



POST REMEDIATION VERIFICATION SAMPLING REPORT

FOR

CLIENT

**Charlotte-Mecklenburg Schools, Operations
3301 Stafford Drive
Charlotte, NC 28202**

SITE LOCATION

**Cornelius Elementary School
21126 Catawba Avenue
Cornelius, NC 28031**

SAMPLING DATE: October 26, 2020

REPORT DATE: October 29, 2020

PERFORMED BY

Kay H. Horton

ACAC Board Certification #: 0802034

For

**Crossroads Environmental, LLC
1258 Boiling Springs Road
Spartanburg, South Carolina 29303
(864) 541-8736
CRE Project # 19500-IA**

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October 29, 2020

Mr. Glenn Warren
Environmental Health & Safety Specialist
Charlotte-Mecklenburg Schools, Operations
3301 Stafford Drive
Charlotte, NC 28202

Re: Post-Remediation Verification Sampling Report
Cornelius Elementary School
21126 Catawba Avenue, Cornelius, NC
CRE Project Number: 19500-IA

Dear Mr. Warren:

Crossroads Environmental, LLC performed air sampling for mold spores at Cornelius Elementary School on October 26, 2020, following remediation/cleaning efforts performed on October 24, 2020.

During the October 24, 2020, *EHG, LLC* performed remediation/cleaning of items previously identified as exhibiting suspect visible mold. A Certified Indoor Environmental Consultant (CIEC), on behalf of Crossroads Environmental, LLC (CRE) was on site throughout the process to oversee the remediation/cleaning efforts. The CRE representative performed thorough room by room visual inspections throughout the school, including the portables. Any items with suspect visible mold were cleaned by *EHG, LLC*.

SAMPLING PROTOCOL

Post-remediation sampling was performed in rooms previously identified as having elevated airborne mold concentrations (Rooms 229 & 8). Additionally, a minimum of one (1) sample was collected in each wing previously identified as having either elevated airborne mold spores or suspect visible mold. The Media Center was noted by school representatives as having a cart with visible mold; therefore, the Media Center was included in the post-remediation sampling regimen.

Temperature and relative humidity were recorded in each space entered using an Extech™ Hygro-Thermometer Psychrometer.

The air samples were collected using *Allergenco* spore traps and a Zefon™ Bio-Pump calibrated to pull fifteen (15) liters of air per minute for five (5) minutes for a total of seventy-five (75) liters of air. A total of seven (7) samples were collected from representative areas inside of the building, and one (1) sample was collected outside of the building for comparison/baseline purposes. All samples were sealed, packaged, and shipped overnight to Hayes Microbial for analysis of fungal spores and particulates by optical microscopy.

SAMPLE RESULTS/INTERPRETATION

Interpretation of quantitative fungal levels in indoor environments is often complex and may involve a variety of parameters including chemical, microbial, and physical agents. To date, there are no regulatory requirements for indoor air quality involving fungi such as the Permissible Exposure Limits (PELs) utilized by the Occupational Safety and Health Administration (OSHA) for occupational health issues. There are, however, suggested guidelines on indoor air quality published by the American Conference of Governmental Industrial Hygienists (ACGIH), the AIHA, the New York City Department of Health-Bureau of Environmental & Occupational Disease (Guidelines on Assessment and Remediation of Fungi in Indoor Environments), the United States EPA (Mold Remediation in Schools and Commercial Buildings), and other national and international organizations and governmental agencies. Most of these guidelines do not focus on quantitative assessments (i.e., the amount of measured fungi), but rather rely on interpretation of data that focuses on identification of fungal species and genera, comparison of indoor and outdoor relationships, specific indicator species and the potential susceptibilities of exposed populations to various fungi¹.

A comparison of indoor and outdoor airborne mold spore concentrations for the spore trap samples collected on October 26, 2020 do not indicate an indoor air quality issue in relation to airborne mold, and indicates that remediation efforts performed at the school were effective. Airborne mold spore concentrations in the rooms tested on October 26, 2020 are typical of a non-problem indoor environment.

Additionally, the relative humidity in all rooms sampled on October 26, 2020 was within ASHRAE's recommended guidelines of 30% to 60%.

¹ Janet Macher et al. (eds.), *Bioaerosols: Assessment and Control*, ACGIH, Cincinnati, Ohio, 1999, p. 19-10.

RECOMMENDATION(S)

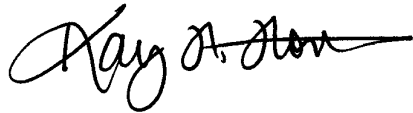
Ensure that relative humidity is maintained between 30% and 60%, either by means of properly operating HVAC system and/or auxiliary de-humidifiers, if necessary.

CLOSING STATEMENTS/LIMITATIONS

This document was prepared at the request of Charlotte-Mecklenburg Schools and was based on limited sampling conducted at Cornelius Elementary School on October 26, 2020. The results presented within this report are indicative of conditions only at the time of the testing. This report does not purport to include all health hazards at the site and is limited in scope to the parameters mentioned.

Crossroads Environmental, LLC appreciates the opportunity to provide Charlotte-Mecklenburg Schools with our consultative services. If you have any questions or need additional information, please do not hesitate to contact us.

Sincerely,



Kay H. Horton
Certified Indoor Air Quality Professional



ATTACHMENT I
LABORATORY RESULTS



#20039891

Analysis Report prepared for

Crossroads

Environmental, LLC

1258 Boiling Springs Road
Spartanburg, SC 29303

Phone: (864) 541-8736

19500-1A
Charlotte-Mecklenburg Schools
Cornelius Elementary School

Collected: **October 26, 2020**
Received: **October 27, 2020**
Reported: **October 27, 2020**



EPA Laboratory ID: VA01419



Lab ID: #188863



DPH License: #PH-0198

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.

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.

A handwritten signature in black ink that reads 'Stephen T. Hayes'.

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

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.



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.

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.



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.

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.

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.

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.

CR

CROSSROADS ENVIRONMENTAL, LLC

TYPE
 A = Bioaerosol Plate
 B = Bulk Solid
 L = Bulk Liquid
 Z = Spore Trap
 P = Particulate
 S = Swab
 T = Tape Lift
 V = VOC
 O = Other

AREA
 1 = Inside Bldg.
 2 = Outside Bldg.
 3 = Inside Containment
 4 = Outside Containment

TURNAROUND TIME
 N = Normal Turnaround
 R = Rush

CROSSROADS ENVIRONMENTAL, LLC
 1258 BOILING SPRINGS RD.
 SPARTANBURG, SC 29303
 Phone (864) 541-8736
 Fax (864) 541-8776
 E-mail Results To: results@crossroadsenv.net
 Collected by: *Dustin Henderson*
 Analyzed by: *Dustin Henderson*

Project #: *19500-IA* Date: *10/26/20*
 Client: *Charlotte-Mecklenburg Schools*
 Project Name: *Cornelius Elem. School*
 Site: *Cornelius ME*
 Weather: _____

IEQ Sampling Form

Outside AM Temp _____ Humidity _____
 Outside PM Temp _____ Humidity _____

Sample #	Type	Area	Pump #	Location	Type of Analysis	CO ₂	Temp. (°F)	Humidity (RH)	Total Mins.	Time	FR (LPM)	Volume	Turn-around Time
4050291	2	1	#3	Room # 8	FUNGAL ID		68°	49%	5	5:30	15	75	SAME DAY
4050299	2	1	#3	Room # 201			71°	40%	5	5:37	15	75	
4050297	2	1	#3	MEDIA CENTER			70°	45%	5	5:44	15	75	
4050296	2	1	#3	Room 214			73°	42%	5	5:51	15	75	
4050293	2	1	#3	Room 229			72°	40%	5	5:58	15	75	
4050303	2	1	#3	Room 110			73°	41%	5	6:06	15	75	
4060300	2	2	#3	FRONT ENTRY			53°	94%	5	6:20	15	75	

SHIP: FEDEX - PAK SO
 DATE: 10-27-2020

8159 8403 7572

MOLD

20039891

SAMPLE CHAIN OF CUSTODY

Signature of Handlers: *Dustin Henderson*
 Date: *10/26/20*
 Relinquished By: _____
 Date: _____

Submitted To: *AYES McROBERT*
 Date Sent: *10-26-20*
 Received By: *MB*
 Date: *10/27/20*