



Lawhon & Associates, Inc.

ENVIRONMENTAL CONSULTING AND ENGINEERING SERVICES

Columbus

Cleveland

Dayton

October 5, 2020

Mr. Tim Gehring
Director of Facilities Management
Worthington City School District
250 East Wilson Bridge Road
Worthington, Ohio 43085

Re: Report of Findings for the *Legionella* Environmental Sampling
Facility: Evening Street Middle School
Address: 885 Evening St, Worthington, OH 43085
Sample Date: September 23, 2020
L&A Project No: 20-0441

Dear Mr. Gehring,

Lawhon & Associates, Inc. (L&A) performed environmental sampling to document concentrations of *Legionella* in the building's domestic water system. This testing was performed as a proactive measure to ensure *Legionella* concentrations are at acceptable levels following a period of reduced occupancy. L&A's conclusions and recommendations relevant to the sampling performed are presented in this document.

METHODOLOGY

L&A performed environmental sampling for *Legionella* at the site on September 23, 2020. Field activities included a visual assessment of conditions, documentation of water temperatures and the collection of representative water samples for analysis to document *Legionella* concentrations. All activities were performed in accordance with recommendations published by OSHA, AIHA, CDC and current infection control literature. The samples were sent cold, by overnight mail, to U.S. Micro-Solutions, Inc, Greensburg, Pennsylvania for analysis by culture method. This lab is certified to perform *Legionella* analysis through the Centers for Disease Control (CDC) Environmental *Legionella* Isolation Techniques Evaluation (Elite) Certification Program. U.S. Micro-Solutions, Inc. is also accredited by the American Industrial Hygiene Association (AIHA) through the Environmental Microbiology Proficiency Analytical Testing (EMPAT) Program.

FINDINGS

L&A collected ten (10) water samples from the domestic water system on this date. A summary of the analytical results is presented in Table 1. The comprehensive data set is presented in Appendix A. A copy of the laboratory report is included as Appendix B.

Table 1: Domestic Water Sampling Results

Location	Fixture	Water Source	Analytical Data (CFU/ml)
Boiler Room	Municipal Water Main	Cold	535
Boiler Room	Hot Water Tank	Hot	1,045
Kitchen	Faucet	Hot	10
Restroom	Faucet	Hot	ND
Art Room	Faucet	Hot	ND
Corridor	Bottle Filling Station	Cold	ND
Classroom 101	Faucet	Cold	22
Classroom 104	Faucet	Hot	ND
Classroom 112	Faucet	Hot	90
Admin Nurse Restroom	Faucet	Hot	ND
<div><div>1. ND. <i>Legionella</i> species were not present above detection limits for the analytical method used.</div><div>2. OSHA recommends <i>Legionella</i> concentrations be maintained below 10 CFU/ml at domestic water outlets.</div></div>			

CONCLUSIONS

L&A conducted representative sampling of the domestic water system servicing the Evening Street Middle School. As illustrated in Table 1, analytical results indicate that *Legionella pneumophila* was detected in five of the ten sample locations sampled at concentrations that were at or above the OSHA guideline for domestic water (10 CFU/ml). Additionally, the percentage of samples collected from this building that tested positive for *Legionella* (50%) was above the action limit prescribed by CDC (30%). L&A recommends that 1) the hot water tank be drained and refilled, 2) the hot water tank be superheated to at least 140 °F and 3) water outlets throughout the building be flushed for at least five minutes while this temperature is maintained.

CLOSURE

L&A has prepared this report for your use in accordance with generally accepted inspection and testing practices. The information obtained in this report is site and time specific and pertains to this project only. This inspection evaluated the conditions that were readily accessible at the time of the investigation of the subject property and does not warrant against hidden conditions or future alteration of conditions at the site, as well as subsequent changes in regulations. The opinions expressed in this report are based on L&A's experience, relevant literature and available information.

This report was prepared for the exclusive use of the Worthington City School District. No other party may rely on this report unless expressly designated by the Client in writing. The use of the report is subject to the limitations and exceptions set forth in this report, as well as the terms and conditions contained in the original contract documents. L&A will not distribute or publish this report without the Client's consent, except as required by law or court order.

Thank you for the opportunity to assist you in this important matter. If you have any questions concerning this report, please contact Karrie Bontrager at (614) 481-8600, extension 136.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Karrie A. Bontrager', written in a cursive style.

Karrie A. Bontrager, LEED AP
Principal and Sr. Microbiologist

APPENDIX A

Comprehensive Data Set

APPENDIX B
Laboratory Analytical Report



U.S. Micro-Solutions, Inc. * 302 Unity Plaza * Latrobe, PA 15650
Phone: (724) 853-4047 Fax: (724) 853-4049 AIHA-LAP, LLC EMLAP #103009
www.usmslab.com



Customer Name: Lawhon & Associates
Customer Address: 1441 King Avenue
Columbus, OH 43201

Sample Date: September 23, 2020
Date Received: September 24, 2020
Date of Report: October 1, 2020

Customer Phone: (614) 481-8600
PO Number:

Fax: (614) 481-8610
Attention: Matt Geiger
Analysis Date: September 24, 2020
Sample Time: 0800
Analysis Time (hrs): 31.8

Project Name/Number: 20-0441 Worthington CSD - Evening Street Elementary School

Customer sample numbers below are uniquely identified by prefixing Laboratory # 98087-20

Water/Liquid Sample(s) for *Legionella* Culture - Analytical Method MIC 06 MIC 07 (ISO 11731:2017)

Sample Number	Media	Sample Description	Results of Microbial Analysis
W-ESES-1	BCYE/GPCV	Boiler Room - Municipal Water Main - Cold - First Draw	
AS = 5 CFU/mL (Volume examined: 100 mL)			Positive - 535 CFU/mL <i>Legionella pneumophila</i> Serogroup 1
W-ESES-2	BCYE/GPCV	Boiler Room - Hot Water Tank - Hot - First Draw	
AS = 5 CFU/mL (Volume examined: 100 mL)			Positive - 1,045 CFU/mL <i>Legionella pneumophila</i> Serogroup 1
W-ESES-3	BCYE/GPCV	Kitchen - Faucet - Hot - Flush	
AS = 5 CFU/mL (Volume examined: 100 mL)			Positive - 10 CFU/mL <i>Legionella pneumophila</i> Serogroup 1
W-ESES-4	BCYE/GPCV	Restroom - Faucet - Hot - Flush	
AS = 0.5 CFU/mL (Volume examined: 100 mL)			Not Detected
W-ESES-5	BCYE/GPCV	Art Room - Faucet - Hot - Flush	
AS = 0.5 CFU/mL (Volume examined: 100 mL)			Not Detected
W-ESES-6	BCYE/GPCV	Corridor - Bottle Filling Station - Flush	
AS = 0.5 CFU/mL (Volume examined: 100 mL)			Not Detected

Notes:

CFU/mL = colony forming units per milliliter, AS = analytical sensitivity.
Results are reported as Positive or Not Detected.

A negative culture for *Legionella* spp. from a sample does not necessarily rule out its presence.
Results relate only to the samples tested. Results are reported as calculated. For biological data, the first and/or second digit should be considered significant.

When providing duplicates of this report, the document should be provided in total and not in section in accordance with AIHA-LAP, LLC. Any unauthorized or improper disclosure, copying, distribution, use, or falsification of these results is prohibited. USMS shall have no liability to the Customer or the Customer's customer for opinions stated, recommendations made, actions taken, or conduct implemented based on the test results reported.

Technical Manager:

Sharon Danko

Sharon Danko, AS, MLT (ASCP)

Contact: Sharon Danko, Technical Manager: 724-853-4047



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Customer sample numbers below are uniquely identified by prefixing Laboratory # 98087-20

Water/Liquid Sample(s) for *Legionella* Culture - Analytical Method MIC 06 MIC 07 (ISO 11731:2017)

Sample Number	Media	Sample Description	Results of Microbial Analysis
W-ESES-7	BCYE/GPCV	Classroom 101 - Faucet - Cold - First Draw	
AS = 0.5 CFU/mL (Volume examined: 100 mL) Positive - 22 CFU/mL <i>Legionella pneumophila</i> Serogroup 1			
W-ESES-8	BCYE/GPCV	Classroom 104 - Faucet - Hot - Flush	
AS = 0.5 CFU/mL (Volume examined: 100 mL) Not Detected			
W-ESES-9	BCYE/GPCV	Classroom 112 - Faucet - Hot - Flush	
AS = 5 CFU/mL (Volume examined: 100 mL) Positive - 90 CFU/mL <i>Legionella pneumophila</i> Serogroup 1			
W-ESES-10	BCYE/GPCV	Admin Nurse Restroom - Faucet - Hot - Flush	
AS = 0.5 CFU/mL (Volume examined: 100 mL) Not Detected			

Notes:

CFU/mL = colony forming units per milliliter, AS = analytical sensitivity.
Results are reported as Positive or Not Detected.

A negative culture for *Legionella* spp. from a sample does not necessarily rule out its presence.
Results relate only to the samples tested. Results are reported as calculated. For biological data, the first and/or second digit should be considered significant.

When providing duplicates of this report, the document should be provided in total and not in section in accordance with AIHA-LAP, LLC. Any unauthorized or improper disclosure, copying, distribution, use, or falsification of these results is prohibited. USMS shall have no liability to the Customer or the Customer's customer for opinions stated, recommendations made, actions taken, or conduct implemented based on the test results reported.

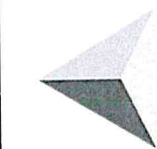
Technical Manager:

Sharon Danko

Sharon Danko, AS, MLT (ASCP)

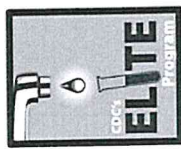
Contact: Sharon Danko, Technical Manager: 724-853-4047

End of Report



U.S. Micro-Solutions, Inc.

302 Unity Plaza
Latrobe, PA 15650
P: 724-853-4047 F: 724-853-4049
supplies@usmslab.com



NY ELAP #12055
The New York Environmental
Laboratory Approval Program

LEGIONELLA / WATER TEST REQUEST - CHAIN OF CUSTODY

CUSTOMER NAME: Lawhon & Associates	PHONE #: 614-481-8600	FAX #: 614-481-8610
ADDRESS: 1441 King Avenue	CITY: Columbus	STATE: Ohio ZIP: 43201

ATTENTION TO: Karrie Bontrager & Matt Geiger
E-MAIL: kbbontrager@lawhon-assoc.com & mgeiger@

SAMPLE OBTAINED BY: Matt Geiger	RESULTS: <input checked="" type="checkbox"/> FAX <input checked="" type="checkbox"/> EMAIL
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PROJECT NAME/NUMBER: 20-0441 Worthington CSD - Evening Street Elementary School PO#

# SAMPLES: 10	Samples collected in New York state? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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SAMPLE NUMBER	SAMPLE DATE / TIME		SAMPLE LOCATION AND DESCRIPTION	W	S	✓	LEG	Hate Pla	C	Tem
W-ESES-1	9/23/2020	8:00am-1:00pm	Boiler Room - Municipal Water Main - Cold - First Draw	✓	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
W-ESES-2	9/23/2020	8:00am-1:00pm	Boiler Room - Hot Water Tank - Hot - First Draw	✓	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
W-ESES-3	9/23/2020	8:00am-1:00pm	Kitchen - Faucet - Hot - Flush	✓	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
W-ESES-4	9/23/2020	8:00am-1:00pm	Restroom - Faucet - Hot - Flush	✓	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
W-ESES-5	9/23/2020	8:00am-1:00pm	Art Room - Faucet - Hot - Flush	✓	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
W-ESES-6	9/23/2020	8:00am-1:00pm	Corridor - Bottle Filling Station - Flush	✓	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
W-ESES-7	9/23/2020	8:00am-1:00pm	Classroom 101 - Faucet - Cold - First Draw	✓	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
W-ESES-8	9/23/2020	8:00am-1:00pm	Classroom 104 - Faucet - Hot - Flush	✓	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
W-ESES-9	9/23/2020	8:00am-1:00pm	Classroom 112 - Faucet - Hot - Flush	✓	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

RELINQUISHED BY - CUSTOMER (MUST SIGN) *[Signature]* DATE AND TIME 9/23/2020 @ 4:00pm Analyst Initials

RECEIVED BY - LAB USE ONLY <i>[Signature]</i>	DATE AND TIME 09/24/20 10/15	LABORATORY NUMBER 90007-20
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NY ELAP #12
The New York Environmental
Laboratory Approval Program