EVERETT PUBLIC SCHOOLS

DRINKING WATER TEST RESULTS FOR LEAD

2016

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Everett Public Schools

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Introduction

EMB Consulting, LLC (EMB Consulting) developed this document to provide the drinking water test results for lead for every school in the Everett Public School District, as well as three other district facilities (Community Resource Center, Memorial Stadium, and Maintenance Facility). The sampling was conducted in May and June 2016, and required collecting first-draw samples from nearly 800 drinking water sources in Everett Public Schools buildings and facilities. First draw sample results were compared with the United States Environmental Protection Agency (EPA) Guidance, which recommends action be taken for drinking water sources in schools with lead levels greater than 20 parts per billion or micrograms per liter (ppb or µg/L). Second-draw samples were collected in June and July for any outlet that tested over 15 ppb. It should be noted that the units of ppb and µg/L are equivalent and interchangeable.

Over the last decade, Everett Public Schools has randomly sampled various drinking water outlets for lead within its operating schools. A district-wide assessment has not been conducted since 2005. Some new schools and building renovations have added new drinking water outlets to the district facility inventory since that time. In response to elevated awareness of the potential for lead in school drinking water nationally and regionally, and to provide lead-in-water data for previously unsampled drinking water sources, Everett Public Schools commissioned this 2016 district-wide targeted sampling project for lead in drinking water.

As of this writing, there is no federal or state law requiring testing of drinking water in schools, except for schools that have their own water supply and would be subject to the Safe Drinking Water Act (SDWA) of 1974 as amended in 1986 and 1996. The 1988 Lead Contamination Control Act (LCCA) is aimed at identifying and reducing lead in drinking water in schools and childcare facilities. In response, EPA prepared guidance documents to assist school districts in meeting the requirements of the LCCA. The guidance documents were used as a resource in developing this lead-in-water sampling project.

This report is designed to present the results for Everett Public Schools facilities overall. The report provides a summary of the sampling methods, results, and conclusions. Table 1 included with this report provides a summary of the 26 schools and 3 facilities sampled, number of samples, and a summary of results. This report also includes school-specific and facility-specific results memorandum as attachments. For each site, there is a cover memorandum, table with results specific to that facility, and the analytical report(s) for that site. Those memorandums can be used with this report or as stand-alone documents to provide information on the schools and facilities sampled.

Methods

A summary list of the Everett Public Schools 26 schools and 3 facilities that were tested during this project is included with this report as Table 1. Elisabeth Black, CIH of EMB Consulting collected all water samples for this project, escorted by Dennis Mallory of Everett Public Schools. All samples were collected in the morning between 6 am and 9 am, depending on school start times. The samples were collected on Tuesday through Saturday, to allow for at least 12 hours of non-use to assure a first-draw sample. Samples were collected on mornings before the facility opened and before any water was used. The water is to sit in the pipes unused for at least 12 hours prior to sampling, but fewer than 48 hours, as specified by the Washington State Department of Health.

For each school and facility, all drinking fountains in classrooms, hallways, gymnasiums, and other common area were targeted for testing. If a classroom drinking fountain was not working, the adjacent sink was sampled instead. In addition, the sinks in staff or teachers' lounges were sampled, as well as one sink used for food preparation in each school kitchen.

Each sample was collected in a pre-cleaned HDPE 250mL wide-mouth single use rigid sample container. Each sample collected was properly identified on the sample bottle and chain of custody using the school name acronym - room number or designator - type of faucet - sample number in sequence for that school or facility. The type of faucet was designated, as follows.

SF = student drinking fountain

SS = student sink

KS = kitchen sink

TS = teacher lounge faucet

For example, the third sample collected at Cedar Wood Elementary, from the Classroom 101 sink, would be labeled CWE-101SS-3.

First-draw samples (sitting motionless in the plumbing for a minimum of 12 hours) were labeled and collected from cold-water taps at each location, as described above. The sample was collected by placing the bottle under the sample tap before turning the cold-water tap on. No water was allowed to run prior to collecting a sample. The water was collected from the tap directly into each container and capped for delivery to the analytical laboratory.

All samples for this project were hand-delivered to AMTEST Laboratory in Kirkland, Washington. All samples were analyzed for lead using EPA-Certified Methods for Lead in Drinking Water. AMTEST is an accredited laboratory certified by the Washington State Department of Ecology for drinking water analysis.

For first-draw samples that tested greater than 20 ppb, the outlets were taken out of service as soon as the analytical results were available. A second-draw sample was performed to determine if the source of lead was in the faucet construction or plumbing system immediately adjacent to the faucet, or if it represents a lead source further down the distribution line. For these samples, the water was allowed to run for 30 seconds

once turned on. The same 12 hour period of non-use (morning sampling) was used for collecting second-draw samples.

For samples that tested less than 20 ppb, but greater than 15 ppb, a second-draw test was also performed to ensure that lead was not coming from further in the distribution line with higher results following first draw.

Results

The results of testing for all schools and facilities are summarized in Table 1 attached to this report for the school district as a whole. The results for each school and facility are provided as separate attachments to this report. Each attachment provides a memorandum cover sheet that summarizes the sampling details and results. The attachments each also include a table of results with sample locations and the laboratory report specific to that school or facility.

For the 17 elementary schools tested, representing 530 first-draw samples, there was one drinking fountain with lead in water greater than 20 ppb and one drinking fountain with lead in water between 15 and 20 ppb. No readings greater than 15 ppb were found at the 15 other elementary schools and the remaining 528 samples.

- On May 19, 2016, a student drinking fountain in Classroom 130 at Lowell Elementary School was found to contain lead in water at 24.9 ppb. The fountain was immediately taken out of service. The teacher in that room indicated that the fountain was not used by staff or students for drinking water. A second-draw sample was collected on July 1, 2016. The result of the second-draw sample for Classroom 130 at Lowell Elementary School was 5.31 ppb, indicating no further action is required.

- On May 25, 2016, student sink in Classroom B17 at Silver Lake Elementary School was found to contain lead in water at 15.9 ppb. The fountain was immediately taken out of service. A second-draw sample was collected on July 1, 2016. The result of the second-draw sample for Classroom B17 at Silver Lake Elementary School was 2.44 ppb, indicating no further action is required.

For the five middle schools tested, representing 135 first-draw samples, there were four samples over 20 ppb and five samples between 15 and 20 ppb. All nine elevated lead samples were at North Middle School, and most had been detected during previous water sampling events. No readings greater than 15 ppb were found at the four other middle schools and the remaining 126 samples.

Second-draw sampling was initiated at North Middle School on June 16, 2016. A few first-draw samples were collected at the same time to assess the reduction in lead between a first-flush and second-flush sample during the same sampling scenario. Where filters had been installed, second-draw samples were collected with and without the filter in place.

- Two student drinking fountains were found to have lead greater than 20 ppb in first-draw samples. Both fountains were immediately taken out of service.

- On May 19, 2016, the drinking fountain in Classroom 225 had lead in the first-draw sample at 23.1 ppb. The second-draw sample on June 16, 2016 had lead at 6.89 ppb.

- On May 19, 2016, the drinking fountain in Classroom 220 had lead in the first-draw sample at 22.4 ppb. The second-draw sample on June 16, 2016 had lead at 1.99 ppb.

- Two teachers' lounge sinks (Rooms 215 and 206) were found to have lead greater than 20 ppb in first-draw samples. These sinks have filters in place, so they were not taken out of service.

  - On May 19, 2016, the staff lounge located in Room 215 had lead in the first-draw sample with filter removed at 36.7 ppb. On June 16, 2016 the first-draw result for Room 215 was 32.10 ppb. On June 16, the second draw sample in Room 215 with filter off had lead at 2.18 ppb; and with filter on at 0.063 ppb.

  - On May 19, 2016, the staff lounge located in Room 206 had lead in the first-draw sample with filter removed at 26.10 ppb. On June 16, 2016 the first-draw result for Room 206 was 19.10 ppb. On June 16, the second draw sample in Room 206 with filter off had lead at 2.69 ppb; and with filter on at 0.384 ppb.

- Three student drinking fountains were found to have lead greater than 15 ppb, but less than 20 ppb. These fountains were taken out of service once the analytical results were received.

  - On May 19, 2016, a Building 1 Hall drinking fountain had 17.4 ppb lead in the first-draw sample. The second-draw sample had lead at 2.29 ppb on June 16, 2016.

  - On May 19, 2016, Classroom 302 had a student drinking fountain with 19.1 ppb lead in the first-draw sample. The second-draw sample had lead at 2.44 ppb on June 16, 2016.

  - On May 19, 2016, Classroom 219 had a student drinking fountain with 17.0 ppb lead in the first-draw sample. The second-draw sample had lead at 2.01 ppb on June 16, 2016.

- Two teachers' lounge sinks (Rooms 110 and 222) were found to have lead greater than 15 ppb, but less than 20 ppb in first-draw samples. These sinks have filters in place, so they were not taken out of service.

  - On May 19, 2016, the staff lounge located in Room 110 had lead in the first-draw sample with filter removed at 18.2 ppb. On June 16, the second draw sample in Room 110 with filter off had lead at 0.499 ppb; and with filter on at <0.05 ppb (not detected by laboratory methods).

- On May 19, 2016, the staff lounge located in Room 222 had lead in the first-draw sample with filter removed at 18.4 ppb. On June 16, the second draw sample in Room 222 with filter off had lead at 1.15 ppb; and with filter on at 0.148 ppb.

All second-draw samples from North Middle School were below the EPA action limit for schools of 20 ppb, indicating that no further action is required.

For the four high schools tested, representing 110 first-draw samples, there was one sample with a result between 15 and 20 ppb. No readings greater than 15 ppb were found at the 3 other high schools and the remaining 109 samples.

- The one high school sample with lead greater than 15 ppb was collected from a drinking fountain at Everett High School in Classroom A322 on June 9, 2016. The concentration of lead in that sample was 15.2 ppb. A second-draw sample was collected on July 1, 2016. The result of the second-draw sample for Classroom A322 at Everett High School was 8.07 ppb, indicating no further action is required.

The three remaining facilities include Memorial Stadium, the new Everett Public Schools Community Resource Center (CRC), and the Maintenance Building. For these facilities, 24 samples were collected, with two samples containing lead greater than 20 ppb. Those samples were both from the Athletics Building at Memorial Stadium. No readings greater than 15 ppb were found at the other facilities and the remaining 22 samples.

- On June 10, 2016, a drinking fountain in the Men's Locker Room in the Athletics Building at Memorial Stadium was found to contain lead in water at 23.8 ppb. The fountain was immediately taken out of service. A second-draw sample was collected on July 1, 2016. The result of the second-draw sample for the locker room was 7.89 ppb, indicating no further action is required.

- On June 10, 2016, a drinking fountain in a hall on the second floor the Athletics Building at Memorial Stadium was found to contain lead in water at 21.4 ppb. The fountain was immediately taken out of service. A second-draw sample was collected on July 1, 2016. The result of the second-draw sample for the drinking fountain was 7.07 ppb, indicating no further action is required.

Conclusions

A very small percentage of first-draw samples tested above the EPA required action level of 20 ppb for Everett Public Schools schools and facilities. For this assessment, just seven out of 799 first-draw samples contained lead in concentrations greater than 20 ppb, or less than 1 percent. The percentage of lead in water samples is even lower when assessing schools only (not including Other Facilities), down to approximately a half a percent. An additional seven samples contained lead greater than 15 ppb, but less than 20 ppb. These sources are not required to be retested, but were tested in the interest of safety, to ensure that the lead source was not further down the distribution line and not fully detected.

All of the sinks and fountains with lead concentrations over 15 ppb were retested using second-draw sampling protocols. All outlets were taken out of service as soon as the analytical results were available. None of the outlets tested at Everett Public Schools facilities contained lead in the second-draw samples at or above 20 ppb. In fact, the highest concentration of lead detected in second-draw sampling was just over 8 ppb.

As of this writing, neither the EPA nor the Washington State Department of Health have a requirement or recommendation for the frequency of water testing for lead in schools or school facilities. I recommend a periodic testing protocol every 5 years to test new systems that have been added to the Everett Public Schools inventory or facilities with systems that have been altered or renovated. I don't recommend retesting every facility and outlet for that 5-year reassessment, but retest outlets that tested above 15 ppb and all new outlet fixtures.

References

Washington State Department of Health, *Questions and Answers – Lead in School Drinking Water* (331-255), May 2016.

Washington State Department of Health, *Testing for lead in school drinking water systems* (331-261), October 2006.

United States Environmental Protection Agency, *3Ts for Reducing Lead in Drinking Water in Schools: Revised Technical Guidance* (816-B-05-008), October 2006.

Table 1
Drinking Water Sample Results for Lead - 2016
Everett Public Schools

Facility Type and Identifier		Location		1st Draw Sample Quantity	1st Draw Sample Dates		1st Draw Results		2nd Draw Sample Quantity	2nd Draw Sample Date	2nd Draw Results
							>15 and <20 ppb*	>20 ppb[b]			>20 ppb[c]
Elementary Schools				530					2		
Cedar Wood	**CWE**	3414 168th Street SE	Bothell	30	5/24/16		0	0			
Emerson	**EME**	8702 7th Avenue SE	Everett	31	5/27/16		0	0			
Forest View	**FVE**	5601 156th Street SE	Everett	34	5/25/16		0	0			
Garfield	**GFE**	2215 Pine Street	Everett	21	5/17/16		0	0			
Hawthorne	**HWE**	1110 Poplar Street	Everett	25	5/17/16		0	0			
Jackson	**JKE**	3700 Federal Avenue	Everett	27	5/19/16		0	0			
Jefferson	**JFE**	2500 Cadet Way	Everett	35	5/26/16		0	0			
Lowell	**LWE**	5010 View Drive	Everett	35	5/19/16	5/27/16	0	***1***	1	7/1/16	0
Madison	**MDE**	616 Pecks Drive	Everett	30	5/18/16		0	0			
Mill Creek	**MCE**	3400 148th Street SE	Mill Creek	31	5/24/16		0	0			
Monroe	**MNE**	10901 27th Avenue SE	Everett	40	5/26/16		0	0			
Penny Creek	**PCE**	4117 132nd Street SE	Everett	39	5/25/16		0	0			
Silver Firs	**SFE**	5909 146th Place SE	Everett	32	5/25/16		0	0			
Silver Lake	**SLE**	12815 Bothell-Everett Hwy	Everett	31	5/26/16		***1***	0	1	7/1/16	0
View Ridge	**VRE**	202 Alder Street	Everett	36	5/18/16		0	0			
Whittier	**WHE**	916 Oakes Avenue	Everett	22	5/17/16		0	0			
Woodside	**WSE**	17000 23rd Avenue SE	Bothell	31	5/24/16		0	0			
Middle Schools				135					15		
Eisenhower	**ESM**	10200 25th Avenue SE	Everett	16	5/27/16		0	0			
Evergreen	**EVM**	7621 Beverly Lane	Everett	14	6/4/16		0	0			
Gateway	**GWM**	15404 Silver Firs Drive	Everett	52	6/7/16		0	0			
Heatherwood	**HWM**	1419 Trillium Boulevard NE	Mill Creek	30	6/2/16		0	0			
North	**NM**	2514 Rainier Avenue	Everett	23	5/19/16		***5***	***4***	15	6/16/16	0
High Schools				110					1		
Everett	**EVH**	2416 Colby Avenue	Everett	52	6/9/16	6/10/16	***1***	0	1	7/1/16	0
Cascade	**CAH**	801 E. Casino Road	Everett	27	6/4/16		0	0			
Henry M. Jackson	**JKH**	1508 136th Street SE	Mill Creek	19	6/3/16		0	0			
Sequoia	**SQH**	3516 Rucker Avenue	Everett	12	6/1/16		0	0			

Table 1
Drinking Water Sample Results for Lead - 2016
Everett Public Schools

Facility Type and Identifier		Location		1st Draw Sample Quantity	1st Draw Sample Dates		1st Draw Results >15 and <20 ppb*	1st Draw Results >20 ppb[b]	2nd Draw Sample Quantity	2nd Draw Sample Date	2nd Draw Results >20 ppb[c]
Other Facilities				24					2		
Community Resc Cntr	CRC	3900 Broadway Avenue	Everett	8	6/10/16		0	0			
Maintenance	Maint	2222 Everett Avenue	Everett	3	6/10/16		0	0			
Memorial Stadium	MEM	3802 Broadway Avenue	Everett	13	6/10/16		0	***2***	2	7/1/16	0
		Total Project Samples (819)		***799***					***20***		

ppb *parts per billion*

>15 and <20 ppb[a] *These first-draw samples were retested using second-draw sample procedures as an additional safety measure to verify that the lead content decreases after the initial draw, which would indicate that the lead is in the fixture (faucet, bubbler, immediate piping) versus in the supply line. Retesting for these outlets is designed to ensure that the second-draw sample does not demonstrate that water within the supply line contains lead at 20 ppb or more. If the second-draw is greater than 20 ppb lead, then the outlet must be taken out of service until treatment can reduce the lead content.*

>20 ppb[b] *These first-draw samples are required to be retested using second-draw sample procedures to verify that the lead content decreases after the initial draw, which would indicate that the lead is in the fixture (faucet, bubbler, immediate piping) versus in the supply line. Retesting for these outlets is designed to ensure that the second-draw sample is not also over 20 ppb. If the retest shows lead concentration greater than what was found in the first-draw sample, the lead source is within the supply line. In that case, the outlet must be taken out of service until treatment can reduce the lead content. If the second-draw is below 20 ppb, no further action is necessary.*

>20 ppb[c] *If samples contain less than 20 ppb, no further action is required.*