



Environmental Services, Inc.

30553 Wixom Road, Suite 500 • Wixom, Michigan 48393 • Voice: 248.926.3800 • Fax: 248.926.3838  
12330 Perry Highway, Suite 240 • Wexford, PA 15090 • Voice: 412.463.6576

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**DRINKING WATER TESTING REPORT  
(COPPER AND LEAD)**

**(Results of Testing Conducted on April 29, 2016)**

**PERFORMANCE ENVIRONMENTAL SERVICES  
Project # 161310**

FOR

**Ms. Regan Hamilton  
Director of Facilities  
Cornerstone Charter Schools  
P.O. Box 2000  
Taylor, Michigan 48180**

AT

**Lincoln-King Academy  
13436 Grove Street  
Detroit, MI**

**Report Date: May 11, 2016**

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## 1.0 SUMMARY OF FINDINGS

In accordance with your request, Performance Environmental Services, Inc. (*Performance*) conducted drinking water testing on April 29, 2016 at Lincoln-King Academy located at 13436 Grove Street in Detroit, Michigan. The purpose of the testing was to document the absence or presence of potential health hazards associated with the exposure of copper and lead in the drinking water. The study included the collection of representative drinking water samples.

The results of the drinking water testing do not indicate a need for response actions to reduce exposure at this time.

Enclosed, please find the Drinking Water Testing Report. If there are any questions or comments concerning this report or our recommendations, please do not hesitate to contact us.

Respectfully,

**PERFORMANCE ENVIRONMENTAL SERVICES, INC.**



Dennis A. Wood  
Senior Project Manager

DAW:hr

## 2.0 BACKGROUND

In accordance with your request, Performance Environmental Services, Inc. (*Performance*) conducted drinking water testing for copper and lead at Lincoln-King Academy located at 13436 Grove Street in Detroit, Michigan. The purpose of the testing was to document the absence or presence of potential health hazards associated with copper and lead in the drinking water as described in the EPA document entitled “3Ts for Reducing Lead in Drinking Water in Schools: Revised Technical Guidance” for facilities not defined as a public water system who are required to adhere to the EPA Lead and Copper Rule (40 CFR Part 141 Subpart I). The study included the collection of representative drinking water samples. *Performance* conducted the drinking water testing on April 29, 2016.

## 3.0 ASSESSMENT METHODOLOGY

### 3.1 Drinking Water Testing

*Performance* implemented sampling methodologies as described in section 4 of the “3Ts for Reducing Lead in Drinking Water in Schools: Revised Technical Guidance” to collect drinking water samples for concentrations of copper and lead. The samples were collected first draw (stagnant sample) using laboratory provided 250 ml containers. The samples were maintained under a chain-of-custody record and submitted to a laboratory for analysis by Inductively Coupled Plasma – Mass Spectrometry (EPA method 200.8). The samples were analyzed by Brighton Analytical, L.L.C. located at 2105 Pless Drive, Brighton, MI 48116 (810)229-7575.

## 4.0 RESULTS

### 4.1 Drinking Water Analysis

Ten (10) samples were collected for concentrations of copper and lead. The EPA Lead and Copper rule requires that copper concentrations not exceed an action level of 1.3 ppm (1,300 ppb) and lead concentrations not exceed an action level of 20 ppb. The results are as follows:

#### Copper Results:

Sample ID	Location	Result (ppb)	EPA Action Level (ppb)
13436-01	Fountain – Across from room 211	20	1,300
13436-02	Fountain – Next to room 218	140	1,300
13436-03	Fountain – Across from teacher’s copy room	20	1,300
13436-04	Fountain – Next to room 118	30	1,300
13436-05	Fountain – Cafeteria	300	1,300
13436-06	Sink – Kitchen	130	1,300
13436-07	Sink – Room 107	100	1,300
13436-08	Fountain – Outside gym	40	1,300
13436-09	Fountain – Gym	50	1,300
13436-10	Sink – Coaches office	20	1,300

### **Lead Results:**

Sample ID	Location	Result (ppb)	EPA Action Level (ppb)
13436-01	Fountain – Across from room 211	Not detected	20
13436-02	Fountain – Next to room 218	1	20
13436-03	Fountain – Across from teacher’s copy room	Not detected	20
13436-04	Fountain – Next to room 118	Not detected	20
13436-05	Fountain – Cafeteria	Not detected	20
13436-06	Sink – Kitchen	Not detected	20
13436-07	Sink – Room 107	Not detected	20
13436-08	Fountain – Outside gym	Not detected	20
13436-09	Fountain – Gym	Not detected	20
13436-10	Sink – Coaches office	1	20

## **5.0 BACKGROUND INFORMATION**

### **5.1 Health Effects of Lead Exposure**

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

- Infants, young children and pregnant women are at greatest risk to lead exposure;
- Increased lead levels have been shown to cause damage to the brain and kidneys;
- Increased lead levels interfere with the production of red blood cells that carry oxygen to all parts of your body;
- Scientists have linked the effects of lead on the brain to lowered intelligence quotient (IQ) in children;
- Adults with kidney problems and high blood pressure can be affected by lower levels of lead more than healthy adults;
- Lead is stored in the bones and it can be released later in life; and,
- During pregnancy, the fetus can receive lead from the mother’s bones which may affect brain development.

### **5.2 Health Effects of Copper Exposure**

Excess copper exposure can cause stomach and intestinal distress, liver or kidney damage, and complications of Wilson’s disease. In addition, children’s bodies absorb more copper than the average adult because of their rapid development and higher metabolism.

## **6.0 LIMITATIONS**

The results of our tests represent conditions only at the time sampling occurred; thus, this report should not be relied on to represent conditions at other locations, times, or dates. Our opinions are based upon findings and upon our professional expertise with no warranty or guarantee implied herein. This report is intended for the sole use of your firm and its assigned agents. *Performance* accepts no responsibility for interpretation of this report by others. Its content shall not be used or relied on by other parties

without prior written authorization of *Performance*.

# APPENDIX

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## ANALYTICAL RESULTS

### CONTENTS

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- ▶ CERTIFICATES OF LABORATORY ANALYSIS
  - ▶ CHAIN OF CUSTODY RECORD

May 10, 2016

Performance Environmental  
30553 Wixom Road  
Suite 500  
Wixom, MI 48393

Subject: Lincoln-King Academy, Detroit  
161310

Dear Mr. Gross :

Thank you for making Brighton Analytical, L.L.C. your laboratory of choice. Attached are the results for the samples submitted on 04/29/2016 for the above mentioned project. NELAP/TNI Accredited Analysis and MDEQ Drinking Water Certified Analysis will be identified in their respective reporting formats. Hard copies can be supplied at your request for a fee of \$20.00 per copy.

The invoice for this project will be emailed separately. If you have any questions concerning the data or invoice, please don't hesitate to contact our office. We welcome your comments and suggestions to improve our quality systems. Please reference Brighton Analytical, L.L.C. Project ID 38814 when calling or emailing. We thank you for this opportunity to partner with you on this project and hope to work with you again in the future.

Sincerely,  
Brighton Analytical, L.L.C.







**Brighton Analytical LLC**  
 2105 Pless Drive  
 Brighton, Michigan 48114  
 Phone: (810)229-7575 (810)229-8650  
 e-mail: bai-brighton@sbcglobal.net  
 MDNRE Certified #9404  
 NELAC Accredited #176507

Sample Date/Time: 4/29/2016 10:04  
 Submit Date/Time: 4/29/2016 14:50  
 Report Date: 5/10/2016

Performance Environmental  
 30553 Wixom Road  
 Suite 500  
 Wixom, MI 48393

BA Project # **38814**  
 BA Sample ID **CD01694**

Project Name: **Lincoln-King Academy, Detroit**  
 Project Number: **161310**  
 Sample ID: **13436-01, WF 211**

Analyte Name	Result	Units	RL	MCL	Method Reference	Analysis Time	Analysis Date
<b>Drinking Water Metal Analysis</b>							
Total Copper (Drinking Water)	20	ug/L	20	1300	EPA 200.8 rev5.4	07:20	05/06/2016
Total Lead (Drinking Water)	Not detected	ug/L	1	15	EPA 200.8 rev5.4	07:20	05/06/2016

RL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

MCL = Maximum contaminant Levels.

Analysis not specifically identified as drinking water are for non-regulatory compliance purposes.

Released by WJ Wood  
 Date 5/10/16





**Brighton Analytical LLC**  
 2105 Pless Drive  
 Brighton, Michigan 48114  
 Phone: (810)229-7575 (810)229-8650  
 e-mail: bai-brighton@sbcglobal.net  
 MDNRE Certified #9404  
 NELAC Accredited #176507

Sample Date/Time: 4/29/2016 10:09  
 Submit Date/Time: 4/29/2016 14:50  
 Report Date: 5/10/2016

Performance Environmental  
 30553 Wixom Road  
 Suite 500  
 Wixom, MI 48393

BA Project # **38814**  
 BA Sample ID **CD01696**

Project Name: **Lincoln-King Academy, Detroit**  
 Project Number: **161310**  
 Sample ID: **13436-03, WF Copy**

Analyte Name	Result	Units	RL	MCL	Method Reference	Analysis Time	Analysis Date
<b>Drinking Water Metal Analysis</b>							
Total Copper (Drinking Water)	20	ug/L	20	1300	EPA 200.8 rev5.4	08:10	05/06/2016
Total Lead (Drinking Water)	Not detected	ug/L	1	15	EPA 200.8 rev5.4	08:10	05/06/2016

RL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

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Released by *ajford*  
 Date *5/10/16*





**Brighton Analytical LLC**  
 2105 Pless Drive  
 Brighton, Michigan 48114  
 Phone: (810)229-7575 (810)229-8650  
 e-mail: bai-brighton@sbcglobal.net  
 MDNRE Certified #9404  
 NELAC Accredited #176507

Sample Date/Time: 4/29/2016 10:13  
 Submit Date/Time: 4/29/2016 14:50  
 Report Date: 5/10/2016

Performance Environmental  
 30553 Wixom Road  
 Suite 500  
 Wixom, MI 48393

BA Project # **38814**  
 BA Sample ID **CD01698**

Project Name: **Lincoln-King Academy, Detroit**  
 Project Number: **161310**  
 Sample ID: **13436-05, WF Caf**

Analyte Name	Result	Units	RL	MCL	Method Reference	Analysis Time	Analysis Date
<b>Drinking Water Metal Analysis</b>							
Total Copper (Drinking Water)	300	ug/L	20	1300	EPA 200.8 rev5.4	08:19	05/06/2016
Total Lead (Drinking Water)	Not detected	ug/L	1	15	EPA 200.8 rev5.4	08:19	05/06/2016

RL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

MCL = Maximum contaminant Levels.

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Released by                       
 Date                     

*[Handwritten Signature]*  
*[Handwritten Date: 5/10/16]*





**Brighton Analytical LLC**  
 2105 Pless Drive  
 Brighton, Michigan 48114  
 Phone: (810)229-7575 (810)229-8650  
 e-mail: bai-brighton@sbcglobal.net  
 MDNRE Certified #9404  
 NELAC Accredited #176507

Sample Date/Time: 4/29/2016 10:16  
 Submit Date/Time: 4/29/2016 14:50  
 Report Date: 5/10/2016

Performance Environmental  
 30553 Wixom Road  
 Suite 500  
 Wixom, MI 48393

BA Project # **38814**  
 BA Sample ID **CD01700**

Project Name: **Lincoln-King Academy, Detroit**  
 Project Number: **161310**  
 Sample ID: **13436-07, Sink 107**

Analyte Name	Result	Units	RL	MCL	Method Reference	Analysis Time	Analysis Date
<b>Drinking Water Metal Analysis</b>							
Total Copper (Drinking Water)	100	ug/L	20	1300	EPA 200.8 rev5.4	08:28	05/06/2016
Total Lead (Drinking Water)	Not detected	ug/L	1	15	EPA 200.8 rev5.4	08:28	05/06/2016

RL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

MCL = Maximum contaminant Levels.

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Released by                       
 Date                     

*W. Wood*  
5/10/16



**Brighton Analytical LLC**  
 2105 Pless Drive  
 Brighton, Michigan 48114  
 Phone: (810)229-7575 (810)229-8650  
 e-mail: bai-brighton@sbcglobal.net  
 MDNRE Certified #9404  
 NELAC Accredited #176507

Sample Date/Time: 4/29/2016 10:16  
 Submit Date/Time: 4/29/2016 14:50  
 Report Date: 5/10/2016

Performance Environmental  
 30553 Wixom Road  
 Suite 500  
 Wixom, MI 48393

BA Project # **38814**  
 BA Sample ID **CD01701**

Project Name: **Lincoln-King Academy, Detroit**  
 Project Number: **161310**  
 Sample ID: **13436-08, WF Out Gym**

Analyte Name	Result	Units	RL	MCL	Method Reference	Analysis Time	Analysis Date
<b>Drinking Water Metal Analysis</b>							
Total Copper (Drinking Water)	40	ug/L	20	1300	EPA 200.8 rev5.4	08:32	05/06/2016
Total Lead (Drinking Water)	Not detected	ug/L	1	15	EPA 200.8 rev5.4	08:32	05/06/2016

RL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

MCL = Maximum contaminant Levels.

Analysis not specifically identified as drinking water are for non-regulatory compliance purposes.

Released by *[Signature]*  
 Date 5/10/12



**Brighton Analytical LLC**  
 2105 Pless Drive  
 Brighton, Michigan 48114  
 Phone: (810)229-7575 (810)229-8650  
 e-mail: bai-brighton@sbcglobal.net  
 MDNRE Certified #9404  
 NELAC Accredited #176507

Sample Date/Time: 4/29/2016 10:18  
 Submit Date/Time: 4/29/2016 14:50  
 Report Date: 5/10/2016

Performance Environmental  
 30553 Wixom Road  
 Suite 500  
 Wixom, MI 48393

BA Project # **38814**  
 BA Sample ID **CD01702**

Project Name: **Lincoln-King Academy, Detroit**  
 Project Number: **161310**  
 Sample ID: **13436-09, WF Gym**

Analyte Name	Result	Units	RL	MCL	Method Reference	Analysis Time	Analysis Date
<b>Drinking Water Metal Analysis</b>							
Total Copper (Drinking Water)	50	ug/L	20	1300	EPA 200.8 rev5.4	08:37	05/06/2016
Total Lead (Drinking Water)	Not detected	ug/L	1	15	EPA 200.8 rev5.4	08:37	05/06/2016

RL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

MCL = Maximum contaminant Levels.

Analysis not specifically identified as drinking water are for non-regulatory compliance purposes.

Released by *[Signature]*  
 Date 5/10/16



**Brighton Analytical LLC**  
 2105 Pless Drive  
 Brighton, Michigan 48114  
 Phone: (810)229-7575 (810)229-8650  
 e-mail: bai-brighton@sbcglobal.net  
 MDNRE Certified #9404  
 NELAC Accredited #176507

Sample Date/Time: 4/29/2016 10:20  
 Submit Date/Time: 4/29/2016 14:50  
 Report Date: 5/10/2016

Performance Environmental  
 30553 Wixom Road  
 Suite 500  
 Wixom, MI 48393

BA Project # **38814**  
 BA Sample ID **CD01703**

Project Name: **Lincoln-King Academy, Detroit**  
 Project Number: **161310**  
 Sample ID: **13436-10, Sink Coach**

Analyte Name	Result	Units	RL	MCL	Method Reference	Analysis Time	Analysis Date
<b>Drinking Water Metal Analysis</b>							
Total Copper (Drinking Water)	20	ug/L	20	1300	EPA 200.8 rev5.4	08:55	05/06/2016
Total Lead (Drinking Water)	1	ug/L	1	15	EPA 200.8 rev5.4	08:55	05/06/2016

RL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve MDNR designated target detection limits (TDL).

MCL = Maximum contaminant Levels.

Analysis not specifically identified as drinking water are for non-regulatory compliance purposes.

Released by WJ/ood  
 Date 5/10/16



BRIGHTON ANALYTICAL, LLC

QUALITY ASSURANCE/QUALITY  
CONTROL

# ICP-MS

## METHOD 200.8/6020

### REPRESENTATIVE BATCH PRECISION AND ACCURACY QUALITY CONTROL SUMMARY

Analysis Date: 5/6/2016

Standard ID: 050416 H2O

Batch: 5/4/2016 W5

Matrix Spike Lab ID: CD01684

Matrix: Total

Analyst: LT

Metals	Matrix Spike - Precision *			Matrix Spike - Accuracy**				Miscellaneous***		
	Matrix Spike (ug/kg)	Matrix Spike Dup (ug/kg)	RPD (%)	Spk Conc (ug/kg)	MS Recovery (%)	MSD Recovery (%)	Sample Conc (ug/kg)	Method Blk (ug/kg)	LCS-Method STD (%)	Ind. Std. (%)
Copper	1473	1445	1.9	1000	108.3	105.5	390	<20	104.9	97.7
Lead	962	955	0.7	1000	96.2	95.5	0	<1	97.6	92.8

\* Matrix spike precision range +/- 20% RPD

\*\* Matrix spike accuracy range +/- 20% recovery

\*\*\* LCS accuracy range +/- 15% recovery / Ind std accuracy range +/- 10% recovery

Comments: \_\_\_\_\_

# ICP-MS

## METHOD 200.8/6020

### REPRESENTATIVE BATCH PRECISION AND ACCURACY QUALITY CONTROL SUMMARY

Analysis Date: 5/6/2016                      Standard ID: 050416 H2O                      Batch: 5/4/2016 W6  
 Matrix Spike Lab ID: CD01714                      Matrix: Total                      Analyst: LT

Metals	Matrix Spike - Precision *			Matrix Spike - Accuracy**				Miscellaneous***		
	Matrix Spike (ug/kg)	Matrix Spike Dup (ug/kg)	RPD (%)	Spk Conc (ug/kg)	MS Recovery (%)	MSD Recovery (%)	Sample Conc (ug/kg)	Method Blk (ug/kg)	LCS-Method STD (%)	Ind. Std. (%)
Copper	1115	1088	2.5	1000	105.5	102.8	60	<20	103.7	97.7
Lead	968	961	0.7	1000	96.4	95.7	4	<1	94.9	92.8

\* Matrix spike precision range +/- 20% RPD

\*\* Matrix spike accuracy range +/- 20% recovery

\*\*\* LCS accuracy range +/- 15% recovery / Ind std accuracy range +/- 10% recovery

Comments: \_\_\_\_\_