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George Austin
Huntington UFSD
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Dear Mr. Austin,

Executive Summary

Enviroscience Consultants, Inc. has performed lead in water testing throughout the Huntington School District in accordance with United States Environmental Protection Agency's "3T's for Reducing Lead in Drinking Water in Schools", October, 2006 and New York State Department of Health Subpart 67-4 of Title 10, September, 2016. Primary and secondary drinking water source locations in each of the school buildings were assessed. Initial first draw samples were collected at each location tested. Twenty-three (23) locations were sampled at Flower Hill Primary School, twenty-six (26) locations were sampled at Jefferson Primary School, twenty-four (24) locations were sampled at Southdown Primary School, twenty-one (21) locations were sampled at Washington Primary School, thirty-five (35) locations were sampled at Jack Abrams STEM Magnet School, twenty-five (25) locations were sampled at Woodhull Intermediate School, sixteen (16) locations were sampled at J. Taylor Finley Middle School, and twenty-seven (27) locations were sampled at Huntington High School.

First draw samples with concentrations above 15 ppb were identified as found in the Results section below. These locations were then sampled using 15 second and 60 second flush methods, to assess the source of lead contamination. Sample locations were motionless for 8 to 18 hours, in accordance with Subpart 67-4. Results of these samples can be found in the corresponding table for each school as found in each appendix.

Remediation is required in the following locations. The type of remediation is indicated as either fixture replacement (FR), fixture and associated supply lines and valves replacement (FRSLV) or replacement of fixture, supply lines, valves and plumbing assessment (FRSLVPA), or the implementation of signage warning against using the fixture as a drinking water source (SIGN). The district may also choose to simply remove the fixture and/or cap the lines leading to it.

Flower Hill Primary School

Location and Remediation Type	
Teachers Lounge Sink	FR

Jefferson Primary School

Location and Remediation Type	
Hallway by Room 9	FR
Hall by Library	FR

Jack Abrams STEM Magnet School

Location and Remediation Type	
Room 217	FR
Room 118	FR
Room 116	FR
Room 115	FRSLVPA
Room 114	FRSLVPA
Room 101	FRSLVPA
Room 103	FRSLVPA
Room 104	FRSLVPA
Room 105	FRSLVPA
Room 209	FR
Room 207	FR
Room 205	FR
Room 204	FR
Room 203	FR
Room 202	FR
Room 202A	FRSLV
Room 201	FR
Kitchen PF 4	FRSLV
Kitchen PF 5	FRSLV
Kitchen PF 6	FRSLV
Kitchen PF 8	FRSLV

Woodhull Intermediate School

Location and Remediation Type	
Room 11	FR
Room 10	FR
Room 19	FR
Hall by Boiler Room	FR

Huntington High School

Location and Remediation Type	
Hall by 132	FR

All elevated locations should be taken off line until the remediation is completed. Any other drinking water sources in these locations that have not been tested should be tested.

Background, Methods and Results

Background

Lead is a toxic metal that is harmful to human health. Lead has no known value to the human body. The human body cannot tell the difference between lead and calcium, which is a mineral that strengthens the bones. Like calcium, lead remains in the bloodstream and body organs like muscle or brain for a few months. What is not excreted is absorbed into the bones, where it can collect for a lifetime.

Young children, those 6 years and younger, are at particular risk for lead exposure because they have frequent hand-to-mouth activity and absorb lead more easily than do adults. Children's nervous systems are still undergoing development and thus are more susceptible to the effects of toxic agents. Lead is also harmful to the developing fetuses of pregnant women.

No safe blood lead level in children has been determined. Lead can affect almost every organ and system in your body. The most sensitive is the central nervous system (brain), particularly in children. Lead also damages kidneys and the

reproductive system. The effects are the same whether it is breathed or swallowed. Low blood levels of lead (those below 10 µg/dL) have been associated with reduced IQ and attention span, learning disabilities, poor classroom performance, hyperactivity, behavioral problems, impaired growth, and hearing loss. Very high lead level (blood lead levels above 70 µg/dL) can cause severe neurological problems such as coma, convulsions, and even death. The only method to determine a child's lead level is for them to have a blood lead test done by a health provider.

In general, we find widespread presence of lead in drinking water when:

- Lead pipes are used throughout the facility.
- The building's plumbing is less than 5 years old and lead solder was illegally used (i.e., after the "lead- free" requirements of the 1986 Safe Drinking Water Act Amendments took effect). This situation is rare.
- The water is corrosive.
- Sediment or scale in the plumbing and faucet screens contain lead.
- Brass fittings, faucets, and valves were installed throughout the building less than five years ago (even though they may contain less than the "lead-free" requirements of the Safe Drinking Water Act).
- The service connection (i.e., the pipe that carries water from the public water system main to the building) is made of lead.

In general, there may be a localized presence of lead if:

- Some brass fittings, faucets, and valves have been installed in the last five years (even though they may meet the SDWA "lead-free" requirement).
- Drinking water outlets are in line with brass flush valves, such as drinking water fountains near restroom supply piping.
- Lead pipes are used in some locations.
- The water is non-corrosive.
- Lead solder joints were installed in short sections of pipe before 1986 or were illegally installed after 1988 (i.e., after the lead-free requirements of the Safe Drinking Water Act took effect).
- There are areas in the building's plumbing with low flow or infrequent use.
- Sediment in the plumbing and screens frequently contains lead.

Methods

EPA recommends that a two-step sampling process be followed for identifying lead contamination. Lead in a water sample taken from an outlet can originate from the outlet fixture (the faucet, bubbler etc.), plumbing upstream of the outlet fixture (pipe, joints, valves, fittings etc.), or it can already be in the water that is entering the facility. The two-step sampling process helps to identify the actual source(s) of lead.

In Step 1, initial samples are collected to identify the location of outlets providing water with elevated lead levels and to learn the level of the lead in the water entering the facility (i.e., at the service connection). In Step 2, follow-up flush samples are taken only from outlets identified as problem locations to determine the lead level of water that has been stagnant in upstream plumbing, but not in the outlet fixture. Sample results are then compared to determine the sources of lead contamination and to determine appropriate corrective measures.

The protocol, which consists of an established sample size volume and water retention time, is designed to identify lead problems at outlets and upstream plumbing within school facilities, and in the water entering the facility.

Step 1: Initial Sampling

In Step 1, initial samples are taken from prioritized outlets (e.g., bubblers, fountains) in the facility. These samples determine the lead content of water sitting in water outlets that are used for drinking or cooking within your building(s). Initial samples taken from bubblers, fountains, and other outlets used for consumption are all first-draw samples (i.e., the stagnant water is sampled before **any** flushing or use occurs). The goal of Step 1 is to compare the lead level of water from your facility's service connection to water that has remained stagnant between 8 and 18 hours in an outlet or fixture.

Step 2: Follow-Up Flush Sampling

If initial test results reveal lead concentrations greater than 15 ppb in a 250 mL sample for a given outlet, follow-up flush testing described in Step 2 is recommended to determine if the lead contamination results are from the fixture or from interior plumbing. EPA has established this trigger for follow-up flush testing to ensure that the sources of lead

contamination in drinking water outlets are identified.

In Step 2, follow-up flush samples are collected and analyzed from outlets whose initial first draw results revealed lead concentrations greater than 15 ppb. The purpose of Step 2 is to pinpoint where (i.e., fixtures or interior plumbing) lead is getting into drinking water so that appropriate corrective measures can be taken.

As with initial first draw samples, follow-up flush samples are to be taken before a facility opens and before any water is used. Follow-up flush samples generally involve the collection of water from an outlet where the water has run for 15 seconds to assess water coming from supply lines and valves, and a second sample after a 60 second flush designed to analyze the lead content in the water in the plumbing behind the wall. The sampler induces a small (e.g., pencil-sized) steady flow of water from the outlet or other sample location.

A comparison of initial and follow-up samples is used to assess where the lead may be getting into the drinking water.

Sample analysis was performed at NY Environmental & Analytical Labs, Inc., a New York State Department of Health Environmental Laboratory Approval Program (ELAP) certified laboratory (ELAP #11510).

Results

Water samples were collected in April, 2016 from each school within the district.

The samples were collected in laboratory-supplied containers, preserved properly, and transported to a certified laboratory for analysis of lead in drinking water. A chain-of-custody was prepared to document the sequence of sample possession.

A table for each school summarizes the results, and a copy of the laboratory reports is provided in each corresponding appendix.

Based on the results, the following locations have exceeded the USEPA Action Level of 15 parts per billion (ppb) for first draw (the results are reported in parts per billion). The results are as follows:

Flower Hill Primary School

Location and Result (ppb)	
Teachers Lounge Sink	18.3

Jefferson Primary School

Location and Result (ppb)	
Hallway by Room 9	20.7
Hall by Library	15.8

Jack Abrams STEM Magnet School

Location and Result (ppb)	
Room 217	26.7
Room 118	87.2
Room 116	93.1
Room 115	64.4
Room 114	127
Room 101	416
Room 103	414
Room 104	189
Room 105	26.1
Room 209	32.9
Room 207	21.3
Room 205	22.0
Room 204	50.7
Room 203	43.8
Room 202	32.9

Room 202A	173
Room 201	41.6
Kitchen PF 4	72
Kitchen PF 5	41
Kitchen PF 6	300
Kitchen PF 8	25.6

Woodhull Intermediate School

Location and Result (ppb)	
Room 11	16.5
Room 10	51.3
Room 19	71.9
Hall by Boiler Room	17.7

Huntington High School

Location and Result (ppb)	
Hall by 132	15.6

Results of second draw (15 second flush) and third draw (60 second flush) of elevated first draw sample locations are as follows:

Flower Hill Primary School

Location	Result for Second Draw and Third Draw (ppb)	
Teachers Lounge Sink	3.6	2.7

Jefferson Primary School

Location	Result for Second Draw and Third Draw (ppb)	
Hallway by Room 9	1.9	1.6
Hall by Library	7.3	2.3

Jack Abrams STEM Magnet School

Location	Result for Second Draw and Third Draw (ppb)	
Room 217	3.2	3.2
Room 118	5.3	4.2
Room 116	14	7.6
Room 115	42	24
Room 114	63	31
Room 101	Offline	
Room 103	Offline	
Room 104	Offline	
Room 105	Offline	
Room 209	9.7	2.1
Room 207	6.6	2.7
Room 205	4.8	1.6
Room 204	13	2.5
Room 203	5.8	2.8
Room 202	9.5	5
Room 202A	17.0	5.0
Room 201	6.7	2.4
Kitchen PF 4	-	3.3
Kitchen PF 5	-	<1.0
Kitchen PF 6	-	8.2
Kitchen PF 8	-	7.5

Woodhull Intermediate School

Location	Result for Second Draw and Third Draw (ppb)	
Room 11	25, 2nd Initial	6.7, 3rd Initial
Room 10	9.2, 2nd Initial	
Room 19	1.3, 2nd Initial	
Hall by Boiler Room	9.1, 2nd Initial	

Huntington High School

Location	Result for Second Draw and Third Draw (ppb)	
Hall by 132	7.5	3.1

Conclusion & Recommendations

In locations where only first draw samples exceed 15 ppb, the district should replace the fixture (bubbler, faucet, pot filler, etc.) with a fixture certified by the manufacturer as lead free, in accordance with US EPA definitions contained in 1986 Safe Drinking Water Act.

In locations where the first draw sample and the second draw sample are both elevated, and the first draw sample exceeds the second draw, the fixture, supply lines and valves leading from the wall to the fixture should be replaced with lead free components, including lead free solder.

In locations where first, second and third draw samples are all elevated, assessment must be made of the plumbing behind the wall leading to the fixture location.

Upon implementation of the corrective actions, first draw samples must be recollected to assess the effectiveness of the repairs. Upon completion of remediation, response and retesting, the results will be incorporated into the final appendix.