

**LEAD IN DRINKING WATER SAMPLING  
TERENCE REILLY SCHOOL - #7  
ELIZABETH, NEW JERSEY**

**1.0 PROJECT BACKGROUND**

There are three ways that lead can contaminate drinking water in school facilities, the water source, the plumbing material, or the actual drinking water outlet fixture. Most sources of drinking water (e.g. ground and surface water) have no lead, or very low levels of lead (i.e., under 5 micrograms per liter [ $\mu\text{g/l}$ ] or parts per billion [ppb]). Once the drinking water leaves the public water supply system or treatment plant, it comes into contact with piping and plumbing materials that may contain lead. Some lead may get into the water from the distribution system – the network of pipes that carry the water to homes, businesses, and schools in the community. Some communities have lead components in their distribution systems, such as lead joints in cast iron mains, service connections, pigtails, and goosenecks. Even though a public water supplier may deliver water that meets all Federal and State public health standards for lead, there may be lead in the drinking water because of the plumbing in the school facility. Interior plumbing, soldered joints, leaded brass fittings, and various drinking water outlets that contain lead materials are the primary contributors of lead in drinking water. It is also important to note that brass plumbing components contain lead. Since 1986, all plumbing materials must be “lead free”. Although there is an increased probability that a given plumbing component installed prior to 1986 could contain more lead than the newer components, the occurrence of lead in drinking water cannot be predicted solely based upon the age of the component or the school facility. The current law allows plumbing materials up to 0.25 percent lead to be labeled as “lead free”. However, prior to January 4, 2014, “lead free” allowed up to 8 percent lead content of the wetted surfaces of plumbing products including those labeled National Sanitation Foundation (NSF) certified. The best way to determine if a school might have elevated levels of lead in its drinking water is by testing the drinking water in that school. Testing facilitates an evaluation of the plumbing materials and helps target appropriate remedial action. It is a key step in understanding the problem, if there is one, and designing an appropriate response.

## **2.0 SAMPLING/SCREENING METHODOLOGY**

### **2.1 Purpose**

Lead in a water sample taken from an outlet can originate from the outlet fixture (e.g. the faucet, bubbler etc.), plumbing upstream of the outlet fixture (e.g. pipe, joints, valves, fittings etc.), or it can already be in the water that is entering the facility. Sample results are then compared to assist in determining the sources of lead contamination and the appropriate corrective measures. Prior to sampling, Whitman ensured that outlets deviating from normal usage were flushed 8-48 hours prior to sampling.

Initial first draw samples are taken from drinking water outlets and food preparation outlets (e.g., bubblers, kitchen faucets) in the facility. These samples determine the lead content of water sitting in water outlets that are used for drinking or cooking within the building(s).

### **2.2 NJDEP Limits**

If initial first draw test results reveal lead concentrations greater than 15 µg/l (ppb) in a 250 mL sample for a given outlet, follow-up flush testing is required to determine if the lead contamination results are from the fixture or from interior plumbing.

### 3.0 LEAD IN DRINKING WATER SAMPLING RESULTS DISCUSSION

The summary of lead sample results is presented below. Sampling conducted was in compliance with NJDEP protocol and all samples were submitted to Integrated Analytical Laboratories (NJDEP NELAP #14751) under a completed Chain of Custody Form.

Location	Sample ID #	Date	Time	Lead Result µg/L	Re-Sample ID #	Date	Time	Lead Result µg/L	NJDEP Lead Limit - µg/L
4 <sup>th</sup> Floor Fountain Near Elevator	S1	7/16/2021	11:30 am	3.34					15
4 <sup>th</sup> Floor Fountain Outside Room 412	S2	7/16/2021	11:32 am	2.24					15
4 <sup>th</sup> Floor Fountain Outside Room 405	S3	7/16/2021	11:34 am	Non-Detect					15
Science Room 401 Tap	S4	7/16/2021	11:36 am	Non-Detect					15
3 <sup>rd</sup> Floor Fountain Outside Boy's Room	S5	7/16/2021	11:40 am	4.62					15
3 <sup>rd</sup> Floor Fountain Outside Room 306	S6	7/16/2021	11:38 am	Non-Detect					15
3 <sup>rd</sup> Floor Fountain Outside Room 304	S7	7/16/201	11:35 am	Non-Detect					15
3 <sup>rd</sup> Floor Science Room 301 Tap	S8	7/16/2021	11:32 am	60.3	S1	1/12/2022	7:30 am	1.34	15
2 <sup>nd</sup> Floor Fountain Outside Boy's Room	S9	7/16/2021	11:45 am	Non-Detect					15
2 <sup>nd</sup> Floor Fountain Outside Room 230	S10	7/16/2021	11:48 am	2.33					15
2 <sup>nd</sup> Floor Fountain Outside Upper Auditorium	S11	7/16/2021	11:50 am	Non-Detect					15
Room 225 Tap	S12	7/16/2021	11:52 am	2.59					15
Room 224 Tap	S13	7/16 2021	11:55 am	1.24					15

Location	Sample ID #	Date	Time	Lead Result µg/L	Re-Sample ID #	Date	Time	Lead Result µg/L	NJDEP Lead Limit - µg/L
2 <sup>nd</sup> Floor Fountain Across from Room 223	S14	7/16/2021	11:58 am	Non-Detect					15
Science Room 204 Tap	S15	7/16/2021	12:00 pm	7.79					15
2 <sup>nd</sup> Floor Fountain Outside Girl's Room	S16	7/16/2021	12:02 pm	5.91					15
2 <sup>nd</sup> Floor Fountain Across from Room 215	S17	7/16/2021	12:05 pm	Non-Detect					15
1 <sup>st</sup> Floor Fountain Across from Room 123	S18	7/16/2021	12:15 pm	5.14					15
1 <sup>st</sup> Floor Fountain Outside Room 126	S19	7/16/2021	12:17 pm	Non-Detect					15
1 <sup>st</sup> Floor Fountain Outside Upper Auditorium	S20	7/16/2021	12:20 pm	5.26					15
1 <sup>st</sup> Floor Fountain Across from Room 119	S21	7/16/2021	12:22 pm	Non-Detect					15
1 <sup>st</sup> Floor Staff Room 22 Tap	S22	7/16/2021	12:25 pm	Non-Detect					15
1 <sup>st</sup> Floor Room 23 Tap	S23	7/16/2021	12:28 pm	6.52					15
1 <sup>st</sup> Floor Fountain Art Room	S24	7/16/2021	12:30 pm	1.89					15
1 <sup>st</sup> Floor Fountain Outside Library	S25	7/16/2021	12:35 pm	Non-Detect					15
1 <sup>st</sup> Floor Fountain Across from Room 110	S26	7/16/2021	12:38 pm	Non-Detect					15
1 <sup>st</sup> Floor Faculty Room 110 Tap	S27	7/16/2021	12:40 pm	Non-Detect					15

Location	Sample ID #	Date	Time	Lead Result µg/L	Re-Sample ID #	Date	Time	Lead Result µg/L	NJDEP Lead Limit - µg/L
1 <sup>st</sup> Floor Science Room 108 Side Tap	S28	7/16/2021	12:47 pm	14.5					15
Ground Floor Fountain Across from Café 2	S29	7/16/2021	12:50 pm	Non-Detect					15
Ground Floor Nurse's Office Side Sink	S30	7/16/2021	12:55 pm	2.37					15
Ground Floor Nurse's Office Sink	S31	7/16/2021	12:56 pm	3.63					15
Ground Floor Security Office Sink	S32	7/16/2021	1:00 pm	1.43					15
Ground Floor Fountain Outside Room 63	S34	7/16/2021	1:08 pm	258	S2	1/12/2022	7:35 am	Non-Detect	15
Ground Floor Kitchen – Left Sink	S35	7/16/2021	1:10 pm	14.1					15
Ground Floor Room G1 Tap	S36	7/16/2021	1:15 pm	5.22					15
Ground Floor Café 2 Back Fountain	S37	7/16/2021	1:17 pm	18.5	S3	1/12/2022	7:40 am	145	15
Ground Floor Café 2 Center Fountain	S38	7/16/2021	1:18 pm	1.03					15
Ground Floor Café 2 Front Fountain	S39	7/16/2021	1:20 pm	Non-Detect					15
Ground Floor Fountain Outside Room G3	S40	7/16/2021	1:22 pm	14.4					15
Ground Floor Fountain Staff Room G4	S41	7/16/2021	1:26 pm	Non-Detect					15

Location	Sample ID #	Date	Time	Lead Result µg/L	Re-Sample ID #	Date	Time	Lead Result µg/L	NJDEP Lead Limit - µg/L
Ground Floor Fountain Outside Room G5	S42	7/16/2021	1:28 pm	1.71					15
Ground Floor Fountain Outside Room G6	S43	7/16/2021	1:30 pm	Non-Detect					15
Basement Fountain Outside Dance Room	S44	7/16/2021	1:25 pm	Non-Detect					15
Basement Fountain Dance Room	S45	7/16/2021	1:37 pm	Non-Detect					15
Basement Gym Fountain	S46	7/16/2021	1:32 pm	Non-Detect					15
Field Blank	FB	7/16/2021	NA	Non-Detect					15
Field Blank	FB	1/12/2022	NA	Non-Detect					15

#### **4.0 CONCLUSIONS**

All lead results were below the 15 µg/L New Jersey Action Level, with the exception of:

- Ground Floor Café 2 Back Fountain

The immediate remedial action required after an exceedance of the lead action level is to remove the water outlet from service. The District should review all the data results and plumbing profiles before deciding on remediation measures. Depending on the data and the plumbing profile some remediation measures may not be efficient at reducing the lead levels, so it is important to evaluate these.

Follow-Up Flush Samples are required if the Initial First Draw Sample result is greater than the lead action level.

#### **5.0 LIMITATIONS, EXCEPTIONS AND ASSUMPTIONS**

Opinions and recommendations presented in this report apply to site conditions and features as they existed at the time of Whitman's site visit, and those reasonably foreseeable. They cannot necessarily apply to conditions and features of which Whitman is unaware and has not had the opportunity to evaluate.

The conclusions presented in this report are professional opinions based solely upon Whitman's visual observations of accessible areas, testing data, and current regulatory requirements. These conclusions are intended exclusively for the purpose state herein, at the sites indicated, and for the project indicated.

No expressed or implied representation or warranty is included or intended in our reports, except that our services were performed, within the limits prescribed by our client, with the customary thoroughness and competence of our profession.

Feel free to contact me at 732-390-5858 with any questions or if further clarification is needed.

Sincerely,



John Beaupre  
Senior Vice President

Attachments