Abstract

Established in 1873, Columbia Public Schools has a proud history of serving the city of Columbia, Missouri. With a history spanning more than 143 years, the district has gained a reputation as an educational pioneer for developing best practices and innovative programs to support its mission to provide an excellent education for all students. More than 18,000 students now attend any one of the 33 schools in the district.

Due to the recent heightened awareness of lead in consumable water; Columbia Public Schools has elected to be proactive and conduct a water quality evaluation for all schools and support facilities in the district. The evaluation is believed to be the first of its kind by a school district in the State of Missouri. But more importantly, it provides a direction for students, parents, teachers and general public on issues where lead in water may be a concern at their school.

Ultimately keeping with the Columbia Public Schools Facility & Construction Services safety motto, *Remember, Kids Learn Best in Healthy Environments…*

1.0 Executive Summary

On May 31, 2016 (initial water quality evaluation) and July 11, 2016 (follow-up water quality evaluation) Columbia Public Schools (CPS) Facilities and Construction Services Department (FCS) provided assistance for a water quality evaluation of Hickman High School, 1104 North Providence Road, Columbia, Missouri 65203.

PDC Laboratories Inc., (PDC) was contracted by CPS to provide the following services for the water quality evaluation. PDC Laboratories, Inc. role included: (1) transporting the water samples from the FCS location to their laboratory location, (2) insuring the field data form(s) were signed, accurate, and true, (3) conducting the analysis of each water sample that was collected at the school, (4) providing an analytical laboratory report for each sample documented on the school's field data form; and (5) developing a summary report for each school.

The initial summary report is divided into three (3) parts or sections;

(1) PART A of the report shows the total number of samples that were collected at the school. Also, a percentage is given for the total number of samples (lead and/or copper) that were below the lead and/or copper action limit(s). The passing requirement noted in the United States Environmental Protection Agency (USEPA) Lead and Copper Rule (LCR) for public water supplies is 90%.

(2) PART B of the report shows the number of samples that have exceeded the lead and/or copper action limit. The USEPA lead and copper action level (lead action limit = 15 UG/L; copper action limit = 1,300 UG/L).

(3) Conclusions/Comments of report discusses the findings of the school and how it is compared to the (recommended) guidelines of the USEPA-LCR and the Columbia Water & Light requirements. Additionally, it is in this section where PDC provides suggestions (options) for any laboratory sample that has exceeded the lead and/or copper level.

The follow up summary report is divided into three (3) parts or sections;

(1) Follow up Results of the report shows the laboratory result(s) of the sample.

(2) Follow up samples passed action limits of the report simply defines the sample as "yes" or "no". The USEPA lead and copper action level (lead action limit = 15 UG/L; copper action limit = 1,300 UG/L).

(3) Conclusions/Comments of report discusses the recommendations (typically noting that the location should be flushed for a minimum of 30 seconds prior to use) and how it is compared to the (recommended) guidelines of the USEPA-LCR and the Columbia Water & Light requirements.

Initial Water Quality Evaluation

On May 31, 2016, a total of 108 (potential) water consumable samples were collected at various water locations within the school.

The following data table contains the water sample number, description/location of the collected sample, and the response action performed by CPS Facilities & Construction Services (CPS-FCS), if needed.

Hickman High School

Sample No.	Description/Location	CPS-FCS Actions
1	Kitchen Faucet (cold) in room 7 main office	0
2	Electronic Water Cooler in lobby of old gym	0
3	Electronic Water Cooler in lobby of concession stand	0
4	Kitchen Faucet (cold) in concession stand	0
5	Electronic Water Cooler in lobby locker room	0
6	Electronic Water Cooler in boy's locker room	0
7	Electronic Water Cooler in hall of girl's locker room	0
8	Kitchen Faucet (cold) in room 155	0
9	Electronic Water Cooler in hall next to room 153	0
10	Kitchen Faucet (cold) on East wall in room 274	0
11	Kitchen Faucet (cold) on West wall in room 274	0
12	Kitchen Faucet (cold) on West wall in room 274 on steam pot	0
13	Electronic Water Cooler in upper commons (46&47)	0
14	Electronic Water Cooler in upper commons (45&44)	0
15	Electronic Water Cooler in lobby of 1060 (26&27)	0
16	Electronic Water Cooler in hall outside of room 107C	0
17	Electronic Water Cooler in hall outside of room 112	0

Sample No.	Description/Location	CPS-FCS Actions
18	Electronic Water Cooler in hall outside of room 114	0
19	Electronic Water Cooler in hall outside of gang restroom	0
20	Electronic Water Cooler in hall outside of room 122	0
21	Nurse's Sink Faucet (cold) in nurse's office	0
22	Electronic Water Cooler in hall of FA building	0
23	Kitchen Faucet (cold) in A05 or FA building	0
24	Electronic Water Cooler in hall of FA building	0
25	Electronic Water Cooler in hall outside of room 141	0
26	Kitchen Faucet (cold) in guidance office kitchen	0
27	Electronic Water Cooler in hall outside of room 50	0
28	Electronic Water Cooler in hall outside of room 54	0
29	Kitchen Faucet (cold) in room 55	0
30	Kitchen Faucet (cold) in room 54	0
31	Kitchen Faucet (cold) in room 54	0
32	Kitchen Faucet (cold) in room 54	0
33	Electronic Water Cooler in hall outside of room 136	0
34	Electronic Water Cooler in hall outside of room 128C	0
35	Electronic Water Cooler in hall outside of room 117	0
36	Teacher's Lounge Faucet (cold) in teacher's lounge	0
37	Kitchen Faucet (cold)	0
38	Electronic Water Cooler in hall outside of room 256 (1&2)	0
39	Kitchen Faucet (cold) in room 253	0
40	Electronic Water Cooler in hall outside room 255M	0
41	Electronic Water Cooler in hall outside room 206C	0
42	Electronic Water Cooler in hall outside room 212	0
43	Electronic Water Cooler in hall outside stairwell	0
44	Electronic Water Cooler in hall outside room 217	0
45	Electronic Water Cooler in hall outside room 222	0
46	Electronic Water Cooler in hall outside room 237A	0
47	Electronic Water Cooler in hall outside room 225	0
48	Electronic Water Cooler in hall outside room 226	0
49	Kitchen Faucet (cold) in kitchen coffee maker	0
50	Kitchen Faucet (cold) in kitchen food prep table	0
51	Electronic Water Cooler in pool area	0
52	Electronic Water Cooler in girl's pool locker room	0
53	Electronic Water Cooler in boy's pool locker room	0
54	Electronic Water Cooler in hall outside room 171&172	0
55	Kitchen Faucet (cold) in room 170	0
56	Electronic Water Cooler in breezeway of 105 CASA lab	0
57	Classroom Faucet (cold) in room 205	0
58	Classroom Faucet (cold) in room 208 NE (2&3)	0
59	Classroom Faucet (cold) in room 208 Island	1
60	Classroom Faucet (cold) in room 208 SW (4&5)	0
61	Classroom Faucet (cold) in room 209 S	0
62	Classroom Faucet (cold) in room 209 Island	1
63	Classroom Faucet (cold) in room 209 N	0
64	Classroom Faucet (cold) in room 209 prep room	0
65	Classroom Faucet (cold) in room 212 W (11&12)	0
66	Classroom Faucet (cold) in room 212 Island	1
67	Classroom Faucet (cold) in room 212 E (14&15)	0
68	Classroom Faucet (cold) in room 213 O	0

Sample No.	Description/Location	CPS-FCS Actions
69	Classroom Faucet (cold) in room 213 W (17&18)	0
70	Classroom Faucet (cold) in room 213 Island	1
71	Classroom Faucet (cold) in room 213 W (20&21)	0
72	Classroom Faucet (cold) in room 2140	0
73	Classroom Faucet (cold) in room 214 W (23&24)	0
74	Classroom Faucet (cold) in room 214 E (26&27)	0
75	Classroom Faucet (cold) in room 218	0
76	Classroom Faucet (cold) in room 220 E	0
77	Classroom Faucet (cold) in room 220 W (30&31)	0
78	Classroom Faucet (cold) in room 220 O	0
79	Classroom Faucet (cold) in room 222 W	0
80	Classroom Faucet (cold) in room 222 E	1
81	Classroom Faucet (cold) in room 53	0
82	Classroom Faucet (cold) in room 52	0
83	Classroom Faucet (cold) in room 51	0
84	Classroom Faucet (cold) in room 50	0
85	Classroom Faucet (cold) in room FA2 (42, 43, 44, 45)	0
86	Classroom Faucet (cold) in room FA4 (46, 47, 48, 49)	0
87	Classroom Faucet (cold) in room FADR	0
88	Classroom Faucet (cold) in room FA5 (51, 52, 53, 54)	0
89	Classroom Faucet (cold) in room FA3 (55, 56, 57, 58)	0
90	Classroom Faucet (cold) in room 117 W	0
91	Classroom Faucet (cold) in room 117 N	1
92	Classroom Faucet (cold) in room 117 S	1
93	Classroom Faucet (cold) in room 117 O	0
94	Classroom Faucet (cold) in room 116 Island	0
95	Classroom Faucet (cold) in room 116 O	0
96	Classroom Faucet (cold) in room 115 S (65, 66, 67)	1
97	Classroom Faucet (cold) in room 115 N (70, 71, 72)	1
98	Classroom Faucet (cold) in room W (68&69)	1
99	Classroom Faucet (cold) in room 112 Island	0
100	Classroom Faucet (cold) in room 112 (74, 75, 76, 77)	0
101	Classroom Faucet (cold) in room 112 W (78)	1
102	Classroom Faucet (cold) in room 112 N (79, 80, 81, 82)	0
103	Classroom Faucet (cold) in room 110 Island	0
104	Classroom Faucet (cold) in room 109 O	1
105	Classroom Faucet (cold) in room 109 N	0
106	Classroom Faucet (cold) in room 109 E (86, 87, 88)	0
107	Classroom Faucet (cold) in room 109 W (89, 90, 91, 92)	0
108	Classroom Faucet (cold) in room 108 Island	0

CPS-FCS Actions

0 = No actions are required. The laboratory results revealed that the samples have no concerns for lead and/or copper.

1 = CPS-FCS & PDC Laboratories recommend(s) the following actions:
(1) An inspection of the water tap and associated water line by a CPS-FCS specialized maintenance plumber to help determine the cause, (2) CPS-FCS shall conduct a follow-up sample collection-a flush sample*, and (3) CPS-FCS shall post a sign saying "Notice" "work station sink, water not intended for drinking. " (if needed).

*Follow-up Sample(s)
This sample is representative of the water that is in the plumbing upstream from the faucet or drinking water fountain. This sample shall be collected before the facility opens and before any water was used at the water tap. The water from the faucet or drinking water fountain should run for 30 seconds before collecting the sample. This is called a flush sample.

Part A of the PDC summary report supports that 98.1% of all the water samples collected/analyzed were at a none detect and/or below the EPA copper action level (copper action limit = 1,300 UG/L). Additionally, the PDC summary report supports that 88.9% of all the water samples collected/analyzed were at a none detect and/or below the EPA lead action level (lead action limit = 15 UG/L).

Part B of the PDC summary report shows that two (2) of the water samples collected/analyzed exceeded the EPA copper action level. Additionally, the PDC summary report shows that twelve (12) of the water samples collected/analyzed exceeded the EPA lead action level.

The PDC conclusions/comments section of the summary report suggest that if any of the laboratory analysis reveals that the sample has exceeded the action limit(s) then the options in the LCR might be considered. They include but are not limited to: flushing prior to use, repairing or replacing the fixture, repairing or replacing the piping, or by simply not using the water for consumption. All of these suggestions are recommended by the LCR.

Based on the PDC conclusions/comments and the CPS-FCS team approach to insure that the water quality evaluation had/has achieved its objective (***Kids Learn Best in Healthy Environments)*** to provide safe drinking water in the Columbia Public Schools, CPS-FCS had decided to take these options:

1. Taking a second sample (as per EPA LCR and the Drinking Water Best Management Practices suggestive guidelines) of the water source,
2. Having a CPS-FCS specialized maintenance plumber inspect the water tap and pipe to make sure there are no leaks or outside indications of corrosion, and
3. Post a sign saying "Notice" "work station sink, water not intended for drinking. " (to be determined after the additional testing result and summary recommendation, if needed).

Follow-up Water Quality Evaluation

On July 11, 2016, CPS-FCS performed a flush sample (follow up water sample as recommended by the PDC and utilizing EPA water collection rules) of each of the twelve water samples (please note that two if the samples had both copper and lead elevated action limits) that had exceeded the copper and/or lead action limit on the initial water quality evaluation. Additionally, a CPS-FCS specialized maintenance plumber inspected the water tap and associated pipe to make sure there were no leaks or outside indications of corrosion.

The following data table contains the laboratory reporting and summary for each of the twelve samples:

SAMPLE 1

Classroom faucet in room 208

Sample Code: HHS-FS-208-CF-3

Follow up Results:

Lead 3.7 ug/l

Copper 77 ug/l

Follow up samples passed action limits:

Lead (action limit 15 ug/l)	YES
Copper (action limit 1300 ug/l)	YES

Part 1 of the PDC follow up sample-flush sample summary report supports that the water sample collected/analyzed was at a none detect and/or below the EPA copper and lead action level (copper action limit = 1,300 UG/L, lead action limit = 15 UG/L).

Part 2 of the PDC summary report shows that the sample(s) meets (passed) the EPA lead and copper action levels.

PDC CONCLUSIONS/COMMENTS
The water tap (plus all other water taps within the rooms) can be used and should be flushed for a minimum of 30 seconds prior to use.

SAMPLE 2

Classroom faucet in room 209

Sample Code: HHS-FS-209-CF-8

Follow up Results:

Lead 6.4 ug/l

Copper 120 ug/l

Follow up samples passed action limits:

Lead (action limit 15 ug/l) YES

Copper (action limit 1300 ug/l) YES

Part 1 of the PDC follow up sample-flush sample summary report supports that the water sample collected/analyzed was at a none detect and/or below the EPA copper and lead action level (copper action limit = 1,300 UG/L, lead action limit = 15 UG/L).

Part 2 of the PDC summary report shows that the sample(s) meets (passed) the EPA lead and copper action levels.

PDC CONCLUSIONS/COMMENTS
The water tap (plus all other water taps within the rooms) can be used and should be flushed for a minimum of 30 seconds prior to use.

SAMPLE 3

Classroom faucet in room 212

Sample Code: HHS-FS-212-CF-13

Follow up Results:
Lead 6.4 ug/l
Copper 120 ug/l
Follow up samples passed action limits:
Lead (action limit 15 ug/l) YES
Copper (action limit 1300 ug/l) YES

Part 1 of the PDC follow up sample-flush sample summary report supports that the water sample collected/analyzed was at a none detect and/or below the EPA copper and lead action level (copper action limit = 1,300 UG/L, lead action limit = 15 UG/L).

Part 2 of the PDC summary report shows that the sample(s) meets (passed) the EPA lead and copper action levels.

PDC CONCLUSIONS/COMMENTS
The water tap (plus all other water taps within the rooms) can be used and should be flushed for a minimum of 30 seconds prior to use.

SAMPLE 4

Classroom faucet in room 213

Sample Code: HHS-FS- 213-CF-19

Follow up Results:
Lead 6.2 ug/l
Copper 140 ug/l
Follow up samples passed action limits:
Lead (action limit 15 ug/l) YES
Copper (action limit 1300 ug/l) YES

Part 1 of the PDC follow up sample-flush sample summary report supports that the water sample collected/analyzed was at a none detect and/or below the EPA copper and lead action level (copper action limit = 1,300 UG/L, lead action limit = 15 UG/L).

Part 2 of the PDC summary report shows that the sample(s) meets (passed) the EPA lead and copper action levels.

PDC CONCLUSIONS/COMMENTS
The water tap (plus all other water taps within the rooms) can be used and should be flushed for a minimum of 30 seconds prior to use.

SAMPLE 5

Classroom faucet in room 222

Sample Code: HHS-FS-222-CF-36

Follow up Results:

Lead 7.9 ug/l

Copper 460 ug/l

Follow up samples passed action limits:

Lead (action limit 15 ug/l) YES

Copper (action limit 1300 ug/l) YES

Part 1 of the PDC follow up sample-flush sample summary report supports that the water sample collected/analyzed was at a none detect and/or below the EPA copper and lead action level (copper action limit = 1,300 UG/L, lead action limit = 15 UG/L).

Part 2 of the PDC summary report shows that the sample(s) meets (passed) the EPA lead and copper action levels.

PDC CONCLUSIONS/COMMENTS
The water tap (plus all other water taps within the rooms) can be used and should be flushed for a minimum of 30 seconds prior to use.

SAMPLE 6

Classroom faucet in room 117

Sample Code: HHS-FS-117-CF-60

Follow up Results:

Lead 4.8 ug/l

Copper 68 ug/l

Follow up samples passed action limits:

Lead (action limit 15 ug/l) YES

Copper (action limit 1300 ug/l) YES

Part 1 of the PDC follow up sample-flush sample summary report supports that the water sample collected/analyzed was at a none detect and/or below the EPA copper and lead action level (copper action limit = 1,300 UG/L, lead action limit = 15 UG/L).

Part 2 of the PDC summary report shows that the sample(s) meets (passed) the EPA lead and copper action levels.

PDC CONCLUSIONS/COMMENTS
The water tap (plus all other water taps within the rooms) can be used and should be flushed for a minimum of 30 seconds prior to use.

SAMPLE 7

Classroom faucet in room 117

Sample Code: HHS-FS-117-CF-61

Follow up Results:

Lead 2.5 ug/l

Copper 54 ug/l

Follow up samples passed action limits:

Lead (action limit 15 ug/l)	YES
Copper (action limit 1300 ug/l)	YES

Part 1 of the PDC follow up sample-flush sample summary report supports that the water sample collected/analyzed was at a none detect and/or below the EPA copper and lead action level (copper action limit = 1,300 UG/L, lead action limit = 15 UG/L).

Part 2 of the PDC summary report shows that the sample(s) meets (passed) the EPA lead and copper action levels.

PDC CONCLUSIONS/COMMENTS
The water tap (plus all other water taps within the rooms) can be used and should be flushed for a minimum of 30 seconds prior to use.

SAMPLE 8

Classroom faucet in room 115

Sample Code: HHS-FS-115-CF-66

Follow up Results:

Lead 4.5 ug/l

Copper 130 ug/l

Follow up samples passed action limits:

Lead (action limit 15 ug/l) YES

Copper (action limit 1300 ug/l) YES

Part 1 of the PDC follow up sample-flush sample summary report supports that the water sample collected/analyzed was at a none detect and/or below the EPA copper and lead action level (copper action limit = 1,300 UG/L, lead action limit = 15 UG/L).

Part 2 of the PDC summary report shows that the sample(s) meets (passed) the EPA lead and copper action levels.

PDC CONCLUSIONS/COMMENTS

The water tap (plus all other water taps within the rooms) can be used and should be flushed for a minimum of 30 seconds prior to use.

SAMPLE 9

Classroom faucet in room 115

Sample Code: HHS-FS-115-CF-71

Follow up Results:

Lead 8.6 ug/l

Copper 170 ug/l

Follow up samples passed action limits:

Lead (action limit 15 ug/l) YES

Copper (action limit 1300 ug/l) YES

Part 1 of the PDC follow up sample-flush sample summary report supports that the water sample collected/analyzed was at a none detect and/or below the EPA copper and lead action level (copper action limit = 1,300 UG/L, lead action limit = 15 UG/L).

Part 2 of the PDC summary report shows that the sample(s) meets (passed) the EPA lead and copper action levels.

PDC CONCLUSIONS/COMMENTS
The water tap (plus all other water taps within the rooms) can be used and should be flushed for a minimum of 30 seconds prior to use.

SAMPLE 10

Classroom faucet in room 115

Sample Code: HHS-FS-**115**-CF-68

Follow up Results:
Lead 8.7 ug/l
Copper 290 ug/l

Follow up samples passed action limits:
Lead (action limit 15 ug/l) YES
Copper (action limit 1300 ug/l) YES

Part 1 of the PDC follow up sample-flush sample summary report supports that the water sample collected/analyzed was at a none detect and/or below the EPA copper and lead action level (copper action limit = 1,300 UG/L, lead action limit = 15 UG/L).

Part 2 of the PDC summary report shows that the sample(s) meets (passed) the EPA lead and copper action levels.

PDC CONCLUSIONS/COMMENTS
The water tap (plus all other water taps within the rooms) can be used and should be flushed for a minimum of 30 seconds prior to use.

SAMPLE 11

Classroom faucet in room 112

Sample Code: HHS-FS-112-CF-78

Follow up Results:
Lead 9.2 ug/l
Copper 160 ug/l

Follow up samples passed action limits:
Lead (action limit 15 ug/l) YES
Copper (action limit 1300 ug/l) YES

Part 1 of the PDC follow up sample-flush sample summary report supports that the water sample collected/analyzed was at a none detect and/or below the EPA copper and lead action level (copper action limit = 1,300 UG/L, lead action limit = 15 UG/L).

Part 2 of the PDC summary report shows that the sample(s) meets (passed) the EPA lead and copper action levels.

PDC CONCLUSIONS/COMMENTS
The water tap (plus all other water taps within the rooms) can be used and should be flushed for a minimum of 30 seconds prior to use.

SAMPLE 12

Classroom faucet in room 109
Sample Code: HHS-FS-109-OCF-84

Follow up Results:
Lead 3.2 ug/l
Copper 180 ug/l

Follow up samples passed action limits:
Lead (action limit 15 ug/l) YES
Copper (action limit 1300 ug/l) YES

Part 1 of the PDC follow up sample-flush sample summary report supports that the water sample collected/analyzed was at a none detect and/or below the EPA copper and lead action level (copper action limit = 1,300 UG/L, lead action limit = 15 UG/L).

Part 2 of the PDC summary report shows that the sample(s) meets (passed) the EPA lead and copper action levels.

PDC CONCLUSIONS/COMMENTS
The water tap (plus all other water taps within the rooms) can be used and should be flushed for a minimum of 30 seconds prior to use.

The PDCs initial water quality summary report and the follow up water quality summary can be found in Appendix A of this report

WATER QUALITY EVALUATION CONCLUSIONS

The conclusions of the water quality evaluation(s) are based herein and were formed from:

- The PDC Laboratories Inc., Summary (Appendix A);
- The PDC Laboratories Inc., Follow-up Summary Report (Appendix A);
- The PDC Laboratories Inc., Laboratory Analytical Results (Appendix B); and
- The most current guidelines of the USEPA-LCR, Drinking Water Best Management Practices and the Columbia Water & Light requirements (Appendix D).

Finally, individual drinking water taps should be flushed to rid stagnant water from the pipes. At the start of each day, before using any water for drinking or cooking, flush the cold water faucet by allowing the water to run for a period of time. Flushing times vary depending on the buildings pipes and outlets. Industry experts and CPS-FCS suggests a time of 30 seconds to 2 minutes be used to properly flush out the reservoir.

As of July 29, 2016, Hickman High School meets the (recommended) requirements of the United States Environmental Protection Agency (USEPA) and the published Lead and Copper Rule (LCR) of 1991 (reference: 40 CFR Part 141 Subpart I). Public Run Water Suppliers must comply with the USEPA law and the LCR. Columbia Water & Light is the publicly run water utility that serves this school. Although the Lead and Copper Rule does not apply directly to Columbia Public Schools and each of its schools or support buildings that were part of the 2016 Water Quality evaluation; it is a common practice for experts in the industry to use the standard as guideline when conducting water assessment studies.

Appendix A

Appendix A of this report includes the PDC Laboratories Inc., summary and follow up summary of the school. The summaries provide the analytical results, interpretation of the results and recommended actions based on the LCR.

PDC Laboratories, Inc. role which involved: (1) transporting the water samples from the FCS location to their laboratory location, (2) insuring the field data form(s) were signed, accurate and true, (3) conducting the analysis of each water sample that was collected at the school, (4) providing an analytical laboratory report for each sample documented on the school's field data form, and (5) developing a summary report for each school.

The Summary reports include:

- The date of the analysis and the report,
- The school and/or support facility name,
- Number of water samples received from the evaluation,
- Number of samples that are known to be below the copper & lead action levels,
- The action levels (copper & lead) that can be utilized for a comparison,
- The laboratory findings that included analytical results,
- Comparing the analytical results to the LCR (suggested) action levels.
- The number of samples that exceed the LCR (suggested) action levels.
- The percentage of samples (comparing the results to LCR (suggested),
- Conclusions and Recommendations

  Noting: if the facility meets the (recommended) requirements of the LCR,
  Providing response measures for any outlying sample(s) based on
  the recommendations by the LCR.

Appendix B

Appendix B of this report contains the analytical report(s) and the chain of custody forms.

Appendix C

PDC Laboratories, Inc. is a State of Missouri-Department of Natural Resources approved Drinking Water Laboratory (1050). The PDC laboratory certifications are located in Appendix C.

Appendix D

The references are located in Appendix D. References for this evaluation include information from Columbia Water & Light, Columbia, Missouri, the United States Environmental Protection Agency (USEPA) – Lead and Copper Rule, Drinking Water Best Management Practices and the *Clarification of Recommended Tap Sampling Procedures for Purposes of the Lead and Copper Rule (February 29, 2016).*

2.0 Limitations

The findings obtained and our recommendations were prepared in accordance with customary principles and practices in the field of environmental science and engineering. This statement is in lieu of other statements either expressed or implied. This report does not warrant against future operations or conditions, nor does it warrant against operations or conditions present of a type or at a location not investigated. Additionally, the passage of time may result in a change in the environmental characteristics at this school. This report does not warrant against future operations or conditions that could affect the recommendations made.

Water sampling evaluations are limited in the sense that conclusions and recommendations are developed from the United States Environmental Protection Agency (USEPA) Lead and Copper Rule (LCR) of 1991 (reference: 40 CFR Part 141 Subpart I). The LCR requires that all public run water suppliers comply with the USEPA law. Columbia Water & Light is the publicly run water utility that serves this school.

This report is intended for the sole use of the Columbia Board of Education. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document or the findings, conclusions, or recommendations, is at risk of said user.

Respectfully submitted this 29th Day of July 2016.

CPS-Facilities & Construction Services

Facilities & Construction Services

Appendix A

Facilities & Construction Services

PDC Laboratories Inc.

Summary Report
Initial Water Quality Evaluation

2016 Water Quality Evaluation
Columbia Public Schools
Columbia, Missouri

PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

COLUMBIA PUBLIC SCHOOLS
COLUMBIA, MO
LEAD AND COPPER MONITORING
SUMMARY REPORT

DATE: July 1, 2016

FACILITY NAME: **HICKMAN HIGH SCHOOL**

PART A

NUMBER OF SAMPLES COLLECTED AT THIS FACILITY:	108
PERCENTAGE OF SAMPLES BELOW COPPER ACTION LIMIT	98.1
COPPER ACTION LIMIT = 1,300 UG/L	
PERCENTAGE OF SAMPLES BELOW LEAD ACTION LIMIT	88.9
LEAD ACTION LIMIT = 15 UG/L	

(The requirement in the USEPA Lead and Copper Rule for public water supplies is 90% passing)

PART B

NUMBER OF SAMPLES EXCEEDING COPPER ACTION LIMIT	2
NUMBER OF SAMPLES EXCEEDING LEAD ACTION LIMIT	12

CONCLUSIONS/COMMENTS

This facility meets the recommended action level for copper; however, and based on twelve samples (108 total were collected in this facility) that were above the lead action level (15 ug/l), this faciltiy is considered below the 90% (recommended) action level for lead per the United States EPA and the Lead and Copper Rule (LCR) of 1991(reference: 40 CFR Part 141 Subpart I). Public Run Water Suppliers must comply with the USEPA law and the LCR. Columbia Water & Light is the publicly run water utility that serves this facility.

Although the Lead and Copper Rule may not directly apply to Columbia Public Schools and each of its schools or support buildings that are part of the 2016 Water Quality Assessment Reporting; it is a common practice for experts in the field and members of the known industry to use the standard as a guideline for water assessment studies.

If any of the laboratory analysis reveals that the sample has exceeded the action limit, then you may want to consider the options as outlined in the LCR. They include but at not limited to: flushing prior to use (make it a practice to run the water at each tap before use), repairing and/or replacing fixtures and/or piping and by not using the water for consumption. All are recommended by the Lead and Copper Rule.

PREPARED BY

KURT C STEPPING
SENIOR PROJECT MANAGER
PDC LABORATORIES, INC.

Facilities & Construction Services

PDC Laboratories Inc.

Follow-up Sampling
Summary Report

2016 Water Quality Evaluation
Columbia Public Schools
Columbia, Missouri

PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

COLUMBIA PUBLIC SCHOOLS

SUMMARY REPORT-FOLLOW UP SAMPLE(FLUSH SAMPLE)

DATE: July 18, 2016

FACILITY NAME: **HICKMAN HIGH SCHOOL**

Sample Location:	HHS-FS-208-CF-3	HHS-FS-209-CF-8	HHS-FS-212-CF-13
Followup Results:			
Lead ug/l	3.7	6.4	6.4
Copper ug/l	77	120	120
Followup samples passed action limits:			
Lead(action limit 15 ug/l)	YES	YES	YES
Copper(action limit 1300 ug/l)	YES	YES	YES

Sample Location:	HHS-FS-213-CF-19	HHS-FS-222-CF-36	HHS-FS-117-CF-60
Followup Results:			
Lead ug/l	6.2	7.9	4.8
Copper ug/l	140	460	68
Followup samples passed action limits:			
Lead(action limit 15 ug/l)	YES	YES	YES
Copper(action limit 1300 ug/l)	YES	YES	YES

CONCLUSIONS/COMMENTS

These locations should be flushed for a minimum of 30 seconds prior to use.

This facility meets the (recommended) requirements of the United States Environmental Protection Agency (USEPA) and the published Lead and Copper Rule(LCR) of 1991 (reference: 40 CFR Part 141 Subpart I). Public Run Water Suppliers must comply with the USEPA law and the LCR. Columbia Water & Light is the puclicly run water utility that serves this school.

Although the Lead and Copper Rule may not directly apply to Columbia Public Schools and each of its schools or support buildings that are part of the 2016 Water Quality Assessment Reporting; it is a common practice for experts in the field and members of the known industry to use the standard as a guideline for water assessment studies.

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KURT C STEPPING
SENIOR PROJECT MANAGER
PDC LABORATORIES, INC.

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P.O. Box 9071 • Peoria, IL 61612-9071
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COLUMBIA PUBLIC SCHOOLS

SUMMARY REPORT-FOLLOW UP SAMPLE(FLUSH SAMPLE)

DATE: July 18, 2016

FACILITY NAME: **HICKMAN HIGH SCHOOL**

Sample Location:	HHS-FS-117-CF-66	HHS-FS-115-CF-66	HHS-FS-115-CF-71
Followup Results:			
Lead ug/l	2.5	4.5	8.6
Copper ug/l	54	230	170
Followup samples passed action limits:			
Lead(action limit 15 ug/l)	YES	YES	YES
Copper(action limit 1300 ug/l)	YES	YES	YES

Sample Location:	HHS-FS-115-CF-68	HHS-FS-112-CF-78	HHS-FS-109-OCF-84
Followup Results:			
Lead ug/l	8.7	9.2	3.2
Copper ug/l	290	160	180
Followup samples passed action limits:			
Lead(action limit 15 ug/l)	YES	YES	YES
Copper(action limit 1300 ug/l)	YES	YES	YES

CONCLUSIONS/COMMENTS

These locations should be flushed for a minimum of 30 seconds prior to use.

This facility meets the (recommended) requirements of the United States Environmental Protection Agency (USEPA) and the published Lead and Copper Rule(LCR) of 1991 (reference: 40 CFR Part 141 Subpart I). Public Run Water Suppliers must comply with the USEPA law and the LCR. Columbia Water & Light is the puclicly run water utility that serves this school.

Although the Lead and Copper Rule may not directly apply to Columbia Public Schools and each of its schools or support buildings that are part of the 2016 Water Quality Assessment Reporting; it is a common practice for experts in the field and members of the known industry to use the standard as a guideline for water assessment studies.

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SENIOR PROJECT MANAGER
PDC LABORATORIES, INC.

Facilities & Construction Services

Appendix B

Facilities & Construction Services

PDC Laboratories Inc. Laboratory Results
Initial Water Quality Evaluation

Field Data & Chain-of-Custody Forms

July 01, 2016

Randy Jackson
Columbia Public Schools
5909 Paris Road
Columbia, MO 65202

Dear Randy Jackson:

Please find enclosed the analytical results for the sample(s) the laboratory received on **6/7/16 8:00 am** and logged in under work order **6061968**. All testing is performed according to our current TNI certifications unless otherwise noted. This report cannot be reproduced, except in full, without the written permission of PDC Laboratories, Inc.

If you have any questions regarding your report, please contact your project manager. Quality and timely data is of the utmost importance to us.

PDC Laboratories, Inc. appreciates the opportunity to provide you with analytical expertise. We are always trying to improve our customer service and we welcome you to contact the Vice President , John LaPayne with any feedback you have about your experience with our laboratory.

Sincerely,

Kurt Stepping
Senior Project Manager
(309) 692-9688 x1719
kstepping@pdclab.com

PDC Laboratories, Inc.
2231 West Altorfer Drive
Peoria, IL 61615
(800) 752-6651

ANALYTICAL RESULTS

Sample: 6061968-01 **Sampled:** 05/31/16 00:00
Name: HHS-MAIN OFFICE 7 KF1 **Received:** 06/07/16 08:00
Alias: MAIN OFFICE 7 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	140	ug/L		1300	06/28/16 10:59	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 10:59	KMC	EPA 200.8

Sample: 6061968-02 **Sampled:** 05/31/16 00:00
Name: HHS-LOB A EWC33 **Received:** 06/07/16 08:00
Alias: LOBBY OF OLD GYM **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	61	ug/L		1300	06/28/16 11:01	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 11:01	KMC	EPA 200.8

Sample: 6061968-03 **Sampled:** 05/31/16 00:00
Name: HHS-LOB B EWC 31 **Received:** 06/07/16 08:00
Alias: LOBBY OF CON. STAND **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	130	ug/L		1300	06/28/16 11:03	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 11:03	KMC	EPA 200.8

Sample: 6061968-04 **Sampled:** 05/31/16 00:00
Name: HHS-LOB B CON KF2 **Received:** 06/07/16 08:00
Alias: CONCESSION STAND **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	180	ug/L		1300	06/28/16 11:11	KMC	EPA 200.8
Lead	2.0	ug/L		15	06/28/16 11:11	KMC	EPA 200.8

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ANALYTICAL RESULTS

Sample: 6061968-05 **Sampled:** 05/31/16 00:00
Name: HHS-3 EWC 34 **Received:** 06/07/16 08:00
Alias: LOBBY LOCKER RM **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	230	ug/L		1300	06/28/16 11:13	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 11:13	KMC	EPA 200.8

Sample: 6061968-06 **Sampled:** 05/31/16 00:00
Name: HHS- 6 EWC 36 **Received:** 06/07/16 08:00
Alias: BOYS LOCKER RM **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	150	ug/L		1300	06/28/16 11:15	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 11:15	KMC	EPA 200.8

Sample: 6061968-07 **Sampled:** 05/31/16 00:00
Name: HHS- 5 EWC 38 **Received:** 06/07/16 08:00
Alias: HALL OF GIRLS LOCKER RM **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	150	ug/L		1300	06/28/16 11:22	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 11:22	KMC	EPA 200.8

Sample: 6061968-08 **Sampled:** 05/31/16 00:00
Name: HHS- 155 KF 3 **Received:** 06/07/16 08:00
Alias: RM 155 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	170	ug/L		1300	06/28/16 11:24	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 11:24	KMC	EPA 200.8

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ANALYTICAL RESULTS

Sample: 6061968-09 **Sampled:** 05/31/16 00:00
Name: HHS- HALL EWC 29 **Received:** 06/07/16 08:00
Alias: NEXT TO 153 IN HALL (28&29) **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	190	ug/L		1300	06/28/16 11:26	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 11:26	KMC	EPA 200.8

Sample: 6061968-10 **Sampled:** 05/31/16 00:00
Name: HHS- 274 KF 4 **Received:** 06/07/16 08:00
Alias: EAST WALL OF 274 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	150	ug/L		1300	06/28/16 11:27	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 11:27	KMC	EPA 200.8

Sample: 6061968-11 **Sampled:** 05/31/16 00:00
Name: HHS- 274 KF 5 **Received:** 06/07/16 08:00
Alias: WEST WALL OF 274 (SOUTH END) **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	150	ug/L		1300	06/28/16 11:29	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 11:29	KMC	EPA 200.8

Sample: 6061968-12 **Sampled:** 05/31/16 00:00
Name: HHS- 274 KF 6 **Received:** 06/07/16 08:00
Alias: WEST WALL OF 274 ON STEAM POT **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	260	ug/L		1300	06/28/16 11:37	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 11:37	KMC	EPA 200.8

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(800) 752-6651

ANALYTICAL RESULTS

Sample: 6061968-13 **Sampled:** 05/31/16 00:00
Name: HHS- UPPER COM EWC 46 **Received:** 06/07/16 08:00
Alias: UPPER CON (46&47) **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	190	ug/L		1300	06/28/16 11:39	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 11:39	KMC	EPA 200.8

Sample: 6061968-14 **Sampled:** 05/31/16 00:00
Name: HHS- UPPER COM EWC 45 **Received:** 06/07/16 08:00
Alias: UPPER CON (45&44) **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	150	ug/L		1300	06/28/16 11:41	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 11:41	KMC	EPA 200.8

Sample: 6061968-15 **Sampled:** 05/31/16 00:00
Name: HHS- 1060 EWC 27 **Received:** 06/07/16 08:00
Alias: LOBBY OF 1060 (26-27) **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	150	ug/L		1300	06/28/16 11:48	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 11:48	KMC	EPA 200.8

Sample: 6061968-16 **Sampled:** 05/31/16 00:00
Name: HHS- HALL EWC 25 **Received:** 06/07/16 08:00
Alias: HALL 107C NEXT TO **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	300	ug/L		1300	06/28/16 11:50	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 11:50	KMC	EPA 200.8

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ANALYTICAL RESULTS

Sample: 6061968-17 **Sampled:** 05/31/16 00:00
Name: HHS- HALL EWC 24 **Received:** 06/07/16 08:00
Alias: HALL NEXT TO 112 LAB **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	120	ug/L		1300	06/28/16 11:52	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 11:52	KMC	EPA 200.8

Sample: 6061968-18 **Sampled:** 05/31/16 00:00
Name: HHS- HALL EWC 23 **Received:** 06/07/16 08:00
Alias: HALL NEXT TO 114 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	140	ug/L		1300	06/28/16 11:54	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 11:54	KMC	EPA 200.8

Sample: 6061968-19 **Sampled:** 05/31/16 00:00
Name: HHS- HALL EWC 15 **Received:** 06/07/16 08:00
Alias: HALL NEXT TO GANG RESTROOM **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	100	ug/L		1300	06/28/16 11:55	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 11:55	KMC	EPA 200.8

Sample: 6061968-20 **Sampled:** 05/31/16 00:00
Name: HHS- HALL EWC 14 **Received:** 06/07/16 08:00
Alias: HALL NEXT TO 122 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	190	ug/L		1300	06/28/16 12:04	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 12:04	KMC	EPA 200.8

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ANALYTICAL RESULTS

Sample: 6061968-21 **Sampled:** 05/31/16 00:00
Name: HHS- R09 NSF1 **Received:** 06/07/16 08:00
Alias: NURSES OFFICE SINK **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	140	ug/L		1300	06/28/16 12:05	KMC	EPA 200.8
Lead	3.4	ug/L		15	06/28/16 12:05	KMC	EPA 200.8

Sample: 6061968-22 **Sampled:** 05/31/16 00:00
Name: HHS- HALL EWC 21 **Received:** 06/07/16 08:00
Alias: HALL OF FA BY FA2 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	150	ug/L		1300	06/28/16 12:07	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 12:07	KMC	EPA 200.8

Sample: 6061968-23 **Sampled:** 05/31/16 00:00
Name: HHS- A05 KF 7 **Received:** 06/07/16 08:00
Alias: A05 OF RA BUILDING **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	130	ug/L		1300	06/28/16 12:15	KMC	EPA 200.8
Lead	1.2	ug/L		15	06/28/16 12:15	KMC	EPA 200.8

Sample: 6061968-24 **Sampled:** 05/31/16 00:00
Name: HHS- HALL EWC 22 **Received:** 06/07/16 08:00
Alias: HALL OF FA BY FA5 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	240	ug/L		1300	06/28/16 12:17	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 12:17	KMC	EPA 200.8

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(800) 752-6651

ANALYTICAL RESULTS

Sample: 6061968-25 **Sampled:** 05/31/16 00:00
Name: HHS- HALL EWC 13 **Received:** 06/07/16 08:00
Alias: HALL BY 141 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	60	ug/L		1300	06/28/16 12:18	KMC	EPA 200.8
Lead	2.5	ug/L		15	06/28/16 12:18	KMC	EPA 200.8

Sample: 6061968-26 **Sampled:** 05/31/16 00:00
Name: HHS- KITG KF 8 **Received:** 06/07/16 08:00
Alias: GUID. OFFICE KITCHEN **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	87	ug/L		1300	06/28/16 12:20	KMC	EPA 200.8
Lead	1.1	ug/L		15	06/28/16 12:20	KMC	EPA 200.8

Sample: 6061968-27 **Sampled:** 05/31/16 00:00
Name: HHS- HALL EWC 19 **Received:** 06/07/16 08:00
Alias: HALL NEXT TO 50 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	120	ug/L		1300	06/28/16 12:22	KMC	EPA 200.8
Lead	1.1	ug/L		15	06/28/16 12:22	KMC	EPA 200.8

Sample: 6061968-28 **Sampled:** 05/31/16 00:00
Name: HHS- HALL EWC 20 **Received:** 06/07/16 08:00
Alias: HALL NEXT TO 54 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	190	ug/L		1300	06/28/16 12:30	KMC	EPA 200.8
Lead	1.5	ug/L		15	06/28/16 12:30	KMC	EPA 200.8

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2231 West Altorfer Drive
Peoria, IL 61615
(800) 752-6651

ANALYTICAL RESULTS

Sample: 6061968-29 **Sampled:** 05/31/16 00:00
Name: HHS- FACSF55 KF9 **Received:** 06/07/16 08:00
Alias: RM 55 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	200	ug/L		1300	06/28/16 12:32	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 12:32	KMC	EPA 200.8

Sample: 6061968-30 **Sampled:** 05/31/16 00:00
Name: HHS- FACSF54 KF10 **Received:** 06/07/16 08:00
Alias: RM 54 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	130	ug/L		1300	06/28/16 12:34	KMC	EPA 200.8
Lead	1.5	ug/L		15	06/28/16 12:34	KMC	EPA 200.8

Sample: 6061968-31 **Sampled:** 05/31/16 00:00
Name: HHS- FACSF54 KF14 **Received:** 06/07/16 08:00
Alias: RM 54 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	140	ug/L		1300	06/28/16 12:41	KMC	EPA 200.8
Lead	2.8	ug/L		15	06/28/16 12:41	KMC	EPA 200.8

Sample: 6061968-32 **Sampled:** 05/31/16 00:00
Name: HHS- FACSF54 KF12 **Received:** 06/07/16 08:00
Alias: RM 54 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	140	ug/L		1300	06/28/16 12:43	KMC	EPA 200.8
Lead	5.3	ug/L		15	06/28/16 12:43	KMC	EPA 200.8

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(800) 752-6651

ANALYTICAL RESULTS

Sample: 6061968-33 **Sampled:** 05/31/16 00:00
Name: HHS- HALL EWC 18 **Received:** 06/07/16 08:00
Alias: NEXT TO 136 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	99	ug/L		1300	06/28/16 12:45	KMC	EPA 200.8
Lead	1.3	ug/L		15	06/28/16 12:45	KMC	EPA 200.8

Sample: 6061968-34 **Sampled:** 05/31/16 00:00
Name: HHS- HALL EWC 17 **Received:** 06/07/16 08:00
Alias: NEXT TO 128C **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	140	ug/L		1300	06/28/16 12:46	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 12:46	KMC	EPA 200.8

Sample: 6061968-35 **Sampled:** 05/31/16 00:00
Name: HHS- HALL EWC 16 **Received:** 06/07/16 08:00
Alias: NEXT TO 117 OFFICE **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	140	ug/L		1300	06/28/16 12:48	KMC	EPA 200.8
Lead	1.2	ug/L		15	06/28/16 12:48	KMC	EPA 200.8

Sample: 6061968-36 **Sampled:** 05/31/16 00:00
Name: HHS- TLF KF 16 **Received:** 06/07/16 08:00
Alias: TEACHERS LOUNGE **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	120	ug/L		1300	06/28/16 13:44	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 13:44	KMC	EPA 200.8

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ANALYTICAL RESULTS

Sample: 6061968-37 **Sampled:** 05/31/16 00:00
Name: HHS- 66C KF 17 **Received:** 06/07/16 08:00
Alias: CUSTODIAL BREAKROOM **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	130	ug/L		1300	06/28/16 13:46	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 13:46	KMC	EPA 200.8

Sample: 6061968-38 **Sampled:** 05/31/16 00:00
Name: HHS- HALL EWC2 **Received:** 06/07/16 08:00
Alias: NEXT TO 256 (1&2) **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	180	ug/L		1300	06/28/16 13:47	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 13:47	KMC	EPA 200.8

Sample: 6061968-39 **Sampled:** 05/31/16 00:00
Name: HHS- 2530 KF 18 **Received:** 06/07/16 08:00
Alias: RM 2530 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	160	ug/L		1300	06/28/16 13:55	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 13:55	KMC	EPA 200.8

Sample: 6061968-40 **Sampled:** 05/31/16 00:00
Name: HHS- HALL EWC 4 **Received:** 06/07/16 08:00
Alias: HALL NEXT TO 255 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	110	ug/L		1300	06/28/16 13:57	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 13:57	KMC	EPA 200.8

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ANALYTICAL RESULTS

Sample: 6061968-41 **Sampled:** 05/31/16 00:00
Name: HHS- HALL EWC 5 **Received:** 06/07/16 08:00
Alias: HALL NEXT TO 206C **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	180	ug/L		1300	06/28/16 13:58	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 13:58	KMC	EPA 200.8

Sample: 6061968-42 **Sampled:** 05/31/16 00:00
Name: HHS- HALL EWC 6 **Received:** 06/07/16 08:00
Alias: HALL NEXT TO 212 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	120	ug/L		1300	06/28/16 14:00	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 14:00	KMC	EPA 200.8

Sample: 6061968-43 **Sampled:** 05/31/16 00:00
Name: HHS- HALL EWC 7 **Received:** 06/07/16 08:00
Alias: HALL NEXT TO STAIRWELL **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	100	ug/L		1300	06/28/16 14:02	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 14:02	KMC	EPA 200.8

Sample: 6061968-44 **Sampled:** 05/31/16 00:00
Name: HHS- HALL EWC 8 **Received:** 06/07/16 08:00
Alias: HALL NEXT TO 217 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	80	ug/L		1300	06/28/16 14:10	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 14:10	KMC	EPA 200.8

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ANALYTICAL RESULTS

Sample: 6061968-45 **Sampled:** 05/31/16 00:00
Name: HHS- HALL EWC 9 **Received:** 06/07/16 08:00
Alias: HALL NEXT TO 222 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	190	ug/L		1300	06/28/16 14:12	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 14:12	KMC	EPA 200.8

Sample: 6061968-46 **Sampled:** 05/31/16 00:00
Name: HHS- HALL EWC 10 **Received:** 06/07/16 08:00
Alias: HALL NEXT TO 237A **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	81	ug/L		1300	06/28/16 14:14	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 14:14	KMC	EPA 200.8

Sample: 6061968-47 **Sampled:** 05/31/16 00:00
Name: HHS- HALL EWC 11 **Received:** 06/07/16 08:00
Alias: HALL NEXT TO 225 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	150	ug/L		1300	06/28/16 14:21	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 14:21	KMC	EPA 200.8

Sample: 6061968-48 **Sampled:** 05/31/16 00:00
Name: HHS- HALL EWC 12 **Received:** 06/07/16 08:00
Alias: HALL NEXT TO 226 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	300	ug/L		1300	06/28/16 14:23	KMC	EPA 200.8
Lead	1.2	ug/L		15	06/28/16 14:23	KMC	EPA 200.8

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ANALYTICAL RESULTS

Sample: 6061968-49 **Sampled:** 05/31/16 00:00
Name: HHS- KITCHEN KF 19 **Received:** 06/07/16 08:00
Alias: COFFEE MAKER IN KITHEN NEXT TO ICE MACHINE **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	55	ug/L		1300	06/28/16 14:25	KMC	EPA 200.8
Lead	3.8	ug/L		15	06/28/16 14:25	KMC	EPA 200.8

Sample: 6061968-50 **Sampled:** 05/31/16 00:00
Name: HHS- KITCHEN KF 20 **Received:** 06/07/16 08:00
Alias: KITCHEN FOOD PREP TABLE **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	20	ug/L		1300	06/28/16 14:27	KMC	EPA 200.8
Lead	1.2	ug/L		15	06/28/16 14:27	KMC	EPA 200.8

Sample: 6061968-51 **Sampled:** 05/31/16 00:00
Name: HHS- POOL EWC 41 **Received:** 06/07/16 08:00
Alias: POOL AREA **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	100	ug/L		1300	06/28/16 14:28	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 14:28	KMC	EPA 200.8

Sample: 6061968-52 **Sampled:** 05/31/16 00:00
Name: HHS- 144 EWC 39 **Received:** 06/07/16 08:00
Alias: GIRLS POOL LOCKER ROOM CPS SIDE **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	91	ug/L		1300	06/28/16 14:37	KMC	EPA 200.8
Lead	1.6	ug/L		15	06/28/16 14:37	KMC	EPA 200.8

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ANALYTICAL RESULTS

Sample: 6061968-53 **Sampled:** 05/31/16 00:00
Name: HHS- 146 EWC 40 **Received:** 06/07/16 08:00
Alias: BOYS POOL LOCKER ROOM CPS SIDE **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	62	ug/L		1300	06/28/16 14:38	KMC	EPA 200.8
Lead	1.4	ug/L		15	06/28/16 14:38	KMC	EPA 200.8

Sample: 6061968-54 **Sampled:** 05/31/16 00:00
Name: HHS- HALL EWC 43 **Received:** 06/07/16 08:00
Alias: HALL BETWEEN RR 171 & 172 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	190	ug/L		1300	06/28/16 14:40	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 14:40	KMC	EPA 200.8

Sample: 6061968-55 **Sampled:** 05/31/16 00:00
Name: HHS- 170 KF 21 **Received:** 06/07/16 08:00
Alias: RM 170 CONCESSION STAND **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	290	ug/L		1300	06/28/16 14:48	KMC	EPA 200.8
Lead	4.1	ug/L		15	06/28/16 14:48	KMC	EPA 200.8

Sample: 6061968-56 **Sampled:** 06/03/16 00:00
Name: HHS- 105 EWC 48 **Received:** 06/07/16 08:00
Alias: BREEZEWAY OF 105 CASA LAB **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	180	ug/L		1300	06/28/16 14:49	KMC	EPA 200.8
Lead	1.2	ug/L		15	06/28/16 14:49	KMC	EPA 200.8

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ANALYTICAL RESULTS

Sample: 6061968-57 **Sampled:** 06/03/16 00:00
Name: HHS- 205 CF1 **Received:** 06/07/16 08:00
Alias: 205 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	84	ug/L		1300	06/28/16 14:51	KMC	EPA 200.8
Lead	5.9	ug/L		15	06/28/16 14:51	KMC	EPA 200.8

Sample: 6061968-58 **Sampled:** 06/03/16 00:00
Name: HHS- 208 CF2 **Received:** 06/07/16 08:00
Alias: 208 NORTH EAST (2&6) **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	130	ug/L		1300	06/28/16 14:53	KMC	EPA 200.8
Lead	5.2	ug/L		15	06/28/16 14:53	KMC	EPA 200.8

Sample: 6061968-59 **Sampled:** 06/03/16 00:00
Name: HHS- 208 CF3 **Received:** 06/07/16 08:00
Alias: 208 ISLAND (CF 3) **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	190	ug/L		1300	06/28/16 14:55	KMC	EPA 200.8
Lead	50	ug/L		**15	06/28/16 14:55	KMC	EPA 200.8

Sample: 6061968-60 **Sampled:** 06/03/16 00:00
Name: HHS- 208 CF5 **Received:** 06/07/16 08:00
Alias: 208 SOUTH WEST (4&5) **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	140	ug/L		1300	06/28/16 15:03	KMC	EPA 200.8
Lead	11	ug/L		15	06/28/16 15:03	KMC	EPA 200.8

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ANALYTICAL RESULTS

Sample: 6061968-61 **Sampled:** 06/03/16 00:00
Name: HHS- 209 CF 7 **Received:** 06/07/16 08:00
Alias: 209 SOUTH **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	150	ug/L		1300	06/28/16 15:05	KMC	EPA 200.8
Lead	7.7	ug/L		15	06/28/16 15:05	KMC	EPA 200.8

Sample: 6061968-62 **Sampled:** 06/03/16 00:00
Name: HHS- 209 CF 8 **Received:** 06/07/16 08:00
Alias: 209 ISLAND **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	920	ug/L		1300	06/28/16 15:06	KMC	EPA 200.8
Lead	160	ug/L		**15	06/28/16 15:06	KMC	EPA 200.8

Sample: 6061968-63 **Sampled:** 06/03/16 00:00
Name: HHS- 209 CF 9 **Received:** 06/07/16 08:00
Alias: 209 NORTH **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	310	ug/L		1300	06/28/16 15:14	KMC	EPA 200.8
Lead	15	ug/L		15	06/28/16 15:14	KMC	EPA 200.8

Sample: 6061968-64 **Sampled:** 06/03/16 00:00
Name: HHS- 2090 CF 10 **Received:** 06/07/16 08:00
Alias: 209 GO PREP ROOM **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	150	ug/L		1300	06/28/16 15:16	KMC	EPA 200.8
Lead	9.4	ug/L		15	06/28/16 15:16	KMC	EPA 200.8

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ANALYTICAL RESULTS

Sample: 6061968-65 **Sampled:** 06/03/16 00:00
Name: HHS- 212 CF 11 **Received:** 06/07/16 08:00
Alias: 212 WEST (11&12) **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	150	ug/L		1300	06/28/16 15:18	KMC	EPA 200.8
Lead	2.7	ug/L		15	06/28/16 15:18	KMC	EPA 200.8

Sample: 6061968-66 **Sampled:** 06/03/16 00:00
Name: HHS- 212 CF 13 **Received:** 06/07/16 08:00
Alias: 212 ISLAND **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	1500	ug/L		**1300	06/28/16 15:19	KMC	EPA 200.8
Lead	120	ug/L		**15	06/28/16 15:19	KMC	EPA 200.8

Sample: 6061968-67 **Sampled:** 06/03/16 00:00
Name: HHS- 212 CF 14 **Received:** 06/07/16 08:00
Alias: 212 EAST 14&15 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	100	ug/L		1300	06/28/16 15:21	KMC	EPA 200.8
Lead	2.2	ug/L		15	06/28/16 15:21	KMC	EPA 200.8

Sample: 6061968-68 **Sampled:** 06/03/16 00:00
Name: HHS- 2130 CF 16 **Received:** 06/07/16 08:00
Alias: 2130 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	100	ug/L		1300	06/28/16 15:29	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 15:29	KMC	EPA 200.8

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ANALYTICAL RESULTS

Sample: 6061968-69 **Sampled:** 06/03/16 00:00
Name: HHS- 213 CF 17 **Received:** 06/07/16 08:00
Alias: 213 WEST 17&18 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	120	ug/L		1300	06/28/16 15:31	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 15:31	KMC	EPA 200.8

Sample: 6061968-70 **Sampled:** 06/03/16 00:00
Name: HHS- 213 CF 19 **Received:** 06/07/16 08:00
Alias: 213 ISLAND **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	1400	ug/L		**1300	06/28/16 15:33	KMC	EPA 200.8
Lead	60	ug/L		**15	06/28/16 15:33	KMC	EPA 200.8

Sample: 6061968-71 **Sampled:** 06/03/16 00:00
Name: HHS- 213 CF 20 **Received:** 06/07/16 08:00
Alias: 213 WEST 20&21 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	250	ug/L		1300	06/28/16 15:40	KMC	EPA 200.8
Lead	5.4	ug/L		15	06/28/16 15:40	KMC	EPA 200.8

Sample: 6061968-72 **Sampled:** 06/03/16 00:00
Name: HHS- 2140 CF 22 **Received:** 06/07/16 08:00
Alias: 2140 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	100	ug/L		1300	06/28/16 15:42	KMC	EPA 200.8
Lead	3.4	ug/L		15	06/28/16 15:42	KMC	EPA 200.8

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ANALYTICAL RESULTS

Sample: 6061968-73 **Sampled:** 06/03/16 00:00
Name: HHS- 214 CF 23 **Received:** 06/07/16 08:00
Alias: 214 WEST 23&24 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	130	ug/L		1300	06/28/16 15:44	KMC	EPA 200.8
Lead	3.2	ug/L		15	06/28/16 15:44	KMC	EPA 200.8

Sample: 6061968-74 **Sampled:** 06/03/16 00:00
Name: HHS- 214 CF 26 **Received:** 06/07/16 08:00
Alias: 214 EAST 26&27 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	220	ug/L		1300	06/28/16 15:46	KMC	EPA 200.8
Lead	7.1	ug/L		15	06/28/16 15:46	KMC	EPA 200.8

Sample: 6061968-75 **Sampled:** 06/03/16 00:00
Name: HHS- 218 CF 28 **Received:** 06/07/16 08:00
Alias: 218 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	140	ug/L		1300	06/28/16 15:47	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 15:47	KMC	EPA 200.8

Sample: 6061968-76 **Sampled:** 06/03/16 00:00
Name: HHS- 220 CF 29 **Received:** 06/07/16 08:00
Alias: 220 EAST **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	170	ug/L		1300	06/29/16 08:22	KMC	EPA 200.8
Lead	3.9	ug/L		15	06/28/16 15:56	KMC	EPA 200.8

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ANALYTICAL RESULTS

Sample: 6061968-77 **Sampled:** 06/03/16 00:00
Name: HHS- 220 CF 30 **Received:** 06/07/16 08:00
Alias: 220 WEST 30&31 ISLAND 32 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	140	ug/L		1300	06/29/16 08:23	KMC	EPA 200.8
Lead	3.3	ug/L		15	06/28/16 15:57	KMC	EPA 200.8

Sample: 6061968-78 **Sampled:** 06/03/16 00:00
Name: HHS- 2200 CF 33 **Received:** 06/07/16 08:00
Alias: 2200 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	200	ug/L		1300	06/29/16 08:25	KMC	EPA 200.8
Lead	6.0	ug/L		15	06/28/16 15:59	KMC	EPA 200.8

Sample: 6061968-79 **Sampled:** 06/03/16 00:00
Name: HHS- 222 CF 35 **Received:** 06/07/16 08:00
Alias: 222 WEST ISLAND 34 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	180	ug/L		1300	06/29/16 08:31	KMC	EPA 200.8
Lead	1.6	ug/L		15	06/28/16 16:07	KMC	EPA 200.8

Sample: 6061968-80 **Sampled:** 06/03/16 00:00
Name: HHS- 222 CF 36 **Received:** 06/07/16 08:00
Alias: 222 EAST 36&37 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	280	ug/L		1300	06/29/16 08:32	KMC	EPA 200.8
Lead	17	ug/L		**15	06/28/16 16:09	KMC	EPA 200.8

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ANALYTICAL RESULTS

Sample: 6061968-81 **Sampled:** 06/03/16 00:00
Name: HHS- 53 CF 38 **Received:** 06/07/16 08:00
Alias: RM 53 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	220	ug/L		1300	06/29/16 08:33	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/28/16 16:10	KMC	EPA 200.8

Sample: 6061968-82 **Sampled:** 06/03/16 00:00
Name: HHS- 52 CF 39 **Received:** 06/07/16 08:00
Alias: RM 52 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	69	ug/L		1300	06/29/16 08:35	KMC	EPA 200.8
Lead	4.2	ug/L		15	06/28/16 16:12	KMC	EPA 200.8

Sample: 6061968-83 **Sampled:** 06/03/16 00:00
Name: HHS- 51 CF 40 **Received:** 06/07/16 08:00
Alias: RM 51 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	80	ug/L		1300	06/29/16 08:36	KMC	EPA 200.8
Lead	2.1	ug/L		15	06/28/16 16:14	KMC	EPA 200.8

Sample: 6061968-84 **Sampled:** 06/03/16 00:00
Name: HHS- 50 CF 41 **Received:** 06/07/16 08:00
Alias: RM 50 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	120	ug/L		1300	06/29/16 08:43	KMC	EPA 200.8
Lead	13	ug/L		15	06/28/16 16:22	KMC	EPA 200.8

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ANALYTICAL RESULTS

Sample: 6061968-85 **Sampled:** 06/03/16 00:00
Name: HHS- FA2 CF 42 **Received:** 06/07/16 08:00
Alias: FA2 EAST 42, 43, 44, 45 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	110	ug/L		1300	06/29/16 08:44	KMC	EPA 200.8
Lead	1.0	ug/L		15	06/28/16 16:24	KMC	EPA 200.8

Sample: 6061968-86 **Sampled:** 06/03/16 00:00
Name: HHS- FA4 CF 47 **Received:** 06/07/16 08:00
Alias: FA4 WEST 46, 47, 48, 49 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	88	ug/L		1300	06/29/16 08:45	KMC	EPA 200.8
Lead	2.8	ug/L		15	06/28/16 16:26	KMC	EPA 200.8

Sample: 6061968-87 **Sampled:** 06/03/16 00:00
Name: HHS- FADR CF 50 **Received:** 06/07/16 08:00
Alias: FADR DARK ROOM **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	180	ug/L		1300	06/29/16 08:51	KMC	EPA 200.8
Lead	8.2	ug/L		15	06/28/16 16:33	KMC	EPA 200.8

Sample: 6061968-88 **Sampled:** 06/03/16 00:00
Name: HHS- FA5 CF 51 **Received:** 06/07/16 08:00
Alias: FA5 WEST 51, 52, 53, 54 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	150	ug/L		1300	06/29/16 08:53	KMC	EPA 200.8
Lead	2.6	ug/L		15	06/28/16 16:35	KMC	EPA 200.8

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ANALYTICAL RESULTS

Sample: 6061968-89 **Sampled:** 06/03/16 00:00
Name: HHS- FA3 CF 55 **Received:** 06/07/16 08:00
Alias: FA3 EAST 55, 56, 57, 58 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	93	ug/L		1300	06/29/16 08:54	KMC	EPA 200.8
Lead	3.4	ug/L		15	06/28/16 16:37	KMC	EPA 200.8

Sample: 6061968-90 **Sampled:** 06/03/16 00:00
Name: HHS- 117 CF 59 **Received:** 06/07/16 08:00
Alias: 117 WEST **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	120	ug/L		1300	06/29/16 08:55	KMC	EPA 200.8
Lead	4.1	ug/L		15	06/28/16 16:38	KMC	EPA 200.8

Sample: 6061968-91 **Sampled:** 06/03/16 00:00
Name: HHS- 117 CF 60 **Received:** 06/07/16 08:00
Alias: 117 NORTH **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	690	ug/L		1300	06/29/16 08:57	KMC	EPA 200.8
Lead	17	ug/L		**15	06/28/16 16:40	KMC	EPA 200.8

Sample: 6061968-92 **Sampled:** 06/03/16 00:00
Name: HHS- 117 CF 61 **Received:** 06/07/16 08:00
Alias: 117 SOUTH **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	230	ug/L		1300	06/29/16 09:03	KMC	EPA 200.8
Lead	20	ug/L		**15	06/28/16 16:48	KMC	EPA 200.8

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ANALYTICAL RESULTS

Sample: 6061968-93 **Sampled:** 06/03/16 00:00
Name: HHS- 1170 CF 62 **Received:** 06/07/16 08:00
Alias: 117 0 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	120	ug/L		1300	06/29/16 09:05	KMC	EPA 200.8
Lead	3.4	ug/L		15	06/28/16 16:50	KMC	EPA 200.8

Sample: 6061968-94 **Sampled:** 06/03/16 00:00
Name: HHS- 116 CF 63 **Received:** 06/07/16 08:00
Alias: 116 ISLAND **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	130	ug/L		1300	06/29/16 09:06	KMC	EPA 200.8
Lead	5.8	ug/L		15	06/28/16 16:52	KMC	EPA 200.8

Sample: 6061968-95 **Sampled:** 06/03/16 00:00
Name: HHS- 1160 CF 64 **Received:** 06/07/16 08:00
Alias: 1160 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	89	ug/L		1300	06/29/16 09:12	KMC	EPA 200.8
Lead	1.4	ug/L		15	06/28/16 17:00	KMC	EPA 200.8

Sample: 6061968-96 **Sampled:** 06/03/16 00:00
Name: HHS- 115 CF 66 **Received:** 06/07/16 08:00
Alias: 115 SOUTH WALL 65, 66, 67 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	210	ug/L		1300	06/29/16 09:13	KMC	EPA 200.8
Lead	20	ug/L		**15	06/28/16 17:01	KMC	EPA 200.8

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ANALYTICAL RESULTS

Sample: 6061968-97 **Sampled:** 06/03/16 00:00
Name: HHS- 115 CF 71 **Received:** 06/07/16 08:00
Alias: 115 NORTH WALL 70, 71, 72 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	130	ug/L		1300	06/29/16 09:15	KMC	EPA 200.8
Lead	120	ug/L		**15	06/28/16 17:03	KMC	EPA 200.8

Sample: 6061968-98 **Sampled:** 06/03/16 00:00
Name: HHS- 115 CF 68 **Received:** 06/07/16 08:00
Alias: 115 WEST WALL 68, 69 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	140	ug/L		1300	06/29/16 09:16	KMC	EPA 200.8
Lead	35	ug/L		**15	06/28/16 17:05	KMC	EPA 200.8

Sample: 6061968-99 **Sampled:** 06/03/16 00:00
Name: HHS- 112 CF 73 **Received:** 06/07/16 08:00
Alias: 112 ISLAND **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	110	ug/L		1300	06/29/16 09:17	KMC	EPA 200.8
Lead	6.1	ug/L		15	06/28/16 17:07	KMC	EPA 200.8

Sample: 6061968-AA **Sampled:** 06/03/16 00:00
Name: HHS- 112 LAB CF 74 **Received:** 06/07/16 08:00
Alias: 112 LAB SOUTH 74, 75, 76, 77 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	130	ug/L		1300	06/29/16 09:24	KMC	EPA 200.8
Lead	7.4	ug/L		15	06/28/16 17:15	KMC	EPA 200.8

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ANALYTICAL RESULTS

Sample: 6061968-AB
Name: HHS- 112 LAB CF 78
Alias: 112 LAB WEST 78
Sampled: 06/03/16 00:00
Received: 06/07/16 08:00
Matrix: Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	510	ug/L		1300	06/29/16 09:25	KMC	EPA 200.8
Lead	910	ug/L		**15	06/28/16 17:17	KMC	EPA 200.8

Sample: 6061968-AC
Name: HHS- 112 LAB CF 80
Alias: 112 LAB NORTH 79, 80, 81, 82
Sampled: 06/03/16 00:00
Received: 06/07/16 08:00
Matrix: Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	100	ug/L		1300	06/29/16 09:26	KMC	EPA 200.8
Lead	7.1	ug/L		15	06/28/16 17:18	KMC	EPA 200.8

Sample: 6061968-AD
Name: HHS- 110 CF 83
Alias: 110 ISLAND
Sampled: 06/03/16 00:00
Received: 06/07/16 08:00
Matrix: Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	110	ug/L		1300	06/29/16 09:29	KMC	EPA 200.8
Lead	8.6	ug/L		15	06/28/16 17:26	KMC	EPA 200.8

Sample: 6061968-AE
Name: HHS- 1090 CF84
Alias: 1090 OFFICE
Sampled: 06/03/16 00:00
Received: 06/07/16 08:00
Matrix: Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	200	ug/L		1300	06/29/16 09:30	KMC	EPA 200.8
Lead	35	ug/L		**15	06/28/16 17:28	KMC	EPA 200.8

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ANALYTICAL RESULTS

Sample: 6061968-AF
Name: HHS- 109 CF85
Alias: 109 NORTH
Sampled: 06/03/16 00:00
Received: 06/07/16 08:00
Matrix: Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	120	ug/L		1300	06/29/16 09:31	KMC	EPA 200.8
Lead	4.5	ug/L		15	06/28/16 17:29	KMC	EPA 200.8

Sample: 6061968-AG
Name: HHS- 109 CF86
Alias: 109 EAST 86, 87, 88
Sampled: 06/03/16 00:00
Received: 06/07/16 08:00
Matrix: Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	110	ug/L		1300	06/29/16 09:33	KMC	EPA 200.8
Lead	8.8	ug/L		15	06/28/16 17:31	KMC	EPA 200.8

Sample: 6061968-AH
Name: HHS- 109 CF91
Alias: 109 WEST 89, 90, 91, 92
Sampled: 06/03/16 00:00
Received: 06/07/16 08:00
Matrix: Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	110	ug/L		1300	06/29/16 09:35	KMC	EPA 200.8
Lead	5.5	ug/L		15	06/28/16 17:34	KMC	EPA 200.8

Sample: 6061968-AI
Name: HHS- 108 CF 93
Alias: 108 ISLAND
Sampled: 06/03/16 00:00
Received: 06/07/16 08:00
Matrix: Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	100	ug/L		1300	06/29/16 09:37	KMC	EPA 200.8
Lead	5.9	ug/L		15	06/28/16 17:43	KMC	EPA 200.8

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NOTES

Specific method revisions used for analysis are available upon request.

** Indicates lab result exceeds a monitoring limit. Monitoring limits are either client permit limits or client requested action levels.

Certifications

PIA - Peoria, IL
TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553
Missouri Department of Natural Resources Certificate of Approval for Microbiological Laboratory Service No. 870
Drinking Water Certifications: Iowa (240); Kansas (E-10338); Missouri (870)
Wastewater Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
Hazardous/Solid Waste Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPMO - Springfield, MO
USEPA DMR-QA Program

STL - St. Louis, MO
TNI Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS Lab No. E-10389
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 171050
Drinking Water Certifications: Missouri (1050)
Missouri Department of Natural Resources

* Not a TNI accredited analyte

Certified by: Erin Lane For Kurt Stepping, Senior Project Manager

Columbia Public Schools

Hickman High School

60619468-108 KS

No.	Coding system	Description
1	HHS-Main office 07-KF1	KF - in main office #07 Sampled May 31 2016
2	HHS-LOBA-EWC33	EWC Lobby of old gym
3	HHS-LOB-B-EWC 31	EWC Lobby of Con. stand
4	HHS-LOB-B-Con-KF2	KF in concession stand
5	HHS-3-EWC-34	EWC #34 in Lobby Locker rm.
6	HHS-6-EWC-36	EWC #36 in Boys locker rm
7	HHS-5-EWC-38	EWC #38 Hall of girls locker rm
8	HHS-155-KF-3	KF in Rm 155
9	HHS-HALL-EWC-29	EWC #29 next to 153 in Hall (EWC-28+29)
10	HHS-274-KF-4	KF on East wall of 274
11	HHS-274-KF-5	KF on west wall of 274 (South end
12	HHS-274-KF-6	KF on west wall of 274 on Steam pot

Chain of Custody Section

Sample Collector: (Print) Kevin Smith		(Signature)	
Relinquished by: Kevin Smith	Date/Time 5/31/16/12:00 pm	Received by:	Date/Time: 5/31/16 12:00 pm
Relinquished by:	Date/Time: 6-6	Received by:	Date/Time: 6-6-16 1230
Relinquished by:	Date/Time: 6-7-16 OBEC	Received by:	Date/Time: 6/7/16 8:00

Please Note: A maximum of twelve (12) samples per box.

Columbia Public Schools

Hickman High School

No.	Coding system	Description
13	HHS-upper com.-EWC-46	EWC on upper com. (EWC 46 + 47)
14	HHS-upper com EWC-45	EWC on upper com (EWC 45 + 44)
15	HHS-1060-EWC-27	EWC Lobby of 1060 (EWC 26-27)
16	HHS-HALL-EWC-25	EWC ~~outside of~~ HALL 107C next to
17	HHS-HALL-EWC-24	EWC in HALL next to 112 LAB
18	HHS-HALL-EWC-23	EWC in HALL next to 114
19	HHS-HALL-EWC-15	EWC in HALL next to girls restroom
20	HHS-HALL EWC-14	EWC in HALL next to 122
21	HHS-R09-NSF-1	Nurses office sink
22	HHS-HALL-EWC-21	EWC in HALL OR FA by FA7
23	HHS-A05-KF-7	KF in A05 OR FA Building
24	HHS-HALL-EWC-22	EWC - in HALL OF FA by FA5

Chain of Custody Section			
Sample Collector: (Print) Kevin Smith		(Signature)	
Relinquished by: Kevin Smith	Date/Time: 5/31/16 12:00 pm	Received by:	Date/Time: 5/31/16 12:00 pm
Relinquished by:	Date/Time: 6-6	Received by:	Date/Time: 6-6-16 1230
Relinquished by:	Date/Time: 6-7-16 0800	Received by:	Date/Time: 6/7/16 8:00

Please Note: A maximum of twelve (12) samples per box.

Columbia Public Schools

Hickman High School

No.	Coding system	Description
25	HHS-[redacted]-EWC-13	EWC in Hall by 141
26	HHS-KITG-KF-8	KF #8 in Guid. Office Kitchen
27	HHS-Hall-EWC-19	EWC in Hall next to 50
28	HHS-Hall-EWC-20	EWC in Hall next to 54
29	HHS-FACSF55-KF9	KF-9 in room 55
30	HHS-FACSF54-KF-10	KF-10 in room 54
31	HHS-FACSF54-KF-14	KF-14 in room 54
32	HHS-FACSF54-KF-12	KF-12 in room 54
33	HHS-Hall-EWC-18	EWC next to 136
34	HHS-Hall-EWC-17	EWC next to 128C
35	HHS-Hall-EWC-16	EWC Hall next to 117 Office
36	HHS-[redacted]-KF-16	KF in Teachers lounge

Chain of Custody Section

Sample Collector: (Print) Kevin Smith		(Signature)	
Relinquished by: Kevin Smith	Date/Time: 5/31/16 12:00 pm	Received by:	Date/Time: 5/31/16 1300 pm
Relinquished by:	Date/Time: 6-6	Received by:	Date/Time: 6-6-16 1230
Relinquished by:	Date/Time: 6-7-16	Received by:	Date/Time: 6/7/16 8:00

Please Note: A maximum of twelve (12) samples per box.

Columbia Public Schools

Hickman High School

No.	Coding system	Description
37	HHS-66C-KF-17	ICF in Custodial Break room
38	HHS-HALL-EWC-3	EWC next to 256 (EWC 1+2)
39	HHS-2530-KF-18	KF in room 2530
40	HHS-HALL-EWC-4	EWC [redacted] HALL next to 255 M
41	HHS-HALL-EWC-5	EWC in HALL next to 206C
42	HHS-HALL-EWC-6	EWC in hall next to 212
43	HHS-HALL-EWC-7	EWC in hall next to stairwell
44	HHS-HALL-EWC-8	EWC in hall next to 217
45	HHS-HALL-EWC-9	EWC in hall next to 222
46	HHS-HALL-EWC-10	EWC in hall next to 237A
47	HHS-HALL-EWC-11	EWC in hall next to 225
48	HHS-HALL-EWC 12	EWC in hall next to 226
49	HHS-Kitchen-KF-19	KF (COFFEE MAKER in Kitchen next to ice machine
50	HHS-Kitchen-KF-20	KF in kitchen food prep table
51	HHS-Pool-EWC-49	EWC in Pool AREA

Chain of Custody Section			
Sample Collector: (Print) Kevin Smith		(Signature)	
Relinquished by: Kevin Smith	Date/Time 5/31/16 12:00 pm	Received by:	Date/Time: 5/31/16 12:00pm
Relinquished by:	Date/Time: 6-6	Received by:	Date/Time: 6-6-16 1230
Relinquished by:	Date/Time: 6-7-16 0800	Received by:	Date/Time: 6/7/16 8:00

Columbia Public Schools

Hickman High School

No.	Coding system	Description
52	HHS-144-EWC-39	EWC in girls Pool locker room CPS side
53	HHS-146-EWC-40	EWC in Boy Pool locker room CPS side
54	HHS-HALL-EWC-43	EWC in Hall Between RR 171 + 172
55	HHS-170-KF-21	KF in room 170 concession stand
56	HHS-105-EWC-48	EWC in Breezeway of 105 CASA LAB Sampled June3
57	HHS-205 CF1	CF in 205
58	HHS 208 CF2	CF in 208 NORTH EAST CF 2+
59	HHS 208 CF3	CF in 208 Island CF 3
60	HHS 208 CF5	CF in 208 south west CF 4+5
61	HHS-209 CF7	CF in 209 south
62	HHS-209 CF8	CF in 209 island
63	HHS-209 CF9	CF in 209 NORTH
64	HHS 2090 CF 10	CF in 209 GO Prep room
65	HHS 212 CF 11	CF in 212 west CF 11 + 12
66	HHS 212 CF 13	CF in 212 island

Chain of Custody Section

Sample Collector: (Print) Kevin Smith		(Signature)	
Relinquished by: Kevin Smith	Date/Time 5/31/16 12:00 pm	Received by:	Date/Time: 5/31/16 12:00pm
Relinquished by:	Date/Time: 6-6	Received by:	Date/Time: 6-6-16 1230
Relinquished by:	Date/Time: 6-7-16 0800	Received by:	Date/Time: 6/7/16 8:00

Columbia Public Schools

Hickm . High School

No.	Coding system	Description
67	HHS- 212 CF 14	CF in 212 East CF 14+15
68	HHS- 2130 CF 16	CF in 2130
69	HHS- 213 CF 17	CF in 213 west CF 17 +18
70	HHS- 213 CF 19	CF in 213 island
71	HHS- 213 CF 20	CF in 213 west CF 20+21
72	HHS- 2140 CF 22	CF in 2140
73	HHS- 214 CF 23	CF in 214 west 23+24
74	HHS- 214 CF 26	CF in 214 [illegible] EAST 26+27
75	HHS- [illegible] 218 CF 28	[illegible] CF in 218
76	HHS- 220 CF 29	CF in 220 EAST
77	HHS- 220 CF 30	CF in 220 WEST 30 +31 island 32
78	HHS- 2200 CF 33	CF in 2200

Chain of Custody Section			
Sample Collector: (Print) Kevin Smith		(Signature)	
Relinquished by: K. Smith	Date/Time: 6/3/16 8:00 AM	Received by:	Date/Time: 6/7/16 8:00am
Relinquished by:	Date/Time: 6-6	Received by:	Date/Time: 6-6-16 1230
Relinquished by:	Date/Time: 6-7-16	Received by:	Date/Time: 6/7/16 8:00

Please Note: A maximum of twelve (12) samples per box.

Columbia Public Schools

Hickman High School

No.	Coding system	Description
79	HHS- 222 CF 35	CF IN Rm 222 west island 34
80	HHS- 222 CR 36	CF in 222 EAST 36 & 37
81	HHS- 53 CF 38	CR in Rm 53
82	HHS- 52 CF 39	CR in 52
83	HHS- 51 CF 40	CR in 51
84	HHS- 50 CR 41	CF in 50
85	HHS- FA 2 CF 42	CF in FA2 EAST CF 42 43 44 45
86	HHS- FA 4 CF 47	CF in FA 4 west CF 46 47 48 49
87	HHS- FADR CF 50	CF in FA DR DARK room
88	HHS- FA 5 CF 51	CR in FA5 CF 51 52 53 54 west
89	HHS- FA 3 CF 55	CF in FA 3 CR 55 56 57 58 EAST.
90	HHS- 117 CF 59	CR in 117 west ~~CR~~ ~~59~~ 6

Chain of Custody Section

Sample Collector: (Print) Kevin Smith		(Signature)	
Relinquished by: K Smith	Date/Time: 6/3/16 8:00 am	Received by:	Date/Time: 6/3/16 8:00am
Relinquished by:	Date/Time: 6.6	Received by:	Date/Time: 6-6-16 1230
Relinquished by:	Date/Time: 6-7-16	Received by:	Date/Time: 6/7/16 8:00

Please Note: A maximum of twelve (12) samples per box.

Columbia Public Schools

Hickman High School

No.	Coding system	Description
91	HHS- 117 CF 60	CF in 117 North
92	HHS- 117 CF 61	CF in 117 South
93	HHS- 1170 CF 62	CF in 117 O
94	HHS- 116 CF 63	CF in 116 island
95	HHS- 1160 CF 64	CF in 116 O
96	HHS- 115 CF 66	CF in 115 South wall 65 66 67
97	HHS- 115 CF 71	CF in 115 North wall ~~65 69~~ 70 71 72
98	HHS- 115 CF 68	CF in 115 west wall ~~70 71 72~~ 68 69
99	HHS- 112 CF 73	CF in 112 island
100	HHS- 112 LAB CF 74	CF in 112 LAB South 74 75 76 77
101	HHS- 112 LAB CF 78	CF in 112 LAB west 78
102	HHS- 112 LAB CF 80	CF in 112 LAB North 79 80 81 82

Chain of Custody Section			
Sample Collector: (Print) Kevin Smith		(Signature)	
Relinquished by: K. Smith	Date/Time: 6/3/16 9:00 AM	Received by:	Date/Time: 6/3/16 8:00am
Relinquished by:	Date/Time: 6-6	Received by:	Date/Time: 6-6-16 1230
Relinquished by:	Date/Time: 6-7-16 0830	Received by:	Date/Time: 6/7/16 8:00

Please Note: A maximum of twelve (12) samples per box.

Columbia Public Schools

Hickman High School

No.	Coding system	Description
103	HHS- 110 CF 83	CF in 110 island
104	HHS- 1090 CF84	CF in 1090 office
105	HHS- 109 CF 85	CF in 109 North
106	HHS- 109 CF 86	CF in 109 East 86 87 88
107	HHS- 109 CF 91	CF in 109 West 89 90 91 92
108	HHS- 108 CF 93	CF in 108 island.
109	HHS-	
110	HHS-	
111	HHS-	
112	HHS-	
113	HHS-	
114	HHS-	

Chain of Custody Section

Sample Collector: (Print) Kevin Smith		(Signature)	
Relinquished by: K. Smith	Date/Time: 6/3/16 9:00 AM	Received by:	Date/Time: 6/3/16 8:00pm
Relinquished by:	Date/Time: 6-6-	Received by:	Date/Time: 6.6.16 1:23
Relinquished by:	Date/Time: 6-7-16	Received by:	Date/Time: 6/7/16 8:00

Please Note: A maximum of twelve (12) samples per box.

Facilities & Construction Services

PDC Laboratories Inc. Laboratory Results
Follow-up Water Quality Evaluation

Field Data & Chain-of-Custody Form

2016 Water Quality Evaluation
Columbia Public Schools
Columbia, Missouri

July 18, 2016

Randy Jackson
Columbia Public Schools
5909 Paris Road
Columbia, MO 65202

Dear Randy Jackson:

Please find enclosed the analytical results for the sample(s) the laboratory received on **7/11/16 4:00 pm** and logged in under work order **6071515**. All testing is performed according to our current TNI certifications unless otherwise noted. This report cannot be reproduced, except in full, without the written permission of PDC Laboratories, Inc.

If you have any questions regarding your report, please contact your project manager. Quality and timely data is of the utmost importance to us.

PDC Laboratories, Inc. appreciates the opportunity to provide you with analytical expertise. We are always trying to improve our customer service and we welcome you to contact the Vice President , John LaPayne with any feedback you have about your experience with our laboratory.

Sincerely,

Kurt Stepping
Senior Project Manager
(309) 692-9688 x1719
kstepping@pdclab.com

PDC Laboratories, Inc.
2231 West Altorfer Drive
Peoria, IL 61615
(800) 752-6651

ANALYTICAL RESULTS

Sample: 6071515-01 **Sampled:** 07/11/16 00:00
Name: HHS-FS-208-CF-3 **Received:** 07/11/16 16:00
Alias: SCIENCE LAB FAUCET (COLD) ROOM 208 ISLAND **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	77	ug/L		1300	07/15/16 13:16	KMC	EPA 200.8
Lead	3.7	ug/L		15	07/15/16 13:16	KMC	EPA 200.8

Sample: 6071515-02 **Sampled:** 07/11/16 00:00
Name: HHS-FS-209-CF-8 **Received:** 07/11/16 16:00
Alias: SCIENCE LAB FAUCET (COLD) ROOM 209 ISLAND **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	120	ug/L		1300	07/15/16 13:18	KMC	EPA 200.8
Lead	6.4	ug/L		15	07/15/16 13:18	KMC	EPA 200.8

Sample: 6071515-03 **Sampled:** 07/11/16 00:00
Name: HHS-FS-212-CF-13 **Received:** 07/11/16 16:00
Alias: SCIENCE LAB FAUCET (COLD) ROOM 212 ISLAND **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	120	ug/L		1300	07/15/16 13:19	KMC	EPA 200.8
Lead	6.4	ug/L		15	07/15/16 13:19	KMC	EPA 200.8

Sample: 6071515-04 **Sampled:** 07/11/16 00:00
Name: HHS-FS-213-CF-19 **Received:** 07/11/16 16:00
Alias: SCIENCE LAB FAUCET (COLD) ROOM 213 ISLAND **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	140	ug/L		1300	07/15/16 13:20	KMC	EPA 200.8
Lead	6.2	ug/L		15	07/15/16 13:20	KMC	EPA 200.8

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Peoria, IL 61615
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ANALYTICAL RESULTS

Sample: 6071515-05 **Sampled:** 07/11/16 00:00
Name: HHS-FS-222-CF-36 **Received:** 07/11/16 16:00
Alias: SCIENCE LAB FAUCET (COLD) ROOM 222 E **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	460	ug/L		1300	07/15/16 13:21	KMC	EPA 200.8
Lead	7.9	ug/L		15	07/15/16 13:21	KMC	EPA 200.8

Sample: 6071515-06 **Sampled:** 07/11/16 00:00
Name: HHS-FS-117-CF-60 **Received:** 07/11/16 16:00
Alias: PHYSICS CLASS FAUCET (COLD) ROOM 117 N **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	68	ug/L		1300	07/15/16 13:27	KMC	EPA 200.8
Lead	4.8	ug/L		15	07/15/16 13:27	KMC	EPA 200.8

Sample: 6071515-07 **Sampled:** 07/11/16 00:00
Name: HHS-FS-117-CF-61 **Received:** 07/11/16 16:00
Alias: PHYSICS FAUCET (COLD) ROOM 117 S **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	54	ug/L		1300	07/15/16 13:28	KMC	EPA 200.8
Lead	2.5	ug/L		15	07/15/16 13:28	KMC	EPA 200.8

Sample: 6071515-08 **Sampled:** 07/11/16 00:00
Name: HHS-FS-115-CF-66 **Received:** 07/11/16 16:00
Alias: SCIENCE LAB FAUCET (COLD) ROOM 115 S 65,66,67 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	230	ug/L		1300	07/15/16 13:32	KMC	EPA 200.8
Lead	4.5	ug/L		15	07/15/16 13:32	KMC	EPA 200.8

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ANALYTICAL RESULTS

Sample: 6071515-09 **Sampled:** 07/11/16 00:00
Name: HHS-FS-115-CF-71 **Received:** 07/11/16 16:00
Alias: SCIENCE LAB FAUCET (COLD) ROOM 115 N 70,71,72 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	170	ug/L		1300	07/15/16 13:33	KMC	EPA 200.8
Lead	8.6	ug/L		15	07/15/16 13:33	KMC	EPA 200.8

Sample: 6071515-10 **Sampled:** 07/11/16 00:00
Name: HHS-FS-115-CF-68 **Received:** 07/11/16 16:00
Alias: SCIENCE LAB FAUCET (COLD) ROOM W 68&69 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	290	ug/L		1300	07/15/16 13:34	KMC	EPA 200.8
Lead	8.7	ug/L		15	07/15/16 13:34	KMC	EPA 200.8

Sample: 6071515-11 **Sampled:** 07/11/16 00:00
Name: HHS-FS-112-LABCF-78 **Received:** 07/11/16 16:00
Alias: SCIENCE LAB FAUCET (COLD) ROOM 112 W 78 **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	160	ug/L		1300	07/15/16 13:36	KMC	EPA 200.8
Lead	9.2	ug/L		15	07/15/16 13:36	KMC	EPA 200.8

Sample: 6071515-12 **Sampled:** 07/11/16 00:00
Name: HHS-FS-109-OCF-84 **Received:** 07/11/16 16:00
Alias: SCIENCE LAB FAUCET (COLD) ROOM 109 O **Matrix:** Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	180	ug/L		1300	07/15/16 13:37	KMC	EPA 200.8
Lead	3.2	ug/L		15	07/15/16 13:37	KMC	EPA 200.8

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Peoria, IL 61615
(800) 752-6651

NOTES

Specific method revisions used for analysis are available upon request.

** Indicates lab result exceeds a monitoring limit. Monitoring limits are either client permit limits or client requested action levels.

Certifications

PIA - Peoria, IL
TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553
Missouri Department of Natural Resources Certificate of Approval for Microbiological Laboratory Service No. 870
Drinking Water Certifications: Iowa (240); Kansas (E-10338); Missouri (870)
Wastewater Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
Hazardous/Solid Waste Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPMO - Springfield, MO
USEPA DMR-QA Program

STL - St. Louis, MO
TNI Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS Lab No. E-10389
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 171050
Drinking Water Certifications: Missouri (1050)
Missouri Department of Natural Resources

* Not a TNI accredited analyte

Certified by: Kurt Stepping, Senior Project Manager

Hickman High School

SAMPLING METHOD

The water sample method was a "first-draw" sample. The first-draw sample was a sample collected first thing in the morning and is representative of the water that may be consumed at the beginning of the day or after infrequent use. Water samples were collected from cold water lines; the recommended procedure by the EPA - Reference: The Environmental Protection Agency (EPA) Lead and Copper Rule, 40 C.F.R. Sections 141 .80 to 141.91, Revised Version: February 2016

The following sample revealed an elevated lead and/or copper lab report:

Sample No.	Description/Location	Tag	CPS-FCS Actions
59	Classroom Faucet (cold) in room 208 Island	208-CF-3	1

Sample collected on May 31, 2016 and analyzed on June 28, 2016.

1 = **CPS-FCS & PDC Laboratories recommend(s) the following actions:** (Part A) An inspection of the water tap and associated water line by a CPS-FCS specialized maintenance plumber to help determine the cause, (Part B) CPS-FCS shall conduct a follow-up sample collection-a flush sample*, and (Part C) CPS-FCS shall post a "Notice" sign above the water tap instructed the user to do not use this water source for consumable purposes.

*Follow-up Sample(s)

This sample is representative of the water that is in the plumbing upstream from the faucet or drinking water fountain. This sample shall be collected before the facility opens and before any water was used at the water tap. The water from the faucet or drinking water fountain should run for 30 seconds before collecting the sample. This is called a flush sample.

Part A: **CPS-FCS on-site review of:** Classroom Faucet (cold) in room C103

Date: 7-11-16	Name of Reviewer: Chris Willows
Actions taken: Inspected faucet	
Comments: Faucet is working good	
Signature of Reviewer:	

#45

C0715-12

(Part B) CPS-FCS shall conduct a follow-up sample collection-a flush sample*,

Sample No.	Description/Location Science Lab	Tag	
1	Classroom Faucet (cold) in room 208 Island	FS-208-CF-3	
Chain of Custody Section			
Sample Collector (Print): Colton Davidson		Signature: Colton Davidson	
Relinquished by:	Date/Time:	Received by:	Date/Time: 7-11-16 1200
Relinquished by:	Date/Time: 7-11-16 1600	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time: 7/11/16 16:00

EWC Electronic Water Cooler (chiller unit)
DWF Drinking Water Faucet (bubbler/fountain)
CF Classroom Faucet (cold)
KF Kitchen Faucet (cold)
FACSF Family and Consumer Science Faucet (cold)
RRF Restroom Faucet (cold)
NSF Nurse's Sink Faucet (cold)
TLF Teacher's Lounge Faucet
**FS Follow-up Sample

(Part C) CPS-FCS shall post a "Notice" sign above the water tap instructed the user to do not use this water source for consumable purposes.

Do not use.

Hickman High School

SAMPLING METHOD

The water sample method was a "first-draw" sample. The first-draw sample was a sample collected first thing in the morning and is representative of the water that may be consumed at the beginning of the day or after infrequent use. Water samples were collected from cold water lines; the recommended procedure by the EPA - Reference: The Environmental Protection Agency (EPA) Lead and Copper Rule, 40 C.F.R. Sections 141 .80 to 141.91, Revised Version: February 2016

The following sample revealed an elevated lead and/or copper lab report:

Sample No.	Description/Location	Tag	CPS-FCS Actions
62	Classroom Faucet (cold) in room 209 Island	209-CF-8	1

Sample collected on May 31, 2016 and analyzed on June 28, 2016.

1 = **CPS-FCS & PDC Laboratories recommend(s) the following actions:** (Part A) An inspection of the water tap and associated water line by a CPS-FCS specialized maintenance plumber to help determine the cause, (Part B) CPS-FCS shall conduct a follow-up sample collection-a flush sample*, and (Part C) CPS-FCS shall post a "Notice" sign above the water tap instructed the user to do not use this water source for consumable purposes.

*Follow-up Sample(s)

This sample is representative of the water that is in the plumbing upstream from the faucet or drinking water fountain. This sample shall be collected before the facility opens and before any water was used at the water tap. The water from the faucet or drinking water fountain should run for 30 seconds before collecting the sample. This is called a flush sample.

Part A: **CPS-FCS on-site review of:** Classroom Faucet (cold) in room C103

Date: 7-11-16	Name of Reviewer: Chris Willows
Actions taken: Inspected faucet	
Comments: Faucet is working good	
Signature of Reviewer: Chris Willows	

#5

(Part B) CPS-FCS shall conduct a follow-up sample collection-a flush sample*,

Sample No.	Description/Location	Tag	
	Science Lab		
2	Classroom Faucet (cold) in room 209 Island	FS-209-CF-8	
Chain of Custody Section			
Sample Collector (Print): Colton Davidson		Signature: Colton Davidson	
Relinquished by:	Date/Time:	Received by:	Date/Time: 7-11-16 - 1200
Relinquished by:	Date/Time: 7-11-16 1600	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time: 7-11-16 1600

EWC Electronic Water Cooler (chiller unit)
DWF Drinking Water Faucet (bubbler/fountain)
CF Classroom Faucet (cold)
KF Kitchen Faucet (cold)
FACSF Family and Consumer Science Faucet (cold)
RRF Restroom Faucet (cold)
NSF Nurse's Sink Faucet (cold)
TLF Teacher's Lounge Faucet
**FS Follow-up Sample

(Part C) CPS-FCS shall post a "Notice" sign above the water tap instructed the user to do not use this water source for consumable purposes.

Did not use.

Hickman High School

SAMPLING METHOD

The water sample method was a "first-draw" sample. The first-draw sample was a sample collected first thing in the morning and is representative of the water that may be consumed at the beginning of the day or after infrequent use. Water samples were collected from cold water lines; the recommended procedure by the EPA - Reference: The Environmental Protection Agency (EPA) Lead and Copper Rule, 40 C.F.R. Sections 141 .80 to 141.91, Revised Version: February 2016

The following sample revealed an elevated lead and/or copper lab report:

Sample No.	Description/Location	Tag	CPS-FCS Actions
66	Classroom Faucet (cold) in room 212 Island	212-CF-13	1

Sample collected on May 31, 2016 and analyzed on June 28, 2016.

1 = **CPS-FCS & PDC Laboratories recommend(s) the following actions:** (Part A) An inspection of the water tap and associated water line by a CPS-FCS specialized maintenance plumber to help determine the cause, (Part B) CPS-FCS shall conduct a follow-up sample collection-a flush sample*, and (Part C) CPS-FCS shall post a "Notice" sign above the water tap instructed the user to do not use this water source for consumable purposes.

*Follow-up Sample(s)

This sample is representative of the water that is in the plumbing upstream from the faucet or drinking water fountain. This sample shall be collected before the facility opens and before any water was used at the water tap. The water from the faucet or drinking water fountain should run for 30 seconds before collecting the sample. This is called a flush sample.

Part A: **CPS-FCS on-site review of:** Classroom Faucet (cold) in room C103

Date: 7-11-16	Name of Reviewer: Chris Willows
Actions taken: Inspected faucet	
Comments: The faucet is in good working order	
Signature of Reviewer: Chris Willows	

#5

(Part B) CPS-FCS shall conduct a follow-up sample collection-a flush sample*,

Sample No.	Description/Location	Tag	
	Science Lab		
3	Classroom Faucet (cold) in room 212 Island	FS-212-CF-13	
Chain of Custody Section			
Sample Collector (Print): Colton Davidson		Signature: Colton Davidson	
Relinquished by:	Date/Time:	Received by:	Date/Time: 7-11-16 1200
Relinquished by:	Date/Time: 7-11-16 1600	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time: 7-11-16 1600

EWC Electronic Water Cooler (chiller unit)
DWF Drinking Water Faucet (bubbler/fountain)
CF Classroom Faucet (cold)
KF Kitchen Faucet (cold)
FACSF Family and Consumer Science Faucet (cold)
RRF Restroom Faucet (cold)
NSF Nurse's Sink Faucet (cold)
TLF Teacher's Lounge Faucet
**FS Follow-up Sample

(Part C) CPS-FCS shall post a "Notice" sign above the water tap instructed the user to do not use this water source for consumable purposes.

Did not use

Hickman High School

SAMPLING METHOD

The water sample method was a "first-draw" sample. The first-draw sample was a sample collected first thing in the morning and is representative of the water that may be consumed at the beginning of the day or after infrequent use. Water samples were collected from cold water lines; the recommended procedure by the EPA - Reference: The Environmental Protection Agency (EPA) Lead and Copper Rule, 40 C.F.R. Sections 141 .80 to 141.91, Revised Version: February 2016

The following sample revealed an elevated lead and/or copper lab report:

Sample No.	Description/Location	Tag	CPS-FCS Actions
70	Classroom Faucet (cold) in room 213 Island	213-CF-19	1

Sample collected on May 31, 2016 and analyzed on June 28, 2016.

1 = **CPS-FCS & PDC Laboratories recommend(s) the following actions:** (Part A) An inspection of the water tap and associated water line by a CPS-FCS specialized maintenance plumber to help determine the cause, (Part B) CPS-FCS shall conduct a follow-up sample collection-a flush sample*, and (Part C) CPS-FCS shall post a "Notice" sign above the water tap instructed the user to do not use this water source for consumable purposes.

*Follow-up Sample(s)

This sample is representative of the water that is in the plumbing upstream from the faucet or drinking water fountain. This sample shall be collected before the facility opens and before any water was used at the water tap. The water from the faucet or drinking water fountain should run for 30 seconds before collecting the sample. This is called a flush sample.

Part A: **CPS-FCS on-site review of:** Classroom Faucet (cold) in room C103

Date: 7-11-16	Name of Reviewer: Chris Willows
Actions taken: Inspected faucet	
Comments: Faucet is working fine	
Signature of Reviewer: Chris Willows	

HH5

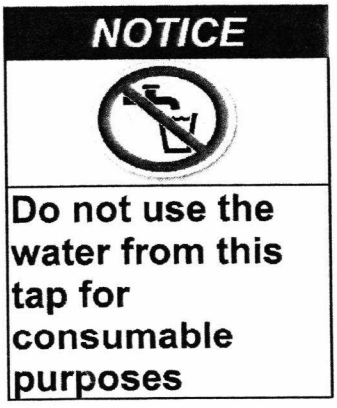
(Part B) CPS-FCS shall conduct a follow-up sample collection-a flush sample*,

Sample No.	Description/Location	Tag	
	Science Lab		
4	Classroom Faucet (cold) in room 213 Island	FS-213-CF-19	
Chain of Custody Section			
Sample Collector (Print): Colton Davidson		Signature: Colton Davidson	
Relinquished by:	Date/Time:	Received by:	Date/Time: 7-11-16 1200
Relinquished by:	Date/Time: 7-11-16 1600	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time: 7-11-16 1600

EWC Electronic Water Cooler (chiller unit)
DWF Drinking Water Faucet (bubbler/fountain)
CF Classroom Faucet (cold)
KF Kitchen Faucet (cold)
FACSF Family and Consumer Science Faucet (cold)
RRF Restroom Faucet (cold)
NSF Nurse's Sink Faucet (cold)
TLF Teacher's Lounge Faucet
**FS Follow-up Sample

(Part C) CPS-FCS shall post a "Notice" sign above the water tap instructed the user to do not use this water source for consumable purposes.

Did not use.



Hickman High School

SAMPLING METHOD

The water sample method was a "first-draw" sample. The first-draw sample was a sample collected first thing in the morning and is representative of the water that may be consumed at the beginning of the day or after infrequent use. Water samples were collected from cold water lines; the recommended procedure by the EPA - Reference: The Environmental Protection Agency (EPA) Lead and Copper Rule, 40 C.F.R. Sections 141 .80 to 141.91, Revised Version: February 2016

The following sample revealed an elevated lead and/or copper lab report:

Sample No.	Description/Location	Tag	CPS-FCS Actions
80	Classroom Faucet (cold) in room 222 E	222-CF-36	1

Sample collected on May 31, 2016 and analyzed on June 28, 2016.

1 = **CPS-FCS & PDC Laboratories recommend(s) the following actions:** (Part A) An inspection of the water tap and associated water line by a CPS-FCS specialized maintenance plumber to help determine the cause, (Part B) CPS-FCS shall conduct a follow-up sample collection-a flush sample*, and (Part C) CPS-FCS shall post a "Notice" sign above the water tap instructed the user to do not use this water source for consumable purposes.

*Follow-up Sample(s)

This sample is representative of the water that is in the plumbing upstream from the faucet or drinking water fountain. This sample shall be collected before the facility opens and before any water was used at the water tap. The water from the faucet or drinking water fountain should run for 30 seconds before collecting the sample. This is called a flush sample.

Part A: **CPS-FCS on-site review of:** Classroom Faucet (cold) in room C103

Date: 7-11-16	Name of Reviewer: Chris Willows
Actions taken: Inspected faucet	
Comments: Faucet is working fine	
Signature of Reviewer: Chris Willows	

HHS

(Part B) CPS-FCS shall conduct a follow-up sample collection-a flush sample*,

Sample No.	Description/Location Science Lab	Tag	
5	Classroom Faucet (cold) in room 222 E	FS-222-CF-36	
Chain of Custody Section			
Sample Collector (Print): Colton Davidson		Signature: Colton Davidson	
Relinquished by:	Date/Time:	Received by:	Date/Time: 7-11-16 1200
Relinquished by:	Date/Time: 7-11-16 1600	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time: 7-11-16 1600

EWC Electronic Water Cooler (chiller unit)
DWF Drinking Water Faucet (bubbler/fountain)
CF Classroom Faucet (cold)
KF Kitchen Faucet (cold)
FACSF Family and Consumer Science Faucet (cold)
RRF Restroom Faucet (cold)
NSF Nurse's Sink Faucet (cold)
TLF Teacher's Lounge Faucet
**FS Follow-up Sample

(Part C) CPS-FCS shall post a "Notice" sign above the water tap instructed the user to do not use this water source for consumable purposes.

Did not use.

Hickman High School

SAMPLING METHOD

The water sample method was a "first-draw" sample. The first-draw sample was a sample collected first thing in the morning and is representative of the water that may be consumed at the beginning of the day or after infrequent use. Water samples were collected from cold water lines; the recommended procedure by the EPA - Reference: The Environmental Protection Agency (EPA) Lead and Copper Rule, 40 C.F.R. Sections 141 .80 to 141.91, Revised Version: February 2016

The following sample revealed an elevated lead and/or copper lab report:

Sample No.	Description/Location Physics	Tag	CPS-FCS Actions
91	Classroom Faucet (cold) in room 117 N	117-CF-60	1

Sample collected on May 31, 2016 and analyzed on June 28, 2016.

1 = **CPS-FCS & PDC Laboratories recommend(s) the following actions:** (Part A) An inspection of the water tap and associated water line by a CPS-FCS specialized maintenance plumber to help determine the cause, (Part B) CPS-FCS shall conduct a follow-up sample collection-a flush sample*, and (Part C) CPS-FCS shall post a "Notice" sign above the water tap instructed the user to do not use this water source for consumable purposes.

*Follow-up Sample(s)

This sample is representative of the water that is in the plumbing upstream from the faucet or drinking water fountain. This sample shall be collected before the facility opens and before any water was used at the water tap. The water from the faucet or drinking water fountain should run for 30 seconds before collecting the sample. This is called a flush sample.

Part A: **CPS-FCS on-site review of:** Classroom Faucet (cold) in room C103

Date: 7-11-16	Name of Reviewer: Chris Willows
Actions taken: Inspected faucet	
Comments: Faucet is old, but is working fine.	
Signature of Reviewer: Chris Willows	

HHS

(Part B) CPS-FCS shall conduct a follow-up sample collection-a flush sample*,

Sample No.	Description/Location PHYSICS Class		Tag	
6	Classroom Faucet (cold) in room 117 N		FS-117-CF-60	
Chain of Custody Section				
Sample Collector (Print): Colton Davidson			Signature: Colton Davidson	
Relinquished by:	Date/Time:		Received by:	Date/Time: 7-11-16 1000
Relinquished by:	Date/Time: 7-11-16 1600		Received by:	Date/Time:
Relinquished by:	Date/Time:		Received by:	Date/Time: 7-11-16 1600

EWC Electronic Water Cooler (chiller unit)
DWF Drinking Water Faucet (bubbler/fountain)
CF Classroom Faucet (cold)
KF Kitchen Faucet (cold)
FACSF Family and Consumer Science Faucet (cold)
RRF Restroom Faucet (cold)
NSF Nurse's Sink Faucet (cold)
TLF Teacher's Lounge Faucet
**FS Follow-up Sample

(Part C) CPS-FCS shall post a "Notice" sign above the water tap instructed the user to do not use this water source for consumable purposes.

Hickman High School

SAMPLING METHOD

The water sample method was a "first-draw" sample. The first-draw sample was a sample collected first thing in the morning and is representative of the water that may be consumed at the beginning of the day or after infrequent use. Water samples were collected from cold water lines; the recommended procedure by the EPA - Reference: The Environmental Protection Agency (EPA) Lead and Copper Rule, 40 C.F.R. Sections 141 .80 to 141.91, Revised Version: February 2016

The following sample revealed an elevated lead and/or copper lab report:

Sample No.	Description/Location	Tag	CPS-FCS Actions
92	Classroom Faucet (cold) in room 117 S	117-CF-61	1

Sample collected on May 31, 2016 and analyzed on June 28, 2016.

1 = **CPS-FCS & PDC Laboratories recommend(s) the following actions:** (Part A) An inspection of the water tap and associated water line by a CPS-FCS specialized maintenance plumber to help determine the cause, (Part B) CPS-FCS shall conduct a follow-up sample collection-a flush sample*, and (Part C) CPS-FCS shall post a "Notice" sign above the water tap instructed the user to do not use this water source for consumable purposes.

*Follow-up Sample(s)

This sample is representative of the water that is in the plumbing upstream from the faucet or drinking water fountain. This sample shall be collected before the facility opens and before any water was used at the water tap. The water from the faucet or drinking water fountain should run for 30 seconds before collecting the sample. This is called a flush sample.

Part A: **CPS-FCS on-site review of:** Classroom Faucet (cold) in room C103

Date: 7-11-16	Name of Reviewer: Chris Williams
Actions taken: Inspected faucet	
Comments: faucet working fine. Lab classroom	
Signature of Reviewer: Chris Williams	

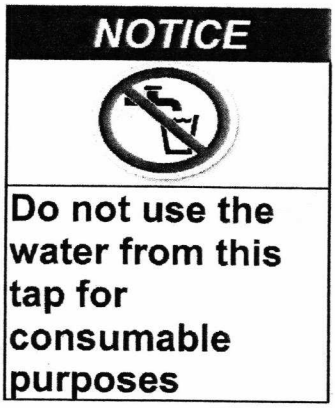
HHS

(Part B) CPS-FCS shall conduct a follow-up sample collection-a flush sample*,

Sample No.	Description/Location	Tag	
	Physics Class		
7	Classroom Faucet (cold) in room 117 S	FS-117-CF-61	
Chain of Custody Section			
Sample Collector (Print): Colton Davidson		Signature: Colton Davidson	
Relinquished by:	Date/Time:	Received by:	Date/Time: 7-11-16 1600
Relinquished by:	Date/Time: 7-11-16 1600	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time: 7-11-16 1600

EWC Electronic Water Cooler (chiller unit)
DWF Drinking Water Faucet (bubbler/fountain)
CF Classroom Faucet (cold)
KF Kitchen Faucet (cold)
FACSF Family and Consumer Science Faucet (cold)
RRF Restroom Faucet (cold)
NSF Nurse's Sink Faucet (cold)
TLF Teacher's Lounge Faucet
**FS Follow-up Sample

(Part C) CPS-FCS shall post a "Notice" sign above the water tap instructed the user to do not use this water source for consumable purposes.



Hickman High School

SAMPLING METHOD

The water sample method was a "first-draw" sample. The first-draw sample was a sample collected first thing in the morning and is representative of the water that may be consumed at the beginning of the day or after infrequent use. Water samples were collected from cold water lines; the recommended procedure by the EPA - Reference: The Environmental Protection Agency (EPA) Lead and Copper Rule, 40 C.F.R. Sections 141 .80 to 141.91, Revised Version: February 2016

The following sample revealed an elevated lead and/or copper lab report:

Sample No.	Description/Location	Tag	CPS-FCS Actions
96	Classroom Faucet (cold) in room 115 S (65, 66, 67)	115-CF-66	1

Sample collected on May 31, 2016 and analyzed on June 28, 2016.

1 = **CPS-FCS & PDC Laboratories recommend(s) the following actions:** (Part A) An inspection of the water tap and associated water line by a CPS-FCS specialized maintenance plumber to help determine the cause, (Part B) CPS-FCS shall conduct a follow-up sample collection-a flush sample*, and (Part C) CPS-FCS shall post a "Notice" sign above the water tap instructed the user to do not use this water source for consumable purposes.

*Follow-up Sample(s)

This sample is representative of the water that is in the plumbing upstream from the faucet or drinking water fountain. This sample shall be collected before the facility opens and before any water was used at the water tap. The water from the faucet or drinking water fountain should run for 30 seconds before collecting the sample. This is called a flush sample.

Part A: **CPS-FCS on-site review of:** Classroom Faucet (cold) in room C103

Date: 7-11-16	Name of Reviewer: Chris Willows
Actions taken: Inspected faucet	
Comments: Faucet is working fine.	
Signature of Reviewer: Chris Willows	

HHS

(Part B) CPS-FCS shall conduct a follow-up sample collection-a flush sample*,

Sample No.	Description/Location Science Lab	Tag	
8	Classroom Faucet (cold) in room 115 S (65, 66, 67)	FS-115-CF-66	
Chain of Custody Section			
Sample Collector (Print): Colton Davidson		Signature: Colton Davidson	
Relinquished by:	Date/Time:	Received by:	Date/Time: 7-11-16 1200
Relinquished by:	Date/Time: 7-11-16 1600	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time: 7-11-16 1600

EWC Electronic Water Cooler (chiller unit)
DWF Drinking Water Faucet (bubbler/fountain)
CF Classroom Faucet (cold)
KF Kitchen Faucet (cold)
FACSF Family and Consumer Science Faucet (cold)
RRF Restroom Faucet (cold)
NSF Nurse's Sink Faucet (cold)
TLF Teacher's Lounge Faucet
**FS Follow-up Sample

(Part C) CPS-FCS shall post a "Notice" sign above the water tap instructed the user to do not use this water source for consumable purposes.

Did not use.

Hickman High School

SAMPLING METHOD

The water sample method was a "first-draw" sample. The first-draw sample was a sample collected first thing in the morning and is representative of the water that may be consumed at the beginning of the day or after infrequent use. Water samples were collected from cold water lines; the recommended procedure by the EPA - Reference: The Environmental Protection Agency (EPA) Lead and Copper Rule, 40 C.F.R. Sections 141 .80 to 141.91, Revised Version: February 2016

The following sample revealed an elevated lead and/or copper lab report:

Sample No.	Description/Location	Tag	CPS-FCS Actions
97	Classroom Faucet (cold) in room 115 N (70, 71, 72)	115-CF-71	1

Sample collected on May 31, 2016 and analyzed on June 28, 2016.

1 = **CPS-FCS & PDC Laboratories recommend(s) the following actions:** (Part A) An inspection of the water tap and associated water line by a CPS-FCS specialized maintenance plumber to help determine the cause, (Part B) CPS-FCS shall conduct a follow-up sample collection-a flush sample*, and (Part C) CPS-FCS shall post a "Notice" sign above the water tap instructed the user to do not use this water source for consumable purposes.

*Follow-up Sample(s)

This sample is representative of the water that is in the plumbing upstream from the faucet or drinking water fountain. This sample shall be collected before the facility opens and before any water was used at the water tap. The water from the faucet or drinking water fountain should run for 30 seconds before collecting the sample. This is called a flush sample.

Part A: **CPS-FCS on-site review of:** Classroom Faucet (cold) in room C103

Date: 7-11-16	Name of Reviewer: Chris Willows
Actions taken: Inspected faucet	
Comments: Faucet is working fine	
Signature of Reviewer: Chris Willows	

HHS

(Part B) CPS-FCS shall conduct a follow-up sample collection-a flush sample*,

Sample No.	Description/Location Science Lab	Tag	
9	Classroom Faucet (cold) in room 115 N (70, 71, 72)	FS-115-CF-71	
Chain of Custody Section			
Sample Collector (Print): Colton Davidson		Signature: Colton Davidson	
Relinquished by:	Date/Time:	Received by:	Date/Time: 7-11-16 1240
Relinquished by:	Date/Time: 7-11-16 1600	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time: 7-11-16 1600

EWC Electronic Water Cooler (chiller unit)
DWF Drinking Water Faucet (bubbler/fountain)
CF Classroom Faucet (cold)
KF Kitchen Faucet (cold)
FACSF Family and Consumer Science Faucet (cold)
RRF Restroom Faucet (cold)
NSF Nurse's Sink Faucet (cold)
TLF Teacher's Lounge Faucet
**FS Follow-up Sample

(Part C) CPS-FCS shall post a "Notice" sign above the water tap instructed the user to do not use this water source for consumable purposes.

Did not use.

Hickman High School

SAMPLING METHOD

The water sample method was a "first-draw" sample. The first-draw sample was a sample collected first thing in the morning and is representative of the water that may be consumed at the beginning of the day or after infrequent use. Water samples were collected from cold water lines; the recommended procedure by the EPA - Reference: The Environmental Protection Agency (EPA) Lead and Copper Rule, 40 C.F.R. Sections 141 .80 to 141.91, Revised Version: February 2016

The following sample revealed an elevated lead and/or copper lab report:

Sample No.	Description/Location	Tag	CPS-FCS Actions
98	Classroom Faucet (cold) in room W (68&69)	115-CF-68	1

Sample collected on May 31, 2016 and analyzed on June 28, 2016.

1 = **CPS-FCS & PDC Laboratories recommend(s) the following actions:** (Part A) An inspection of the water tap and associated water line by a CPS-FCS specialized maintenance plumber to help determine the cause, (Part B) CPS-FCS shall conduct a follow-up sample collection-a flush sample*, and (Part C) CPS-FCS shall post a "Notice" sign above the water tap instructed the user to do not use this water source for consumable purposes.

*Follow-up Sample(s)

This sample is representative of the water that is in the plumbing upstream from the faucet or drinking water fountain. This sample shall be collected before the facility opens and before any water was used at the water tap. The water from the faucet or drinking water fountain should run for 30 seconds before collecting the sample. This is called a flush sample.

Part A: **CPS-FCS on-site review of:** Classroom Faucet (cold) in room C103

Date: 7-11-16	Name of Reviewer: Chris Willows
Actions taken: Inspected faucet	
Comments: Faucet is working fine	
Signature of Reviewer: Chris Willows	

HHS

(Part B) CPS-FCS shall conduct a follow-up sample collection-a flush sample*,

Sample No.	Description/Location Science Lab	Tag	
10	Classroom Faucet (cold) in room W (68&69)	FS-115-CF-68	
Chain of Custody Section			
Sample Collector (Print): Colton Davidson		Signature: Colton Davidson	
Relinquished by:	Date/Time:	Received by:	Date/Time: 7-11-16 1200
Relinquished by:	Date/Time: 7-11-16 1600	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time: 7-11-16 1600

EWC Electronic Water Cooler (chiller unit)
DWF Drinking Water Faucet (bubbler/fountain)
CF Classroom Faucet (cold)
KF Kitchen Faucet (cold)
FACSF Family and Consumer Science Faucet (cold)
RRF Restroom Faucet (cold)
NSF Nurse's Sink Faucet (cold)
TLF Teacher's Lounge Faucet
**FS Follow-up Sample

(Part C) CPS-FCS shall post a "Notice" sign above the water tap instructed the user to do not use this water source for consumable purposes.

Did not use.

Hickman High School

SAMPLING METHOD

The water sample method was a "first-draw" sample. The first-draw sample was a sample collected first thing in the morning and is representative of the water that may be consumed at the beginning of the day or after infrequent use. Water samples were collected from cold water lines; the recommended procedure by the EPA - Reference: The Environmental Protection Agency (EPA) Lead and Copper Rule, 40 C.F.R. Sections 141 .80 to 141.91, Revised Version: February 2016

The following sample revealed an elevated lead and/or copper lab report:

Sample No.	Description/Location	Tag	CPS-FCS Actions
101	Classroom Faucet (cold) in room 112 W (78)	112-LABCF-78	1

Sample collected on May 31, 2016 and analyzed on June 28, 2016.

1 = **CPS-FCS & PDC Laboratories recommend(s) the following actions:** (Part A) An inspection of the water tap and associated water line by a CPS-FCS specialized maintenance plumber to help determine the cause, (Part B) CPS-FCS shall conduct a follow-up sample collection-a flush sample*, and (Part C) CPS-FCS shall post a "Notice" sign above the water tap instructed the user to do not use this water source for consumable purposes.

*Follow-up Sample(s)

This sample is representative of the water that is in the plumbing upstream from the faucet or drinking water fountain. This sample shall be collected before the facility opens and before any water was used at the water tap. The water from the faucet or drinking water fountain should run for 30 seconds before collecting the sample. This is called a flush sample.

Part A: **CPS-FCS on-site review of:** Classroom Faucet (cold) in room C103

Date: 7-11-16	Name of Reviewer: Chris Williams
Actions taken: Inspected Faucet	
Comments: Faucet in working fine	
Signature of Reviewer:	

HHS

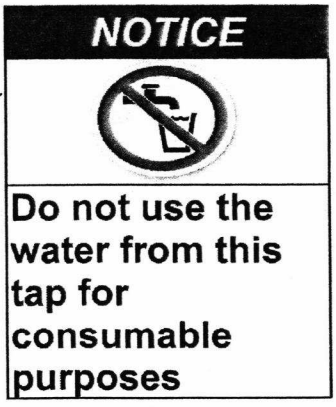
(Part B) CPS-FCS shall conduct a follow-up sample collection-a flush sample*,

Sample No.	Description/Location	Tag	
	Science Lab		
11	Classroom Faucet (cold) in room 112 W (78)	FS-112-LABCF-78	
Chain of Custody Section			
Sample Collector (Print): Colton Davidson		Signature: Colton Davidson	
Relinquished by:	Date/Time:	Received by:	Date/Time: 7-11-16 1200
Relinquished by:	Date/Time: 7-11-16 1600	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time: 7-11-16 1600

EWC Electronic Water Cooler (chiller unit)
DWF Drinking Water Faucet (bubbler/fountain)
CF Classroom Faucet (cold)
KF Kitchen Faucet (cold)
FACSF Family and Consumer Science Faucet (cold)
RRF Restroom Faucet (cold)
NSF Nurse's Sink Faucet (cold)
TLF Teacher's Lounge Faucet
**FS Follow-up Sample

(Part C) CPS-FCS shall post a "Notice" sign above the water tap instructed the user to do not use this water source for consumable purposes.

Did not use.



Hickman High School

SAMPLING METHOD

The water sample method was a "first-draw" sample. The first-draw sample was a sample collected first thing in the morning and is representative of the water that may be consumed at the beginning of the day or after infrequent use. Water samples were collected from cold water lines; the recommended procedure by the EPA - Reference: The Environmental Protection Agency (EPA) Lead and Copper Rule, 40 C.F.R. Sections 141 .80 to 141.91, Revised Version: February 2016

The following sample revealed an elevated lead and/or copper lab report:

Sample No.	Description/Location Science Lab	Tag	CPS-FCS Actions
104	Classroom Faucet (cold) in room 109 O	109-OCF-84	1

Sample collected on May 31, 2016 and analyzed on June 28, 2016.

1 = **CPS-FCS & PDC Laboratories recommend(s) the following actions:** (Part A) An inspection of the water tap and associated water line by a CPS-FCS specialized maintenance plumber to help determine the cause, (Part B) CPS-FCS shall conduct a follow-up sample collection-a flush sample*, and (Part C) CPS-FCS shall post a "Notice" sign above the water tap instructed the user to do not use this water source for consumable purposes.

*Follow-up Sample(s)

This sample is representative of the water that is in the plumbing upstream from the faucet or drinking water fountain. This sample shall be collected before the facility opens and before any water was used at the water tap. The water from the faucet or drinking water fountain should run for 30 seconds before collecting the sample. This is called a flush sample.

Part A: **CPS-FCS on-site review of:** Classroom Faucet (cold) in room C103

Date: 7-11-16	Name of Reviewer: Chris Willows
Actions taken: Inspected faucet	
Comments: Faucet is working fine	
Signature of Reviewer: Chris Willows	

1775

(Part B) CPS-FCS shall conduct a follow-up sample collection-a flush sample*,

Sample No.	Description/Location Science Lab	Tag	
12	Classroom Faucet (cold) in room 109 O	FS-109-OCF-84	
Chain of Custody Section			
Sample Collector (Print): Colton Davidson		Signature: Colton Davidson	
Relinquished by:	Date/Time:	Received by:	Date/Time: 7-11-16 1200
Relinquished by:	Date/Time: 7-11-16 1600	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time: 7-11-16 1600

EWC Electronic Water Cooler (chiller unit)
DWF Drinking Water Faucet (bubbler/fountain)
CF Classroom Faucet (cold)
KF Kitchen Faucet (cold)
FACSF Family and Consumer Science Faucet (cold)
RRF Restroom Faucet (cold)
NSF Nurse's Sink Faucet (cold)
TLF Teacher's Lounge Faucet
**FS Follow-up Sample

(Part C) CPS-FCS shall post a "Notice" sign above the water tap instructed the user to do not use this water source for consumable purposes.

Did not use.

Facilities & Construction Services

Appendix C

Facilities & Construction Services

PDC Laboratory Certifications

2016 Water Quality Evaluation
Columbia Public Schools
Columbia, Missouri

State of Missouri
Department of Natural Resources

Certificate of Approval
for Chemical Laboratory Service

This is to certify that

PDC Laboratories, Inc.

is hereby approved to perform the analysis of drinking water as specified on the Certified Parameter List, which must accompany this certificate to be valid.

Certification No. 870

Date Issued September 16, 2015

Expiration Date June 30, 2016

Chief, Public Drinking Water Branch
Water Protection Program
Department of Natural Resources

Director, Environmental Services Program
Department of Natural Resources

Evaluation Officer, Environmental Services Program
Department of Natural Resources

MISSOURI DEPARTMENT OF NATURAL RESOURCES

DRINKING WATER LABORATORY

CERTIFIED PARAMETER LIST

This is to certify that

PDC Laboratories, Inc.

located at

2231 West Altorfer Drive, Peoria, Illinois

has been approved to perform the indicated procedures on drinking water under the Missouri Public Drinking Water Regulations (10 CSR 60-5.020). Specific method numbers or references are included in parenthesis when appropriate.

METALS

EPA 200.7 – Aluminum, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Copper, Hardness (calculated), Iron, Magnesium, Manganese, Nickel, Silica, Sodium, Silver, Zinc;
EPA 200.8 – Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Zinc;
EPA 245.1 – Mercury

INORGANIC NONMETALLIC CONSTITUENTS

SM 4500C-G – Chlorine (Free, Combined, Total); S***M 4500F-C –*** Fluoride;
SM 4500H-B – Hydrogen Ion (pH); ***SM 4500NO3-F –*** Nitrate, Nitrite;
SM 4500P-E – Orthophosphate; ***EPA 150.1 –*** Hydrogen Ion (pH);
EPA 300.0 – Chloride, Fluoride, Nitrate, Nitrite, Sulfate; ***EPA 335.4 –*** Cyanide;
EPA 353.2 – Nitrate, Nitrite

PHYSICAL & AGGREGATE PROPERTIES

SM 2150B – Odor; ***SM 2320B –*** Alkalinity; ***SM 2330B –*** Corrosivity (Langlier Index);
SM 2510B – Conductivity; ***SM 2540C –*** Total Dissolved Solids (TDS);
EPA 180.1 – Turbidity

AGGREGATE ORGANIC CONSTITUENTS

SM 5310C – Total Organic Carbon (TOC); ***SM 5540C –*** Foaming Agents;
SM 5910B – UV254

ORGANIC COMPOUNDS

EPA 1613RB – Dioxin (2,3,7,8 TCDD); ***EPA 504.1 –*** 1,2-Dibromo-3-chloropropane (DBCP), 1,2-Dibromoethane (EDB); ***EPA 515.3 –*** 2,4,5-TP (Silvex), 2,4-D, Dalapon, Dicamba, Dinoseb, Pentachlorophenol, Picloram;
EPA 524.2 – 1,1,1,2-Tetrachloroethane, 1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethane, 1,1-Dichloroethene, 1,1-Dichloropropene, 1,2,3-Trichlorobenzene, 1,2,3-Trichloropropane, 1,2,4-Trichlorobenzene, 1,2,4-Trimethylbenzene, 1,2-Dichlorobenzene, 1,2-Dichloroethane, 1,2-Dichloropropane, 1,3-Dichlorobenzene, 1,3-Dichloropropane, 1,3,5-Trimethylbenzene, 1,4-Dichlorobenzene, 2-Chlorotoluene, 2,2-Dichloropropane, 4-Chlorotoluene, 4-Isopropyltoluene, Benzene, Bromobenzene, Bromochloromethane, Bromodichloromethane, Bromoform, Bromomethane, Carbon Tetrachloride, Chlorobenzene, Chloroethane, Chloroform, Chloromethane, cis-1,2-Dichloroethene, cis-1,3-Dichloropropene, Dibromochloromethane, Dibromomethane, Dichlorodifluoromethane, Dichloromethane (Methylene Chloride), Ethylbenzene, Trichlorofluoromethane, Hexachlorobutadiene, Isopropylbenzene, Methyl tert-butyl ether (MTBE), Naphthalene, n-Butylbenzene, n-Propylbenzene, sec-Butylbenzene, Styrene, tert-Butylbenzene, Tetrachloroethene, Toluene, Total Trihalomethanes, trans-1,2-Dichloroethene, trans-1,3-Dichloropropene, Trichloroethylene (TCE), Vinyl Chloride, Xylenes (total); ***EPA 525.2 –*** *4,4'-DDT,* Alachlor, Aldrin, Atrazine, Benzo(a)pyrene, Butachlor, Chlorodane (total), Di(2-ethylhexyl)adipate, Di(2-ethylhexl)phthalate, Dieldrin, Endrin, gamma-BHC (Lindane), Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, Hexachlorocyclopentadiene, Methoxychlor, Metolachlor, Metribuzin, PCB as Aroclor, Propachlor, Simazine, Toxaphene;
EPA 531.1 – 3-Hydroxycarbofuran, Aldicarb (Temik), Aldicarb Sulfone, Aldicarb Sulfoxide, Carbaryl (Sevin), Carbofuran (Furaden), Methomyl (Lannate), Oxamyl; ***EPA 547 –*** Glyphosate;
EPA 548.1 – Endothall; ***EPA 549.2 –*** Diquat; ***EPA 550 –*** Beno(a)pyrene;
EPA 552.2 – Dibromoacetic acid, Dichloroacetic acid, Monobromoacetic acid, Monochloroacetic acid, Trichloroacetic acid

Missouri Certificate No.: 870

Expiration Date: June 30, 2016

Original Certifying State: Illinois

Facilities & Construction Services

Appendix D

Facilities & Construction Services

Lead and Copper Rule

2016 Water Quality Evaluation
Columbia Public Schools
Columbia, Missouri

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

FEB 29 2016

OFFICE OF
WATER

MEMORANDUM

SUBJECT: Clarification of Recommended Tap Sampling Procedures for Purposes of the Lead and Copper Rule

FROM: Peter C. Grevatt, Director
Office of Ground Water & Drinking Water

TO: Water Division Directors
Regions I - X

The Lead and Copper Rule, 40 C.F.R. Sections 141.80 to 141.91, requires monitoring at consumer taps to identify levels of lead in drinking water that may result from corrosion of lead-bearing components in a public water system's distribution system or in household plumbing. These samples help assess the need for, or the effectiveness of, corrosion control treatment. The purpose of this memorandum is to provide recommendations on how public water systems should address the removal and cleaning of aerators, pre-stagnation flushing, and bottle configuration for the purpose of Lead and Copper Rule sampling.

Removal and Cleaning of Aerators

EPA issued a memorandum on *Management of Aerators during Collection of Tap Samples to Comply with the Lead and Copper Rule* on October 20, 2006. This memorandum stated that EPA recommends that homeowners regularly clean their aerators to remove particulate matter as a general practice, but states that public water systems should not recommend the removal or cleaning of aerators prior to or during the collection of tap samples gathered for purposes of the Lead and Copper Rule. EPA continues to recommend this approach. The removal or cleaning of aerators during collection of tap samples could mask the added contribution of lead at the tap, which may potentially lead to the public water system not taking additional actions needed to reduce exposure to lead in drinking water. EPA's recommendation about the removal and cleaning of aerators during sample collection applies only to monitoring for lead and copper conducted pursuant to 40 C.F.R. 141.86.

Pre-Stagnation Flushing

EPA is aware that some sampling instructions provided to residents include recommendations to flush the tap for a specified period of time prior to starting the minimum 6-hour stagnation time required for samples collected under the Lead and Copper Rule. This practice is called pre-stagnation flushing. Pre-stagnation flushing may potentially lower the lead levels as compared to when it is not practiced.

Flushing removes water that may have been in contact with the lead service line for extended periods, which is when lead typically leaches into drinking water. Therefore, EPA recommends that sampling instructions not contain a pre-stagnation flushing step.

Bottle Configuration

EPA recommends that wide-mouth bottles be used to collect Lead and Copper compliance samples. It has become apparent that wide-mouth bottles offer advantages over narrow-necked bottles because wide-mouth bottles allow for a higher flow rate during sample collection which is more representative of the flow that a consumer may use to fill up a glass of water. In addition, a higher flow rate can result in greater release of particulate and colloidal lead and therefore is more conservative in terms of identifying lead concentrations.

Conclusion

EPA is providing these recommendations for collection of Lead and Copper Rule tap samples to better reflect the state of knowledge about the fate and transport of lead in distribution systems. The three areas discussed above may potentially lead to samples that erroneously reflect lower levels of lead concentrations. The recommendations in this memorandum are also consistent with the recommendations provided by the EPA's Flint Task Force. For more information about the Task Force please view EPA's website at: http://www.epa.gov/flint.

To provide further information on this topic, EPA included an amended "Suggested Directions for Homeowner Tap Sample Collection Procedures" in Appendix D of the 2010 revision of *Lead and Copper Rule Monitoring and Reporting Guidance for Public Water Systems* (EPA 816-R-10-004). This document can be found at:
http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100DP2P.txt

Please share these recommendations with your state drinking water program directors. If you have any questions, please contact Anita Thompkins at thompkins.anita@epa.gov.

Attachment

cc: James Taft, Association of State Drinking Water Administrators

Suggested Directions for Homeowner Tap Sample Collection Procedures
Revised Version: February 2016

These samples are being collected to determine the lead and copper levels in your tap water. This sampling effort is required by the U.S. Environmental Protection Agency and your State under the Lead and Copper Rule, and is being accomplished through a collaboration between the public water system and their consumers (e.g. residents).

Collect samples from a tap that has not been used for at least 6 hours. To ensure the water has not been used for at least 6 hours, the best time to collect samples is either early in the morning or in the evening upon returning from work. Be sure to use a kitchen or bathroom cold water tap that has been used for drinking water consumption in the past few weeks. The collection procedure is described below.

1. Prior arrangements will be made with you, the customer, to coordinate the sample collection. Dates will be set for sample kit delivery and pick-up by water system staff.
2. There must be a minimum of 6 hours during which there is no water used from the tap where the sample will be collected and any taps adjacent or close to that tap. Either early mornings or evenings upon returning home are the best sampling times to ensure that the necessary stagnant water conditions exist. Do not intentionally flush the water line before the start of the 6 hour period.
3. Use a kitchen or bathroom cold-water faucet for sampling. If you have water softeners on your kitchen taps, collect your sample from the bathroom tap that is not attached to a water softener, or a point of use filter, if possible. Do not remove the aerator prior to sampling. Place the opened sample bottle below the faucet and open the cold water tap as you would do to fill a glass of water. Fill the sample bottle to the line marked "1000-mL" and turn off the water.
4. Tightly cap the sample bottle and place in the sample kit provided. Please review the sample kit label at this time to ensure that all information contained on the label is correct.
5. If any plumbing repairs or replacement has been done in the home since the previous sampling event, note this information on the label as provided. Also if your sample was collected from a tap with a water softener, note this as well.
6. Place the sample kit in the same location the kit was delivered to so that water system staff may pick up the sample kit.
7. Results from this monitoring effort and information about lead will be provided to you as soon as practical but no later than 30 days after the system learns of the tap monitoring results. However, if excessive lead and/or copper levels are found, immediate notification will be provided (usually 1-2 working days after the system learns of the tap monitoring results).

Call_____at_____if you have any questions regarding these instructions.

TO BE COMPLETED BY RESIDENT

Water was last used: Time_____ Date_____
Sample was collected: Time_____ Date_____

Sample Location & faucet (e.g. Bathroom sink): _____

I have read the above directions and have taken a tap sample in accordance with these directions.

Signature_____Date_____

Facilities & Construction Services

Columbia Missouri Water and Light
2015 Water Testing Results

2016 Water Quality Evaluation
Columbia Public Schools
Columbia, Missouri

Columbia Missouri Water and Light: 2015 Water Testing Results
WATER QUALITY CONTROL ANALYSIS OF TREATED WATER

QUALITY MEASURE	CONCENTRATION (milligrams per liter)
pH	8.33 (pH units)
Alkalinity (Total)*	123
Phenolphthalein Alkalinity*	14
Total Hardness*	168
Calcium (as calcium carbonate)*	100
Magnesium (as calcium carbonate)*	71
Sulfate**	86.3
Total Dissolved Solids**	309
Fluoride**	0.58
Free Chlorine	3.10
Total Chlorine	3.80
Chloride**	29.9
Iron**	0.12
Manganese**	0.02
Silica	21.4

*State regulations require these tests to be run for operation information
**Secondary standards
<Means less than — Equipment used cannot measure the contaminant below this level.

CONTAMINANT	CONCENTRATION (milligrams per liter)	MAXIMUM CONTAMINANT LEVEL (milligrams per liter)
VOLATILE ORGANIC CHEMICALS:		
Trichloroethylene	NONE DETECTED	0.005
Tetrachloroethylene	NONE DETECTED	0.005
Carbon tetrachloride	NONE DETECTED	0.005
1,1,1-trichloroethane	NONE DETECTED	0.20
1,2-dichloroethane	NONE DETECTED	0.005
Vinyl Chloride	NONE DETECTED	0.002
Benzene	NONE DETECTED	0.005
Dichloromethane	NONE DETECTED	0.005
Monochlorobenzene	NONE DETECTED	0.1
1,1-dichloroethylene	NONE DETECTED	0.007
Cis-1,2-dichloroethylene	NONE DETECTED	0.7
Trans-1,2-dichloroethylene	NONE DETECTED	0.1
INORGANIC CHEMICALS:		
Asbestos	NONE DETECTED	7 million fibers per liter
Arsenic	NONE DETECTED	0.01
Barium	0.123	2
Cadmium	NONE DETECTED	0.005
Chromium	0.001	0.1
Lead	0.0026	Treatment technique, Action level = 0.015
Mercury	NONE DETECTED	0.002
Nitrate (as Nitrogen)	0.03	10
Selenium	NONE DETECTED	0.05
Nitrite (as Nitrogen)	NONE DETECTED	1.0
Fluoride	0.58	4.0
Aluminum**	NONE DETECTED	0.05
Antimony	NONE DETECTED	0.006
Sulfate	86.3	250
Copper**	0.040	Treatment technique, Action level = 1.3
Sodium**	29.3	No MCL, monitoring only

CONTAMINANT	CONCENTRATION (milligrams per liter)	MAXIMUM CONTAMINANT LEVEL (milligrams per liter)
INORGANIC CHEMICALS CONTINUED:		
Nickel	NONE DETECTED	0.1
Zinc**	1.95	5
Thallium	NONE DETECTED	0.002
Beryllium	NONE DETECTED	0.004
Cyanide	NONE DETECTED	0.2
SYNTHETIC ORGANIC CHEMICALS:		
TTHM	0.0499	0.080
Endrin	NONE DETECTED	0.002
Lindane	NONE DETECTED	0.0002
Methoxychlor	NONE DETECTED	0.04
Toxaphene	NONE DETECTED	0.003
2,4-D	NONE DETECTED	0.07
2,4,5-TP (silvex)	NONE DETECTED	0.05
Aldicarb	NONE DETECTED	0.003
Chlordane	NONE DETECTED	0.002
Dalapon	NONE DETECTED	0.2
Diquat	NONE DETECTED	0.02
Endothall	NONE DETECTED	0.1
Glyphosate	NONE DETECTED	0.7
Carbofuran	NONE DETECTED	0.04
Vydate	NONE DETECTED	0.1
Simazine	NONE DETECTED	0.004
PAHs	NONE DETECTED	0.0002
PCBs	NONE DETECTED	0.0005
Atrazine	NONE DETECTED	0.003
Heptachlor	NONE DETECTED	0.0004
Pentachlorophenol	NONE DETECTED	0.001
Picloram	NONE DETECTED	0.5
Dinoseb	NONE DETECTED	0.007
Alachlor	NONE DETECTED	0.002
Hexachlorocyclopentadiene	NONE DETECTED	0.05
2,3,7,8-TCDD	NONE DETECTED	0.00000003
HAA5	0.022	0.060
MICROBIOLOGICAL CONTAMINANTS:		
Total coliforms	NONE DETECTED	No more than 5% of Total Number of samples may be positive
RADIONUCLIDES: (Picocuries per Liter)		
Radium	NONE DETECTED	5 picocuries per liter
Gross alpha	NONE DETECTED	15 picocuries per liter
Beta particle	6.6	4 mrem/yr 50 picocuries per liter
Uranium	0.48	20 ug/L
Radon	50.4	300

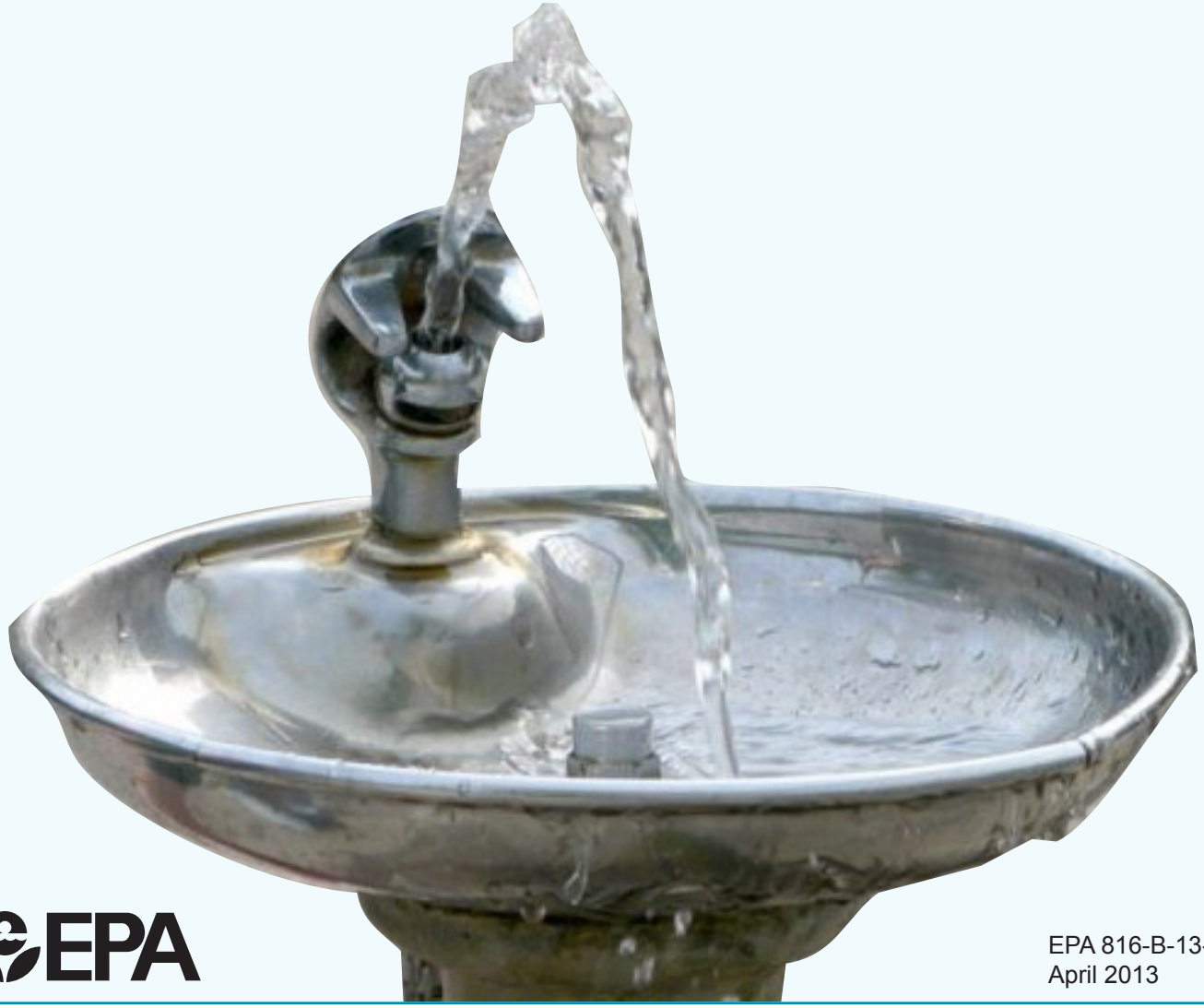
Facilities & Construction Services

EPA
Drinking Water
Best Management Practices

2016 Water Quality Evaluation
Columbia Public Schools
Columbia, Missouri

Drinking Water Best Management Practices

For Schools and Child Care Facilities Served by Municipal Water Systems



EPA

EPA 816-B-13-002
April 2013

Drinking Water Best Management Practices

For Schools and Child Care Facilities Served by Municipal Water Systems

This guide is intended for use by school officials and child care providers responsible for the maintenance and/or safety of school and child care facilities including the drinking water. The purpose of this guide is to describe the importance of implementing best management practices for drinking water in schools and child care facilities and how a school or child care facility would go about implementing these practices. This guide is specifically for schools and child care facilities that receive water from water utilities or water suppliers such as cities, towns and water districts. This guide is not a regulation itself, nor does it change or substitute for those provisions and regulations. Thus, it does not impose legally binding requirements on EPA, states, municipal water systems, schools or child care facilities. This guide does not confer legal rights or impose legal obligations upon any member of the public. While EPA has made every effort to ensure the accuracy of the information in this guide the obligations of the regulated community are determined by statutes, regulations or other legally binding requirements. In the event of a conflict between the information in this guide and any statute or regulation, this document would not be controlling.

Table of Contents

What Decision Makers Should Know

On any given day in America nearly 50 million public school students spend a significant portion of their day in school buildings. Exposure to environmental hazards in schools can negatively impact the health of children and school staff. Moreover, studies have shown that poor indoor environments in schools have negative impacts on teacher productivity and student performance.[1,2,3]

Schools and child care facilities receive their drinking water from nearby municipal water systems or their own on-site water system. Facilities that receive their water from a water provider can be assured that the water is regularly tested to ensure it meets federal and state drinking water standards, such as for bacteria and chemicals.

Even if the water meets federal and state standards at the municipal water supply, the water pipes and plumbing fixtures in your facility can affect the quality of water. Therefore, it is important to perform routine measures to limit bacteria or lead contamination and to implement other best management practices for drinking water to ensure your school or child care facility is providing safe drinking water to students and staff.

[1] Vinciullo F. The relationship between multi-component school health programs and school achievement. Paper presented at: Annual Conference of the National Association of School Nurses, 2008; Albuquerque, NM.

[2] Stolz A, Knickelbein, A., Coburn, S. Linking coordinated school health to student success. Paper presented at: Annual Conference of the National Association of School Nurses, 2008; Albuquerque, NM.

[3] NRC (National Research Council). Green Schools: Attributes for Health and Learning. Washington D.C.: The National Academies; 2006.

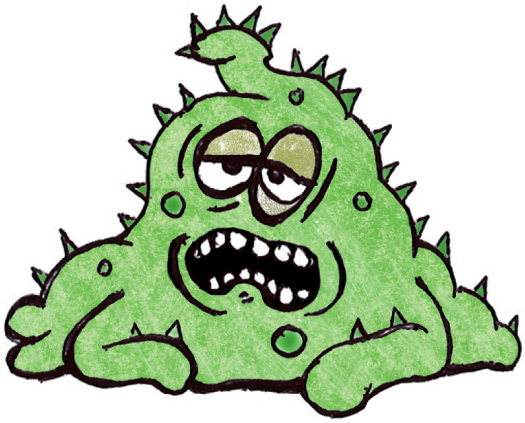
This guide identifies best management practices for drinking water in schools and child care facilities that are served by municipal drinking water systems to address the following issues:

- Bacteria that may grow within the plumbing system and hot water tanks, on water fountains and faucets, or enter the facility's distribution system (the building's pipes and plumbing) through cross connections;
- Elevated lead levels as a result of contamination from the facility's plumbing and drinking water fixtures; and
- Additional measures such as water conservation and educating students about drinking water.

Top Five Actions to Protect Drinking Water at Schools and Child Care Facilities

1. Clean drinking water fountains daily using procedures found in this guide.
2. Clean debris out of all outlet screens or aerators on a regular basis using the procedures found in this guide.
3. Test the facility's drinking water for lead. If lead is present, follow the actions for addressing lead contamination outlined in this guide.
4. Evaluate your facility for the presence of cross-connections and address any issues related to cross-connections by following the recommendations found in this guide.
5. If elevated lead levels are found, regularly flush all water outlets used for drinking or food preparation and install point-of-use devices, to provide additional treatment of drinking water at the outlet.

Bacteria



Bacteria are present throughout our environment. They have adapted to live and reproduce in a variety of environments, including inside animals and humans, and in water, soil and food. If harmful bacteria are present in drinking water sources, most are removed during the disinfection process. However, some may survive and enter the distribution system (the building's pipes and plumbing). Bacteria can also grow within the plumbing system, water fountains and faucets. Therefore, it is important to regularly clean your facility's water fountains, faucets and hot water tanks.

Lead

Understanding Lead Exposure

School officials and child care providers need to know whether the students, teachers and staff consume elevated levels of lead when drinking water in their facility, because exposure to lead can cause serious health problems, particularly for young children.

Lead in drinking water is primarily from materials and components associated with service lines and facility plumbing. Your municipal water supplier is responsible for providing high quality drinking water, but cannot control the variety of materials contained in the plumbing components used within your facility.

Health Effects of Lead

Lead can cause serious health problems if too much enters your body from drinking water or other sources. Some facts about lead exposure include:

- Infants, young children and pregnant women are at greatest risk to lead exposure;
- Increased lead levels have been shown to cause damage to the brain and kidneys;
- Increased lead levels interfere with the production of red blood cells that carry oxygen to all parts of your body;

Reduction of Lead in Drinking Water Act
A new requirement, signed into law by President Obama in January 2011, will further reduce lead in pipes, pipe fittings, plumbing fittings and fixtures to a weighted average of 0.25 percent. The Reduction of Lead in Drinking Water Act redefines "lead free" under the Safe Drinking Water Act to mean: not containing more than 0.2 percent lead when used with respect to solder and flux, the material used to join pipes and fixtures together (current law) and not more than a weighted average of 0.25 percent lead when used with respect to the wetted surfaces of pipes, pipe fittings, plumbing fittings and fixtures. The new requirements will become effective in January 2014.

- Scientists have linked the effects of lead on the brain with lowered intelligence quotient (IQ) in children;
- Adults with kidney problems and high blood pressure can be affected by lower levels of lead more than healthy adults;
- Lead is stored in the bones and it can be released later in life; and
- During pregnancy, the fetus receives lead from the mother's bones which may affect brain development.

How Lead Gets into Drinking Water

Soft water has a low pH, which is corrosive. Other factors however also contribute to the corrosion potential of the water and include water velocity, temperature, alkalinity, the type of disinfectant, the age and condition of plumbing and the amount of time water is in contact with plumbing. Of note, recent construction work on your facility's plumbing system (e.g., pipe replacement and utility lead service line replacement with copper components) may result in corrosion of remaining lead pipes or disturbance of settled debris within larger pipes in the system which may create new sources of contamination. The occurrence and rate of corrosion depend on the complex interaction between a number of these and other chemical, physical and biological factors.

Municipal water systems take steps to reduce the corrosiveness of the water. However, if the plumbing in your facility is made of lead or contains lead parts, corrosion may occur as the water moves through your facility's plumbing.

Example of lead pipes in a plumbing system.

Potential Sources of Lead in Drinking Water

- Lead pipes in plumbing:
  - Dull gray in color and will appear shiny when scratched
  - Banned since 1986 and not widely used since the 1930s
- Copper pipes joined by lead solder:
  - Solder will be dull gray in color and will appear shiny when scratched
  - Banned since 1986 and many communities banned prior to 1986
- Brass pipes, faucets, fittings and valves:
  - May contain alloys of lead
- Sediments in screens on faucets:
  - Debris from plumbing can collect on screens and may contain lead
- Water service line to facility is made of lead:
  - Pipes that carry water from the municipal water system main to the facility may contain lead
- Water fountains in the facility may contain lead parts:
  - Specific brands of water fountains contain lead parts or have lead lined water tanks
  - Since 1988 it has been mandated that water fountains be lead free but older facilities may have outdated models

Copper pipes joined by lead solder.

Copper

Copper is widely used in household plumbing, sometimes without proper consideration of water quality. Excess copper exposure can cause stomach and intestinal distress, liver or kidney damage and complications of Wilson's disease. Children's bodies absorb more lead and copper than the average adult because of their rapid development. Copper leaches into water through corrosion of the plumbing system – primarily from pipes, but fixtures, faucets and fittings made of brass can also be a source. The amount of copper in your water strongly depends on the acidity and types and amounts of minerals in the water, whether or not it is oxygenated or disinfected, how long the water stays in the pipes, the length of time the pipes have been in use and the water's temperature. Especially when the water pH is below neutral (7) and when the alkalinity of the water (bicarbonate content) is high, very high concentrations of copper can persist for many years in copper pipes and fittings found in new construction and remodeled or renovated buildings. Blue staining of water, sinks and fixtures can be an indicator of extreme copper plumbing corrosion.

Bacteria

Drinking Water Fountains

Drinking water fountains should be cleaned on a daily basis to reduce possible bacterial contamination. Fountains should also be included in the regular flushing of the facility's plumbing system (as described in the section Routine Measures for Reducing Lead Exposure).

Drinking Water Fountain Daily Cleaning Procedures[1]

The following procedures should be considered for daily cleaning:

- Gather necessary materials and suggested protective equipment;
- Obtain Material Safety Data Sheets (MSDS) for all chemicals being used and review manufacturer's instructions for use;
- Check the flow of the water to make sure there is a constant stream;
- Spray disinfectant cleaner solution on the inside surfaces of the mouthpiece and protective guard;
- Using a scrub brush, clean the inside and outside of the mouthpiece and protective guard;
- Rinse the mouthpiece and protective guard with water; and
- Wipe drinking fountain surfaces with a clean cloth dampened with water.

It is also important to clean drinking water fountains to remove lime and calcium build-up. Lime and calcium build-up can begin to block the water from coming through the mouthpiece and going down the drain.

Lime build-up on mouthpiece and protective guard of drinking fountain.

Removing Lime Build-up on Drinking Fountains or Ice Machines

- Spray descaler onto the bowl and back of the drinking fountain;
- Use a clean, lint-free cloth saturated with the descaler. Apply to the surfaces with the lime build-up. Let stand for the length of time recommended on the label;
- Wring out all excess solution from the cloth;
- Wipe the surface clean with the cloth. If necessary, use a brush or scrub pad to remove hard build-up. Be careful not to damage surfaces while scrubbing; and
- Thoroughly rinse the surfaces with clean water.

For a list of EPA-approved disinfectants to use in your facility, please visit: http://www.epa.gov/oppad001/chemregindex.htm

[1] Iowa State University Facilities Planning & Management – Custodial Task Procedures

Hot Water Tanks

Hot water tanks are susceptible to the development of biofilm, which is a surface deposit of bacteria that accumulates creating a slime layer. Similar to the plaque that forms on teeth biofilms accumulate over time. It is recommended that you consult with an experienced professional to have your hot water tank periodically cleaned to remove existing biofilms and sediments.[2]

A cross connection between a dishwasher drain (copper pipe) and a main pipe.

Cross Connections

A cross connection is an actual or potential connection between your facility's drinking water system and other liquids or substances. It is important to be aware of cross connections within your facility, as contamination can occur. Cross contamination from backflow of harmful substances may occur as a result of reduced pressure in the drinking water system or because of increased pressure in the contaminating source. Be aware, cross contamination may not be immediately apparent because a contaminant may not have a strong taste, odor or color.

[2] National Environmental Services Center, Tech Brief. Biofilm Control in Distribution Systems, Summer 2008, Vol. 8, Issue 2.

Boil water orders are issued by your municipal water system when elevated levels of bacteria and viruses are a concern. However, boiling water does not reduce lead levels in drinking water. Because some of the water evaporates during the boiling process, the lead concentration of the water actually increases as the water is heated. Hot tap water also dissolves lead more readily than cold tap water. If you are concerned about lead levels in your water and your municipal water system issues a boil water alert for reducing bacteria or viruses, you should find alternate sources of drinking water until the alert is over.

Cross contamination can happen at facilities under a number of circumstances, including:

- When a tube or hose from a faucet is submerged in a solution, beaker or custodian's sink;
- A pipe is connected from a drinking water source to chemical lab equipment, a storage tank or cafeteria equipment; or
- A hose is dropped into a waste/floor drain in an automotive shop, boiler room or cafeteria.

A garden hose creates a dangerous cross connection between potable and non-potable water.

Other sources of potential cross contamination include cross connections between the drinking water system and heating system boilers, water coolers, lawn sprinkler systems, fire sprinkler systems or soft drink machines.

Cross contamination can be prevented by using backflow prevention devices that only allow water to flow in one direction, from the source to the tap, so liquid cannot flow back down the tap and contaminate the water in the distribution system. Backflow prevention devices should be tested annually. If you have questions about cross connections and contamination, contact the local building/plumbing inspector or for more information on cross contamination please visit: http://water.epa.gov/infrastructure/drinkingwater/pws/crossconnectioncontrol/index.cfm.

Lastly, inspect your facility's pipes to make sure there are no leaks or outside indications of corrosion. Leaks in your plumbing system can be a way for bacteria to get into your water.

Lead

Voluntary Testing of Lead in Drinking Water

You cannot see, taste or smell lead in your drinking water. As such, testing the facility's water is the only sure way to know if there are elevated levels of lead in the water.

EPA developed the 3Ts for Reducing Lead in Drinking Water in Schools, Revised Technical Guidance (Training, Testing and Telling) to help schools and child care facilities implement simple strategies for managing the health risks of lead in drinking water. The 3Ts include:

Lead exposure poses a great risk to young children.

- **Training** school and child care facility officials to raise awareness of the potential occurrences, causes and health effects of lead in drinking water, assist facilities in identifying potential areas where elevated lead may occur, and establish a testing plan to identify and prioritize testing sites;
- **Testing** drinking water in the facility to identify potential problems and take corrective actions as necessary; and
- **Telling** students, parents, staff and the larger community about monitoring programs, potential risks, the results of testing and remediation actions.

The 3Ts for Reducing Lead in Drinking Water in Child Care Facilities is available at: http://water.epa.gov/infrastructure/drinkingwater/schools/guidance.cfm#3ts

EPA also developed the, "What Your School or Child Care Facility Should Know About Lead in Drinking Water" DVD available for order from the National Service Center for Environmental Publications (NSCEP) at: http://water.epa.gov/infrastructure/drinkingwater/schools/guidance.cfm[3]

Test the Facility's Drinking Water for Lead

It is important to test all of the drinking water outlets in your facility, especially those that provide water for drinking, cooking and preparing juice and infant formula. Lead in drinking water can be a very localized problem and can vary from tap to tap. Just because there is lead getting into your water from one outlet does not mean that all your taps are vulnerable or contaminated. At the same time, just because one tap sample is free from lead does not mean that all your taps are clear. It is a good idea to test ALL outlets including drinking fountains and water faucets where water will be used for drinking or cooking. Unusual sources of drinking water, such as locker room shower heads and other non-drinking water taps used to fill water jugs and carboys, should also be included when tested for lead.

If your sink has separate hot and cold water knobs then samples should be collected from cold water as hot tap water is not recommended for food preparation or direct consumption. If you have one lever, be sure to turn it on to the cold water side. The 3Ts for Reducing Lead in Drinking Water in Schools, Revised Technical Guidance, provides step-by-step guidance on how to properly collect samples and test your facility's drinking water outlets for lead.[4]

The concentration of lead in your drinking water samples will be reported in metric form, such as milligrams per liter (mg/L) or micrograms per liter (µg/L), or as parts per million (ppm) or parts per billion (ppb).

EPA recommends that schools and child care facilities take action if samples from any drinking water outlets show lead levels greater than 20 parts per billion.

Routine Measures for Reducing Lead Exposure

Whether you have tested your water or not, or even if you have and your water has shown low levels of lead, there are best practices that will further reduce the potential for lead exposure at your facility as well as reduce sediment in your water.

Develop a flushing plan

- Determine how water enters and flows through your facility by developing a plumbing profile.[5] Consult with your maintenance personnel, licensed plumber or local water service provider to develop a plumbing profile;
- Locate all water outlets that are used for consumption;

[3] Also available by calling NSCEP at 1-800-490-9198. For International Orders: Call NSCEP at (301) 519-6640 or e-mail NSCEP at nscep@bps-lmit.com

[4] See Section II: Testing of the 3Ts for Reducing Lead in Drinking Water in Schools, Revised Technical Guidance, available at: http://water.epa.gov/infrastructure/drinkingwater/schools/guidance.cfm#3ts

[5] See Section II: Testing of the 3Ts for Reducing Lead in Drinking Water in Schools, Revised Technical Guidance, available at: http://water.epa.gov/infrastructure/drinkingwater/schools/guidance.cfm#3ts

- Identify the drinking water outlet(s) farthest from the main water service line (Note: If your facility has multiple wings there will be more than one outlet farthest from the main service line);
- Determine the best order to open and flush drinking water outlets, starting with those farthest from the main service line;
- Identify options for collection and non-potable re-use of flushed water (e.g., plant watering); and
- Develop a system for accountability, including identifying one person who is in charge and developing a record keeping system.

Flush all water outlets used for drinking or food preparation

- At the start of each day, before using any water for drinking or cooking, flush the cold water faucet by allowing the water to run for a period of time. Contact your municipal water system to find out what the recommended flushing time is for your facility based on your system size and piping. This should be done for all water outlets used for drinking or food preparation.
- Flushing, or opening up a tap and letting the water run, replaces the stagnant water that may have been in contact with lead-containing plumbing fixtures overnight or over the weekend. The longer water is exposed to lead pipes or solder the greater the likelihood of lead contamination.
- Flushing times vary depending on your buildings pipes and outlets, refrigerated water fountains can take as long as 15 minutes to properly flush out the reservoir.
- If many taps need flushing, the tap farthest from the main pipe should be opened for approximately ten minutes to flush out the main pipe. Then, individual drinking water taps should be flushed to rid stagnant water from the pipes. Keep in mind that if your facility has more than one wing there may be more than one tap that is furthest from the water line.[6]

Use only cold water to prepare food and drinks

- Hot water dissolves lead more quickly than cold water and is therefore more likely to have greater amounts of lead.
- If hot water is needed, water should be drawn from the cold tap and heated.
- Use only thoroughly flushed water from the cold water tap for drinking and when making mixed baby formula, juices or foods.

Clean debris out of all outlet screens or aerators on a regular basis

- Small screens on the end of a faucet can trap sediments containing lead. Note: Aerators are often used to regulate flow, reduce splash and conserve water. Check to see if your faucets have aerators, since not all faucets have them.

Faucet Aerators

Many taps that are used to provide water for human consumption have an aerator as part of the faucet assembly. Aerators serve to introduce air into the water flow which makes it feel as if a larger water flow is coming out of the tap. The use of aerators is a common water conservation practice. Screens are not intended to remove contaminants in the water, but may trap sediment or debris as water passes through the faucet. Lead bearing sediment may end up in drinking water from physical corrosion of leaded solder and can build up in the aerator over time.

[6] Lead in School Drinking Water Program (http://www.mass.gov/dep/water/drinking/sclcatlg.pdf).

Faucet Aerators Cleaning Procedures

- Remove the aerator by twisting off with hands or pliers;

- One or more parts are contained within the aerator. Note the order and orientation of the parts as you remove them;

- Rinse the pieces with water and brush off the debris. For deposits that are difficult to remove, soak the parts in water for a few minutes and scrub with a new toothbrush. Backwashing aerator components is also an effective cleaning method for many aerator types. Hold removed aerator upside down under flowing water to backwash screens and mesh filters;

- If any parts are cracked or broken, replace them. If the washer has hardened it should be replaced; and

- Reassemble the aerator by screwing it back onto the faucet and hand-tighten.

It is not recommended that aerators be removed from faucets immediately before sampling for lead as the sample will fail to identify the typical available contribution of particulate lead from that tap and thus additional actions needed to reduce exposure to lead in drinking water will fail to be taken.

However, if the results from the initial sample are above the action level, you can consider taking a second sample to determine whether particulate matter is the source of lead. For this sample, the aerator would be cleaned or removed prior to sampling so that the two samples could be compared.[7] It is advised that a regular cleaning schedule be established for aerators.

The frequency of cleaning depends on how quickly the debris builds up on the inside walls of the aerator. Generally, the aerator should be cleaned at least quarterly. If blockages from scale or particulate accumulation are noticed, the frequency should be increased to monthly. Flow pattern changes are an indication of buildup.

[7] EPA, Oct 2006. Memorandum: Management of Aerators during Collection of Tap Samples to Comply with the Lead and Copper Rule. Available at: http://water.epa.gov/lawsregs/rulesregs/sdwa/lcr/upload/2006_10_27_lcrmr_memo_tapsamples-aerators_10202006.pdf.

Follow-up lead monitoring

Water quality changes over time and it is important to make sure that the water in your facility remains free of lead. Periodic retesting of fixtures is recommended.

Respond to Elevated Lead Levels

EPA recommends that schools and child care facilities take action if samples from drinking water outlets show lead levels greater than 20 ppb. Any outlet with test results above this level should not be used until the source of the contamination is found and the lead levels are reduced to 20 ppb or less. If you are going to stop using an outlet due to high lead levels you should place a physical barrier, such as tape or an illustrative sign over the faucet so that everyone knows it should not be used until it is fixed. In addition, you should encourage parents to have their children's blood tested for lead if high lead levels are detected in the water. Facilities should develop Standard Operating Procedures (SOPs) for responding to elevated lead levels and administrators or directors should be encouraged to communicate this information to parents (or the teachers) so they can protect their children. The following remedies can be used to respond to elevated lead levels:

Provide an alternative "lead-free" drinking water

- Bottled water can be used as a temporary measure; and
- Make sure the bottled water distributor meets federal and state bottled water quality standards (which are different than tap water) and that their filtration technology is National Sanitation Foundation International (NSF) certified for lead reduction (http://www.nsf.org/).

Remove sources of lead in the plumbing system

These remedies are most appropriate for localized contamination problems and are best handled by a licensed plumber:

- Replace solder joints with lead-free joints;
- Replace the outlet or fixture/faucet with "lead-free" materials (according to NSF/American National Standards Institute (ANSI) Standards 61 and 372; or
- Replace piping with "lead-free" materials (according to NSF/ANSI Standards 61 and 372).

You can search for NSF Drinking Water System Components here: http://www.nsf.org/certified/pwscomponents/

Prior to replacing fixtures when elevated lead levels are determined, be sure to test the new fixtures to ensure the fixtures are "lead free." If you are purchasing a large volume of faucets ask the manufacturer or vender to test the faucets with your local tap water to make sure no lead is leached out of the faucets. If you are only purchasing a few faucets make sure the fixtures are certified as lead-free according to NSF/ANSI Standard 61 for lead content.

Install point-of-use treatment devices

A faucett filtration system.

- A point-of-use (POU) device is a filtration system that can be installed directly on a drinking water outlet.
- Use a device that is certified by NSF

International to remove lead.[8]

- Maintaining POU treatment devices is very important. Refer to the manufacturer's instructions for maintenance procedures. If not maintained properly, some treatment devices may increase lead and other contaminant levels.
- If using a POU device you should do follow up testing to make sure the water is still below the action level.
- With the use of a POU device, flushing is not necessary.
- If using POU devices on some faucets, but not all, make sure that faucets without a POU device are clearly labeled that they are not for drinking or cooking water.

Communicate with Your Community about the Voluntary Lead Testing Program

It is important to communicate early and often about your testing plans, results and next steps. Telling parents and staff about your voluntary lead testing program will demonstrate your proactive commitment to protecting the health of your students and staff and build confidence in your facility's ability to provide a safe and healthy environment, whether or not elevated lead levels are found in your facility.

Additional Considerations

Copper

Testing for copper may be appropriate if your water is somewhat acidic (with a pH below 7) and when it is disinfected. Copper corrosion decreases steadily over time under normal water usage conditions, but elevated copper levels can persist for many years in new copper pipes. If you are experiencing blue staining of your water, sinks, bathtubs or showers or if there is growing blue encrustation on the fixtures, this may be an indicator of high copper levels, and you should have your water tested for both copper and lead. If you are experiencing elevated copper levels in the drinking water system, the easiest method for reducing exposure to copper is to flush the system to avoid drinking or cooking with water that has been in contact with the plumbing system for more than four hours. Particularly when first drawing water in the morning, flush the system by running the cold water faucet long enough to get fresh water from the main, which could vary from about two minutes to five or ten minutes, depending on the size and length of the pipes and the flow rate. Each faucet where water is drawn for drinking or cooking purposes should be flushed separately, starting with the faucet or outlet farthest from where the fresh water enters the building.

[8] The Lead and Copper Rule: Quick Reference Guide for Schools and Child Care Facilities that are Regulated Under the Safe Drinking Water Act, available at: http://water.epa.gov/infrastructure/drinkingwater/schools/upload/2006_1_11_schools_lead_sqrg_lcr_schools.pdf.

Water Conservation

Schools and child care facilities use large amounts of water every day for heating and cooling systems, restrooms, drinking water, cooking, locker rooms, cafeterias, laboratories and outdoor playing fields and lawns. Options to conserve water for these facilities include:

- Consider replacing old equipment such as dishwashers with energy and water saving devices;
- Repair water leaks and leaky toilets;
- Install aerators and automatic shut-off devices on faucets;
- Using low-flow shower heads and timer shut-off devices to reduce water use during showers;
- Installing timers on sprinklers;
- Installing toilet dams on older models;
- Replacing plants and grasses that require a lot of water with native sustainable vegetation; and
- Using rain barrels and teach the students about green roofs.

WaterSense

The WaterSense program promotes water efficiency and enhancing the market for water-efficient products, programs and practices. Since the program's inception in 2006, WaterSense has helped consumers save a cumulative 46 billion gallons of water and $343 million in water and sewer bills. For additional information, visit: http://www.epa.gov/watersense/

Teaching Students about Drinking Water

There are a variety of ways to teach students about drinking water:

- Early science classes demonstrating the water cycle;
- Mathematics classes demonstrating supply and demand principles;
- History lessons discussing early settlement patterns near water sources and our nation's system of government, laws and regulations provide important knowledge for water resource decision-making.
- Involve students in the voluntary lead testing program to make it a teaching moment, ensuring that the students wear proper safety equipment and are not exposed to lead.

EPA has developed numerous resources and activities for students and teachers, including:

Drinking Water in Schools and Child Care Facilities (EPA)

Provides multiple resources regarding lead in drinking water, including health information, an overview of laws and regulations and guidance.
Website: http://water.epa.gov/infrastructure/drinkingwater/schools/index.cfm

Kid's Stuff: Drinking Water and Ground Water (EPA)

Provides activities and materials for students and teachers for grades K-3, 4-8 and 9-12.
Website: http://water.epa.gov/learn/kids/drinkingwater/index.cfm

Water Science and Technology for Students and Educators (EPA)

Water-related activities and resources for students and teachers.
Website: http://water.epa.gov/learn/resources/index.cfm

That Magnificent Ground Water Connection (New England Interstate Water Pollution Control Commission in coordination with EPA)

Classroom activities for students demonstrating the many characteristics, uses and threats to ground water resources in New England. Available for grades K-6 and 7-12.
Selected activities are available at: http://www.epa.gov/region1/students/teacher/groundw.html

Resources

3Ts for Reducing Lead in Drinking Water in Schools

Provides detailed guidance for schools that receive their drinking water from municipal water supplies regarding training and testing for and communicating about lead in drinking water.
Website: http://water.epa.gov/infrastructure/drinkingwater/schools/guidance.cfm#3ts

3Ts for Reducing Lead in Drinking Water in Child Care Facilities

Provides detailed guidance for child care facilities that receive their drinking water for municipal water supplies regarding training and testing for and communicating about lead in drinking water.
Website: http://water.epa.gov/infrastructure/drinkingwater/schools/guidance.cfm#3ts

EPA's Website on Lead

http://www.epa.gov/lead/

EPA's Website on Lead in Drinking Water

http://water.epa.gov/drink/info/lead/index.cfm

EPA's Website on Reducing Lead in Drinking Water in Schools and Day Care Centers

http://water.epa.gov/drink/info/lead/schools_index.cfm

Centers for Disease Control and Prevention's Website on Lead

http://cdc.gov/lead/

National Lead Information Center Hotline:

(800) 424-LEAD

EPA's Safe Drinking Water Hotline:

(800) 426-4791

Are You Providing Safe Drinking Water at Your School or Child Care Facility?

For Schools and Child Care Facilities With Their Own Drinking Water Source

Caring for Our Children: National Health and Safety Performance Standards Guidelines for Early Care and Education Programs, 3rd Edition (2011)

Provides national standards that represent the best evidence, expertise and experience in the country on quality health and safety practices and policies that should be followed in today's early care and education settings. Chapter 5 covers drinking water safety, lead testing and appropriate plumbing.
Website: http://nrckids.org/CFOC3/index.html

State Drinking Water and Lead Prevention Information Sources

State drinking water programs can describe state-specific requirements and provide additional guidance materials for schools. For a complete list of State Drinking Water program contacts and lead prevention information sources, see:

Implementing the Lead Public Education Provision of the Lead and Copper Rule for Non Transient, Non Community Water Systems, Appendix C:

http://water.epa.gov/lawsregs/rulesregs/sdwa/lcr/upload/Implementing-the-Lead-Public-Education-Provisions-of-the-Lead-and-Copper-Rule-A-Guide-for-Non-Transient-Non-Community-Water-Systems.pdf

Implementing the Lead Public Education Provision of the Lead and Copper Rule for Community Water Systems, Appendix C:

http://water.epa.gov/lawsregs/rulesregs/sdwa/lcr/upload/Implementing-the-Lead-Public-Education-Provisions-of-the-Lead-and-Copper-Rule-A-Guide-for-Community-Water-Systems.pdf

Glossary

Acidic:

The condition of water or soil which contains a sufficient amount of acidic substances to lower the pH below 7.0.

Action Level:

The level of lead or copper which, if exceeded, triggers treatment or other requirements that a water system must follow.

Alkalinity:

The capacity of water to neutralize acids. This capacity is caused by the water's content of carbonate, bicarbonate, hydroxide and occasionally borate, silicate and phosphate. Alkalinity is expressed in milligrams per liter of equivalent calcium carbonate. Alkalinity is not the same as pH because water does not have to be strongly basic (high pH) to have a high alkalinity. Alkalinity is a measure of how much acid can be added to a liquid without causing a significant change in pH.

Alloy:

A solution made of two or more elements, at least one of which is a metal.

Backflow:

A reverse flow condition created by a difference in water pressures which causes water to flow back into the distribution pipes of a potable water supply from any source or sources other than an intended source.

Backwashing:

The process of reversing the flow of water back through the filter media to remove the entrapped solids.

Bacteria:

Microscopic living organisms usually consisting of a single cell. Bacteria can aid in pollution control by consuming or breaking down organic matter in sewage or by similarly acting on oil spills or other water pollutants. Some bacteria in soil, water or air may also cause human, animal and plant health problems.

Contaminant:

Anything found in water (e.g., microorganisms, minerals, chemicals, radionuclides, etc.) which may be harmful to human health.

Corrosion:

The gradual decomposition or destruction of a material by chemical action often due to an electrochemical reaction. Corrosion may be caused by: 1) stray current electrolysis, 2) galvanic corrosion caused by dissimilar metals or 3) differential concentration cells. Corrosion starts at the surface of a material and moves inward.

Cross-Connection:

Any actual or potential connection between a drinking (potable) water system and an unapproved water supply or other source of contamination. For example, if you have a pump moving non-potable water and hook into the ground water system to supply water for the pump seal a cross-connection or mixing between the two water systems can occur. This mixing may lead to contamination of the drinking water.

Descaler:

A solution used to remove and/or prevent limescale and fouling on water taps, kettles, coffeemakers, toilets and water pipes.

Disinfectant:
A chemical (commonly chlorine, chloramine or ozone) or physical process (e.g., ultraviolet light) that kills microorganisms such as bacteria, viruses and protozoa.

Distribution System:
A network of pipes leading from a treatment plant to customers' plumbing systems or the pipes and plumbing within a building that distribute water to all of the water outlets.

Ground Water:
The water that systems pump and treat from aquifers (natural reservoirs below the earth's surface).

Lead Service Line:
A service line made of lead which connects the water main to the building inlet and any lead pigtail, gooseneck or other fitting which is connected to such a lead line.

Monitoring Program:
Testing that water systems must perform to detect and measure contaminants. Specifically, measuring concentrations of certain substances within environmental media (e.g., drinking water) at regularly scheduled intervals.

Municipal Water System:
A network of pipes, pumps and storage and treatment facilities designed to deliver potable water to homes, schools, businesses and other users in a city or town.

Non-Potable Water:
Water that may contain objectionable pollution, contamination, minerals or infective agents and is considered unsafe and/or unpalatable for drinking.

pH:
A measurement of how acidic or basic a substance is. It ranges from 0 to 14. A pH of 7 is neutral. A pH less than 7 is acidic and a pH greater than 7 is basic.

Point-of-Use Device:
A treatment device applied to a single tap used for the purpose of reducing contaminants in drinking water at that one tap.

Potable Water:
Water that is safe and satisfactory for drinking and cooking.

Remediation:
Removal of pollution or contaminants from environmental media such as soil, ground water, sediment or surface water for the general protection of human health and the environment.

Samples:
The water that is analyzed for the presence of EPA-regulated drinking water contaminants. Depending on the regulation, EPA requires water systems and states to take samples from source water, from water leaving the treatment facility or from the taps of selected consumers.

Soft Water:
Water having a low concentration of polyvalent cations, such as calcium and magnesium ions. According to U.S. Geological Survey guidelines, soft water is water having a hardness (concentration of polyvalent cations) of 60 milligrams per liter or less.

Solder:
A metallic compound used to seal the joints between pipes. Until recently, most solder contained 50% lead. The use of lead solder containing more than 0.2% lead is now prohibited for pipes carrying potable water.

Toilet Dam:
A water-conservation device that is placed inside the tank portion of a toilet to reduce the amount of water the tank will hold by partitioning off part of the tank.