



N O R T H E R N  
**Analytical Services, LLC.**  
ENVIRONMENTAL CONSULTANTS

November 11, 2018

Project No: 180304

Monecia Vasbinder  
Three Oaks Public School Academy  
1212 Kingsley Street  
Muskegon, Michigan 49442

Re: Water Testing  
Three Oaks Public School Academy

Dear Mrs. Vasbinder:

Please find the enclosed laboratory results from water samples Northern Analytical Services, LLC. (NAS) collected at the site. Samples were collected to determine the levels of the lead and copper present in drinking water at each of the fixtures tested. Testing was limited to those fixtures that tested above the detection limit in previous testing. Testing was performed as part of an annual inspection of your building.

Samples were collected on October 5, 2018 by Juston Rehkopf, a State of Michigan accredited Lead Based Paint Inspector (P05558) of NAS. Samples were collected by filling a single 250 milliliter container, pre-treated by the laboratory with acid, at each faucet/drinking fountain and delivering them to the laboratory for analysis. Sample collection was conducted in the morning prior to the water being used by occupants as a "first draw" sample. NAS did not flush or otherwise run each faucet or fountain prior to sample collection; to our knowledge each faucet and fountain sat dormant for at least 6 hours prior to sample collection.

Once delivered to the laboratory (Pace Analytical), samples were analyzed for the presence of copper and lead in accordance with US EPA method 200.8. A copy of the laboratory report is attached.

According to the US EPA's Lead and Copper rule, which applies to schools and child care facilities that meet the definition of a public water system, the practical quantitation limit (PQL) for lead is 0.005 micrograms of lead per liter of water (mg/L) and 0.050 mg/L for copper. The PQL is the concentration of lead or copper that can be reliably measured within specified limits during routine laboratory operating conditions using approved methods. The action level is the concentration of lead or copper in potable water which determines whether a system may be required to install corrosion control treatment, collect water quality parameter samples, collect source water samples, replace lead service lines, and /or deliver public education about lead. The action level for lead is 0.015 mg/L and 1.3 mg/L for copper.

Essentially the PQL is the limit of detection and the Action Level is the level at which steps should be taken in order to minimize or eliminate exposure to lead or copper. Actions to be taken when the action level is exceeded include the following:

- Public education-provide information to building occupants about the water quality.
- Water quality parameter (WQP) monitoring-establish a routine monitoring program.
- Source water monitoring and source water treatment if necessary.
- Corrosion control treatment (CCT).

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The following is a summary of our findings by fixture:

TO-1 (see attached drawing for location)

Sample Date	Copper Concentration (mg/L)	Lead Concentration (mg/L)
9/13/17	0.090*	0.0020
10/5/18	0.025	ND

TO-2 (see attached drawing for location)

Sample Date	Copper Concentration (mg/L)	Lead Concentration (mg/L)
9/13/17	0.074*	0.0017
10/5/18	0.022*	ND

TO-3 (see attached drawing for location)

Sample Date	Copper Concentration (mg/L)	Lead Concentration (mg/L)
9/13/17	0.15*	0.0036
10/5/18	0.077*	0.0015

TO-4 (see attached drawing for location)

Sample Date	Copper Concentration (mg/L)	Lead Concentration (mg/L)
9/13/17	0.18*	0.0016
10/5/18	0.23*	0.0029

TO-5 (see attached drawing for location)

Sample Date	Copper Concentration (mg/L)	Lead Concentration (mg/L)
9/13/17	0.22*	0.0085*
10/5/18	0.13*	0.0056*

TO-7 (see attached drawing for location)

Sample Date	Copper Concentration (mg/L)	Lead Concentration (mg/L)
9/13/17	0.96*	0.0013*
10/5/18	0.12*	0.0034

TO-8 (see attached drawing for location)

Sample Date	Copper Concentration (mg/L)	Lead Concentration (mg/L)
9/13/17	0.60*	0.0035
10/5/18	0.0012	ND

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TO-9 (see attached drawing for location)

<b>Sample Date</b>	<b>Copper Concentration (mg/L)</b>	<b>Lead Concentration (mg/L)</b>
9/13/17	0.045	0.0027
10/5/18	0.044	ND

TO-10 (see attached drawing for location)

<b>Sample Date</b>	<b>Copper Concentration (mg/L)</b>	<b>Lead Concentration (mg/L)</b>
9/13/17	0.051*	0.0030
10/5/18	0.025	ND

TO-11 (see attached drawing for location)

<b>Sample Date</b>	<b>Copper Concentration (mg/L)</b>	<b>Lead Concentration (mg/L)</b>
9/13/17	0.13*	0.0018
10/5/18	0.070*	ND

TO-12 (see attached drawing for location)

<b>Sample Date</b>	<b>Copper Concentration (mg/L)</b>	<b>Lead Concentration (mg/L)</b>
9/13/17	0.13*	0.0032
10/5/18	0.38*	0.0017

TO-13 (see attached drawing for location)

<b>Sample Date</b>	<b>Copper Concentration (mg/L)</b>	<b>Lead Concentration (mg/L)</b>
9/13/17	0.20*	0.0019
10/5/18	0.15*	0.0020

TO-14 (see attached drawing for location)

<b>Sample Date</b>	<b>Copper Concentration (mg/L)</b>	<b>Lead Concentration (mg/L)</b>
9/13/17	0.076*	0.0011
10/5/18	0.025*	ND

TO-16 (see attached drawing for location)

<b>Sample Date</b>	<b>Copper Concentration (mg/L)</b>	<b>Lead Concentration (mg/L)</b>
9/13/17	0.053*	0.0016
10/5/18	0.025	ND

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TO-17 (see attached drawing for location)

<b>Sample Date</b>	<b>Copper Concentration (mg/L)</b>	<b>Lead Concentration (mg/L)</b>
9/13/17	0.11*	0.0069*
10/5/18	0.056*	0.0031

TO-18 (see attached drawing for location)

<b>Sample Date</b>	<b>Copper Concentration (mg/L)</b>	<b>Lead Concentration (mg/L)</b>
9/13/17	0.12*	0.0012
10/5/18	0.058*	ND

TO-20 (see attached drawing for location)

<b>Sample Date</b>	<b>Copper Concentration (mg/L)</b>	<b>Lead Concentration (mg/L)</b>
9/13/17	0.053*	0.0012
10/5/18	0.038	ND

TO-21 (see attached drawing for location)

<b>Sample Date</b>	<b>Copper Concentration (mg/L)</b>	<b>Lead Concentration (mg/L)</b>
9/13/17	0.089*	0.0031
10/5/18	0.22*	0.0094*

TO-22 (see attached drawing for location)

<b>Sample Date</b>	<b>Copper Concentration (mg/L)</b>	<b>Lead Concentration (mg/L)</b>
9/13/17	0.19*	0.0038
10/5/18	0.032	ND

\* exceeds the PQL for lead or copper.

\*\*exceeds the action level for lead or copper.

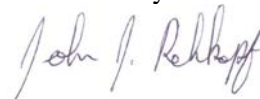
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Based on the attached results, NAS recommends the following actions:

- Immediately post the public education poster found in appendix A of the Lead and Copper Rule near each faucet/fountain that exceeded the PQL for lead and distribute a copy of this information in pamphlet form to all building occupants.
- Immediately take the faucets/fountains described in samples TO-5 and TO-21 off line. Flush each of these units (allow water to run for at least 5 minutes) and re-test no sooner than 8 hours after flushing.
- Test the water source to determine the level of lead and copper present; copper levels appear to be elevated in most of the fixtures tested which suggests the water source may be responsible.
- Consider replacing these units if the re-test results exceed the PQL level.
- Consider the installation of point source (faucet/drinking fountain) water filtration for lead.
- Consider the replacement of all water pipes and fixtures as a permanent solution.
- Re-test all fixtures at least annually and following any major changes to the system.

NAS appreciates the opportunity to provide these services and looks forward to assisting you with any re-testing needed. Please do not hesitate to contact me with any questions.

Sincerely



John J. Rehkopf  
President