ISD 196
Rosemount - Apple Valley - Eagan Public Schools

Initial Sampling

Elementary
2023/24 Sampling

February 9, 2024

Providing Trusted
Health and Safety Solutions

Lindsay Elwell
Facilities and Grounds Manager
Independent School District 196
14309 Diamond Path
Apple Valley, MN 55124

RE: Lead-in-Water – Retesting and Follow-up Flush Testing
IEA Project #202310392

Dear Lindsay,

At the request of Independent School District 196, IEA collected thirty-five (35) follow-up post-flush water samples and one (1) initial retest sample for lead analyses on January 19, 2024. The purpose of the sampling was to document lead content of water in the indicated locations post-flushing and to compare the results to initial "first draw" sampling conducted July 25-28, 2023, with the district-designated action level of five (5) parts per billion.

INTRODUCTION

Minnesota Statute 121A.335 requires public school buildings serving pre-kindergarten through grade 12 to test for lead in potable water fixtures every five years. The *3Ts for Reducing Lead in Drinking Water Toolkit (2018)* and the Lead Contamination Control Act (LCCA) of 1988 were created by the Environmental Protection Agency (EPA) to identify and reduce lead in drinking water. Lead is a metal that usually enters drinking water through the distribution system, including pipes, solders, faucets, and valves. Lead content in water may increase when the water is allowed to sit undisturbed in the system. Exposure to lead is a health concern.

Certain first draw samples taken on July 25-28, 2023, had elevated lead content above the district-designated action level of 5 ppb.

The EPA recommends taking action when elevated lead levels are noted in water fixtures. The MDH and MDE recommend taking a fixture out of service if levels are 20 parts per billion (ppb) or higher. The MDH and MDE also recommend taking action according to their guidelines for fixtures with levels of 2 parts per billion (ppb) or higher.

METHODOLOGY

IEA collected thirty-five (35) follow-up flush samples and one initial sample from a replaced fixture of approximately 250 milliliters (ml) of water. After initial sampling revealed elevated levels, follow-up flush samples were completed in accordance with the EPA's 3T recommendations, specifically focusing on step 2. The purpose of step 2 is to identify where lead is getting into drinking water (i.e., fixtures versus interior plumbing) so that appropriate corrective measures can be taken. IEA took the follow-up flush samples after 30 seconds of running each fixture.

Water samples were analyzed by Minnesota Valley Testing Laboratories (MVTL) in New Ulm, Minnesota, which uses EPA-approved analytical methods and quality control/assurance procedures. Samples were analyzed using the ICP/MS EPA Method 200.8.

RESULTS & DISCUSSION

Retesting and remediation efforts completed by the District following elevated lead-in-water in July 2023 are displayed in the tables below. The full laboratory report is provided in Appendix A. Laboratory results are reported in micrograms per liter (µg/L) which is equivalent to ppb.

Table 1: Drinking Water Sample Results above 5 ppb indicates follow-up post-flush water results above the district-designated action level. The Table 1 lead-in-water post-flushing sampling retesting results ranged from 5.22 ppb to 176 ppb.

Table 1: Drinking Water Sample Results above 5 ppb – July 23-28, 2023, and January 19, 2024

School/ Building	Sample Number	Sampling Location	Fixture Type	Lead Results (ppb)		
				07/2023	01/2024	
Deerwood	07262023DE-02	Kitchen Southeast	Sprayer	5.56	5.32	Non-potable
Deerwood	07262023DE-11	Hallway Across from Room 230	Water Cooler	66.6	178	Fixture decommissioned
Highland	07252023HLE-02	Kitchen- Food Prep	Sprayer	116	12.5	Non-potable
Northview	07262023NVE-03	Kitchen Hydrovection Oven	Sprayer	8.20	5.5	Non-potable
Northview	07262023NVE-06	Nurse's Room	Sink	8.34	5.22	Filtration added
Rosemount	07262023RE-05	Nurse's Room	Sink	6.11	19.2	Filtration added
Woodland	07272023WLE-01	Kitchen Room 308	Sprayer	26.4	5.4	Non-potable

ppb – parts per billion

Table 2: Drinking Water Sample Results below 5 ppb indicates follow-up post-flush water results below the district-designated action level. The Table 2 lead-in-water post-flushing sampling retesting results ranged from below the level of detection (<0.5 ppb) to 3.94 ppb.

Table 2: Drinking Water Sample Results – July 23-28, 2023, and January 19, 2024

School/ Building	Sample Number	Sampling Location	Fixture Type	Lead Results (ppb)	
				07/2023	01/2024
Cedar Park STEM	07252023-CPE-01	Kitchen Room 710, Right	Sink	6.74	0.64
Cedar Park STEM	07252023-CPE-03	Kitchen Room 710, Left	Sink	17.5	0.53
Deerwood	07262023DE-01	Kitchen North	Sink	6.56	<0.5
Deerwood	07262023DE-03	Kitchen Southwest	Sink	19.2	<0.5
Diamond Path	09012023DPE-03	Kitchen Southeast Wall	Sink	13.2	1.2
Diamond Path	09012023DPE-02	Kitchen Southwest Wall	Sink	15.0	0.98
Diamond Path	07262023DPE-01	Kitchen Cooker Off Oven	Sprayer	13.8	2
Diamond Path	07262023DPE-52	Near 125 Boys	Drinking Fountain	21.2	1.31
Glacier Hills	07272023GHE-01	Kitchen Room 240	Kitchen Sink	16.0	0.66
Greenleaf	07262023GLE-02	Kitchen South	Sink	8.20	<0.5
Highland	07252023HLE-26	Room 100	Water Cooler	7.00	1.89
Highland	07252023HLE-13	Nurse's Room	Sink	10.0	0.78
Highland	07252023HLE-01	Kitchen- Closest to Door	Sink	28.8	2.28
Highland	07252023HLE-03	Kitchen- Against Exterior Wall	Sink	48.8	<0.5
*Oak Ridge	07272023ORE-30	Nurse Office	Sink	21.4	<0.5
Pinewood	07282023PWE-05	Nurse's Room 230	Sink	6.10	0.54
Pinewood	07282023PWE-01	Kitchen	Sink	11.2	<0.5
Red Pine	09012023RPE-02	Kitchen North Wall	Sink	26.0	0.85
Rosemount	07262023RE-03	Hallway outside Multipurpose Room Unit 2	Water Cooler	7.04	3.94
Southview	07252023SVE-01	Sink Office	Sink	12.1	0.7
Southview	09012023SVE-02	Kitchen SE Wall	Sink	19.0	1.99
Thomas Lake	07282023TLE-01	Kitchen Sink 1 Left	Sink	15.5	2.99
Westview	07272023WVE-03	Kitchen Sink 4	Sprayer	6.84	2.23
Westview	07272023WVE-32	Room 209	Sink	7.23	2.17
Westview	07272023WVE-18	Lounge	Water Bottle Filler	9.86	<0.5
Westview	07272023WVE-02	Kitchen Sink 3	Sink	15.5	0.66
Westview	07272023WVE-01	Kitchen Storage	Sprayer	47.7	0.8
Woodland	07272023WLE-02	Kitchen Room 308, East	Sink	34.1	1.24
Woodland	07272023WLE-03	Kitchen Room 308, West	Sink	71.5	<0.5

*Indicates initial retesting after the fixture was replaced
ppb – parts per billion

Table 3: Drinking Water Remediation Action by District indicates fixtures that were taken out of service and therefore not resampled.

Table 3: Drinking Water Remediation Action by District

School / Building	Sample Number	Sampling Location	Fixture Type	Lead Results (ppb)	
				07/2023	Action
Cedar Park STEM	07252023-CPE-16	Room 505	Drinking Fountain	5.16	Disconnected
Cedar Park STEM	07252023-CPE-35	Room 106	Drinking Fountain	5.57	Disconnected
Cedar Park STEM	07252023-CPE-36	Room 105	Drinking Fountain	5.80	Disconnected
Cedar Park STEM	07252023-CPE-21	Room 406	Drinking Fountain	6.07	Disconnected
Cedar Park STEM	07252023-CPE-24	Room 402	Drinking Fountain	6.23	Disconnected
Cedar Park STEM	07252023-CPE-17	Room 506	Drinking Fountain	6.37	Disconnected
Cedar Park STEM	07252023-CPE-18	Room 507	Drinking Fountain	6.60	Disconnected
Cedar Park STEM	07252023-CPE-20	Room 405	Drinking Fountain	6.92	Disconnected
Cedar Park STEM	07252023-CPE-39	Room 102	Drinking Fountain	7.89	Disconnected
Cedar Park STEM	07252023-CPE-22	Room 404	Drinking Fountain	8.19	Disconnected
Cedar Park STEM	07252023-CPE-14	Room 503	Drinking Fountain	9.41	Disconnected
Cedar Park STEM	07252023-CPE-25	Room 401	Drinking Fountain	10.5	Disconnected
Cedar Park STEM	07252023-CPE-08	Room 700	Drinking Fountain	11.2	Disconnected
Cedar Park STEM	07252023-CPE-27	Room 410	Drinking Fountain	11.2	Disconnected
Cedar Park STEM	07252023-CPE-29	Room 201	Drinking Fountain	11.2	Disconnected
Cedar Park STEM	07252023-CPE-37	Room 104	Drinking Fountain	12.5	Disconnected
Cedar Park STEM	07252023-CPE-07	Hall between 704 & 700	Drinking Fountain	23.2	Disconnected
Cedar Park STEM	07252023-CPE-28	Room 200	Drinking Fountain	39.9	Disconnected
Diamond Path	07262023DPE-40	Room 124 Right	Drinking Fountain	7.70	Disconnected
Diamond Path	07262023DPE-66	Room 143	Drinking Fountain	8.01	Disconnected
Diamond Path	07262023DPE-18	Off Room 156 Outside Girls	Drinking Fountain	11.0	Disconnected
Diamond Path	07262023DPE-43	Room 122	Drinking Fountain	13.0	Disconnected
Diamond Path	07262023DPE-39	Off Room 125 Outside Girls	Drinking Fountain	14.2	Disconnected
Diamond Path	07262023DPE-45	Room 119 Unit 1	Drinking Fountain	18.3	Disconnected
Echo Park	07282023EPE-24	Room 409	Drinking Fountain	5.12	Disconnected
Echo Park	07282023EPE-25	Room 410	Drinking Fountain	5.19	Disconnected
Echo Park	07282023EPE-05	Hallway (outside gym B) 7	Drinking Fountain	9.70	Disconnected
Echo Park	07282023EPE-35	Room 202	Drinking Fountain	37.1	Disconnected
Glacier Hills	07272023GHE-46	3rd Grade Room 111	Drinking Fountain	5.07	Disconnected
Glacier Hills	07272023GHE-25	2nd Grade Room 206	Drinking Fountain	5.72	Disconnected
Glacier Hills	07272023GHE-29	1st Grade Room 210	Drinking Fountain	5.86	Disconnected
Glacier Hills	07272023GHE-44	3rd Grade Room 109	Drinking Fountain	6.03	Disconnected
Glacier Hills	07272023GHE-36	5th Grade Room 101	Drinking Fountain	6.20	Disconnected
Glacier Hills	07272023GHE-38	5th Grade Room 103	Drinking Fountain	6.65	Disconnected
Glacier Hills	07272023GHE-30	Kindergarten Room 211	Drinking Fountain	6.80	Disconnected
Glacier Hills	07272023GHE-16	Kindergarten Room 217	Drinking Fountain	6.81	Disconnected
Glacier Hills	07272023GHE-26	1st Grade Room 207	Drinking Fountain	6.82	Disconnected
Glacier Hills	07272023GHE-47	3rd Grade Room 112	Drinking Fountain	7.17	Disconnected
Glacier Hills	07272023GHE-42	4th Grade Room 107	Drinking Fountain	7.20	Disconnected
Glacier Hills	07272023GHE-45	3rd Grade Room 110	Drinking Fountain	7.27	Disconnected
Glacier Hills	07272023GHE-20	Room 201	Drinking Fountain	7.43	Disconnected
Glacier Hills	07272023GHE-12	Kindergarten Room 219	Drinking Fountain	7.74	Disconnected
Glacier Hills	07272023GHE-40	4th Grade Room 105	Drinking Fountain	7.97	Disconnected
Glacier Hills	07272023GHE-39	5th Grade Room 104	Drinking Fountain	8.08	Disconnected
Glacier Hills	07272023GHE-22	2nd Grade Room 203	Drinking Fountain	8.58	Disconnected
Glacier Hills	07272023GHE-33	G. T. Room 113	Drinking Fountain	8.74	Disconnected

School / Building	Sample Number	Sampling Location	Fixture Type	Lead Results (ppb)	
				07/2023	Action
Glacier Hills	07272023GHE-41	4th Grade Room 106	Drinking Fountain	8.92	Disconnected
Glacier Hills	07272023GHE-14	Kindergarten Room 218	Drinking Fountain	10.0	Disconnected
Glacier Hills	07272023GHE-10	Kindergarten Room 214	Drinking Fountain	11.9	Disconnected
Greenleaf	07262023GLE-05	Room 602	Drinking Fountain	5.06	Disconnected
Greenleaf	07262023GLE-27	Room 102	Drinking Fountain	6.47	Disconnected
Greenleaf	07262023GLE-04	Room 600	Drinking Fountain	6.87	Disconnected
Greenleaf	07262023GLE-39	Room 301	Drinking Fountain	23.9	Disconnected
Highland	07252023HLE-16	Room 104	Drinking Fountain	5.38	Disconnected
Highland	07252023HLE-37	Room 302	Drinking Fountain	8.68	Disconnected
Highland	07252023HLE-11	Room 209	Drinking Fountain	9.60	Disconnected
Highland	07252023HLE-55	Room 213	Drinking Fountain	13.5	Disconnected
Highland	07252023HLE-44	Room 317	Drinking Fountain	16.6	Disconnected
Northview	07262023NVE-35	Room 207	Drinking Fountain	5.07	Disconnected
Northview	07262023NVE-38	Room 209	Drinking Fountain	5.11	Disconnected
Northview	07262023NVE-13	Room 112	Drinking Fountain	5.25	Disconnected
Northview	07262023NVE-11	Room 100	Drinking Fountain	5.32	Disconnected
Northview	07262023NVE-33	Art Room 205	Drinking Fountain	6.22	Disconnected
Northview	07262023NVE-18	Room 103	Drinking Fountain	6.84	Disconnected
Northview	07262023NVE-32	Room 204	Drinking Fountain	7.68	Disconnected
Northview	07262023NVE-47	Hallway Outside Multipurpose Girls BR	Drinking Fountain	8.69	Disconnected
Northview	07262023NVE-50	Inside Exit 4	Drinking Fountain	10.3	Disconnected
Northview	07262023NVE-20	Room 101	Drinking Fountain	11.1	Disconnected
Northview	07262023NVE-31	Room 203	Drinking Fountain	12.3	Disconnected
Oak Ridge	07272023ORE-47	Room 114	Drinking Fountain	5.02	Disconnected
Oak Ridge	07272023ORE-43	Room 110	Drinking Fountain	5.16	Disconnected
Oak Ridge	07272023ORE-39	Room 106	Drinking Fountain	5.24	Disconnected
Oak Ridge	07272023ORE-35	Room 102	Drinking Fountain	5.73	Disconnected
Oak Ridge	07272023ORE-18	Room 204	Drinking Fountain	5.77	Disconnected
Oak Ridge	07272023ORE-20	Room 202	Drinking Fountain	5.78	Disconnected
Oak Ridge	07272023ORE-16	Room 206	Drinking Fountain	5.96	Disconnected
Oak Ridge	07272023ORE-44	Room 111	Drinking Fountain	6.30	Disconnected
Oak Ridge	07272023ORE-27	Room 219A	Drinking Fountain	6.56	Disconnected
Oak Ridge	07272023ORE-50	Room 115	Drinking Fountain	8.35	Disconnected
Oak Ridge	07272023ORE-22	Room 215	Drinking Fountain	8.57	Disconnected
Oak Ridge	07272023ORE-08	Room 214	Drinking Fountain	8.73	Disconnected
Oak Ridge	07272023ORE-04	Room 234	Drinking Fountain	8.80	Disconnected
Oak Ridge	07272023ORE-10	Room 212	Drinking Fountain	8.92	Disconnected
Oak Ridge	07272023ORE-51	Room 116	Drinking Fountain	13.9	Disconnected
Pinewood	07282023PWE-15	Room 215	Drinking Fountain	5.06	Disconnected
Pinewood	07282023PWE-34	Room 101	Drinking Fountain	5.26	Disconnected
Pinewood	07282023PWE-11	Room 217	Drinking Fountain	5.55	Disconnected
Pinewood	07282023PWE-39	Room 106	Drinking Fountain	5.55	Disconnected
Pinewood	07282023PWE-42	Room 109	Drinking Fountain	6.37	Disconnected
Pinewood	07282023PWE-37	Room 104	Drinking Fountain	6.42	Disconnected
Pinewood	07282023PWE-24	Room 208	Drinking Fountain	6.55	Disconnected
Pinewood	07282023PWE-26	Room 210	Drinking Fountain	6.79	Disconnected
Pinewood	07282023PWE-20	Room 204	Drinking Fountain	7.16	Disconnected
Pinewood	07282023PWE-27	Room 211	Drinking Fountain	8.84	Disconnected
Pinewood	07282023PWE-13	Room 216	Drinking Fountain	9.16	Disconnected
Pinewood	07282023PWE-08	Room 220	Drinking Fountain	13.2	Disconnected
Pinewood	07282023PWE-16	Room 213	Drinking Fountain	16.9	Disconnected
Pinewood	07282023PWE-17	Room 201	Drinking Fountain	19.8	Disconnected
Pinewood	07282023PWE-28	Room 212	Drinking Fountain	22.3	Disconnected

School / Building	Sample Number	Sampling Location	Fixture Type	Lead Results (ppb)	
				07/2023	Action
Red Pine	07252023RPE-39	Room 104	Drinking Fountain	5.13	Disconnected
Red Pine	07252023RPE-36	Room 101	Drinking Fountain	5.29	Disconnected
Red Pine	07252023RPE-41	Room 106	Drinking Fountain	5.33	Disconnected
Red Pine	07252023RPE-49	Room 114	Drinking Fountain	5.43	Disconnected
Red Pine	07252023RPE-27	Room 200	Drinking Fountain	5.47	Disconnected
Red Pine	07252023RPE-38	Room 103	Drinking Fountain	5.56	Disconnected
Red Pine	07252023RPE-24	Room 203	Drinking Fountain	5.90	Disconnected
Red Pine	07252023RPE-25	Room 202	Drinking Fountain	5.98	Disconnected
Red Pine	07252023RPE-40	Room 105	Drinking Fountain	5.98	Disconnected
Red Pine	07252023RPE-26	Room 201	Drinking Fountain	6.29	Disconnected
Red Pine	07252023RPE-46	Room 111	Drinking Fountain	6.43	Disconnected
Red Pine	07252023RPE-18	Room 208	Drinking Fountain	6.58	Disconnected
Red Pine	07252023RPE-13	Room 213	Drinking Fountain	6.74	Disconnected
Red Pine	07252023RPE-16	Room 210	Drinking Fountain	6.91	Disconnected
Red Pine	07252023RPE-05	Music Room	Drinking Fountain	6.94	Disconnected
Red Pine	07252023RPE-37	Room 102	Drinking Fountain	6.96	Disconnected
Red Pine	07252023RPE-17	Room 209	Drinking Fountain	7.19	Disconnected
Red Pine	07252023RPE-44	Room 109	Drinking Fountain	7.27	Disconnected
Red Pine	07252023RPE-45	Room 110	Drinking Fountain	7.30	Disconnected
Red Pine	07252023RPE-48	Room 113	Drinking Fountain	7.47	Disconnected
Red Pine	07252023RPE-14	Room 212	Drinking Fountain	7.51	Disconnected
Red Pine	07252023RPE-47	Room 112	Drinking Fountain	8.37	Disconnected
Red Pine	07252023RPE-42	Room 107	Drinking Fountain	9.08	Disconnected
Red Pine	07252023RPE-30	Room 217	Drinking Fountain	10.0	Disconnected
Red Pine	07252023RPE-50	Room 115	Drinking Fountain	10.3	Disconnected
Red Pine	07252023RPE-31	Room 215	Drinking Fountain	10.4	Disconnected
Red Pine	07252023RPE-32	Room 216	Drinking Fountain	10.7	Disconnected
Red Pine	07252023RPE-15	Room 211	Drinking Fountain	11.3	Disconnected
Red Pine	07252023RPE-22	Room 205	Drinking Fountain	11.3	Disconnected
Red Pine	07252023RPE-33	Room A (Off Room 220)	Drinking Fountain	12.5	Disconnected
Red Pine	07252023RPE-34	Room 220	Drinking Fountain	12.5	Disconnected
Red Pine	07252023RPE-23	Room 204	Drinking Fountain	14.1	Disconnected
Red Pine	07252023RPE-02	Kitchen 2 North Wall	Sink	18.8	Disconnected
Red Pine	07252023RPE-19	Room 207- 1	Drinking Fountain	23.6	Disconnected
Red Pine	07252023RPE-20	Room 207- 2	Drinking Fountain	25.3	Disconnected
Red Pine	07252023RPE-51	Room 117	Drinking Fountain	25.4	Disconnected
Rosemount	07262023RE-39	Room 406	Drinking Fountain	5.14	Disconnected
Rosemount	07262023RE-09	Room 106	Drinking Fountain	5.27	Disconnected
Rosemount	07262023RE-26	Room 412	Drinking Fountain	6.08	Disconnected
Rosemount	07262023RE-43	Room 402	Drinking Fountain	6.40	Disconnected
Rosemount	07262023RE-45	Staff Lounge	Drinking Fountain	7.33	Disconnected
Rosemount	07262023RE-40	Room 405	Drinking Fountain	9.03	Disconnected
Rosemount	07262023RE-24	Room 414	Drinking Fountain	9.50	Disconnected
Rosemount	07262023RE-25	Room 413	Drinking Fountain	13.7	Disconnected
Rosemount	07262023RE-06	Room 101	Drinking Fountain	62.2	Disconnected
Shannon Park	07272023SPE-21	Room 202	Drinking Fountain	5.08	Disconnected
Shannon Park	07272023SPE-32	Room 212	Drinking Fountain	5.17	Disconnected
Shannon Park	07272023SPE-18	Room 215	Drinking Fountain	5.20	Disconnected
Shannon Park	07272023SPE-13	Room 218	Drinking Fountain	9.46	Disconnected
Shannon Park	07272023SPE-20	Room 201	Drinking Fountain	12.8	Disconnected
Shannon Park	07272023SPE-33	Room 101	Drinking Fountain	13.1	Disconnected
Shannon Park	07272023SPE-19	Room 213	Drinking Fountain	20.3	Disconnected
Shannon Park	07272023SPE-41	Room 108	Drinking Fountain	32.5	Disconnected

School / Building	Sample Number	Sampling Location	Fixture Type	Lead Results (ppb)	
				07/2023	Action
Southview	07252023SVE-22	Room 304	Drinking Fountain	5.01	Disconnected
Southview	07252023SVE-15	Room 404	Drinking Fountain	5.47	Disconnected
Southview	07252023SVE-38	Room 108	Drinking Fountain	5.55	Disconnected
Southview	07252023SVE-20	Room 303	Drinking Fountain	5.73	Disconnected
Southview	07252023SVE-40	Room 107	Drinking Fountain	6.26	Disconnected
Southview	07252023SVE-30	Room 203	Drinking Fountain	6.87	Disconnected
Southview	07252023SVE-29	Room 206	Drinking Fountain	6.90	Disconnected
Southview	07252023SVE-42	Room 106	Drinking Fountain	7.35	Disconnected
Southview	07252023SVE-28	Room 205	Drinking Fountain	8.06	Disconnected
Southview	07252023SVE-21	Room 305	Drinking Fountain	8.61	Disconnected
Southview	07252023SVE-27	Room 204	Drinking Fountain	8.66	Disconnected
Southview	07252023SVE-19	Room 306	Drinking Fountain	9.84	Disconnected
Southview	07252023SVE-16	Room 405	Drinking Fountain	10.8	Disconnected
Southview	07252023SVE-31	Room 208	Drinking Fountain	10.8	Disconnected
Southview	07252023SVE-43	Room 601	Drinking Fountain	13.5	Disconnected
Southview	07252023SVE-14	Room 403	Drinking Fountain	25.0	Disconnected
Southview	07252023SVE-12	Room 402	Drinking Fountain	28.4	Disconnected
Southview	07252023SVE-36	Room 110	Drinking Fountain	35.3	Disconnected
Southview	07252023SVE-10	Room 408	Drinking Fountain	41.1	Disconnected
Southview	07252023SVE-13	Room 406	Drinking Fountain	42.4	Disconnected
Southview	07252023SVE-37	Room 109	Drinking Fountain	43.4	Disconnected
Southview	07252023SVE-11	Room 407	Drinking Fountain	92.3	Disconnected
Southview	07252023SVE-09	Room 409	Drinking Fountain	190	Disconnected
Thomas Lake	07282023TLE-28	Room 318	Drinking Fountain	5.50	Disconnected
Thomas Lake	07282023TLE-12	Room 228	Drinking Fountain	5.96	Disconnected
Thomas Lake	07282023TLE-16	Room 216	Drinking Fountain	6.08	Disconnected
Thomas Lake	07282023TLE-25	Room 319	Drinking Fountain	6.20	Disconnected
Thomas Lake	07282023TLE-20	Room 219	Drinking Fountain	8.29	Disconnected
Thomas Lake	07282023TLE-33	Room 328	Drinking Fountain	9.09	Disconnected
Thomas Lake	07282023TLE-04	Hallway outside West Gym Room 119	Drinking Fountain	9.57	Disconnected
Westview	07272023WVE-08	Room 501	Drinking Fountain	8.16	Disconnected
Westview	07272023WVE-30	Room 604	Drinking Fountain	10.0	Disconnected
Westview	07272023WVE-06	Music Room 503	Drinking Fountain	11.3	Disconnected

ppb – parts per billion

CONCLUSIONS

- Based on the sample results from January 19, 2024, replacing the sink in the Nurse Office at Oak Ridge Elementary School was successful in reducing lead content below the district-designated action level.
- Twenty-eight (28) of the follow-up flush samples reduced lead content below the district-designated Action Level. This indicates that replacing the water fixture may reduce lead levels to below the district-designated Action Level.
- Seven (7) of the follow-up flush samples remained above the district-designated Action Level. This may indicate that the presence of lead is due to interior plumbing components, such as pipes, pipe fittings, or welding solder.

RECOMMENDATIONS

- IEA recommends remediating the interior plumbing components for fixtures that resulted in 5 ppb or higher and replacing the fixture for the fixtures that tested below 5 ppb. Once remediation is complete, IEA recommends retesting the thirty-five (35) fixtures once more to ensure the elevated lead content has been reduced to below the district-designated Action Level and the fixture can return to service.
- Alternatively, flushing individual water outlets within a school may provide an effective solution. EPA recommends ensuring levels remain low throughout the day when a flushing program is implemented. Conducting additional sampling after implementing flushing for remediation can ensure the water being provided does not contain elevated lead levels.
- In addition, the MDH recommends labeling any water fixtures not included in the sampling program if they have not been yet, including bathroom taps, hose bibbs, laboratory faucets/sinks, or custodial closet sinks.
- It is recommended that a copy of the district's Lead in Water Testing Report be made available to staff and the public through the district's administrative offices. Per Minnesota Statutes, section 121A.335, a school district that has tested its buildings for the presence of lead shall make the results of the testing available to the public for review and must notify parents of the availability of the information.

GENERAL CONDITIONS

The analysis and opinions expressed in this report are based upon data obtained from Independent School District 196 at the indicated locations. This report does not reflect variations in conditions that may occur across the site, property, or facility. Actual conditions may vary and may not become evident without further assessment.

The report is prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted environmental, health and safety practices. Other than as provided in the preceding sentence and in our Proposal #11189 dated April 3, 2023, regarding lead-in-water sampling at the indicated buildings, including the General Conditions attached thereto, no warranties are extended or made.

Please contact IEA if you would like assistance with any of the above recommendations or have questions regarding this report.

Sincerely,

IEA, Inc.

Annie Shimkus
EHS Project Manager

Reviewed by:

Mary Ferrian, CSP
EHS Division Manager

AS/wb 020924

Enc.

ISD 196
Rosemount - Apple Valley - Eagan Public Schools

Initial Sampling

Secondary/District Buildings
November 7 - 13, 2019

Field Environmental
consulting
8612 Eagle Creek Parkway, Savage, MN 55378-1284
Tel: 952 746-5880 ◆ Fax: 952 746-5882
mailbox@FieldConsultingInc.com

ISD# 196
14309 Diamond Path
Rosemount, MN 55124
Attn: Mr. Chris Pint

RE: **Final Report - Lead in Drinking Water Sampling**

SITES: **Apple Valley High, Eagan High, Eastview High, Rosemount High, School of Environmental Studies, Black Hawk Middle, Dakota Hills Middle, Falcon Ridge Middle, Rosemount Middle, Scott Highlands Middle, Valley Middle, ALC/Transition Plus, Dakota Ridge School, District Service Center, District Service Center Annex, District Office and District Office East**

PROJECT #: **19179**

I. INTRODUCTION

This report presents the results of testing for lead in drinking water using first draw sampling following the Minnesota Department of Health (MDH) guide "Reducing Lead in Drinking Water: A Technical Guidance and Model Plan for Minnesota's Public Schools (Revision March 2019)."

Per the MDH guide, Field Environmental Consulting, Inc. (FIELD ENVIRONMENTAL) tested water outlets using *high* and *medium* priority sampling strategies for the aforementioned seventeen (17) sites per District request. Drinking water taps typically do not include bathroom taps, hose bibbs, science laboratory, art or industrial tech faucets/sinks, or custodial closet sinks. FIELD ENVIRONMENTAL provided labels to ISD #196 to mark those outlets as "water not for drinking."

Samples were collected by FIELD ENVIRONMENTAL on November 7, 8, 13, 2019.

II. DISCUSSION

Lead is a toxic metal that is harmful to human health when it is ingested or inhaled. Unlike other environmental contaminates, lead is stored in bones and can be released over time into the bloodstream. Lead exposure is a serious health concern, especially for young children and infants. Children's bodies absorb more of the lead they are exposed to than adults. Exposure to high levels of lead in children and infants may result in developmental delays, lower IQ's, hearing loss, hyperactivity, and learning disabilities. Children under the age of six are the most at risk population. Damage from lead exposure in children is permanent. Fortunately, the impacts of lead exposure can be minimized with good nutrition, a stimulating education, and a supportive environment.

High blood lead levels in adults have been linked to increased blood pressure, poor muscle coordination, nerve damage, decreased fertility, and hearing and vision impairment. Pregnant women and their fetuses are especially vulnerable to lead exposure since lead can significantly harm the fetus, causing lower birth weight and slowing normal mental and physical developments.

The only way to determine how much lead may be present in drinking water is to have the water tested. Per Minnesota Statute, Section 121A.335, *Lead in School Drinking Water*, schools are <u>required</u> to test each tap used for drinking or food preparation at least once every five years.

III. METHODOLOGY

FIELD ENVIRONMENTAL collected first draw water samples. First draw samples are collected prior to the fixture being used or flushed for the day when water has sat undisturbed in the plumbing system for at least

six (6) hours; not exceeding eighteen (18) hours. Water was collected immediately in the morning before it could be used for other purposes. First draw samples were collected using sterile 250 milliliter (mL) sampling bottles. The bottles were filled to the top, capped, recorded, and transported to a certified drinking water laboratory. Results from first draw sampling indicate lead levels for water that has been in direct contact with the tap or fixture and the section of plumbing closest to the outlet. Analysis was conducted by Pace Analytical Services, Inc. of Minneapolis, Minnesota using EPA Method 200.8 ICPMS for determination of lead in drinking water. Pace Analytical Services, Inc. provided results in micrograms/Liter (µg/L) which is also commonly expressed as parts per billion (ppb).

IV. RESULTS

Given that lead is still found in many environments and products, it is important to recognize that attaining zero exposure to lead in drinking water may not be reasonable, or even possible. However, MDH strongly recommends that schools take remedial action if samples from drinking water produce lead levels greater than 20 ppb (or 20 µg/L). This is commonly referred to as the *action level*.

Eagan High:
All collected samples were below the action level of 20 ppb.

Rosemount Middle:
All collected samples were below the action level of 20 ppb.

ALC/Transition Plus:
All collected samples were below the action level of 20 ppb.

Dakota Ridge School:
All collected samples were below the action level of 20 ppb.

District Service Center Annex:
All collected samples were below the action level of 20 ppb.

District Office:
All collected samples were below the action level of 20 ppb.

District Office East:
All collected samples were below the action level of 20 ppb.

One (1) sample was above the action level at Apple Valley High:

School Name: **Apple Valley High School (AVHS)**
Date: **11/7/2019**

Floor	Room Number	Location	Sample ID	Type DF = Drinking Fountain S = Sink WC = Water Cooler BF = Bottle Filler K=Kettle	Lead Result (ppb)
First	N/A	Boys Dressing Room	50	S	**50**

One (1) sample was above action level at Rosemount High:

School Name: **Rosemount High School (RHS)**
Date: **11/8/2019**

Floor	Room Number	Location	Sample ID	Type DF = Drinking Fountain S = Sink WC = Water Cooler BF = Bottle Filler K=Kettle	Lead Result (ppb)
Basement	N/A	IMC	72	WC	**28.3**

One (1) sample was above the action level at the School of Environmental Studies:

School Name: **School of Environmental Studies (SES)**
Date: **11/8/2019**

Floor	Room Number	Location	Sample ID	Type DF = Drinking Fountain S = Sink WC = Water Cooler BF = Bottle Filler K=Kettle	Lead Result (ppb)
First	118	Deli/Serving	3	S	**45.5**

One (1) sample was above the action level at Black Hawk Middle:

School Name: **Black Hawk Middle School (BHMS)**
Date: **11/7/2019**

Floor	Room Number	Location	Sample ID	Type DF = Drinking Fountain S = Sink WC = Water Cooler BF = Bottle Filler K=Kettle	Lead Result (ppb)
First	N/A	Kitchen	1	SPRAY	**86.6**

Three (3) samples were above the action level at Dakota Hills Middle:

School Name: **Dakota Hills Middle School (DHMS)**
Date: **11/7/2019**

Floor	Room Number	Location	Sample ID	Type DF = Drinking Fountain S = Sink WC = Water Cooler BF = Bottle Filler K=Kettle	Lead Result (ppb)
Lower	N/A	Serving	3	S	**30.5**
Lower	N/A	Kitchen – East by Dish Wash	10	S	**49.7**
Lower	N/A	Kitchen	12	MISC – STEAMER	**25.7**

Two (2) samples were above the action level at Falcon Ridge Middle:

School Name: **Falcon Ridge Middle School (FRMS)**
Date: **11/7/2019**

Floor	Room Number	Location	Sample ID	Type DF = Drinking Fountain S = Sink WC = Water Cooler BF = Bottle Filler K=Kettle	Lead Result (ppb)
Lower	N/A	Kitchen	37	S	**34.5**
Lower	N/A	Serving Area	42	S	**27.2**

One (1) sample was above the action level at Scott Highlands Middle:

School Name: **Scott Highlands Middle School (SHMS)**
Date: **11/7/2019**

Floor	Room Number	Location	Sample ID	Type DF = Drinking Fountain S = Sink WC = Water Cooler BF = Bottle Filler K=Kettle	Lead Result (ppb)
First	N/A	Kitchen – South Wall - Right	4	SPRAY	**23.9**

Four (4) samples were above the action level at Valley Middle:

School Name: **Valley Middle School (VMS)**
Date: **11/7/2019**

Floor	Room Number	Location	Sample ID	Type DF = Drinking Fountain S = Sink WC = Water Cooler BF = Bottle Filler K=Kettle	Lead Result (ppb)
First	N/A	Kitchen	2	S	**43.7**
First	516	Left Sink	37	S	**23.8**
First	516	Middle Sink	38	S	**24.5**
First	516	Right Sink	39	S	**21.2**

One (1) sample was above the action level at the District Service Center:

School Name: **District Service Center (DSC)**
Date: **11/8/2019**

Floor	Room Number	Location	Sample ID	Type DF = Drinking Fountain S = Sink WC = Water Cooler BF = Bottle Filler K=Kettle	Lead Result (ppb)
First	N/A	Conference Hall	4	S	**26.3**

V. RECOMMENDATIONS AND CONCLUSIONS

All collected water at Eagan High, Rosemount Middle, ALC/Transition Plus, Dakota Ridge School, District Service Center Annex, District Office, and the District Office East had lead levels below or equal to the recommended action level of 20 ppb. No additional action required for this site.

Apple Valley High, Rosemount High, School of Environmental Studies, Black Hawk Middle, Dakota Hills Middle, Falcon Ridge Middle, Scott Highlands Middle, Valley Middle, and the District Service Center had drinking or food preparation water with lead concentrations greater than 20 ppb. Priority was given to correct these identified taps/fixtures.

Following MDH's Recommended Lead Hazard Reduction Options, ISD #196 is in the process of reviewing the results and making decisions on how to mitigate issues. In the meantime, those taps/outlets that were identified to have lead levels above 20 ppb should be removed from service until an effective solution to mitigate exposure is determined. Corrective actions may include:

- Permanently remove the tap/outlet from service.
- Replace tap/outlet with "lead free" plumbing components in accordance with the *Reduction of Lead in Drinking Water Act.* Resampling after replacement is strongly recommended.
- Mark those water taps/outlets (ex. sinks) that should not be used for drinking or food preparation with a sign or label stating, "water not for drinking" or "water not for consumption."
- Installation of filtration via Point-of-Use (POU) devices; approval may be subject to authority plan review. Resampling after installing a POU device is strongly recommended.
- Or, implementing a flush program. Flushing the tap/outlet for a set amount of time on a regular basis can reduce lead concentrations. Sampling is strongly recommended to ensure flushing mitigates lead exposure.

Minnesota Statutes section 121A.335 requires a school district to "make the results of testing available to the public for review and must notify parents of the availability of the information." ISD #196 is required to communicate lead in drinking water results. School employees, students, and parents shall be informed of the results within a reasonable time. Results of first draw sampling and any follow-up testing should be easily accessible along with documentation of lead hazard reduction options.

Per statue, follow-up testing is required every five years.

VI. REMARKS

The environmental services performed by FIELD ENVIRONMENTAL's technicians, analysts and project managers for this project have been conducted in a manner consistent with the degree of care and technical skill exercised by environmental professionals currently practicing in this area under similar budget and time constraints. Recommendations contained in this report represent our professional judgment at the time the project was performed.

No warranty or guarantee, expressed or implied, is made regarding the findings, conclusions, or recommendations contained in this report.

FIELD ENVIRONMENTAL appreciates the opportunity to provide services to meet your environmental needs. Any questions regarding the fieldwork, sample results or presented findings should be directed to Field Environmental Consulting, Inc.

PREPARED and REVIEWED BY:

Field Environmental Consulting, Inc.

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Attachments
Appendix A: School Results & Locations, Drawings, and Laboratory Reports

ISD 196
Rosemount - Apple Valley - Eagan Public Schools

Follow-up/Final Testing

Secondary/District Buildings
May 15, 2020

Field Environmental
consulting

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mailbox@FieldConsultingInc.com

ISD# 196
14309 Diamond Path
Rosemount, MN 55124
Attn: Mr. Chris Pint

RE: **Final Report: Lead in Drinking Water Sampling – Post Mitigation**

SITES: **Apple Valley High, Rosemount High, School of Environmental Studies, Black Hawk Middle, Dakota Hills Middle, Falcon Ridge Middle, Scott Highlands Middle, Valley Middle and the District Service Center**

PROJECT #: **19179**

I. INTRODUCTION

This report presents the results of testing for lead in drinking water after mitigation methods were completed using first draw sampling following the Minnesota Department of Health (MDH) guide "Reducing Lead in Drinking Water: A Technical Guidance and Model Plan for Minnesota's Public Schools (Revision March 2019)."

Per the Final Report (dated December 20, 2019), Field Environmental Consulting, Inc. (FIELD ENVIRONMENTAL) tested water outlets using *high* and *medium* priority sampling strategies for seventeen (17) sites per District request.

Apple Valley High, Rosemount High, School of Environmental Studies, Black Hawk Middle, Dakota Hills Middle, Falcon Ridge Middle, Scott Highlands Middle, Valley Middle and the District Service Center had drinking or food preparation water outlets with lead concentrations greater than 20 ppb. Priority was given to correct these identified taps/fixtures.

II. DISCUSSION

Lead is a toxic metal that is harmful to human health when it is ingested or inhaled. Unlike other environmental contaminates, lead is stored in bones and can be released over time into the bloodstream. Lead exposure is a serious health concern, especially for young children and infants. Children's bodies absorb more of the lead they are exposed to than adults. Exposure to high levels of lead in children and infants may result in developmental delays, lower IQ's, hearing loss, hyperactivity, and learning disabilities. Children under the age of six are the most at risk population. Damage from lead exposure in children is permanent. Fortunately, the impacts of lead exposure can be minimized with good nutrition, a stimulating education, and a supportive environment.

High blood lead levels in adults have been linked to increased blood pressure, poor muscle coordination, nerve damage, decreased fertility, and hearing and vision impairment. Pregnant women and their fetuses are especially vulnerable to lead exposure since lead can significantly harm the fetus, causing lower birth weight and slowing normal mental and physical developments.

The only way to determine how much lead may be present in drinking water is to have the water tested. Per Minnesota Statute, Section 121A.335, *Lead in School Drinking Water*, schools are required to test each tap used for drinking or food preparation at least once every five years.

III. METHODOLOGY

FIELD ENVIRONMENTAL collected first draw water samples. First draw samples are collected prior to the fixture being used or flushed for the day when water has sat undisturbed in the plumbing system for at least six (6) hours; not exceeding eighteen (18) hours. Water was collected immediately in the morning before it could be used for other purposes. First draw samples were collected using sterile 250 milliliter (mL) sampling bottles. The bottles were filled to the top, capped, recorded, and transported to a certified drinking water laboratory. Results from first draw sampling indicate lead levels for water that has been in direct contact with the tap or fixture and the section of plumbing closest to the outlet. Analysis was conducted by Pace Analytical Services, Inc. of Minneapolis, Minnesota using EPA Method 200.8 ICPMS for determination of lead in drinking water. Pace Analytical Services, Inc. provided results in micrograms/Liter (µg/L) which is also commonly expressed as parts per billion (ppb).

In addition to collecting first draw samples, FIELD ENVIRONMENTAL obtained flush draw samples to determine if running the water for one (1) minute was an allowable, successful method to reduce lead content. A flush sample is water emitted from an outlet after a stated flush time (in this case, one (1) minute). This sample is representative of the water that is in the plumbing upstream from the tap. Analysis was conducted by Pace Analytical Services, Inc. of Minneapolis, Minnesota using EPA Method 200.8 ICPMS for determination of trace elements in drinking water.

IV. RESULTS

Given that lead is still found in many environments and products, it is important to recognize that attaining zero exposure to lead in drinking water may not be reasonable, or even possible. However, MDH strongly recommends that schools take remedial action if samples from drinking water produce lead levels greater than 20 ppb (or 20 µg/L). This is commonly referred to as the *action level*.

Following MDH's Recommended Lead Hazard Reduction Options, ISD #196 mitigated lead concentrations by:

- Permanently removing the tap/outlet from service.
- Replacing tap/outlet with "lead free" plumbing components in accordance with the Reduction of Lead in Drinking Water Act. Resampling was performed after replacement.
- Labeling those water taps/outlets that should not be used for drinking or food preparation with a sign or label stating, "water not for drinking" or "water not for consumption."

School Name: **Apple Valley High School (AVHS)**

Date: **11/7/2019**

Floor	Room Number	Location	Sample ID	Type DF = Drinking Fountain S = Sink WC = Water Cooler BF = Bottle Filler K=Kettle Misc=Miscellaneous	Lead Result (ppb)
First	N/A	Boys Dressing Room	50*	S	**50**

UPDATE: Sink in Boys Dressing Room Labeled "Water Not for Drinking" in Accordance with MDH Guidelines.

School Name: **Rosemount High School (RHS)**

Date: **11/8/2019**

Floor	Room Number	Location	Sample ID	Type DF = Drinking Fountain S = Sink WC = Water Cooler BF = Bottle Filler K=Kettle Misc=Miscellaneous	Lead Result (ppb)
Basement	N/A	IMC	72*	WC	**28.3**

**UPDATE: Water Cooler in Basement IMC was Permanently Removed.*

School Name: **School of Environmental Studies (SES)**

Date: **11/8/2019**

Floor	Room Number	Location	Sample ID	Type DF = Drinking Fountain S = Sink WC = Water Cooler BF = Bottle Filler K=Kettle Misc=Miscellaneous	Lead Result (ppb)
First	118	Deli/Serving	3*	S	**45.5**

Update: Water to Sink in Deli/Serving has been Permanently Turned Off.

School Name: **Black Hawk Middle School (BHMS)**

Date: **11/7/2019**

Floor	Room Number	Location	Sample ID	Type DF = Drinking Fountain S = Sink WC = Water Cooler BF = Bottle Filler K=Kettle Misc=Miscellaneous	Lead Result (ppb)
First	N/A	Kitchen	2*	SPRAY	**86.6**

Sprayer in Kitchen Labeled "Water Not for Drinking or Food Preparation" in Accordance with MDH Guidelines.

School Name: **Dakota Hills Middle School (DHMS)**

Date: **11/7/2019 & 5/15/2020**

Floor	Room Number	Location	Sample ID	Type DF = Drinking Fountain S = Sink WC = Water Cooler BF = Bottle Filler K=Kettle Misc=Miscellaneous	Lead Result (ppb)	Lead Result - Post Replacement (ppb)	Lead Result - Post Replacement - 1 Minute Flush (ppb)
Lower	N/A	Serving	3	S	**30.5**	**45.5**	1
Lower	N/A	Kitchen - East by Dish Wash	10	S	**49.7**	0.79	0.42
Lower	N/A	Kitchen	12	Misc - Steamer	**25.7**	6	0.9

School Name: **Falcon Ridge Middle School (FRMS)**

Date: **11/7/2019 & 5/15/2020**

Floor	Room Number	Location	Sample ID	Type DF = Drinking Fountain S = Sink WC = Water Cooler BF = Bottle Filler K=Kettle Misc=Miscellaneous	Lead Result (ppb)	Lead Result - Post Replacement (ppb)	Lead Result - Post Replacement - 1 Minute Flush (ppb)
Lower	N/A	Kitchen	37	S	**34.5**	18.8	1.5
Lower	N/A	Serving Area	42	S	**27.2**	3.4	0.13

School Name: **Scott Highlands Middle School (SHMS)**

Date: **11/7/2019 & 5/15/2020**

Floor	Room Number	Location	Sample ID	Type DF = Drinking Fountain S = Sink WC = Water Cooler BF = Bottle Filler K=Kettle Misc=Miscellaneous	Lead Result (ppb)	Lead Result - Post Replacement (ppb)	Lead Result - Post Replacement - 1 Minute Flush (ppb)
First	N/A	Kitchen - South Wall - Right	4	SPRAY	**23.9**	**81.4**	6

School Name: **Valley Middle School (VMS)**

Date: **11/7/2019 & 5/15/2020**

Floor	Room Number	Location	Sample ID	Type DF = Drinking Fountain S = Sink WC = Water Cooler BF = Bottle Filler K=Kettle Misc=Miscellaneous	Lead Result (ppb)	Lead Result - Post Replacement (ppb)	Lead Result - Post Replacement - 1 Minute Flush (ppb)
First	N/A	Kitchen	2	S	**43.7**	7.4	1.8
First	516	Left Sink	37*	S	**23.8**	-	-
First	516	Middle Sink	38*	S	**24.5**	-	-
First	516	Right Sink	39*	S	**21.2**	-	-

**UPDATE: Sinks in Room 516 Labeled "Water Not for Drinking" in Accordance with MDH Guidelines.*

School Name: **District Service Center (DSC)**

Date: **11/8/2019**

Floor	Room Number	Location	Sample ID	Type DF = Drinking Fountain S = Sink WC = Water Cooler BF = Bottle Filler K=Kettle Misc=Miscellaneous	Lead Result (ppb)
First	N/A	Conf Hall	4*	S	**26.3**

**UPDATE: Sink in Conference Hall was Permanently Removed.*

V. RECOMMENDATIONS AND CONCLUSIONS

Lead in water concentrations were below the action level for those replaced fixtures at Dakota Hills Middle School kitchen, Falcon Ridge Middle School kitchen and serving area and Valley Middle School kitchen. First draw lead in water levels were still above 20 ppb for the Dakota Hills Middle School sink located in the serving area and spray nozzle within the kitchen of Scott Highlands Middle School. However, flushing for one (1) minute for both these taps greatly reduces lead concentrations to well below 20 ppb. Therefore, per MDH guidelines, ISD #196 can institute a flush program for those taps and mark with a label that states, "flush water for 1 min prior to use."

Minnesota Statutes section 121A.335 requires a school district to "make the results of testing available to the public for review and must notify parents of the availability of the information." ISD #196 is required to communicate lead in drinking water results. School employees, students, and parents shall be informed of the results within a reasonable time. Results of first draw sampling and any follow-up testing should be easily accessible.

Per statue, follow-up testing is required every five years.

VI. REMARKS

The environmental services performed by FIELD ENVIRONMENTAL's technicians, analysts and project managers for this project have been conducted in a manner consistent with the degree of care and technical skill exercised by environmental professionals currently practicing in this area under similar budget and time constraints. Recommendations contained in this report represent our professional judgment at the time the project was performed.

No warranty or guarantee, expressed or implied, is made regarding the findings, conclusions, or recommendations contained in this report.

FIELD ENVIRONMENTAL appreciates the opportunity to provide services to meet your environmental needs. Any questions regarding the fieldwork, sample results or presented findings should be directed to Field Environmental Consulting, Inc.

PREPARED and REVIEWED BY:

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Amy Murray, CSP (#27824)
EHS & IAQ Manager
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Attachments
Appendix A: Results & Locations, Drawings, and Laboratory Reports