



Certificate of Laboratory Analysis

Non-Viable Spore Trap Analysis

Dare County Schools
 Ian Adams
 3020 S. Wrightsville Avenue
 Nags head, NC

Project #: 25-1419
Project Location: Cape Hatteras Secondary
 48576 NC HWY 12
 Buxton, NC
Project Type: IAQ
PO/Claim #: -

Table 1: Non-Viable Air Samples

Date Collected:	4/23/25	4/23/25	4/23/25	4/23/25	4/23/25
Spore Identification	1	2	3	4	5
	Admininstation	Cafeteria	CR 303	CR 308	CR 318
<i>Cladosporium</i>	53	13	40	40	27
Ascospores	40	53	147	13	13
Basidiospores ²	13	-	13	-	13
Smuts, <i>Periconia</i> , <i>Myxomycetes</i> ⁴	27	-	-	13	27
<i>Penicillium/Aspergillus</i> Group ¹	27	-	13	-	27
Hyphal Elements ³	27	27	-	-	40
<i>Alternaria</i>	-	-	-	-	13
<i>Curvularia</i>	-	-	13	-	-
<i>Epicoccum</i>	-	-	-	-	-
<i>Cercospora</i>	-	-	-	-	-
<i>Arthrimum</i>	-	-	-	-	-
Clear Brown	-	-	-	-	-
Colorless	-	-	-	-	-
<i>Trichocladium</i>	-	-	-	-	-
Unidentified	-	-	-	-	-
<i>Ulocladium</i>	-	-	-	-	-
Torula	-	-	-	-	-
<i>Pithomyces</i>	-	-	-	-	-
Rust ⁵	-	-	-	-	-
<i>Drechslera/Bipolaris</i>	27	-	-	-	-
<i>Tetraploa</i>	-	-	-	-	-
<i>Chaetomium</i>	-	-	-	-	-
<i>Stachybotrys</i>	-	-	-	-	-
	-	-	-	-	-
Total Spores/m³	213	93	227	67	160
Particulate Level	moderate	low	low-moderate	low	moderate
Date Analyzed:	4/30/25	4/30/25	4/30/25	4/30/25	4/30/25

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Date Collected:	4/23/25	4/23/25	4/23/25	4/23/25	4/23/25
	6	7	8	9	10
Spore Identification	CR 319	Guidance	Media Center	CR 207	Gymnasium
<i>Cladosporium</i>	27	27	40	40	67
Ascospores	13	13	40	-	27
Basidiospores ²	-	-	13	13	40
Smuts, <i>Periconia</i> , <i>Myxomycetes</i> ⁴	13	-	-	13	13
<i>Penicillium/Aspergillus</i> Group ¹	13	13	40	53	27
Hyphal Elements ³	13	-	-	13	-
<i>Alternaria</i>	-	-	-	-	-
<i>Curvularia</i>	-	-	-	13	-
<i>Epicoccum</i>	-	-	-	-	-
<i>Cercospora</i>	-	-	-	-	-
<i>Arthrimum</i>	-	-	-	-	-
Clear Brown	-	-	-	-	-
Colorless	-	-	-	-	-
<i>Trichocladium</i>	-	-	-	-	-
Unidentified	-	-	-	-	-
<i>Ulocladium</i>	-	-	-	-	-
Torula	-	-	-	-	-
<i>Pithomyces</i>	-	-	-	-	-
Rust ⁵	13	-	-	13	-
<i>Drechslera/Bipolaris</i>	-	-	-	-	-
<i>Tetraploa</i>	-	-	-	-	-
<i>Chaetomium</i>	-	-	-	-	-
<i>Stachybotrys</i>	-	-	-	-	-
	-	-	-	-	-
Total Spores/m³	93	53	133	160	173
Particulate Level	low-moderate	low	low-moderate	low-moderate	low-moderate
Date Analyzed:	4/30/25	4/30/25	4/30/25	4/30/25	4/30/25

Analyzed by: Cathy A. Richmond, B.S.

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Table 1: Non-Viable Air Samples

Date Collected:	4/23/25	4/23/25	4/23/25	4/23/25	4/23/25
	11	12	13	14	15
Spore Identification	Locker Hall	Weight Room	CR 150	Music Room	Auditorium
<i>Cladosporium</i>	27	40	27	40	40
Ascospores	-	27	-	27	13
Basidiospores ²	27	-	13	13	53
Smuts, <i>Periconia</i> , <i>Myxomycetes</i> ⁴	67	-	-	-	27
<i>Penicillium/Aspergillus</i> Group ¹	40	27	-	27	53
Hyphal Elements ³	-	-	27	-	27
<i>Alternaria</i>	-	-	-	-	-
<i>Curvularia</i>	-	-	-	-	27
<i>Epicoccum</i>	13	-	-	-	-
<i>Cercospora</i>	-	-	-	-	-
<i>Arthrimum</i>	-	-	-	-	-
Clear Brown	-	-	-	-	-
Colorless	-	-	-	-	-
Trichocladium	-	-	-	-	-
Unidentified	-	-	-	27	-
<i>Ulocladium</i>	-	-	-	-	-
Torula	-	-	-	-	-
Pithomyces	-	-	13	13	-
Rust ⁵	-	-	-	-	-
<i>Drechslera/Bipolaris</i>	-	-	-	-	13
<i>Tetraploa</i>	-	-	-	-	-
<i>Chaetomium</i>	-	-	-	-	-
<i>Stachybotrys</i>	-	-	-	-	-
	-	-	-	-	-
Total Spores/m³	173	93	80	147	253
Particulate Level	low-moderate	low	low-moderate	low-moderate	moderate
Date Analyzed:	4/30/25	4/30/25	4/30/25	4/30/25	4/30/25

Analyzed by: Cathy A. Richmond, B.S.

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Table 1: Non-Viable Air Samples

Date Collected:	4/23/25	4/23/25	4/23/25	4/23/25	4/23/25
	16	17	18	19	20
Spore Identification	CR 206	CR 220	CR 225	CR 360	CR 353
<i>Cladosporium</i>	27	-	13	27	-
Ascospores	-	13	13	-	27
Basidiospores ²	13	-	-	-	13
Smuts, <i>Periconia</i> , <i>Myxomycetes</i> ⁴	-	-	-	-	-
<i>Penicillium/Aspergillus</i> Group ¹	-	-	-	-	-
Hyphal Elements ³	-	13	13	13	13
<i>Alternaria</i>	-	-	13	-	-
<i>Curvularia</i>	-	-	-	-	-
<i>Epicoccum</i>	-	-	-	-	-
<i>Cercospora</i>	-	-	-	-	-
<i>Arthrinium</i>	-	-	-	-	-
Clear Brown	-	-	-	-	-
Colorless	-	-	-	-	-
<i>Trichocladium</i>	-	-	-	-	-
Unidentified	-	-	-	-	-
<i>Ulocladium</i>	-	-	-	-	-
Torula	-	-	-	-	-
<i>Pithomyces</i>	-	-	-	-	-
Rust ⁵	-	-	-	-	-
<i>Drechslera/Bipolaris</i>	-	-	-	-	-
<i>Tetraploa</i>	-	-	-	-	-
<i>Chaetomium</i>	-	-	-	-	-
<i>Stachybotrys</i>	-	-	-	-	-
	-	-	-	-	-
Total Spores/m³	40	27	53	40	53
Particulate Level	low	low	low	low	low-moderate
Date Analyzed:	4/30/25	4/30/25	4/30/25	4/30/25	4/30/25

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Table 1: Non-Viable Air Samples

Date Collected:	4/23/25	4/23/25	4/23/25	4/23/25
	21	22	23	24
Spore Identification	CR 363	CR 221	Hall @ CR 153	Outdoor Air
<i>Cladosporium</i>	13	27	40	80
Ascospores	-	13	40	227
Basidiospores ²	13	13	27	160
Smuts, <i>Periconia</i> , <i>Myxomycetes</i> ⁴	13	-	-	-
<i>Penicillium/Aspergillus</i> Group ¹	13	13	13	587
Hyphal Elements ³	-	-	-	-
<i>Alternaria</i>	-	-	-	-
<i>Curvularia</i>	-	-	-	-
<i>Epicoccum</i>	-	-	-	-
<i>Cercospora</i>	-	-	-	-
<i>Arthrimum</i>	-	-	-	-
Clear Brown	-	-	-	-
Colorless	-	-	-	-
<i>Trichocladium</i>	-	-	-	-
Unidentified	-	-	-	-
<i>Ulocladium</i>	-	-	-	-
Torula	-	-	-	-
Pithomyces	-	-	-	-
Rust ⁵	-	-	-	-
<i>Drechslera/Bipolaris</i>	-	-	-	-
<i>Tetraploa</i>	-	-	-	-
<i>Chaetomium</i>	-	-	-	-
<i>Stachybotrys</i>	-	-	-	-
	-	-	-	-
Total Spores/m³	53	67	120	1053
Particulate Level	low-moderate	low-moderate	low-moderate	moderate
Date Analyzed:	4/30/25	4/30/25	4/30/25	4/30/25

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Project Type: IAQ
PO/Claim #: -

Sample Number: 1
Sample Location: Admininstation
Date Collected: 4/23/25
Test Requested: Non-viable spore trap analysis
Date Analyzed: 4/30/25

Volume (L): 75
Percentage of Slide Read: 100.0%
Detection Limit: 13.33
Particulate Level: moderate
Notes:

Spore Identification	Count	Results	Units	Percentage
<i>Cladosporium</i>	4	53	spores/m ³	25%
Ascospores	3	40	spores/m ³	19%
Basidiospores	1	13	spores/m ³	6%
Smuts, <i>Periconia</i> , Myxomycetes	2	27	spores/m ³	13%
<i>Penicillium/Aspergillus</i> Group	2	27	spores/m ³	13%
Hyphal Elements	2	27	spores/m ³	13%
<i>Alternaria</i>		-	spores/m ³	-
<i>Curvularia</i>		-	spores/m ³	-
<i>Epicoccum</i>		-	spores/m ³	-
<i>Cercospora</i>		-	spores/m ³	-
<i>Arthrimum</i>		-	spores/m ³	-
Clear Brown		-	spores/m ³	-
Colorless		-	spores/m ³	-
<i>Trichocladium</i>		-	spores/m ³	-
Unidentified		-	spores/m ³	-
<i>Ulocladium</i>		-	spores/m ³	-
Torula		-	spores/m ³	-
<i>Pithomyces</i>		-	spores/m ³	-
Rust		-	spores/m ³	-
<i>Drechslera/Bipolaris</i>	2	27	spores/m ³	13%
<i>Tetraploa</i>		-	spores/m ³	-
<i>Chaetomium</i>		-	spores/m ³	-
<i>Stachybotrys</i>		-	spores/m ³	-
		-	spores/m ³	-
Total Spores	16	213	spores/m³	

Analyzed by: Cathy A. Richmond, B.S.



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Project Type: IAQ
PO/Claim #: -

Sample Number: 6
Sample Location: CR 319
Date Collected: 4/23/25
Test Requested: Non-viable spore trap analysis
Date Analyzed: 4/30/25

Volume (L): 75
Percentage of Slide Read: 100.0%
Detection Limit: 13.33
Particulate Level: low-moderate
Notes:

Spore Identification	Count	Results	Units	Percentage
<i>Cladosporium</i>	2	27	spores/m ³	29%
Ascospores	1	13	spores/m ³	14%
Basidiospores		-	spores/m ³	-
Smuts, <i>Periconia</i> , Myxomycetes	1	13	spores/m ³	14%
<i>Penicillium/Aspergillus</i> Group	1	13	spores/m ³	14%
Hyphal Elements	1	13	spores/m ³	14%
<i>Alternaria</i>		-	spores/m ³	-
<i>Curvularia</i>		-	spores/m ³	-
<i>Epicoccum</i>		-	spores/m ³	-
<i>Cercospora</i>		-	spores/m ³	-
<i>Arthrinium</i>		-	spores/m ³	-
Clear Brown		-	spores/m ³	-
Colorless		-	spores/m ³	-
<i>Trichocladium</i>		-	spores/m ³	-
Unidentified		-	spores/m ³	-
<i>Ulocladium</i>		-	spores/m ³	-
Torula		-	spores/m ³	-
<i>Pithomyces</i>		-	spores/m ³	-
Rust	1	13	spores/m ³	14%
<i>Drechslera/Bipolaris</i>		-	spores/m ³	-
<i>Tetraploa</i>		-	spores/m ³	-
<i>Chaetomium</i>		-	spores/m ³	-
<i>Stachybotrys</i>		-	spores/m ³	-
		-	spores/m ³	-
Total Spores	7	93	spores/m³	

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Sample Number: 7
Sample Location: Guidance
Date Collected: 4/23/25
Test Requested: Non-viable spore trap analysis
Date Analyzed: 4/30/25

Volume (L): 75
Percentage of Slide Read: 100.0%
Detection Limit: 13.33
Particulate Level: low
Notes:

Spore Identification	Count	Results	Units	Percentage
<i>Cladosporium</i>	2	27	spores/m ³	50%
Ascospores	1	13	spores/m ³	25%
Basidiospores		-	spores/m ³	-
Smuts, <i>Periconia</i> , Myxomycetes		-	spores/m ³	-
<i>Penicillium/Aspergillus</i> Group	1	13	spores/m ³	25%
Hyphal Elements		-	spores/m ³	-
<i>Alternaria</i>		-	spores/m ³	-
<i>Curvularia</i>		-	spores/m ³	-
<i>Epicoccum</i>		-	spores/m ³	-
<i>Cercospora</i>		-	spores/m ³	-
<i>Arthrinium</i>		-	spores/m ³	-
Clear Brown		-	spores/m ³	-
Colorless		-	spores/m ³	-
<i>Trichocladium</i>		-	spores/m ³	-
Unidentified		-	spores/m ³	-
<i>Ulocladium</i>		-	spores/m ³	-
Torula		-	spores/m ³	-
<i>Pithomyces</i>		-	spores/m ³	-
Rust		-	spores/m ³	-
<i>Drechslera/Bipolaris</i>		-	spores/m ³	-
<i>Tetraploa</i>		-	spores/m ³	-
<i>Chaetomium</i>		-	spores/m ³	-
<i>Stachybotrys</i>		-	spores/m ³	-
		-	spores/m ³	-
Total Spores	4	53	spores/m³	

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Report Information:

DETECTION LIMITS (DL) for samples are the minimum number of spores or colonies forming units that can be satisfactorily identified for each sample type.

SPORE TRAP SAMPLES: Calculations based on volume of air sampled & percentage of slide counted, i.e. DL = 1000 L / 75 L if 100% of the slide is counted.

CODE 11: Fungal content and/or particulate level on slide too heavy to identify and enumerate fungal content.

Footnotes:

- 1. Penicillium/Aspergillus group spores are characterized by their small size, round to ovoid shape, being unicellular and usually colorless to lightly pigmented. There are numerous genera of fungi whose spore morphology is similar to that of the Penicillium/Aspergillus type. Several common examples would be Acremonium, Paecilomyces, and Trichoderma. Although the majority of spores placed in this group are Penicillium, Aspergillus, or a combination of both, these are not the only two possibilities.
2. Basidiospores are primarily transported indoors from outdoor sources and rarely grow indoors. A high basidiospore count indoors can be indicative of a wood decay problem or wet soil, and should be verified if and an outdoor source of the spores is not present.
3. Hyphae are the tubular filaments of fungi. Hyphae can fragment and become airborne much like spores and are potentially allergenic.
4. The Smut, Periconia, Myxomycete group is a group composed of three different types of organisms whose spores have similar morphologies. Smuts are plant pathogens, Periconia is a relatively uncommon mold indoors, and Myxomycetes are not fungi, but slime molds. Although these organisms do not typically proliferate indoors, their spores are potentially allergenic.
5. Rusts are plant pathogens. These fungi do not typically grow indoors unless an infected plant is present. Rust spores are potentially allergenic.

Direct Microscopic Exam Reporting:

We use a 400x-600x magnification microscope.

Reporting Quantification Levels are as follows:

Table with 2 columns: Reporting Level, Quantitative Description. Rows include Occasional (1-10 per square inch), Few (11-100 per square inch), Moderate (101-1000 per square inch), and Numerous (More than 1,000 per square inch).

Submitted By Analyst:

Cathy A. Richmond (handwritten signature)

Cathy A. Richmond, BS

4/30/2025