

POST-FIXTURE REPLACEMENT SAMPLING RESULTS REPORT

Richfield Elementary School



December 28, 2016

INTRODUCTION

During the month of March 2016, the Department of Licensing and Regulatory Affairs (DLARA) completed replacement of drinking water fixtures at Richfield Elementary School. These fixture replacements were required because testing results indicated that the older fixtures at most schools were imparting lead to the drinking water. After the fixtures were replaced, a more thorough flushing of the plumbing lines was completed to remove any remaining materials from the building's water supply system.

On Tuesday, April 5, 2016, the DLARA and the Department of Environmental Quality conducted a post-fixture sampling assessment of the plumbing system at the facility.

For the protection of public health, DLARA started offering the installation of filters at day cares and schools in Flint. This work began in July, 2016.

Water Main Description

An internal inspection of the building yielded a two-inch copper main along with two-inch copper distribution through the building.

SAMPLING METHODS

Fixture Sampling

There are 29 drinking water fixtures that were identified at the school. After a minimum six-hour stagnation period, four samples were collected at each of the fixtures identified. Two initial samples were collected immediately after turning on the tap. The water was then flushed for 30 seconds and a third sample was collected. Finally, the water was flushed for another two minutes, and the fourth sample was collected. These samples were used to determine the impact of any lead sources in and around each specific fixture and its connecting plumbing.

Deep Plumbing Sampling

A different sampling method is used to determine the impact of any lead sources located deep in the supply plumbing of the building. During this method, ten bottles are collected in a row (consecutively). These bottles are one liter in size, which is larger than those used for the fixture sampling method.

Sampling Notes

- One hundred and sixteen samples from the 29 fixtures were collected and sent to the lab for analysis.
- Seventy samples from seven specific fixtures were collected to test the deeper part of the plumbing system and sent to the lab for analysis.

SAMPLING RESULTS

Post-Fixture Replacement

April 5, 2016

Of the 186 samples:

- Lead Range: Non-Detected (ND) to ten parts per billion (ppb)
- Copper Range: ND to 1,370 ppb

* Where the result is non-detected for lead it means that the amount of lead in the water was less than 1 ppb.

* Where the result is non-detected for copper it means that the amount of copper in the water was less than 50 ppb.

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Lead	Result (ppb)	Sample Description	Site Code	Copper	Result (ppb)
Lead	ND	01WC001 LEFT OF JANITOR`S ROOM	P1	Copper	380
Lead	ND	01WC001 LEFT OF JANITOR`S ROOM	P2	Copper	520
Lead	ND	01WC001 LEFT OF JANITOR`S ROOM	F01	Copper	290
Lead	ND	01WC001 LEFT OF JANITOR`S ROOM	F02	Copper	290
Lead	ND	01WC002 LEFT OF JANITOR`S ROOM	P1	Copper	270
Lead	ND	01WC002 LEFT OF JANITOR`S ROOM	P2	Copper	310
Lead	ND	01WC002 LEFT OF JANITOR`S ROOM	F01	Copper	280
Lead	ND	01WC002 LEFT OF JANITOR`S ROOM	F02	Copper	310
Lead	ND	01WC003 FAR WEST HALL	P1	Copper	1,290
Lead	ND	01WC003 FAR WEST HALL	P2	Copper	1,010
Lead	ND	01WC003 FAR WEST HALL	F01	Copper	600
Lead	ND	01WC003 FAR WEST HALL	F02	Copper	310
Lead	ND	01WC004 FAR WEST HALL	P1	Copper	320
Lead	ND	01WC004 FAR WEST HALL	P2	Copper	310
Lead	ND	01WC004 FAR WEST HALL	F01	Copper	280
Lead	ND	01WC004 FAR WEST HALL	F02	Copper	250
Lead	ND	01WC005 ACROSS FROM ROOM 506	P1	Copper	560
Lead	ND	01WC005 ACROSS FROM ROOM 506	P2	Copper	500
Lead	ND	01WC005 ACROSS FROM ROOM 506	F01	Copper	240
Lead	ND	01WC005 ACROSS FROM ROOM 506	F02	Copper	100
Lead	ND	01WC006 ACROSS FROM ROOM 506	P1	Copper	150
Lead	ND	01WC006 ACROSS FROM ROOM 506	P2	Copper	130
Lead	ND	01WC006 ACROSS FROM ROOM 506	F01	Copper	90
Lead	ND	01WC006 ACROSS FROM ROOM 506	F02	Copper	80
Lead	ND	01WC007 RIGHT OF KITCHEN	P1	Copper	1,370
Lead	ND	01WC007 RIGHT OF KITCHEN	P2	Copper	660
Lead	ND	01WC007 RIGHT OF KITCHEN	F01	Copper	260
Lead	ND	01WC007 RIGHT OF KITCHEN	F02	Copper	210
Lead	ND	01WC008 RIGHT OF KITCHEN	P1	Copper	220
Lead	ND	01WC008 RIGHT OF KITCHEN	P2	Copper	250
Lead	ND	01WC008 RIGHT OF KITCHEN	F01	Copper	210
Lead	ND	01WC008 RIGHT OF KITCHEN	F02	Copper	240
Lead	ND	01KC009 KITCHEN	P1	Copper	140
Lead	ND	01KC009 KITCHEN	P2	Copper	410
Lead	ND	01KC009 KITCHEN	F01	Copper	220
Lead	ND	01KC009 KITCHEN	F02	Copper	190
Lead	ND	01DW010 ROOM 200	P1	Copper	180
Lead	ND	01DW010 ROOM 200	P2	Copper	180
Lead	ND	01DW010 ROOM 200	F01	Copper	270
Lead	ND	01DW010 ROOM 200	F02	Copper	280
Lead	4	01DW011 ROOM 200	P1	Copper	160
Lead	2	01DW011 ROOM 200	P2	Copper	170

Non-detected (ND) means; for lead the amount in water is less than

Page 1 of 5 1 pbb for copper and the amount in water is less than 50 pbb.

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Lead	Result (ppb)	Sample Description	Site Code	Copper	Result (ppb)
Lead	ND	01DW011 ROOM 200	F01	Copper	250
Lead	ND	01DW011 ROOM 200	F02	Copper	200
Lead	ND	01DW012 ROOM 201	P1	Copper	170
Lead	ND	01DW012 ROOM 201	P2	Copper	180
Lead	ND	01DW012 ROOM 201	F01	Copper	290
Lead	ND	01DW012 ROOM 201	F02	Copper	320
Lead	ND	01CF013 ROOM 202	P1	Copper	160
Lead	ND	01CF013 ROOM 202	P2	Copper	270
Lead	ND	01CF013 ROOM 202	F01	Copper	310
Lead	ND	01CF013 ROOM 202	F02	Copper	210
Lead	1	01CF014 ROOM 202	P1	Copper	140
Lead	ND	01CF014 ROOM 202	P2	Copper	190
Lead	ND	01CF014 ROOM 202	F01	Copper	200
Lead	ND	01CF014 ROOM 202	F02	Copper	200
Lead	ND	01DW015 ROOM 202	P1	Copper	200
Lead	ND	01DW015 ROOM 202	P2	Copper	210
Lead	ND	01DW015 ROOM 202	F01	Copper	160
Lead	ND	01DW015 ROOM 202	F02	Copper	200
Lead	ND	01DW016 ROOM 203	P1	Copper	210
Lead	ND	01DW016 ROOM 203	P2	Copper	210
Lead	ND	01DW016 ROOM 203	F01	Copper	210
Lead	ND	01DW016 ROOM 203	F02	Copper	210
Lead	2	01CF017 ROOM 203	P1	Copper	180
Lead	ND	01CF017 ROOM 203	P2	Copper	200
Lead	ND	01CF017 ROOM 203	F01	Copper	200
Lead	ND	01CF017 ROOM 203	F02	Copper	200
Lead	ND	01DW018 ROOM 204	P1	Copper	170
Lead	ND	01DW018 ROOM 204	P2	Copper	160
Lead	ND	01DW018 ROOM 204	F01	Copper	310
Lead	ND	01DW018 ROOM 204	F02	Copper	300
Lead	ND	01CF019 ROOM 204	P1	Copper	160
Lead	ND	01CF019 ROOM 204	P2	Copper	290
Lead	ND	01CF019 ROOM 204	F01	Copper	300
Lead	ND	01CF019 ROOM 204	F02	Copper	300
Lead	1	01CF020 ROOM 205	P1	Copper	160
Lead	ND	01CF020 ROOM 205	P2	Copper	250
Lead	ND	01CF020 ROOM 205	F01	Copper	280
Lead	ND	01CF020 ROOM 205	F02	Copper	300
Lead	ND	01DW021 ROOM 205	P1	Copper	250
Lead	ND	01DW021 ROOM 205	P2	Copper	300
Lead	ND	01DW021 ROOM 205	F01	Copper	310
Lead	ND	01DW021 ROOM 205	F02	Copper	290

Non-detected (ND) means; for lead the amount in water is less than

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Lead	Result (ppb)	Sample Description	Site Code	Copper	Result (ppb)
Lead	1	01CF022 ROOM 206	P1	Copper	190
Lead	ND	01CF022 ROOM 206	P2	Copper	270
Lead	ND	01CF022 ROOM 206	F01	Copper	300
Lead	ND	01CF022 ROOM 206	F02	Copper	280
Lead	ND	01DW023 ROOM 206	P1	Copper	180
Lead	ND	01DW023 ROOM 206	P2	Copper	270
Lead	ND	01DW023 ROOM 206	F01	Copper	230
Lead	ND	01DW023 ROOM 206	F02	Copper	220
Lead	ND	01DW024 ROOM 207	P1	Copper	270
Lead	ND	01DW024 ROOM 207	P2	Copper	290
Lead	ND	01DW024 ROOM 207	F01	Copper	280
Lead	ND	01DW024 ROOM 207	F02	Copper	240
Lead	1	01CF025 ROOM 207	P1	Copper	170
Lead	ND	01CF025 ROOM 207	P2	Copper	210
Lead	ND	01CF025 ROOM 207	F01	Copper	240
Lead	ND	01CF025 ROOM 207	F02	Copper	220
Lead	1	01CF026 ROOM 208	P1	Copper	110
Lead	ND	01CF026 ROOM 208	P2	Copper	ND
Lead	ND	01CF026 ROOM 208	F01	Copper	60
Lead	ND	01CF026 ROOM 208	F02	Copper	ND
Lead	ND	01DW027 ROOM 208	P1	Copper	80
Lead	ND	01DW027 ROOM 208	P2	Copper	ND
Lead	ND	01DW027 ROOM 208	F01	Copper	ND
Lead	ND	01DW027 ROOM 208	F02	Copper	ND
Lead	ND	01DW028 ROOM 209	P1	Copper	60
Lead	ND	01DW028 ROOM 209	P2	Copper	60
Lead	ND	01DW028 ROOM 209	F01	Copper	ND
Lead	ND	01DW028 ROOM 209	F02	Copper	ND
Lead	2	01CF029 ROOM 209	P1	Copper	110
Lead	ND	01CF029 ROOM 209	P2	Copper	ND
Lead	ND	01CF029 ROOM 209	F01	Copper	ND
Lead	ND	01CF029 ROOM 209	F02	Copper	ND
Lead	ND	01WC001 LEFT OF JANITOR`S ROOM	CA1	Copper	460
Lead	ND	01WC001 LEFT OF JANITOR`S ROOM	CA2	Copper	150
Lead	ND	01WC001 LEFT OF JANITOR`S ROOM	CA3	Copper	140
Lead	ND	01WC001 LEFT OF JANITOR`S ROOM	CA4	Copper	140
Lead	ND	01WC001 LEFT OF JANITOR`S ROOM	CA5	Copper	140
Lead	ND	01WC001 LEFT OF JANITOR`S ROOM	CA6	Copper	140
Lead	ND	01WC001 LEFT OF JANITOR`S ROOM	CA7	Copper	140
Lead	ND	01WC001 LEFT OF JANITOR`S ROOM	CA8	Copper	140
Lead	ND	01WC001 LEFT OF JANITOR`S ROOM	CA9	Copper	140
Lead	ND	01WC001 LEFT OF JANITOR`S ROOM	CA10	Copper	140

Non-detected (ND) means; for lead the amount in water is less than

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Lead	Result (ppb)	Sample Description	Site Code	Copper	Result (ppb)
Lead	ND	01WC004 FAR WEST HALL	CB1	Copper	470
Lead	ND	01WC004 FAR WEST HALL	CB2	Copper	380
Lead	ND	01WC004 FAR WEST HALL	CB3	Copper	320
Lead	ND	01WC004 FAR WEST HALL	CB4	Copper	260
Lead	ND	01WC004 FAR WEST HALL	CB5	Copper	240
Lead	ND	01WC004 FAR WEST HALL	CB6	Copper	240
Lead	ND	01WC004 FAR WEST HALL	CB7	Copper	240
Lead	ND	01WC004 FAR WEST HALL	CB8	Copper	240
Lead	ND	01WC004 FAR WEST HALL	CB9	Copper	240
Lead	ND	01WC004 FAR WEST HALL	CB10	Copper	240
Lead	ND	01WC006 ACROSS FROM ROOM 506	CC1	Copper	230
Lead	ND	01WC006 ACROSS FROM ROOM 506	CC2	Copper	110
Lead	ND	01WC006 ACROSS FROM ROOM 506	CC3	Copper	80
Lead	ND	01WC006 ACROSS FROM ROOM 506	CC4	Copper	80
Lead	ND	01WC006 ACROSS FROM ROOM 506	CC5	Copper	80
Lead	ND	01WC006 ACROSS FROM ROOM 506	CC6	Copper	80
Lead	ND	01WC006 ACROSS FROM ROOM 506	CC7	Copper	80
Lead	ND	01WC006 ACROSS FROM ROOM 506	CC8	Copper	70
Lead	ND	01WC006 ACROSS FROM ROOM 506	CC9	Copper	70
Lead	ND	01WC006 ACROSS FROM ROOM 506	CC10	Copper	70
Lead	ND	01KC009 KITCHEN	CD1	Copper	230
Lead	ND	01KC009 KITCHEN	CD2	Copper	220
Lead	ND	01KC009 KITCHEN	CD3	Copper	210
Lead	ND	01KC009 KITCHEN	CD4	Copper	200
Lead	ND	01KC009 KITCHEN	CD5	Copper	200
Lead	ND	01KC009 KITCHEN	CD6	Copper	200
Lead	ND	01KC009 KITCHEN	CD7	Copper	200
Lead	10	01KC009 KITCHEN	CD8	Copper	200
Lead	ND	01KC009 KITCHEN	CD9	Copper	200
Lead	ND	01KC009 KITCHEN	CD10	Copper	200
Lead	ND	01CF019 ROOM 204	CE1	Copper	230
Lead	ND	01CF019 ROOM 204	CE2	Copper	240
Lead	ND	01CF019 ROOM 204	CE3	Copper	260
Lead	ND	01CF019 ROOM 204	CE4	Copper	230
Lead	ND	01CF019 ROOM 204	CE5	Copper	220
Lead	ND	01CF019 ROOM 204	CE6	Copper	230
Lead	ND	01CF019 ROOM 204	CE7	Copper	230
Lead	ND	01CF019 ROOM 204	CE8	Copper	230
Lead	ND	01CF019 ROOM 204	CE9	Copper	220
Lead	ND	01CF019 ROOM 204	CE10	Copper	220
Lead	ND	01CF025 ROOM 207	CF1	Copper	230
Lead	ND	01CF025 ROOM 207	CF2	Copper	230

Non-detected (ND) means; for lead the amount in water is less than

Page 4 of 5 1 pbb for copper and the amount in water is less than 50 pbb.

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Lead	Result (ppb)	Sample Description	Site Code	Copper	Result (ppb)
Lead	ND	01CF025 ROOM 207	CF3	Copper	230
Lead	ND	01CF025 ROOM 207	CF4	Copper	220
Lead	ND	01CF025 ROOM 207	CF5	Copper	220
Lead	ND	01CF025 ROOM 207	CF6	Copper	230
Lead	ND	01CF025 ROOM 207	CF7	Copper	230
Lead	ND	01CF025 ROOM 207	CF8	Copper	230
Lead	ND	01CF025 ROOM 207	CF9	Copper	240
Lead	ND	01CF025 ROOM 207	CF10	Copper	230
Lead	ND	01CF029 ROOM 209	CG1	Copper	ND
Lead	ND	01CF029 ROOM 209	CG2	Copper	ND
Lead	ND	01CF029 ROOM 209	CG3	Copper	ND
Lead	ND	01CF029 ROOM 209	CG4	Copper	ND
Lead	ND	01CF029 ROOM 209	CG5	Copper	ND
Lead	ND	01CF029 ROOM 209	CG6	Copper	ND
Lead	ND	01CF029 ROOM 209	CG7	Copper	ND
Lead	ND	01CF029 ROOM 209	CG8	Copper	ND
Lead	ND	01CF029 ROOM 209	CG9	Copper	ND
Lead	ND	01CF029 ROOM 209	CG10	Copper	ND

Non-detected (ND) means; for lead the amount in water is less than 1 ppb for copper and the amount in water is less than 50 ppb.