2023

Boyertown Area School District

BIOAEROSOL SAMPLING REPORT

High School, Middle School East, Middle School West, Boyertown Elementary, Colebrookdale Elementary, Earl Elementary, Education Center, Gilbertsville Elementary School, New Hanover Elementary, Washington Elementary School & Support Services

Sampling Dates:
November 29, 2023
December 20, & 21, 2023

Prepared
For:
Boyertown Area School District
1311 Montgomery Avenue
Boyertown, PA 19512

Prepared
By:
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1937 Station Avenue
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January, 2024

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Introduction

This report presents the results of a proactive bioaerosol evaluation conducted for the Boyertown Area School District (BASD). Dr. Trish Colasurdo, & Mr. Jeff Papach, Project Managers, EnviraHealth Corporation conducted the proactive bioaerosol sampling throughout the school district.

Bioaerosol testing was initiated by Mr. Thomas Schiel, Director of Facilities & Operations for the BASD. After compiling and analyzing the test results, recommendations are made to help maintain and/or improve the indoor air quality (IAQ) throughout each building.

Visual Site Inspections

Visual site inspections revealed the test areas were clean, dry and very well-maintained. No visible fungal growth was found at the time of these surveys. No hidden areas (behind walls, above ceilings, under floors, etc.) were investigated. Destructive testing was not included as part of these surveys.

If water damage or fungal contamination is suspected in hidden areas of any building, contact EnviraHealth for additional testing. EnviraHealth cannot guarantee that water intrusion or fungal contamination is not present in hidden areas of any building.

Indoor Sampling Conditions

- **An attempt was made to sample in the center of each room/area.**
- **The ventilation systems in all of the schools/buildings were operational on each of the test dates.**

General Comment

Based on both the visual site inspections and bioaerosol test results, the test areas were in excellent condition. All of the test areas were clean, dry and very well-maintained. School District Administration should be commended for their proactive approach to IAQ.

BIOAEROSOLS

Bioaerosol Testing – Premise

Bioaerosols are those airborne particles that are living or originate from living organisms. Bioaerosols include microorganisms (i.e., culturable, nonculturable, and dead microorganisms) and fragments, toxins, and particulate waste products from all varieties of living things. Bioaerosols are ubiquitous in nature and may be modified by human activities. All persons are repeatedly exposed, day after day, to a wide variety of such materials. Individual bioaerosols range in size from submicroscopic particles (<0.01μm) to particles greater than 100 μm in diameter.

Almost all air in indoor environments contains microorganisms. Environmental factors that influence indoor microbial concentrations include outdoor concentrations, type and rate of ventilation and indoor moisture levels. Airborne microbial concentrations in indoor environments also vary with the amount of mechanical and/or human activity. A large number of people and/or abundant activity stirs up dust (dispersing settled spores into the air) and creates air currents, delaying deposition by gravity. In addition, fungal spores can be introduced when people enter the area, either on people themselves or on clothing.

Molds can be found almost anywhere and grow on virtually any organic substance as long as they have both oxygen and moisture. There are molds that grow on wood, paper, carpet, foods and insulation. When excessive moisture accumulates in buildings or on building materials, mold growth will often occur, particularly if the moisture problem remains undiscovered or unaddressed. It is impossible to eliminate all molds and mold spores in the indoor environment. However, mold growth can be controlled indoors by controlling moisture indoors.

Spore Information

Mold spores are microscopic (2-100 microns) and are naturally present in both indoor and outdoor environments. Molds reproduce by means of spores. Some molds have spores that are easily disturbed and waft into the air and settle repeatedly with each disturbance. Other molds have sticky spores that will cling to surfaces and are dislodged by brushing against them or by other direct contact. Spores may remain able to grow for years after they are produced. In addition, whether or not the spores are alive, the allergens in and on them may remain allergenic for years.

For mold to grow in an indoor environment, you need a certain temperature range (typically 40°F-120°F), spores (begin the growth of mold), moisture (water damage and/or infiltration or it can occur when high relative humidity or the hygroscopic properties of building surfaces allow sufficient moisture to accumulate) and nutrient materials (dust, paper, glue, dirt or organic matter). If any of the "four fundamentals" are taken away, mold will **not** grow. If a building is properly maintained and situations which involve water (floods, leaky pipes, etc.) are addressed quickly and efficiently, mold growth will not be an issue.

Burkard Spore Trap Sampling – ***December 20, & 21, 2023 Samples***

The Burkard is a portable, volumetric air sampler used for collecting airborne particles directly onto glass slides. The glass slides are prepared by the lab using a mixed cellulose ester (MCE) gel. The slides were supplied to EnviraHealth by a certified (EMLAP) environmental microbiological laboratory.

Ambient air was drawn into the sampler at a flow rate of 10 liters/minute (LPM). The total volume of air for each test sample was seventy-five (75) liters.

Please understand a spore trap method is typically the first step in conducting a complete building evaluation. Spore traps provide a quicker turnaround time than culture-based analysis and collect a wide range of airborne aerosols. There are several limitations to the spore trap method and they include the following:

Fungi cannot be fully speciated with this method. Aspergillus species and Penicillium species are reported as a "Group" due to similarities in spore morphology.

Spore viability cannot be assessed because it is not possible to differentiate between viable and nonviable spores.

Lab to lab variation in spore identification.

The spore trap test results are representative of a narrow time frame and for screening purposes only. These results are NOT intended to represent definitive exposure levels.

General Air Sampling Information

It should be noted there are no regulatory standards for measuring indoor air quality. The ACGIH Bioaerosols Committee recommends sampling in complaint, non-complaint, and outdoor areas several times during the day and making comparisons between these areas. Since the purpose of these investigations was to conduct an air quality screening, and not to provide an in-depth microbiological assessment, EnviraHealth procedures deviated from the ACGIH recommendations in that only one (1) sample was collected from each indoor location on each test date.

AEML Laboratory

Collectively, the staff at AEML, Inc. has nearly 50 years of environmental and microbiological testing in private, industrial, and government programs in support of projects and contracts that encompass a wide variety of testing services. Their management staff has successfully completed courses in *Indoor Air Quality: Fungal Spore Identification* at the prestigious McCrone Research Institute.

AEML, Inc. is an active participant in the AIHA EMPAT Proficiency Testing Program and has developed and implemented policies and procedures that adhere to the General *Requirements for the Competence of Testing and Calibration Laboratories, ISO/IEC 17025:2005.* AEML, Inc. is accredited by the American Association for Laboratory Accreditation for Biological Testing (A2LA Cert #2572.01). AEML, Inc. is also fully licensed and insured.

Laboratory Analysis Information

Direct microscopy (100% at 600X Magnification) was used to analyze the spore trap samples (indoor + outdoor), providing both a qualitative and quantitative assessment of spores in the air. The limit of detection for each test sample was thirteen (13) spores/cubic meter. In addition to the spore trap analysis, the samples were also analyzed for Hyphal Fragments, Pollen, and given a debris rating. This information is documented at the bottom of each test sample.

Burkard Spore Trap Photo

Zefon Bio-Pump® Sampler – *November 29, 2023 Samples*

The Zefon Bio-Pump® Plus is the smallest, lightest and easiest to use portable, battery-powered IAQ pump designed for exclusive use with Air-O-Cell® and Via-Cell® cassettes at a flow rate of fifteen (15) LPM.

Laboratory Analysis Information

Direct microscopy (100% at 600X Magnification) was used to analyze the spore trap samples (indoor + outdoor), providing both a qualitative and quantitative assessment of spores in the air. The limit of detection for each test sample was thirteen (13) spores/cubic meter. In addition to the spore trap analysis, the samples were also analyzed for Hyphal Fragments, Pollen, and given a debris rating. This information is documented at the bottom of each test sample.

Zefon Bio-Pump® Sampler Photograph

BIOAEROSOL LAB RESULTS

BASD Schools & Buildings
Bioaerosol Test Results – November 29 2023
December 20, & 21, 2023

General Information

It should be noted that aerobiology is a discipline, which is still developing sampling strategies and guidelines. Strict numerical values of what constitutes normal and out-of-range levels have **not** been clearly defined by the scientific community. When interpreting these results, we must evaluate the indoor/outdoor ratio of organisms with a rank order of species isolated from both environments. The presence of indicator species in the indoor environment must also be addressed. It is also important to identify potential sites that may allow these organisms to amplify in the indoor environment.

Evaluating Sampling Data

Current research in aerobiology suggests that several factors be considered when evaluating sampling data. These factors include comparing indoor and outdoor concentrations, complaint versus non-complaint areas and areas of general concern within the building (Ex. Rooms below grade, etc.). In addition, the spores identified in both the indoor and outdoor environment should be qualitatively similar.

The attachment titled "Interpreting Laboratory Results" will be used as a guide to better understand the laboratory results.

2023 Schools/Buildings Sampled

Boyertown Area School District High School, Middle School East, Middle School West, Boyertown Elementary, Colebrookdale Elementary, Earl Elementary, Education Center, Gilbertsville Elementary School, New Hanover Elementary, Washington Elementary School & Support Services

Conclusions

The indoor samples taken on the test dates in all of the above schools and buildings were within **NORMAL** limits based on both the IMS Laboratory guideline and outdoor samples. In addition, the total spore concentrations were **low** and there were **no** indicator organisms (*Stachybotrys*, Chaetomium, etc.) identified in any of the indoor samples. Based on these lab results, proactive remediation is not required in any of the tested areas at this point in time.

Please understand that bioaerosol testing is a "snapshot" of conditions identified on each test date. Indoor Air Quality (IAQ) is affected by occupancy, indoor and outdoor temperature and relative humidity, water infiltration, outdoor air infiltration and many other factors. The lab results were an indication of the conditions identified on each test date. At any point in time, these conditions may change and impact future test results.

SAMPLING KEYS

BOYERTOWN AREA SD
IAQ TESTS - NOVEMBER 29, 2023

SCHOOL	SAMPLE ID	DATE	TIME	ROOM #	LOCATION DETAIL
High School (HS)	HS-1	11/29/23	AM	605	Classroom
High School (HS)	HS-2	11/29/23	AM	811	Chem Lab
High School (HS)	HS-3	11/29/23	AM	800	Lab
High School (HS)	HS-4	11/29/23	AM	906	Athletic Office
High School (HS)	HS-5	11/29/23	AM	531	Art Room
High School (HS)	HS-6	11/29/23	AM	509	Classroom
High School (HS)	HS-7	11/29/23	AM	704	Classroom
High School (HS)	HS-8	11/29/23	AM	405	Classroom
High School (HS)	HS-9	11/29/23	AM	426	Shop Class
High School (HS)	HS-10	11/29/23	AM	903	Auditorium - Near Stage
High School (HS)	HS-11	11/29/23	AM	107	IT
High School (HS)	HS-12	11/29/23	AM	203	Classroom
High School (HS)	HS-13	11/29/23	AM	310	Classroom
High School (HS)	Out 11/29	11/29/23	AM	OUTDOORS	OUTDOOR SAMPLE

SCHOOL	SAMPLE ID	DATE	TIME	ROOM #	LOCATION DETAIL
Colebrookdale Elementary (CBD)	CBD-1	11/29/23	AM	Multi-Purpose	Multi-Purpose Room
Colebrookdale Elementary (CBD)	CBD-2	11/29/23	AM	104	Library
Colebrookdale Elementary (CBD)	CBD-3	11/29/23	AM	206	Classroom
Colebrookdale Elementary (CBD)	CBD-4	11/29/23	AM	211	Classroom
Colebrookdale Elementary (CBD)	Out 11/29	11/29/23	AM	OUTDOORS	OUTDOOR SAMPLE

SCHOOL	SAMPLE ID	DATE	TIME	ROOM #	LOCATION DETAIL
Education Center (EC)	EC-1	11/29/23	PM	Supt.-Sec.	Secretarial Area of Superintendent's Office
Education Center (EC)	EC-2	11/29/23	PM	Special Educ.	Director of Special Educ. Office
Education Center (EC)	EC-3	11/29/23	PM	Lobby	Lobby
Education Center (EC)	EC-Outdoor	11/29/23	PM	OUTDOORS	OUTDOOR SAMPLE

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Project: Boyertown SD-HS

Batch: 478198

Sampled: 11/29/2023
Received: 12/14/2023
Analysis Date: 12/14/2023
Report Date: 12/14/2023

AEML Test: A001 Spore Trap Analysis

Sample ID:	478198-01	478198-02	478198-03	478198-04
Client Sample ID:	HS-1	HS-2	HS-3	HS-4
Volume Sampled (L):	75	75	75	75
Media:	Allergenco D	Allergenco D	Allergenco D	Allergenco D
Percent of Trace Analyzed:	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification

Spore Types	Raw Count	Count/m³	%	Raw Count	Count/m³	%	Raw Count	Count/m³	%	Raw Count	Count/m³	%
Alternaria	—	—	—	—	—	—	—	—	—	—	—	—
Arthrinium	—	—	—	—	—	—	—	—	—	—	—	—
Ascospores	—	—	—	—	—	—	—	—	—	1	13	13
Aspergillus/Penicillium-Like	—	—	—	2	27	25	2	27	40	4	53	50
Basidiospores	—	—	—	—	—	—	—	—	—	1	13	13
Bipolaris/Dreschlera	—	—	—	—	—	—	—	—	—	—	—	—
Botrytis	—	—	—	—	—	—	—	—	—	—	—	—
Chaetomium	—	—	—	—	—	—	—	—	—	—	—	—
Cladosporium	1	13	33	—	—	—	2	27	40	—	—	—
Curvularia	—	—	—	—	—	—	—	—	—	—	—	—
Epicoccum	—	—	—	1	13	13	—	—	—	—	—	—
Fusarium	—	—	—	—	—	—	—	—	—	—	—	—
Ganoderma	—	—	—	—	—	—	—	—	—	—	—	—
Memnoniella	—	—	—	—	—	—	—	—	—	—	—	—
Nigrospora	—	—	—	—	—	—	—	—	—	—	—	—
Oidium/Peronospora	—	—	—	—	—	—	—	—	—	—	—	—
Pithomyces	—	—	—	—	—	—	—	—	—	—	—	—
Rust	—	—	—	—	—	—	—	—	—	—	—	—
Smut/Myxomyces/Periconia	2	27	67	5	67	63	1	13	20	2	27	25
Stachybotrys	—	—	—	—	—	—	—	—	—	—	—	—
Torula	—	—	—	—	—	—	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—	—	—	—	—	—	—
Total Spores	**3**	**40**		**8**	**107**		**5**	**67**		**8**	**107**	
Hyphal Fragments	1	13		—	—		—	—		1	13	
Pollen	—	—		—	—		1	13		1	13	
Debris Rating	3			3			3			3		
Detection Limit	13			13			13			13		

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Report Date: 12/14/2023

AEML Test: A001 Spore Trap Analysis

Sample ID:	478198-05	478198-06	478198-07	478198-08
Client Sample ID:	HS-5	HS-6	HS-7	HS-8
Volume Sampled (L):	75	75	75	75
Media:	Allergenco D	Allergenco D	Allergenco D	Allergenco D
Percent of Trace Analyzed:	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification

Spore Types	**Raw Count**	**Count/m³**	**%**	**Raw Count**	**Count/m³**	**%**	**Raw Count**	**Count/m³**	**%**	**Raw Count**	**Count/m³**	**%**
Alternaria	—	—	—	—	—	—	—	—	—	—	—	—
Arthrinium	—	—	—	—	—	—	—	—	—	—	—	—
Ascospores	—	—	—	—	—	—	—	—	—	—	—	—
Aspergillus/Penicillium-Like	1	13	100	—	—	—	—	—	—	—	—	—
Basidiospores	—	—	—	—	—	—	—	—	—	—	—	—
Bipolaris/Dreschlera	—	—	—	—	—	—	—	—	—	—	—	—
Botrytis	—	—	—	—	—	—	—	—	—	—	—	—
Chaetomium	—	—	—	—	—	—	—	—	—	—	—	—
Cladosporium	—	—	—	1	13	50	—	—	—	—	—	—
Curvularia	—	—	—	—	—	—	—	—	—	—	—	—
Epicoccum	—	—	—	—	—	—	—	—	—	—	—	—
Fusarium	—	—	—	—	—	—	—	—	—	—	—	—
Ganoderma	—	—	—	—	—	—	—	—	—	—	—	—
Memnoniella	—	—	—	—	—	—	—	—	—	—	—	—
Nigrospora	—	—	—	—	—	—	—	—	—	—	—	—
Oidium/Peronospora	—	—	—	—	—	—	—	—	—	—	—	—
Pithomyces	—	—	—	—	—	—	—	—	—	—	—	—
Rust	—	—	—	—	—	—	—	—	—	—	—	—
Smut/Myxomyces/Periconia	—	—	—	—	—	—	—	—	—	1	13	50
Stachybotrys	—	—	—	1	13	50	—	—	—	1	13	50
Torula	—	—	—	—	—	—	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—	—	—	—	—	—	—
Total Spores	**1**	**13**		**2**	**27**		**0**	**0**		**2**	**27**	
Hyphal Fragments	—	—		—	—		—	—		—	—	
Pollen	—	—		—	—		—	—		—	—	
Debris Rating	3			3			2			2		
Detection Limit	13			13			13			13		

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Project: Boyertown SD-HS

Batch: 478198

Sampled: 11/29/2023
Received: 12/14/2023
Analysis Date: 12/14/2023
Report Date: 12/14/2023

AEML Test: A001 Spore Trap Analysis

Sample ID:	478198-09	478198-10	478198-11	478198-12
Client Sample ID:	HS-9	HS-10	HS-11	HS-12
Volume Sampled (L):	75	75	75	75
Media:	Allergenco D	Allergenco D	Allergenco D	Allergenco D
Percent of Trace Analyzed:	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification

Spore Types	**Raw Count**	**Count/m³**	**%**	**Raw Count**	**Count/m³**	**%**	**Raw Count**	**Count/m³**	**%**	**Raw Count**	**Count/m³**	**%**
Alternaria	—	—	—	—	—	—	2	27	6	1	13	10
Arthrinium	—	—	—	—	—	—	—	—	—	—	—	—
Ascospores	—	—	—	1	13	10	—	—	—	—	—	—
Aspergillus/Penicillium-Like	7	93	78	1	13	10	15	200	42	4	53	40
Basidiospores	—	—	—	1	13	10	—	—	—	—	—	—
Bipolaris/Dreschlera	—	—	—	—	—	—	—	—	—	—	—	—
Botrytis	—	—	—	—	—	—	—	—	—	—	—	—
Chaetomium	—	—	—	—	—	—	—	—	—	—	—	—
Cladosporium	2	27	22	5	67	50	10	133	28	2	27	20
Curvularia	—	—	—	—	—	—	—	—	—	—	—	—
Epicoccum	—	—	—	—	—	—	—	—	—	—	—	—
Fusarium	—	—	—	—	—	—	—	—	—	—	—	—
Ganoderma	—	—	—	—	—	—	—	—	—	—	—	—
Memnoniella	—	—	—	—	—	—	—	—	—	—	—	—
Nigrospora	—	—	—	—	—	—	—	—	—	—	—	—
Oidium/Peronospora	—	—	—	—	—	—	—	—	—	—	—	—
Pithomyces	—	—	—	—	—	—	—	—	—	—	—	—
Rust	—	—	—	—	—	—	2	27	6	—	—	—
Smut/Myxomyces/Periconia	—	—	—	1	13	10	7	93	19	3	40	30
Stachybotrys	—	—	—	1	13	10	—	—	—	—	—	—
Torula	—	—	—	—	—	—	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—	—	—	—	—	—	—
Total Spores	**9**	**120**		**10**	**133**		**36**	**480**		**10**	**133**	
Hyphal Fragments	—	—		2	27		1	13		—	—	
Pollen	—	—		—	—		—	—		—	—	
Debris Rating	3			3			3			3		
Detection Limit	13			13			13			13		

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Project: Boyertown SD-HS

Batch: 478198

Sampled: 11/29/2023
Received: 12/14/2023
Analysis Date: 12/14/2023
Report Date: 12/14/2023

AEML Test: A001 Spore Trap Analysis

Sample ID:	478198-13
Client Sample ID:	HS-13
Volume Sampled (L):	75
Media:	Allergenco D
Percent of Trace Analyzed:	100% at 600X Magnification

Spore Types	Raw Count	Count/m³	%
Alternaria	—	—	—
Arthrinium	—	—	—
Ascospores	—	—	—
Aspergillus/Penicillium-Like	2	27	29
Basidiospores	1	13	14
Bipolaris/Dreschlera	—	—	—
Botrytis	—	—	—
Chaetomium	—	—	—
Cladosporium	2	27	29
Curvularia	—	—	—
Epicoccum	—	—	—
Fusarium	—	—	—
Ganoderma	—	—	—
Memnoniella	—	—	—
Nigrospora	—	—	—
Oidium/Peronospora	—	—	—
Pithomyces	—	—	—
Rust	—	—	—
Smut/Myxomyces/Periconia	2	27	29
Stachybotrys	—	—	—
Torula	—	—	—
Ulocladium	—	—	—
Unidentified Spores	—	—	—
Total Spores	**7**	**93**	
Hyphal Fragments	—	—	
Pollen	—	—	
Debris Rating	3		
Detection Limit	13		

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ACCREDITED TESTING CERT #2572.01

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Project: Boyertown-Out 11/29

Batch: 478205

Sampled: 11/29/2023
Received: 12/14/2023
Analysis Date: 12/14/2023
Report Date: 12/14/2023

AEML Test: A001 Spore Trap Analysis

Sample ID:	478205-01
Client Sample ID:	Out 11/29
Volume Sampled (L):	75
Media:	Allergenco D
Percent of Trace Analyzed:	100% at 600X Magnification

Spore Types	Raw Count	Count/m³	%
Alternaria	—	—	—
Arthrinium	—	—	—
Ascospores	—	—	—
Aspergillus/Penicillium-Like	—	—	—
Basidiospores	—	—	—
Bipolaris/Dreschlera	—	—	—
Botrytis	—	—	—
Chaetomium	—	—	—
Cladosporium	7	93	100
Curvularia	—	—	—
Epicoccum	—	—	—
Fusarium	—	—	—
Ganoderma	—	—	—
Memnoniella	—	—	—
Nigrospora	—	—	—
Oidium/Peronospora	—	—	—
Pithomyces	—	—	—
Rust	—	—	—
Smut/Myxomyces/Periconia	—	—	—
Stachybotrys	—	—	—
Torula	—	—	—
Ulocladium	—	—	—
Unidentified Spores	—	—	—
Total Spores	**7**	**93**	
Hyphal Fragments	1	13	
Pollen	—	—	
Debris Rating	3		
Detection Limit	13		

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AEML Test: A001 Spore Trap Analysis

eurofins | Built Environment Testing AEML
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601 E. Atlantic Blvd. Pompano Beach, FL 33060
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Project: Boyertown SD-Colebrookdale

Batch: 478203

Sampled: 11/29/2023
Received: 12/14/2023
Analysis Date: 12/14/2023
Report Date: 12/14/2023

Sample ID:	478203-01	478203-02	478203-03	478203-04
Client Sample ID:	CBD-1	CBD-2	CBD-3	CBD-4
Volume Sampled (L):	75	75	75	75
Media:	Allergenco D	Allergenco D	Allergenco D	Allergenco D
Percent of Trace Analyzed:	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification

Spore Types	Raw Count	Count/m³	%	Raw Count	Count/m³	%	Raw Count	Count/m³	%	Raw Count	Count/m³	%
Alternaria	—	—	—	—	—	—	—	—	—	—	—	—
Arthrinium	—	—	—	—	—	—	—	—	—	—	—	—
Ascospores	1	13	1	1	13	17	—	—	—	1	13	7
Aspergillus/Penicillium-Like	84	1,120	95	4	53	67	3	40	100	9	120	60
Basidiospores	2	27	2	1	13	17	—	—	—	1	13	7
Bipolaris/Dreschlera	—	—	—	—	—	—	—	—	—	—	—	—
Botrytis	—	—	—	—	—	—	—	—	—	—	—	—
Chaetomium	—	—	—	—	—	—	—	—	—	—	—	—
Cladosporium	—	—	—	—	—	—	—	—	—	—	—	—
Curvularia	—	—	—	—	—	—	—	—	—	—	—	—
Epicoccum	—	—	—	—	—	—	—	—	—	—	—	—
Fusarium	—	—	—	—	—	—	—	—	—	—	—	—
Ganoderma	—	—	—	—	—	—	—	—	—	—	—	—
Memnoniella	—	—	—	—	—	—	—	—	—	—	—	—
Nigrospora	—	—	—	—	—	—	—	—	—	—	—	—
Oidium/Peronospora	—	—	—	—	—	—	—	—	—	—	—	—
Pithomyces	—	—	—	—	—	—	—	—	—	—	—	—
Rust	—	—	—	—	—	—	—	—	—	—	—	—
Smut/Myxomyces/Periconia	1	13	1	—	—	—	—	—	—	4	53	27
Stachybotrys	—	—	—	—	—	—	—	—	—	—	—	—
Torula	—	—	—	—	—	—	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—	—	—	—	—	—	—
Total Spores	**88**	**1,173**		**6**	**80**		**3**	**40**		**15**	**200**	
Hyphal Fragments	1	13		3	40		—	—		2	27	
Pollen	—	—		—	—		—	—		—	—	
Debris Rating	3			3			3			3		
Detection Limit	13			13			13			13		

Joshua Krinsky
Laboratory Technical Manager

ACCREDITED TESTING CERT #2572.01

Dr. Barb Plohocki
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Project: Boyertown-Out 11/29

Batch: 478205

Sampled: 11/29/2023
Received: 12/14/2023
Analysis Date: 12/14/2023
Report Date: 12/14/2023

AEML Test: A001 Spore Trap Analysis

Sample ID:	478205-01
Client Sample ID:	Out 11/29
Volume Sampled (L):	75
Media:	Allergenco D
Percent of Trace Analyzed:	100% at 600X Magnification

Spore Types	Raw Count	Count/m³	%
Alternaria	—	—	—
Arthrinium	—	—	—
Ascospores	—	—	—
Aspergillus/Penicillium-Like	—	—	—
Basidiospores	—	—	—
Bipolaris/Dreschlera	—	—	—
Botrytis	—	—	—
Chaetomium	—	—	—
Cladosporium	7	93	100
Curvularia	—	—	—
Epicoccum	—	—	—
Fusarium	—	—	—
Ganoderma	—	—	—
Memnoniella	—	—	—
Nigrospora	—	—	—
Oidium/Peronospora	—	—	—
Pithomyces	—	—	—
Rust	—	—	—
Smut/Myxomyces/Periconia	—	—	—
Stachybotrys	—	—	—
Torula	—	—	—
Ulocladium	—	—	—
Unidentified Spores	—	—	—
Total Spores	**7**	**93**	
Hyphal Fragments	1	13	
Pollen	—	—	
Debris Rating	3		
Detection Limit	13		

Joshua Krinsky
Laboratory Technical Manager

ACCREDITED TESTING CERT #2592.01

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Project: Boyertown SD-Educ. Ctr

Batch: 478204

Sampled: 11/29/2023
Received: 12/14/2023
Analysis Date: 12/14/2023
Report Date: 12/14/2023

AEML Test: A001 Spore Trap Analysis

Sample ID:	478204-01	478204-02	478204-03	478204-04
Client Sample ID:	EC-1	EC-2	EC-3	EC-Outdoor
Volume Sampled (L):	75	75	75	75
Media:	Allergenco D	Allergenco D	Allergenco D	Allergenco D
Percent of Trace Analyzed:	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification

Spore Types	Raw Count	Count/m³	%	Raw Count	Count/m³	%	Raw Count	Count/m³	%	Raw Count	Count/m³	%
Alternaria	1	13	2	—	—	—	—	—	—	—	—	—
Arthrinium	—	—	—	—	—	—	—	—	—	—	—	—
Ascospores	—	—	—	—	—	—	—	—	—	—	—	—
Aspergillus/Penicillium-Like	—	—	—	—	—	—	3	40	20	—	—	—
Basidiospores	3	40	6	—	—	—	—	—	—	2	27	20
Bipolaris/Dreschlera	—	—	—	—	—	—	—	—	—	—	—	—
Botrytis	—	—	—	—	—	—	—	—	—	—	—	—
Chaetomium	—	—	—	—	—	—	—	—	—	—	—	—
Cladosporium	45	600	83	2	27	100	11	147	73	7	93	70
Curvularia	1	13	2	—	—	—	—	—	—	—	—	—
Epicoccum	1	13	2	—	—	—	—	—	—	—	—	—
Fusarium	—	—	—	—	—	—	—	—	—	—	—	—
Ganoderma	—	—	—	—	—	—	—	—	—	—	—	—
Memnoniella	—	—	—	—	—	—	—	—	—	—	—	—
Nigrospora	—	—	—	—	—	—	—	—	—	—	—	—
Oidium/Peronospora	—	—	—	—	—	—	—	—	—	—	—	—
Pithomyces	—	—	—	—	—	—	1	13	7	—	—	—
Rust	—	—	—	—	—	—	—	—	—	—	—	—
Smut/Myxomyces/Periconia	3	40	6	—	—	—	—	—	—	1	13	10
Stachybotrys	—	—	—	—	—	—	—	—	—	—	—	—
Torula	—	—	—	—	—	—	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—	—	—	—	—	—	—
Total Spores	**54**	**720**		**2**	**27**		**15**	**200**		**10**	**133**	
Hyphal Fragments	2	27		—	—		—	—		—	—	
Pollen	1	13		—	—		—	—		—	—	
Debris Rating	3			2			3			3		
Detection Limit	13			13			13			13		

Joshua Krinsky
Laboratory Technical Manager

ACCREDITED TESTING CERT #2512.01

IMS Laboratory

Interpreting Laboratory Results

The following can be used to better understand the laboratory results:

Viable Air Samples:	
Low	< 100 CFU/m^3
Low Moderate	100 – 250 CFU/m^3
Moderate	250 – 1000 CFU/m^3
High	> 1000 CFU/m^3
TNTC	Too Numerous To Count

Viable Topical Samples:	
Low	≤ 5 CFU/square inch
Low Moderate	= 6-25 CFU/square inch
Moderate	= 26-100 CFU/square inch
High	> 100 CFU/square inch
TNTC	Too Numerous To Count

Non-Viable Air Samples:	
Low	≤ 2000 Total Fungal Count/m^3
Low Moderate	2000-5000 Total Fungal Count/m^3
Moderate	5001-10,000 Total Fungal Count/m^3
High	> 10,000 Total Fungal Count/m^3
TNTC	Too Numerous To Count

Non-Viable Topical Samples:	
Low	1+
Moderate	2+ or 3+
High	4+ or 5+

There are currently no standards or guidelines regarding results of fungal samples. There are no levels, which are typical or permissible. There are no recommended exposure limits, no permissible exposure limits, no threshold limit values and no short term exposure limits.

The above guidelines are based on historical analysis and experience and should not be used for health evaluation purposes.

Many fungi (e.g. species of *Aspergillus sp*, *Penicillium sp*, *Fusarium sp*, *Trichoderma sp*, and *Memnoniella sp*) in addition to Stachybotrys can produce potent mycotoxins. Mycotoxins are fungal metabolites that have been identified as toxic agents. Even low levels of these species should be remediated. For example, the original New York City Department of Health Bureau of Environmental & Occupational Disease Epidemiology *Guidelines on Assessment and Remediation of Fungi in Indoor Environments* recommended remediation if 1 CFU/m^3 of Stachybotrys is found in the indoor air. If 1000 CFU/m^3 of Stachybotrys is found in the indoor air, the guidelines recommended immediate evacuation.

BOYERTOWN AREA SD
IAQ TESTS - DECEMBER 20, & 21, 2023

SCHOOL	SAMPLE ID	DATE	TIME	ROOM #	LOCATION DETAIL
Washington Elementary (W)	W1	12/20/23	AM	142	Classroom
Washington Elementary (W)	W2	12/20/23	AM	163	Classroom
Washington Elementary (W)	W3	12/20/23	AM	54	Classroom
Washington Elementary (W)	W4	12/20/23	AM	114	Classroom
Washington Elementary (W)	W5	12/20/23	AM	131	Classroom
Washington Elementary (W)	W6	12/20/23	AM	OUTDOORS	OUTDOOR SAMPLE
SCHOOL	**SAMPLE ID**	**DATE**	**TIME**	**ROOM #**	**LOCATION DETAIL**
Earl Elementary (ERL)	ERL 1	12/20/23	AM	11	Classroom
Earl Elementary (ERL)	ERL 2	12/20/23	AM	53	Classroom
Earl Elementary (ERL)	ERL 3	12/20/23	AM	45	Music Room
Earl Elementary (ERL)	ERL 4	12/20/23	AM	33	Classroom
Earl Elementary (ERL)	ERL 5	12/20/23	AM	OUTDOORS	OUTDOOR SAMPLE
SCHOOL	**SAMPLE ID**	**DATE**	**TIME**	**ROOM #**	**LOCATION DETAIL**
Boyertown Elementary (B)	B1	12/20/23	AM	108	Classroom
Boyertown Elementary (B)	B2	12/20/23	AM	146	Classroom
Boyertown Elementary (B)	B3	12/20/23	AM	186	Classroom
Boyertown Elementary (B)	B4	12/20/23	AM	201	Classroom
Boyertown Elementary (B)	B5	12/20/23	AM	254	Classroom
Boyertown Elementary (B)	B6	12/20/23	AM	OUTDOORS	OUTDOOR SAMPLE
SCHOOL	**SAMPLE ID**	**DATE**	**TIME**	**ROOM #**	**LOCATION DETAIL**
JR High West (JRW)	JRW 1	12/20/23	AM	14	Faculty Room
JR High West (JRW)	JRW 2	12/20/23	AM	50	Classroom
JR High West (JRW)	JRW 3	12/20/23	AM	21	Special Education Room
JR High West (JRW)	JRW 4	12/20/23	AM	523	Trainer's Room
JR High West (JRW)	JRW 5	12/20/23	AM	27	Classroom
JR High West (JRW)	JRW 6	12/20/23	AM	62	Art Room
JR High West (JRW)	JRW 7	12/20/23	AM	64.1	Tech Ed. Office - Wood Shop
JR High West (JRW)	JRW 8	12/20/23	AM	75	Music Practice Room
JR High West (JRW)	JRW 9	12/20/23	AM	528	Head Custodian's Office
JR High West (JRW)	JRW 10	12/20/23	AM	0UTDOORS	OUTDOOR SAMPLE
SCHOOL	**SAMPLE ID**	**DATE**	**TIME**	**ROOM #**	**LOCATION DETAIL**
Support Services (SPT)	SPT 1	12/20/23	AM	---	Main Office (Jenny's Office)
Support Services (SPT)	SPT 2	12/20/23	AM	---	Transportation Office
Support Services (SPT)	SPT 3	12/20/23	AM	OUTDOORS	OUTDOOR SAMPLE
SCHOOL	**SAMPLE ID**	**DATE**	**TIME**	**ROOM #**	**LOCATION DETAIL**
Gilbertsville Elementary (GLB)	GLB 1	12/21/23	AM	164	Classroom
Gilbertsville Elementary (GLB)	GLB 2	12/21/23	AM	131	Emotional Support Room
Gilbertsville Elementary (GLB)	GLB 3	12/21/23	AM	124	Classroom
Gilbertsville Elementary (GLB)	GLB 4	12/21/23	AM	---	Faculty Dining (Near Room 155)
Gilbertsville Elementary (GLB)	GLB 5	12/21/23	AM	---	Health Room (Across From Room 151)
Gilbertsville Elementary (GLB)	GLB 6	12/21/23	AM	OUTDOORS	OUTDOOR SAMPLE
SCHOOL	**SAMPLE ID**	**DATE**	**TIME**	**ROOM #**	**LOCATION DETAIL**
JR High East (JRE)	JRE 1	12/21/23	AM	423	Classroom
JR High East (JRE)	JRE 2	12/21/23	AM	509	Tech Ed. Room (Shop Room)
JR High East (JRE)	JRE 3	12/21/23	AM	300	Classroom
JR High East (JRE)	JRE 4	12/21/23	AM	314	Classroom
JR High East (JRE)	JRE 5	12/21/23	AM	319	Classroom
JR High East (JRE)	JRE 6	12/21/23	AM	238	Faculty Lunch Room
JR High East (JRE)	JRE 7	12/21/23	AM	112	Classroom
JR High East (JRE)	JRE 8	12/21/23	AM	102	Classroom
JR High East (JRE)	JRE 9	12/21/23	AM	40	Front Office - Mail Room
JR High East (JRE)	JRE 10	12/21/23	AM	OUTDOORS	OUTDOOR SAMPLE

SCHOOL	SAMPLE ID	DATE	TIME	ROOM #	LOCATION DETAIL
North Hanover/Frederick Elem (HAN)	HAN 1	12/21/23	AM	---	Conference Room #1
North Hanover/Frederick Elem (HAN)	HAN 2	12/21/23	AM	110	Learning Support Room
North Hanover/Frederick Elem (HAN)	HAN 3	12/21/23	AM	320	Classroom
North Hanover/Frederick Elem (HAN)	HAN 4	12/21/23	AM	206	Book Room
North Hanover/Frederick Elem (HAN)	HAN 5	12/21/23	AM	OUTDOORS	OUTDOOR SAMPLE

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Project: Boyertown SD - Washington

Batch: 481897

Sampled: 12/20/2023
Received: 1/15/2024
Analysis Date: 1/15/2024
Report Date: 1/15/2024

AEML Test: A001 Spore Trap Analysis

Sample ID:	481897-01	481897-02	481897-03	481897-04
Client Sample ID:	W1	W2	W3	W4
Volume Sampled (L):	75	75	75	75
Media:	Impaction Slide	Impaction Slide	Impaction Slide	Impaction Slide
Percent of Trace Analyzed:	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification

Spore Types	Raw Count	Count/m³	%	Raw Count	Count/m³	%	Raw Count	Count/m³	%	Raw Count	Count/m³	%
Alternaria	—	—	—	—	—	—	—	—	—	—	—	—
Arthrinium	—	—	—	—	—	—	—	—	—	—	—	—
Ascospores	1	13	25	—	—	—	—	—	—	1	13	9
Aspergillus/Penicillium-Like	—	—	—	—	—	—	1	13	100	1	13	9
Basidiospores	2	27	50	—	—	—	—	—	—	8	107	73
Bipolaris/Dreschlera	—	—	—	—	—	—	—	—	—	—	—	—
Botrytis	—	—	—	—	—	—	—	—	—	—	—	—
Chaetomium	—	—	—	—	—	—	—	—	—	—	—	—
Cladosporium	1	13	25	—	—	—	—	—	—	1	13	9
Curvularia	—	—	—	—	—	—	—	—	—	—	—	—
Epicoccum	—	—	—	—	—	—	—	—	—	—	—	—
Fusarium	—	—	—	—	—	—	—	—	—	—	—	—
Ganoderma	—	—	—	—	—	—	—	—	—	—	—	—
Memnoniella	—	—	—	—	—	—	—	—	—	—	—	—
Nigrospora	—	—	—	—	—	—	—	—	—	—	—	—
Oidium/Peronospora	—	—	—	—	—	—	—	—	—	—	—	—
Pithomyces	—	—	—	—	—	—	—	—	—	—	—	—
Rust	—	—	—	—	—	—	—	—	—	—	—	—
Smut/Myxomyces/Periconia	—	—	—	—	—	—	—	—	—	—	—	—
Stachybotrys	—	—	—	—	—	—	—	—	—	—	—	—
Torula	—	—	—	—	—	—	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—	—	—	—	—	—	—
Total Spores	**4**	**53**		**0**	**0**		**1**	**13**		**11**	**147**	
Hyphal Fragments	—	—		—	—		—	—		—	—	
Pollen	—	—		—	—		—	—		—	—	
Debris Rating	3			2			2			3		
Detection Limit	13			13			13			13		

Joshua Krinsky
Laboratory Technical Manager

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Project: Boyertown SD - Washington

Batch: 481897

Sampled: 12/20/2023
Received: 1/15/2024
Analysis Date: 1/15/2024
Report Date: 1/15/2024

AEML Test: A001 Spore Trap Analysis

Sample ID:	481897-05	481897-06
Client Sample ID:	W5	W6
Volume Sampled (L):	75	75
Media:	Impaction Slide	Impaction Slide
Percent of Trace Analyzed:	100% at 600X Magnification	100% at 600X Magnification

Spore Types	Raw Count	Count/m³	%	Raw Count	Count/m³	%
Alternaria	1	13	20	—	—	—
Arthrinium	—	—	—	—	—	—
Ascospores	—	—	—	1	13	7
Aspergillus/Penicillium-Like	2	27	40	2	27	13
Basidiospores	—	—	—	10	133	67
Bipolaris/Dreschlera	—	—	—	—	—	—
Botrytis	—	—	—	—	—	—
Chaetomium	—	—	—	—	—	—
Cladosporium	—	—	—	2	27	13
Curvularia	1	13	20	—	—	—
Epicoccum	—	—	—	—	—	—
Fusarium	—	—	—	—	—	—
Ganoderma	—	—	—	—	—	—
Memnoniella	—	—	—	—	—	—
Nigrospora	—	—	—	—	—	—
Oidium/Peronospora	—	—	—	—	—	—
Pithomyces	—	—	—	—	—	—
Rust	—	—	—	—	—	—
Smut/Myxomyces/Periconia	1	13	20	—	—	—
Stachybotrys	—	—	—	—	—	—
Torula	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—
Total Spores	**5**	**67**		**15**	**200**	
Hyphal Fragments	—	—		—	—	
Pollen	—	—		—	—	
Debris Rating	3			3		
Detection Limit	13			13		

Joshua Krinsky
Laboratory Technical Manager

Dr. Barb Plohocki
EnviraHealth Corporation
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Project: Boyertown SD - Boyertown Elem

Batch: 481896

Sampled: 12/20/2023
Received: 1/15/2024
Analysis Date: 1/15/2024
Report Date: 1/15/2024

AEML Test: A001 Spore Trap Analysis

Sample ID:	481896-01	481896-02	481896-03	481896-04
Client Sample ID:	B1	B2	B3	B4
Volume Sampled (L):	75	75	75	75
Media:	Impaction Slide	Impaction Slide	Impaction Slide	Impaction Slide
Percent of Trace Analyzed:	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification

Spore Types	Raw Count	Count/m³	%	Raw Count	Count/m³	%	Raw Count	Count/m³	%	Raw Count	Count/m³	%
Alternaria	—	—	—	1	13	8	—	—	—	—	—	—
Arthrinium	—	—	—	—	—	—	—	—	—	—	—	—
Ascospores	—	—	—	1	13	8	—	—	—	—	—	—
Aspergillus/Penicillium-Like	—	—	—	2	27	15	2	27	50	—	—	—
Basidiospores	—	—	—	—	—	—	—	—	—	—	—	—
Bipolaris/Dreschlera	—	—	—	—	—	—	—	—	—	—	—	—
Botrytis	—	—	—	—	—	—	—	—	—	—	—	—
Chaetomium	—	—	—	—	—	—	—	—	—	—	—	—
Cladosporium	2	27	50	1	13	8	1	13	25	1	13	25
Curvularia	—	—	—	—	—	—	—	—	—	—	—	—
Epicoccum	—	—	—	1	13	8	—	—	—	—	—	—
Fusarium	—	—	—	—	—	—	—	—	—	—	—	—
Ganoderma	—	—	—	—	—	—	—	—	—	—	—	—
Memnoniella	—	—	—	—	—	—	—	—	—	—	—	—
Nigrospora	—	—	—	—	—	—	—	—	—	—	—	—
Oidium/Peronospora	—	—	—	—	—	—	—	—	—	—	—	—
Pithomyces	—	—	—	—	—	—	—	—	—	—	—	—
Rust	—	—	—	1	13	8	—	—	—	—	—	—
Smut/Myxomyces/Periconia	2	27	50	6	80	46	1	13	25	3	40	75
Stachybotrys	—	—	—	—	—	—	—	—	—	—	—	—
Torula	—	—	—	—	—	—	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—	—	—	—	—	—	—
Total Spores	**4**	**53**		**13**	**173**		**4**	**53**		**4**	**53**	
Hyphal Fragments	1	13		2	27		1	13		2	27	
Pollen	—	—		—	—		—	—		—	—	
Debris Rating	3			3			3			3		
Detection Limit	13			13			13			13		

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Project: Boyertown SD - Boyertown Elem

Batch: 481896

Sampled: 12/20/2023
Received: 1/15/2024
Analysis Date: 1/15/2024
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AEML Test: A001 Spore Trap Analysis

Sample ID:	481896-05	481896-06
Client Sample ID:	B5	B6
Volume Sampled (L):	75	75
Media:	Impaction Slide	Impaction Slide
Percent of Trace Analyzed:	100% at 600X Magnification	100% at 600X Magnification

Spore Types	Raw Count	Count/m³	%	Raw Count	Count/m³	%
Alternaria	1	13	25	—	—	—
Arthrinium	—	—	—	—	—	—
Ascospores	2	27	50	1	13	9
Aspergillus/Penicillium-Like	—	—	—	3	40	27
Basidiospores	—	—	—	5	67	45
Bipolaris/Dreschlera	—	—	—	—	—	—
Botrytis	—	—	—	—	—	—
Chaetomium	—	—	—	—	—	—
Cladosporium	1	13	25	1	13	9
Curvularia	—	—	—	—	—	—
Epicoccum	—	—	—	—	—	—
Fusarium	—	—	—	—	—	—
Ganoderma	—	—	—	—	—	—
Memnoniella	—	—	—	—	—	—
Nigrospora	—	—	—	—	—	—
Oidium/Peronospora	—	—	—	—	—	—
Pithomyces	—	—	—	—	—	—
Rust	—	—	—	—	—	—
Smut/Myxomyces/Periconia	—	—	—	1	13	9
Stachybotrys	—	—	—	—	—	—
Torula	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—
Total Spores	**4**	**53**		**11**	**147**	
Hyphal Fragments	—	—		—	—	
Pollen	—	—		—	—	
Debris Rating	3			3		
Detection Limit	13			13		

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Project: Boyertown SD-JR High West

Batch: 481922

Sampled: 12/20/2023
Received: 1/15/2024
Analysis Date: 1/15/2024
Report Date: 1/15/2024

AEML Test: A001 Spore Trap Analysis

Sample ID:	481922-01	481922-02	481922-03	481922-04
Client Sample ID:	JRW 1	JRW 2	JRW 3	JRW 4
Volume Sampled (L):	75	75	75	75
Media:	Impaction Slide	Impaction Slide	Impaction Slide	Impaction Slide
Percent of Trace Analyzed:	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification

Spore Types	Raw Count	Count/m³	%	Raw Count	Count/m³	%	Raw Count	Count/m³	%	Raw Count	Count/m³	%
Alternaria	—	—	—	—	—	—	—	—	—	—	—	—
Arthrinium	—	—	—	—	—	—	—	—	—	—	—	—
Ascospores	—	—	—	1	13	20	—	—	—	—	—	—
Aspergillus/Penicillium-Like	—	—	—	1	13	20	1	13	11	2	27	40
Basidiospores	5	67	83	1	13	20	4	53	44	3	40	60
Bipolaris/Dreschlera	—	—	—	—	—	—	—	—	—	—	—	—
Botrytis	—	—	—	—	—	—	—	—	—	—	—	—
Chaetomium	—	—	—	—	—	—	—	—	—	—	—	—
Cladosporium	—	—	—	1	13	20	4	53	44	—	—	—
Curvularia	—	—	—	—	—	—	—	—	—	—	—	—
Epicoccum	—	—	—	—	—	—	—	—	—	—	—	—
Fusarium	—	—	—	—	—	—	—	—	—	—	—	—
Ganoderma	—	—	—	—	—	—	—	—	—	—	—	—
Memnoniella	—	—	—	—	—	—	—	—	—	—	—	—
Nigrospora	—	—	—	—	—	—	—	—	—	—	—	—
Oidium/Peronospora	—	—	—	—	—	—	—	—	—	—	—	—
Pithomyces	1	13	17	—	—	—	—	—	—	—	—	—
Rust	—	—	—	—	—	—	—	—	—	—	—	—
Smut/Myxomyces/Periconia	—	—	—	1	13	20	—	—	—	—	—	—
Stachybotrys	—	—	—	—	—	—	—	—	—	—	—	—
Torula	—	—	—	—	—	—	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—	—	—	—	—	—	—
Total Spores	**6**	**80**		**5**	**67**		**9**	**120**		**5**	**67**	
Hyphal Fragments	—	—		—	—		1	13		1	13	
Pollen	1	13		—	—		—	—		—	—	
Debris Rating	3			3			3			3		
Detection Limit	13			13			13			13		

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Project: Boyertown SD-JR High West

Batch: 481922

Sampled: 12/20/2023
Received: 1/15/2024
Analysis Date: 1/15/2024
Report Date: 1/15/2024

AEML Test: A001 Spore Trap Analysis

Sample ID:	481922-05	481922-06	481922-07	481922-08
Client Sample ID:	JRW 5	JRW 6	JRW 7	JRW 8
Volume Sampled (L):	75	75	75	75
Media:	Impaction Slide	Impaction Slide	Impaction Slide	Impaction Slide
Percent of Trace Analyzed:	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification

Spore Types	Raw Count	Count/m³	%	Raw Count	Count/m³	%	Raw Count	Count/m³	%	Raw Count	Count/m³	%
Alternaria	—	—	—	—	—	—	—	—	—	—	—	—
Arthrinium	—	—	—	—	—	—	—	—	—	—	—	—
Ascospores	—	—	—	—	—	—	—	—	—	—	—	—
Aspergillus/Penicillium-Like	—	—	—	—	—	—	1	13	14	—	—	—
Basidiospores	3	40	100	2	27	100	1	13	14	1	13	50
Bipolaris/Dreschlera	—	—	—	—	—	—	—	—	—	—	—	—
Botrytis	—	—	—	—	—	—	—	—	—	—	—	—
Chaetomium	—	—	—	—	—	—	—	—	—	—	—	—
Cladosporium	—	—	—	—	—	—	1	13	14	1	13	50
Curvularia	—	—	—	—	—	—	—	—	—	—	—	—
Epicoccum	—	—	—	—	—	—	1	13	14	—	—	—
Fusarium	—	—	—	—	—	—	—	—	—	—	—	—
Ganoderma	—	—	—	—	—	—	—	—	—	—	—	—
Memnoniella	—	—	—	—	—	—	—	—	—	—	—	—
Nigrospora	—	—	—	—	—	—	—	—	—	—	—	—
Oidium/Peronospora	—	—	—	—	—	—	—	—	—	—	—	—
Pithomyces	—	—	—	—	—	—	—	—	—	—	—	—
Rust	—	—	—	—	—	—	3	40	43	—	—	—
Smut/Myxomyces/Periconia	—	—	—	—	—	—	—	—	—	—	—	—
Stachybotrys	—	—	—	—	—	—	—	—	—	—	—	—
Torula	—	—	—	—	—	—	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—	—	—	—	—	—	—
Total Spores	**3**	**40**		**2**	**27**		**7**	**93**		**2**	**27**	
Hyphal Fragments	—	—		2	27		—	—		—	—	
Pollen	—	—		2	27		—	—		—	—	
Debris Rating	2			3			3			3		
Detection Limit	13			13			13			13		

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Project: Boyertown SD-JR High West

Batch: 481922

Sampled: 12/20/2023
Received: 1/15/2024
Analysis Date: 1/15/2024
Report Date: 1/15/2024

AEML Test: A001 Spore Trap Analysis

Sample ID:	481922-09	481922-10
Client Sample ID:	JRW 9	JRW 10
Volume Sampled (L):	75	75
Media:	Impaction Slide	Impaction Slide
Percent of Trace Analyzed:	100% at 600X Magnification	100% at 600X Magnification

Spore Types	Raw Count	Count/m³	%	Raw Count	Count/m³	%
Alternaria	—	—	—	—	—	—
Arthrinium	—	—	—	—	—	—
Ascospores	1	13	9	—	—	—
Aspergillus/Penicillium-Like	3	40	27	—	—	—
Basidiospores	4	53	36	11	147	65
Bipolaris/Dreschlera	—	—	—	—	—	—
Botrytis	—	—	—	—	—	—
Chaetomium	—	—	—	1	13	6
Cladosporium	1	13	9	5	67	29
Curvularia	—	—	—	—	—	—
Epicoccum	—	—	—	—	—	—
Fusarium	—	—	—	—	—	—
Ganoderma	—	—	—	—	—	—
Memnoniella	—	—	—	—	—	—
Nigrospora	—	—	—	—	—	—
Oidium/Peronospora	—	—	—	—	—	—
Pithomyces	—	—	—	—	—	—
Rust	1	13	9	—	—	—
Smut/Myxomyces/Periconia	1	13	9	—	—	—
Stachybotrys	—	—	—	—	—	—
Torula	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—
Total Spores	**11**	**147**		**17**	**227**	
Hyphal Fragments	—	—		—	—	
Pollen	—	—		—	—	
Debris Rating	3			3		
Detection Limit	13			13		

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Project: Boyertown SD - Support Services

Batch: 481899

Sampled: 12/20/2023
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AEML Test: A001 Spore Trap Analysis

Sample ID:	481899-01	481899-02	481899-03
Client Sample ID:	SPT 1	SPT 2	SPT 3
Volume Sampled (L):	75	75	75
Media:	Impaction Slide	Impaction Slide	Impaction Slide
Percent of Trace Analyzed:	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification

Spore Types	Raw Count	Count/m³	%	Raw Count	Count/m³	%	Raw Count	Count/m³	%
Alternaria	—	—	—	—	—	—	—	—	—
Arthrinium	—	—	—	—	—	—	—	—	—
Ascospores	2	27	22	—	—	—	3	40	33
Aspergillus/Penicillium-Like	1	13	11	—	—	—	3	40	33
Basidiospores	3	40	33	—	—	—	2	27	22
Bipolaris/Dreschlera	—	—	—	—	—	—	—	—	—
Botrytis	—	—	—	—	—	—	—	—	—
Chaetomium	—	—	—	—	—	—	—	—	—
Cladosporium	2	27	22	—	—	—	1	13	11
Curvularia	—	—	—	—	—	—	—	—	—
Epicoccum	—	—	—	—	—	—	—	—	—
Fusarium	—	—	—	—	—	—	—	—	—
Ganoderma	—	—	—	—	—	—	—	—	—
Memnoniella	—	—	—	—	—	—	—	—	—
Nigrospora	—	—	—	—	—	—	—	—	—
Oidium/Peronospora	—	—	—	—	—	—	—	—	—
Pithomyces	1	13	11	—	—	—	—	—	—
Rust	—	—	—	—	—	—	—	—	—
Smut/Myxomyces/Periconia	—	—	—	—	—	—	—	—	—
Stachybotrys	—	—	—	—	—	—	—	—	—
Torula	—	—	—	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—	—	—	—
Total Spores	**9**	**120**		**0**	**0**		**9**	**120**	
Hyphal Fragments	1	13		—	—		—	—	
Pollen	—	—		—	—		1	13	
Debris Rating	3			2			3		
Detection Limit	13			13			13		

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Project: Boyertown SD - Gilbertsville

Batch: 481901

Sampled: 12/21/2023
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Analysis Date: 1/15/2024
Report Date: 1/15/2024

AEML Test: A001 Spore Trap Analysis

Sample ID:	481901-01	481901-02	481901-03	481901-04
Client Sample ID:	GLB 1	GLB 2	GLB 3	GLB 4
Volume Sampled (L):	75	75	75	75
Media:	Impaction Slide	Impaction Slide	Impaction Slide	Impaction Slide
Percent of Trace Analyzed:	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification

Spore Types	**Raw Count**	**Count/m³**	**%**	**Raw Count**	**Count/m³**	**%**	**Raw Count**	**Count/m³**	**%**	**Raw Count**	**Count/m³**	**%**
Alternaria	—	—	—	—	—	—	—	—	—	—	—	—
Arthrinium	—	—	—	—	—	—	—	—	—	—	—	—
Ascospores	—	—	—	—	—	—	2	27	20	2	27	14
Aspergillus/Penicillium-Like	—	—	—	—	—	—	1	13	10	2	27	14
Basidiospores	5	67	83	—	—	—	2	27	20	5	67	36
Bipolaris/Dreschlera	—	—	—	—	—	—	—	—	—	—	—	—
Botrytis	—	—	—	—	—	—	—	—	—	—	—	—
Chaetomium	—	—	—	—	—	—	—	—	—	—	—	—
Cladosporium	1	13	17	5	67	100	5	67	50	5	67	36
Curvularia	—	—	—	—	—	—	—	—	—	—	—	—
Epicoccum	—	—	—	—	—	—	—	—	—	—	—	—
Fusarium	—	—	—	—	—	—	—	—	—	—	—	—
Ganoderma	—	—	—	—	—	—	—	—	—	—	—	—
Memnoniella	—	—	—	—	—	—	—	—	—	—	—	—
Nigrospora	—	—	—	—	—	—	—	—	—	—	—	—
Oidium/Peronospora	—	—	—	—	—	—	—	—	—	—	—	—
Pithomyces	—	—	—	—	—	—	—	—	—	—	—	—
Rust	—	—	—	—	—	—	—	—	—	—	—	—
Smut/Myxomyces/Periconia	—	—	—	—	—	—	—	—	—	—	—	—
Stachybotrys	—	—	—	—	—	—	—	—	—	—	—	—
Torula	—	—	—	—	—	—	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—	—	—	—	—	—	—
Total Spores	**6**	**80**		**5**	**67**		**10**	**133**		**14**	**187**	
Hyphal Fragments	—	—		—	—		1	13		—	—	
Pollen	—	—		—	—		—	—		—	—	
Debris Rating	3			3			3			3		
Detection Limit	13			13			13			13		

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Project: Boyertown SD - Gilbertsville

Batch: 481901

Sampled: 12/21/2023
Received: 1/15/2024
Analysis Date: 1/15/2024
Report Date: 1/15/2024

AEML Test: A001 Spore Trap Analysis

Sample ID:	481901-05	481901-06
Client Sample ID:	GLB 5	GLB 6
Volume Sampled (L):	75	75
Media:	Impaction Slide	Impaction Slide
Percent of Trace Analyzed:	100% at 600X Magnification	100% at 600X Magnification

Spore Types	Raw Count	Count/m³	%	Raw Count	Count/m³	%
Alternaria	—	—	—	—	—	—
Arthrinium	—	—	—	—	—	—
Ascospores	1	13	100	2	27	13
Aspergillus/Penicillium-Like	—	—	—	1	13	6
Basidiospores	—	—	—	7	93	44
Bipolaris/Dreschlera	—	—	—	—	—	—
Botrytis	—	—	—	—	—	—
Chaetomium	—	—	—	—	—	—
Cladosporium	—	—	—	6	80	38
Curvularia	—	—	—	—	—	—
Epicoccum	—	—	—	—	—	—
Fusarium	—	—	—	—	—	—
Ganoderma	—	—	—	—	—	—
Memnoniella	—	—	—	—	—	—
Nigrospora	—	—	—	—	—	—
Oidium/Peronospora	—	—	—	—	—	—
Pithomyces	—	—	—	—	—	—
Rust	—	—	—	—	—	—
Smut/Myxomyces/Periconia	—	—	—	—	—	—
Stachybotrys	—	—	—	—	—	—
Torula	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—
Total Spores	**1**	**13**		**16**	**213**	
Hyphal Fragments	—	—		—	—	
Pollen	—	—		—	—	
Debris Rating	2			3		
Detection Limit	13			13		

Joshua Krinsky
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Project: Boyertown SD-JR HS East

Batch: 481916

Sampled: 12/21/2023
Received: 1/15/2024
Analysis Date: 1/15/2024
Report Date: 1/15/2024

AEML Test: A001 Spore Trap Analysis

Sample ID:	481916-01	481916-02	481916-03	481916-04
Client Sample ID:	JRE 1	JRE 2	JRE 3	JRE 4
Volume Sampled (L):	75	75	75	75
Media:	Impaction Slide	Impaction Slide	Impaction Slide	Impaction Slide
Percent of Trace Analyzed:	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification

Spore Types	**Raw Count**	**Count/m³**	**%**	**Raw Count**	**Count/m³**	**%**	**Raw Count**	**Count/m³**	**%**	**Raw Count**	**Count/m³**	**%**
Alternaria	—	—	—	—	—	—	—	—	—	—	—	—
Arthrinium	—	—	—	—	—	—	—	—	—	—	—	—
Ascospores	—	—	—	—	—	—	—	—	—	—	—	—
Aspergillus/Penicillium-Like	—	—	—	—	—	—	—	—	—	—	—	—
Basidiospores	—	—	—	1	13	100	—	—	—	2	27	100
Bipolaris/Dreschlera	—	—	—	—	—	—	—	—	—	—	—	—
Botrytis	—	—	—	—	—	—	—	—	—	—	—	—
Chaetomium	—	—	—	—	—	—	—	—	—	—	—	—
Cladosporium	1	13	50	—	—	—	2	27	100	—	—	—
Curvularia	—	—	—	—	—	—	—	—	—	—	—	—
Epicoccum	—	—	—	—	—	—	—	—	—	—	—	—
Fusarium	—	—	—	—	—	—	—	—	—	—	—	—
Ganoderma	—	—	—	—	—	—	—	—	—	—	—	—
Memnoniella	—	—	—	—	—	—	—	—	—	—	—	—
Nigrospora	—	—	—	—	—	—	—	—	—	—	—	—
Oidium/Peronospora	—	—	—	—	—	—	—	—	—	—	—	—
Pithomyces	—	—	—	—	—	—	—	—	—	—	—	—
Rust	—	—	—	—	—	—	—	—	—	—	—	—
Smut/Myxomyces/Periconia	1	13	50	—	—	—	—	—	—	—	—	—
Stachybotrys	—	—	—	—	—	—	—	—	—	—	—	—
Torula	—	—	—	—	—	—	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—	—	—	—	—	—	—
Total Spores	**2**	**27**		**1**	**13**		**2**	**27**		**2**	**27**	
Hyphal Fragments	2	27		—	—		1	13		1	13	
Pollen	—	—		—	—		—	—		—	—	
Debris Rating	3			3			3			3		
Detection Limit	13			13			13			13		

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Project: Boyertown SD-JR HS East

Batch: 481916

Sampled: 12/21/2023
Received: 1/15/2024
Analysis Date: 1/15/2024
Report Date: 1/15/2024

AEML Test: A001 Spore Trap Analysis

Sample ID:	481916-05	481916-06	481916-07	481916-08
Client Sample ID:	JRE 5	JRE 6	JRE 7	JRE 8
Volume Sampled (L):	75	75	75	75
Media:	Impaction Slide	Impaction Slide	Impaction Slide	Impaction Slide
Percent of Trace Analyzed:	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification

Spore Types	Raw Count	Count/m³	%	Raw Count	Count/m³	%	Raw Count	Count/m³	%	Raw Count	Count/m³	%
Alternaria	—	—	—	—	—	—	—	—	—	—	—	—
Arthrinium	—	—	—	—	—	—	—	—	—	—	—	—
Ascospores	—	—	—	1	13	33	—	—	—	1	13	25
Aspergillus/Penicillium-Like	—	—	—	—	—	—	—	—	—	—	—	—
Basidiospores	1	13	100	—	—	—	—	—	—	—	—	—
Bipolaris/Dreschlera	—	—	—	—	—	—	—	—	—	—	—	—
Botrytis	—	—	—	—	—	—	—	—	—	—	—	—
Chaetomium	—	—	—	—	—	—	—	—	—	—	—	—
Cladosporium	—	—	—	—	—	—	1	13	100	—	—	—
Curvularia	—	—	—	—	—	—	—	—	—	—	—	—
Epicoccum	—	—	—	—	—	—	—	—	—	1	13	25
Fusarium	—	—	—	—	—	—	—	—	—	—	—	—
Ganoderma	—	—	—	—	—	—	—	—	—	—	—	—
Memnoniella	—	—	—	—	—	—	—	—	—	—	—	—
Nigrospora	—	—	—	—	—	—	—	—	—	—	—	—
Oidium/Peronospora	—	—	—	—	—	—	—	—	—	—	—	—
Pithomyces	—	—	—	—	—	—	—	—	—	—	—	—
Rust	—	—	—	—	—	—	—	—	—	1	13	25
Smut/Myxomyces/Periconia	—	—	—	2	27	67	—	—	—	1	13	25
Stachybotrys	—	—	—	—	—	—	—	—	—	—	—	—
Torula	—	—	—	—	—	—	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—	—	—	—	—	—	—
Total Spores	**1**	**13**		**3**	**40**		**1**	**13**		**4**	**53**	
Hyphal Fragments	—	—		—	—		—	—		—	—	
Pollen	—	—		—	—		—	—		—	—	
Debris Rating	3			3			3			3		
Detection Limit	13			13			13			13		

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Project: Boyertown SD-JR HS East

Batch: 481916

Sampled: 12/21/2023
Received: 1/15/2024
Analysis Date: 1/15/2024
Report Date: 1/15/2024

AEML Test: A001 Spore Trap Analysis

Sample ID:	481916-09	481916-10
Client Sample ID:	JRE 9	JRE 10
Volume Sampled (L):	75	75
Media:	Impaction Slide	Impaction Slide
Percent of Trace Analyzed:	100% at 600X Magnification	100% at 600X Magnification

Spore Types	Raw Count	Count/m³	%	Raw Count	Count/m³	%
Alternaria	—	—	—	—	—	—
Arthrinium	—	—	—	—	—	—
Ascospores	—	—	—	—	—	—
Aspergillus/Penicillium-Like	—	—	—	3	40	15
Basidiospores	—	—	—	6	80	30
Bipolaris/Dreschlera	—	—	—	—	—	—
Botrytis	—	—	—	—	—	—
Chaetomium	—	—	—	—	—	—
Cladosporium	1	13	50	11	147	55
Curvularia	—	—	—	—	—	—
Epicoccum	—	—	—	—	—	—
Fusarium	—	—	—	—	—	—
Ganoderma	—	—	—	—	—	—
Memnoniella	—	—	—	—	—	—
Nigrospora	—	—	—	—	—	—
Oidium/Peronospora	—	—	—	—	—	—
Pithomyces	—	—	—	—	—	—
Rust	—	—	—	—	—	—
Smut/Myxomyces/Periconia	1	13	50	—	—	—
Stachybotrys	—	—	—	—	—	—
Torula	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—
Total Spores	**2**	**27**		**20**	**267**	
Hyphal Fragments	—	—		—	—	
Pollen	—	—		—	—	
Debris Rating	3			3		
Detection Limit	13			13		

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AEML Test: A001 Spore Trap Analysis

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Project: Boyertown SD-North Hamont/Frederick

Batch: 481925

Sampled: 12/21/2023
Received: 1/15/2024
Analysis Date: 1/15/2024
Report Date: 1/15/2024

Sample ID:	481925-01	481925-02	481925-03	481925-04
Client Sample ID:	HAN 1	HAN 2	HAN 3	HAN 4
Volume Sampled (L):	75	75	75	75
Media:	Impaction Slide	Impaction Slide	Impaction Slide	Impaction Slide
Percent of Trace Analyzed:	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification

Spore Types	Raw Count	Count/m³	%	Raw Count	Count/m³	%	Raw Count	Count/m³	%	Raw Count	Count/m³	%
Alternaria	—	—	—	—	—	—	—	—	—	—	—	—
Arthrinium	—	—	—	—	—	—	—	—	—	—	—	—
Ascospores	1	13	11	—	—	—	2	27	7	—	—	—
Aspergillus/Penicillium-Like	2	27	22	1	13	50	18	240	62	5	67	71
Basidiospores	2	27	22	1	13	50	3	40	10	1	13	14
Bipolaris/Dreschlera	—	—	—	—	—	—	—	—	—	—	—	—
Botrytis	—	—	—	—	—	—	—	—	—	—	—	—
Chaetomium	—	—	—	—	—	—	—	—	—	—	—	—
Cladosporium	4	53	44	—	—	—	5	67	17	—	—	—
Curvularia	—	—	—	—	—	—	—	—	—	—	—	—
Epicoccum	—	—	—	—	—	—	1	13	3	1	13	14
Fusarium	—	—	—	—	—	—	—	—	—	—	—	—
Ganoderma	—	—	—	—	—	—	—	—	—	—	—	—
Memnoniella	—	—	—	—	—	—	—	—	—	—	—	—
Nigrospora	—	—	—	—	—	—	—	—	—	—	—	—
Oidium/Peronospora	—	—	—	—	—	—	—	—	—	—	—	—
Pithomyces	—	—	—	—	—	—	—	—	—	—	—	—
Rust	—	—	—	—	—	—	—	—	—	—	—	—
Smut/Myxomyces/Periconia	—	—	—	—	—	—	—	—	—	—	—	—
Stachybotrys	—	—	—	—	—	—	—	—	—	—	—	—
Torula	—	—	—	—	—	—	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—	—	—	—	—	—	—
Total Spores	**9**	**120**		**2**	**27**		**29**	**387**		**7**	**93**	
Hyphal Fragments	—	—		—	—		1	13		—	—	
Pollen	—	—		—	—		—	—		—	—	
Debris Rating	3			3			3			3		
Detection Limit	13			13			13			13		

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Project: Boyertown SD-North Hamont/Frederick

Batch: 481925

Sampled: 12/21/2023
Received: 1/15/2024
Analysis Date: 1/15/2024
Report Date: 1/15/2024

AEML Test: A001 Spore Trap Analysis

Sample ID:	481925-05
Client Sample ID:	HAN 5
Volume Sampled (L):	75
Media:	Impaction Slide
Percent of Trace Analyzed:	100% at 600X Magnification

Spore Types	Raw Count	Count/m³	%
Alternaria	—	—	—
Arthrinium	—	—	—
Ascospores	—	—	—
Aspergillus/Penicillium-Like	7	93	21
Basidiospores	15	200	44
Bipolaris/Dreschlera	—	—	—
Botrytis	—	—	—
Chaetomium	—	—	—
Cladosporium	11	147	32
Curvularia	—	—	—
Epicoccum	1	13	3
Fusarium	—	—	—
Ganoderma	—	—	—
Memnoniella	—	—	—
Nigrospora	—	—	—
Oidium/Peronospora	—	—	—
Pithomyces	—	—	—
Rust	—	—	—
Smut/Myxomyces/Periconia	—	—	—
Stachybotrys	—	—	—
Torula	—	—	—
Ulocladium	—	—	—
Unidentified Spores	—	—	—
Total Spores	**34**	**453**	
Hyphal Fragments	—	—	
Pollen	—	—	
Debris Rating	3		
Detection Limit	13		

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Laboratory Technical Manager

ACCREDITED TESTING CERT 92672.01

IMS Laboratory

Interpreting Laboratory Results

The following can be used to better understand the laboratory results:

Viable Air Samples:	
Low	< 100 CFU/m^3
Low Moderate	100 – 250 CFU/m^3
Moderate	250 – 1000 CFU/m^3
High	> 1000 CFU/m^3
TNTC	Too Numerous To Count

Viable Topical Samples:	
Low	≤ 5 CFU/square inch
Low Moderate	= 6-25 CFU/square inch
Moderate	= 26-100 CFU/square inch
High	> 100 CFU/square inch
TNTC	Too Numerous To Count

Non-Viable Air Samples:	
Low	≤ 2000 Total Fungal Count/m^3
Low Moderate	2000-5000 Total Fungal Count/m^3
Moderate	5001-10,000 Total Fungal Count/m^3
High	> 10,000 Total Fungal Count/m^3
TNTC	Too Numerous To Count

Non-Viable Topical Samples:	
Low	1+
Moderate	2+ or 3+
High	4+ or 5+

There are currently no standards or guidelines regarding results of fungal samples. There are no levels, which are typical or permissible. There are no recommended exposure limits, no permissible exposure limits, no threshold limit values and no short term exposure limits.

The above guidelines are based on historical analysis and experience and should not be used for health evaluation purposes.

Many fungi (e.g. species of *Aspergillus sp*, *Penicillium sp*, *Fusarium sp*, *Trichoderma sp*, and *Memnoniella sp*) in addition to Stachybotrys can produce potent mycotoxins. Mycotoxins are fungal metabolites that have been identified as toxic agents. Even low levels of these species should be remediated. For example, the original New York City Department of Health Bureau of Environmental & Occupational Disease Epidemiology *Guidelines on Assessment and Remediation of Fungi in Indoor Environments* recommended remediation if 1 CFU/m^3 of Stachybotrys is found in the indoor air. If 1000 CFU/m^3 of Stachybotrys is found in the indoor air, the guidelines recommended immediate evacuation.

Recommendations

Based on the visual site inspections, the test areas were clean, dry and very well-maintained. The test results are indicative of good Indoor Air Quality (IAQ) throughout each building. The Facilities Staff may wish implement the following procedures to help maintain good air quality and further enhance occupant comfort.

Building Maintenance

1. The Facilities Staff should immediately replace any water-stained, porous materials they identify throughout each building. It is difficult to thoroughly clean water-stained, porous building materials such as ceiling tiles and carpeting. These materials provide a good site for microbial growth. The key to proper building maintenance is not to allow a condition (temperature, relative humidity, water leakage, etc.) to reach a point that is favorable for microbial growth and amplification.

2. The following carpeting maintenance should be implemented throughout each building:

    - Clean spills promptly.
    - Vacuum regularly, concentrating on areas of high traffic.
    - Use a well-maintained vacuum cleaner with a rotating brush, beater/brush bar, or strong suction for the best overall cleaning.
    - Use a vacuum cleaner bag with a HEPA filter to remove fine particulates.
    - Change or empty the bag regularly and replace belt when worn.
    - Use walk-off mats at entrances to absorb soil and moisture.
    - Have the carpets professionally cleaned every 12-18 months, and ventilate the area with fresh air during and for 24 hours after cleaning.

Mold Prevention Tips

- Fix leaky plumbing and leaks in the building envelope as soon as possible.
- Watch for condensation and wet spots. Fix source(s) of moisture problem(s) as soon as possible.
- Prevent moisture due to condensation by increasing surface temperature or reducing the moisture level in air (humidity). To increase surface temperature, insulate or increase air circulation. To reduce the moisture level in air, repair leaks, increase ventilation (if outside air is cold and dry), or dehumidify (if outdoor air is warm and humid).
- Keep HVAC drip pans clean, flowing properly and unobstructed.
- Vent moisture-generating appliances.
- Maintain low relative humidity (RH), below 60% RH, ideally 40 – 55%, if possible.
- Perform regular building HVAC inspections and maintenance as scheduled.
- Clean and dry all wet or damp spots within 48 hours.
- Do not let foundations stay wet. Provide drainage and slope the ground away from the foundation.

General

1. The Facilities Staff should continue to implement an aggressive AHU maintenance program, which includes periodic tasks such as coil cleaning, visual ventilation system evaluations and mechanical adjustments. All AHU-related maintenance should be documented in a logbook and kept for future reference. A maintenance logbook, which documents all AHU-related activities, will be a valuable asset when addressing future IAQ concerns and/or inquiries.

Indoor Air Quality Testing Limitations

The visual observations and sampling results documented in this report were representative of the on-site conditions at the time of these investigations. IAQ is affected by occupancy, change in building use, maintenance practices, indoor and outdoor temperature and relative humidity, water infiltration, and many other factors. EnviraHealth Corporation does not guarantee, warranty or certify that the conditions represented in these investigations will not change significantly over time.

This report is not intended to provide medical or healthcare advice. All allergy or health related questions, including concerns relating to potential mold exposure should be directed to a qualified physician.

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Regards,

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