



**WASHINGTON TOWNSHIP SCHOOL DISTRICT
WASHINGTON TOWNSHIP HIGH SCHOOL
SEWELL, NEW JERSEY
INDOOR AIR QUALITY INVESTIGATION
FINAL REPORT**

Prepared for:

Prepared For:
Washington Township Board of Education
206 East Holly Avenue
Sewell, New Jersey 08080

Prepared by:

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October 23, 2017

**WASHINGTON TOWNSHIP SCHOOL DISTRICT
WASHINGTON TOWNSHIP HIGH SCHOOL
SEWELL, NEW JERSEY
INDOOR AIR QUALITY INVESTIGATION
FINAL REPORT**

Prepared By:

Cathy Ledden

Cathy Ledden
Sr. Environmental Compliance Officer

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1.0 BACKGROUND

Coastal Environmental Compliance, LLC was contacted by the Washington Township School District (the District) to conduct indoor air quality inspections and testing throughout the High School.

This investigation and testing was conducted proactively, following concern due to surrounding school districts with indoor air quality issues.

This report details the investigation and testing of the High School.

2.0 APPROACH

2.1 VISUAL INSPECTION

The initial visual inspection and testing of the High School was conducted on October 12, 2017. Areas and classrooms were inspected for any factors that might influence the air quality.

2.2 SAMPLING METHODOLOGY

Microbiological air samples were taken throughout random areas of the High School, along with one outdoor sample using a low flow pump and air-o-cell cassettes (spore traps). Samples were evaluated for total count and identification of fungi.

EMSL Analytical, Cinnaminson, NJ, performed the analysis, according to guidelines proposed by the USEPA, and the AIHA Field Guide For The Determination Of Biological Contaminants In Environmental Samples, 1996.

3.0 FINDINGS & OBSERVATIONS

3.1 VISUAL INSPECTION

A visual inspection of the school was conducted on October 12, 2017. The concerns and visual observations are as follows.

Washington Township High School

- The temperatures throughout the school were between 73 and 77 degrees.
- The relative humidity levels throughout the school were between 48% and 63%.
- The visual inspection proved surface mold was present in the majority of the science rooms throughout the 9-10 and 11-12 buildings. These rooms were immediately closed to students and staff.
- Please see attached scope of work for the in-house clean up.

No other concerns were found throughout the rest of the building.

3.2 SAMPLE RESULTS

Microbiological testing was conducted on October 12, 2017. Sample results are as follows. (see attached laboratory results)

WASHINGTON TOWNSHIP HIGH SCHOOL

Type of Sample	Location	Fungi (CTS/m3)	Type of Fungi
Air-o-cell	Ambient	100	Ascospores
		300	Aspergillus/ Penicillium
		24,000	Basidiospores
		90	Cladosporium
		30	Epicoccum
		200	Ganoderma
		100	Myxomycetes
Total Fungi Count		24,820	
Air-o-cell	11-12 Faculty Room	200	Basidiospores
		10	Myxomycetes
		Total Fungi Count	
Air-o-cell	11-12 Room A-25	300	Aspergillus/ Penicillium
		2,400	Basidiospores
		90	Myxomycetes
		Total Fungi Count	

Type of Sample	Location	Fungi (CTS/m3)	Type of Fungi
Air-o-cell	11-12 Room A-27	100 300 8,290 200 40 40 Total Fungi Count	Ascospores Aspergillus/ Penicillium Basidiospores Cladosporium Ganoderma Rust 8,970
Air-o-cell	11-12 Room B-2	1,100 40 40 Total Fungi Count	Basidiospores Cladosporium Myxomycetes 1,180
Air-o-cell	11-12 Room C-18	30 80 400 5,320 870 90 100 10 200 40 Total Fungi Count	Alternaria Ascospores Aspergillus/ Penicillium Basidiospores Cladosporium Epicoccum Myxomycetes Pithomyces Rust Unidentifiable Spores 7,140
Air-o-cell	11-12 Room C-20	3,200 1,300 100 Total Fungi Count	Aspergillus/ Penicillium Basidiospores Cladosporium 4,600
Air-o-cell	11-12 Room D-5	10 440 90 30 Total Fungi Count	Alternaria Basidiospores Cladosporium Myxomycetes 570
Air-o-cell	11-12 Room E-2	40 90 3,800 90 90 40 40 90 Total Fungi Count	Ascospores Aspergillus/ Penicillium Basidiospores Bipolaris Cladosporium Ganoderma Myxomycetes Rust 4,280

Type of Sample	Location	Fungi (CTS/m3)	Type of Fungi
Air-o-cell	11-12 Room E-4	3,800 300 40 90 40 10	Basidiospores Cladosporium Ganoderma Myxomycetes Pithomyces Polythrincium
	Total Fungi Count	4,280	
Air-o-cell	11-12 Room E-6	40 300 440 300	Ascospores Aspergillus/ Penicillium Basidiospores Cladosporium
	Total Fungi Count	1080	
Air-o-cell	11-12 Room E-8	830 90	Basidiospores Cladosporium
	Total Fungi Count	920	
Air-o-cell	Core IMC	90 1,900 100 90 30 30 40	Aspergillus/ Penicillium Basidiospores Cladosporium Myxomycetes Pithomyces Rust Unidentifiable Spores
	Total Fungi Count	2,280	
Air-o-cell	Core Room G-106	80 10 40 40	Aspergillus/ Penicillium Curvularia Epicoccum Myxomycetes
	Total Fungi Count	170	
Air-o-cell	Core Room G-222	40 40	Basidiospores Cladosporium
	Total Fungi Count	80	
Air-o-cell	Core Room G-224	40 10	Basidiospores Pestalotia/Pestalotiopsis
	Total Fungi Count	50	
Air-o-cell	9-10 Faculty Room	40 10 10	Cladosporium Myxomycetes Pithomyces
	Total Fungi Count	60	
Air-o-cell	9-10 Room I-103	10 200 30 40	Ascospores Basidiospores Myxomycetes Unidentifiable Spores
	Total Fungi Count	280	

Type of Sample	Location	Fungi (CTS/m3)	Type of Fungi
Air-o-cell	9-10 Room I-105	400 40 40	Basidiospores Cladosporium Myxomycetes
	Total Fungi Count	480	
Air-o-cell	9-10 Room I-202	10 30	Basidiospores Cladosporium
	Total Fungi Count	40	
Air-o-cell	9-10 Room I-204	40 90 10	Aspergillus/ Penicillium Cladosporium Myxomycetes
	Total Fungi Count	140	
Air-o-cell	9-10 Room K-103	90 100 10	Aspergillus/ Penicillium Basidiospores Ganoderma
	Total Fungi Count	200	
Air-o-cell	9-10 Room K-105	10 40 2,600 200 90	Ascospores Aspergillus/ Penicillium Basidiospores Cladosporium Ganoderma
	Total Fungi Count	2,940	
Air-o-cell	9-10 Room K-202	80 90	Aspergillus/ Penicillium Basidiospores
	Total Fungi Count	170	
Air-o-cell	9-10 Room K-204	100	Basidiospores
	Total Fungi Count	100	
Air-o-cell	9-10 Room L-110	40 200 90	Aspergillus/ Penicillium Basidiospores Cladosporium
	Total Fungi Count	330	
Air-o-cell	9-10 Room L-103	40 200 570 300 200 10	Ascospores Aspergillus/ Penicillium Basidiospores Cladosporium Myxomycetes Pithomyces
	Total Fungi Count	1,320	
Air-o-cell	9-10 Room L-105	40	Basidiospores
	Total Fungi Count	40	

Type of Sample	Location	Fungi (CTS/m3)	Type of Fungi
Air-o-cell	9-10 Room L-202	30	Aspergillus/ Penicillium
		440	Basidiospores
		10	Cladosporium
		10	Myxomycetes
		90	Stachybotrys
	10	Botrytis	
	Total Fungi Count	590	
Air-o-cell	9-10 Room C-204	100	Basidiospores
		10	Curvularia
		10	Ganoderma
		Total Fungi Count	120
Air-o-cell	9-10 Room J213	40	Ascospores
		40	Basidiospores
		Total Fungi Count	90

Air sampling results within classrooms L-202 and C-20 indicates the presence of Stachybotrys and Aspergillum/Penicillium.

Stachybotrys and Aspergillum/Penicillium species have the potential to cause adverse reactions in sensitive individuals. The presence of Stachybotrys calls for immediate corrective action.

All other classrooms tested, exhibited normal fungal ecology.

4.0 RECOMMENDATIONS

Based upon the testing results and visual observations, Coastal Environmental Compliance, LLC recommends the following:

BUILDING MAINTENANCE:

- ✦ Ensure all old wood surfaces are professionally sealed. This will help prevent mold growth to occur in the future.
- ✦ Ensure all HVAC units are cleaned, serviced and maintained on a regularly basis.
- ✦ Maintain humidity levels below 60%, ideally between 30-50%, throughout the schools to prevent excessive moisture from causing mold growth. This will be conducted during the summer months.

MOLD CLEAN UP:

- ✦ Per the district, cleaning of the visible mold found throughout the science rooms will be conducted in-house. Ensure the custodial staff have the appropriate personal protective equipment, such as gloves, eye protection, and HEPA masks. See attached scope of work.
- ✦ Use a biocide, such as mold control for clean-up.
- ✦ Utilize air scrubbing machines during the cleaning process.
- ✦ Following mold clean up and prior to occupancy, conduct at least follow up air sampling in the affected areas to ensure clean up efficacy.

Coastal Environmental Compliance, LLC is pleased to have provided the Washington Township School District with professional services.

**WASHINGTON TOWNSHIP SCHOOL DISTRICT
HIGH SCHOOL – OCTOBER/2017
INDOOR AIR QUALITY INVESTIGATION
SCOPE OF WORK**

This specification provides performance requirements and evaluation criteria for the work to be performed at the property located at the Washington Township High School, Sewell, NJ.

The work plan is as follows:

AREAS UNDER CONTAINMENT:

Containment is required in all work areas. Containment is required where indicated by "C" on the scope of work. No containment is indicated by "NC".

Where containment is necessary, the areas will be isolated using 6-mil polyethylene sheeting. The work areas under containment will be placed under negative pressure to ensure that the contamination does not spread to unaffected areas. Negative pressure is established by installing HEPA filtered air filtration device inside the containment. The negative air machines should be exhausted to the exterior of the building.

All soft items that are within containment areas should be HEPA vacuumed and removed prior to work being performed. All items within the containment that are not being removed, and all surfaces within the containment must be HEPA vacuumed and treated with a biocide.

Upon removal of walls, insulation and other materials from the work area, all materials should be wrapped in 6-mil poly sheeting, HEPA vacuumed and wiped with a biocide solution prior to transportation to the waste container outside the building.

ALL WORK AREAS:

The biocide solution should be allowed to remain on the treated surfaces for the appropriate dwell time according to manufacturer's instructions to ensure the effectiveness of the biocide.

PERSONNEL PROTECTION:

Respiratory Protection:

The contractor shall provide workers with personally issued and marked respiratory protection equipment approved by NIOSH/MISHA. As a minimum, respiratory protection should consist of full-face dual cartridge respirators.

Protective Clothing:

The contractor must provide workers with sufficient sets of protective disposable clothing consisting of full body coveralls, head covers, gloves and boots in sizes to properly fit individual workers. All workers should wear polyethylene coated Tyvek suits with attached boots or equivalent. Gloves may include latex surgical gloves.

FOLLOW UP TESTING:

If the results of the follow up air, bulk and wipe sampling reveal unacceptable levels of fungi in the work areas, the contractor will be required to re-clean those areas until testing results are acceptable.

SIGNAGE:

The Contractor must post warning signs at all entrances or openings to the work area. The signs must be on yellow paper with black lettering, and indicate the following:

**WARNING: DO NOT ENTER
MICROBIOLOGICAL REMEDIATION WORK IN PROGRESS**

SCOPE OF WORK:

The following are the locations and dimensions for work to be performed:

Notes:

- Containment = C No Containment = NC
 - Walls are indicated as A, B, C, D. Wall A is the wall the room's entrance is located on, wall B is the wall immediately to the left, wall C is the wall opposite the entrance to the room, and wall D is to the right.
 - Wet Wash: wet cleaning with a bleach solution or equivalent biocide
- Encapsulate: Coating of affected areas with an encapsulant such as Fosters 40/20 or equivalent

	C/N C	Location	Area/Dimensions	Work to be Performed
1	C	High School Rooms: I103, I105 (and prep), I204 (and prep), L103, L105 (and prep), K204 Prep Room, K202 (and prep), E2, E4	Contents: (Wood Cabinets)	Hard Contents/Surfaces (Exterior Upper and Lower Cabinets, Inside Cabinet Doors, Contents within all lower cabinets): <ul style="list-style-type: none"> • HEPA vacuum • Wet wash • HEPA vacuum
2	C	High School Rooms: K103, K105 (and prep), A25, A27 (and prep),	Contents: (Wood Cabinets and Underneath all old desks)	Hard Contents/Surfaces (Exterior Upper and Lower Cabinets, Inside Cabinet Doors, Contents within all lower cabinets, underneath old desks): <ul style="list-style-type: none"> • HEPA vacuum • Wet wash • HEPA vacuum
3	C	High School Rooms: E-6	Contents: (Wood Cabinets) NOTE: E-6 Prep ONLY SMALL CABINET	Hard Contents/Surfaces (Exterior Upper and Lower Cabinets, Inside Cabinet Doors, Contents within all lower cabinets): <ul style="list-style-type: none"> • HEPA vacuum • Wet wash • HEPA vacuum
4	C	High School Rooms: Lower Cabinets	Lower Sink and Eyewash Cabinet Doors	<ul style="list-style-type: none"> • Encapsulate any heavily damaged wood doors
5	C	High School Rooms: F-8	Contents: One table under TV Screen Front of Class	<ul style="list-style-type: none"> • HEPA vacuum • Wet wash • HEPA vacuum
6	C	High School Rooms: K204	Contents: Inside Teachers Desk, Under Wood Chairs, Doors on sink and eyewash cabinets only (walls A &C)	<ul style="list-style-type: none"> • HEPA vacuum • Wet wash • HEPA vacuum

7	C	High School Rooms: K202,	Contents: Interior and Exterior doors on sink and eyewash cabinets only	<ul style="list-style-type: none"> • HEPA vacuum • Wet wash • HEPA vacuum
8	C	High School Rooms: C-18, C-20 and L202	Contents (Full Clean)	<p>Soft Contents: (paper, books, fabric, cloth):</p> <ul style="list-style-type: none"> • HEPA vacuum <p>Hard Contents/Surfaces (all furnishings such as desks and tables, wood chairs, all wood bookshelves, inside and outside of cabinets, all closet and entry wood doors, walls, floor, under counters, contents within all sink and eyewash cabinets):</p> <ul style="list-style-type: none"> • HEPA vacuum • Wet wash • HEPA vacuum
9	N/C	High School Rooms: C-20 and L-202	HVAC System, Duct Work & Vent Covers	<ul style="list-style-type: none"> ▪ All interior and exterior HVAC unit components must be wet washed and HEPA vacuumed ▪ All trunk lines associated with the HVAC system must be wet washed and HEPA vacuumed ▪ All vent grills must be removed, wet washed and HEPA vacuumed
10	NC	Throughout Work Areas	Air Scrubbing	Conduct air scrubbing for 48-72 hours during and following remediation



EMSL Analytical, Inc.

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EMSL Order: 371722455
Customer ID: COAS80
Customer PO:
Project ID:

Attn: C Leddew
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PO Box 167
Hammonton, NJ 08037-0167

Phone: (609) 820-9312
Fax: (609) 561-6197
Collected: 10/12/2017
Received: 10/13/2017
Analyzed: 10/13/2017

Project: Washington Twp HS

Test Report: Air-O-Cell™ Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number:	371722455-0001			371722455-0002			371722455-0003		
Client Sample ID:	1			2			3		
Volume (L):	75			75			75		
Sample Location	Ambient			11-12 Faculty Room			11-12 A-25		
Spore Types	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total
Alternaria	-	-	-	-	-	-	-	-	-
Ascospores	3	100	0.4	-	-	-	-	-	-
Aspergillus/Penicillium	6	300	1.2	-	-	-	7	300	10.8
Basidiospores	550	24000	96.7	5	200	95.2	54	2400	86
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	2	90	0.4	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	2*	30*	0.1	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	5	200	0.8	-	-	-	-	-	-
Myxomycetes++	3	100	0.4	1*	10*	4.8	2	90	3.2
Pithomyces	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-	-	-	-
Torula	-	-	-	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Botrytis	-	-	-	-	-	-	-	-	-
Pestalotia/Pestalotiopsis	-	-	-	-	-	-	-	-	-
Polythrincium	-	-	-	-	-	-	-	-	-
Total Fungi	571	24820	100	6	210	100	63	2790	100
Hyphal Fragment	-	-	-	-	-	-	2	90	-
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)	-	1	-	-	1	-	-	1	-

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

Vincent Iuzzolino, M.S., 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. Cinnaminson, NJ AIHA-LAP, LLC--EMLAP Lab 100194

Initial report from: 10/13/2017 11:53:02

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



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Project: Washington Twp HS

Test Report: Air-O-Cell™ Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number:	371722455-0004			371722455-0005			371722455-0006		
Client Sample ID:	4			5			6		
Volume (L):	75			75			75		
Sample Location	11-12 A-27			11-12 B-2			11-12 C-18		
Spore Types	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total
Alternaria	-	-	-	-	-	-	2*	30*	0.4
Ascospores	3	100	1.1	-	-	-	6*	80*	1.1
Aspergillus/Penicillium	6	300	3.3	-	-	-	9	400	5.6
Basidiospores	190	8290	92.4	25	1100	93.2	122	5320	74.5
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	4	200	2.2	1	40	3.4	20	870	12.2
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	2	90	1.3
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	1	40	0.4	-	-	-	-	-	-
Myxomycetes++	-	-	-	1	40	3.4	3	100	1.4
Pithomyces	-	-	-	-	-	-	1*	10*	0.1
Rust	1	40	0.4	-	-	-	5	200	2.8
Scopulariopsis	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-	-	-	-
Torula	-	-	-	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	1	40	0.6
Zygomycetes	-	-	-	-	-	-	-	-	-
Botrytis	-	-	-	-	-	-	-	-	-
Pestalotia/Pestalotiopsis	-	-	-	-	-	-	-	-	-
Polythrincium	-	-	-	-	-	-	-	-	-
Total Fungi	205	8970	100	27	1180	100	171	7140	100
Hyphal Fragment	1	40	-	-	-	-	1	40	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	1	40	-
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)	-	1	-	-	2	-	-	2	-

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

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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.

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Analyzed: 10/13/2017

Project: Washington Twp HS

Test Report: Air-O-Cell™ Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number:	371722455-0007			371722455-0008			371722455-0009		
Client Sample ID:	7			8			9		
Volume (L):	75			75			75		
Sample Location	11-12 C-20			11-12 D-5			11-12 E-2		
Spore Types	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total
Alternaria	-	-	-	1*	10*	1.8	-	-	-
Ascospores	-	-	-	-	-	-	1	40	0.9
Aspergillus/Penicillium	73	3200	69.6	-	-	-	2	90	2.1
Basidiospores	29	1300	28.3	10	440	77.2	88	3800	88.8
Bipolaris++	-	-	-	-	-	-	2	90	2.1
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	3	100	2.2	2	90	15.8	2	90	2.1
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	1	40	0.9
Myxomycetes++	-	-	-	2*	30*	5.3	3*	40*	0.9
Pithomyces	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	2	90	2.1
Scopulariopsis	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-	-	-	-
Torula	-	-	-	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Botrytis	-	-	-	-	-	-	-	-	-
Pestalotia/Pestalotiopsis	-	-	-	-	-	-	-	-	-
Polythrincium	-	-	-	-	-	-	-	-	-
Total Fungi	105	4600	100	15	570	100	101	4280	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)	-	1	-	-	2	-	-	3	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	-	-	1	-

Bipolaris++ = Bipolaris/Drechsteria/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

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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Initial report from: 10/13/2017 11:53:02

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Collected: 10/12/2017
Received: 10/13/2017
Analyzed: 10/13/2017

Project: Washington Twp HS

Test Report: Air-O-Cell™ Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number:	371722455-0010			371722455-0011			371722455-0012		
Client Sample ID:	10			11			12		
Volume (L):	75			75			75		
Sample Location	11-12 E-4			11-12 E-6			11-12 E-8		
Spore Types	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total
Alternaria	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	1	40	3.7	-	-	-
Aspergillus/Penicillium	-	-	-	7	300	27.8	-	-	-
Basidiospores	86	3800	88.8	10	440	40.7	19	830	90.2
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	7	300	7	7	300	27.8	2	90	9.8
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	1	40	0.9	-	-	-	-	-	-
Myxomycetes++	2	90	2.1	-	-	-	-	-	-
Pithomyces	1	40	0.9	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-	-	-	-
Torula	-	-	-	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Botrytis	-	-	-	-	-	-	-	-	-
Pestalotia/Pestalotiopsis	-	-	-	-	-	-	-	-	-
Polythrincium	1*	10*	0.2	-	-	-	-	-	-
Total Fungi	98	4280	100	25	1080	100	21	920	100
Hyphal Fragment	3	100	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	3	-	-	2	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	2	-	-	1	-	-	1	-

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

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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Analyzed: 10/13/2017

Project: Washington Twp HS

Test Report: Air-O-Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number:	371722455-0013			371722455-0014			371722455-0015		
Client Sample ID:	13			14			15		
Volume (L):	75			75			75		
Sample Location	Core IMC			Core G-106			Core G-222		
Spore Types	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total
Alternaria	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	2	90	3.9	2	80	47.1	-	-	-
Basidiospores	44	1900	83.3	-	-	-	1	40	50
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	3	100	4.4	-	-	-	1	40	50
Curvularia	-	-	-	1*	10*	5.9	-	-	-
Epicoccum	-	-	-	1	40	23.5	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	2	90	3.9	1	40	23.5	-	-	-
Pithomyces	2*	30*	1.3	-	-	-	-	-	-
Rust	2*	30*	1.3	-	-	-	-	-	-
Scopulariopsis	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-	-	-	-
Torula	-	-	-	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	1	40	1.8	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Botrytis	-	-	-	-	-	-	-	-	-
Pestalotia/Pestalotiopsis	-	-	-	-	-	-	-	-	-
Polythrincium	-	-	-	-	-	-	-	-	-
Total Fungi	56	2280	100	5	170	100	2	80	100
Hyphal Fragment	2	90	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	41	-	-	41	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	1	-	-	1	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	2	-	-	3	-	-	1	-

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

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

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Analyzed: 10/13/2017

Project: Washington Twp HS

Test Report: Air-O-Cell™ Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number:	371722455-0016			371722455-0017			371722455-0018		
Client Sample ID:	16			17			18		
Volume (L):	75			75			75		
Sample Location:	Core G-224			9-10 Faculty Room			9-10 I103		
Spore Types	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total
Alternaria	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	1*	10*	3.6
Aspergillus/Penicillium	-	-	-	-	-	-	-	-	-
Basidiospores	1	40	80	-	-	-	6	200	71.4
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	1	40	66.7	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	1*	10*	16.7	2*	30*	10.7
Pithomyces	-	-	-	1*	10*	16.7	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-	-	-	-
Torula	-	-	-	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	1	40	14.3
Zygomycetes	-	-	-	-	-	-	-	-	-
Botrytis	-	-	-	-	-	-	-	-	-
Pestalotia/Pestalotiopsis	1*	10*	20	-	-	-	-	-	-
Polythrincium	-	-	-	-	-	-	-	-	-
Total Fungi	2	50	100	3	60	100	10	280	100
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	41	-	-	41	-	-	41	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	3	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	2	-	-	1	-

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

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

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Project: Washington Twp HS

Test Report: Air-O-Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number:	371722455-0019			371722455-0020			371722455-0021		
Client Sample ID:	19			20			21		
Volume (L):	75			75			75		
Sample Location	9-10 I105			9-10 I202			9-10 I204		
Spore Types	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total
Alternaria	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	-	-	-	1	40	28.6
Basidiospores	9	400	83.3	1*	10*	25	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	1	40	8.3	2*	30*	75	2	90	64.3
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	1	40	8.3	-	-	-	1*	10*	7.1
Pithomyces	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-	-	-	-
Torula	-	-	-	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Botrytis	-	-	-	-	-	-	-	-	-
Pestalotia/Pestalotiopsis	-	-	-	-	-	-	-	-	-
Polythrincium	-	-	-	-	-	-	-	-	-
Total Fungi	11	480	100	3	40	100	4	140	100
Hyphal Fragment	1	40	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	41	-	-	41	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	-	-	1	-

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

Vincent Iuzzolino, M.S., Laboratory Manager
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Project: Washington Twp HS

Test Report: Air-O-Cell™ Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number:	371722455-0022			371722455-0023			371722455-0024		
Client Sample ID:	22			23			24		
Volume (L):	75			75			75		
Sample Location	9-10 K103			9-10 K105			9-10 K202		
Spore Types	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total
Alternaria	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	1*	10*	0.3	-	-	-
Aspergillus/Penicillium	2	90	45	1	40	1.4	6*	80*	47.1
Basidiospores	3	100	50	58	2600	88.4	2	90	52.9
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	4	200	6.8	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	1*	10*	5	2	90	3.1	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-	-	-	-
Torula	-	-	-	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Botrytis	-	-	-	-	-	-	-	-	-
Pestalotia/Pestalotiopsis	-	-	-	-	-	-	-	-	-
Polythrincium	-	-	-	-	-	-	-	-	-
Total Fungi	6	200	100	66	2940	100	8	170	100
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	1*	10*	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	1	-	-	2	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	-	-	1	-

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

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 AHA-LAP, LLC--EMLAP Lab 100194

Initial report from: 10/13/2017 11:53:02

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Received: 10/13/2017
Analyzed: 10/13/2017

Project: Washington Twp HS

Test Report: Air-O-Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number:	371722455-0025			371722455-0026			371722455-0027		
Client Sample ID:	25			26			27		
Volume (L):	75			75			75		
Sample Location	9-10 K204			9-10 L110			9-10 L103		
Spore Types	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total
Alternaria	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	1	40	3
Aspergillus/Penicillium	-	-	-	1	40	12.1	4	200	15.2
Basidiospores	3	100	100	5	200	60.6	13	570	43.2
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	2	90	27.3	6	300	22.7
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	4	200	15.2
Pithomyces	-	-	-	-	-	-	1*	10*	0.8
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-	-	-	-
Torula	-	-	-	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Botrytis	-	-	-	-	-	-	-	-	-
Pestalotia/Pestalotiopsis	-	-	-	-	-	-	-	-	-
Polythrincium	-	-	-	-	-	-	-	-	-
Total Fungi	3	100	100	8	330	100	29	1320	100
Hyphal Fragment	-	-	-	-	-	-	-	-	-
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)	-	1	-	-	1	-	-	1	-

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

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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Analyzed: 10/13/2017
Project: Washington Twp HS

Test Report: Air-O-Cell™ Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number:	371722455-0028			371722455-0029			371722455-0030		
Client Sample ID:	28			29			30		
Volume (L):	75			75			75		
Sample Location	9-10 L105			9-10 L202			9-10 C204		
Spore Types	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total
Alternaria	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	2*	30*	5.1	-	-	-
Basidiospores	1	40	100	10	440	74.6	3	100	83.3
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladsporium	-	-	-	1*	10*	1.7	-	-	-
Curvularia	-	-	-	-	-	-	1*	10*	8.3
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	1*	10*	8.3
Myxomycetes++	-	-	-	1*	10*	1.7	-	-	-
Pithomyces	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	7*	90*	15.3	-	-	-
Torula	-	-	-	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Botrytis	-	-	-	1*	10*	1.7	-	-	-
Pestalotia/Pestalotiopsis	-	-	-	-	-	-	-	-	-
Polythrincium	-	-	-	-	-	-	-	-	-
Total Fungi	1	40	100	22	590	100	5	120	100
Hyphal Fragment	1*	10*	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	41	-	-	44	-	-	41	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	-	-	1	-

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

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

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Analyzed: 10/13/2017

Project: Washington Twp HS

Test Report: Air-O-Cell™ Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number:	371722455-0031		
Client Sample ID:	31		
Volume (L):	75		
Sample Location	9-10 J213		
Spore Types	Raw Count	Count/m ³	% of Total
Alternaria	-	-	-
Ascospores	1	40	44.4
Aspergillus/Penicillium	-	-	-
Basidiospores	1	40	44.4
Bipolaris++	-	-	-
Chaetomium	-	-	-
Cladosporium	-	-	-
Curvularia	-	-	-
Epicoccum	-	-	-
Fusarium	-	-	-
Ganoderma	-	-	-
Myxomycetes++	1*	10*	11.1
Pithomyces	-	-	-
Rust	-	-	-
Scopulariopsis	-	-	-
Stachybotrys	-	-	-
Torula	-	-	-
Ulocladium	-	-	-
Unidentifiable Spores	-	-	-
Zygomycetes	-	-	-
Botrytis	-	-	-
Pestalotia/Pestalotiopsis	-	-	-
Polythrincium	-	-	-
Total Fungi	3	90	100
Hyphal Fragment	-	-	-
Insect Fragment	-	-	-
Pollen	-	-	-
Analyt. Sensitivity 600x	-	41	-
Analyt. Sensitivity 300x	-	13*	-
Skin Fragments (1-4)	-	2	-
Fibrous Particulate (1-4)	-	1	-
Background (1-5)	-	1	-

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

Vincent Iuzzolino
Vincent Iuzzolino, M.S., Laboratory Manager
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