



Environmental Inc

Office: 336.368.4500

Mobile: 336.575.2343

jmcmanus@alisenvironmental.com

February 4, 2020

Jay Fuller
Director of Facilities and Maintenance

Alamance-Burlington School System
307 Prison Camp Road
Graham, North Carolina 27253

Subject: Report of Airborne and Surface Microbial Sampling
Eastlawn Elementary School – Room #20A
502 N. Graham-Hopedale Road
Burlington, North Carolina
Project No.: 201-2001-02

Dear Mr. Fuller:

ALIS has completed the airborne microbial sampling at Eastlawn Elementary School in Burlington, North Carolina. On January 29, 2020 we conducted air sampling for the presence of airborne fungi at the subject property. The purpose of our sampling was to determine the presence and species of airborne fungi and the degree of concentration within the area of concern. One air sampling pump was calibrated and placed in room 20A, and one sample was collected from outside the building as a reference (baseline) for comparison to the inside conditions. Additionally, we obtained a sample of suspect growth from the window sash for confirmation of species. No other areas of the building were included in the scope of work.

Results

The laboratory results found a significantly higher level of Cladosporium on the indoor air sample when compared to the outdoor air sample. Lower levels of Aspergillus/Penicillium were also detected on the indoor sample. Cladosporium is often found indoors in a high humidity environment. During the sampling period, temperature and humidity readings were taken in room 20A and outside the building. The humidity reading in room 20A was 62% while the outdoor reading was only 33%. Temperature indoor was 68°F while the outdoor reading was 52°F. I observed condensation on the window's glass panes and sills. The laboratory analysis on the surface sample obtained from the window sash identified the visible growth as Cladosporium with a moderate spore count estimate.

A Protimeter moisture indicator was used to located moisture within the block walls. The moisture indicator detected wet conditions within the block walls in the perimeter wall below the windows and in the corner at the opposing wall. Sample results and additional information on fungal spores are attached to this report: "Spore Trap Analysis" and "Direct Analysis."

Sampling Methodology

Non-viable samples were collected with a spore trap slide using Allergenco-D Cassettes mounted to a sampling pump. The cassettes contain glass slides that are coated with a sticky substance that captures airborne particulates that impinge on the slides. The air samples were collected at 15 liters per minute for 10 minutes. Calibration of sampling equipment was performed with a precision rotameter (a secondary calibration source). Rotameters are calibrated against a primary standard. Field calibration was performed before and after sampling. The air samples were sealed for transport to Hayes Microbial Consulting in Midlothian, Virginia for analysis. Hayes Microbial is a participant in the American Industrial Hygiene Association, Laboratory Accreditation Program (AIHA-LAP) for Environmental Microbiology.

Background Information on Mold in Buildings

Mold spores exist normally in outdoor and indoor air and can be measured in air and carpets of normal homes, office buildings, hospitals and schools. Naturally occurring sources of mold spores include soil, plants and other sources. The air concentration of these normally occurring mold spores is dependent on the season, environmental conditions and other factors. Elevated levels of mold in building materials may occur if chronic moist conditions from water leaks, floods, chronic high relative humidity, or malfunctioning heating, ventilation or air conditioning systems, allow moisture to remain for prolonged periods on organic matter in the presence of warm ambient temperatures. Under these conditions, low levels of fungal spores in air, plants or other sources, may proliferate on cellulose containing materials such as carpets, wallboard, wood, paper or dusty surfaces (which may serve as a food source), and result in mold contamination. Many fungal spores are allergenic to susceptible persons exposed, though individual susceptibility varies greatly. There is no practical way to eliminate all mold and mold spores in the indoor environment; the way to control indoor mold growth is to control moisture.

ALIS appreciates the opportunity to be of service to you on this project. We would welcome the opportunity to discuss at your convenience, any of the results contained in this report. Please contact us if you have any questions or if we may be of further service.

Sincerely,
ALIS ENVIRONMENTAL, INC.



James P. McManus
Vice-President

Attachments: "Spore Trap Analysis"
"Direct Analysis"



HAYES
MICROBIAL CONSULTING

#200004000

Analysis Report prepared for

**ALIS Environmental
Inc.**

We would like to thank you for trusting Hayes Microbial for your analytical needs!
We received 4 samples by FedEx in good condition for this project on January 31st, 2020.

The results in this analysis pertain only to this job, collected on the stated date, and should not be used in the interpretation of any other job. This report may not be duplicated, except in full, without the written consent of Hayes Microbial Consulting, LLC..

1027 Koontz Haven Rd
Pinnacle, NC 27043

Phone: (336) 368-4500

201-2001-02
Eastlawn Elementary School
502 N. Graham - Hopedale Rd
Burlington, NC

Collected: January 29, 2020
Received: January 31, 2020
Reported: January 31, 2020

Stephen T. Hayes

Steve Hayes, BSMT(ASCP)
Laboratory Director
Hayes Microbial Consulting, LLC.



EPA Laboratory ID: VA01419

Hayes Microbial Consulting, LLC. 3005 East Boundary Terrace, Suite F, Midlothian, VA. 23112 (804) 562-3435



Lab ID: #1188863



DPH License: #PH-0198

contact@hayesmicrobial.com Page: 1 of 9

Jim McManus
ALIS Environmental Inc.
1027 Koontz Haven Rd
Pinnacle, NC 27043
(336) 368-4500

#200004000
201-2001-02
Eastlawn Elementary School
502 N. Graham - Hopedale Rd
Burlington, NC

#	Organism	Spore Estimate	Mycelial Estimate
4	Cladosporium	Moderate	Many

B2043579 - Room 20A Window Sash



Collected: Jan 29, 2020 Received: Jan 31, 2020 Reported: Jan 31, 2020
Project Analyst:
Avani Devmuri, MS Date: 01 - 31 - 2020 Reviewed By:
Steve Hayes, BSMT Signature:
Date: 01 - 31 - 2020 Email: contact@hayesmicrobial.com

Spore Trap Information

Reporting Limit The Reporting Limit is the lowest number of spores that can be detected based on the total volume of the sample collected and the percentage of the slide that is counted. At Hayes Microbial, 100% of the slide is read so the LOD is based solely on the total volume. Raw spore counts that exceed 500 spores will be estimated.

Blanks	Results have not been corrected for field or laboratory blanks.
Background	The Background is the amount of debris that is present in the sample. This debris consists of skin cells, dirt, dust, pollen, drywall dust and other organic and non-organic matter. As the background density increases, the likelihood of spores, especially small spores such as those of Aspergillus and Penicillium may be obscured. The background is rated on a scale of 1 to 5 and each level is determined as follows:

NBD: No background detected due to possible pump or cassette malfunction. Recollect sample. (Field Blanks will display NBD)
1 : <5% of field occluded. No spores will be uncountable.
2 : 5-25% of field occluded.
3 : 25-75% of field occluded.
4 : 75-90% of field occluded.
5 : >90% of field occluded. Suggested recollection of sample.

Fragments	Fragments are small pieces of fungal mycelium or spores. They are not identifiable as to type and when present in very large numbers, may indicate the presence of mold amplification.
------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Control Comparisons

There are no national standards for the numbers of fungal spores that may be present in the indoor environment. As a general rule and guideline that is widely accepted in the indoor air quality field, the numbers and types of spores that are present in the indoor environment should not exceed those that are present outdoors at any given time. There will always be some mold spores present in "normal" indoor environments. The purpose of sampling and counting spores is to help determine whether an abnormal condition exists within the indoor environment and if it does, to help pinpoint the area of contamination. Spore counts should not be used as the sole determining factor of mold contamination. There are many factors that can cause anomalies in the comparison of indoor and outdoor samples due to the dynamic nature of both of those environments.



- Water Damage Indicator
- Common Allergen
- Slightly Higher than Baseline
- Significantly Higher than Baseline
- Ratio Abnormality

Color Coding	Fungi that are present in indoor samples at levels lower than 200 per cubic meter are not color coded on the report, unless they are one of the water damage indicators.
---------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------

201-2001-02

Eastlawn Elementary School
 502 N. Graham - Hopedale Rd
 Burlington, NC

#200004000

Direct Analysis Information

Spore Estimate	Percentages
ND	None Detected
Rare	Less than 10 spores < 1%
Light	10 - 99 spores 1-10%
Moderate	100 - 999 spores 11-25%
Heavy	1000 - 9999 spores 26-50%
Very Heavy	10000 or greater spores 51-100%

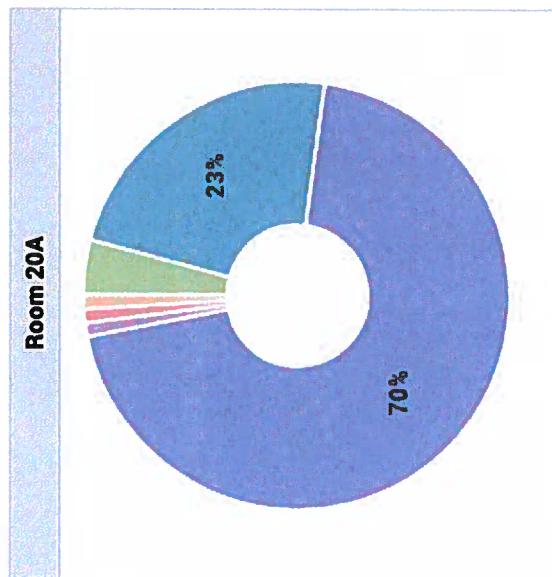
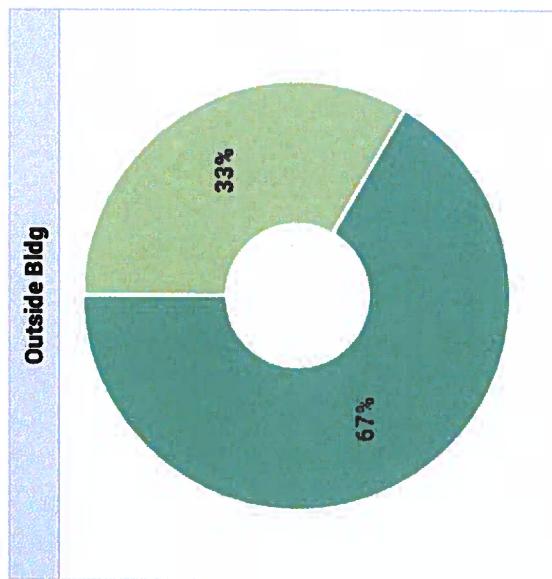
Mycelial Estimate	
ND	None Detected No active growth at site.
Trace	Very small amount of Mycelium Probably no active growth at site.
Few	Some Mycelium Possible active growth at site.
Many	Large amount of Mycelium Probable active growth at site.

Jim McManus
ALIS Environmental Inc.
1027 Koonitz Haven Rd
Pinnacle, NC 27043
(336) 368-4500

201-2001-02
Eastlawn Elementary School
502 N. Graham - Hopedale Rd
Burlington, NC

#200004000

Spore Counts - Pie Charts



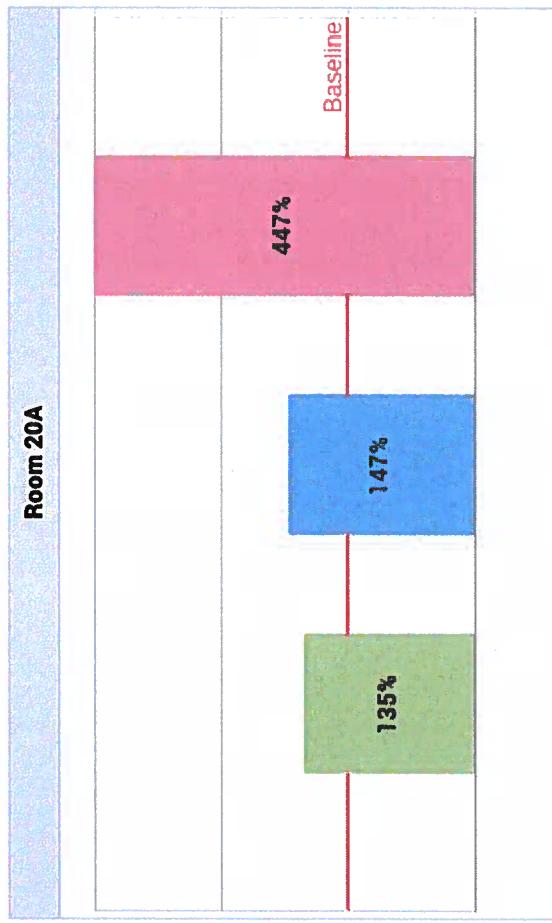
Ascospores	Aspergillus Penicillium	Cladosporium	Curvularia
Myxomycetes	Bipolaris Drechslera		
Epicoccum			

Jim McManus
ALIS Environmental Inc.
1027 Koontz Haven Rd
Pinnacle, NC 27043
(336) 368-4500

201-2001-02
Eastlawn Elementary School
502 N. Graham - Hopedale Rd
Burlington, NC

#200004000

Spore Counts - Bar Graphs



201-2001-02

Eastlawn Elementary School
 502 N. Graham - Hopedale Rd
 Burlington, NC

#200004000

Organism Descriptions

Ascospores **Habitat:** A large group consisting of more than 3000 species of fungi. Common plant pathogens and outdoor numbers become very high following rain. Most of the genera are indistinguishable by spore trap analysis and are combined on the report.

Effects: Health affects are poorly studied, but many are likely to be allergenic.

Aspergillus|Penicillium **Habitat:** The most common fungi isolated from the environment. Very common in soil and on decaying plant material. Are able to grow well indoors on a wide variety of substrates.

Effects: This group contains common allergens and many can cause hypersensitivity pneumonitis. They may cause extrinsic asthma, and many are opportunistic pathogens. Many species produce mycotoxins which may be associated with disease in humans and other animals. Toxin production is dependent on the species, the food source, competition with other organisms, and other environmental conditions.

Bipolaris|Drechslera **Habitat:** They are found in soil and as plant pathogens. Can grow indoors on a variety of substrates.
Effects: They may be allergenic and are very commonly involved in allergic fungal sinusitis. They are opportunistic pathogens but occasionally infect healthy individuals, causing keratitis, sinusitis and osteomyelitis.

Cladosporium **Habitat:** One of the most common genera worldwide. Found in soil and plant debris and on the leaf surfaces of living plants. The outdoor numbers are lower in the winter and often relatively high in the summer; especially in high humidity. The outdoor numbers often spike in the late afternoon and evening. Indoors, it can be found growing on textiles, wood, sheetrock, moist window sills and in HVAC supply ducts.

Effects: A common allergen, producing more than 10 allergenic antigens and a common cause of hypersensitivity pneumonitis.

Curvularia **Habitat:** They exist in soil and plant debris, and are plant pathogens.
Effects: They are allergenic and a common cause of allergic fungal sinusitis. An occasional cause of human infection, including keratitis, sinusitis, onychomycosis, mycetoma, pneumonia, endocarditis and disseminated infection, primarily in the immunocompromised.

Epicoccum **Habitat:** It is found in soil and plant litter and is a plant pathogen. It can grow indoors on a variety of substrates, including paper and textiles and is commonly found on wet drywall.
Effects: It is a common allergen. No cases of infection have been reported in humans.

Myxomycetes
Habitat: Found on decaying plant material and as a plant pathogen.
Effects: Some allergenic properties reported, but generally pose no health concerns to humans.



Environmental, Inc.
PO Box 6 Pinnacle, NC 27043

Invoice

DATE	INVOICE #
2/2/2020	1766

BILL TO
Alamance-Burlington School System Jay Fuller 307 Prison Camp Road Graham, NC 27253

PROJECT ADDRESS	
Eastlawn ES 502 N. Graham-Hopedale Rd Burlington, NC	
CLIENT PROJECT ID # / P.O.#	

PROJECT NAME		TERMS		DUE DATE
Room 20A Air Testing		201-2001-02		Due on receipt
PROJECT DATE (S)	SERVICE (S)	DAYS/HOURS/EACH	RATE	AMOUNT
1/29/2020	Airborne Mold Spore Testing	1	425.00	425.00
1/29/2020	Lab Services	4	50.00	200.00

A late charge of 1.5% (18% APR) will be added each month to all invoices 30 days past due.

Invoice Total \$625.00

Thank you for your business !
Please Remit to: P.O. Box 6 Pinnacle, NC 27043

Customer Total Balance \$625.00



Environmental, Inc.
PO Box 6 Pinnacle, NC 27043

Invoice

DATE	INVOICE #
9/22/2020	1865

BILL TO
Alamance-Burlington School System Accounts Payable 307 Prison Camp Road Graham, NC 27253

PROJECT ADDRESS	
E.M. Holt ES 4751 S. NC Hwy 62 Burlington, NC	
CLIENT PROJECT ID # / P.O.#	

PROJECT NAME		TERMS		DUE DATE
Mold Assessment		201-2009-05		Due on receipt
PROJECT DATE (S)	SERVICE (S)	DAYS/HOURS/EACH	RATE	AMOUNT
9/18/2020	Airborne Fungal Sampling	1	425.00	425.00
9/18/2020	Lab Charges/Sample Analysis	8	50.00	400.00

A late charge of 1.5% (18% APR) will be added each month to all invoices 30 days past due.

Invoice Total	\$825.00
----------------------	----------

Thank you for your business !
Please Remit to: P.O. Box 6 Pinnacle, NC 27043

Customer Total Balance

\$825.00



Office: 336.368.4500
Mobile: 336.575.2343

jmcmanus@alisenvironmental.com

September 21, 2020

Jay Fuller
Director of Facilities and Maintenance

Alamance-Burlington School System
307 Prison Camp Road
Graham, North Carolina 27253

Subject: Report of Airborne Microbial Sampling
E M Holt Elementary School – K100 Wing
4751 S. NC Hwy 62
Burlington, North Carolina
Project No.: 201-2009-05

Dear Mr. Fuller:

ALIS has completed the airborne microbial sampling at E M Holt Elementary School in Burlington, North Carolina. On September 18, 2020, at your request, we conducted air sampling for the presence of airborne fungi at the subject property. The purpose of our sampling was to determine the presence and species of airborne fungi and the degree of concentration within the area of concern. One air sampling pump was calibrated and placed inside each of the following classrooms: 101, 102, 107, 108, 111, 112. One sample was collected from outside the building as a reference (baseline) for comparison to the inside conditions. Temperature and relative humidity readings were obtained from each of the tested areas. No other areas of the facility were included in the scope of work.

Results

The laboratory results found the total spore counts on the indoor samples to be generally lower when compared to the outdoor sample. Although spores were detected at lower levels indoors, the sample obtained from room 108 exhibited the species Ascospores and Basidiospores at levels greater than was detected in the remaining classrooms. Additionally, the species Bipolaris/Drechslera was found on three indoor only samples with the higher level found in room 108. Bipolaris/Drechslera was not detected on the outdoor sample. The relative humidity reading in room 108 was highest of all the tested areas. Therefore, we suspect that mold growth may be active in room 108.

Although visible growth was not observed in room 108 during our visit, the heating and air conditioning system should be inspected for condensation, proper drainage and general level of performance-efficiency. Temperature and relative humidity readings obtained inside and outside are as follows:

September 21, 2020

Rm. 101:	Rm. 102	Rm. 107	Rm. 108	Rm. 111	Rm. 112	Outside
• T: 72.3°	T: 72.5°	T: 72.1°	T: 71.9°	T: 72.5°	T: 71.7°	T: 79.5°
• RH: 60.6%	RH: 65.6%	RH: 63.3%	RH: 69.8%	RH: 63.3%	RH: 57.5%	RH: 59.5%

Sample results and additional information on fungal spores are attached to this report: "Spore Trap Analysis"

Sampling Methodology

Non-viable samples were collected with a spore trap slide using Allergenco-D Cassettes mounted to a sampling pump. The cassettes contain glass slides that are coated with a sticky substance that captures airborne particulates that impinge on the slides. The air samples were collected at 15 liters per minute for 10 minutes. Calibration of sampling equipment was performed with a precision rotameter (a secondary calibration source). Rotameters are calibrated against a primary standard. Field calibration was performed before and after sampling. The air samples were sealed for transport to Hayes Microbial Consulting in Midlothian, Virginia for analysis. Hayes Microbial is a participant in the American Industrial Hygiene Association, Laboratory Accreditation Program (AIHA-LAP) for Environmental Microbiology.

Background Information on Mold in Buildings

Mold spores exist normally in outdoor and indoor air and can be measured in air and carpets of normal homes, office buildings, hospitals and schools. Naturally occurring sources of mold spores include soil, plants and other sources. The air concentration of these normally occurring mold spores is dependent on the season, environmental conditions and other factors. Elevated levels of mold in building materials may occur if chronic moist conditions from water leaks, floods, chronic high relative humidity, or malfunctioning heating, ventilation or air conditioning systems, allow moisture to remain for prolonged periods on organic matter in the presence of warm ambient temperatures. Under these conditions, low levels of fungal spores in air, plants or other sources, may proliferate on cellulose containing materials such as carpets, wallboard, wood, paper or dusty surfaces (which may serve as a food source), and result in mold contamination. Many fungal spores are allergenic to susceptible persons exposed, though individual susceptibility varies greatly. There is no practical way to eliminate all mold and mold spores in the indoor environment; the way to control indoor mold growth is to control moisture.

ALIS appreciates the opportunity to be of service to you on this project. We would welcome the opportunity to discuss at your convenience, any of the results contained in this report. Please contact us if you have any questions or if we may be of further service.

Sincerely,
ALIS ENVIRONMENTAL, INC.



James P. McManus
Vice-President

Attachment: "Spore Trap Analysis"



HAYES
MICROBIAL CONSULTING

#200033558

Analysis Report prepared for

**ALIS Environmental
Inc.**

We would like to thank you for trusting Hayes Microbial for your analytical needs!
We received 8 samples by FedEx in good condition for this project on September 21st, 2020.

The results in this analysis pertain only to this job, collected on the stated date, and should not be used in the interpretation of any other job. This report may not be duplicated, except in full, without the written consent of Hayes Microbial Consulting, LLC..

1027 Koontz Haven Rd
Pinnacle, NC 27043
Phone: (336) 368-4500

This laboratory bears no responsibility for sample collection activities, analytical method limitations, or your use of the test results. Interpretation and use of test results are your responsibility. Any reference to health effects or interpretation of mold levels is strictly the opinion of Hayes Microbial. In no event, shall Hayes Microbial or any of its employees be liable for lost profits or any special, incidental or consequential damages arising out of the use of these test results.

Steve Hayes, BSMT (ASCP)
Laboratory Director
Hayes Microbial Consulting, LLC.

201-2009-05
E.M. Holt Elementary School
4751 S. NC Hwy 62
Burlington, NC 27215

Collected: September 18, 2020
Received: September 21, 2020
Reported: September 21, 2020



EPA Laboratory ID: VA01419

Lab ID: #188863

DPH License: #PH-0198

(804) 562-3435 (804) 562-3435 contact@hayesmicrobial.com

Spore Trap Information

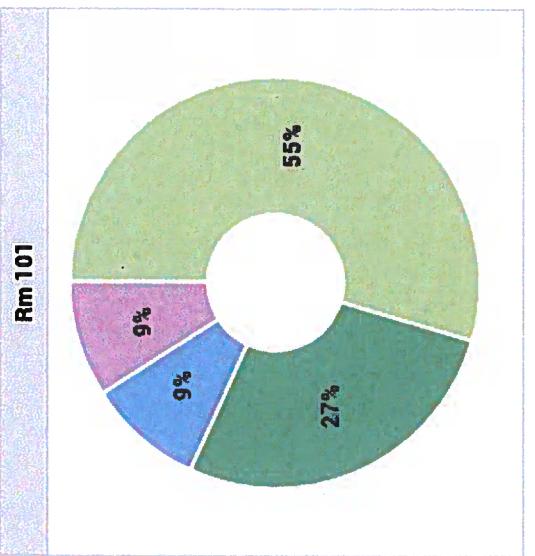
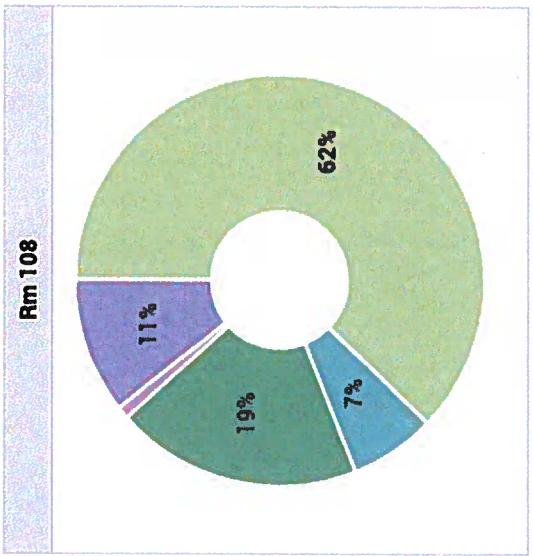
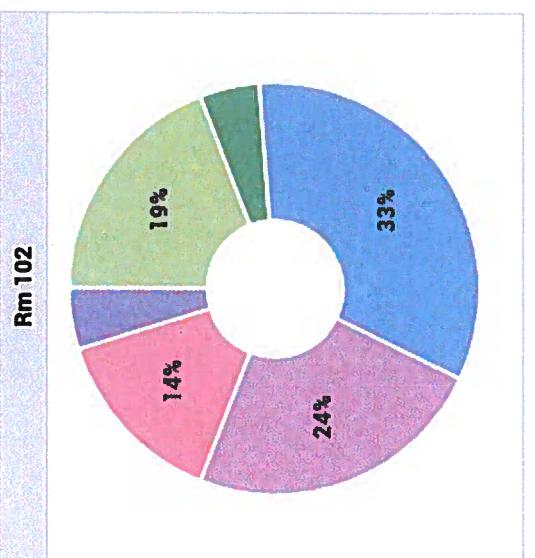
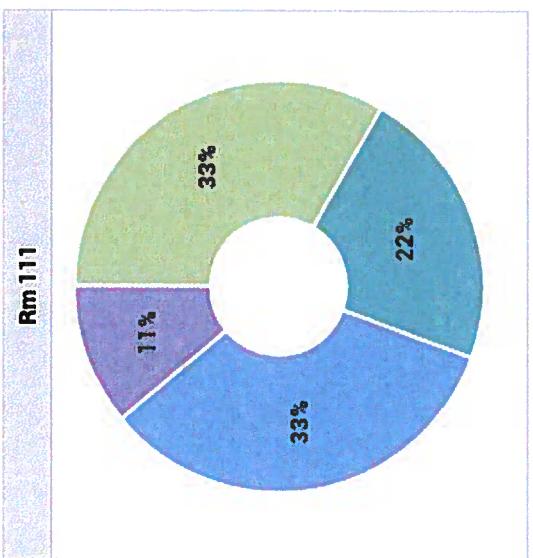
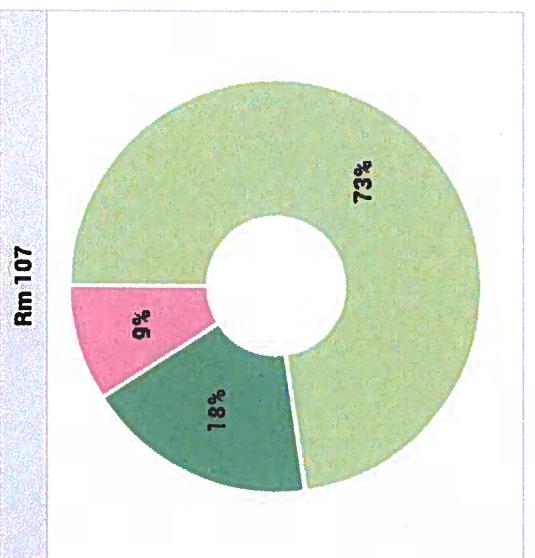
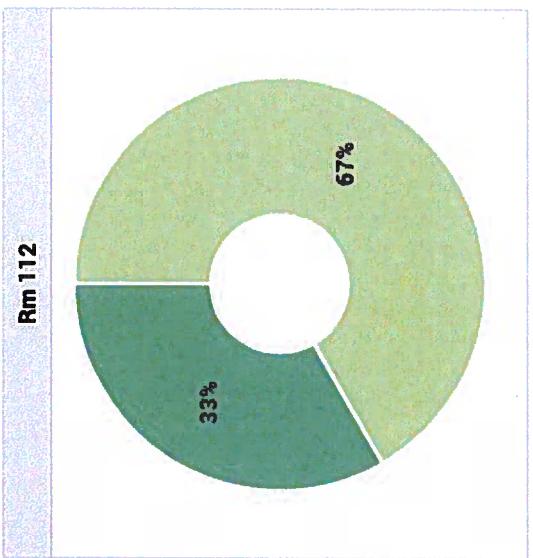
Reporting Limit	The Reporting Limit is the lowest number of spores that can be detected based on the total volume of the sample collected and the percentage of the slide that is counted. At Hayes Microbial, 100% of the slide is read so the LOD is based solely on the total volume. Raw spore counts that exceed 500 spores will be estimated.
Blanks	Results have not been corrected for field or laboratory blanks.
Background	The Background is the amount of debris that is present in the sample. This debris consists of skin cells, dirt, dust, pollen, drywall dust and other organic and non-organic matter. As the background density increases, the likelihood of spores, especially small spores such as those of Aspergillus and Penicillium may be obscured. The background is rated on a scale of 1 to 5 and each level is determined as follows: NBD: No background detected due to possible pump or cassette malfunction. Recollect sample. (Field Blanks will display NBD) 1 : <5% of field occluded. No spores will be uncountable. 2 : 5-25% of field occluded. 3 : 25-75% of field occluded. 4 : 75-90% of field occluded. 5 : >90% of field occluded. Suggested recollection of sample.
Fragments	Fragments are small pieces of fungal mycelium or spores. They are not identifiable as to type and when present in very large numbers, may indicate the presence of mold amplification.
Control Comparisons	There are no national standards for the numbers of fungal spores that may be present in the indoor environment. As a general rule and guideline that is widely accepted in the indoor air quality field, the numbers and types of spores that are present in the indoor environment should not exceed those that are present outdoors at any given time. There will always be some mold spores present in "normal" indoor environments. The purpose of sampling and counting spores is to help determine whether an abnormal condition exists within the indoor environment and if it does, to help pinpoint the area of contamination. Spore counts should not be used as the sole determining factor of mold contamination. There are many factors that can cause anomalies in the comparison of indoor and outdoor samples due to the dynamic nature of both of those environments.
Water Damage Indicator	Blue: These molds are commonly seen in conditions of prolonged water intrusion and usually indicate a problem.
Common Allergen	Green: Although all molds are potential allergens, these are the most common allergens that may be found indoors.
Slightly Higher than Baseline	Orange: The spore count is slightly higher than the outside count and may or may not indicate a source of contamination.
Significantly Higher than Baseline	Red: The spore count is significantly higher than the baseline count and probably indicates a source of contamination.
Ratio Abnormality	Violet: The types of spores found indoors should be similar to the ones that were identified in the baseline sample. Significant increases (more than 25%) in the ratio of a particular spore type may indicate the presence of abnormal levels of mold, even if the total number of spores of that type is lower in the indoor environment than it was outdoors.
Color Coding	Fungi that are present in indoor samples at levels lower than 200 per cubic meter are not color coded on the report, unless they are one of the water damage indicators.

Jim McManus
ALIS Environmental Inc.
1027 Koontz Haven Rd
Pinnacle, NC 27043
(336) 368-4500

2011-2009-05
E.M. Holt Elementary School
4751 S. NC Hwy 62
Burlington, NC 27215

#20033558

Spore Counts - Pie Charts

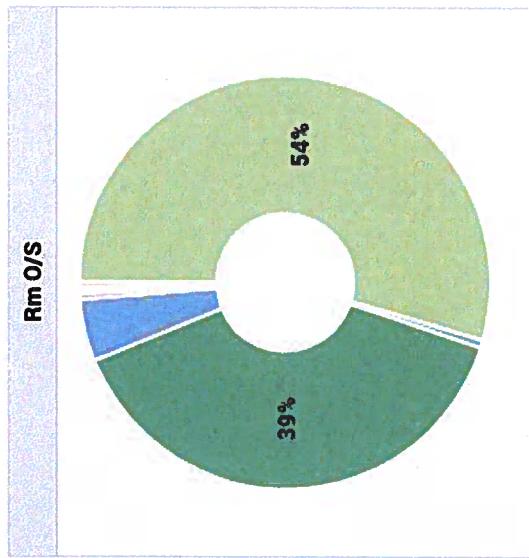


Jim McManus
ALIS Environmental Inc.
1027 Koontz Haven Rd
Pinnacle, NC 27043
(336) 368-4500

201-2009-05
E.M. Holt Elementary School
4751 S. NC Hwy 62
Burlington, NC 27215

#20033558

Spore Counts - Pie Charts



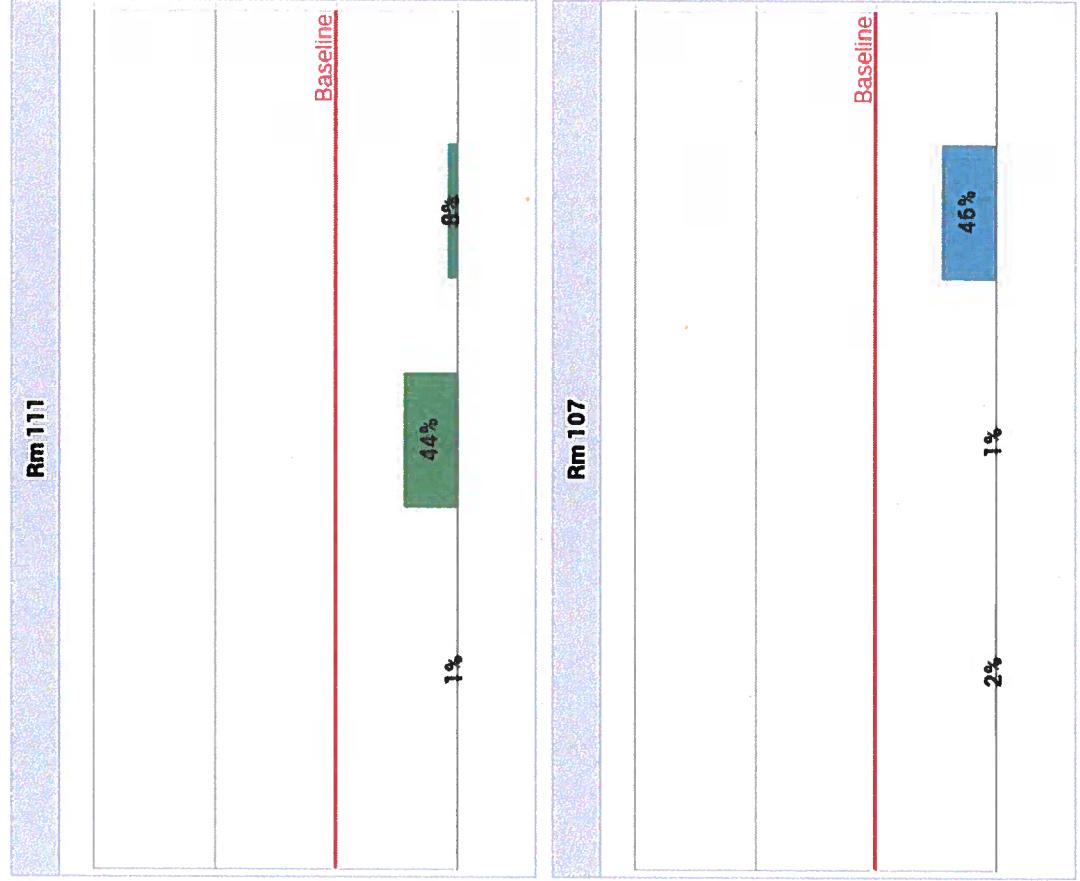
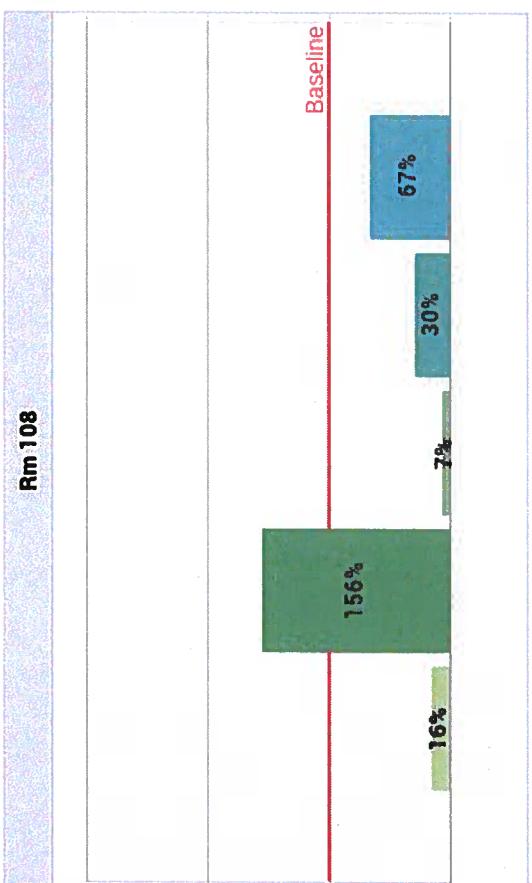
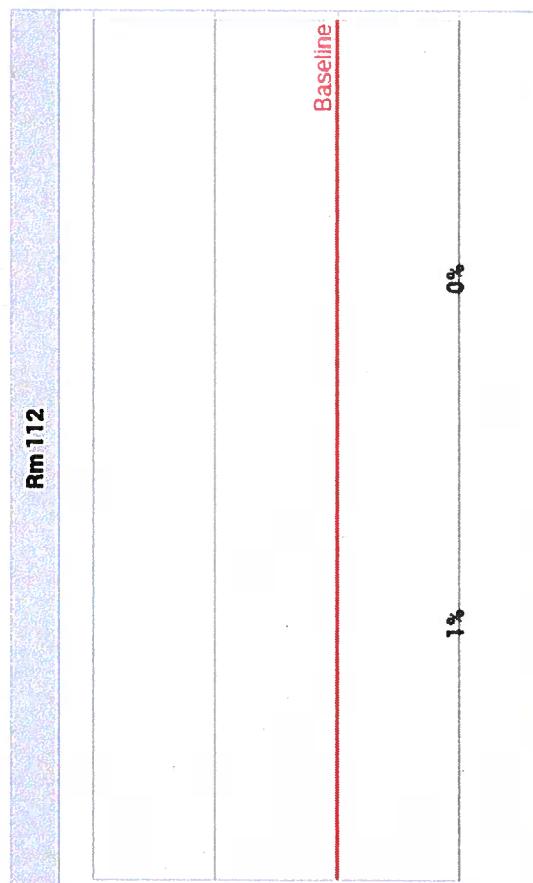
Jim McManus
ALIS Environmental Inc.
1027 Koontz Haven Rd
Pinnacle, NC 27043
(336) 368-4500

201-2009-05

E.M. Holt Elementary School
4751 S. NC Hwy 62
Burlington, NC 27215

#20033558

Spore Counts - Bar Graphs

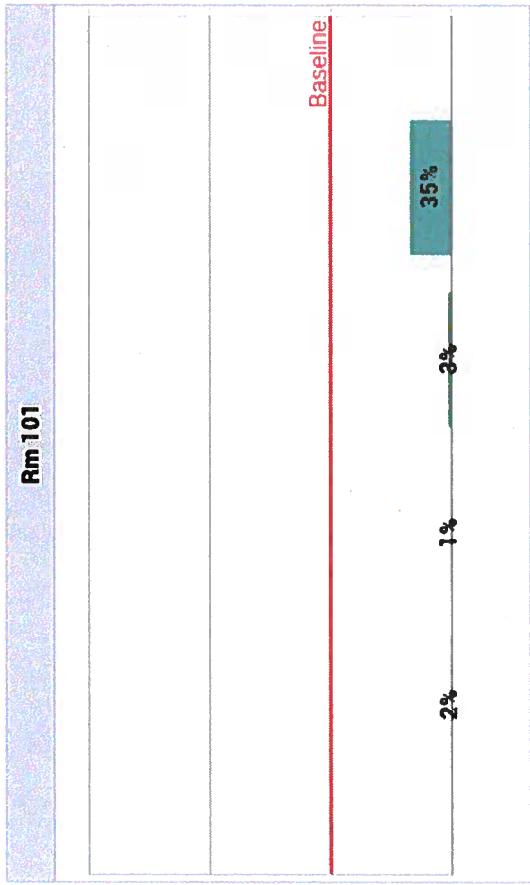
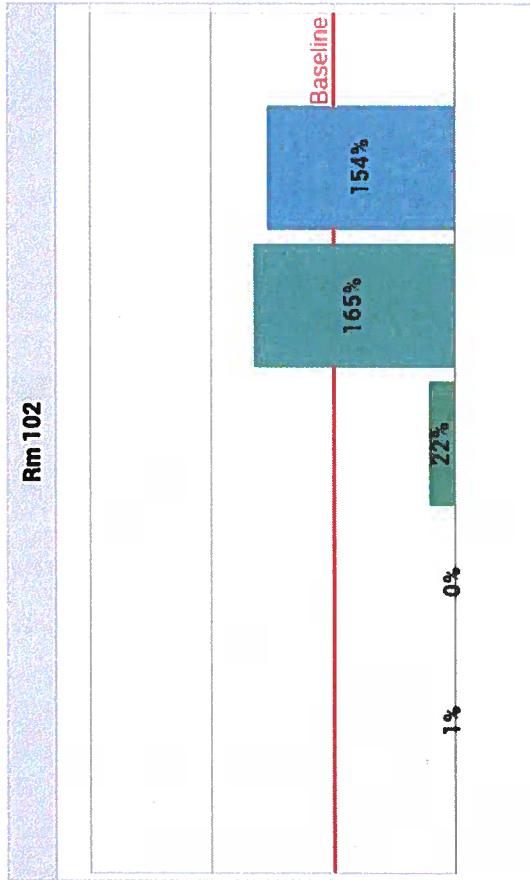


Jim McManus
ALIS Environmental Inc.
1027 Koontz Haven Rd
Pinnacle, NC 27043
(336) 368-4500

#20033558

Spore Counts - Bar Graphs

201-2009-05
E.M. Holt Elementary School
4751 S. NC Hwy 62
Burlington, NC 27215



Organism Descriptions

Ascospores **Habitat:** A large group consisting of more than 3000 species of fungi. Common plant pathogens and outdoor numbers become very high following rain. Most of the genera are indistinguishable by spore trap analysis and are combined on the report.
Effects: Health affects are poorly studied, but many are likely to be allergenic.

Aspergillus|Penicillium **Habitat:** The most common fungi isolated from the environment. Very common in soil and on decaying plant material. Are able to grow well indoors on a wide variety of substrates.
Effects: This group contains common allergens and many can cause hypersensitivity pneumonitis. They may cause extrinsic asthma, and many are opportunistic pathogens. Many species produce mycotoxins which may be associated with disease in humans and other animals. Toxin production is dependent on the species, the food source, competition with other organisms, and other environmental conditions.

Basidiospores **Habitat:** A common group of Fungi that includes the mushrooms and bracket fungi. They are saprophytes and plant pathogens. In wet conditions they can cause structural damage to buildings.
Effects: Common allergens and are also associated with hypersensitivity pneumonitis.

Bipolaris|Drechslera **Habitat:** They are found in soil and as plant pathogens. Can grow indoors on a variety of substrates.
Effects: They may be allergenic and are very commonly involved in allergic fungal sinusitis. They are opportunistic pathogens but occasionally infect healthy individuals, causing keratitis, sinusitis and osteomyelitis.

Cercospora **Habitat:** Found on wood and decaying plant matter.
Effects: Health effects are poorly studied.

Cladosporium **Habitat:** One of the most common genera worldwide. Found in soil and plant debris and on the leaf surfaces of living plants. The outdoor numbers are lower in the winter and often relatively high in the summer, especially in high humidity. The outdoor numbers often spike in the late afternoon and evening. Indoors, it can be found growing on textiles, wood, sheetrock, moist window sills and in HVAC supply ducts.
Effects: A common allergen, producing more than 10 allergenic antigens and a common cause of hypersensitivity pneumonitis.

Jim McManus
ALIS Environmental Inc.
1027 Koontz Haven Rd
Pinnacle, NC 27043
(336) 368-4500

#20033558

201-2009-05
E.M. Holt Elementary School
4751 S. NC Hwy 62
Burlington, NC 27215

Organism Descriptions

Curvularia	Habitat:	They exist in soil and plant debris, and are plant pathogens.
	Effects:	They are allergenic and a common cause of allergic fungal sinusitis. An occasional cause of human infection, including keratitis, sinusitis, onychomycosis, mycetoma, pneumonia, endocarditis and disseminated infection, primarily in the immunocompromised.

Pithomyces	Habitat:	Common fungus isolated from soil, decaying plant material. Rarely found indoors.
	Effects:	Allergenic properties are poorly studied. No cases of infection in humans.

Torula	Habitat:	Found in soil and on wood and grasses. Occasionally found growing indoors on cellulose containing materials.
	Effects:	A known allergen. No known cases of human infection.



Environmental Inc

Office: 336.368.4500

Mobile: 336.575.2343

jmcmanus@alisenvironmental.com

October 16, 2020

Jay Fuller
Director of Facilities and Maintenance

Alamance-Burlington School System
307 Prison Camp Road
Graham, North Carolina 27253

Subject: Report of Airborne Microbial Sampling
Eastern Alamance High School – A Wing
4040 Mebane-Rodgers Road
Mebane, North Carolina
Project No.: 201-2010-06

Dear Mr. Fuller:

ALIS has completed the airborne microbial sampling at Eastern Alamance High School in Mebane, North Carolina. On October 12 2020, at your request, we conducted air sampling for the presence of airborne fungi at the subject property. The purpose of our sampling was to determine the presence and species of airborne fungi and the degree of concentration within the area of concern. One air sampling pump was calibrated and placed inside each of the following classrooms: A1, A2, A3, A4, A5, A6 A8. One sample was collected from outside the building as a reference (baseline) for comparison to the inside conditions. Temperature and relative humidity readings were obtained from each of the tested areas. No other areas of the facility were included in the scope of work.

Results

The laboratory results found the total spore counts on the indoor samples to be generally lower when compared to the outdoor sample. Although spores were detected at lower levels indoors, three spores of the species Cladosporium was detected in room A1, and one spore of the species Pithomyces was detected in room A4. Cladosporium and Pithomyces were not detected on the outdoor sample. Although these species were not detected on the outdoor sample, their indoor levels are not sufficient to suspect that active growth is occurring. Visible mold was not observed during our testing. Temperature and relative humidity readings obtained inside and outside are as follows:

October 16, 2020

<u>Rm. A1</u>	<u>Rm. A2</u>	<u>Rm. A3</u>	<u>Rm. A4</u>	<u>Rm. A5</u>	<u>Rm. A6</u>	<u>Rm. A8</u>
• T: 72.6°	T: 71.4°	T: 72.8°	T: 71.6°	T: 72.1°	T: 71.2°	T: 70.3°
• RH: 60.1%	RH: 60.3%	RH: 62.9%	RH: 55.3%	RH: 57.3%	RH: 50.6%	RH: 56.0%

Outdoor

- T: 71.7°
- RH: 78.3%

Sample results and additional information on fungal spores are attached to this report: "Spore Trap Analysis"

Sampling Methodology

Non-viable samples were collected with a spore trap slide using Allergenco-D Cassettes mounted to a sampling pump. The cassettes contain glass slides that are coated with a sticky substance that captures airborne particulates that impinge on the slides. The air samples were collected at 15 liters per minute for 10 minutes. Calibration of sampling equipment was performed with a precision rotameter (a secondary calibration source). Rotameters are calibrated against a primary standard. Field calibration was performed before and after sampling. The air samples were sealed for transport to Hayes Microbial Consulting in Midlothian, Virginia for analysis. Hayes Microbial is a participant in the American Industrial Hygiene Association, Laboratory Accreditation Program (AIHA-LAP) for Environmental Microbiology.

Background Information on Mold in Buildings

Mold spores exist normally in outdoor and indoor air and can be measured in air and carpets of normal homes, office buildings, hospitals and schools. Naturally occurring sources of mold spores include soil, plants and other sources. The air concentration of these normally occurring mold spores is dependent on the season, environmental conditions and other factors. Elevated levels of mold in building materials may occur if chronic moist conditions from water leaks, floods, chronic high relative humidity, or malfunctioning heating, ventilation or air conditioning systems, allow moisture to remain for prolonged periods on organic matter in the presence of warm ambient temperatures. Under these conditions, low levels of fungal spores in air, plants or other sources, may proliferate on cellulose containing materials such as carpets, wallboard, wood, paper or dusty surfaces (which may serve as a food source), and result in mold contamination. Many fungal spores are allergenic to susceptible persons exposed, though individual susceptibility varies greatly. There is no practical way to eliminate all mold and mold spores in the indoor environment; the way to control indoor mold growth is to control moisture.

ALIS appreciates the opportunity to be of service to you on this project. We would welcome the opportunity to discuss at your convenience, any of the results contained in this report. Please contact us if you have any questions or if we may be of further service.

Sincerely,
ALIS ENVIRONMENTAL, INC.



James P. McManus
Vice-President

Attachment: "Spore Trap Analysis"



HAYES
MICROBIAL CONSULTING

#20037243

Analysis Report prepared for

**ALIS Environmental
Inc.**

We would like to thank you for trusting Hayes Microbial for your analytical needs!
We received 9 samples by FedEx in good condition for this project on October 13th, 2020.

The results in this analysis pertain only to this job, collected on the stated date, and should not be used in the interpretation of any other job. This report may not be duplicated, except in full, without the written consent of Hayes Microbial Consulting, LLC..

1027 Koontz Haven Rd
Pinnacle, NC 27043

Phone: (336) 368-4500

201-2010-06
Eastern Alamance High School
4040 Mebane-Rodgers Road
Mebane, NC 27302

Collected: October 12, 2020
Received: October 13, 2020
Reported: October 13, 2020

Steve Hayes, BSMT(ASCP)
Laboratory Director
Hayes Microbial Consulting, LLC.



EPA Laboratory ID: VA01419



Lab ID: #188863



DPH License: #PH-0198

Hayes Microbial Consulting, LLC. 3005 East Boundary Terrace, Suite F, Midlothian, VA. 23112 (804) 562-3435

Page: 1 of 10

Jim McManus
ALIS Environmental Inc.
1027 Koontz Haven Rd
Pinnacle, NC 27043
(368) 4500

201-2010-06
Eastern Alamance High School
4040 Mebane-Rodgers Road
Mebane, NC 27302

#20037243

Spore Trap
SOP - HMC#101

Sample Number	1	5755	2	7043	3	7411	4	5654
Sample Name	Classroom A1				Classroom A2			
Sample Volume	150.00 liter				150.00 liter			
Reporting Limit	7 spores/m ³				7 spores/m ³			
Background	3	2	2	2	2	2	2	2
Fragments	ND	ND	ND	ND	ND	ND	ND	ND

Organism	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total
Alternaria												
Ascospores	1	7	25.0%				1	7	50.0%	1	7	50.0%
Aspergillus/Penicillium				2	13	100.0%				1	7	50.0%
Basidiospores												
Bipolaris/Drechslera												
Chaetomium												
Cladosporium	3	20	75.0%									
Curvularia												
Epicoccum												
Fusarium												
Memnoniella							1	7	50.0%			
Mycomyces												
Pithomyces												
Stachybotrys												
Stemphylium												
Tonella												
Ulocladium												
Total	4	27	100%	2	13	100%	2	14	100%	2	14	100%

Water Damage Indicator

Common Allergen

Slightly Higher than Baseline Significantly Higher than Baseline Ratio Abnormality

Collected: Oct 12, 2020

Received: Oct 13, 2020

Reported: Oct 13, 2020



Project Analyst:	Carrie Hampton, BS	Date:	10 - 13 - 2020	Reviewed By:	Steve Hayes, BSMT	Date:	10 - 13 - 2020
3005 East Boundary Terrace, Suite F, Midlothian, VA, 23112				(804) 562-3435	contact@hayesmicrobial.com	Page: 2 of 10	

Jim McManus
AllIS Environmental Inc.
1027 Koontz Haven Rd
Pinnacle, NC 27043
(336) 368-4500

201-2010-06
Eastern Alamance High School
4040 Mebane-Rodgers Road
Mebane, NC 27302

#20037243

Spore Trap
SOP - HMC#101

Sample Number	Sample Name	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	
5	Classroom A6	8699	6	8515	7	5203	8	9435	8	Classroom O/S	(outside) Jmc	150.00 liter	7 spores/m ³	7 spores/m ³
Sample Volume		150.00 liter		150.00 liter		150.00 liter		150.00 liter						
Reporting Limit		7 spores/m ³		7 spores/m ³		7 spores/m ³		7 spores/m ³						
Background		2		2		2		2						
Fragments		ND		ND		ND		ND						
Common Allergen														
Water Damage Indicator														
Total	2	14	100%	2	13	100%	2	13	100%	289	1926	100%		

Collected: Oct 12, 2020	Received: Oct 13, 2020	Reported: Oct 13, 2020
Project Analyst: Carlie Hampton, BS	Date: 10 - 13 - 2020	Reviewed By: Steve Hayes, BSMT
Signature: 		
Ratio Abnormality		
Slightly Higher than Baseline	Significantly Higher than Baseline	
3005 East Boundary Terrace, Suite F, Midlothian, VA. 23112 (804) 562-3435 contact@hayesmicrobial.com		
Page: 3 of 10		

Jim McManus
ALLS Environmental Inc.
1027 Koontz Haven Rd
Pinnacle, NC 27043
(368) 4500

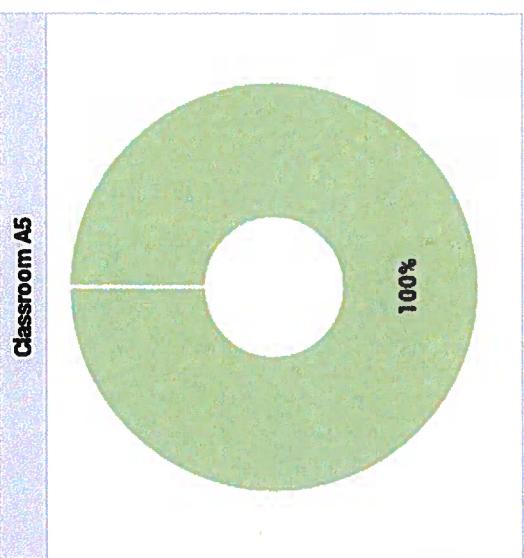
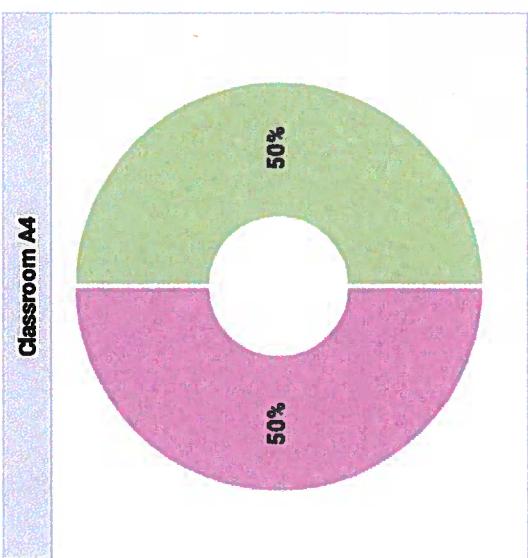
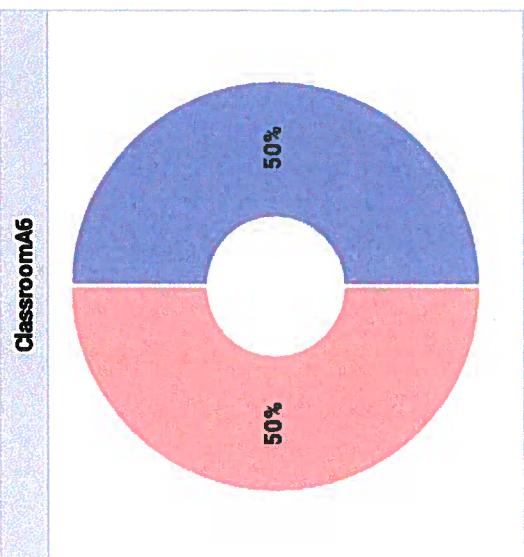
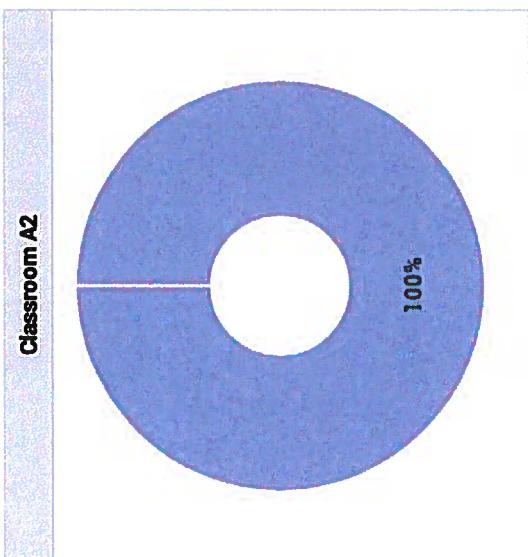
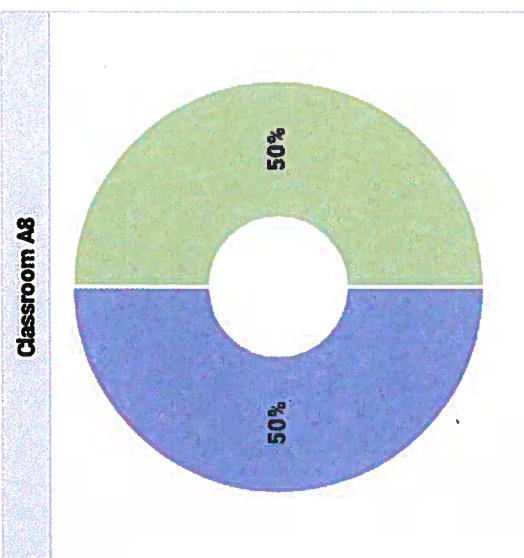
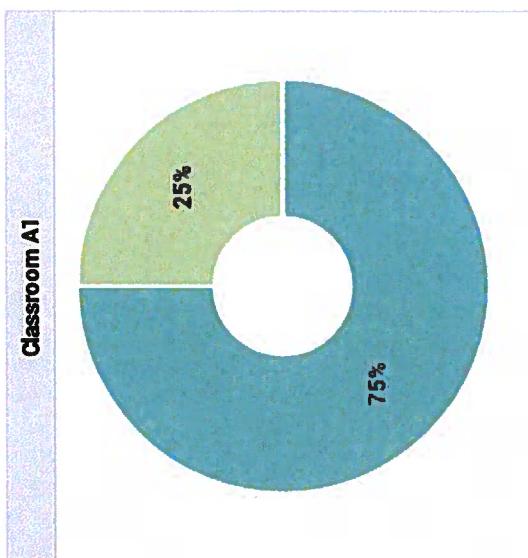
201-2010-06
Eastern Alamance High School
4040 Mebane-Rodgers Road
Mebane, NC 27302

#20037243

Spore Trap Information

Reporting Limit	The Reporting Limit is the lowest number of spores that can be detected based on the total volume of the sample collected and the percentage of the slide that is counted. At Hayes Microbial, 100% of the slide is read so the LOD is based solely on the total volume. Raw spore counts that exceed 500 spores will be estimated.
Blanks	Results have not been corrected for field or laboratory blanks.
Background	The Background is the amount of debris that is present in the sample. This debris consists of skin cells, dirt, dust, pollen, drywall dust and other organic and non-organic matter. As the background density increases, the likelihood of spores, especially small spores such as those of Aspergillus and Penicillium may be obscured. The background is rated on a scale of 1 to 5 and each level is determined as follows: NBD: No background detected due to possible pump or cassette malfunction. Recollect sample. (Field Blanks will display NBD) 1 : <5% of field occluded. No spores will be uncountable. 2 : 5-25% of field occluded. 3 : 25-75% of field occluded. 4 : 75-90% of field occluded. 5 : >90% of field occluded. Suggested recollection of sample.
Fragments	Fragments are small pieces of fungal mycelium or spores. They are not identifiable as to type and when present in very large numbers, may indicate the presence of mold amplification.
Control Comparisons	There are no national standards for the numbers of fungal spores that may be present in the indoor environment. As a general rule and guideline that is widely accepted in the indoor air quality field, the numbers and types of spores that are present in the indoor environment should not exceed those that are present outdoors at any given time. There will always be some mold spores present in "normal" indoor environments. The purpose of sampling and counting spores is to help determine whether an abnormal condition exists within the indoor environment and if it does, to help pinpoint the area of contamination. Spore counts should not be used as the sole determining factor of mold contamination. There are many factors that can cause anomalies in the comparison of indoor and outdoor samples due to the dynamic nature of both of those environments.
Color Coding	Blue: These molds are commonly seen in conditions of prolonged water intrusion and usually indicate a problem. Green: Although all molds are potential allergens, these are the most common allergens that may be found indoors. Orange: The spore count is slightly higher than the outside count and may or may not indicate a source of contamination. Red: The spore count is significantly higher than the baseline count and probably indicates a source of contamination. Violet: The types of spores found indoors should be similar to the ones that were identified in the baseline sample. Significant increases (more than 25%) in the ratio of a particular spore type may indicate the presence of abnormal levels of mold, even if the total number of spores of that type is lower in the indoor environment than it was outdoors.
Water Damage Indicator	Fungi that are present in indoor samples at levels lower than 200 per cubic meter are not color coded on the report, unless they are one of the water damage indicators.

Spore Counts - Pie Charts

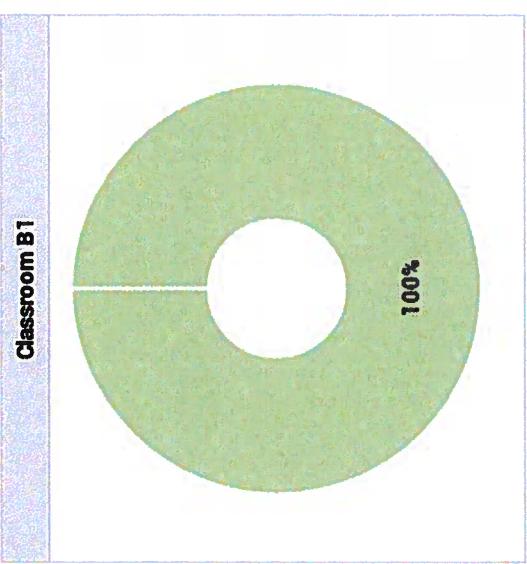
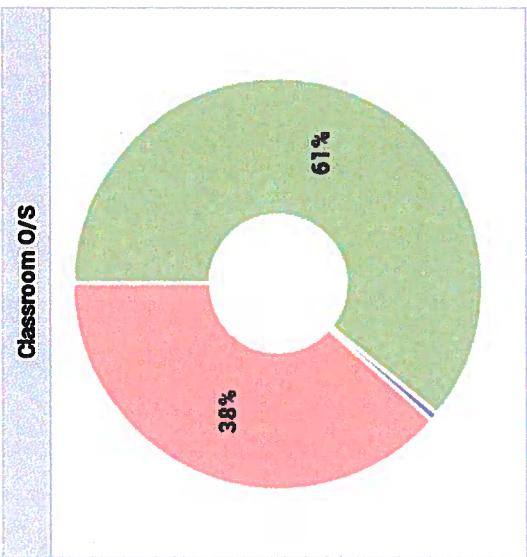
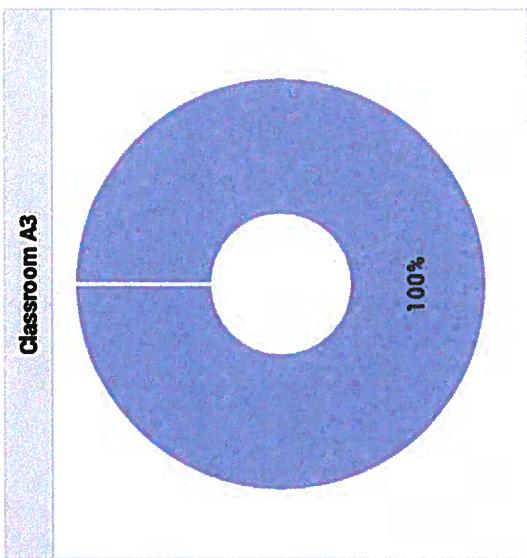


Jim McManus
ALIS Environmental Inc.
1027 Koontz Haven Rd
Pinnacle, NC 27043
(368) 368-4500

2011-2010-06
Eastern Alamance High School
4040 Mebane-Rodgers Road
Mebane, NC 27302

#20037243

Spore Counts - Pie Charts

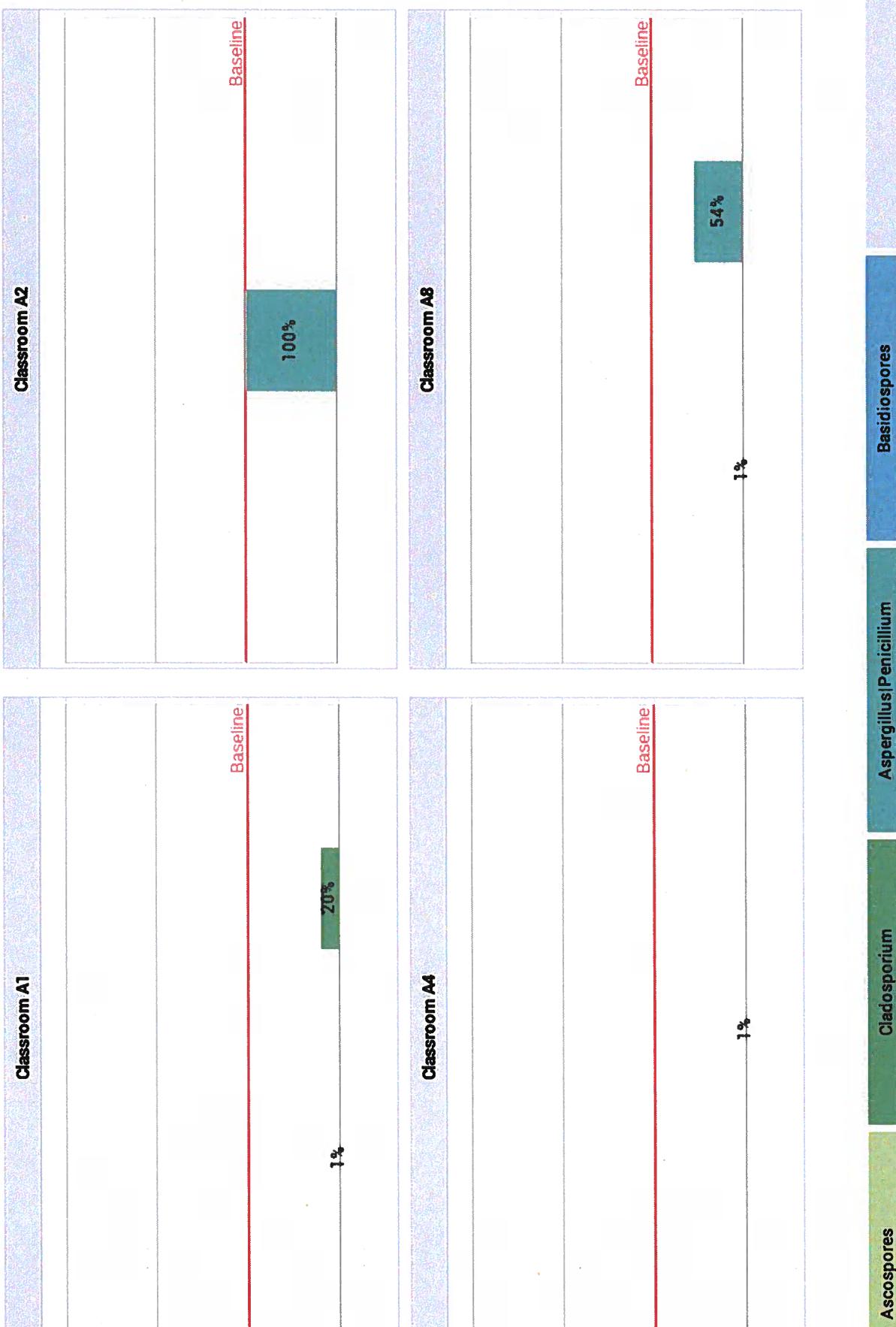


Jim McManus
ALIS Environmental Inc.
1027 Koontz Haven Rd
Pinnacle, NC 27043
(368) 4500

201-2010-06
Eastern Alamance High School
4040 Mebane-Rodgers Road
Mebane, NC 27302

#20037243

Spore Counts - Bar Graphs

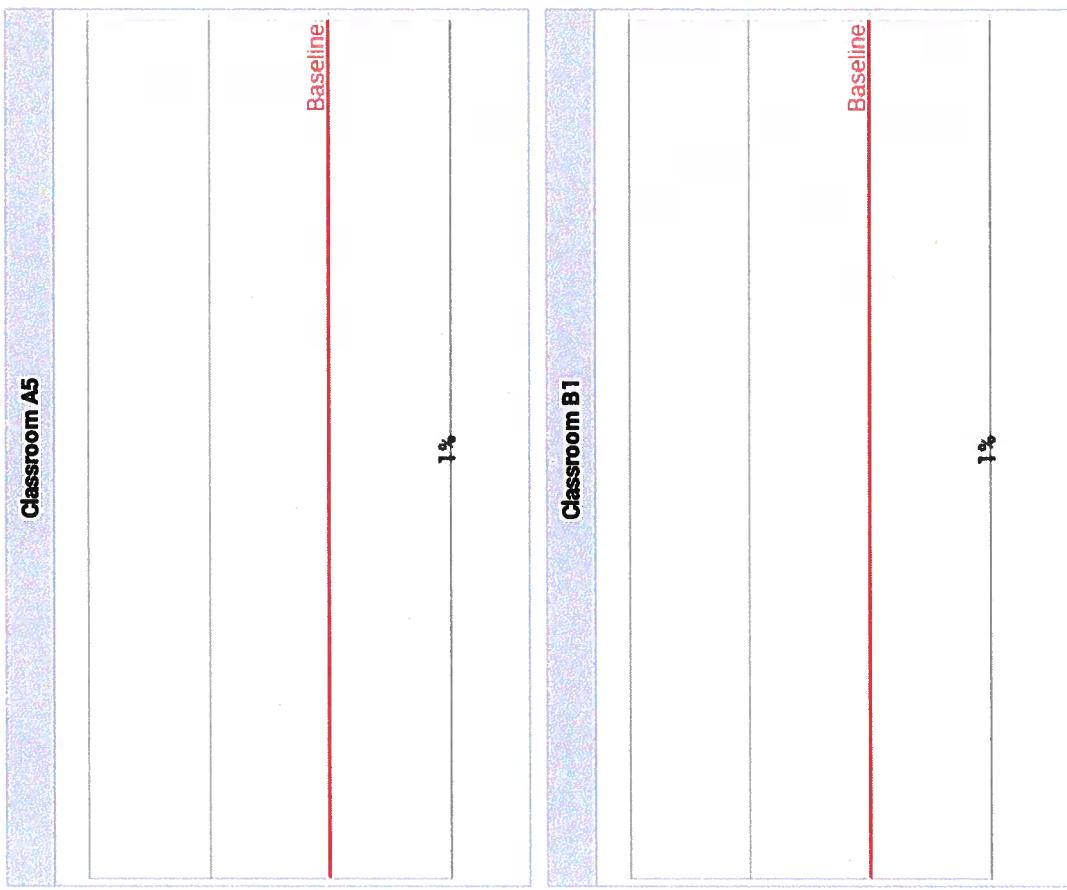
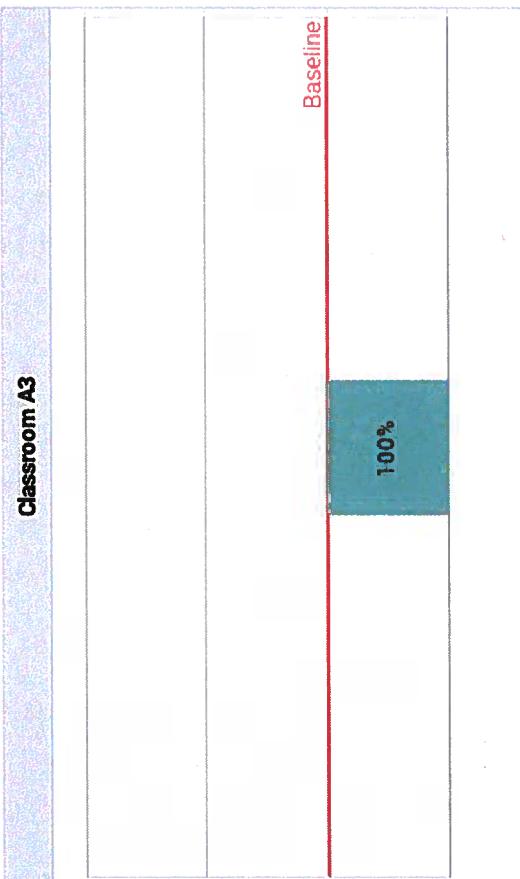
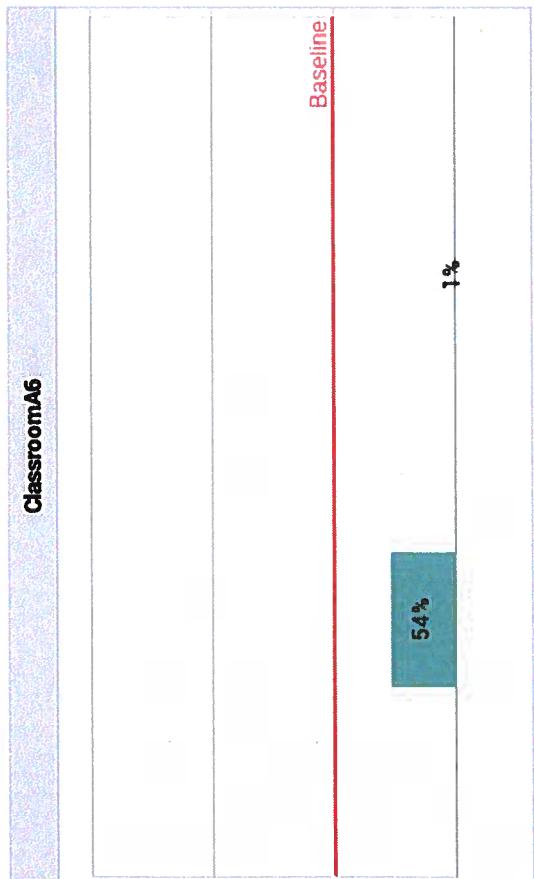


Jim McManus
ALIS Environmental Inc.
1027 Koonz Haven Rd
Pinnacle, NC 27043
(336) 368-4500

201-2010-06
Eastern Alamance High School
4040 Mebane-Rodgers Road
Mebane, NC 27302

#20037243

Spore Counts - Bar Graphs



Ascospores

Habitat: A large group consisting of more than 3000 species of fungi. Common plant pathogens and outdoor numbers become very high following rain. Most of the genera are indistinguishable by spore trap analysis and are combined on the report.

Effects: Health affects are poorly studied, but many are likely to be allergenic.

Aspergillus/Penicillium

Habitat: The most common fungi isolated from the environment. Very common in soil and on decaying plant material. Are able to grow well indoors on a wide variety of substrates.

Effects: This group contains common allergens and many can cause hypersensitivity pneumonitis. They may cause extrinsic asthma, and many are opportunistic pathogens. Many species produce mycotoxins which may be associated with disease in humans and other animals. Toxin production is dependent on the species, the food source, competition with other organisms, and other environmental conditions.

Basidiospores

Habitat: A common group of Fungi that includes the mushrooms and bracket fungi. They are saprophytes and plant pathogens. In wet conditions they can cause structural damage to buildings.

Effects: Common allergens and are also associated with hypersensitivity pneumonitis.

Cadosporium

Habitat: One of the most common genera worldwide. Found in soil and plant debris and on the leaf surfaces of living plants. The outdoor numbers are lower in the winter and often relatively high in the summer, especially in high humidity. The outdoor numbers often spike in the late afternoon and evening. Indoors, it can be found growing on textiles, wood, sheetrock, moist window sills and in HVAC supply ducts.

Effects: A common allergen, producing more than 10 allergenic antigens and a common cause of hypersensitivity pneumonitis.

Pithomyces

Habitat: Common fungus isolated from soil, decaying plant material. Rarely found indoors.

Effects: Allergenic properties are poorly studied. No cases of infection in humans.

