October 3, 2016

Mr. Mike Vogel
Interim Director of Facilities and Construction Management
South Washington County Schools
7362 East Douglas Point Road S
Cottage Grove, MN 55016
P 651-425-6274
E mvogel@sowashco.org

Providing Trusted
Health & Safety Solutions

RE: Armstrong Elementary
Lead-in-Water Testing
IEA Project #201610819

Dear Mr. Vogel,

At the request of South Washington County Schools, IEA collected a total of 73 samples of drinking water on September 20, 2016, for lead analyses from the Armstrong Elementary building

The purpose of the site sampling was to document lead levels in the sampled locations and compare them to the EPA action level of 20 parts per billion (ppb).

INTRODUCTION

The Environmental Protection Agency (EPA) established the Lead Contamination Control Act (LCCA) of 1988 to identify and reduce lead in drinking water. Both the EPA and the Minnesota Department of Health (MDH) recommend testing of potable water sources (water used for consumption) every five years for the presence of lead. Lead is a metal that usually enters drinking water through the distribution system, including pipes, solders, faucets, and valves. Lead levels in water may increase when the water is allowed to sit undisturbed in the system, such as in science, biology, or art areas. Exposure to lead is a significant health concern, especially to infants and young children whose growing bodies absorb lead more readily than adult bodies do. Lead exposure can cause delays in physical and/or mental development in children and damage to the brain, kidneys, nervous system, and red blood cells. The EPA and MDH recommend that action be taken at a specific fixture when the lead concentration exceeds the EPA's action level for schools of 20 parts per billion (ppb).

METHODOLOGY

IEA collected 73 first-draw (unless otherwise noted) samples of approximately 500 milliliters (ml). "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 protocol calls for flushing locations 8-18 hours prior to sampling.

Site map with sample locations are included in Appendix A. 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 (<0.05 ppb) to 146 ppb. There are four (4) sample results greater than 20 ppb. See *Table 1: Water Testing Results Exceeding 20 ppb*. The laboratory report is provided in Appendix B. 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 20, 2016

Sample Number	Building	Sampling Location	Fixture Type	Lead Results (ppb)
16-A49019	Armstrong Elementary	Sink G5	Faucet	23.6
16-A49037	Armstrong Elementary	Drinking Fountain R5	Drinking Fountain	146
16-A49041	Armstrong Elementary	Drinking Fountain Outside Library	Drinking Fountain	40.7
16-A49057	Armstrong Elementary	Sink KB	Faucet	26.0

ppb – parts per billion

In addition, three (3) results showed lead levels 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 as close to zero as possible.

Table 2: Water Testing Results Approaching 20 ppb – September 20, 2016

Sample Number	Building	Sampling Location	Fixture Type	Lead Results (ppb)
16-A49021	Armstrong Elementary	Drinking Fountain G1	Drinking Fountain	19.3
16-A49047	Armstrong Elementary	Sink B6	Faucet	19.3
16-A49050	Armstrong Elementary	Drinking Fountain B2	Drinking Fountain	18.1

ppb – parts per billion

RECOMMENDATIONS

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

- Install a point-of-use treatment device, such as the Omnipure OMB934 1M Lead Reduction Filter.
- Conduct flush testing in accordance with EPA or MDH guidelines to determine if flushing will reduce lead levels. 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.
- Replace fixture with "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 the 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.
- Remove fixture from service by disconnecting it from the water supply.
- Post signs that the water is not potable and to notify staff of this.

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.

GENERAL CONDITIONS

The analysis and opinions expressed in this report are based upon water testing at South Washington County Schools. 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 #5406A dated August 5, 2016 regarding Lead-in-Water Testing, 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.

Amy Satterfield, CPPM I
Director of Business Development

Karen Weiblen
EHS/IEQ Consultant

Enclosure

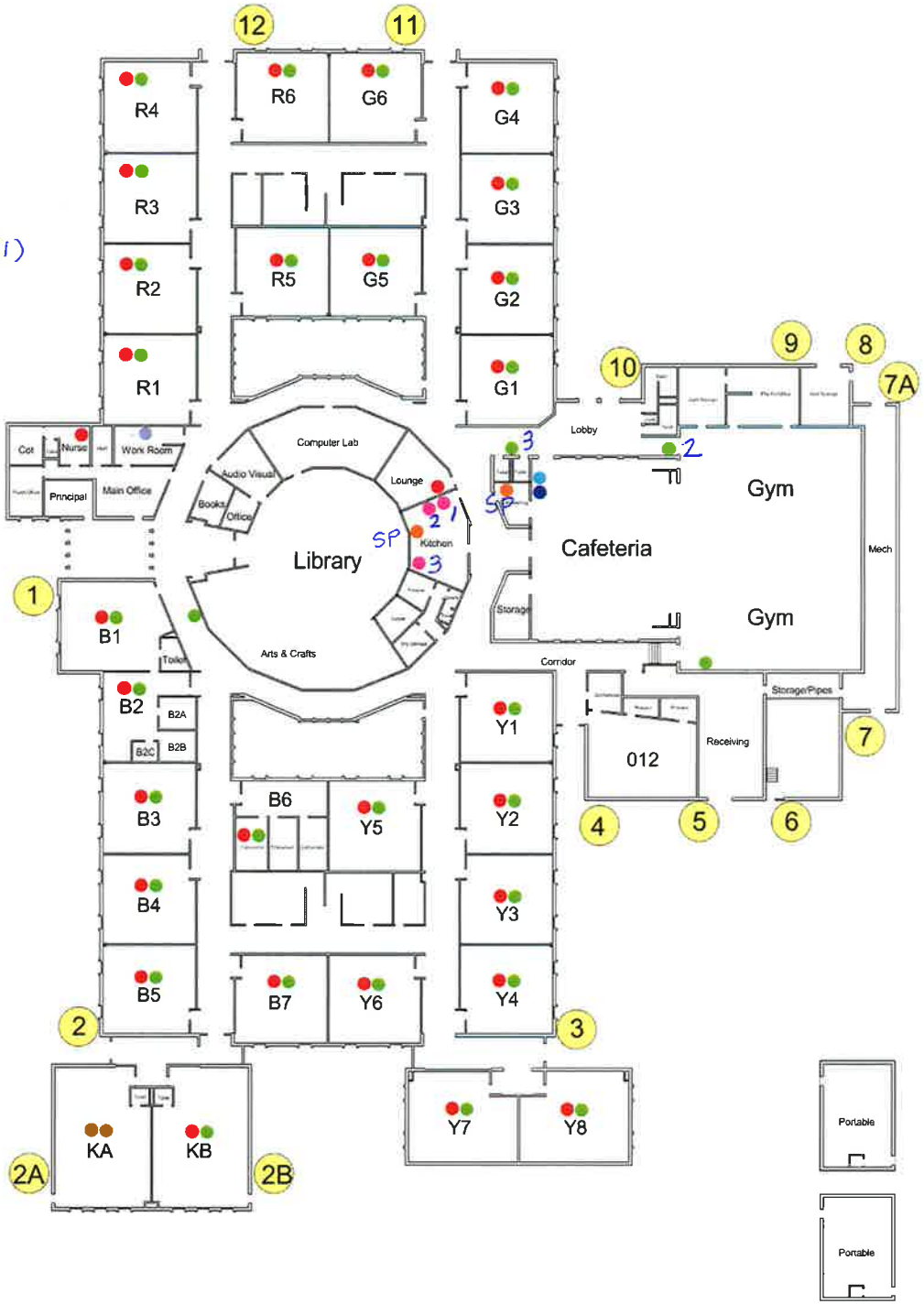
cc: Damien Nelson, Safety & Security

Appendix A

Site Map/Drawing

LEGEND

- SINK (32)
- KITCHEN SINK (3)
- KITCHEN SPRAYER (2)
- DRINKING FOUNTAIN (33)
- WATER BOTTLE FILLER (1)
- WATER COOLER (1)
- INLINE HOT/COLD DISPENSER (1)



INSTITUTE FOR ENVIRONMENTAL ASSESSMENT
9201 West Broadway Brooklyn Park, MN 55445
Tel: 763.315.7900 Toll Free: 800.233.9513
Fax: 763.315.7920

ARMSTRONG ELEMENTARY SCHOOL

FIRST LEVEL FLOOR PLAN | OCT. 2016

Appendix B

Laboratory Testing Report

MINNESOTA VALLEY TESTING LABORATORIES, INC.

MVTL

1126 N. Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 E. Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Highway ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com

MEMBER ACIL

Report Date: 3 Oct 2016

Work Order #: 12-14378
Account #: 002190
Purchase Order #: 201610819

Date Received: 20 Sep 2016
Date Sampled: 20 Sep 2016
Temperature at Receipt: 20.1C

HEIDI SOLBERG
IEA/BROOKLYN PARK
9201 W BDWY STE #600
BROOKLYN PARK MN 55445

PROJECT NAME: ARMSTRONG ELEM.
PROJECT NUMBER: 201610819

LAB NUMBER	SAMPLE DESCRIPTION	LEAD RESULTS		MCL	DATE ANALYZED	ANALYST
16-A49009	09202016AE-1 KITCHEN SINK #1	6.27	ug/L	15.0	27 Sep 16	RMV
16-A49010	09202016AE-2 KITCHEN SINK #2	2.77	ug/L	15.0	27 Sep 16	RMV
16-A49011	09202016AE-3 KITCHEN SINK #3	6.48	ug/L	15.0	27 Sep 16	RMV
16-A49012	09202016AE-4 KITCHEN SPRAYER	9.39	ug/L	15.0	27 Sep 16	RMV
16-A49013	09202016AE-5 DISHWASHER SPRAYER	1.39	ug/L	15.0	27 Sep 16	RMV
16-A49014	09202016AE-6 SINK LOUNGE	2.20	ug/L	15.0	27 Sep 16	RMV
16-A49015	09202016AE-7 SINK G1	2.13	ug/L	15.0	27 Sep 16	RMV
16-A49016	09202016AE-8 SINK G2	1.79	ug/L	15.0	27 Sep 16	RMV
16-A49017	09202016AE-9 SINK G3	1.34	ug/L	15.0	27 Sep 16	RMV
16-A49018	09202016AE-10 SINK G4	3.77	ug/L	15.0	27 Sep 16	RMV
16-A49019	09202016AE-11 SINK G5	23.6	ug/L	15.0	27 Sep 16	RMV
16-A49020	09202016AE-12 SINK G6	2.15	ug/L	15.0	27 Sep 16	RMV
16-A49021	09202016AE-13 DF G1	19.3	ug/L	15.0	27 Sep 16	RMV

Approved by: R. Dan O'Connell

Dan O'Connell, Asst. Chemistry Laboratory Manager New Ulm, MN

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.
The reporting limit was elevated for any analyte requiring a dilution as coded below:
@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response
CERTIFICATION: MN LAB # 027-015-125 WI LAB # 999447680 ND MICRO # 1013-M ND WW/DW # R-040

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LAB NUMBER	SAMPLE DESCRIPTION	LEAD RESULTS		MCL	DATE ANALYZED	ANALYST
16-A49022	09202016AE-14 DF G2	1.87	ug/L	15.0	27 Sep 16	RMV
16-A49023	09202016AE-15 DF G3	1.19	ug/L	15.0	27 Sep 16	RMV
16-A49024	09202016AE-16 DF G4	1.72	ug/L	15.0	27 Sep 16	RMV
16-A49025	09202016AE-17 DF G5	3.71	ug/L	15.0	27 Sep 16	RMV
16-A49026	09202016AE-18 DF G6	3.53	ug/L	15.0	27 Sep 16	RMV
16-A49027	09202016AE-19 SINK R1	5.53	ug/L	15.0	27 Sep 16	RMV
16-A49028	09202016AE-20 SINK R2	6.25	ug/L	15.0	27 Sep 16	RMV
16-A49029	09202016AE-21 SINK R3	9.81	ug/L	15.0	27 Sep 16	RMV
16-A49030	09202016AE-22 SINK R4	1.87	ug/L	15.0	27 Sep 16	RMV
16-A49031	09202016AE-23 SINK R5	8.05	ug/L	15.0	27 Sep 16	RMV
16-A49032	09202016AE-24 SINK R6	4.64	ug/L	15.0	27 Sep 16	RMV
16-A49033	09202016AE-25 DF R1	5.69	ug/L	15.0	27 Sep 16	RMV
16-A49034	09202016AE-26 DF R2	4.40	ug/L	15.0	27 Sep 16	RMV

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Dan O'Connell, Asst. Chemistry Laboratory Manager New Ulm, MN

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LAB NUMBER	SAMPLE DESCRIPTION	LEAD RESULTS		MCL	DATE ANALYZED	ANALYST
16-A49035	09202016AE-27 DF R3	8.55	ug/L	15.0	27 Sep 16	RMV
16-A49036	09202016AE-28 DF R4	2.98	ug/L	15.0	27 Sep 16	RMV
16-A49037	09202016AE-29 DF R5	146 ~	ug/L	15.0	28 Sep 16	RMV
	~Sample diluted due to result above calibration or linear range.					
16-A49038	09202016AE-30 DF R6	2.79	ug/L	15.0	27 Sep 16	RMV
16-A49039	09202016AE-31 INLINE FIXTURE WORKROOM	1.50	ug/L	15.0	27 Sep 16	RMV
16-A49040	09202016AE-32 SINK NURSE	4.46	ug/L	15.0	27 Sep 16	RMV
16-A49041	09202016AE-33 DF OUTSIDE LIBRARY	40.7 ~	ug/L	15.0	28 Sep 16	RMV
	~Sample diluted due to result above calibration or linear range.					
16-A49042	09202016AE-34 SINK B1	5.14	ug/L	15.0	27 Sep 16	RMV
16-A49043	09202016AE-35 SINK B2	14.4	ug/L	15.0	27 Sep 16	RMV
16-A49044	09202016AE-36 SINK B3	3.38	ug/L	15.0	27 Sep 16	RMV

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LAB NUMBER	SAMPLE DESCRIPTION	LEAD RESULTS		MCL	DATE ANALYZED	ANALYST
16-A49045	09202016AE-37 SINK B4	4.21	ug/L	15.0	27 Sep 16	RMV
16-A49046	09202016AE-38 SINK B5	3.26	ug/L	15.0	27 Sep 16	RMV
16-A49047	09202016AE-39 SINK B6	19.3	ug/L	15.0	27 Sep 16	RMV
16-A49048	09202016AE-40 SINK B7	4.12	ug/L	15.0	27 Sep 16	RMV
16-A49049	09202016AE-41 DF B1	6.16	ug/L	15.0	27 Sep 16	RMV
16-A49050	09202016AE-42 DF B2	18.1	ug/L	15.0	27 Sep 16	RMV
16-A49051	09202016AE-43 DF B3	1.83	ug/L	15.0	27 Sep 16	RMV
16-A49052	09202016AE-44 DF B4	2.47	ug/L	15.0	27 Sep 16	RMV
16-A49053	09202016AE-45 DF B5	4.84	ug/L	15.0	27 Sep 16	RMV
16-A49054	09202016AE-46 DF B6	11.4	ug/L	15.0	27 Sep 16	RMV
16-A49055	09202016AE-47 DF B7	6.69	ug/L	15.0	27 Sep 16	RMV
16-A49056	09202016AE-48 SINK KA	10.4	ug/L	15.0	27 Sep 16	RMV
16-A49057	09202016AE-49 SINK KB	26.0	ug/L	15.0	27 Sep 16	RMV

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16-A49058	09202016AE-50 DF KA	4.23	ug/L	15.0	27 Sep 16	RMV
16-A49059	09202016AE-51 DF KB	5.68	ug/L	15.0	27 Sep 16	RMV
16-A49060	09202016AE-52 SINK Y1	10.9	ug/L	15.0	27 Sep 16	RMV
16-A49061	09202016AE-53 SINK Y2	3.17	ug/L	15.0	27 Sep 16	RMV
16-A49062	09202016AE-54 SINK Y3	3.28	ug/L	15.0	27 Sep 16	RMV
16-A49063	09202016AE-55 SINK Y4	8.57	ug/L	15.0	27 Sep 16	RMV
16-A49064	09202016AE-56 SINK Y5	4.57	ug/L	15.0	27 Sep 16	RMV
16-A49065	09202016AE-57 SINK Y6	7.20	ug/L	15.0	27 Sep 16	RMV
16-A49066	09202016AE-58 SINK Y7	0.59	ug/L	15.0	28 Sep 16	RMV
16-A49067	09202016AE-59 SINK Y8	0.53	ug/L	15.0	28 Sep 16	RMV
16-A49068	09202016AE-60 DF Y1	11.8	ug/L	15.0	28 Sep 16	RMV
16-A49069	09202016AE-61 DF Y2	2.61	ug/L	15.0	28 Sep 16	RMV

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LAB NUMBER	SAMPLE DESCRIPTION	LEAD RESULTS		MCL	DATE ANALYZED	ANALYST
16-A49070	09202016AE-62 DF Y3	2.19	ug/L	15.0	28 Sep 16	RMV
16-A49071	09202016AE-63 DF Y4	7.08	ug/L	15.0	28 Sep 16	RMV
16-A49072	09202016AE-64 DF Y5	5.07	ug/L	15.0	28 Sep 16	RMV
16-A49073	09202016AE-65 DF Y6	4.33	ug/L	15.0	28 Sep 16	RMV
16-A49074	09202016AE-66 DF Y7	2.02	ug/L	15.0	28 Sep 16	RMV
16-A49075	09202016AE-67 DF Y8	0.71	ug/L	15.0	28 Sep 16	RMV
16-A49076	09202016AE-68 SINK NEAR RECEIVING	7.40	ug/L	15.0	28 Sep 16	RMV
16-A49077	09202016AE-69 DF #1	7.51	ug/L	15.0	28 Sep 16	RMV
16-A49078	09202016AE-70 DF #2	5.81	ug/L	15.0	28 Sep 16	RMV
16-A49079	09202016AE-71 DF #3	0.72	ug/L	15.0	28 Sep 16	RMV
16-A49080	09202016AE-72 WATER COOLER	< 0.5	ug/L	15.0	28 Sep 16	RMV
16-A49081	09202016AE-73 BOTTLE FILLER	< 0.5	ug/L	15.0	28 Sep 16	RMV

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