

**LEAD IN DRINKING WATER SAMPLING
GEORGE WASHINGTON SCHOOL #1
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
Kitchen Sink #1	S1	7/20/2021	7:15 am	1.63					15
Kitchen Sink #2	S2	7/20/2021	7:16 am	3.59					15
Kitchen Sink #3	S3	7/20/2021	7:18 am	Non-Detect					15
Kitchen Sink #4	S4	7/20/2021	7:19 am	1.36					15
Kitchen Sink #5	S5	7/20/2021	7:20 am	Non-Detect					15
Kitchen Sink #6	S6	7/20/2021	7:23 am	Non-Detect					15
Kitchen Sink #7	S7	7/20/2021	7:24 am	9.80					15
Kitchen Sink #8	S8	7/20/2021	7:26 am	3.54					15
Fountain Outside Nurse's Office	S9	7/20/2021	8:10 am	5.88					15
Fountain Outside Gym Office	S10	7/20/2021	8:13 am	45.0	S5	1/11/2022	7:50 am	2.10	15
Cafeteria Water Fountain	S11	7/20/2021	8:17 am	6.02					15
Fountain Boy's Locker Room	S12	7/20/2021	8:18 am	Non-Detect					15
Outside Boy's Restroom Near 318	S13	7/20/2021	8:21 am	2.57					15
Outside 313/314	S14	7/20/2021	8:26 am	19.7	S1	1/11/2022	7:35 am	1.10	15
Outside Baby Care	S15	7/20/2021	8:30 am	116	S10	1/11/2022	8:13 am	1.24	15
Outside Rear Music Room 105 Corner	S16	7/20/2021	8:32 am	78.4	S9	1/11/2022	8:10 am	3.73	15

Location	Sample ID #	Date	Time	Lead Result µg/L	Re-Sample ID #	Date	Time	Lead Result µg/L	NJDEP Lead Limit - µg/L
Outside Room 302	S17	7/20/2021	8:36 am	2.94					15
Outside Room 310	S18	7/20/2021	8:38 am	1.49					15
Outside Room 108	S19	7/20/2021	8:40 am	6.75					15
Outside Rom 112	S20	7/20/2021	8:43 am	Non-Detect					15
Fountain Room 112	S21	7/20/2021	8:45 am	Non-Detect					15
Fountain Room 113	S22	7/20/2021	8:49 am	Non-Detect					15
Outside Rooms 114/115	S23	7/20/2021	8:50 am	3.88					15
Room 114	S24	7/20/2021	8:56 am	1.80					15
Room 115	S25	7/20/2021	8:57 am	Non-Detect					15
Room 111	S26	7/20/2021	8:59 am	11.1					15
Room 110	S27	7/20/2021	9:00 am	12.1					15
Room 109	S28	7/20/2021	9:03 am	98.8	S8	1/11/2022	8:01 am	1.38	15
Room 102	S29	7/20/2021	9:10 am	5.43					15
Room 101	S30	7/20/2021	9:12 am	25.6	S7	1/11/2022	7:58 am	3.96	15
Room 100	S31	7/20/2021	9:15 am	66.7	S6	1/11/2022	7:55 am	3.33	15
Room 108	S32	7/20/2021	9:17 am	5.27					15
Room 107	S33	7/20/2021	9:20 am	8.38					15
Room 106	S34	7/20/2021	9:23 am	10.4					15

Location	Sample ID #	Date	Time	Lead Result µg/L	Re-Sample ID #	Date	Time	Lead Result µg/L	NJDEP Lead Limit - µg/L
Nurse's Office Main Lobby	S35	7/20/2021	9:26 am	Non-Detect					15
Nurse's Office "Office Room"	S36	7/20/2021	9:27 am	5.21					15
Room 103	S37	7/20/2021	9:33 am	8.57					15
Room 104	S38	7/20/2021	9:35 am	14.1					15
Room 105	S39	7/20/2021	9:37 am	4.02					15
Nurse's Office JDA Side	S40	7/20/2021	9:42 am	Non-Detect					15
Nurse's Office JDA Side Bathroom Sink	S41	7/20/2021	9:46 am	Non-Detect					15
Sink Room 301	S42	7/20/2021	9:48 am	4.54					15
Sink Room 300	S43	7/20/2021	9:52 am	3.68					15
Fountain Room 321	S44	7/20/2021	9:52 am	1.18					15
Room 302	S45	7/20/2021	10:00 am	4.45					15
Room 303	S46	7/20/2021	10:03 am	17.3	S4	1/11/2022	7:45 am	7.30	15
Room 304	S47	7/20/2021	10:05 am	13.0					15
Room 505	S48	7/20/2021	10:07 am	12.8					15
Room 504	S49	7/20/2021	10:10 am	3.54					15
Room 503	S50	7/20/2021	10:11 am	3.83					15
Room 502	S51	7/20/2021	10:20 am	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
Room 501	S52	7/20/2021	10:22 am	3.44					15
Room 306	S53	7/20/2021	10:23 am	26.4	S2	1/11/2022	7:40 am	3.42	15
Room 305	S54	7/20/2021	10:25 am	121	S3	1/11/2022	7:42 am	4.26	15
Room 307	S55	7/20/2021	10:27 am	1.98					15
Room 310	S56	7/20/2021	10:31 am	3.09					15
Room 309	S57	7/20/2021	10:36 am	11.9					15
Room 308	S58	7/20/2021	10:40 am	3.30					15
Faculty Room	S59	7/20/2021	10:43 am	3.31					15
Room 200	S60	7/20/2021	10:45 am	12.9					15
Room 201	S61	7/20/2021	11:10 am	2.98					15
Room 202	S62	7/20/2021	11:15 am	4.46					15
Fountain Outside Faculty Lounge	S63	7/20/2021	11:17 am	14.0					15
Room 203	S64	7/20/2021	11:25 am	16.8	S11	1/11/2022	8:16 am	393	15
Room 204	S65	7/20/2021	11:30 am	3.51					15
Room 205	S66	7/20/2021	11:33 am	7.73					15
Room 205A Resources Room	S67	7/20/2021	11:35 am	3.13					15
Room 206	S68	7/20/2021	11:40 am	8.17					15
Room 207	S69	7/20/2021	11:41 am	2.91					15
Room 208	S70	7/20/2021	11:43 am	1.98					15
Fountain Outside Room 208	S71	7/20/2021	11:45 am	3.76					15
Room 409	S72	7/20/2021	11:49 am	2.52					15

Location	Sample ID #	Date	Time	Lead Result µg/L	Re-Sample ID #	Date	Time	Lead Result µg/L	NJDEP Lead Limit - µg/L
Room 408	S73	7/20/2021	11:50 am	4.12					15
Room 407	S74	7/20/2021	11:54 am	12.7					15
Fountain Outside Room 407	S75	7/20/2021	11:57 am	7.81					15
Fountain Outside Room 403	S76	7/20/2021	12:00 pm	12.6					15
Room 404	S77	7/20/2021	12:03 pm	5.17					15
Room 403	S78	7/20/2021	12:05 pm	10.8					15
Room 402	S79	7/20/2021	12:10 pm	1.85					15
Fountain Trailer 116	S80	7/20/2021	12:13 pm	1.28					15
Room 408	S73	7/20/2021	11:50 am	4.12					15
Room 407	S74	7/20/2021	11:54 am	12.7					15
Fountain Outside Room 407	S75	7/20/2021	11:57 am	7.81					15
Fountain Outside Room 403	S76	7/20/2021	12:00 pm	12.6					15
Room 404	S77	7/20/2021	12:03 pm	5.17					15
Room 403	S78	7/20/2021	12:05 pm	10.8					15
Room 402	S79	7/20/2021	12:10 pm	1.85					15
Fountain Trailer 116	S80	7/20/2021	12:13 pm	1.28					15
Fountain Trailer 116	S80A	7/20/2021	12:13 pm	4.19					15
Fountain Trailer 117	S81	7/20/2021	12:20 pm	Non-Detect					15
Fountain Trailer 122	S82	7/20/2021	12:31 pm	Non-Detect					15
Fountain Trailer 123	S83	7/20/2021	12:33 pm	Non-Detect					15
Fountain Trailer 121	S84	7/20/2021	12:35 pm	Non-Detect					15

Fountain Trailer 120	S85	7/20/2021	12:45 pm	Non- Detect					15
Fountain Trailer 115	S86	7/20/2021	12:50 pm	Non- Detect					15
Fountain Trailer 119	S87	7/20/2021	12:53 pm	Non- Detect					15
Field Blank	FB	7/20/2021	NA	Non- Detect					15
Field Blank	FB	1/11/2022	NA	Non- Detect					15

4.0 **CONCLUSIONS**

All lead results were below the 15 µg/L New Jersey Action Level except for:

- Sink room 203

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