



December 10, 2018

Mr. Tom Golden
Centennial School District
48 Swan Way
Warminster, Pennsylvania 18974

RE: Microbial Clearance Inspection
Log College Middle School
Music Classroom Areas
730 North Norristown Road
Warminster, Pennsylvania 18974
Hillmann Project Number: PH-0548

Dear Mr. Golden:

Thank you for retaining Hillmann Consulting, LLC (Hillmann) to address your environmental concerns. On October 15, 18, 30 and November 8 and 19, 2018, Mr. John Murphy of Hillmann Consulting conducted Microbial Clearance Inspections at the above-referenced property in response to the completion of additional microbial remediation activities. The parameters for the investigations included a visual inspection, moisture mapping survey, and collection of airborne fungal spore samples.

Hillmann selected the sampling parameters based on consultations with the client (Log College Middle School), the laboratory performing the analysis, and our in-house experts. The inspections were a general screening to assess if the remediation activities were sufficient to address microbial contamination present in the subject space.

Airborne fungal spores were collected by drawing air through an Air-O-Cell® cassette utilizing a Zefon BioPump. Samples were collected for a time period of five (5) minutes at a calibrated flow rate of 15 L/min yielding a total sample volume of 75 liters. These cassettes were then sent to an AIHA EMLAP accredited laboratory where fungal spores were identified by genera and concentration. Fungal spores are present in normal indoor settings. If found in excess amounts, these spores can produce allergy-like symptoms as well as asthmatic reactions in those who are sensitive to them. If the indoor samples are found to have a greater diversity of genera, and/or higher amounts of fungal spores than outdoor samples, it can be determined that the subject space may be facilitating microbial growth.

Relative surface moisture content was measured using a direct read Survey Master Protimeter® moisture meter. The moisture detector operates in two distinct modes: Search Mode (REL) and Measure Mode - Pin (WME). In the search mode it measures the relative moisture level up to 3/4" beneath the surface of a building material in a range of 70 to 999 (REL). In the measure mode the unit uses electrical conductance principles to measure the moisture level of the material between the two electrodes and displays the reading in percent Wood Moisture Equivalent (%WME) ranging 7.9% to 99%. Measure mode readings are precise and specific to the area of contact between the electrode tips. In typical building materials encountered, elevated moisture content exists when readings of 170 - 200 REL or 17.0% - 20% WME are exceeded, or if moisture readings differ by more than 10% from background readings of un-impacted associated building materials.

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OBSERVATIONS AND FINDINGS

October 15, 2018

At the time of the inspection no visible microbial growth was observed. Hillmann did not observe any musty/mold type odors in the work area at the time of the investigation. No elevated moisture content (>17% WME) was observed in the classroom work areas on accessible surfaces. The work area was observed to be under containment and air filtration devices (AFDs) were operating at the time of the clearance investigation. Various contents remained within the classrooms such as chairs, instruments, books, and other miscellaneous contents.

An airborne fungal spore sample was collected from Music Classroom 1, Music Classroom 2, and the center office; total indoor fungal spore concentrations and individual fungal genera were elevated when compared to the outdoor reference levels. The elevated concentrations were most likely attributed to residual spores from the remediation activities and an insufficient air scrubbing/filtration duration. Based on the laboratory results, Hillmann recommended the work area be re-cleaned and to have AFDs utilized during the cleaning and for a minimum period of 48 hours following completion of all cleaning activities.

October 18, 2018

At the time of the inspection no visible microbial growth was observed. Hillmann did not observe any musty/mold type odors in the work area at the time of the investigation. No elevated moisture content (>17% WME) was observed in the classroom work areas on accessible surfaces. The work area was observed to be under containment and AFDs were operating at the time of the clearance investigation. Various contents remained within the classrooms such as chairs, instruments, books, and other miscellaneous contents.

An airborne fungal spore sample was collected from Music Classroom 1, Music Classroom 2, and the center office; total indoor fungal spore concentrations and individual fungal genera remained elevated when compared to the outdoor reference levels. The elevated concentrations were most likely attributed to residual spores from the remediation activities and an insufficient air scrubbing/filtration duration. Based on the laboratory results, Hillmann recommended the work area be re-cleaned, ceiling tiles and carpet to be removed, and to have AFDs utilized during the cleaning and for a minimum period of 48 hours following completion of all cleaning activities.

Beneath the existing carpet was asbestos containing floor tiles. The abatement and oversight work are discussed within the asbestos abatement report provided under separate cover.

October 30, 2018

At the time of the inspection visible microbial growth was observed on the pipe insulation within the plenum above the subject space. The ceiling tiles and carpet were observed to be removed. Hillmann did not observe any musty/mold type odors in the work area at the time of the investigation. No elevated moisture content (>17% WME) was observed in the classroom work areas on accessible surfaces. The work area was observed to be under containment and AFDs were operating at the time of the clearance investigation.

An airborne fungal spore sample was collected from Music Classroom 1, Music Classroom 2, and the center office; total indoor fungal spore concentrations and individual fungal genera continued to be elevated when compared to the outdoor reference levels. The elevated concentrations were most likely attributed to the suspect microbial growth on the pipe insulation. Based on the laboratory results, Hillmann recommended the mold-impacted pipe insulation to be removed and properly abated by a licensed asbestos abatement contractor, as well as the work area be re-cleaned and to have AFDs utilized during the cleaning and for a minimum period of 48 hours following completion of all cleaning activities.

The asbestos abatement work is discussed within the asbestos abatement report provided under separate cover.

November 8, 2018

At the time of the inspection no visible microbial growth was observed. Hillmann did not observe any musty/mold type odors in the work area at the time of the investigation. No elevated moisture content (>17% WME) was observed in the classroom work areas on accessible surfaces. The work area was observed to be under containment and AFDs were operating at the time of the clearance investigation. Various contents remained within the classrooms such as scaffolding, ladders, cove base, and other suspiciously contaminated contents.

An airborne fungal spore sample was collected from Music Classroom 1, Music Classroom 2, and the center office; total indoor fungal spore concentrations and individual fungal genera were again elevated when compared to the outdoor reference levels. The elevated concentrations were most likely attributed to residual spores from the remediation activities, contaminated scaffolding, ladders, and cove base within the work area, and an insufficient air scrubbing/filtration duration. Based on the laboratory results, Hillmann recommended the work area be re-cleaned, all outside contractor equipment is removed, and to have AFDs utilized during the cleaning and for a minimum period of 48 hours following completion of all cleaning activities.

November 19, 2018

It was reported that the work areas were re-cleaned. At the time of the inspection no visible microbial growth was observed. Hillmann did not observe a musty/mold type odor in the work area at the time of the investigation. No elevated moisture content (>17% WME) was observed in the classroom or center office work areas on accessible surfaces. The work area was observed to be under containment and air filtration devices (AFDs) were operating at the time of the clearance investigation. Three airborne fungal spore samples were collected from the work areas; total indoor fungal spore concentrations and individual fungal genera were comparable to the outdoor reference levels.

CONCLUSIONS


Airborne fungal spores were collected to verify adequate cleaning of the work area, unless conditions exist that would inhibit the logical interpretation of the data. In the absence of health-based federal standards, Hillmann has adopted industry standard practice and recommended practices by the American Conference of Governmental Industrial Hygienists (ACGIH) to compare indoor/outdoor fungal concentrations. Samples are deemed “comparable” or “acceptable” when one or more of the following criteria are met:

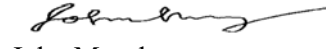
- Overall indoor/outdoor fungal genera identified are similar on the day of sampling. Raw spore counts less than ten (10) do not represent a statistically significant number. Therefore, the presence of one (1) spore of certain indicator genera (i.e. *Stachybotrys*) will not be grounds for failure.
- Common outdoor genera identified indoors are similar to or less than outdoor concentrations.
- Common water intrusion indicator genera including but not limited to: *Penicillium/Aspergillus* group, *Chaetomium*, etc. are similar to outdoor concentrations and/or within one order of magnitude (10 times difference). Exceptions will be made depending on conditions, fungal genera identified, and outlying factors.

Based upon the visual inspection and confirmatory laboratory results, Music Classroom 1, Music Classroom 2, and the center office work areas have been successfully remediated and are suitable for reoccupancy.

If you have any questions, or need additional information, please feel free to contact our office at (856) 581-9055.

HILLMANN CONSULTING, LLC


Rafael L. Torres, III
Director of Operations
cc: PH-0548
Enclosures: Laboratory Results


John Murphy
Industrial Hygienist



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EMSL Order: 181803263
Customer ID: HILL50
Customer PO: PH-0548
Project ID:

Attn: John Murphy Hillmann Consulting, LLC 1600 Route 22 East Union, NJ 07083	Phone: (908) 268-3419 Fax: Collected: 10/15/2018 Received: 10/16/2018 Analyzed: 10/16/2018
Project: PH-0548 - Log College Middle School - Music Classrooms	

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

Lab Sample Number: Client Sample ID: Volume (L): Sample Location	181803263-0001 JM01 75 Music Room 1			181803263-0002 JM02 75 Middle Office			181803263-0003 JM03 75 Music Room 2			
	Spore Types	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-	-
Ascospores	22	930	9.1	8	300	9.1	11	460	18.6	
Aspergillus/Penicillium	125	5280	51.4	36	1500	45.5	18	760	30.8	
Basidiospores	37	1600	15.6	10	420	12.7	13	550	22.3	
Bipolaris++	-	-	-	-	-	-	-	-	-	
Chaetomium	-	-	-	-	-	-	-	-	-	
Cladosporium	40	1700	16.6	16	680	20.6	8	300	12.1	
Curvularia	-	-	-	-	-	-	-	-	-	
Epicoccum	-	-	-	-	-	-	-	-	-	
Fusarium	-	-	-	-	-	-	-	-	-	
Ganoderma	-	-	-	-	-	-	-	-	-	
Myxomycetes++	11	460	4.5	5	200	6.1	7	300	12.1	
Pithomyces++	6	300	2.9	-	-	-	-	-	-	
Rust	-	-	-	4	200	6.1	-	-	-	
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-	
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-	
Unidentifiable Spores	-	-	-	-	-	-	-	-	-	
Zygomycetes	-	-	-	-	-	-	-	-	-	
Nigrospora	-	-	-	-	-	-	-	-	-	
Polythrincium	-	-	-	-	-	-	3	100	4	
Total Fungi	241	10270	100	79	3300	100	60	2470	100	
Hyphal Fragment	-	-	-	-	-	-	-	-	-	
Insect Fragment	-	-	-	-	-	-	-	-	-	
Pollen	-	-	-	-	-	-	-	-	-	
Analyt. Sensitivity 600x	-	42	-	-	42	-	-	42	-	
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-	
Skin Fragments (1-4)	-	1	-	-	1	-	-	1	-	
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.


 Michael Thoma, Laboratory Manager
 or other approved signatory

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

High levels of background particulate can obscure spores and other particulates leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. Present = Spores detected on overloaded samples. Results are not blank corrected unless otherwise noted. The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment. *** Denotes particles found at 300X. "-" Denotes not detected. Due to method stopping rules, raw counts in excess of 100 are extrapolated based on the percentage analyzed. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Plymouth Meeting, PA A2LA Accredited Environmental Testing Cert #2845.05

Initial report from: 10/16/2018 10:31:52

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



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EMSL Order: 181803263
Customer ID: HILL50
Customer PO: PH-0548
Project ID:

Attn: John Murphy Hillmann Consulting, LLC 1600 Route 22 East Union, NJ 07083	Phone: (908) 268-3419 Fax: Collected: 10/15/2018 Received: 10/16/2018 Analyzed: 10/16/2018
Project: PH-0548 - Log College Middle School - Music Classrooms	

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

Lab Sample Number: Client Sample ID: Volume (L): Sample Location	181803263-0004			181803263-0005					
	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total			
JM04 75 Outside				JM05 75 Outside					
Spore Types	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total			
Alternaria (Ulocladium)	4	200	0.6	3	100	0.3			
Ascospores	338	14300	45.9	304	12800	42.9			
Aspergillus/Penicillium	2	80	0.3	11	460	1.5			
Basidiospores	367	15500	49.8	351	14800	49.6			
Bipolaris++	-	-	-	-	-	-			
Chaetomium	-	-	-	-	-	-			
Cladosporium	11	460	1.5	30	1300	4.4			
Curvularia	-	-	-	-	-	-			
Epicoccum	-	-	-	-	-	-			
Fusarium	-	-	-	-	-	-			
Ganoderma	-	-	-	-	-	-			
Myxomycetes++	10	420	1.3	7	300	1			
Pithomyces++	3	100	0.3	3	100	0.3			
Rust	-	-	-	-	-	-			
Scopulariopsis/Microascus	-	-	-	-	-	-			
Stachybotrys/Memnoniella	-	-	-	-	-	-			
Unidentifiable Spores	-	-	-	-	-	-			
Zygomycetes	-	-	-	-	-	-			
Nigrospora	2	80	0.3	-	-	-			
Polythrincium	-	-	-	-	-	-			
Total Fungi	737	31140	100	709	29860	100			
Hyphal Fragment	-	-	-	-	-	-			
Insect Fragment	-	-	-	-	-	-			
Pollen	-	-	-	-	-	-			
Analyt. Sensitivity 600x	-	42	-	-	42	-			
Analyt. Sensitivity 300x	-	13*	-	-	13*	-			
Skin Fragments (1-4)	-	1	-	-	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.



Michael Thoma, Laboratory Manager
or other approved signatory

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EMSL Order: 371819055
Customer ID: HILL50
Customer PO: HILL-50E
Project ID:

Attn: John Emmi
Hillmann Consulting, LLC
1600 Route 22 East
Union, NJ 07083

Phone: (908) 688-7800
Fax:
Collected: 10/18/2018
Received: 10/19/2018
Analyzed: 10/19/2018

Project: Centennial School District / John Log College Middle School / PH0548

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

Lab Sample Number:	371819055-0001			371819055-0002			371819055-0003		
Client Sample ID:	01			02			03		
Volume (L):	75			75			75		
Sample Location	Music Room #1- Midpoint			Middle Office Between Music Rooms			Music Room #2 - Midpoint		
Spore Types	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	1	40	2.6	1	40	3.6
Aspergillus/Penicillium	68	3000	84.7	22	970	64.2	14	620	55.9
Basidiospores	9	400	11.3	8	400	26.5	9	400	36
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	3	100	2.8	2	90	6	3*	40*	3.6
Pithomyces++	-	-	-	1*	10*	0.7	1*	10*	0.9
Rust	1	40	1.1	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Paecilomyces-like	-	-	-	-	-	-	-	-	-
Pestalotia/Pestalotiopsis	-	-	-	-	-	-	-	-	-
Torula-like	-	-	-	-	-	-	-	-	-
Total Fungi	81	3540	100	34	1510	100	28	1110	100
Hyphal Fragment	-	-	-	1*	10*	-	1	40	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	2	-	-	2	-	-	2	-

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.

Vincent Iuzzolino, M.S., Laboratory Manager
or other approved signatory

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

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Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ AIHA-LAP, LLC--EMLAP Lab 100194

Initial report from: 10/19/2018 10:21:09

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



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<http://www.EMSL.com> / cinmicrolab@emsl.com

EMSL Order: 371819055
Customer ID: HILL50
Customer PO: HILL-50E
Project ID:

Attn: John Emmi
Hillmann Consulting, LLC
1600 Route 22 East
Union, NJ 07083

Phone: (908) 688-7800
Fax:
Collected: 10/18/2018
Received: 10/19/2018
Analyzed: 10/19/2018

Project: Centennial School District / John Log College Middle School / PH0548

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

Lab Sample Number:	371819055-0004			371819055-0005			371819055-0006		
Client Sample ID:	04			05			06		
Volume (L):	75			75			75		
Sample Location	Outside Room 29 - Alcove Area			Outdoor Sample - Field by Loading			Outdoor Sample - Front of School		
Spore Types	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	5	200	4.9	4	200	4.4
Aspergillus/Penicillium	3	100	43.5	17	750	18.5	20	880	19.4
Basidiospores	1	40	17.4	63	2800	69.1	65	2900	63.9
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	2	90	39.1	5	200	4.9	3	100	2.2
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	1*	10*	0.2	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	1	40	1	-	-	-
Myxomycetes++	-	-	-	1*	10*	0.2	6	300	6.6
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	2*	30*	0.7
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Paecilomyces-like	-	-	-	-	-	-	2	90	2
Pestalotia/Pestalotiopsis	-	-	-	1	40	1	-	-	-
Torula-like	-	-	-	-	-	-	1	40	0.9
Total Fungi	6	230	100	94	4050	100	103	4540	100
Hyphal Fragment	1	40	-	3	100	-	2	90	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	1*	10*	-	1*	10*	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	2	-	-	1	-	-	1	-
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.

Vincent Iuzzolino, M.S., Laboratory Manager
or other approved signatory

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Initial report from: 10/19/2018 10:21:09

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EMSL Order: 181803496

Customer ID: HILL50

Customer PO: PH-0548

Project ID:

Attn: John Murphy
Hillmann Consulting, LLC
1600 Route 22 East
Union, NJ 07083

Phone: (908) 268-3419

Fax:

Collected: 10/30/2018

Received: 10/31/2018

Analyzed: 11/01/2018

Project: PH-0548 - Log College Middle School

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

Lab Sample Number:	181803496-0001			181803496-0002			181803496-0003		
Client Sample ID:	JM01			JM02			JM03		
Volume (L):	75			75			75		
Sample Location	Music Room			Center Office			Outside		
Spore Types	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	10	420	12.3	8	300	12.5	35	1500	39
Aspergillus/Penicillium	26	1100	32.3	20	840	35	10	420	10.9
Basidiospores	14	590	17.3	11	460	19.2	30	1300	33.8
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	31	1300	38.1	19	800	33.3	15	630	16.4
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Total Fungi	81	3410	100	58	2400	100	90	3850	100
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	42	-	-	42	-	-	42	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	1	-	-	1	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	4	-	-	2	-	-	1	-

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.

Michael Thoma, Laboratory Manager
or other approved signatory

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

High levels of background particulate can obscure spores and other particulates leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. Present = Spores detected on overloaded samples. Results are not blank corrected unless otherwise noted. The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment. *** Denotes particles found at 300X. "-" Denotes not detected. Due to method stopping rules, raw counts in excess of 100 are extrapolated based on the percentage analyzed. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Plymouth Meeting, PA A2LA Accredited Environmental Testing Cert #2845.05

Initial report from: 11/01/2018 10:13:22

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



EMSL Analytical, Inc.

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EMSL Order: 181803496

Customer ID: HILL50

Customer PO: PH-0548

Project ID:

Attn: John Murphy
Hillmann Consulting, LLC
1600 Route 22 East
Union, NJ 07083

Phone: (908) 268-3419

Fax:

Collected: 10/30/2018

Received: 10/31/2018

Analyzed: 11/01/2018

Project: PH-0548 - Log College Middle School

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

Lab Sample Number:	181803496-0004		
Client Sample ID:	JM04		
Volume (L):	75		
Sample Location	Outside		
Spore Types	Raw Count	Count/m³	% of Total
Alternaria (Ulocladium)	2	80	1.9
Ascospores	40	1700	40.7
Aspergillus/Penicillium	9	400	9.6
Basidiospores	28	1200	28.7
Bipolaris++	-	-	-
Chaetomium	-	-	-
Cladosporium	19	800	19.1
Curvularia	-	-	-
Epicoccum	-	-	-
Fusarium	-	-	-
Ganoderma	-	-	-
Myxomycetes++	-	-	-
Pithomyces++	-	-	-
Rust	-	-	-
Scopulariopsis/Microascus	-	-	-
Stachybotrys/Memnoniella	-	-	-
Unidentifiable Spores	-	-	-
Zygomycetes	-	-	-
Total Fungi	98	4180	100
Hyphal Fragment	-	-	-
Insect Fragment	-	-	-
Pollen	-	-	-
Analyt. Sensitivity 600x	-	42	-
Analyt. Sensitivity 300x	-	13*	-
Skin Fragments (1-4)	-	1	-
Fibrous Particulate (1-4)	-	1	-
Background (1-5)	-	1	-

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.

Michael Thoma, Laboratory Manager
or other approved signatory

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

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Samples analyzed by EMSL Analytical, Inc. Plymouth Meeting, PA A2LA Accredited Environmental Testing Cert #2845.05

Initial report from: 11/01/2018 10:13:22

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EMSL Order: 181803607
Customer ID: HILL50
Customer PO: PH-0548
Project ID:

Attn: John Murphy Hillmann Consulting, LLC 1600 Route 22 East Union, NJ 07083	Phone: (908) 268-3419 Fax: Collected: 11/08/2018 Received: 11/09/2018 Analyzed: 11/09/2018
Project: PH-0548 - Log College Middle School	

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

Lab Sample Number: Client Sample ID: Volume (L): Sample Location	181803607-0001 JM01 75 Band Room			181803607-0002 JM02 75 Center Office			181803607-0003 JM03 75 Music Room		
	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total
Spore Types									
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	11	460	15.5	8	300	10.7	12	510	17.7
Aspergillus/Penicillium	32	1400	47.3	25	1100	39.3	22	930	32.3
Basidiospores	6	300	10.1	9	400	14.3	5	200	6.9
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	19	800	27	24	1000	35.7	29	1200	41.7
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	1	40	1.4
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Total Fungi	68	2960	100	66	2800	100	69	2880	100
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	42	-	-	42	-	-	42	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	1	-	-	1	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	2	-	-	2	-	-	2	-

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.



Michael Thoma, Laboratory Manager
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. Plymouth Meeting, PA A2LA Accredited Environmental Testing Cert #2845.05

Initial report from: 11/09/2018 14:51:22

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EMSL Order: 181803607

Customer ID: HILL50

Customer PO: PH-0548

Project ID:

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1600 Route 22 East
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Phone: (908) 268-3419

Fax:

Collected: 11/08/2018

Received: 11/09/2018

Analyzed: 11/09/2018

Project: PH-0548 - Log College Middle School

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

Lab Sample Number: Client Sample ID: Volume (L): Sample Location	181803607-0004			181803607-0005					
	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total			
JM04				JM05					
75				75					
Outside				Outside					
Spore Types	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total			
Alternaria (Ulocladium)	-	-	-	-	-	-			
Ascospores	36	1500	44.1	38	1600	38.1			
Aspergillus/Penicillium	7	300	8.8	11	460	11			
Basidiospores	29	1200	35.3	31	1300	31			
Bipolaris++	-	-	-	-	-	-			
Chaetomium	-	-	-	-	-	-			
Cladosporium	9	400	11.8	20	840	20			
Curvularia	-	-	-	-	-	-			
Epicoccum	-	-	-	-	-	-			
Fusarium	-	-	-	-	-	-			
Ganoderma	-	-	-	-	-	-			
Myxomycetes++	-	-	-	-	-	-			
Pithomyces++	-	-	-	-	-	-			
Rust	-	-	-	-	-	-			
Scopulariopsis/Microascus	-	-	-	-	-	-			
Stachybotrys/Memnoniella	-	-	-	-	-	-			
Unidentifiable Spores	-	-	-	-	-	-			
Zygomycetes	-	-	-	-	-	-			
Total Fungi	81	3400	100	100	4200	100			
Hypal Fragment	-	-	-	-	-	-			
Insect Fragment	-	-	-	-	-	-			
Pollen	-	-	-	-	-	-			
Analyt. Sensitivity 600x	-	42	-	-	42	-			
Analyt. Sensitivity 300x	-	13*	-	-	13*	-			
Skin Fragments (1-4)	-	1	-	-	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.

Michael Thoma, Laboratory Manager
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EMSL Order: 181803705
Customer ID: HILL50
Customer PO: PH-0548
Project ID:

Attn: John Murphy Hillmann Consulting, LLC 1600 Route 22 East Union, NJ 07083	Phone: (908) 268-3419 Fax: Collected: 11/19/2018 Received: 11/19/2018 Analyzed: 11/20/2018
Project: PH-0548 - Log College Middle School	

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

Lab Sample Number: Client Sample ID: Volume (L): Sample Location	181803705-0001 JM01 75 Music Room 2			181803705-0002 JM02 75 Center Office			181803705-0003 JM03 75 Music Room 1			
	Spore Types	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-	-
Ascospores	4	200	12.9	10	420	18.2	3	100	8.4	
Aspergillus/Penicillium	13	550	35.5	18	760	32.9	13	550	46.2	
Basidiospores	2	80	5.2	5	200	8.7	2	80	6.7	
Bipolaris++	-	-	-	-	-	-	-	-	-	
Chaetomium	-	-	-	-	-	-	-	-	-	
Cladosporium	17	720	46.5	22	930	40.3	11	460	38.7	
Curvularia	-	-	-	-	-	-	-	-	-	
Epicoccum	-	-	-	-	-	-	-	-	-	
Fusarium	-	-	-	-	-	-	-	-	-	
Ganoderma	-	-	-	-	-	-	-	-	-	
Myxomycetes++	-	-	-	-	-	-	-	-	-	
Pithomyces++	-	-	-	-	-	-	-	-	-	
Rust	-	-	-	-	-	-	-	-	-	
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-	
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-	
Unidentifiable Spores	-	-	-	-	-	-	-	-	-	
Zygomycetes	-	-	-	-	-	-	-	-	-	
Total Fungi	36	1550	100	55	2310	100	29	1190	100	
Hyphal Fragment	-	-	-	-	-	-	-	-	-	
Insect Fragment	-	-	-	-	-	-	-	-	-	
Pollen	-	-	-	-	-	-	-	-	-	
Analyt. Sensitivity 600x	-	42	-	-	42	-	-	42	-	
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-	
Skin Fragments (1-4)	-	1	-	-	1	-	-	1	-	
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.


 Michael Thoma, Laboratory Manager
 or other approved signatory

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Initial report from: 11/20/2018 10:35:21

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Project ID:

Attn: John Murphy
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Phone: (908) 268-3419

Fax:

Collected: 11/19/2018

Received: 11/19/2018

Analyzed: 11/20/2018

Project: PH-0548 - Log College Middle School

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

Lab Sample Number: Client Sample ID: Volume (L): Sample Location	181803705-0004			181803705-0005					
	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total			
JM04				JM05					
75				75					
Outside				Outside					
Spore Types	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total			
Alternaria (Ulocladium)	-	-	-	-	-	-			
Ascospores	24	1000	50.5	18	760	42.9			
Aspergillus/Penicillium	-	-	-	2	80	4.5			
Basidiospores	16	680	34.3	15	630	35.6			
Bipolaris++	-	-	-	-	-	-			
Chaetomium	-	-	-	-	-	-			
Cladosporium	7	300	15.2	8	300	16.9			
Curvularia	-	-	-	-	-	-			
Epicoccum	-	-	-	-	-	-			
Fusarium	-	-	-	-	-	-			
Ganoderma	-	-	-	-	-	-			
Myxomycetes++	-	-	-	-	-	-			
Pithomyces++	-	-	-	-	-	-			
Rust	-	-	-	-	-	-			
Scopulariopsis/Microascus	-	-	-	-	-	-			
Stachybotrys/Memnoniella	-	-	-	-	-	-			
Unidentifiable Spores	-	-	-	-	-	-			
Zygomycetes	-	-	-	-	-	-			
Total Fungi	47	1980	100	43	1770	100			
Hyphal Fragment	-	-	-	-	-	-			
Insect Fragment	-	-	-	-	-	-			
Pollen	-	-	-	-	-	-			
Analyt. Sensitivity 600x	-	42	-	-	42	-			
Analyt. Sensitivity 300x	-	13*	-	-	13*	-			
Skin Fragments (1-4)	-	1	-	-	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.

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