS-040216-27	1 <sup>st</sup>	Rm 114H sink bubbler	11:54	0.082	0.0034
AS-040216-28	1 <sup>st</sup>	Rm 116H sink bubbler	11:57	0.056	0.0023
AS-040216-29	1 <sup>st</sup>	Rm 202H sink bubbler	12:01	0.065	0.0033
AS-040216-30	1 <sup>st</sup>	Hallway opposite 204H	12:04	0.066	0.0064
AS-040216-31	1 <sup>st</sup>	Rm 204H sink bubbler	12:07	0.077	0.0028
AS-040216-32	1 <sup>st</sup>	Rm 205H sink bubbler	12:11	0.041	0.0029



**Table 3: Water Sampling Data (cont'd)**  
**Anna C. Scott School: April 2, 2016**

Sample No.	Sample Type	Sample Location	Time	Results (mg/L)	
				Cu	Pb
AS-040216-33	1 <sup>st</sup>	Rm 206H sink bubbler	12:15	0.049	0.0027
AS-040216-34	1 <sup>st</sup>	Rm 207H sink bubbler	12:17	0.031	0.0020
AS-040216-35	1 <sup>st</sup>	Rm 208H sink bubbler	12:19	0.044	0.0023
AS-040216-36	1 <sup>st</sup>	Rm 209H sink bubbler	12:21	0.061	ND
AS-040216-37	1 <sup>st</sup>	Rm 210H sink bubbler	12:23	0.074	0.0038
AS-040216-38	1 <sup>st</sup>	Rm 211H sink bubbler	12:24	0.086	0.0028

**Table 4: Water Sampling Data**  
**Leonia High School Annex: April 2, 2016**

Sample No.	Sample Type	Sample Location	Time	Results (mg/L)	
				Cu	Pb
HSA-040216-01	1 <sup>st</sup>	Kitchen sink	08:41	0.084	ND

**Table 5: Water Sampling Data**  
**Leonia BOE: April 2, 2016**

Sample No.	Sample Type	Sample Location	Time	Results (mg/L)	
				Cu	Pb
LB-040216-01	1 <sup>st</sup>	Basement Sink	08:28	0.18	0.0074

- Note:**
1. ND means **Not Detected** at or above the **Reliability Detection Limit (RDL)** of 0.0020 for Lead.
  2. The sample result that exceeds the numeric action level is shown in **Bold** lettering in the data above.
  3. 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.