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THE SCIENCE OF READYSM

DIPLOMAT MIDDLE SCHOOL

POST REMEDIATION ASSESSMENT

Cape Coral, Florida
October 17, 2022
Project #021457

Post Remediation Assessment

Prepared By

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Prepared on October 17, 2022

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1.0 Background

On September 28, 2022, Hurricane Ian made landfall in Cayo Costa, FL with winds of 155 miles per hour, two miles per hour short of a Category 5 hurricane. Over the course of two days, Ian moved across Florida, exiting on September 30, 2022, but not before causing major flooding and tornado-like damage in areas across the state.

In response to Hurricane Ian, CTEH, LLC® (CTEH) was requested by Cotton Disaster Solutions (Cotton) to assess structures associated with Lee County School District awarded to them under RFQ No. 22-7431TA for potential water intrusion. On October 15, 2022, industrial hygienists from CTEH and Universal Engineering Sciences (Universal) conducted post remediation verification (PRV) bioaerosol sampling and visually assessed the kitchen at Diplomat Middle School at 1039 NE 16th Terrace, Cape Coral, FL 33909. All samples were collected under the supervision of a licensed mold assessor from Universal. The assessments were requested by Cotton to assess the potential presence of airborne mold spores, and were conducted in only the kitchen.

Heating, ventilation, and air-conditioning (HVAC) for the kitchen is provided by a HVAC system on the roof of the building.

At this time the kitchen was sampled and there were no visible signs of mold and the airborne bioaerosol sampling confirmed mold spores were consistent with what would be found outdoors or in a typical building environment.

2.0 Exposure Standards and Guidelines

Currently, there are no generally accepted occupational or public health standards for interpreting airborne microbiological sample results. Individual susceptibility varies with genetic predisposition, age, state of health, concurrent exposures, and previous sensitization. Due to these challenges, it is not possible to determine an indoor spore concentration that can guarantee all individuals will be asymptomatic. Guidelines published by the American Industrial Hygiene Association (AIHA) recommend comparing the indoor and outdoor air sampling results. In general, the types of fungi and their airborne concentrations found indoors should be similar (in non-problem buildings) to outdoor air.^[1] Differences in the airborne levels or types of fungi may indicate the presence of moisture sources and resultant fungal growth.

3.0 Methods and Equipment

All collected samples were sent under chain-of-custody to EMSL Analytical, Inc., an AIHA-accredited laboratory.* All monitoring equipment was factory calibrated at the manufacturers recommended interval or prior to sampling.

Bioaerosol samples were collected indoors and outdoors using Zefon Air-O-Cell sampling cassettes attached to an SKC QuickTake 30 air sampling pump. Prior to sampling, the pump was calibrated to a flowrate of approximately 15 L/min, as specified by the sampling media manufacturer, using a Bios Defender 510 DryCal. Each sample was collected for a five-minute duration resulting in a sampled air volume of approximately 75 Liters.† Samples were analyzed by microscopic examination using method EMSL 05-TP-003/ASTM D7391 to determine mold spore genus and spore concentration. This method does not differentiate between viable and non-viable spore types.

3.1 Visual Inspection

A visual inspection was conducted in the kitchen and above drop ceilings as necessary.

3.2 Psychrometric Assessment

A psychrometric assessment was conducted utilizing a Protimeter Hygromaster L (Model #: POL7750L) Hygrometer the kitchen.

4.0 Results

Laboratory reports for all samples are provided in **Appendix A**.

5.0 Conclusions and Recommendations

The inspections and tests were performed on October 15, 2022, by industrial hygienists from CTEH and Universal. The results of the post-remediation inspection revealed no visible mold growth nor obviously damp materials in the room inspected. The post-remediation inspection did reveal psychrometric (i.e., atmospheric) readings above 55 Grains of Moisture per Pound of Air (GPP), which may warrant further investigation / dehumidification techniques to inhibit microbial growth.

* AIHA Laboratory Accreditation Program (AIHA-LAP) – Environmental Microbiology; AIHA Environmental Microbiology Proficiency Analytical Testing Program (AIHA-EMPAT) Participant; CDC Elite – Legionella

† See laboratory reports in the appendix for exact flowrates and collected volumes.

The results of the air testing in the assessed room are considered normal and typical and do not indicate the presence of elevated airborne mold spores. No further testing is warranted at this time and the affected area is permitted to be re-occupied without any further access restrictions.

6.0 References

[1] (AIHA), American Industrial Hygiene Association. *Facts About Mold*. Edited by American Industrial Hygiene Association (AIHA). Falls Church, Virginia: AIHA, 2011.

Appendix A

Laboratory Reports



EMSL Analytical, Inc.

5700 Memorial Highway, Suite 122 Tampa, FL 33615

Tel/Fax: (813) 280-8752 / (813) 280-8753

http://www.EMSL.com / tampalab@emsl.com

EMSL Order: 932205769

Customer ID: CTEH99

Customer PO:

Project ID:

Attention: Noah Ambos
CTEH Center for Toxicology & Env. Health
5120 North Shore Drive
North Little Rock, AR 72118

Phone: (501) 801-8500
Fax: (501) 614-2835
Collected Date: 10/15/2022
Received Date: 10/16/2022
Analyzed Date: 10/16/2022

Project: 021453

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

Lab Sample Number:	932205769-0001			932205769-0002			932205769-0003		
Client Sample ID:	DMS1015MS001			DMS1015MS002			DMS1015BG001		
Volume (L):	75			75			75		
Sample Location:	Kitchen			Kitchen Back			Outdoors		
Spore Types	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	15	660	10.5
Aspergillus/Penicillium	-	-	-	1	40	100	53	2300	36.5
Basidiospores	-	-	-	-	-	-	8	400	6.3
Bipolaris++	-	-	-	-	-	-	1	40	0.6
Chaetomium++	-	-	-	-	-	-	-	-	-
Cladosporium	5	200	100	-	-	-	54	2400	38
Curvularia	-	-	-	-	-	-	6	300	4.8
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium++	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	1	40	0.6
Myxomycetes++	-	-	-	-	-	-	2	90	1.4
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Cercospora++	-	-	-	-	-	-	1	40	0.6
Pyricularia	-	-	-	-	-	-	1	40	0.6
Total Fungi	5	200	100	1	40	100	142	6310	100
Hyphal Fragment	-	-	-	-	-	-	3	100	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	-	-	1	-

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

Gerald Iannuzzi, Laboratory Manager
or other Approved Signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. 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. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. High levels of background particulate can obscure spores and other particulates, leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. Present = Spores detected on overloaded samples. Results are not blank corrected unless otherwise noted. The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment. "" Denotes particles found at 300X. "-" Denotes not detected. Due to method stopping rules, raw counts in excess of 100 are extrapolated based on the percentage analyzed. Skin & Fibrous ratings: 1 (1-25%), 2 (26-50%), 3 (51-75%), 4 (76-100%) of the background particles.

Samples analyzed by EMSL Analytical, Inc. Tampa, FL

Initial report from: 10/16/2022 09:38 AM

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



EMSL Analytical, Inc.

5700 Memorial Highway, Suite 122 Tampa, FL 33615
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Lab Sample Number:	932205769-0004								
Client Sample ID:	DMS1015FB001								
Volume (L):									
Sample Location:	NA								
Spore Types	Raw Count	Count/m³	% of Total						
Alternaria (Ulocladium)	-	-	-						
Ascospores	-	-	-						
Aspergillus/Penicillium	-	-	-						
Basidiospores	-	-	-						
Bipolaris++	-	-	-						
Chaetomium++	-	-	-						
Cladosporium	-	-	-						
Curvularia	-	-	-						
Epicoccum	-	-	-						
Fusarium++	-	-	-						
Ganoderma	-	-	-						
Myxomycetes++	-	-	-						
Pithomyces++	-	-	-						
Rust	-	-	-						
Scopulariopsis/Microascus	-	-	-						
Stachybotrys/Memnoniella	-	-	-						
Unidentifiable Spores	-	-	-						
Zygomycetes	-	-	-						
Cercospora++	-	-	-						
Pyricularia	-	-	-						
Total Fungi	-	No Trace	-						
Hyphal Fragment	-	-	-						
Insect Fragment	-	-	-						
Pollen	-	-	-						
Analyt. Sensitivity 600x	-	0	-						
Analyt. Sensitivity 300x	-	0*	-						
Skin Fragments (1-4)	-	-	-						
Fibrous Particulate (1-4)	-	-	-						
Background (1-5)	-	-	-						

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

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