

Microbial
Air
Fungal Spore
Counts/Identification

Site
Flocktown School

Client
Washington Township School District

Date of Sampling
October 11, 2018

Report Date
October 19, 2018

Prepared by

AERO Environmental Services Inc.

275 Route 10 East, Suite 220-306
Succasunna, NJ 07876
973-920-9061 (Tel)
973-529-0335(Fax)

AERO ENVIRONMENTAL SERVICES, INC.

CLIENT: Ms. Elizabeth George
Business Administrator
Washington Township School District
53 West Mill Road
Long Valley, New Jersey 07853

REPORT DATE: October 19, 2018

SERVICE: •Microbial Air Spore Counts & Identification by Direct Examination

DATE of SAMPLING: October 11, 2018

SITE: Flocktown School

SAMPLED BY: Michael S. Berta

SCOPE of WORK: Perform preliminary background fungal (mold) air sampling of classrooms selected by the School District. During sampling Mr. AJ Whitmore was present during sampling. Samples were collected during early morning prior to student arrival.

Air Samples were collected from the following locations

Library Room 3 Room 18 Outside Boiler Rm Side

DISCUSSION

Microbial Sampling The goal of microbial sampling is to help determine whether microbial particulates present in a particular environment are affecting or causing irritation in certain individuals. While we are typically surrounded by a wide variety of different microorganisms every day, sampling provides us with a method to establish in a scientific way whether the environment in question contains microorganisms than would normally be present.

Microbial spores are literally everywhere. Levels rise and fall with the season. Microbials grow and produce their spore wherever there is enough moisture, humidity and nutrients. They exist in the air we breathe, on surfaces we touch, and flourish within our schools and homes.

Currently there are no widely accepted protocols or regulations regarding microbial air sampling. In the absence of standards, we typically expect indoor spore counts not be significantly higher than outdoor spore counts, with the same general distribution of spore types present. A building with open doors and windows with heavy foot traffic may average 95 - 100% of the outdoor level. In addition dusty interiors may exceed 100% of the outdoors to some degree, but will still mirror the outdoor distribution of spore types.

The presence or absence of a few spore types in small numbers should not be considered abnormal. In addition to the normal influx of outdoor organisms into a building, additional organisms can grow within the building. This occurs when there is just the right combination of factors, including the proper temperature, humidity, nutrients and material on which the organisms can grow. Some of these conditions are inherent to the building structure while others are related to the furnishings.

Microbial Air Sampling

The samples were collected utilizing a high-volume air sampling pump, calibrated to 15 liters per minute, for duration of five (5) minutes. The sample collection with spore trap cassettes involved drawing air into 37 millimeter cassettes containing adhesive coated glass cover slips. The sample bearing covers slips were viewed under a compound microscope equipped for bright field and polarized light applications. Spore quantification was reported as total, meaning they include both viable and non-viable fungal spores per cubic meter.

SAMPLING RESULTS:

AIRBORNE TOTAL FUNGAL SPORE RESULTS

Sample ID	Location	Results Counts/m³	Type of fungal Spores Found
A-4	Outside by Boiler Room Side Grass Area	3400 100 27400 200 40 420 80 90 40 80 Total 31850	Ascospores Aspergillus/Penicilium Basidiospores Cladosporium Curvularia Ganoderma Myxomycetes Unidentifiable Spores Cercospora Pyricularia
A-1	Library	40 510 Total 550	Ascospores Basidiospores
A-2	Room 3	100 630 40 Total 770	Ascospores Basidiospores Cladosporium
A-3	Room 18	300 700 Total 1000	Ascospores Basidiospores

1. The total spore count outside in samples (A-4/31850 Counts/M³) was much higher than all sample locations inside the school building.
2. Similar spore types were found inside the building versus out the building.
3. This indicates an amplification of mold spores was not found in any of the locations tested at the time of sampling.

CONCLUSION

Based on these preliminary air sampling results, elevated levels of fungal spores were not detected in any of the rooms sampled.

The fungal air spores levels in rooms tested were all less than the outside samples for comparison. The spore types found inside the rooms were similar to the outside comparison samples.

An amplification of mold spores was not present in any of the rooms tested. No recognized mold hazards were found. No further baseline mold testing is needed.

RECOMMENDATION

The key to mold control is moisture control. It is important to dry water-damaged areas and items within 24-48 hours to prevent mold growth.

Keep room temperatures and humidity at appropriate comfort levels. The New Jersey Indoor Air Quality Standard Title 12 Department of Labor Chapter 100, Subchapter 13, Section 13.3(a)4 states buildings with HVAC systems air temperatures should be between 68 °F to 79 °F. Inadequate ventilation and/or elevated temperatures are major causes of complaints such as respiratory, eye, nose and throat irritation, lethargy and headaches.

OSHA recommends humidity control within a 20% to 60%. ASHRAE recommends humidity be maintained at 30% to 60%. Low relative humidity can result in eye irritation and complaints of nose and throat discomfort. High humidity levels (over 60%) can promote the growth of microorganisms on building surfaces and furnishings, and cause or contribute to microbial IAQ problems. Relative humidity will rise or fall based on outdoor relative humidity with windows open..

When indoor air quality complaints occur they should be investigated promptly. If solutions can not be found or problem rectified. Appropriate sampling may be recommended at that time.

If after reviewing this report you have any questions, please contact me directly at 973-920-9061.

Sincerely,



Michael S. Berta, CSP, CPEA, CMC
Environmental Safety & Health Manager

Attachments:
EMSL- Analysis Results



EMSL Analytical, Inc.

307 West 38th Street New York, NY 10018
Phone/Fax: (212) 290-0051 / (212) 290-0058
<http://www.EMSL.com> / manhattanlab@emsl.com

Order ID: 031828305
Customer ID: AERO50
Customer PO:
Project ID:

Attn: Michael Berta
AERO Environmental Services, Inc
275 Route 10 East
Suite 220-306
Succasunna, NJ 07876
Proj: FLOCKTOWN SCHOOL

Phone: (973) 920-9061
Fax: (973) 529-0335
Collected: 10/11/2018
Received: 10/12/2018
Analyzed: 10/13/2018

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

Lab Sample Number:	031828305-0001	031828305-0002	031828305-0003	031828305-0004	
Client Sample ID:	A-1	A-2	A-3	A-4	
Volume (L):	75	75	75	75	
Sample Location:	LIBRARY	RM 3	RM 18	OUTSIDE BOILER	
Spore Types	Count/m?	Count/m?	Count/m?	Count/m?	
Alternaria (Ulocladium)	-	-	-	-	
Ascospores	40	100	300	3400	
Aspergillus/Penicillium	-	-	-	100	
Basidiospores	510	630	700	27400	
Bipolaris++	-	-	-	-	
Chaetomium	-	-	-	-	
Cladosporium	-	40	-	200	
Curvularia	-	-	-	40	
Epicoccum	-	-	-	-	
Fusarium	-	-	-	-	
Ganoderma	-	-	-	420	
Myxomycetes++	-	-	-	80	
Pithomyces++	-	-	-	-	
Rust	-	-	-	-	
Scopulariopsis/Microasc	-	-	-	-	
Stachybotrys/Memnonie	-	-	-	-	
Unidentifiable Spores	-	-	-	90*	
Zygomycetes	-	-	-	-	
Cercospora++	-	-	-	40	
Pyricularia	-	-	-	80	
Total Fungi	550	770	1000	31850	
Hyphal Fragment	-	-	-	40	
Insect Fragment	-	-	-	-	
Pollen	-	-	-	40	
Analyt. Sensitivity 600x	42	42	42	42	
Analyt. Sensitivity 300x	13*	13*	13*	13*	
Skin Fragments (1-4)	1	1	1	1	
Fibrous Particulate (1-4)	1	1	1	1	
Background (1-5)	1	1	1	1	

Joseph Reynolds, Lead Technical Manager of Microbiology

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

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

Samples received in good condition unless otherwise noted. 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.

Initial report from: 10/13/2018 14:06:58

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



Microbiology Laboratory Chain of Custody

EMSL Order Number (Lab Use Only):

031828305

Corporate - Cinnaminson, NJ
 200 Route 130 North
 Cinnaminson, NJ 08077
 PHONE: 1-800-220-3675
 FAX: (856) 786-5974

Company: AERO Environmental Services		EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different	
Street: 275 Rt 10 East, 220-306		If Bill to is Different note instructions in Comments** Third Party Billing requires written authorization from third party	
City/State/Zip: Succasunna, NJ 07876			
Report To (Name): Michael Berta		Fax: 973 529 0335	
Telephone: 973 920 9061		Email Address: mberta@aeroenvironmental.net	
Project Name/Number: Flocktown School			
Please Provide Results: Email		Purchase Order:	State Samples Taken: NJ

Turnaround Time (TAT) Options* - Please Check

3 Hour
 6 Hour
 24 Hour
 48 Hour
 72 Hour
 96 Hour
 1 Week
 2 Week

*Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide. TATs are subject to methodology requirements

Non Culturable Air Samples (Spore Traps)

• M001 Air-O-Cell	• M173 Allegro M2	• M004 Allergenco	• M032 Allergenco-D	• M172 Versa Trap
• M049 BioSIS	• M003 Burkard	• M043 Cyclax	• M002 Cyclax-d	
• M030 Micro 5	• M174 MoldSnap	• M176 Relle Smart	• M130 Via-Cell	

Other Microbiology Test Codes

<ul style="list-style-type: none"> • M041 Fungal Direct Examination • M005 Viable Fungi ID and Count • M006 Viable Fungi ID and Count (Speciation) • M007 Culturable Fungi • M008 Culturable Fungi (Speciation) • M009 Gram Stain Culturable Bacteria • M010 Bacterial Count and ID - 3 Most Prominent • M011 Bacterial Count and ID - 5 Most Prominent • M013 Sewage Contamination in Buildings 	<ul style="list-style-type: none"> • M014 Endotoxin Analysis • M015 Heterotrophic Plate Count • M180 Real Time Q-PCR-ERMI 36 • Panel • M018 Total Coliform (Membrane Filtration) • M020 Fecal Streptococcus (Membrane Filtration) • M210-215 Legionella Detection • M026 Recreational Water Screen • M027 Mycotoxin Analysis 	<ul style="list-style-type: none"> • M029 Enterococci • M019 Fecal Coliform • M133 MRSA Analysis • M028 Cryptococcus neoformans Detection • M120 Histoplasma capsulatum Detection • M033-39 Allergen Testing • M044 Group Allergen (Cat, Dog, Cockroach, Dustmites) • Other See Analytical Price Guide
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Preservation Method (Water):

Name of Sampler: Michael Berta Signature of Sampler: *MB*

Sample #	Sample Location	Sample Type	Test Code	Volume/Area	Date/Time Collected
A-1	Library	Air	M001	75L	10/11/18 611/616
A-2	Rm 3	Air	M001	75L	10/11/18 619/624
A-3	Rm 18	Air	M001	75L	10/11/18 628/633
A-4	Outside Boiler Room Side	Air	M001	75L	10/11/18 640/645

Client Sample # (s): A-1 - A-4 Total # of Samples: (4)

Relinquished (Client): *MB* Date: 10/11/18 Time: 12:30

Received (Client): *SB* Date: 10/12/18 Time: 10:10

Comments/Special Instructions:

SB 7955 8806 1974