Indoor Air Quality (IAQ) - Mold Report

Wyoming Valley West High School
150 Wadham Street
Plymouth, PA, 18651

ENVIRONMENTAL ABATEMENT ASSOCIATES, INC.

December 15th, 2024

CONTENTS

Indoor Air Quality Inspection / Testing Report

WVW High School
150 Wadham Street
Plymouth, PA, 18651

INDOOR AIR QUALITY INSPECTION / TESTING REPORT

Prepared for:

David Cordes

For the properties known as:

150 Wadham Street
Plymouth, PA, 18651

This Indoor Air Quality Inspection / Testing report prepared by Environmental Abatement Associates, Inc. is based on information supplied by the client and on conditions readily observable or measurable on the date of this study. Any inspection and/or testing conducted by Environmental Abatement Associates, Inc. is not meant to determine whether a building is safe or unsafe for occupants in regards to indoor air quality. Interior building conditions vary constantly, therefore the findings and results presented in this report should be considered relative to and representative of the conditions that existed at the time of the inspection and testing. The results and recommendations presented herein should not be relied upon exclusively for the prevention of all possible illnesses, injuries or losses. These services are a supplement to, and not a substitute for, the client's responsibility for protecting the health and safety of employees, students, residents and others and for complying with applicable laws and regulations. Environmental Abatement Associates, Inc. warrants that its work is performed in a competent and professional manner. No other warranties are expressed or implied.

1.0 INTRODUCTION AND BACKGROUND

Personnel of ENVIRONMENTAL ABATEMENT ASSOCIATES, INC. (EAA) were on site Wednesday, November 27th 2024 at 150 Wadham Street, Plymouth, Pennsylvania to conduct an Indoor Air Quality (IAQ) inspection and testing. The inspection and testing was conducted at the request of David Cordes.

2.0 EVALUATION STRATEGY

The general strategy employed in this evaluation was to:

1. CONDUCT A VISUAL INSPECTION IN DESIGNATED AREAS.
2. CONDUCT MOLD AIR SAMPLING IN DESIGNATED AREAS.
3. PROVIDE A REPORT OF FINDINGS AND RECOMMENDATIONS.

A visual inspection was conducted in designated areas. The inspection was not intended to be an intensive and detailed inspection, but rather an overview of the conditions that may cause poor indoor air quality. The condition of walls, floor, ceilings, etc. were examined for mold growth and any potential problems that could initiate mold growth were noted.

A total of four (4) mold air the samples were collected on interior of buildings using Allergenco-D sampling cassettes manufactured by Environmental Monitoring Systems and a high volume air sampling pump. One (1) air sample was also collected outside the back door in order to establish a background to be used when interpreting the results of the indoor air samples. Per manufacturer recommendations, each air sample was collected at a flow rate of fifteen (15) liters of air per minute (L/M) for a period of five (5) minutes.

Air samples were logged, labeled and shipped overnight to EMSL Analytical, Inc.,an American Industrial Hygiene Association (AIHA) accredited microbiology laboratory, for analysis by microscopic examination.

AIR CONTAMINANT STANDARDS AND GUIDELINES

In parts per million (ppm)

MEASURED PARAMETER	**OSHA PEL** Occupational Safety and Health- Permissible Exposure Limits	**ACGIH TLV** American Conference of Governmental Industrial Hygienists- Threshold Limit Values		**NIOSH REL** National Institute for Occupational Safety and Health- Recommended Exposure Limits				**ASHRAE** American Society of Heating, Refrigerating and Air-Conditioning Engineers
	TWA (8) Total Weighted Average	TWA (8) Total Weighted Average	STEL Short Term Exposure Limits	TWA (8) Total Weighted Average	STEL Short Term Exposure Limits	C Ceiling Recommended Exposure Limits	IDLH Immediately Dangerous to Life and Health	RECOMMENDATIONS
Carbon Monoxide	50	25	-	35	-	200	1,200	Maximum allowable concentration for indoor living spaces is 9 ppm
Carbon Dioxide	5,000	5,000	30,000	5,000	30,000	-	40,000	< 700 ppm above outdoor level indicates adequate ventilation
Temperature								68 ^{O}F - 75 ^{O}F (winter) 73 ^{O}F - 79 ^{O}F (summer)
Relative Humidity								30% – 60%

DATA TABLE I
Temperature, Relative Humidity, Carbon Dioxide and Carbon Monoxide Readings

Test No.	Floor	Location	Test Time	Temperature (°F)	Relative Humidity (%)	Carbon Dioxide (PPM)	Carbon Monoxide (PPM)	Comments
1	1	Cafeteria	11:11	65	32	777	0.8	Air sample #5871285
2	1	Back Hall	11:17	67	40	820	1.3	Air sample #5871287
3	1	Art Triangle	11:25	68	31	951	1.9	Air sample #5871282
4	1	Band Room	11:32	70	30	762	2.0	Air sample #5871284
5	1	Baseline (outside)	11:39	39	38	531	1.9	Air sample #5871297

3.0 DISCUSSION AND CONCLUSIONS

Molds are part of the natural environment and are simple, microscopic organisms whose purpose is to break down dead materials. Molds can be found on plants, dry leaves, and about every other organic material. Mold spores are lightweight and are spread by air currents. If spores land on a suitable surface, they will begin to grow. In order to thrive, mold requires four things to grow: water, organic materials, oxygen, and a temperature between 40-90 degrees Fahrenheit.

To stop the growth of mold, find and stop the moisture source. Mold spores will not grow if moisture is not present.

1. Aspergillus Penicillium

a. Aspergillus species are filamentous fungi that are commonly found in soil, decaying, vegetation, seeds and grains where they thrive as saprophytes. Aspergillus species can occasionally be harmful to humans. In humans, Aspergillus fumigatus is the most common and life-threatening airborne opportunistic fungal pathogen, which is particularly important among immunocompromised hosts. Inhaling Aspergillus fumigatus spores(condia) into the lungs may cause multiple diseases, which depend on theimmunological status of the host in humans. These diseases include invasive pulmonaryaspergillosis, aspergilloma, and different forms of hypersensitivity, pneumonitis, andallergic bronchopulmonary aspergillosis (ABPA).

2. Cladosporium

a. Most kinds of Cladosporium are not dangerous to humans, but sometimes they may lead to allergies, or they may worsen asthma. In worse cases, Cladosporium may lead to infections. In most cases if you open some windows or install a heat recovery ventilator (HRV). These measures will help stop new mold from forming, but will not kill active Cladosporium spores already there. For that you will need a non-toxic registered fungicide such as Concrobium.

3. Basidiospores

a. Inhalation of basidiospores can have health effects ranging from pneumonia-like symptoms to cryptococcus meningitis if the infection isn't treated before it spreads to the brain. The list of environments in which this class of molds thrives is extensive. Sources range from old fruit to damp acrylic painted walls. Detection of Basidiospores at levels higher than 5,000 count per cubic meter are considered problematic.

4. Ascospores

a. This group contains potential opportunistic pathogens, toxin producers, and allergens depending on the genus and species. Ascospores do present a human health risk but few have been reported to cause disease.

All sample locations came back with very low numbers

These findings indicate that mold remediation is not needed.

Respectfully Submitted,

Russ Bigus, M.S., Biology
Professor of Microbiology

Mold Air Sample Analysis Results

EAA
Environmental Abatement Associates, Inc.

OrderID: 182405347

Microbiology Chain of Custody Form

EMSL Order Number / Lab Use Only: 182405347

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Plymouth Meeting, PA 19462
PHONE: (610) 828-3102
EMAIL: plymouthmeetinglab@er

If Bill-To is the same as Report-To leave this section blank. Third-party billing requires written authorization.

Customer Information		Billing Information	
Customer ID.		Billing ID	
Company Name:	Environmental Abatement Associates, Inc.	Company Name:	Environmental Abatement Associates, Inc.
Contact Name:	Christopher Tsioles	Billing Contact:	Christopher Tsioles
Street Address:	239 Schuyler avenue suite 125B	Street Address:	239 Schuyler avenue suite 125B
City, State, Zip Code:	KINGSTON PA 18704	City, State, Zip Code:	KINGSTON PA 18704
Country:	US	Country:	US
Phone:	570-283-0500	Phone:	570-283-0500
Email(s) for Report:	eaawdt@verizon.net	Email(s) for Invoice:	

Project Information

Project Name/No:	24-44.1 WVW High School IAQ
Purchase Order:	
EMSL LIMS Project ID. (If applicable, EMSL will provide)	
State Samples Collected:	PA
Zip Code Samples Collected:	18651
State of Connecticut (CT) *must select project location:*	☐ Commercial (Taxable) ☐ Residential (Non-taxable)
Sampled By Name:	Christopher Tsioles
Sampled By Signature.	
No. of Samples in Shipment	5

Sterile, Sodium Thiosulfate Preserved Bottle Used: ☐ Biocide Used in Source (specify)

Public Water Supply Samples: ☐ Note: All results may automatically be reported to DOH if required by *State.*

Turn-Around-Time (TAT) Please call ahead for large projects and/or turnaround times 6 Hours or Less. *32 Hour TAT available for select tests only. samples must be submitted by 11 30am.

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 32* Hour ☑ 48 Hour ☐ 72 Hour ☐ 96 Hour ☐ 1 Week ☐ 2 Week

MICROBIOLOGY TEST CODES

M001 Air-O-Cell	M174 MoldSnap	M009 Bacteria Culture Gram Stain & Count	M115 Sewage Screen - Water (P/A***)
M030 MICRO 5	M032 Allergenco-D	M010 Bacteria Count & ID - 3 Most Prominent	M116 Sewage Screen - Water (MPN**)
M041 Fungal Direct Examination		M011 Bacteria Count & ID - 5 Most Prominent	M117 Sewage Screen - Swab (P/A***
M169 Pollen ID & Enumeration			M013 Sewage Screen - Swab (MFT*)
M005 Viable Fungi-Air Samples (Genus ID & Count)		M012 *Pseudomonas aeruginosa* (P/A***)	M730 *Methicillin-resistant Staph. aureus* (MRSA)
M006 Viable Fungi-Air Samples (Includes *Penicillum, Aspergillus, Cladosporium, Stachybotrys* Species ID & Count)		M024 *Pseudomonas aeruginosa* (MFT*)	M031 Rapid-growing non-TB *Mycobacteria* Detection & Enumeration
M007 Culturable Fungi-Surface Samples (Genus ID & Count)		M015 Heterotrophic Plate Count	
M008 Culturable Fungi-Surface Samples (Includes *Penicillum, Aspergillus, Cladosporium, Stachybotrys* Species ID & Count)		M017 Total Coliform & *E. Coli* (Colilert P/A***)	M014 Endotoxin Analysis
M280 Dust Characterization Level-1		M018 Total Coliform & *E. Coli* (MFT*)	M044 Group Allergen (Cat, Dog, Cockroach, Dust Mite)
M281 Dust Characterization Level-2		M114 Total Coliform & *E. Coli Enumeration (Colilert MPN**)*	M095 *Bacteroides*
Add On to Spore Trap & M041 Analyses **available at certain lab locations**		M019 Fecal Coliform (MFT*)	Other - See Analytical Price Guide for Test Code
M280A Dust Characterization Level-1		M020 Fecal *Streptococcus* (MFT*)	*Legionella Analysis* Please use EMSL *Legionella* COC
M281A Dust Characterization Level-2		M029 *Enterococci* (MFT*)	
		M129 *Enterococci* (Enterolert P/A***)	*MFT= Membrane Filtration Technique
		M180 Real Time qPCR-ERMI 36 Panel	**MPN = Most Probable Number
		M025 Sewage Screen - Water (MFT*)	***P/A = Presence/Absence

Sample #	Sample Location/Description	Sample Type (Matrix)	Potable / Non-Potable (Only for Water)	Test Code	Volume/Area	Date / Time Collected	Temperature (Lab Use Only)
Example: Sample 1	Kitchen	Water	Potable	M017	1,000 ml	1/1/2024 3:30pm	
5871285	Cafeteria	Air		M001	1500 ml	11/27/24 11:16 AM	
5871287	Back Hall	Air		M001	1500 ml	11/27/24 11:22 AM	
5871282	Art Triangle	Air		M001	1500 ml	11/27/24 11:30 AM	
5871284	Music Room	Air		M001	1500 ml	11/27/24 11:37 AM	
5871297	Baseline Outside	Air		M001	1500 ml	11/27/24 11:44 AM	

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

EMSL Fed Ex

Method of Shipment:		Sample Condition Upon Receipt:		Received on Ice? Check if Yes	☐
Relinquished by:	Christopher Tsioles	Date/Time:	12/1/24	Received by:		Date/Time:	12/4/24
Relinquished by:		Date/Time		Received by:		Date/Time	10am

Controlled Document - COC-34 Micro R16 11/25/2024

☐ AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature)

EMSL Analytical, Inc.

5221 Militia Hill Road Plymouth Meeting, PA 19462
Tel/Fax: (610) 828-3102 / (610) 828-3122
http://www.EMSL.com / plymouthmeetinglab@emsl.com

EMSL Order: 182405347
Customer ID: ENVA55
Customer PO:
Project ID:

Attention: Christopher Tsioles
Environmental Abatement Associates, Inc.
239 Schuyler avenue suite 125B
KINGSTON, PA 18704

Phone: (570) 283-0500
Fax: (570) 283-0577
Collected Date: 11/27/2024
Received Date: 12/04/2024
Analyzed Date: 12/05/2024

Project: 24-44.1 WVW High School IAQ

Test Report: Allergenco-D(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number:	182405347-0001			182405347-0002			182405347-0003		
Client Sample ID:	5871285			5871287			5871282		
Volume (L):	150			150			150		
Sample Location:	Cafeteria			Back Hall			Art Triangle		
Spore Types	**Raw Count†**	**Count/m³**	**% of Total**	**Raw Count†**	**Count/m³**	**% of Total**	**Raw Count†**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium++	4	90	24.3	-	-	-	-	-	-
Basidiospores	11	240	64.9	8	200	48.8	2	40	16.7
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium++	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	8	200	48.8	8	200	83.3
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium++	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	2	10*	2.4	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Paecilomyces++	2	40	10.8	-	-	-	-	-	-
Spegazzinia	-	-	-	-	-	-	-	-	-
Total Fungi	**17**	**370**	**100**	**18**	**410**	**100**	**10**	**240**	**100**
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	22	-	-	22	-	-	22	-
Analyt. Sensitivity 300x	-	7*	-	-	7*	-	-	7*	-
Skin Fragments (1-4)	-	1	-	-	1	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	-	-	1	-

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.
† Due to method stopping rules, extrapolated raw counts are reported in parenthesis.

No discernable field blank was submitted with this group of samples.

Kevin Ream, Laboratory Manager
or other Approved Signatory

Samples analyzed by EMSL Analytical, Inc. Plymouth Meeting, PA AIHA LAP, LLC-EMLAP Accredited #178659

Initial report from: 12/06/2024 08:59 AM

For information on the fungi listed in this report, please visit the Resources section at www.emsl.com

EMSL Analytical, Inc.

5221 Militia Hill Road Plymouth Meeting, PA 19462
Tel/Fax: (610) 828-3102 / (610) 828-3122
http://www.EMSL.com / plymouthmeetinglab@emsl.com

EMSL Order: 182405347
Customer ID: ENVA55
Customer PO:
Project ID:

Attention: Christopher Tsioles
Environmental Abatement Associates, Inc.
239 Schuyler avenue suite 125B
KINGSTON, PA 18704

Phone: (570) 283-0500
Fax: (570) 283-0577
Collected Date: 11/27/2024
Received Date: 12/04/2024
Analyzed Date: 12/05/2024

Project: 24-44.1 WVW High School IAQ

Test Report: Allergenco-D(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number:	182405347-0004			182405347-0005		
Client Sample ID:	5871284			5871297		
Volume (L):	150			150		
Sample Location:	Music Room			Baseline Outside		
Spore Types	**Raw Count†**	**Count/m³**	**% of Total**	**Raw Count†**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-
Aspergillus/Penicillium++	-	-	-	-	-	-
Basidiospores	6	100	45.2	17	370	58.7
Bipolaris++	-	-	-	-	-	-
Chaetomium++	-	-	-	-	-	-
Cladosporium	6	100	45.2	12	260	41.3
Curvularia	-	-	-	-	-	-
Epicoccum	1	7*	3.2	-	-	-
Fusarium++	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-
Myxomycetes++	1	7*	3.2	-	-	-
Pithomyces++	-	-	-	-	-	-
Rust	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-
Paecilomyces++	-	-	-	-	-	-
Spegazzinia	1	7*	3.2	-	-	-
Total Fungi	**15**	**221**	**100**	**29**	**630**	**100**
Hyphal Fragment	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-
Pollen	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	22	-	-	22	-
Analyt. Sensitivity 300x	-	7*	-	-	7*	-
Skin Fragments (1-4)	-	2	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	-

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.
† Due to method stopping rules, extrapolated raw counts are reported in parenthesis.

No discernable field blank was submitted with this group of samples.

Kevin Ream, Laboratory Manager
or other Approved Signatory

Initial report from: 12/06/2024 08:59 AM

For information on the fungi listed in this report, please visit the Resources section at www.emsl.com

Accreditations

AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

5221 Militia Rd., Plymouth Meeting, PA 19462

Laboratory ID: LAP-178659

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA LAP), LLC accreditation to the ISO/IEC 17025:2017 international standard, General Requirements for the Competence of Testing and Calibration Laboratories in the following:

LABORATORY ACCREDITATION PROGRAMS

☑	**INDUSTRIAL HYGIENE**	Accreditation Expires: September 01, 2023
☐	**ENVIRONMENTAL LEAD**	Accreditation Expires:
☑	**ENVIRONMENTAL MICROBIOLOGY**	Accreditation Expires: September 01, 2023
☐	**FOOD**	Accreditation Expires:
☐	**UNIQUE SCOPES**	Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached Scope of Accreditation. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2017 and AIHA LAP, LLC requirements. This certificate is not valid without the attached Scope of Accreditation. Please review the AIHA LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Cheryl O Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision19.1: 07/28/2021

Date Issued: 08/31/2021

AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.
5221 Militia Rd., Plymouth Meeting, PA 19462

Laboratory ID: LAP-178659
Issue Date: 08/31/2021

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Environmental Microbiology Laboratory Accreditation Program (EMLAP)

Initial Accreditation Date: 09/01/2019

EMLAP Scope Category	Field of Testing (FOT)	Component, parameter or characteristic tested	Method	Method Description *(for internal methods only)*
Fungal	Air - Direct Examination	Spore Trap	MICRO-SOP-201	Standard Operating Procedure for the Analysis of Airborne Fungal Spores, Hyphal Fragments, Pollen, Insect Fragments, Skin Fragments and Fibrous Particulate by Optical Microscopy of Spore Trap Samples
Fungal	Bulk - Direct Examination	Bulks (liquid or solid)	MICRO-SOP-200	Standard Operating Procedure for the Microscopic Examination of Fungal Spores, Fungal Structures, Hyphae, Pollen, Insect Fragments, and Fibrous Particulate from Surface Samples
Fungal	Surface - Direct Examination	Swab or Tape Lift	MICRO-SOP-200	Standard Operating Procedure for the Microscopic Examination of Fungal Spores, Fungal Structures, Hyphae, Pollen, Insect Fragments, and Fibrous Particulate from Surface Samples

A complete listing of currently accredited EMLAP laboratories is available on the AIHA LAP, LLC website at: *http://www.aihaaccreditedlabs.org*