TRI TERRA

1210 N. Cedar Street, Suite A
Lansing, Michigan 48906
517-702-0470
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June 21, 2016
(16-1598-03)

Okemos Public Schools
Steve Lathrop, Director of Operations
4406 Okemos Road
Okemos, Michigan 48864

SUBJECT: ***Okemos Public Schools Water Sampling – Lead in Drinking Water***
Hiawatha Elementary, 1900 Jolly Road, Okemos, Michigan 48864

Dear Mr. Lathrop,

This letter is a summary of drinking water sampling procedures and results for the Hiawatha Elementary building, located at 1900 Jolly Road, Okemos, Michigan. As requested, these sampling events were designed to offer an assessment of whether water at likely drinking sources within this location contains lead at or above the EPA action level of 15 parts per billion (ppb), and as such does not offer a comprehensive assessment of the entire building and its drinking water system.

SCOPE OF SERVICES

Triterra personnel mobilized to the site on May 4, 2016 and conducted the prescribed sampling protocol. This included the following:

- A 250 milliliter (ml) flush sample (three minute flush time) from the tap closest to the water service inlet, in order to determine whether an external source of lead contamination exists;
- A 250 ml initial draw sample from five drinking water source fixtures within the building (fountain, bubbler, kitchen sink, etc.), to determine whether the fixture itself may be a source of lead contamination, and;
- A 250 ml flush sample (30 seconds flush time) from the same five fixtures within the building.

These specimens, as well as a 250 ml field blank (distilled water), were then submitted to Merit Laboratories, Inc. (East Lansing, Michigan) for analysis via EPA Method 200.8 Revision 5.4. All samples were collected in laboratory-prepared, nitric acid-preserved, 250 ml Nalgene bottles, in order to meet the EPA-prescribed 250 ml sample size requirement.

FINDINGS

Analytical results are included as Table 1, attached, as well as within the included Merit Laboratories, Inc. analytical report (Attachment 1).

The analytical results from the collected samples do not indicate that the Hiawatha Elementary building has lead within drinking water at levels that exceed the EPA action level (15 ppb) at the time of testing.

RECOMMENDATIONS

It is Triterra's opinion that a more comprehensive set of sampling for might be beneficial. During this sampling event, it was noted that multiple types of potential drinking water sources are present within the building. A more comprehensive sampling strategy would offer more conclusive information as to if any individual type(s) of fixture poses a concern.

Should you have any questions or comments regarding this correspondence, please contact the undersigned at (517) 702-0470.

Sincerely,

Ian O. Smith, PhD
Materials Scientist

Don McNabb, CGWP, CP
CEO | Principal Scientist

Attachments

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TABLE 1

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TABLE 1

SAMPLE RESULTS - LEAD IN WATER
5/4/2016

Project: Okemos Public Schools - Lead Testing
Location: Hiawatha Elementary School
Project Number: 16-1598-03
Personnel: DKM

Sample	Description	Location	Volume	Matrix	Result (ppb)
HI-W-01	Flush Sample - 3 min	Service Line	250 ml	Drinking Water	2
HI-W-02	Initial Draw Sample	Kitchen - Sink	250 ml	Drinking Water	4
HI-W-03	Flush Sample - 30 sec	Kitchen - Sink	250 ml	Drinking Water	-
HI-W-04	Initial Draw Sample	Hallway Near Room 410 - Fountain	250 ml	Drinking Water	ND
HI-W-05	Flush Sample - 30 sec	Hallway Near Room 410 - Fountain	250 ml	Drinking Water	-
HI-W-06	Initial Draw Sample	Music Room - Sink Bubbler	250 ml	Drinking Water	2
HI-W-07	Flush Sample - 30 sec	Music Room - Sink Bubbler	250 ml	Drinking Water	-
HI-W-08	Initial Draw Sample	Room 310 - Sink Bubbler	250 ml	Drinking Water	ND
HI-W-09	Flush Sample - 30 sec	Room 310 - Sink Bubbler	250 ml	Drinking Water	-
HI-W-10	Initial Draw Sample	Room 30 - Sink Bubbler	250 ml	Drinking Water	ND
HI-W-11	Flush Sample - 30 sec	Room 30 - Sink Bubbler	250 ml	Drinking Water	-
HI-Blank	Field Blank	-	250 ml	Drinking Water	ND

Notes:
EPA Lead in Drinking Water action level is 15 ppb
Initial Draw Sample is taken prior to any usage of the water source, following at least 8 hours of idle time
Flush Sample is taken following a prescribed amount of time with water running
Bold text indicates sample is above EPA action level

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ATTACHMENT 1

MERIT LABORATORIES, INC. ANALYTICAL REPORT

Analytical Laboratory Report

Report ID: S73184.01(01)
Generated on 05/09/2016

Report to

Attention: Don McNabb
TriTerra
1210 N Cedar Street
Suite A
Lansing MI 48906

Phone: 517-702-0470 FAX: 517-702-0477
Email: don.mcnabb@triterra.us

Addtional Contacts: Brad Buswell

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
Kevin George (kgeorge@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S73184.01-S73184.12
Project: 16-1598 Hiawatha
Collected Date: 05/04/2016
Submitted Date/Time: 05/05/2016 08:00
Sampled by: Don McNabb
P.O. #:

Table of Contents

Maya Murshak
Technical Director

General Report Notes

Results relate only to items tested as received by laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
SW3015A	SW 846 Method 3015A Revision 1 February 2007

Sample Summary (12 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S73184.01	HI-W-01	Drinking Water	05/04/16 06:24
S73184.02	HI-W-02	Drinking Water	05/04/16 06:46
S73184.03	HI-W-03	Drinking Water	05/04/16 06:47
S73184.04	HI-W-04	Drinking Water	05/04/16 06:42
S73184.05	HI-W-05	Drinking Water	05/04/16 06:43
S73184.06	HI-W-06	Drinking Water	05/04/16 06:34
S73184.07	HI-W-07	Drinking Water	05/04/16 06:35
S73184.08	HI-W-08	Drinking Water	05/04/16 06:38
S73184.09	HI-W-09	Drinking Water	05/04/16 06:39
S73184.10	HI-W-10	Drinking Water	05/04/16 06:30
S73184.11	HI-W-11	Drinking Water	05/04/16 06:31
S73184.12	HI-Blank	Drinking Water	05/04/16 06:20

Analytical Laboratory Report

Lab Sample ID: S73184.01
Sample Tag: HI-W-01
Collected Date/Time: 05/04/2016 06:24
Matrix: Drinking Water
COC Reference: 097653

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	HNO3	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	05/09/16 13:30	CCM		
Metals								
Lead	0.002	mg/L	0.001	E200.8	05/09/16 15:29	PER	7439-92-1	

Analytical Laboratory Report

Lab Sample ID: S73184.02
Sample Tag: HI-W-02
Collected Date/Time: 05/04/2016 06:46
Matrix: Drinking Water
COC Reference: 097653

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	HNO3	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	05/09/16 13:30	CCM		
Metals								
Lead	0.004	mg/L	0.001	E200.8	05/09/16 15:30	PER	7439-92-1	

Analytical Laboratory Report

Lab Sample ID: S73184.03
Sample Tag: HI-W-03
Collected Date/Time: 05/04/2016 06:47
Matrix: Drinking Water
COC Reference: 097653

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	HNO3	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Other / Misc.								
Hold until notified	Completed				05/05/16 17:00	KAG		

Analytical Laboratory Report

Lab Sample ID: S73184.04
Sample Tag: HI-W-04
Collected Date/Time: 05/04/2016 06:42
Matrix: Drinking Water
COC Reference: 097653

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	HNO3	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	05/09/16 13:30	CCM		
Metals								
Lead	Not detected	mg/L	0.001	E200.8	05/09/16 15:31	PER	7439-92-1	

Analytical Laboratory Report

Lab Sample ID: S73184.05
Sample Tag: HI-W-05
Collected Date/Time: 05/04/2016 06:43
Matrix: Drinking Water
COC Reference: 097653

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	HNO3	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Other / Misc.								
Hold until notified	Completed				05/05/16 17:00	KAG		

Analytical Laboratory Report

Lab Sample ID: S73184.06
Sample Tag: HI-W-06
Collected Date/Time: 05/04/2016 06:34
Matrix: Drinking Water
COC Reference: 097653

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	HNO3	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	05/09/16 13:30	CCM		
Metals								
Lead	0.002	mg/L	0.001	E200.8	05/09/16 15:32	PER	7439-92-1	

Analytical Laboratory Report

Lab Sample ID: S73184.07
Sample Tag: HI-W-07
Collected Date/Time: 05/04/2016 06:35
Matrix: Drinking Water
COC Reference: 097653

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	HNO3	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Other / Misc.								
Hold until notified	Completed				05/05/16 17:00	KAG		

Analytical Laboratory Report

Lab Sample ID: S73184.08
Sample Tag: HI-W-08
Collected Date/Time: 05/04/2016 06:38
Matrix: Drinking Water
COC Reference: 097653

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	HNO3	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	05/09/16 13:30	CCM		
Metals								
Lead	Not detected	mg/L	0.001	E200.8	05/09/16 15:33	PER	7439-92-1	

Analytical Laboratory Report

Lab Sample ID: S73184.09
Sample Tag: HI-W-09
Collected Date/Time: 05/04/2016 06:39
Matrix: Drinking Water
COC Reference: 097653

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	HNO3	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Other / Misc.								
Hold until notified	Completed				05/05/16 17:00	KAG		

Analytical Laboratory Report

Lab Sample ID: S73184.10
Sample Tag: HI-W-10
Collected Date/Time: 05/04/2016 06:30
Matrix: Drinking Water
COC Reference: 097653

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	HNO3	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	05/09/16 13:30	CCM		
Metals								
Lead	Not detected	mg/L	0.001	E200.8	05/09/16 15:34	PER	7439-92-1	

Analytical Laboratory Report

Lab Sample ID: S73184.11
Sample Tag: HI-W-11
Collected Date/Time: 05/04/2016 06:31
Matrix: Drinking Water
COC Reference: 097653

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	HNO3	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Other / Misc.								
Hold until notified	Completed				05/05/16 17:00	KAG		

Analytical Laboratory Report

Lab Sample ID: S73184.12
Sample Tag: HI-Blank
Collected Date/Time: 05/04/2016 06:20
Matrix: Drinking Water
COC Reference: 097653

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	HNO3	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Metal Digestion	Completed			SW3015A	05/09/16 14:00	CCM		
Metals								
Lead	Not detected	mg/L	0.001	E200.8	05/09/16 15:44	PER	7439-92-1	

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

097653

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Don McNabb
COMPANY: Tri-Terra
ADDRESS: 1210 N. Cedar
CITY: Lansing STATE: MI ZIP CODE: 48906
PHONE NO: 517 853-2150 FAX NO. P.O. NO.
E-MAIL ADDRESS: don.mcnabb@tri-terra.us QUOTE NO.

INVOICE TO

CONTACT NAME ☐ SAME
COMPANY: SAME
ADDRESS
CITY STATE ZIP CODE
PHONE NO. E-MAIL ADDRESS

PROJECT NO./NAME: 16-1598 Hiawatha
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Don McNabb

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☒ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☒ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions

MERIT LAB NO. FOR LAB USE ONLY	YEAR DATE	TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Lead	Special Instructions
73184.01	5/2/16	6:24	HI-W-01	W	1			1					X	& Drinking Water
.02		6:46	HI-W-02										X	
.03		6:47	HI-W-03											
.04		6:42	HI-W-04										X	
.05		6:43	HI-W-05											
.06		6:34	HI-W-06										X	
.07		6:35	HI-W-07											
.08		6:38	HI-W-08										X	
.09		6:39	HI-W-09											
.10		6:30	HI-W-10										X	
.11		6:31	HI-W-11											
.12	↓	6:20	HI-[redacted]-Blank	↓	↓			↓					X	ICE

		DATE	TIME
RELINQUISHED BY: SIGNATURE/ORGANIZATION	Don McNabb / Sampler	5/4/16	9:00
RECEIVED BY: SIGNATURE/ORGANIZATION	Tri-Terra Storage (DW)	5/4/16	9:02
RELINQUISHED BY: SIGNATURE/ORGANIZATION		5/4/16	5:30
RECEIVED BY: SIGNATURE/ORGANIZATION		5/4/16	5:30

		DATE	TIME
RELINQUISHED BY: SIGNATURE/ORGANIZATION	Merit Cooler	5/5/16	8:00
RECEIVED BY: SIGNATURE/ORGANIZATION		5/5/16	8:00

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL 4.0

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.16.12