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Health/Safety and
Environmental
Regulatory
Compliance

October 19, 2017

Mr. Roy Aull
Supervisor of Building & Grounds
Hanover Township Board of Education

Right-To-Know

61 Highland Ave.
Whippany, NJ 07981-1399

OSHA/EPA/DOT
Training Programs

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

Asbestos and Lead
Management

Dear Mr. Aull,

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

Industrial Hygiene/
OSHA Compliance

	Sampling Report Narrative	4 pages
	Water Sampling Log and Results	7 pages
	Notification Letter (modified from NJDEP letter template)	2 pages
	Laboratory Analytical Report	
	May 10, 2016 - Sampling Results	50 pages
	April 26, 2017 - Sampling Results	21 pages
	September 27, 2017 - Sampling Results	38 pages

Indoor Air Quality

Quality Assurance Project Plan (QAPP – **please sign 1st page**) 11 pages

Environmental
Site Assessment

Sampling Plan and related documents for each building, including:
Plumbing Profile Questionnaire
Water Outlet Inventory
Floor Plan Drawings

Hazardous/
Medical Waste
Management

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

Environmental
Audits

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

Expert Witness/
Litigation Support

Attachment

(file ... \Proposal\WaterTest\Hanover Twp Schools)

Customized
Software

Sampling Report - Lead in Drinking Water
Hanover Township School District

1. Sampling Results Summary

Sample Collection Dates	May 10, 2016 Apr 26, 2017 Sep 27, 2017
Number of Buildings Sampled	4
Total Number of Samples Collected	82
Number of Samples with No Detectible Lead	45
Number of Samples Exceeding 15 ppb (0.015 mg/L) Standard	4

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 four samples had results in excess of this level.

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
<u>Memorial Junior School</u> – far right sink in Home Economics	32	Sink outlet has been turned off. It will be cleaned, flushed and re-sampled. It will not be used until results are acceptable. The four other sinks in the room showed acceptable results.
<u>Salem Drive School</u> – Hallway by Boiler Room	16	The original sample was collected from a bubbler that was shut off and replaced. Sampling of the new bottle filler at that location showed no detectible levels of lead present.
<u>Mountview School</u> – Sink in Faculty Room	59	Because a 5-gallon water cooler is used for drinking, the sink is primarily used for hand and dish washing. Nonetheless, the sink faucet has been cleaned and will be re-sampled.
<u>Mountview School</u> – Sink bubbler in Room 19	19	The bubbler has been turned off. It will be cleaned, flushed, re-sampled and will not be used until results are acceptable.

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 41 water samples were collected on May 10, 2016. Additional water samples were collected April 26, 2017 (13 samples) and September 27, 2017 (28 samples). As noted above, four (4) sample results exceeded the 0.015 mg/L Action Level.

However, 45 of the 82 water samples had no detectible levels of lead present. These sample results indicate that the potable water supply is generally not aggressive as it relates to its ability to draw Lead from the water distribution piping system.

5. Additional Recommendations and Future Work

All but 4 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, water temperature and velocity through the piping, 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 that any water tap 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

Patrick D. McGuinness, MS, P.E.

Vice President