

ISD 196
Rosemount - Apple Valley - Eagan Public Schools

Initial Sampling

Elementary
July 24th - September 18th, 2018

August 22, 2018

Mr. Chris Pint
Rosemount-Apple Valley-Eagan ISD 196
14445 Diamond Path West
Rosemount, MN 55068



**RE: Lead-in-Water First Draw – Initial Testing
IEA Project #201810480**

Dear Mr. Pint:

At the request of Rosemount-Apple Valley-Eagan ISD 196, IEA collected a total of 421 water samples from identified potable water sources on July 24, 2018, for lead analyses from the following nine (9) buildings:

- Dakota Valley Learning Center
- East Lake Elementary
- Echo Park Elementary
- Greenleaf Elementary
- Oak Ridge Elementary
- Red Pine Elementary
- Shannon Park Elementary
- Southview Elementary
- Woodland Elementary

The purpose of the sampling is to document lead content in the sampled locations and to compare to the Environmental Protection Agency (EPA) action level of 20 parts per billion (ppb).

INTRODUCTION

Minnesota Statute 121A.335 requires public school buildings serving kindergarten through grade 12 to test for lead in potable water fixtures every 5 years. The *3Ts for Reducing Lead in Drinking Water in Schools: Revised Technical Guidance* (2006) 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 sits undisturbed in the system. Exposure to lead is a significant health concern. When the lead concentration exceeds the EPA's action level for schools of 20 parts per billion (ppb) in a specific fixture, the EPA and MDH recommend taking that fixture out of service until lead content is reduced.

METHODOLOGY

IEA collected 421 first-draw (unless otherwise noted) samples of approximately 250 milliliters (ml) of water. "First draw" means the samples are collected before the fixture is used or flushed during the day. The first-draw sample results reflect a worst-case scenario, i.e., the highest lead level that would be consumed by building occupants. Current EPA protocol calls for flushing identified locations for 2-3 minutes, 8-18 hours prior to sampling. The district reported to have followed this guideline.

INSTITUTE FOR ENVIRONMENTAL ASSESSMENT, INC.
www.ieasafety.com

BROOKLYN PARK
9201 West Broadway, #600
Brooklyn Park, MN 55445
763-315-7900 / FAX 763-315-7920
800-233-9513

MANKATO
610 North Riverfront Drive
Mankato, MN 56001
507-345-8818 / FAX 507-345-5301
800-233-9513

ROCHESTER
210 Woodlake Drive SE
Rochester, MN 55904
507-281-6664 / FAX 507-281-6695
800-233-9513

BRAINERD
601 NW 5th Street, Ste. #4
Brainerd, MN 56401
218-454-0703 / FAX 218-454-0703
800-233-9513

MARSHALL
1420 East College Drive
Marshall, MN 56258
507-476-3599 / FAX 507-537-6985
800-233-9513

VIRGINIA
5525 Emerald Avenue
Mountain Iron, MN 55768
218-410-9521
800-233-9513

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

The lead-in-water sampling results ranged from below the level of detection (<0.5 ppb) to 4480 ppb. There are 59 sample results greater than the EPA action level of 20 ppb. See *Table 1: Water Testing Results Exceeding 20 ppb*. The laboratory reports are provided in Appendix A. Laboratory results are reported in micrograms per liter (µg/L) which is equivalent to parts per billion (ppb).

Table 1: Water Testing Results Exceeding 20 ppb – July 24, 2018

Sample Number	Building	Sampling Location	Fixture Type	Lead Results (ppb)
18-A38555	Shannon Park Elementary	Dish Washer Room 3 Sink	Faucet	52.0
18-A38568	Shannon Park Elementary	Room 216-1 Sink	Faucet	54.1
18-A38598	Shannon Park Elementary	Room 117 Drinking Fountain	Drinking Fountain	26.8
18-A38489	Oak Ridge Elementary	Dish Washer Room 2 Sink	Faucet	43.5
18-A38492	Oak Ridge Elementary	Instruments Room Drinking Fountain (off of Band Room 235)	Drinking Fountain	41.5
18-A38496	Oak Ridge Elementary	Main Office Conference Room Sink	Faucet	28.3
18-A38504	Oak Ridge Elementary	Room 206 Drinking Fountain	Drinking Fountain	20.2
18-A38509	Oak Ridge Elementary	Room 201 Drinking Fountain	Drinking Fountain	102
18-A38512	Oak Ridge Elementary	Room 216-1 Drinking Fountain	Drinking Fountain	94.6
18-A38520	Oak Ridge Elementary	Room 101 Drinking Fountain	Drinking Fountain	70.3
18-A38522	Oak Ridge Elementary	Room 103 Drinking Fountain	Drinking Fountain	51.8
18-A38524	Oak Ridge Elementary	Room 105 Drinking Fountain	Drinking Fountain	30.3
18-A38533	Oak Ridge Elementary	Kiln Room Sink	Faucet	49.5
18-A38383	Greenleaf Elementary	Kitchen Room 188-2 Sink	Faucet	128
18-A38384	Greenleaf Elementary	Kitchen Room 188-3 Sink	Faucet	59.7
18-A38387	Greenleaf Elementary	Hallway by Cafeteria Sink	Faucet	21.8
18-A38395	Greenleaf Elementary	Room 102-1 Sink	Faucet	33.5
18-A38418	Greenleaf Elementary	Room 145 Sink	Faucet	22.6
18-A38419	Greenleaf Elementary	Room 131 Drinking Fountain	Drinking Fountain	49.7
18-A38429	Greenleaf Elementary	Room 158 Drinking Fountain	Drinking Fountain	22.2
18-A38043	Woodland Elementary	Kitchen Room 308-2 Sink	Faucet	27.4
18-A38046	Woodland Elementary	Dishwash Room-2 Sink	Faucet	48.6
18-A38051	Woodland Elementary	Conference Room 234 Sink	Faucet	32.8
18-A38052	Woodland Elementary	Work Room 231 Sink	Faucet	35.4
18-A38054	Woodland Elementary	Room 230 Sink	Faucet	33.1
18-A38055	Woodland Elementary	Room 229 Sink	Faucet	42.5
18-A38062	Woodland Elementary	Room 220 Sink	Faucet	21.8
18-A38064	Woodland Elementary	Room 218 Sink	Faucet	22.7
18-A38069	Woodland Elementary	Room 212-2 Sink	Faucet	20.3
18-A38072	Woodland Elementary	Room 127 Sink	Faucet	23.8
18-A38073	Woodland Elementary	Room 125 Sink	Faucet	25.4
18-A38079	Woodland Elementary	Room 114 Sink	Faucet	22.6
18-A38084	Woodland Elementary	IMC Room 136 Sink	Faucet	35.5
18-A38085	Woodland Elementary	Room 118 Sink	Faucet	31.4
18-A38086	Woodland Elementary	Room 128 Sink	Faucet	31.5
18-A38087	Woodland Elementary	Room 126 Sink	Faucet	43.0

ppb – parts per billion

-continued

Table 1: Water Testing Results Exceeding 20 ppb – July 24, 2018

Sample Number	Building	Sampling Location	Fixture Type	Lead Results (ppb)
18-A38442	Echo Park Elementary	Dish Wash-1 Sink	Faucet	110
18-A38443	Echo Park Elementary	Dish Wash-2 Sprayer	Sprayer	82.9
18-A38467	Echo Park Elementary	Room 500 Drinking Fountain	Drinking Fountain	545
18-A38474	Echo Park Elementary	Room 200 Drinking Fountain	Drinking Fountain	122
18-A38707	Southview Elementary	Office Sink	Faucet	20.4
18-A38708	Southview Elementary	Kitchen 2 Sink	Faucet	23.6
18-A38709	Southview Elementary	Kitchen 3 Sink	Faucet	22.9
18-A38710	Southview Elementary	Kitchen 4 Sink	Faucet	23.7
18-A38716	Southview Elementary	Hallway Across from Room 409 Drinking Fountain	Drinking Fountain	4480
18-A38717	Southview Elementary	Room 409 Drinking Fountain	Drinking Fountain	25.7
18-A38718	Southview Elementary	Room 408 Drinking Fountain	Drinking Fountain	22.9
18-A38719	Southview Elementary	Room 407 Drinking Fountain	Drinking Fountain	297
18-A38720	Southview Elementary	Room 402 Drinking Fountain	Drinking Fountain	21.7
18-A38721	Southview Elementary	Room 406 Drinking Fountain	Drinking Fountain	132
18-A38722	Southview Elementary	Room 403 Drinking Fountain	Drinking Fountain	82.0
18-A38726	Southview Elementary	Room 301 Sink	Faucet	29.8
18-A38743	Southview Elementary	Room 201 Sink	Faucet	26.2
18-A38748	Southview Elementary	Room 108 Drinking Fountain	Drinking Fountain	24.7
18-A38752	Southview Elementary	Room 106 Drinking Fountain	Drinking Fountain	57.6
18-A38758	Red Pine Elementary	Kitchen 2 Sink	Faucet	38.1
18-A38763	Red Pine Elementary	Room off of Band Room Sink	Faucet	31.7
18-A38764	Red Pine Elementary	Music Room Drinking Fountain	Drinking Fountain	22.3
18-A38765	Red Pine Elementary	Art Room 1 Drinking Fountain	Drinking Fountain	37.7

ppb – parts per billion

In addition, 25 results showed lead content between 15 ppb and 20 ppb. See *Table 2: Water Testing Results Approaching 20 ppb* for these results. Although the EPA recommends that school drinking water not exceed 20 ppb, the MDH recommends schools seek to reduce the amount of lead in drinking water to below 2 ppb.

Table 2: Water Testing Results Approaching 20 ppb – July 24, 2018

Sample Number	Building	Sampling Location	Fixture Type	Lead Results (ppb)
18-A38564	Shannon Park Elementary	Room 218-1 Sink	Faucet	19.3
18-A38517	Oak Ridge Elementary	Room 218-2 Drinking Fountain	Drinking Fountain	19.8
18-A38527	Oak Ridge Elementary	Room 110 Drinking Fountain	Drinking Fountain	19.0
18-A38382	Greenleaf Elementary	Kitchen Room 188-1 Sink	Faucet	19.9
18-A38385	Greenleaf Elementary	Dish Wash 1 Sink	Faucet	18.0
18-A38417	Greenleaf Elementary	Work Room 115 Sink	Faucet	19.3
18-A38431	Greenleaf Elementary	Room 154 Drinking Fountain	Drinking Fountain	15.4
18-A38057	Woodland Elementary	Room 227-2 Sink	Faucet	17.5
18-A38058	Woodland Elementary	Room 226 Sink	Faucet	16.0
18-A38060	Woodland Elementary	Room 222 Sink	Faucet	16.6
18-A38061	Woodland Elementary	Room 221 Sink	Faucet	15.0
18-A38067	Woodland Elementary	Room 213 Sink	Faucet	16.7
18-A38074	Woodland Elementary	Room 124 Sink	Faucet	15.5
18-A38075	Woodland Elementary	Room 121 Sink	Faucet	16.9

ppb – parts per billion

-continued

Table 2: Water Testing Results Approaching 20 ppb – July 24, 2018

Sample Number	Building	Sampling Location	Fixture Type	Lead Results (ppb)
18-A38076	Woodland Elementary	Room 120 Sink	Faucet	19.9
18-A38077	Woodland Elementary	Room 119 Sink	Faucet	16.6
18-A38078	Woodland Elementary	Room 116 Sink	Faucet	19.2
18-A38080	Woodland Elementary	Room 113 Sink	Faucet	17.1
18-A38082	Woodland Elementary	Room 110 Sink	Faucet	17.0
18-A38083	Woodland Elementary	Room 104 Sink	Faucet	16.5
18-A38724	Southview Elementary	Room 405 Drinking Fountain	Drinking Fountain	19.7
18-A38741	Southview Elementary	Room 208 Drinking Fountain	Drinking Fountain	19.8
18-A38744	Southview Elementary	Hallway Across from Room 209 Drinking Fountain	Drinking Fountain	17.6
18-A38757	Red Pine Elementary	Kitchen 1 Sink	Faucet	15.9
18-A38759	Red Pine Elementary	Dish Wash Room 1 Sink	Faucet	15.8

ppb – parts per billion

RECOMMENDATIONS

IEA recommends implementing one of the following treatment options for the fixtures with lead content exceeding the EPA action level of 20 ppb. These recommendations should also be considered for fixtures with lead content approaching 20 ppb.

- Remove fixture from service by disconnecting it from the water supply and/or post signs that the water is not potable and notify staff of this.
- Replace fixture with a "lead-free" fixture certified to NSF/ANSI 372 or NSF/ANSI 61-G. The *Reduction of Lead in Drinking Water Act* redefines "lead-free" as "not more than a weighted average of 0.25% lead when used with respect to wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures." Effective January 4, 2014, drinking water system components sold or installed must adhere to this new requirement.
- Install a drinking water treatment unit certified to NSF/ANSI 53 for lead reduction:
<http://info.nsf.org/Certified/DWTU/Listings.asp?TradeName=&Standard=053&ProductType=&PlantState=&PlantCountry=&PlantRegion=&submit3=Search&hdModlStd=ModlStd>.
- Conduct flush testing in accordance with MDH guidelines to determine if flushing will reduce lead content. If results indicate that flushing will reduce lead to acceptable levels, implement a flushing program which includes documentation of daily flushing and periodic program review.

In addition, IEA recommends that a copy of the district's Lead-in-Drinking 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 water testing at Rosemount-Apple Valley-Eagan ISD 196. This report does not reflect variations in conditions that may occur. Actual conditions may vary and may not become evident without further assessment.

October 16, 2018

Mr. Chris Pint
Rosemount-Apple Valley-Eagan ISD 196
14445 Diamond Path West
Rosemount, MN 55068



**RE: Lead-in-Water First Draw – Initial Testing
IEA Project #201810480**

Dear Mr. Pint:

At the request of Rosemount-Apple Valley-Eagan ISD 196, IEA collected a total of 503 water samples from identified potable water sources on September 18, 2018, for lead analyses from the following 11 buildings:

- Cedar Park Elementary
- Deerwood Elementary
- Diamond Path Elementary
- Glacier Hills Elementary
- Highland Elementary
- Northview Elementary
- Parkview Elementary
- Pinewood Elementary
- Rosemount Elementary
- Thomas Lake Elementary
- Westview Elementary

The purpose of the sampling is to document lead content in the sampled locations and to compare to the Environmental Protection Agency (EPA) action level of 20 parts per billion (ppb).

INTRODUCTION

Minnesota Statute 121A.335 requires public school buildings serving kindergarten through grade 12 to test for lead in potable water fixtures every 5 years. The *3Ts for Reducing Lead in Drinking Water in Schools: Revised Technical Guidance* (2006) 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 significant health concern. When the lead concentration exceeds the EPA's action level for schools of 20 parts per billion (ppb) in a specific fixture, the EPA and MDH recommend taking that fixture out of service until lead content is reduced.

METHODOLOGY

IEA collected 503 first-draw (unless otherwise noted) samples of approximately 250 milliliters (ml) of water. "First draw" means the samples are collected before the fixture is used or flushed during the day. The first-draw sample results reflect a worst-case scenario, i.e., the highest lead level that would be consumed by building occupants. Current EPA protocol calls for flushing identified locations for 2-3 minutes, 8-18 hours prior to sampling. The district reported to have followed this guideline.

INSTITUTE FOR ENVIRONMENTAL ASSESSMENT, INC.
www.ieasafety.com

BROOKLYN PARK
9201 West Broadway, #600
Brooklyn Park, MN 55445
763-315-7900 / FAX 763-315-7920
800-233-9513

MANKATO
610 North Riverfront Drive
Mankato, MN 56001
507-345-8818 / FAX 507-345-5301
800-233-9513

ROCHESTER
210 Woodlake Drive SE
Rochester, MN 55904
507-281-6664 / FAX 507-281-6695
800-233-9513

BRAINERD
601 NW 5th Street, Ste. #4
Brainerd, MN 56401
218-454-0703 / FAX 218-454-0703
800-233-9513

MARSHALL
1420 East College Drive
Marshall, MN 56258
507-476-3599 / FAX 507-537-6985
800-233-9513

VIRGINIA
5525 Emerald Avenue
Mountain Iron, MN 55768
218-410-9521
800-233-9513

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

RESULTS & DISCUSSION

The lead-in-water sampling results ranged from below the level of detection (<0.5 ppb) to 90.2 ppb. There are 22 sample results greater than the EPA action level of 20 ppb. See *Table 1: Water Testing Results Exceeding 20 ppb*. The laboratory reports are provided in Appendix A. Laboratory results are reported in micrograms per liter (µg/L) which is equivalent to parts per billion (ppb).

Table 1: Water Testing Results Exceeding 20 ppb – September 18, 2018

Sample Number	Building	Sampling Location	Fixture Type	Lead Results (ppb)
18-A50554	Cedar Park Elementary	Kitchen Room 710 Sink 3	Faucet	20.1
18-A50598	Deerwood Elementary	Kitchen Sink 3	Faucet	24.9
18-A50599	Deerwood Elementary	Dishwash Room Sink 1	Faucet	30.6
18-A50601	Deerwood Elementary	Dishwash Room Sink 3	Faucet	42.2
18-A50607	Deerwood Elementary	Lavatory Sink for Nurses	Faucet	43.8
18-A50608	Deerwood Elementary	Work Room Sink	Faucet	35.7
18-A50611	Deerwood Elementary	Room 230 Unit 2 Drinking Fountain	Drinking Fountain	33.5
18-A50613	Deerwood Elementary	Room 229 Unit 1 Sink	Faucet	43.7
18-A50627	Deerwood Elementary	Computer Room 104 Sink	Faucet	83.8
18-A50630	Deerwood Elementary	Room 126 Drinking Fountain	Drinking Fountain	40.1
18-A50304	Diamond Path Elementary	Kitchen Cooker Sprayer off of oven	Sprayer	54.2
18-A50309	Diamond Path Elementary	Band Storage Room 172 Sink	Faucet	30.7
18-A50400	Glacier Hills Elementary	Dish Wash Sink 3	Faucet	37.8
18-A50402	Glacier Hills Elementary	Planning Room 253 Sink	Faucet	36.2
18-A50408	Glacier Hills Elementary	Kindergarten Room 214 Unit 1 Drinking Fountain	Drinking Fountain	21.1
18-A50409	Glacier Hills Elementary	Kindergarten Room 214 Unit 2 Drinking Fountain	Drinking Fountain	42.6
18-A48950	Highland Elementary	Kitchen Sink 2 Sprayer	Sprayer	30.3
18-A50068	Pinewood Elementary	Dish Wash Sink 1 Sprayer	Sprayer	90.2
18-A50145	Rosemount Elementary	Room 408 Drinking Fountain	Drinking Fountain	65.9
18-A50515	Thomas Lake Elementary	Kitchen Sink 1	Faucet	39.7
18-A49965	Westview Elementary	Kitchen Sink 5 Sprayer	Sprayer	20.8
18-A49993	Westview Elementary	Room 209 Sink	Faucet	22.5

ppb – parts per billion

In addition, twelve (12) results showed lead content between 15 ppb and 20 ppb. See *Table 2: Water Testing Results Approaching 20 ppb* for these results. Although the EPA recommends that school drinking water not exceed 20 ppb, the MDH recommends schools seek to reduce the amount of lead in drinking water to below 2 ppb.

Table 2: Water Testing Results Approaching 20 ppb – September 18, 2018

Sample Number	Building	Sampling Location	Fixture Type	Lead Results (ppb)
18-A50581	Cedar Park Elementary	Room 410 Drinking Fountain	Drinking Fountain	16.9
18-A50330	Diamond Path Elementary	Room 105 Unit 1 Water Cooler	Drinking Fountain	19.2
18-A50346	Diamond Path Elementary	Room 127 Sink	Faucet	17.6

ppb – parts per billion

-continued

Table 2: Water Testing Results Approaching 20 ppb – September 18, 2018

Sample Number	Building	Sampling Location	Fixture Type	Lead Results (ppb)
18-A50350	Diamond Path Elementary	Room 119 Unit 2 Drinking Fountain	Drinking Fountain	15.0
18-A50399	Glacier Hills Elementary	Dish Wash Sink 2	Faucet	19.0
18-A50407	Glacier Hills Elementary	Conference Room 215 Sink	Faucet	18.8
18-A48955	Highland Elementary	Room 106 Sink	Faucet	17.7
18-A48962	Highland Elementary	Work Room Sink	Faucet	18.7
18-A50356	Northview Elementary	Main Office Nurses' Room Sink	Faucet	17.1
18-A50127	Rosemount Elementary	Room 207 Drinking Fountain	Drinking Fountain	19.9
18-A50159	Rosemount Elementary	Room 401 Drinking Fountain	Drinking Fountain	18.0
18-A49963	Westview Elementary	Kitchen Sink 3	Faucet	15.4

ppb – parts per billion

RECOMMENDATIONS

IEA recommends implementing one of the following treatment options for the 22 fixtures with lead content exceeding the EPA action level of 20 ppb. These recommendations should also be considered for the twelve (12) fixtures with lead content approaching the EPA action level of 20 ppb.

- Remove fixture from service by disconnecting it from the water supply and/or post signs that the water is not potable and notify staff of this.
- Replace fixture with a "lead-free" fixture certified to NSF/ANSI 372 or NSF/ANSI 61-G. The *Reduction of Lead in Drinking Water Act* redefines "lead-free" as "not more than a weighted average of 0.25% lead when used with respect to wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures." Effective January 4, 2014, drinking water system components sold or installed must adhere to this new requirement.
- Install a drinking water treatment unit certified to NSF/ANSI 53 for lead reduction:
<http://info.nsf.org/Certified/DWTU/Listings.asp?TradeName=&Standard=053&ProductType=&PlantState=&PlantCountry=&PlantRegion=&submit3=Search&hdModStd=ModStd>.
- Conduct flush testing in accordance with MDH guidelines to determine if flushing will reduce lead content. If results indicate that flushing will reduce lead to acceptable levels, implement a flushing program which includes documentation of daily flushing and periodic program review.

In addition, IEA recommends that a copy of the district's Lead in Drinking 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 water testing at Rosemount-Apple Valley-Eagan ISD 196. This report does not reflect variations in conditions that may occur. 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 #7054 dated April 23, 2018, regarding lead-in-water sampling at the district 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.



Karen Weiblen
EHS Project Manager

Reviewed by:



Mary Ferrian, CPSI
EHS Division Manager

Enc.

ISD 196
Rosemount - Apple Valley - Eagan Public Schools

Follow-up Sampling

Elementary
February 27 - March 15, 2019

April 8, 2019



Mr. Chris Pint
Rosemount-Apple Valley-Eagan ISD 196
14445 Diamond Path West
Rosemount, MN 55068

**RE: Lead-in-Water First Draw – Follow-up Testing
IEA Project #201910205**

Dear Mr. Pint:

At the request of Rosemount-Apple Valley-Eagan ISD 196, IEA collected 112 follow-up water samples for lead analyses in response to previously elevated sample results. The follow-up samples were collected on February 27, 2019, and March 15, 2019. The post-remediation “first-draw” sampling is compared to initial “first draw” sampling conducted on July 24, 2018, and September 18, 2018.

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.

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 112 first-draw (unless otherwise noted) samples of approximately 250 milliliters (ml) of water. “First draw” means the samples are collected before the fixture is used or flushed during the day. The first-draw sample results reflect a worst-case scenario, i.e., the highest lead level that would be consumed by building occupants. MDH recommends water stand in pipes for at least 8 hours, but not more than 18 hours prior to sampling identified fixtures.

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.

INSTITUTE FOR ENVIRONMENTAL ASSESSMENT, INC.
www.ieasafety.com

BROOKLYN PARK
9201 West Broadway, #600
Brooklyn Park, MN 55445
763-315-7900 / FAX 763-315-7920
800-233-9513

MANKATO
610 North Riverfront Drive
Mankato, MN 56001
507-345-8818 / FAX 507-345-5301
800-233-9513

ROCHESTER
210 Woodlake Drive SE
Rochester, MN 55904
507-281-6664 / FAX 507-281-6695
800-233-9513

BRAINERD
601 NW 5th Street, Ste. #4
Brainerd, MN 56401
218-454-0703 / FAX 218-454-0703
800-233-9513

MARSHALL
1420 East College Drive
Marshall, MN 56258
507-476-3599 / FAX 507-537-6985
800-233-9513

VIRGINIA
5525 Emerald Avenue
Mountain Iron, MN 55768
218-410-9521
800-233-9513

RESULTS & DISCUSSION

The lead-in-water sampling results ranged from below the level of detection (<0.5 ppb) to 185 ppb. These 112 locations are displayed in *Table 1: Water Testing Results*. The laboratory reports are provided in Appendix A. The corrective action taken is listed under the column “Solution.” Laboratory results are reported in micrograms per liter (µg/L) which is equivalent to ppb.

Table 1: Water Testing Results – July 24, 2018, and September 18, 2018, and February 27, 2019 and March 15, 2019

Sample Number	Building	Sampling Location	Solution	Lead Results (ppb)	
				Original Result	Retest
19-A7303	Cedar Park Elementary	Kitchen Room 710 Sink 3	Replaced	20.1	15.2
19-A7304	Cedar Park Elementary	Room 410 Drinking Fountain	Replaced	16.9	6.48
--	Deerwood Elementary	Kitchen Sink 3	Removed	--	--
19-A7181	Deerwood Elementary	Dishwash Room Sink 1	Replaced	30.6	18.0
19-A7182	Deerwood Elementary	Dishwash Room Sink 3	Replaced	42.2	16.6
--	Deerwood Elementary	Lavatory Sink for Nurses	Removed	--	--
19-A7183	Deerwood Elementary	Work Room Sink	Replaced	35.7	7.19
19-A7184	Deerwood Elementary	Room 230 Unit 2 Drinking Fountain	Replaced	33.5	2.42
19-A7185	Deerwood Elementary	Room 229 Unit 1 Sink	Replaced	43.7	9.0
--	Deerwood Elementary	Computer Room 104 Sink	Removed	--	--
--	Deerwood Elementary	Room 126 Drinking Fountain	Removed	--	--
19-A7345	Diamond Path Elementary	Kitchen Cooker Sprayer off of oven	Replaced	54.2	76.0
19-A7346	Diamond Path Elementary	Band Storage Room 172 Sink	Replaced	30.7	20.4
19-A7347	Diamond Path Elementary	Room 105 Unit 1 Water Cooler	Replaced	19.2	19.0
19-A7348	Diamond Path Elementary	Room 127 Sink	Replaced	17.6	32.6
19-A7349	Diamond Path Elementary	Room 119 Unit 2 Drinking Fountain	Replaced	15.0	9.17
19-A7177	Echo Park Elementary	Dish Wash-1 Sink	Replaced	110	4.20
19-A7178	Echo Park Elementary	Dish Wash-2 Sprayer	Replaced	82.9	0.82
19-A7179	Echo Park Elementary	Room 500 Drinking Fountain	Replaced	545	<0.5
19-A7180	Echo Park Elementary	Room 200 Drinking Fountain	Replaced	122	1.66
19-A7290	Glacier Hills Elementary	Dish Wash Sink 3	Changed	37.8	18.8
19-A7291	Glacier Hills Elementary	Planning Room 253 Sink	Changed	36.2	9.06
--	Glacier Hills Elementary	Kindergarten Room 214 Unit 1 Drinking Fountain	Removed	--	--
--	Glacier Hills Elementary	Kindergarten Room 214 Unit 2 Drinking Fountain	Removed	--	--
19-A7289	Glacier Hills Elementary	Dish Wash Sink 2	Changed	19.0	10.8
19-A7292	Glacier Hills Elementary	Conference Room 215 Sink	Changed	18.8	9.37
19-A9924	Greenleaf Elementary	Kitchen Room 188-2 Sink	*	128	0.97
19-A9925	Greenleaf Elementary	Kitchen Room 188-3 Sink	*	59.7	<0.5
19-A9926	Greenleaf Elementary	Hallway by Cafeteria Sink	*	21.8	2.68
19-A9927	Greenleaf Elementary	Room 102-1 Sink	Changed	33.5	2.29
19-A9928	Greenleaf Elementary	Room 145 Sink	Changed	22.6	182
19-A9929	Greenleaf Elementary	Room 131 Drinking Fountain	Cleaned	49.7	1.51

Sample Number	Building	Sampling Location	Solution	Lead Results (ppb)	
19-A9930	Greenleaf Elementary	Room 158 Drinking Fountain	Cleaned	22.2	2.46
19-A7299	Greenleaf Elementary	Kitchen Room 188-1 Sink	Changed	19.9	2.75
19-A7300	Greenleaf Elementary	Dish Wash 1 Sink	Changed	18.0	3.30
19-A7301	Greenleaf Elementary	Work Room 115 Sink	Changed	19.3	4.26
19-A7302	Greenleaf Elementary	Room 154 Drinking Fountain	Cleaned	15.4	1.00
19-A7293	Highland Elementary	Kitchen Sink 2 Sprayer	Replaced	30.3	23.5
19-A7294	Highland Elementary	Room 106 Sink	Replaced	17.7	2.0
19-A7295	Highland Elementary	Work Room Sink	Replaced	18.7	2.83
19-A7327	Northview Elementary	Main Office Nurses' Room Sink	Replaced	17.1	1.99
19-A9940	Oak Ridge Elementary	Dish Washer Room 2 Sink	Changed	43.5	37.6
19-A9931	Oak Ridge Elementary	Instruments Room Drinking Fountain (off of Band Room 235)	Replaced	41.5	17.9
19-A9932	Oak Ridge Elementary	Main Office Conference Room Sink	Changed	28.3	26.8
19-A9933	Oak Ridge Elementary	Room 206 Drinking Fountain	Replaced	20.2	5.73
19-A9934	Oak Ridge Elementary	Room 201 Drinking Fountain	Replaced	102	1.34
19-A9935	Oak Ridge Elementary	Room 216-1 Drinking Fountain	Replaced	94.6	3.76
19-A9936	Oak Ridge Elementary	Room 101 Drinking Fountain	Replaced	70.3	2.06
19-A9937	Oak Ridge Elementary	Room 103 Drinking Fountain	Replaced	51.8	2.37
19-A9938	Oak Ridge Elementary	Room 105 Drinking Fountain	Replaced	30.3	8.53
19-A9939	Oak Ridge Elementary	Kiln Room Sink	Changed	49.5	10.8
19-A7296	Oak Ridge Elementary	Room 218-2 Drinking Fountain	Replaced	19.8	1.42
19-A7297	Oak Ridge Elementary	Room 110 Drinking Fountain	Replaced	19.0	1.76
19-A7298	Pinewood Elementary	Dish Wash Sink 1 Sprayer	Cleaned	90.2	8.55
19-A7306	Red Pine Elementary	Kitchen 2 Sink	*	38.1	7.41
19-A7308	Red Pine Elementary	Room off of Band Room Sink	*	31.7	2.56
19-A7309	Red Pine Elementary	Music Room Drinking Fountain	*	22.3	1.38
19-A7310	Red Pine Elementary	Art Room 1 Drinking Fountain	*	37.7	1.91
19-A7305	Red Pine Elementary	Kitchen 1 Sink	*	15.9	0.88
19-A7307	Red Pine Elementary	Dish Wash Room 1 Sink	*	15.8	2.76
--	Rosemount Elementary	Room 408 Drinking Fountain	Out of Service	--	--
--	Rosemount Elementary	Room 207 Drinking Fountain	Out of Service	--	--
--	Rosemount Elementary	Room 401 Drinking Fountain	Out of Service	--	--
19-A9941	Shannon Park Elementary	Dish Washer Room 3 Sink	Replaced	52.0	17.6
19-A9942	Shannon Park Elementary	Room 216-1 Sink	Replaced	54.1	<0.5
19-A9943	Shannon Park Elementary	Room 117 Drinking Fountain	Replaced	26.8	0.69
19-A7326	Shannon Park Elementary	Room 218-1 Sink	Replaced	19.3	3.11
19-A7328	Southview Elementary	Office Sink	Replaced	20.4	8.77
19-A7329	Southview Elementary	Kitchen 2 Sink	Replaced	23.6	7.42
19-A7330	Southview Elementary	Kitchen 3 Sink	Replaced	22.9	7.12
19-A7331	Southview Elementary	Kitchen 4 Sink	Replaced	23.7	8.12
--	Southview Elementary	Hallway Across from Room 409 Drinking Fountain	Not replaced at the time of resampling	4480	--
19-A7332	Southview Elementary	Room 409 Drinking Fountain	Replaced	25.7	4.36
19-A7333	Southview Elementary	Room 408 Drinking Fountain	Replaced	22.9	6.09
19-A7334	Southview Elementary	Room 407 Drinking Fountain	Replaced	297	7.28

Sample Number	Building	Sampling Location	Solution	Lead Results (ppb)	
19-A7335	Southview Elementary	Room 402 Drinking Fountain	Replaced	21.7	4.30
19-A7336	Southview Elementary	Room 406 Drinking Fountain	Replaced	132	6.60
19-A7337	Southview Elementary	Room 403 Drinking Fountain	Replaced	82.0	5.22
19-A7339	Southview Elementary	Room 301 Sink	Replaced	29.8	8.19
19-A7341	Southview Elementary	Room 201 Sink	Replaced	26.2	23.0
19-A7343	Southview Elementary	Room 108 Drinking Fountain	Replaced	24.7	3.36
19-A7344	Southview Elementary	Room 106 Drinking Fountain	Replaced	57.6	5.19
19-A7338	Southview Elementary	Room 405 Drinking Fountain	Replaced	19.7	6.60
19-A7340	Southview Elementary	Room 208 Drinking Fountain	Replaced	19.8	6.58
19-A7342	Southview Elementary	Hallway Across from Room 209 Drinking Fountain	Replaced	17.6	7.46
19-A7312	Thomas Lake Elementary	Kitchen Sink 1	*	39.7	185
19-A7351	Westview Elementary	Kitchen Sink 5 Sprayer	Replaced	20.8	3.68
19-A7352	Westview Elementary	Room 209 Sink	Changed	22.5	16.6
19-A7350	Westview Elementary	Kitchen Sink 3	Replaced	15.4	3.99
19-A9908	Woodland Elementary	Kitchen Room 308-2 Sink	Changed	33.1	1.14
19-A9909	Woodland Elementary	Dishwash Room-2 Sink	Changed	48.6	3.24
19-A9910	Woodland Elementary	Conference Room 234 Sink	Changed	32.8	3.09
19-A9911	Woodland Elementary	Work Room 231 Sink	Changed	35.4	4.08
19-A9912	Woodland Elementary	Room 230 Sink	Changed	33.1	2.60
19-A9913	Woodland Elementary	Room 229 Sink	Changed	42.5	1.36
19-A9914	Woodland Elementary	Room 220 Sink	Changed	21.8	1.10
19-A9915	Woodland Elementary	Room 218 Sink	Changed	22.7	0.73
19-A9916	Woodland Elementary	Room 212-2 Sink	Changed	20.3	0.98
19-A9917	Woodland Elementary	Room 127 Sink	Changed	23.8	0.91
19-A9918	Woodland Elementary	Room 125 Sink	Changed	25.4	1.78
19-A9919	Woodland Elementary	Room 114 Sink	Changed	22.6	0.96
19-A9920	Woodland Elementary	IMC Room 136 Sink	Changed	35.5	1.99
19-A9921	Woodland Elementary	Room 118 Sink	Changed	31.4	1.39
19-A9922	Woodland Elementary	Room 128 Sink	Changed	128	1.63
19-A9923	Woodland Elementary	Room 126 Sink	Changed	43.0	1.36
19-A7313	Woodland Elementary	Room 227-2 Sink	Changed	17.5	1.5
19-A7314	Woodland Elementary	Room 226 Sink	Changed	16.0	8.27
19-A7315	Woodland Elementary	Room 222 Sink	Changed	16.6	5.74
19-A7316	Woodland Elementary	Room 221 Sink	Changed	15.0	3.79
19-A7317	Woodland Elementary	Room 213 Sink	Changed	16.7	6.08
19-A7318	Woodland Elementary	Room 124 Sink	Changed	15.5	35.1
19-A7319	Woodland Elementary	Room 121 Sink	Changed	16.9	2.27
19-A7320	Woodland Elementary	Room 120 Sink	Changed	19.9	3.07
19-A7321	Woodland Elementary	Room 119 Sink	Changed	16.6	4.61
19-A7322	Woodland Elementary	Room 116 Sink	Changed	19.2	4.05
19-A7323	Woodland Elementary	Room 113 Sink	Changed	17.1	6.97
19-A7324	Woodland Elementary	Room 110 Sink	Changed	17.0	1.75
19-A7325	Woodland Elementary	Room 104 Sink	Changed	16.5	3.56

ppb: parts per billion

* Corrective action not confirmed

RECOMMENDATIONS

IEA recommends implementing one of the following treatment options for the fixtures with lead content exceeding the district designated action level of 15 ppb.

- Remove fixture from service by disconnecting it from the water supply and/or post signs that the water is not potable and notify staff accordingly.
- Provide bottled water to occupants which meet FDA and state standards. A written statement from the bottled water distributor guaranteeing the standard are met should be filed with the district.
- Replace lead pipes on the property and district portion of the service line.
- Reconfigure plumbing system to redirect the water to bypass any known sources of lead contamination.
- Replace fixture with a "lead-free" fixture certified to NSF/ANSI 372 or NSF/ANSI 61-G. The *Reduction of Lead in Drinking Water Act* redefines "lead-free" as "not more than a weighted average of 0.25% lead when used with respect to wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures." Effective January 4, 2014, drinking water system components sold or installed must adhere to this new requirement.
- Install a drinking water treatment unit certified to NSF/ANSI 53 or NSF/ANSI 42 for lead reduction.
- Conduct flush testing in accordance with MDH, MDE, and EPA guidelines to determine if flushing will reduce lead content. If results indicate that flushing will reduce lead to acceptable levels:
 - Implement a flushing program which includes documentation of daily flushing and periodic program review.
 - Note that elevated levels can return quickly following flushing depending upon the age and condition of the plumbing. Replace the plumbing components and ensure any repair or replacement is done using only "lead-free" solder can address high lead levels.
 - Check existing wires in the building that could be grounded to lead piping. The electrical current produced may accelerate the corrosion of the pipes. Consider checking the wires and finding an alternative grounding system.

In addition, MDH recommends labeling water fixtures not included in the sampling program, including bathroom taps, hose bibbs, laboratory faucets/sinks or custodial closet sinks.

If the school receives its water from a Community Public Water Supply, such as a municipal water supply, MDH encourages the school to work with them to assess the source contribution of lead coming into the school.

It is recommended that a copy of the district's Lead-in-Drinking 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

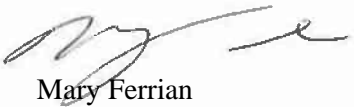
The analysis and opinions expressed in this report are based upon data obtained from Rosemount-Apple Valley-Eagan ISD 196 at the indicated locations. This report does not reflect variations in conditions that may occur across the site, property, or facility. Actual conditions may vary and may not become 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 #7706 dated December 14, 2018 regarding lead-in-water sampling at district locations 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.



Mary Ferrian
EH&S Division Manager

MV/wb 040819

Enc.

ISD 196
Rosemount - Apple Valley - Eagan Public Schools

Final Sampling

Elementary
October 22, 2019

November 11, 2019



Mr. Chris Pint
Rosemount-Apple Valley-Eagan ISD 196
14445 Diamond Path West
Rosemount, MN 55068

**RE: Lead-in-Water First Draw – Follow-up Testing
IEA Project #201911041**

Dear Mr. Pint:

At the request of Rosemount-Apple Valley-Eagan ISD 196, IEA collected 17 follow-up water samples for lead analyses in response to previously elevated sample results. The follow-up samples were collected on October 22, 2019. The post-remediation “first-draw” sampling is compared to initial “first draw” sampling conducted in July and September 2018 and the follow-up from February and March 2019.

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.

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 17 first-draw (unless otherwise noted) samples of approximately 250 milliliters (ml) of water. “First draw” means the samples are collected before the fixture is used or flushed during the day. The first-draw sample results reflect a worst-case scenario, i.e., the highest lead level that would be consumed by building occupants. MDH recommends water stand in pipes for at least 8 hours but not more than 18 hours prior to sampling identified fixtures.

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.

INSTITUTE FOR ENVIRONMENTAL ASSESSMENT, INC.
www.ieasafety.com

BROOKLYN PARK
9201 West Broadway, #600
Brooklyn Park, MN 55445
763-315-7900 / FAX 763-315-7920
800-233-9513

MANKATO
610 North Riverfront Drive
Mankato, MN 56001
507-345-8818 / FAX 507-345-5301
800-233-9513

ROCHESTER
210 Woodlake Drive SE
Rochester, MN 55904
507-281-6664 / FAX 507-281-6695
800-233-9513

BRAINERD
601 NW 5th Street, Ste. #4
Brainerd, MN 56401
218-454-0703 / FAX 218-454-0703
800-233-9513

MARSHALL
1420 East College Drive
Marshall, MN 56258
507-476-3599 / FAX 507-537-6985
800-233-9513

VIRGINIA
5525 Emerald Avenue
Mountain Iron, MN 55768
218-410-9521
800-233-9513

RESULTS & DISCUSSION

The lead-in-water sampling results ranged from 1.62 ppb to 95.2 ppb. These 17 locations are displayed in *Table 1: Water Testing Results*. The laboratory reports are provided in Appendix A. The corrective action taken is listed under the column “Solution.” Laboratory results are reported in micrograms per liter (µg/L) which is equivalent to ppb.

Table 1: Water Testing Results

Current Testing Sample Number	Building	Sampling Location	Action	Lead Results (ppb)		
				Original Result 2018	Retest Feb-Mar 2019	Retest October 2019
19-A54204	Cedar Park Elementary	Kitchen Room 710 Sink 3	Replaced	20.1	15.2	3.37
19-A54205	Deerwood Elementary	Dishwash Room Sink 1	Replaced	30.6	18.0	12.6
19-A54206	Deerwood Elementary	Dishwash Room Sink 3	Mark “Do Not Drink”	42.2	16.6	34.4
No Sample	Diamond Path Elementary	Kitchen Cooker Sprayer off of oven	Replaced	54.2	76.0	Removed
19-A54207	Diamond Path Elementary	Band Storage Room 172 Sink	Replaced	30.7	20.4	10.2
19-A54208	Diamond Path Elementary	Room 105 Unit 1 Drinking Fountain	Replaced	19.2	19.0	14.0
19-A54209	Diamond Path Elementary	Room 127 Sink	Removed	17.6	32.6	35.6
19-A54210	Glacier Hills Elementary	Dish Wash Sink 3	Changed	37.8	18.8	11.3
19-A54211	Greenleaf Elementary	Room 145 Sink	Changed	22.6	182	2.71
19-A54212	Highland Elementary	Kitchen Sink 2 Sprayer	Mark “Do Not Drink”	30.3	23.5	25.5
19-A54213	Oak Ridge Elementary	Dish Washer Room 2 Sink	Mark “Do Not Drink”	43.5	37.6	32.5
19-A54214	Oak Ridge Elementary	Instruments Room Sink (off of Band Room 235)	Replaced	41.5	17.9	1.62
19-A54215	Oak Ridge Elementary	Main Office Conference Room Sink	Changed	28.3	26.8	8.39
19-A54217	Shannon Park Elementary	Dish Washer Room 3 Sink	Replaced	52.0	17.6	9.18
19-A54218	Southview Elementary	Room 201 Sink	Mark “Do Not Drink”	26.2	23.0	95.2
19-A54216	Thomas Lake Elementary	Kitchen Sink 1	Replaced	39.7	185	10.0
19-A54219	Westview Elementary	Room 209 Sink	Changed	22.5	16.6	11.0
19-A54220	Woodland Elementary	Room 124 Sink	Changed	15.5	35.1	5.89

ppb: parts per billion

Replaced: replacement of the fixture

Changed: replacement of some of the fixture’s components (e.g. aerator cartridge)

RECOMMENDATIONS

IEA recommends implementing one of the following treatment options for the five (5) fixtures with lead content exceeding the district designated action level of 15 ppb.

- Remove the fixture from service by disconnecting it from the water supply and/or post signs that the water is not potable and notify staff accordingly.
- Provide bottled water to occupants which meet FDA and state standards. A written statement from the bottled water distributor guaranteeing the standard are met should be filed with the district.
- Replace lead pipes on the property and district portion of the service line.
- Reconfigure plumbing system to redirect the water to bypass any known sources of lead contamination.
- Replace fixture with a "lead-free" fixture certified to NSF/ANSI 372 or NSF/ANSI 61-G. The *Reduction of Lead in Drinking Water Act* redefines "lead-free" as "not more than a weighted average of 0.25% lead when used with respect to wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures." Effective January 4, 2014, drinking water system components sold or installed must adhere to this new requirement.
- Install a drinking water treatment unit certified to NSF/ANSI 53 or NSF/ANSI 42 for lead reduction.
- Conduct flush testing in accordance with MDH, MDE, and EPA guidelines to determine if flushing will reduce lead content. If results indicate that flushing will reduce lead to acceptable levels:
 - Implement a flushing program which includes documentation of daily flushing and periodic program review.
 - Note that elevated levels can return quickly following flushing depending upon the age and condition of the plumbing. Replace the plumbing components and ensure any repair or replacement is done using only "lead-free" solder can address high lead levels.
 - Check existing wires in the building that could be grounded to lead piping. The electrical current produced may accelerate the corrosion of the pipes. Consider checking the wires and finding an alternative grounding system.

MDH recommends labeling water fixtures not included in a sampling program, such as restroom taps, hose bibbs, laboratory faucets/sinks or custodial closet sinks.

If the school receives its water from a community public water supply, such as a municipal water supply, MDH encourages the school to work with them to assess the source contribution of lead coming into the school.

It is recommended that a copy of the district's Lead-in-Drinking 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

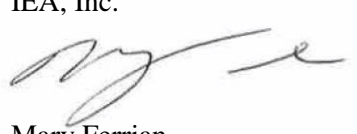
The analysis and opinions expressed in this report are based upon data obtained from Rosemount-Apple Valley-Eagan ISD 196 at the indicated locations. This report does not reflect variations in conditions that may occur across the site, property, or facility. Actual conditions may vary and may not become 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 #8454 dated September 20, 2019, regarding lead-in-water sampling at district locations 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.

A handwritten signature in black ink, appearing to read "Mary Ferrian", is written over a light gray rectangular background.

Mary Ferrian
EHS Division Manager

MF/wb 111119

Enc.

ISD 196
Rosemount - Apple Valley - Eagan Public Schools

Initial Sampling

Secondary/District Buildings
November 7 - 13, 2019



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 contaminants, 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).

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 statute, 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.



Amy Weinzierl, CSP (#27824)
EHS & IAQ Manager
Amy@fieldconsultinginc.com



Nicole Field
Environmental Technician
Nicole@fieldconsultinginc.com



Parker Prose
Safety & IAQ Specialist
Parkerp@fieldconsultinginc.com

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



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 – 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 contaminants, 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 statute, 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.



Amy Murray, CSP (#27824)
EHS & IAQ Manager
Amy@fieldconsultinginc.com

Attachments

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