

EFI Global Inc.
5024 Campbell Boulevard, Suite F
White Marsh, MD 21236

Mercury Vapor Assessment Report

Project Location:

Waterloo Elementary School
5940 Waterloo Rd
Columbia, MD 21045

Prepared For:

Howard County Public School System
10910 Clarksville Pike
Ellicott City, MD 21042

Prepared by:

EFI Global Inc.
5024 Campbell Boulevard, Suite F
White Marsh, MD 21236

EFI Global File No.: 048.03617

October 31, 2023

October 31, 2023

Christopher Madden, CIH
Office of the Environment
Howard County Public School System
10910 Clarksville Pike, Ellicott City, MD 21042

RE: **Mercury Vapor Assessment Report
Waterloo Elementary School
5940 Waterloo Rd, Columbia, MD
EFI Project No. 048.03617**

Dear Mr. Madden,

EFI Global, Inc. (EFI) was retained by HCPSS to conduct mercury vapor testing at the referenced location where a mercury-containing gym floor had been removed. This monitoring was intended to confirm mercury vapor has been sufficiently removed or controlled.

ASSESSMENT METHOD

Mercury Vapor Sampling

EFI conducted air sampling on September 16, 2023, for approximately 8 hours in three locations in the gym at the referenced location. Sampling was conducted at breathing zone height using filter tubes specifically designed for mercury vapor and calibrated low volume pumps. The samples were submitted to SGS Galson and analyzed in accordance with NIOSH Method 6009. SGS Galson is accredited by the American Industrial Hygiene Association (AIHA). Sample locations included the center, the south side, and the northeast corner of the gym. Ventilation or air conditioning equipment were not operating during the sampling, and all doors and windows were closed to avoid outdoor air intrusion.

Mercury generally evaporates slowly from building materials, and the rate of evaporation increases when temperatures rise. Temperatures above 70° F are ideal for mercury vapor monitoring; therefore, sampling was conducted when outdoor temperatures were expected to be greater than 80° F. Indoor temperature measurements were collected throughout the monitoring period.

There are no federal or Maryland state regulations regarding rubberized gym flooring containing mercury. The HCPSS has adopted widely accepted guidelines from the Minnesota Department of Health and New Jersey Department of Health which indicate that indoor air concentrations below 750 nanograms per cubic meter (ng/m³) or 0.75 µg/m³ are protective of preschool-aged children, and thus also deemed safe for older children and adults. The Agency for Toxic Substances and Disease Registry (ATSDR) has established 1 µg/m³ as an acceptable concentration for normal occupancy for most sensitive persons regardless of age.

RESULTS

Temperature measurements in the gym were collected using a TSI QTrak 7585 Monitor and ranged from 76.6 to 81.3° F on the day of sampling. These temperatures were considered sufficiently above room temperature for mercury vapor investigation purposes. Mercury vapor was not detected in the samples collected in the gym. Laboratory analytical data is provided in **Attachment A** and summarized in **Table 1** below.

Table 1 Air Sampling Results Waterloo Elementary School September 16, 2023					
Sample Number	Average Flow Rate (ml/min)	Estimated Time (Minutes)	Estimated Volume (L)	Mercury Detected in Sample Tube (µg/tube)	Estimated Concentration (µg/m ³)
WL-01	160.8	370.5*	59.6*	<0.03	<0.50
WL-02	223.4	315.5*	70.5*	<0.03	<0.43
WL-03	201.4	496.0	99.9	<0.03	<0.30

*Time and volume are estimated in samples 01 and 02 due to pump battery failure.

CONCLUSIONS AND RECOMMENDATIONS

Mercury vapor was not detected in the air samples collected and estimated airborne concentrations were below 0.75 µg/m³, the limit of detection. No further action is recommended.

LIMITATIONS

EFI provided these services consistent with the level and skill ordinarily exercised by members of the profession currently practicing under similar conditions. This report is intended for the sole use of the client.

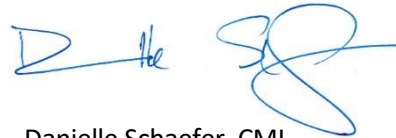
CLOSING

EFI appreciates this opportunity to provide environmental services for HCPSS. If you require additional information or have questions regarding the contents of this report, please contact either of the undersigned.

Sincerely,
EFI Global, Inc.



Julie Barth, CIH, CSP, LEED Green Associate
Senior Industrial Hygienist-CIH/Project Manager



Danielle Schaefer, CMI
District Environmental Principal

Attachments: Attachment A –Laboratory Analytical Data and Chain of Custody

ATTACHMENT A

**LABORATORY ANALYTICAL REPORTS
AND CHAIN OF CUSTODY**

**Julie Barth
EFI Global
926 Slash Pine CT
Sykesville, MD 21784**

October 05, 2023

Account# 39857

Login# L607003

Dear Julie Barth:

Enclosed are the analytical results for the samples received by our laboratory on October 05, 2023. All samples on the chain of custody were received in good condition unless otherwise noted. Any additional observations will be noted on the chain of custody.

Please contact client services at (888) 432-5227 if you would like any additional information regarding this report. Thank you for using SGS Galson.

Sincerely,

SGS Galson



**Lisa Swab
Laboratory Director**

Enclosure(s)



Terms and Conditions & General Disclaimers

- This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.
- Any holder of this document is advised that information contained herein reflects the Company’s findings at the time of its intervention only and within the limits of Client’s instructions, if any. The Company’s sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Analytical Disclaimers

- Unless otherwise noted within the report, all quality control results associated with the samples were within established control limits or did not impact reported results.
- Note: The findings recorded within this report were drawn from analysis of the sample(s) provided to the laboratory by the Client (or a third party acting at the Client’s direction). The laboratory does not have control over the sampling process, including but not limited to the use of field equipment and collection media, as well as the sampling duration, collection volume or any other collection parameter used by the Client. The findings herein constitute no warranty of the sample's representativeness of any sampled environment, and strictly relate to the samples as they were presented to the laboratory. For recommended sampling collection parameters, please refer to the Sampling and Analysis Guide at www.sgsgalson.com.
- Unrounded results are carried through the calculations that yield the final result and the final result is rounded to the number of significant figures appropriate to the accuracy of the analytical method. Please note that results appearing in the columns preceding the final result column may have been rounded and therefore, if carried through the calculations, may not yield an identical final result to the one reported.
- The stated LOQs for each analyte represent the demonstrated LOQ concentrations prior to correction for desorption efficiency (if applicable).
- Unless otherwise noted within the report, results have not been blank corrected for any field blank or method blank data.

Accreditations SGS Galson holds a variety of accreditations and recognitions. Our quality management system conforms with the requirements of ISO/IEC 17025. Where applicable, samples may also be analyzed in accordance with the requirements of ELAP, NELAC, or LELAP under one of the state accrediting bodies listed below. Current Scopes of Accreditation can be viewed at <http://www.sgsgalson.com> in the accreditations section of the "About" page. To determine if the analyte tested falls under our scope of accreditation, please visit our website or call Client Services at (888) 432-5227.

National/International	Accreditation/Recognition	Lab ID#	Program/Sector
AIHA-LAP, LLC - IHLAP, ELLAP, EMLAP	ISO/IEC 17025 and USEPA NLLAP	Lab ID 100324	Industrial Hygiene, Environmental Lead, Environmental Microbiology

State	Accreditation/Recognition	Lab ID#	Program/Sector
New York (NYSDOH)	ELAP and NELAC (TNI)	Lab ID: 11626	Air Analysis, Solid and Hazardous Waste
Louisiana (LDEQ)	LELAP	Lab ID: 04083	Air Analysis, Solid Chemical Materials

Legend

< - Less than	mg - Milligrams	MDL - Method Detection Limit	ppb - Parts per Billion
> - Greater than	ug - Micrograms	NA - Not Applicable	ppm - Parts per Million
l - Liters	m3 - Cubic Meters	NS - Not Specified	ppbv - ppb Volume
LOQ - Limit of Quantitation	kg - Kilograms	ND - Not Detected	ppmv - ppm Volume
ft2 - Square Feet	cm2 - Square Centimeters	in2 - Square Inches	ng - Nanograms



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LABORATORY ANALYSIS REPORT

6601 Kirkville Road
East Syracuse, NY 13057
(315) 432-5227
FAX: (315) 437-0571
www.sgsgalson.com

Client : EFI Global
Site : WATERLOO ELEMENTARY SCHOOL
Project No. : 048.03617
Date Sampled : 16-SEP-23
Date Received : 05-OCT-23

Account No.: 39857
Login No. : L607003
Date Analyzed : 25-SEP-23 - 04-OCT-23
Report ID : 1384236

Mercury, Vapor

<u>Sample ID</u>	<u>Lab ID</u>	<u>Air Vol</u> <u>liter</u>	<u>Total</u> <u>ug</u>	<u>Conc</u> <u>mg/m3</u>
WL-01	L607003-1	59.6	<0.030	<0.00050
WL-02	L607003-2	70.5	<0.030	<0.00043
WL-03	L607003-3	99.9	<0.030	<0.00030

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Level of Quantitation: 0.030 ug
Analytical Method : mod. NIOSH 6009; CVAA TUBE
Collection Media : 226-17-1A

Submitted by: EJB/JJL
Date : 05-OCT-23
Supervisor : JJL

Approved by: JJL



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LABORATORY FOOTNOTE REPORT

6601 Kirkville Road
East Syracuse, NY 13057
(315) 432-5227
FAX: (315) 437-0571
www.ssggalson.com

Client Name : EFI Global
Site : WATERLOO ELEMENTARY SCHOOL
Project No. : 048.03617

Date Sampled : 16-SEP-23 Account No.: 39857
Date Received: 05-OCT-23 Login No. : L607003
Date Analyzed: 25-SEP-23 - 04-OCT-23

L607003 (Report ID: 1384236):

For applicable NYS sampling events, laboratory accreditation through NYSDOH applies only to Lead results. Reported results reflect elemental analysis of the requested metals. Certain compounds may not be solubilized during digestion, resulting in data that is biased low.
SOPs: MT-SOP-20(20), im-hgair(31)

L607003 (Report ID: 1384236):

Accuracy and mean recovery data presented below is based on a 95% confidence interval (k=2). The estimated accuracy applies to the media, technology, and SOP referenced in this report and does not account for the uncertainty associated with the sampling process. The accuracy is based solely on spike recovery data from internal quality control samples. Where N/A appears below, insufficient data is available to provide statistical accuracy and mean recovery values for the associated analyte.

Parameter	Accuracy	Mean Recovery
Mercury, Vapor	+/-14.7%	103%



L607003

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CHAIN OF CUSTODY

24

Turn Around Time (TAT): (surcharge) You may edit and complete this COC electronically by logging in to your Client Portal account at <https://portal.galsonlabs.com/>

<input checked="" type="checkbox"/> Standard	0%
<input type="checkbox"/> 4 Business Days	35%
<input type="checkbox"/> 3 Business Days	50%
<input type="checkbox"/> 2 Business Days	75%
<input type="checkbox"/> Next Day by 6pm	100%
<input type="checkbox"/> Next Day by Noon	150%
<input type="checkbox"/> Same Day	200%

Samples submitted using the FreePumpLoan™ Program
 Samples submitted using the FreeSamplingBadges™ Program

Client Acct No.: 39857 Report To: Julie Barth Invoice To: Carolyn Verb
Company Name: EFI Global Company Name: EFI Global
Address 1: 926 Slash Pine CT Address 1: 5024 Campbell Blvd
Address 2: _____ Address 2: Suite F
City, State Zip: Sykesville, MD 21784 City, State Zip: Nottingham, MD 21236
Phone No.: 443 - 725 - 6425 Phone No.: 443 - 613 - 6654
Cell No.: _____ Email Address: Carolyn.verb@efiglobal.com,
julie.barth@efiglobal.com
Email reports to: julie.barth@efiglobal.com Comments: _____
Online COC No.: 280239 P.O. No.: _____
Payment info.: I will call SGS Galson to provide credit card info
 Card on File (enter the last five digits on the line below)

Comments: * All 226-17-1A. KO 9/19/23

State Sampled: _____ Please indicate which OEL(s) this data will be used for:
 OSHA PEL ACGIH TLV MSHA Cal OSHA
 IAQ: _____ Other: _____
Specify Limit(s) Specify Other

Site Name: _____ Project: 048.03617 Sampled By: Eliot Goodman List description of industry or Process/interferences present in sampling area: _____

Sample ID * (Maximum of 20 Characters)	Date Sampled *	Collection Medium *	Sample Volume Sample Time Sample Area *	Liters Minutes in ² , cm ² , ft ² *	Analysis Requested	Method Reference ^	Hexavalent Chromium Process (e.g., welding, plating, painting, etc.)
<u>BB-01</u>	<u>9/16/23</u>	<u>37mm UW MCE, 3pc</u>			<u>Mercury, Vapor</u>	<u>mod. NIOSH 6009; CVAA TUBE</u>	
<u>BB-02</u>	<u>9/16/23</u>	<u>37mm UW MCE, 3pc</u>			<u>Mercury, Vapor</u>	<u>mod. NIOSH 6009; CVAA TUBE</u>	

^ If the method(s) indicated on the COC are not our routine/preferred method(s), we will substitute our routine/preferred methods. If this is not acceptable, check here to have us contact you.

Chain of Custody	Print Name / Signature	Date	Time	Print Name / Signature	Date	Time
Relinquished By:	<u>Eliot Goodman</u>	<u>9/18/23</u>	<u>5:00</u>	Received By: <u>Kathryn L. Drago</u>	<u>9/19/23</u>	<u>1039</u>
Relinquished By:				Received By:		

* You must fill in these columns for any samples which you are submitting.
Samples received after 3pm will be considered as next day's business.

Online COC No.: 280239
Prep No.: PSY711618
Account No.: 39857
Draft: 9/14/2023 3:08:24 PM

All services are rendered in accordance with the applicable SGS General Conditions of Service accessible via: <http://www.sgs.com/en/Terms-and-Conditions.aspx>



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CHAIN OF CUSTODY

Comments :

Sample ID * (Maximum of 20 Characters)	Date Sampled *	Collection Medium	Sample Volume Sample Time Sample Area *	Liters Minutes in ² , cm ² , ft ² *	Analysis Requested	Method Reference ^	Hexavalent Chromium Process (e.g., welding, plating, painting, etc.)
BB-03	9/16/23	226-17-1A			Mercury, Vapor	mod. NIOSH 6009; CVAA TUBE	
WL-01		226-17-1A			Mercury, Vapor	mod. NIOSH 6009; CVAA TUBE	
WL-02		226-17-1A			Mercury, Vapor	mod. NIOSH 6009; CVAA TUBE	
WL-03							
		BB-01 estimated 79.4 L					
		BB-02 estimated 67.5 L					
		BB-03 estimated 73.5 L					
		WL-01 estimated 59.6 L					
		WL-02 estimated 70.5 L					
		WL-03 99.9 L					
		ZRK 9/19/23					

^ If the method(s) indicated on the COC are not our routine/preferred method(s), we will substitute our routine/preferred methods. If this is not acceptable, check here to have us contact you.

Chain of Custody	Print Name / Signature	Date	Time	Print Name / Signature	Date	Time
Relinquished By :				Received By : Kathryn L. Drogo	9/19/23	1039
Relinquished By :				Received By :		

* You must fill in these columns for any samples which you are submitting.
Samples received after 3pm will be considered as next day's business.

Online COC No. : 280239
Prep No. : PSY711618
Account No. : 39857
Draft : 9/14/2023 3:08:24 PM

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