Treadway, David

From: Treadway, David
Sent: Thursday, March 11, 2021 10:30 AM
To: Cartmill, Joi; Hackett, Melissa
Cc: Hughes, Jason; Cashman, Jinger
Subject: FW: Limited Mold Assessment Rm 804B

The original assessment date was January 27, 2021 not 2012.

From: Treadway, David
Sent: Thursday, March 11, 2021 10:20 AM
To: Cartmill, Joi <CartmillA@lisd.net>; Hackett, Melissa <hackettm@lisd.net>
Cc: Hughes, Jason <hughesjk@lisd.net>; Cashman, Jinger <CashmanS@lisd.net>
Subject: Limited Mold Assessment Rm 804B

Mrs. Cartmill,

Good morning. My name is David Treadway and I am the Environmental Coordinator for LISD. I am sending this email to follow up with the results of the limited mold assessment that was conducted in Rm 804B per a campus request. The original mold assessment was conducted on January 27, 2021. It is typically assumed that the indoor spore levels in an area with filtered or air conditioned air, and activity levels associated with schools, average below outdoor levels. Data from the airborne fungi sampling indicated that the total indoor concentration of mold/fungi in Room 804B was **93.3%** of the outdoor levels. Utilizing this theory, the indoor concentrations were above acceptable guidelines for areas with filtered or air conditioned air. It was determined that the high spore levels were caused by the carpet inside the room. The carpet was removed and VCT was reinstalled in the room. The room was then waxed and thoroughly cleaned by custodial. On March 10th, 2021 the room was retested and the overall indoor concentrations were **.06%** of the outdoor levels. This puts the room well within acceptable guidelines for areas with air conditioned air. If you have any questions, please feel free to contact me.

Sincerely,
David Treadway

Environmental Coordinator
Lewisville ISD
469-948-7823

ENSOLUM

February 1, 2021

Lewisville Independent School District
340 Lake Haven
Lewisville, Texas 75057
Attn: Mr. David Treadway

Re:
Limited Mold Assessment
Ben Harmon 9th/10th Grade Center – Room 804B
1250 W Round Grove Rd.
Lewisville, TX
Ensolum Project No. 01A.1288.127

Ensolum, LLC (Ensolum) was retained to perform limited mold assessment services within room 804B of the Ben Harmon 9th/10th Grade Center located at 1250 Round Grove Road in Lewisville, Texas. Enclosed is the report, including analytical data.

Ensolum appreciates this opportunity to be of service and looks forward to our continued work together. Please contact the undersigned with any questions or concerns you may have.

Sincerely,

Nolan R. Domain
Mold Assessment Consultant
MAC1479 EXP: 11/09/2021

Darren G. Bowden
Principal
MAC0321 EXP: 2/15/2020

1.0 INTRODUCTION

Ensolum was retained by Mr. David Treadway, LISD, to complete a Limited Mold Assessment within Rooms 804B of the Ben Harmon 9th/10th Grade Center located at 1250 W Round Grove Road in Lewisville, Texas. The purpose of this investigation was to determine if elevated concentrations of airborne fungal spores and structures were present within the above-referenced areas.

Mr. Nolan Domain completed the on-site investigation on January 27, 2021. The Limited Mold Assessment was performed in response to a complaint of possible indoor air quality issues within specific areas.

2.0 PROCEDURE

Ensolum visually inspected accessible areas of the room. No Visible water damage or odors were observed in the following locations:

VISIBLE WATER DAMAGE		
LOCATION	DATE	EXPLANATION
Room 804B	01-27-2021	N/A

Walls within the room consisted of concrete masonry unit.

Representative Relative Humidity readings were collected and recorded using an Extech Instruments Humidity / Temperature Pen. Measurements recorded during the investigation are listed in the chart below:

TEMPERATURE, RELATIVE HUMIDITY & SPECIFIC HUMIDITY				
LOCATION	DATE	Temperature: F	Relative Humidity	Specific Humidity
Room 804B	01-27-2021	71.4°	37.3%	42%
Outdoor	01-27-2021	47.1°	45.3%	21%
Outdoor	01-27-2021	53.2°	36.4%	21%

Area air samples were collected with Allergenco-D spore trap cassettes and analyzed for airborne fungal spores and structures. Samples were collected at a rate of 15 liters per minute. Indoor air sample(s) were collected for a five (5) minute period of time (75 liters)

at a height of approximately five (5) feet above finished floor (AFF). Outdoor air samples were collected for a five (5) minutes period of time (75 liters) at a height of approximately five (5) feet above level ground. American Conference of Governmental Industrial Hygienists (ACGIH) guidelines were followed for the sample collection. Fungal air samples were collected in the following areas:

SPORE TRAP LOCATIONS	
SAMPLE NUMBER	LOCATION
1	Room 804B
2	Outdoor
3	Outdoor

3.0 RESULTS

Currently, there are no regulatory standards for airborne fungal contamination. Therefore, results of the fungal analysis are compared against scientific guidelines. Bioaerosol samples are evaluated by comparing the indoor samples against the outdoor sample. The same types of fungi should be found in both the indoor and outdoor samples.

Should higher fungal concentrations occur in the indoor sample(s) or complaint areas, this generally indicates there is a source of fungal growth in the area. The types of fungi are also evaluated-the same types/genus of fungi should be present in both the indoor/complaint and outdoor/non-complaint samples.

The results of the fungal air samples collected were evaluated. Air testing performed using spore traps found that total airborne mold spores within Room 804B were lower and were qualitatively similar to those measured outside of the building at the time the sampling was performed. However, air testing found that some individual airborne mold spores within the room were elevated compared to the outdoor samples.

CONCLUSIONS

Based on ENSOLUM's limited assessment and the analytical results, it appears that the indoor air quality, as it relates to some individual airborne fungi, were elevated. This could be attributed to the season when the samples were collected. For the purposes of this report, Ensolum recommends that the investigation area be cleaned and retesting be considered.

APPENDIX A

ANALYTICAL DATA

IAQ Mold Report

Summary

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460
TDLR License No.: LAB0117
AIHA EMPAT ID: 102577

Client : Ensolum, LLC
Project : LHS - Ben Harmon 804B Mold
Project # : 01A.1288.127
Sample Type: Spore Trap, Non-cultured
Test Method: Mold: ASTM D7391-20 - Standard Profile

Lab Job No. : 21F-00862
Report Date : 01/28/2021
Sample Date: 01/27/2021
Spore Trap Type: Allergenco D

On 1/27/2021, three (3) samples were submitted by Nolan Domain of Ensolum, LLC (located at 2351 W. Northwest Hwy Suite #1203, Dallas, TX 75220) for Spore Trap, Non-cultured mold analysis. This report consists of three sections; a summary section, a data detail section, and an analytical notes section.

Sample Number	Volume (liters)	Sample Description	Identification	Concentration spores/cubic meter	
1	75	Room 804B	Myxomycete / Periconia / Rust / Smut	320	29%
			Basidiospores	267	24%
			Aspergillus / Penicillium	253	23%
			Cladosporium	107	10%
			Hyphal / Spore Fragments - Dematiaceous	40	4%
			Alternaria	40	4%
			Curvularia	27	2%
			Agaricales group	13	1%
			Coprinus group	13	1%
			Epicoccum	13	1%
			Drechslera / Bipolaris / Helminthosporum / Exserohilum group	13	1%
			Ascospores	13	1%
			Total:	1119	100%
2	75	Outdoor Side	Cladosporium	507	46%
			Basidiospores	360	33%
			Aspergillus / Penicillium	120	11%
			Hyphal / Spore Fragments - Dematiaceous	27	2%
			Ascospores	27	2%
			Myxomycete / Periconia / Rust / Smut	13	1%
			Coprinus group	13	1%
			Curvularia	13	1%
			Alternaria	13	1%
			Total:	1093	100%

IAQ Mold Report

Summary

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

TDLR License No.: LAB0117
AIHA EMPAT ID: 102577

Client : Ensolum, LLC
Project : LHS - Ben Harmon 804B Mold
Project # : 01A.1288.127
Sample Type: Spore Trap, Non-cultured
Test Method: Mold: ASTM D7391-20 - Standard Profile

Lab Job No. : 21F-00862
Report Date : 01/28/2021
Sample Date: 01/27/2021
Spore Trap Type: Allergenco D

On 1/27/2021, three (3) samples were submitted by Nolan Domain of Ensolum, LLC (located at 2351 W. Northwest Hwy Suite #1203, Dallas, TX 75220) for Spore Trap, Non-cultured mold analysis. This report consists of three sections; a summary section, a data detail section, and an analytical notes section.

Sample Number	Volume (liters)	Sample Description	Identification	Concentration spores/cubic meter	
3	75	Outdoor Front	Basidiospores	680	57%
			Cladosporium	240	20%
			Aspergillus / Penicillium	147	12%
			Ascospores	53	4%
			Hyphal / Spore Fragments - Dematiaceous	27	2%
			Agaricales group	13	1%
			Myxomycete / Periconia / Rust / Smut	13	1%
			Pithomyces	13	1%
			Alternaria	13	1%
			Total:	1199	100%

Analyst(s): Christine Sauri

Lab Director : Heather Lopez — Approved Signatory : Heather Lopez

Lab Director : Bruce Crabb — Approved Signatory : Bruce Crabb

Thank you for choosing Moody Labs

IAQ Mold Report

Data Detail

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

TDLR License No.: LAB0117
AIHA EMPAT ID: 102577

Client : Ensolum, LLC
Project : LHS - Ben Harmon 804B Mold
Project # : 01A.1288.127
Sample Type: Spore Trap, Non-cultured
Test Method: Mold: ASTM D7391-20 - Standard Profile

Lab Job No. : 21F-00862
Report Date : 01/28/2021
Sample Date: 01/27/2021
Spore Trap Type: Allergenco D

This report consists of three sections; a summary section, a data detail section, and an analytical notes section. Results may not be reported except in full.

Sample ID:	1					2					3				
Location:	Room 804B					Outdoor Side					Outdoor Front				
Media Expires On:	Jul 2021					Jul 2021					Jul 2021				
Notes Included:															
Volume:	75					75					75				
	raw ct	RL	spores/m³	%total	spores/m³ SF	raw ct	RL	spores/m³	%total	spores/m³ SF	raw ct	RL	spores/m³	%total	spores/m³ SF
Agaricales group	1	13	13	1%	10						1	13	13	1%	10
Alternaria	3	13	40	4%	40	1	13	13	1%	10	1	13	13	1%	10
Ascospores	1	13	13	1%	10	2	13	27	2%	30	4	13	53	4%	50
Aspergillus / Penicillium	19	13	253	23%	250	9	13	120	11%	120	11	13	147	12%	150
Basidiospores	20	13	267	24%	270	27	13	360	33%	360	51	13	680	57%	680
Chaetomium															
Cladosporium	8	13	107	10%	100	38	13	507	46%	510	18	13	240	20%	240
Coprinus group	1	13	13	1%	10	1	13	13	1%	10					
Curvularia	2	13	27	2%	30	1	13	13	1%	10					
Drechslera / Bipolaris / Helminthosp	1	13	13	1%	10										
Epicoccum	1	13	13	1%	10										
Hyphal / Spore Fragments - Demati	3	13	40	4%	40	2	13	27	2%	30	2	13	27	2%	30
Hyphal / Spore Fragments - Hyaline															
Myxomycete / Periconia / Rust / Sm	24	13	320	29%	320	1	13	13	1%	10	1	13	13	1%	10
Pithomyces											1	13	13	1%	10
Stachybotrys															
TOTALS	84		1119	100%	1100	82		1093	100%	1100	90		1199	100%	1200
Analyst	Christine Sauri					Christine Sauri					Christine Sauri				
Analysis Date	1/28/2021					1/28/2021					1/28/2021				
Debris Rating	2					1					1				
Debris Composition															
Fibers	1/5					1/5					1/5				
Inorganic/Other	2/5					1/5					1/5				
Insect Parts	0/5					0/5					0/5				
Pollen	1/5					0/5					0/5				
Skin/Dander	1/5					1/5					1/5				

End of Data Detail section
21F-00862

IAQ Mold Report

Analytical Notes

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460
TDLR License No.: LAB0117
AIHA EMPAT ID: 102577

Client :	Ensolum, LLC	**Lab Job No. :**	21F-00862
Project :	LHS - Ben Harmon 804B Mold	**Report Date :**	01/28/2021
Project # :	01A.1288.127	**Sample Date :**	01/27/2021
Sample Type:	Spore Trap, Non-cultured	**Spore Trap Type:**	Allergenco D
Test Method:	Mold: ASTM D7391-20 - Standard Profile		

This report consists of three sections; a summary section, a data detail section, and an analytical notes section. Results may not be reported except in full.

NOTE: No abnormalities or exceptions noted during analysis. All samples suitable for analysis.

NOTE: No discernable field blanks were included with this sample set.

Methods

Method: ASTM D7391-20: Categorization and Quantification of Airborne Fungal Structures in an Inertial Impaction Sample by Optical Microscopy.
Samples are read at 100% under 400x magnification unless noted. Partial readings may be employed when concentrations are elevated. Use final spore concentrations, not raw spore counts, for interpretation of results.

Calculation: Spores/cubic meter = (Raw spore count)*(RL)
Note: RL (Reporting Limit) is based upon 1 raw spore count.
Moody Labs recommends two significant figures for calculated values based on ASTM D7391-20.

This report must not be used by the customer to claim product certification, approval, or endorsement by AIHA, ISO, or any agency of the Federal Government.

Debris Rating Key

0 - No linear trace detected
1 - Trace particulate/debris
2 - Light particulate/debris
3 - Moderate particulate/debris
4 - Substantial particulate/debris
5 - Extensive particulate/debris
6 - Field blank
10 - Hold Sample
11 - Modified Analysis per Client Instructions

NOTE: Particulate/debris are defined as skin, fibers, pollen grains, insect parts, fungal and/or other non-fungal particles.

IAQ Mold Report

Analytical Notes

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460
TDLR License No.: LAB0117
AIHA EMPAT ID: 102577

Client : Ensolum, LLC
Project : LHS - Ben Harmon 804B Mold
Project # : 01A.1288.127
Sample Type: Spore Trap, Non-cultured
Test Method: Mold: ASTM D7391-20 - Standard Profile

Lab Job No. : 21F-00862
Report Date : 01/28/2021
Sample Date : 01/27/2021
Spore Trap Type: Allergenco D

This report consists of three sections; a summary section, a data detail section, and an analytical notes section. Results may not be reported except in full.

Lab ID # 102577

End of Analytical Notes section
21F-00862

IAQ Mold Report

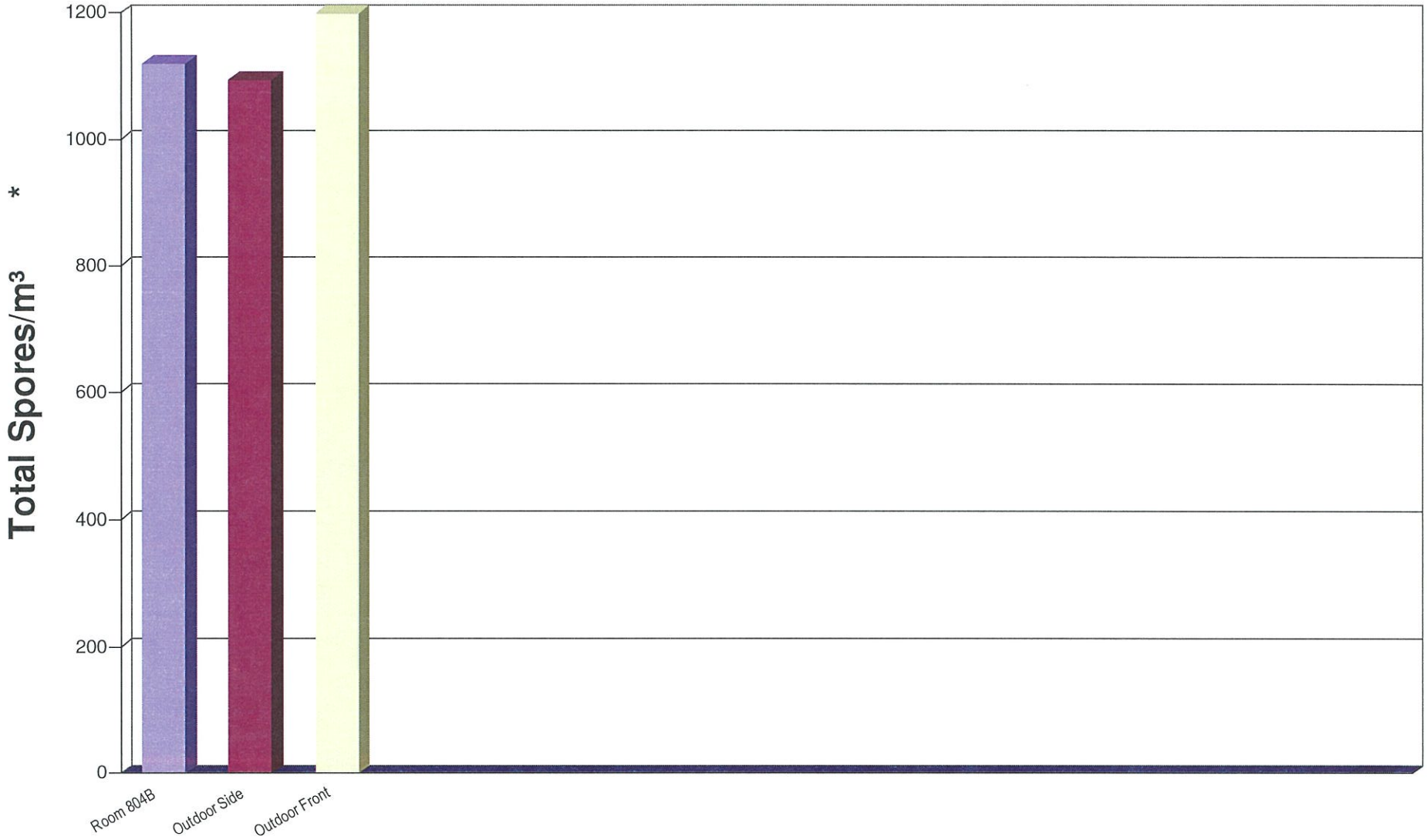
Supplemental Overview

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

TDLR License No.: LAB0117
AIHA EMPAT ID: 102577

Client : Ensolum, LLC
Project : LHS - Ben Harmon 804B Mold
Project # : 01A.1288.127

Lab Job No. 21F-00862
Report Date 01/28/2021
Sample Date : 01/27/2021



Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

IAQ Mold Report

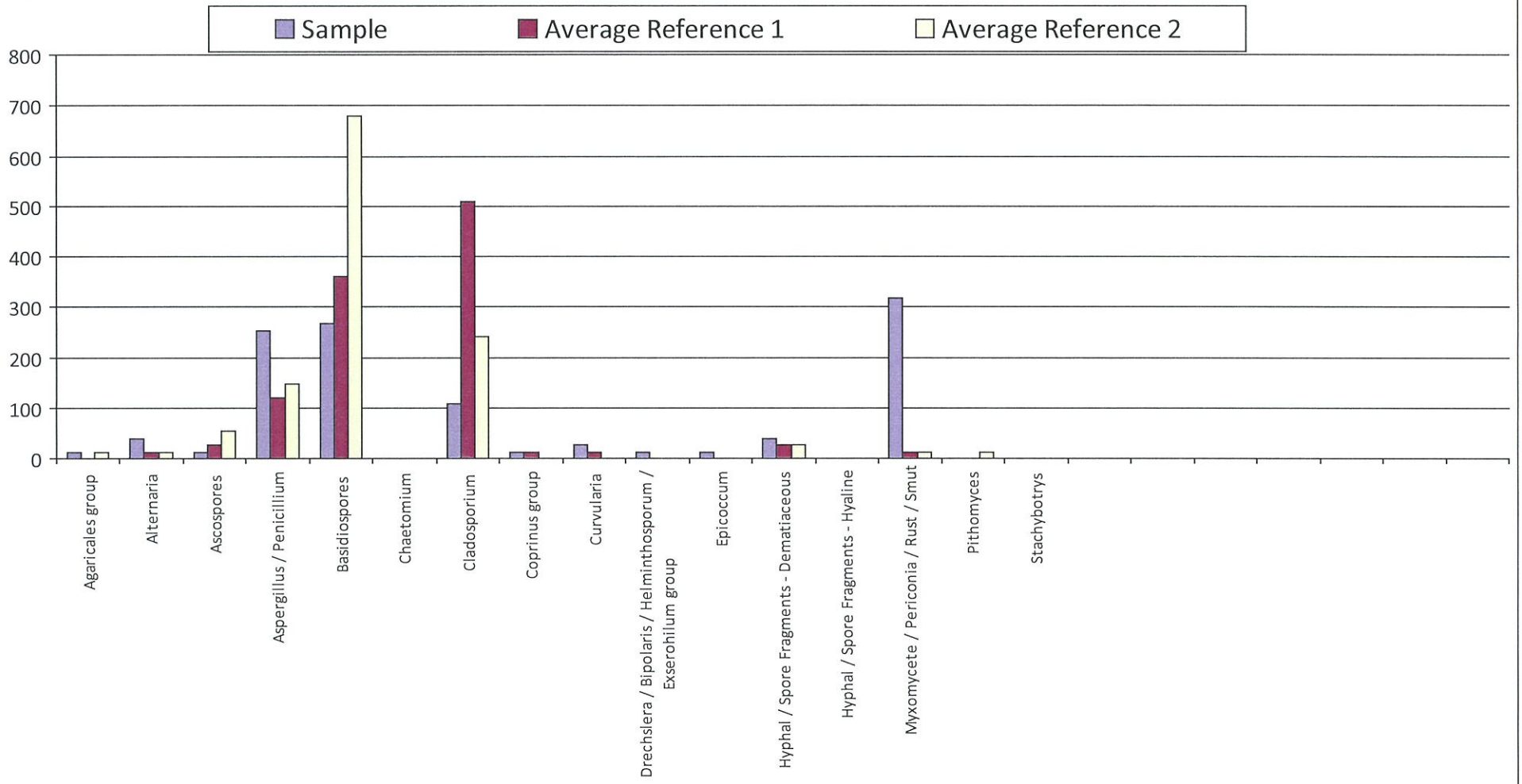
Supplemental Overview

TDLR License No.: LAB0117
AIHA EMPAT ID: 102577

Client : Ensolum, LLC
Project : LHS - Ben Harmon 804B Mold
Project # : 01A.1288.127

Room 804B

Lab Job No. 21F-00862
Report Date 01/28/2021
Sample Date : 01/27/2021



Average Reference 1 = Outdoor Side

Average Reference 2 = Outdoor Front

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

IAQ Mold Report

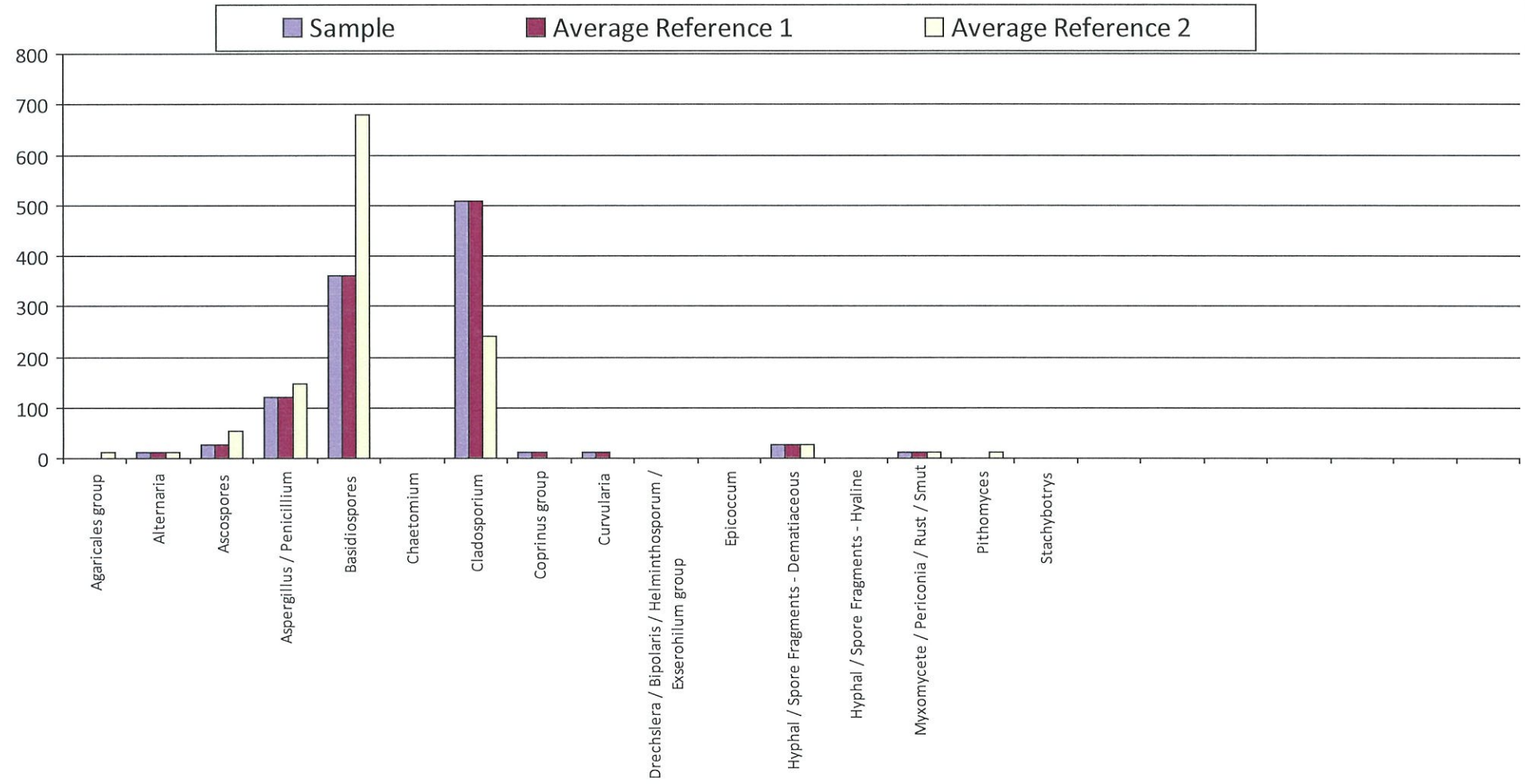
Supplemental Overview

TDLR License No.: LAB0117
AIHA EMPAT ID: 102577

Client : Ensolum, LLC
Project : LHS - Ben Harmon 804B Mold
Project # : 01A.1288.127

Lab Job No. 21F-00862
Report Date 01/28/2021
Sample Date : 01/27/2021

Outdoor Side



Average Reference 1 = Outdoor Side

Average Reference 2 = Outdoor Front

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

IAQ Mold Report

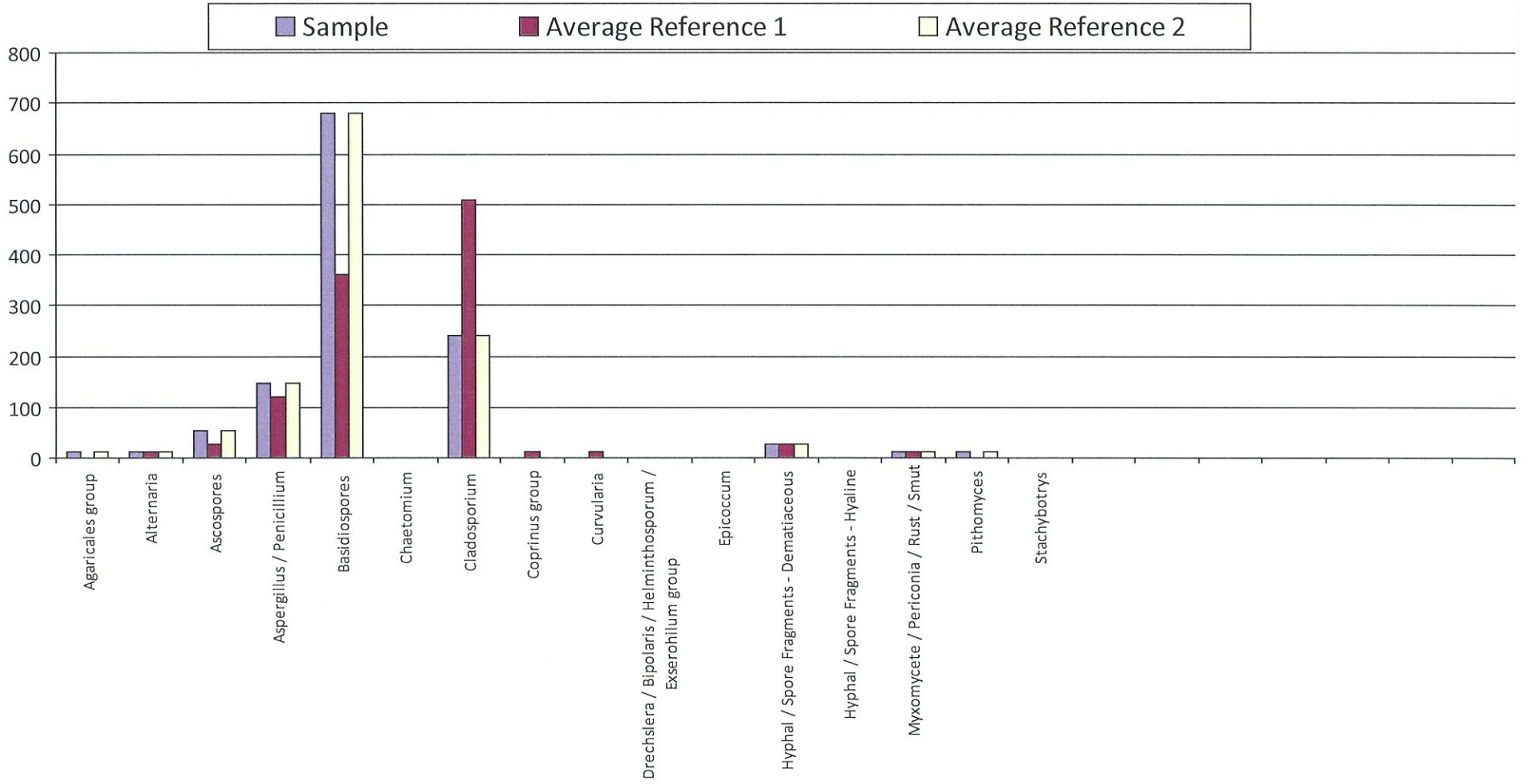
Supplemental Overview

TDLR License No.: LAB0117
AIHA EMPAT ID: 102577

Client : Ensolum, LLC
Project : LHS - Ben Harmon 804B Mold
Project # : 01A.1288.127

Lab Job No. 21F-00862
Report Date 01/28/2021
Sample Date : 01/27/2021

Outdoor Front



Average Reference 1 = Outdoor Side

Average Reference 2 = Outdoor Front

End of Supplemental Overview section
21F-00862

EMSL Analytical, Inc.
200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 / 786-0262
http://www.emsl.com E-mail:DNALab2@emsl.com

EMSL Order: **612100230**
CustomerID: **ENSU29**
Customer PO:
ProjectID:

Attn: **Darren Bowden**
Ensolum
2351 W Northwest Hgihway
Suite 1203
Dallas, TX 75220
Project: LHS - Ben harmon - 804B

Phone: (972) 364-7643
Fax:
Collected: 1/27/2021
Received: 1/28/2021
Analysis date: 1/29/2021

Analytical Results

EMSL - Results **ERMI Analysis** EMSL Test Code: **M180**

Lab Sample Number	Client Sample ID	Sample Location	Sample Size	EMSL Order#
612100230-1	01	Carpet/Floor	5 mg	612100230

ERMI Value:	**2.8**
ERMI Interpretation*	**Level 3**

Your Result Indicator

Level 4: ERMI Value > 5, High Relative Moldiness. Further Investigation needed to determine the sources of this mold.

ERMI Value > -4 to 0 (Level 2) and > 0 to ≤ 5 (Level 3), Moderate Relative Moldiness. Further investigation needed to determine if sources of mold exists.

Level 1: ERMI Value ≤ -4, Low Relative Moldiness. It is unlikely you have a mold problem.

* Developed by EPA researchers, the ERMI is an acronym for Environmental Relative Moldiness Index. The mold burden of a home can be defined by two factors; the quantity of each mold species and the diversity of species present. The ERMI takes into account both of these factors and measures the long term mold burden. A relatively new water damage event with ensuing mold growth may not be detected by the ERMI as the spores must undergo an equilibration period and collect in household dust. Other changes in the home, such as new carpets, must be interpreted in conjunction with the ERMI result.

Fungal spores are found everywhere. Whether or not symptoms develop in people exposed to fungi depends on the nature of the fungal material (e.g., allergenic, toxic, or infectious), the exposure level, and the susceptibility of exposed persons. Susceptibility varies with the genetic predisposition (e.g., allergic reactions do not always occur in all individuals), age, pre-existing medical conditions (e.g., diabetes, cancer, or chronic lung conditions), use of immunosuppressive drugs, and concurrent exposures. These reasons make it difficult to identify dose/response relationships that are required to establish "safe" or "unsafe" levels (i.e., permissible exposure limits).

It is generally accepted in the industry that indoor fungal growth is undesirable and inappropriate, necessitating removal or other appropriate remedial actions. Always remember that water is the key. Preventing water damage or water condensation will prevent mold growth. This report is not intended to provide medical advice or advice concerning the relative safety of an occupied space. Always consult an occupational or environmental health physician who has experience addressing indoor air contaminants if you have any questions.

ERMI
USEPA License No: 0240-02

Initial Report From: 2/1/2021
Amended Report From: Initial Report

Approved EMSL Signatory
Sergey Balashov, Ph.D.

EMSL - Results | **ERMI Analysis** | EMSL Test Code: **M180** CustomerID: **ENSU29**

Lab Sample Number	Client Sample ID	Sample Location	Sample Size	EMSL Order#
612100230-1	**01**	**Carpet/Floor**	**5 mg**	**612100230**

Environmental Relative Moldiness Index (ERMI) by Mold Specific Quantitative Polymerase Chain Reaction (MSQPCR)

Lab Sample Number	612100230-1
Client Sample ID	01
Sample Location	Carpet/Floor
Sample size	5mg Dust
EPA 36 Species Identification Group 1	Spores E./ mg dust
Aspergillus flavus	ND
Aspergillus fumigatus	ND
Aspergillus niger	231
Aspergillus ochraceus	ND
Aspergillus penicillioides	2
Aspergillus restrictus	ND
Aspergillus sclerotiorum	256
Aspergillus sydowii	ND
Aspergillus unguis	ND
Aspergillus versicolor	ND
Eurotium (A.) amstelodami	13
Aureobasidium pullulans	124
Chaetomium globosum	55
Cladosporium sphaerospermum	134
Paecilomyces variotii	10
Penicillium brevicompactum	27
Penicillium corylophilum	ND
Penicillium crustosum (group2)	ND
Penicillium purpurogenum	ND
Penicillium spinulosum	ND
Penicillium variabile	216
Scopulariopsis brevicaulis	ND
Scopulariopsis chartarum	ND
Stachybotrys chartarum	ND
Trichoderma viride	1,462
Wallemia sebi	16
Group 1 Sum of the Logs	**21.2**

Lab Sample Number	612100230-1	
Client Sample ID	01	
Sample Location	Carpet/Floor	
Sample size	5mg Dust	
EPA 36 Species Identification Group 2	Spores E./ mg dust	
Acremonium strictum	ND	
Alternaria alternata	11	
Aspergillus ustus	2	
Cladosporium cladosporioides I	8,020	
Cladosporium cladosporioides II	25	
Cladosporium herbarum	1,903	
Epicoccum nigrum	896	
Mucor and Rhizopus group	495	
Penicillium chrysogenum	99	
Rhizopus stolonifer	6	
Group 2 Sum of the Logs	**18.5**	☑

Interpretation Key Group 2 Sum of the Logs

⚠ **≤ 2 or ≥ 20** - - Less than or equal to 2 or Greather than or equal to 20

☑ **> 2 and < 20** - - Greater than 2 or Less than 20

ERMI Value:	**2.8**	⚠
ERMI Interpretation*	**Level 3**	

Interpretation Key ERMI Value

🚫 **Level 4: ERMI Value > 5,** High Relative Moldiness. Further Investigation needed to determine the sources of this mold.

⚠ **ERMI Value > -4 to 0 (Level 2) and > 0 to ≤ 5 (Level 3),** Moderate Relative Moldiness. Further investigation needed to determine if sources of mold exists.

☑ **Level 1: ERMI Value ≤ -4,** Low Relative Moldiness.It is unlikely you have a mold problem.

Initial Report From: 2/1/2021
Amended Report From: Initial Report

Approved EMSL Signatory
Sergey Balashov, Ph.D.

Please visit our website at http://www.microbiologytestinglab.com/

EMSL - Results	ERMI Analysis	EMSL Test Code: M180		
Lab Sample Number	Client Sample ID	Location	Sample Size	
612100230-1	01	Carpet/Floor	5 mg	612100230

1. Description of Analysis

Analytical Laboratory:

EMSL Analytical, Inc (EMSL) is a nationwide, full service, analytical testing laboratory network providing Asbestos, Mold, Indoor Air Quality, Microbiological, Environmental, Chemical, Forensic, Materials, Industrial Hygiene and Mechanical Testing services since 1981. Ranked as the premier independently owned environmental testing laboratory in the nation, EMSL puts analytical quality as its top priority. This quality is recognized by many well-respected federal, state and private accrediting agencies, such as AIHA's EMLAP and EMPAT programs, and assured by our high quality personnel, including many Ph.D. microbiologists and mycologists.

EMSL is an independent laboratory that performed the analysis of these samples. EMSL did not conduct the sampling or site investigation for this report. The samples referenced herein were analyzed under strict quality control procedures using state-of-the-art molecular methods.

Analytical Method:

Mold specific quantitative polymerase chain reactions (MSQPCR) was developed by a team of EPA researchers. MSQPCR utilizes EPA-patented molecular diagnostics methods for detecting and quantifying species of mold. The benefits of this technology include:

- A fast, accurate, and sensitive DNA-based analytical method for identifying and quantifying molds to the species level.
- Looks for the presence of DNA sequences that are unique to a particular mold species.
- Utilizes a DNA sequence detection system to monitor the presence and concentration of a specific mold in "REAL TIME". As a mold-unique sequence is detected and amplified, fluorescent signal molecules are simultaneously released and measured. No fluorescence = no target mold.

Real-Time PCR is a DNA-based analytical method. What is DNA?

- DNA is a nucleic acid that carries the genetic information that is unique to every organism. DNA sequences determine individual hereditary characteristics.
- DNA can be found in every cell in every living (or previously living) organism. For example, humans have DNA in their skin cells and blood cells and fungi have DNA in their spores and hyphae.

ERMI Development:

EPA researchers developed the Environmental Relative Moldiness Index (ERMI) in order to standardize the sampling and analytical methods available to indoor air quality consultants, researchers, and homeowners. The long term goal is to help better understand the risks of mold exposure to the health of occupants. The ERMI specifically measures the mold-burden in a home. The ERMI consists of values for 36 molds broken down into two groups, 26 in group 1; that represented the species associated with water-damaged environments, and 10 species in group 2; that are considered common mycoflora in homes.

Lab Sample Number	Client Sample ID	Location	Sample Size	
612100230-1	01	Carpet/Floor	5 mg	612100230

The US Department of Housing and Urban Development conducted the American Health Homes Survey in 2006. As part of this study, dust samples were collected from the bedroom and living room of 1096 homes across the US. Each composite sample was tested by MSQPCR for the ERMI. From this study, researchers were able to develop the following ERMI scale:

2. Understanding the Results

EMSL Analytical, Inc. is an independent laboratory, providing unbiased and scientifically valid results. These data represent only a portion of an overall IAQ investigation. Visual information and environmental conditions measured during the site assessment (humidity, moisture readings, etc.) are crucial to any final interpretation of the results. Many factors impact the final results; therefore, result interpretation should be conducted with caution.

ERMI Interpretation:

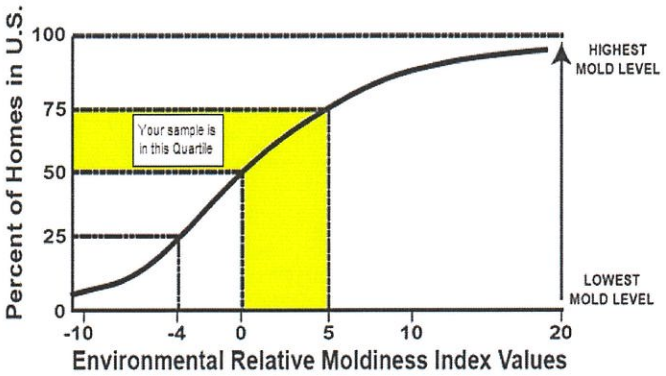
The mold burden of a home can be defined by two factors; the quantity of each mold species and the diversity of species present. The ERMI takes into account both of these factors and measures the long term mold burden. A relatively new water damage event with ensuing mold growth may not be detected by the ERMI as the spores must undergo an equilibration period. Other changes in the home, such as new carpets, must be interpreted in conjunction with the ERMI result.

The ERMI consists of the Group 1 water damage indicator species and the Group 2 commonly occurring species. There are cases whereby species found in one group could easily be categorized in the other group but in general the grouping holds true. Also the ERMI uses a combination of 36 molds to determine the mold burden in a home and does not rely on one or two species. Homes with an ERMI value above 0 are more likely to have a mold problem. Homes with an ERMI value above 5 have the greatest likelihood of having a mold problem. Homes with an ERMI value below 0 are less likely of having a mold problem and homes with an ERMI below -4 are the least likely of having a mold problem.

Figure 1 shows the distribution of the sum of the logs of the Group 2 species from the American Health Homes Survey conducted by HUD. If the reported Group 2 value falls towards the outside of either end of this scale then a reason must be sought. For example, if your Group 2 value is 1 meaning there are fewer common molds than we would have expected in a normal home. Perhaps it is a new construction or recently remediated environment. If you have a very high group two value (>20), it may be possible that the home is contaminated with species found in Group 2 and is not representative of normal background levels.

Fungal spores are found everywhere. Whether or not symptoms develop in people exposed to fungi depends on the nature of the fungal material (e.g., allergenic, toxic, or infectious), the exposure level, and the susceptibility of exposed persons. Susceptibility varies with the genetic predisposition (e.g., allergic reactions do not always occur in all individuals), age, pre-existing medical conditions (e.g., diabetes, cancer, or chronic lung conditions), use of immunosuppressive drugs, and concurrent exposures. These reasons make it difficult to identify dose/response relationships that are required to establish "safe" or "unsafe" levels (i.e., permissible exposure limits).

The ERMI Interpretation graph below is based on your results.



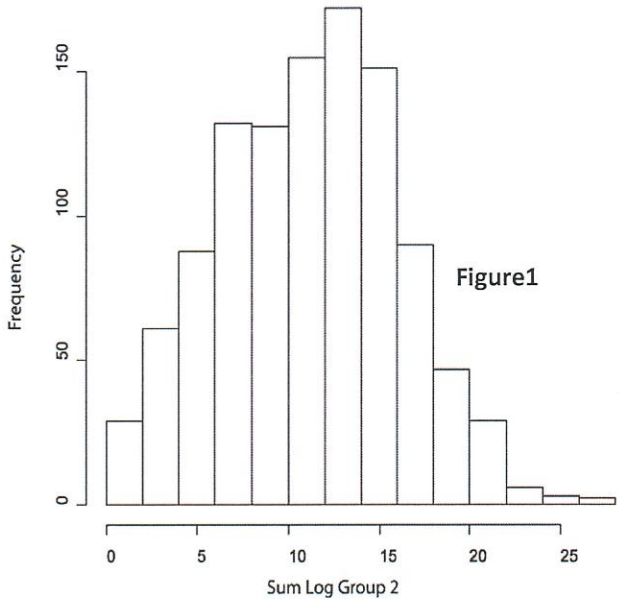


Figure1

The results herein do not denote or represent a medical or clinical diagnosis or conclusion. Interpretation of the data is the responsibility of the client.

Initial Report From: 2/1/2021
Amended Report From: Initial Report

Approved EMSL Signatory
Sergey Balashov, Ph.D.

Lab Sample Number	Client Sample ID	Location	Sample Size	
612100230-1	01	Carpet/Floor	5 mg	612100230

It is generally accepted in the industry that indoor fungal growth is undesirable and inappropriate, necessitating removal or other appropriate remedial actions. The New York City guidelines and EPA guidelines for mold remediation in schools and commercial buildings define the conditions warranting mold remediation. Always remember that water is the key. Preventing water damage or water condensation will prevent mold growth.
This report is not intended to provide medical advice or advice concerning the relative safety of an occupied space. Always consult an occupational or environmental health physician who has experience addressing indoor air contaminants if you have any questions.

Detection of multiple organisms in real-time q-PCR assays:
Certain species of mold are too genetically similar to be distinguished by MSQPCR. Thus positive or negative detection of any of these molds also suggests positive or negative detection of their genetically similar counterparts.

Eurotium (Aspergillus) amstelodami */ chevalieri/ herbariorum/ rubrum/ repens*
Aspergillus flavus */ oryzae*
Aspergillus fumigatus *, Neosartorya fischeri*
Aspergillus niger */ foetidus/ phoenicus*
Aspergillus restrictus/ *caesillus/conicus*
Mucor and Rhizopus group/ *Mucor amphibiorum/circinelloides/heimalis/indicus/mucedo/racemous/ramosissimus and Rhizopus*
Penicillium chrysogenum */ griseofulvum/ glandicola/ coprophilum/ expansum and Eupenicillium crustaceum/ egyptiacum*
Penicillium crustosum */ camembertii/ commune/ echinulatum/ solitum*
Penicillium spinulosum/ *glabrum/lividum/thomii/purpurescens*
Scopulariopsis brevicaulis/ *fusca*
Trichoderma viride */ atroviride/ koningii*

Lab Sample Number	Client Sample ID	Location	Sample Size	
612100230-1	01	Carpet/Floor	5 mg	612100230

3. References and Informational Links

Articles

Quantification of Stachybotrys chartarum conidia in indoor dust using real time, fluorescent probe-based detection of PCR products. 2001. Jennie D Roe, Richard A Haugland, Stephen J Vesper and Larry J Wymer. JEAEE Vol.11.

Rapid Monitoring by Quantitative Polymerase Chain Reaction for Pathogenic Aspergillus During Carpet Removal From a Hospital. 2004. Alice N. Neely, PhD, Vince Gallardo, MS, Ed Barth, MS, Richard A. Haugland, PhD, Glenn D. Warden, MD, and Stephen J. Vesper, PhD. Infection Control and Hospital Epidemiology, Vol. 25.

Quantitative Polymerase Chain Reaction Analysis of Fungi in Dust From Homes of Infants Who Developed Idiopathic Pulmonary Hemorrhaging. 2004. Vesper, Stephen J. PhD; Varma, Manju PhD; Wymer, Larry J. MS; Dearborn, Dorr G. MD, PhD; Sobolewski, John MS; Haugland, Richard A. PhD. Journal of Occupational & Environmental Medicine. 46(6):596-601.

Real-time PCR analysis of molds is performed at EMSL Analytical, Inc. in agreement with the Patent License Agreement between EMSL Analytical, Inc. and the United States Environmental Protection Agency's National Exposure and Research Laboratory-CI as well as the Patent License Agreement between EMSL Analytical, Inc. and Applied Biosystems.

For further technical information regarding the development of the Environmental Relative Moldiness Index refer to the April 2006 issue of "The Synergist" pages 39-43 or www.epa.gov/iaq

Books

Bioaerosols: Assessment and Control. Janet Macher, Ed., American Conference of Governmental Industrial Hygienists, Cincinnati, OH Exposure Guidelines for Residential Indoor Air Quality. Environmental Health Directorate, Health Protection Branch, Health Canada, Ottawa, Ontario, 1989.

Fungal Contamination in Public Buildings: Health Effects and Investigation Methods. Health Canada, Ottawa, Ontario, 2004.

IICRC: S500 Standard and Reference Guide for Professional Water Damage Restoration. 3rd Edition, Institute of Inspection, Cleaning, and Restoration Certification, Vancouver, WA, 2006

IICRC: S520 Standard and Reference Guide for Professional Mold Remediation. 1st Edition, Institute of Inspection, Cleaning, and Restoration Certification, Vancouver, WA, 2004

Field Guide for the Determination of Biological Contaminants in Environmental Samples. 2nd Edition, American Industrial Hygiene Association, 2005.

Lab Sample Number	Client Sample ID	Location	Sample Size	
612100230-1	01	Carpet/Floor	5 mg	612100230

Consumer Links

Read the full text of AIHA's "The Facts About Mold" consumer brochure.
http://www.aiha.org/news-pubs/newsroom/Documents/Facts%20About%20Mold%20December%202011.pdf

The Occupational Safety and Health Administration (OSHA)
http://www.osha.gov/SLTC/molds/index.html

CDC Mold Facts

http://www.cdc.gov/mold/faqs.htm

CDC Stachybotrys – Questions and answers on Stachybotrys chartarum and other molds
http://www.cdc.gov/mold/stachy.htm

IOM, NAS: Clearing the Air: Asthma and Indoor Air Exposures
http://fermat.nap.edu/books/0309064961/html/index.html

National Library of Medicine-Mold website
http://www.nlm.nih.gov/medlineplus/molds.html

California Department of Health Services (CADOHS)
http://www.cal-iaq.org/mold/about-mold

Minnesota Department of Health
http://www.health.state.mn.us/divs/eh/indoorair/mold/index.html

New York City Department of Health and Mental Hygiene
http://www.nyc.gov/html/doh/html/epi/moldrpt1.shtml

H.R.: The United States Toxic Mold Safety and Protection Act
http://conyers.house.gov/index.cfm?FuseAction=Issues.Home&Issue_id=061bf20d-19b9-b4b1-12a3-6089055e7c99

EPA

"Should You Have the Air Ducts in Your Home Cleaned?"
http://www.epa.gov/iaq/pubs/airduct.html

"Fact Sheet: Flood Cleanup - Avoiding Indoor Air Quality Problems."
http://www.epa.gov/iaq/pubs/flood.html

General information about molds and actions that can be taken to clean up or prevent a mold problem.
http://www.epa.gov/mold/moldresources.html

A Brief Guide to Mold, Moisture, and Your Home" Includes basic information on mold, cleanup guidelines, and moisture and mold prevention
http://www.epa.gov/iaq/molds/moldguide.html

"Mold Remediation in Schools and Commercial Buildings" – Information on remediation in schools and commercial property, references for potential mold and moisture remediators.

http://www.epa.gov/mold/mold_remediation.html

FEMA

"Homes That Were Flooded May Harbor Mold Problems" – Information and tips for cleaning mold.
http://www.fema.gov/news/newsrelease.fema?id=6927

"Mold Can Damage Home and Health" – How to check for mold, potential health effects of mold, and how to treat mold in the home.
http://www.fema.gov/news/newsrelease.fema?id=6358

"Prompt Flood Cleanup Can Help Prevent Health Problems" – How to clean up in-house mold problems (not large or serious exposures).
http://www.fema.gov/news/newsrelease.fema?id=3652

Important Terms, Conditions, and Limitations

A. Sample Retention

Samples analyzed by EMSL will be retained for 60 days after analysis date. Storage beyond this period is available for a fee with written request prior to the initial 30 day period. Samples containing hazardous/toxic substances which require special handling will be returned to the client immediately. EMSL reserves the right to charge a sample disposal fee or return samples to the client.

B. Change Orders and Cancellation

All changes in the scope of work or turnaround time requested by the client after sample acceptance must be made in writing and confirmed in writing by EMSL. If requested changes result in a change in cost the client must accept payment responsibility. In the event work is cancelled by a client, EMSL will complete work in progress and invoice for work completed to the point of cancellation notice. EMSL is not responsible for holding times that are exceeded due to such changes.

C. Warranty

EMSL warrants to its clients that all services provided hereunder shall be performed in accordance with established and recognized analytical testing procedures and with reasonable care in accordance with applicable federal, state and local laws. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied. EMSL disclaims any other warranties, express or implied, including a warranty of fitness for particular purpose and warranty of merchantability.

D. Limits of Liability

In no event shall EMSL be liable for indirect, special, consequential, or incidental damages, including, but not limited to, damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of EMSL and whether EMSL has been informed of the possibility of such damages, arising out of or in connection with EMSL's services thereunder or the delivery, use, reliance upon or interpretation of test results by client or any third party. We accept no legal responsibility for the purposes for which the client uses the test results. EMSL will not be held responsible for the improper selection of sampling devices even if we supply the device to the user. The user of the sampling device has the sole responsibility to select the proper sampler and sampling conditions to insure that a valid sample is taken for analysis. Any resampling performed will be at the sole discretion of EMSL, the cost of which shall be limited to the reasonable value of the original sample delivery group (SDG) samples. In no event shall EMSL be liable to a client or any third party, whether based upon theories of tort, contract or any other legal or equitable theory, in excess of the amount paid to EMSL by client thereunder.

E. Indemnification

Client shall indemnify EMSL and its officers, directors and employees and hold each of them harmless for any liability, expense or cost, including reasonable attorney's fees, incurred by reason of any third party claim in connection with EMSL's services, the test result data or its use by client.

This report has been prepared by EMSL Analytical, Inc. at the request of and for the exclusive use of the client named in this report. Completely read the important terms, conditions, and limitations that apply to this report.

APPENDIX B

DEFINITIONS AND LIMITATIONS

ENSOLUM

Mold Services Definitions & Limitations

Ensolum performed services in accordance with generally accepted practices of the profession undertaken in similar services at the same time and in the same geographical area. No other warranties, express or implied, apply to the services hereunder or the final report.

Ensolum's services and any report have been prepared on behalf of and for the exclusive use of the Client solely for its use and reliance in assessing the presence of mold in the Investigation Areas of the site. The Client was the only party to which Ensolum explained the risks and limitations of the services and was solely involved in shaping the scope of services. Accordingly, reliance on this report by any other party may involve assumptions leading to an unintended interpretation of findings and opinions. With the consent of the Client, Ensolum may offer reliance to third parties or contract with other parties to develop findings and opinions related to such party's unique risk management concerns. Notwithstanding the foregoing, reliance by any and all third parties upon this deliverable, Ensolum's services or any subsequent report shall be limited in the aggregate to the fair market value of the services provided by Ensolum.

"Limited Mold Assessment". This deliverable uses the term "Limited Mold Assessment" to denote that Ensolum's mold assessment services are limited: (i) to certain portions of the building structure (e.g., the Investigation Areas), by non-destructive sampling methodologies, and/or by access limitations to building materials or components within the Investigation Area(s). In contrast to a "Limited Assessment" is a comprehensive assessment would involve destructive sampling methods with the assessment to be conducted throughout the entire building structure.

Time sensitive. One must keep in mind that mold assessments are essentially a "snap shot in time," and the results are only relevant at the time of site reconnaissance. Because mold, when biologically active, is a living organism, its presence is influenced and controlled by environmental conditions. Mold assessments, therefore, are "time sensitive" in that the presence and concentration of mold and similar organisms in building structures or in the air is directly influenced by environmental conditions (such as humidity, moisture, nutrients and substrates), whether natural or caused by man, which conditions may vary significantly over relatively short periods of time.

Methodologies. Currently, mold assessment methodologies and protocols in Texas are governed by persuasive guidelines (rather than promulgated federal/state or local regulations). Presently, there is no data that supports a threshold limit or dose-response relationship for exposure to mold aeroallergens, individual pathogens, opportunistic pathogens and/or mycotoxins. The Occupational Safety and Health Administration (OSHA), the National Institute of Occupational Safety and Health (NIOSH) and other non-governmental associations, have not yet established permissible exposure limits (PELs), recommended exposure limits (RELs), or other limit values for fungi. Because no limit values presently exist. Ensolum will not and cannot represent that the site contains no harmful microbes, mold, fungi, or their metabolites, or other latent conditions beyond those identified by the limited scope of this mold assessment.

Findings limited. Findings in an LMA are limited due to the nature of the information obtained such as a visual reconnaissance of readily accessible areas of building structures, interview information, anecdotal information, and limited sampling data derived from one or more specific sampling events. Ensolum cannot warrant the accuracy of prior or subsequent information/data, reports and services performed by other firms at the Site. Ensolum assumes no responsibility or liability for errors in information or data provided by or through the client or third party sources. Ensolum's services are not to be construed as legal or medical interpretation or advice.

Moisture Intrusion Limitation. Ensolum performs mold assessment services and is not a moisture intrusion, HVAC, plumbing or building envelope specialist. However, during the course of conducting its mold assessment services, Ensolum will report observed areas of apparent moisture intrusion. Ensolum does not and will not investigate the cause or causes of such observed moisture intrusion. In the event apparent moisture intrusion is observed, Ensolum will recommend that the client contact a specialist (i.e., plumbing contractor, building envelope specialist, HVAC contractor, water intrusion specialist, etc.) to assist the client in determining the specific cause or causes of the moisture intrusion and remedial options.

Certificate of Mold Damage Remediation (CMDR). For mold remediation projects (above certain size thresholds), applicable Texas law (i.e., Texas Occupation Code Section 1958.54 and T.A.C. Section 295.397 (the Texas Mold Assessment and Remediation Rules), requires that a "Certificate of Mold Damage Remediation" be issued by the Mold Remediation Contractor upon successful completion of the project. This certificate must be provided to property owners no later than the 10th day after the date on which the mold remediation is completed at a property. The Mold Remediation Certificate issued by the Mold Remediation Contractor must include a certification by the Mold Assessor that the mold remediation project has been successfully completed in accordance with the mold remediation protocol.

Be advised that Ensolum's issuance of a CMDR upon successful completion of a Mold Remediation project does not mean, warrant or otherwise guarantee that mold will not be subsequently found in any portion of an Investigation Area or the Site. In the event that Ensolum is engaged to render services in connection with a mold remediation project, ENSOLUM will require Client to provide to Ensolum written documentation that all sources of moisture which contributed to the presence of mold in the Investigation Area have been fully remediated and corrected prior to achieving clearance.

ENSOLUM

March 11, 2021

Lewisville Independent School District
340 Lake Haven
Lewisville, Texas 75057
Attn: Mr. David Treadway

Re:
Limited Mold Assessment
Ben Harmon 9th/10th Grade Center – Room 804B, Retest
1250 W Round Grove Rd.
Lewisville, TX
Ensolum Project No. 01A.1288.127A

Ensolum, LLC (Ensolum) was retained to perform limited mold assessment services within room 804B of the Ben Harmon 9th/10th Grade Center located at 1250 Round Grove Road in Lewisville, Texas. Enclosed is the report, including analytical data.

Ensolum appreciates this opportunity to be of service and looks forward to our continued work together. Please contact the undersigned with any questions or concerns you may have.

Sincerely,

Nolan R. Domain
Mold Assessment Consultant
MAC1479 EXP: 11/09/2021

Darren G. Bowden
Principal
MAC0321 EXP: 2/15/2020

1.0 INTRODUCTION

Ensolum was retained by Mr. David Treadway, LISD, to complete a Limited Mold Assessment within Rooms 804B of the Ben Harmon 9th/10th Grade Center located at 1250 W Round Grove Road in Lewisville, Texas. The purpose of this investigation was to determine if elevated concentrations of airborne fungal spores and structures were present within the above-referenced areas.

Mr. Nolan Domain completed the on-site investigation on March 10, 2021. The Limited Mold Assessment was performed after cleaning within the room.

2.0 PROCEDURE

Ensolum visually inspected accessible areas of Room 804B. No Visible water damage or odors were observed in the following locations:

VISIBLE WATER DAMAGE		
LOCATION	DATE	EXPLANATION
Room 804B	03-10-2021	N/A

Walls within the room consisted of concrete masonry unit.

Representative Relative Humidity readings were collected and recorded using an Extech Instruments Humidity / Temperature Pen. Measurements recorded during the investigation are listed in the chart below:

TEMPERATURE, RELATIVE HUMIDITY & SPECIFIC HUMIDITY				
LOCATION	DATE	Temperature: F	Relative Humidity	Specific Humidity
Room 804B	03-10-2021	70.8°	37.3%	42%
Outdoor	03-10-2021	64.0°	72.5%	65%

Area air samples were collected with Allergenco-D spore trap cassettes and analyzed for airborne fungal spores and structures. Samples were collected at a rate of 15 liters per minute. Indoor air sample(s) were collected for a five (5) minute period of time (75 liters) at a height of approximately five (5) feet above finished floor (AFF). Outdoor air samples

were collected for a five (5) minutes period of time (75 liters) at a height of approximately five (5) feet above level ground. American Conference of Governmental Industrial Hygienists (ACGIH) guidelines were followed for the sample collection. Fungal air samples were collected in the following areas:

SPORE TRAP LOCATIONS	
SAMPLE NUMBER	LOCATION
1	Room 804B
2	Outdoor
3	Outdoor

3.0 RESULTS

Currently, there are no regulatory standards for airborne fungal contamination. Therefore, results of the fungal analysis are compared against scientific guidelines. Bioaerosol samples are evaluated by comparing the indoor samples against the outdoor sample. The same types of fungi should be found in both the indoor and outdoor samples.

Should higher fungal concentrations occur in the indoor sample(s) or complaint areas, this generally indicates there is a source of fungal growth in the area. The types of fungi are also evaluated-the same types/genus of fungi should be present in both the indoor/complaint and outdoor samples.

The results of the fungal air samples collected were evaluated. Air testing performed using spore traps found that total airborne mold spores within Room 804B were lower and were qualitatively similar to those measured outside of the building at the time the sampling was performed.

CONCLUSIONS

Based on ENSOLUM's limited assessment and the analytical results, it appears that the indoor air quality, as it relates to some individual airborne fungi, was within industry guidelines on the day of the sampling. No further action is recommend at this time.

APPENDIX A

ANALYTICAL DATA

IAQ Mold Report

Summary

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

TDLR License No.: LAB0117
AIHA EMPAT ID: 102577

Client : Ensolum, LLC
Project : LISD, Ben Harmon 804B Retest
Project # : 01A 1288 127
Sample Type: Spore Trap, Non-cultured
Test Method: Mold: ASTM D7391-20 - Standard Profile

Lab Job No. : 21F-03045
Report Date : 03/10/2021
Sample Date: 03/10/2021
Spore Trap Type: Allergenco D

On 3/10/2021, three (3) samples were submitted by Nolan Domain of Ensolum, LLC (located at 2351 W. Northwest Hwy Suite #1203, Dallas, TX 75220) for Spore Trap, Non-cultured mold analysis. This report consists of three sections; a summary section, a data detail section, and an analytical notes section.

Sample Number	Volume (liters)	Sample Description	Identification	Concentration spores/cubic meter	
1	75	SN = 298569, Room 804 B	Hyphal / Spore Fragments - Dematiaceous	53	67%
			Myxomycete / Periconia / Rust / Smut	13	16%
			Drechslera / Bipolaris / Helminthosporum / Exserohilum group	13	16%
			Total:	79	100%
2	75	SN = 298571, Outdoor Side	Basidiospores	307	26%
			Cladosporium	293	25%
			Ascospores	227	19%
			Hyphal / Spore Fragments - Dematiaceous	107	9%
			Aspergillus / Penicillium	107	9%
			Myxomycete / Periconia / Rust / Smut	93	8%
			Spegazzinia	13	1%
			Pestalotia / Pestalotiopsis	13	1%
			Epicoccum	13	1%
			Drechslera / Bipolaris / Helminthosporum / Exserohilum group	13	1%
			Total:	1186	100%

IAQ Mold Report

Summary

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460
TDLR License No.: LAB0117
AIHA EMPAT ID: 102577

Client : Ensolum, LLC
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Sample Number	Volume (liters)	Sample Description	Identification	Concentration spores/cubic meter	
3	75	SN = 298555, Outdoor Front	Cladosporium	387	33%
			Basidiospores	307	26%
			Ascospores	280	24%
			Hyphal / Spore Fragments - Dematiaceous	93	8%
			Alternaria	67	6%
			Myxomycete / Periconia / Rust / Smut	27	2%
			Coprinus group	13	1%
			Aspergillus / Penicillium	13	1%
			Total:	1187	100%

Analyst(s): Nina Mims

Lab Director : Heather Lopez — Approved Signatory : Heather Lopez

Lab Director : Bruce Crabb — Approved Signatory : Bruce Crabb

Thank you for choosing Moody Labs

IAQ Mold Report

Data Detail

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

TDLR License No.: LAB0117
AIHA EMPAT ID: 102577

Client : Ensolum, LLC
Project : LISD, Ben Harmon 804B Retest
Project # : 01A 1288 127
Sample Type: Spore Trap, Non-cultured
Test Method: Mold: ASTM D7391-20 - Standard Profile

Lab Job No. : 21F-03045
Report Date : 03/10/2021
Sample Date: 03/10/2021
Spore Trap Type: Allergenco D

This report consists of three sections; a summary section, a data detail section, and an analytical notes section. Results may not be reported except in full.

Sample ID:	1					2					3				
Location:	SN = 298569, Room 804 B					SN = 298571, Outdoor Side					SN = 298555, Outdoor Front				
Media Expires On:	Sep 2021					Sep 2021					Sep 2021				
Notes Included:															
Volume:	75					75					75				
	raw ct	RL	spores/m³	%total	spores/m³ SF	raw ct	RL	spores/m³	%total	spores/m³ SF	raw ct	RL	spores/m³	%total	spores/m³ SF
Alternaria											5	13	67	6%	70
Ascospores						17	13	227	19%	230	21	13	280	24%	280
Aspergillus / Penicillium						8	13	107	9%	100	1	13	13	1%	10
Basidiospores						23	13	307	26%	310	23	13	307	26%	310
Chaetomium															
Cladosporium						22	13	293	25%	290	29	13	387	33%	390
Coprinus group											1	13	13	1%	10
Drechslera / Bipolaris / Helminthosp	1	13	13	16%	10	1	13	13	1%	10					
Epicoccum						1	13	13	1%	10					
Hyphal / Spore Fragments - Demati	4	13	53	67%	50	8	13	107	9%	100	7	13	93	8%	90
Hyphal / Spore Fragments - Hyaline															
Myxomycete / Periconia / Rust / Sm	1	13	13	16%	10	7	13	93	8%	90	2	13	27	2%	30
Pestalotia / Pestalotiopsis						1	13	13	1%	10					
Spegazzinia						1	13	13	1%	10					
Stachybotrys															
TOTALS	6		79	100%	79	89		1186	100%	1200	89		1187	100%	1200
Analyst	Nina Mims					Nina Mims					Nina Mims				
Analysis Date	3/10/2021					3/10/2021					3/10/2021				
Debris Rating	4					3					2				
Debris Composition															
Fibers	1/5					1/5					1/5				
Inorganic/Other	4/5					3/5					2/5				
Insect Parts	0/5					0/5					0/5				
Pollen	0/5					1/5					0/5				
Skin/Dander	2/5					1/5					1/5				

End of Data Detail section

IAQ Mold Report

Analytical Notes

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460
TDLR License No.: LAB0117
AIHA EMPAT ID: 102577

Client : Ensolum, LLC
Project : LISD, Ben Harmon 804B Retest
Project # : 01A 1288 127
Sample Type: Spore Trap, Non-cultured
Test Method: Mold: ASTM D7391-20 - Standard Profile

Lab Job No. : 21F-03045
Report Date : 03/10/2021
Sample Date : 03/10/2021
Spore Trap Type: Allergenco D

This report consists of three sections; a summary section, a data detail section, and an analytical notes section. Results may not be reported except in full.

NOTE: No abnormalities or exceptions noted during analysis. All samples suitable for analysis.

NOTE: No discernable field blanks were included with this sample set.

Methods

Method: ASTM D7391-20: Categorization and Quantification of Airborne Fungal Structures in an Inertial Impaction Sample by Optical Microscopy.
Samples are read at 100% under 400x magnification unless noted. Partial readings may be employed when concentrations are elevated. Use final spore concentrations, not raw spore counts, for interpretation of results.

Calculation: Spores/cubic meter = (Raw spore count)*(RL)
Note: RL (Reporting Limit) is based upon 1 raw spore count.
Moody Labs recommends two significant figures for calculated values based on ASTM D7391-20.

This report must not be used by the customer to claim product certification, approval, or endorsement by AIHA, ISO, or any agency of the Federal Government.

Debris Rating Key

0 - No linear trace detected
1 - Trace particulate/debris
2 - Light particulate/debris
3 - Moderate particulate/debris
4 - Substantial particulate/debris
5 - Extensive particulate/debris
6 - Field blank
10 - Hold Sample
11 - Modified Analysis per Client Instructions

NOTE: Particulate/debris are defined as skin, fibers, pollen grains, insect parts, fungal and/or other non-fungal particles.

IAQ Mold Report

Analytical Notes

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

TDLR License No.: LAB0117
AIHA EMPAT ID: 102577

Client : Ensolum, LLC
Project : LISD, Ben Harmon 804B Retest
Project # : 01A 1288 127
Sample Type: Spore Trap, Non-cultured
Test Method: Mold: ASTM D7391-20 - Standard Profile

Lab Job No. : 21F-03045
Report Date : 03/10/2021
Sample Date : 03/10/2021
Spore Trap Type: Allergenco D

This report consists of three sections; a summary section, a data detail section, and an analytical notes section. Results may not be reported except in full.

Lab ID # 102577

End of Analytical Notes section
21F-03045

IAQ Mold Report

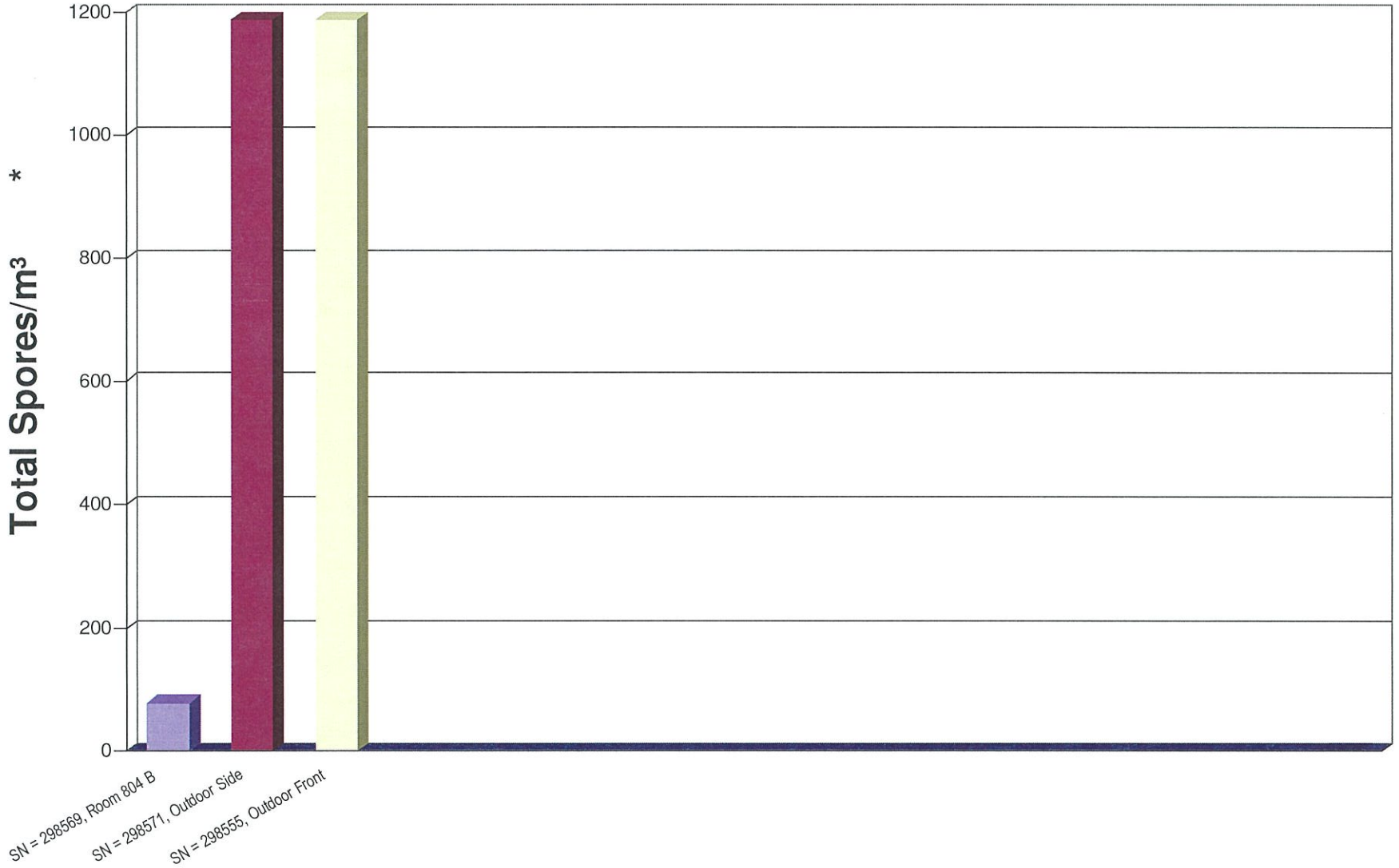
Supplemental Overview

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

TDLR License No.: LAB0117
AIHA EMPAT ID: 102577

Client : Ensolum, LLC
Project : LISD, Ben Harmon 804B Retest
Project # : 01A 1288 127

Lab Job No. 21F-03045
Report Date 03/10/2021
Sample Date : 03/10/2021



Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

IAQ Mold Report

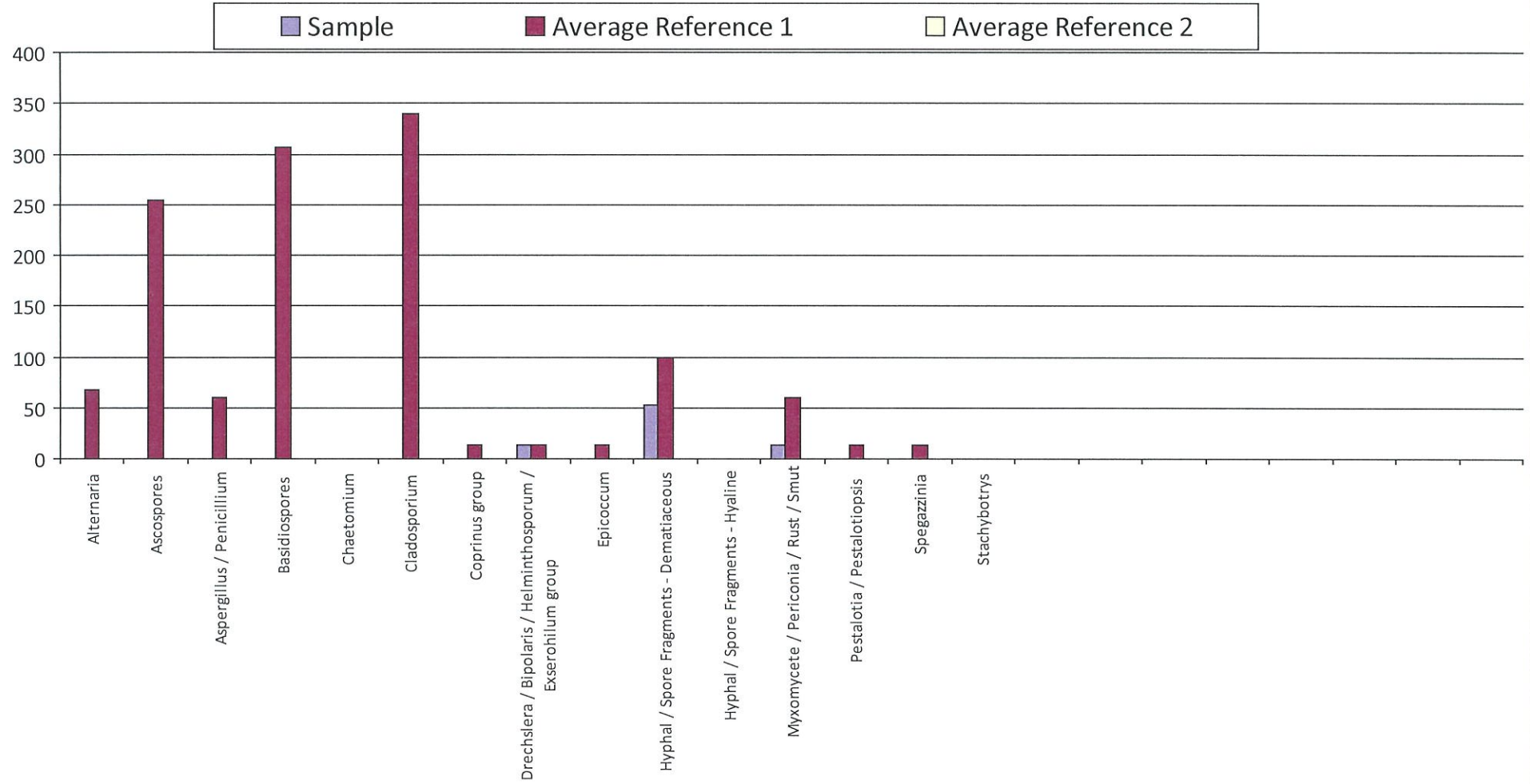
Supplemental Overview

TDLR License No.: LAB0117
AIHA EMPAT ID: 102577

Client : Ensolum, LLC
Project : LISD, Ben Harmon 804B Retest
Project # : 01A 1288 127

SN = 298569, Room 804 B

Lab Job No. 21F-03045
Report Date 03/10/2021
Sample Date : 03/10/2021



Average Reference 1 = SN = 298571, Outdoor Side, SN = 298555, Outdoor Front

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

IAQ Mold Report

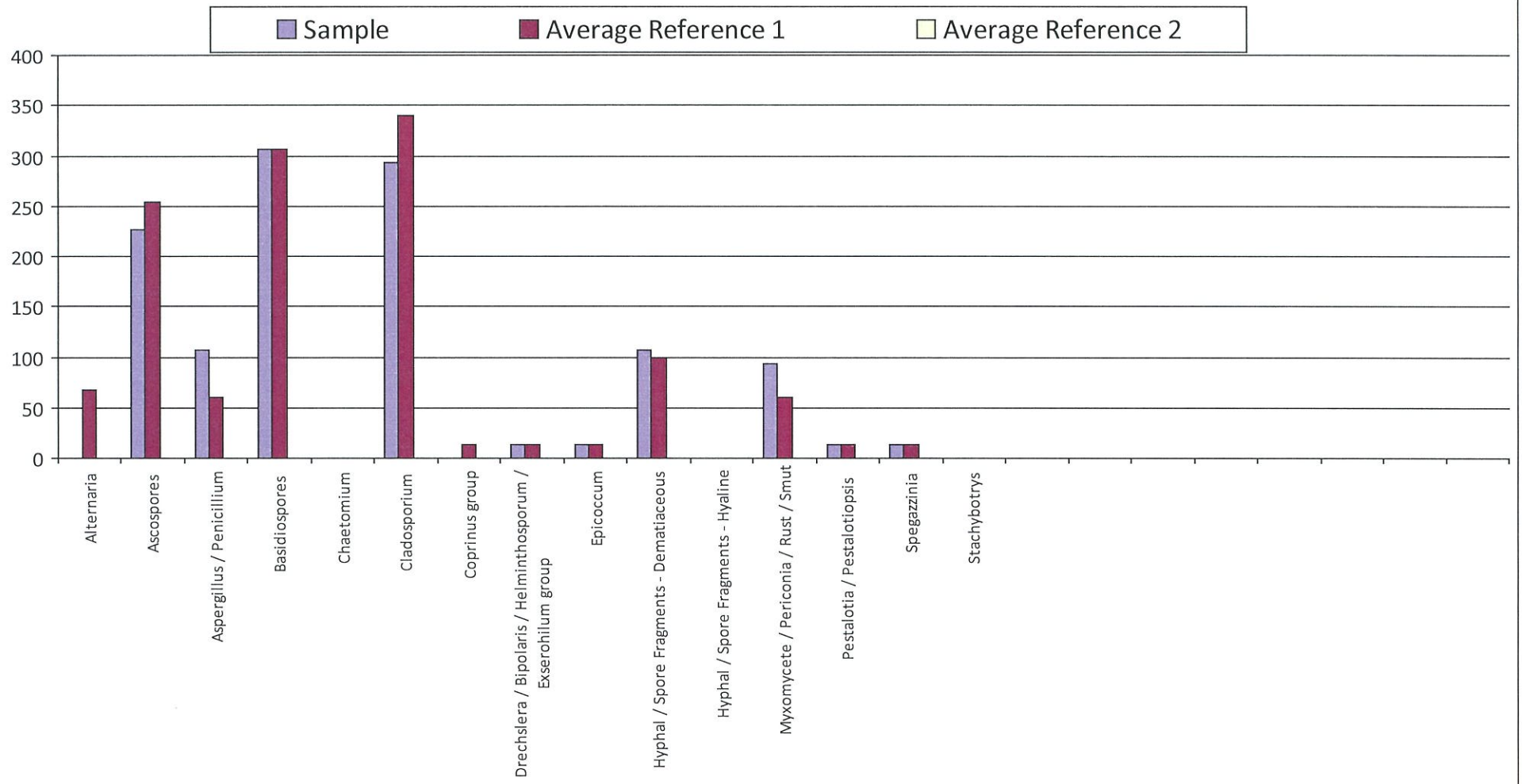
Supplemental Overview

TDLR License No.: LAB0117
AIHA EMPAT ID: 102577

Client : Ensolum, LLC
Project : LISD, Ben Harmon 804B Retest
Project # : 01A 1288 127

SN = 298571, Outdoor Side

Lab Job No. 21F-03045
Report Date 03/10/2021
Sample Date : 03/10/2021



Average Reference 1 = SN = 298571, Outdoor Side, SN = 298555, Outdoor Front

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

IAQ Mold Report

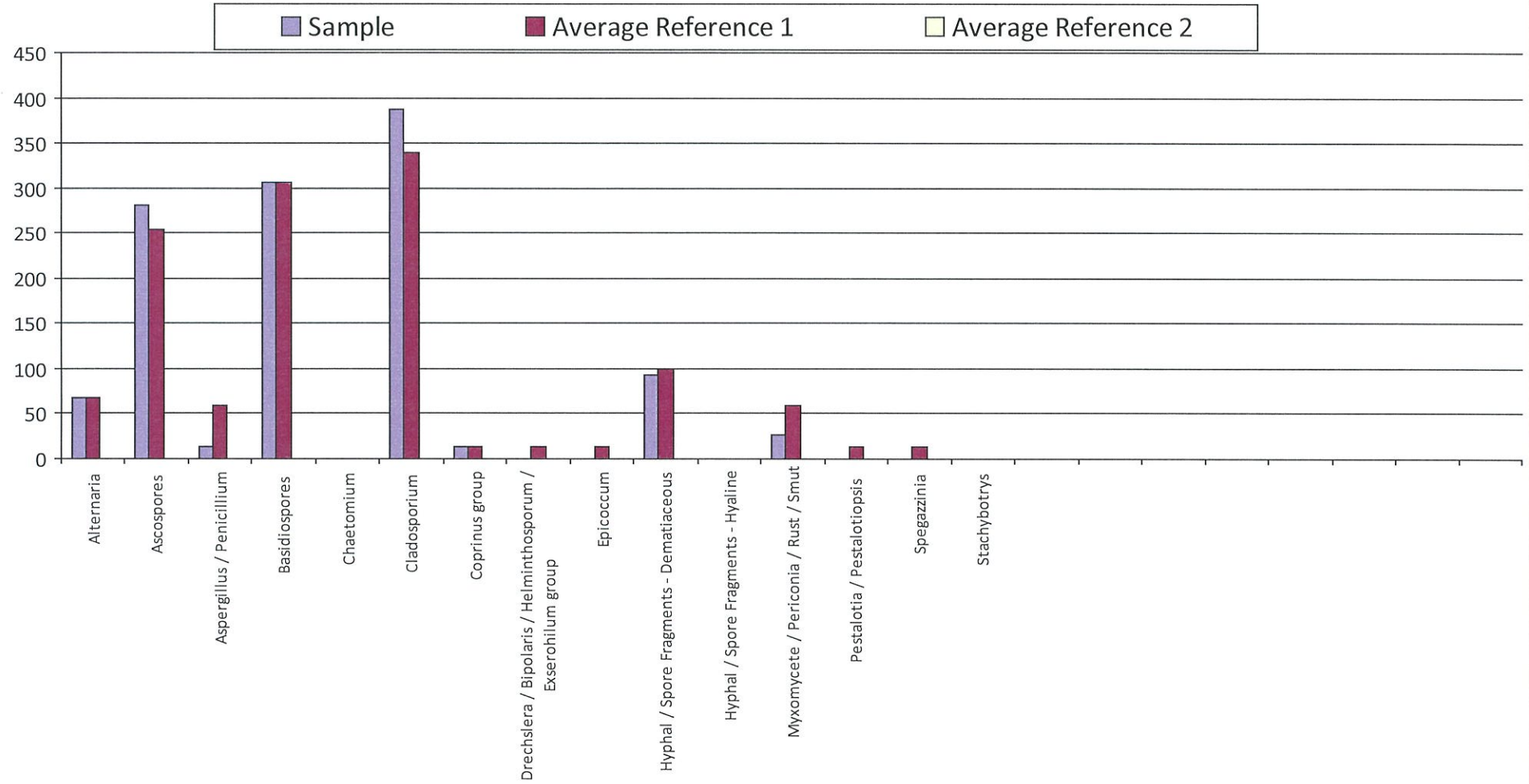
Supplemental Overview

TDLR License No.: LAB0117
AIHA EMPAT ID: 102577

Client : Ensolum, LLC
Project : LISD, Ben Harmon 804B Retest
Project # : 01A 1288 127

SN = 298555, Outdoor Front

Lab Job No. 21F-03045
Report Date 03/10/2021
Sample Date : 03/10/2021



Average Reference 1 = SN = 298571, Outdoor Side, SN = 298555, Outdoor Front

End of Supplemental Overview section
21F-03045

APPENDIX B

DEFINITIONS AND LIMITATIONS

ENSOLUM

Mold Services Definitions & Limitations

Ensolum performed services in accordance with generally accepted practices of the profession undertaken in similar services at the same time and in the same geographical area. No other warranties, express or implied, apply to the services hereunder or the final report.

Ensolum's services and any report have been prepared on behalf of and for the exclusive use of the Client solely for its use and reliance in assessing the presence of mold in the Investigation Areas of the site. The Client was the only party to which Ensolum explained the risks and limitations of the services and was solely involved in shaping the scope of services. Accordingly, reliance on this report by any other party may involve assumptions leading to an unintended interpretation of findings and opinions. With the consent of the Client, Ensolum may offer reliance to third parties or contract with other parties to develop findings and opinions related to such party's unique risk management concerns. Notwithstanding the foregoing, reliance by any and all third parties upon this deliverable, Ensolum's services or any subsequent report shall be limited in the aggregate to the fair market value of the services provided by Ensolum.

"Limited Mold Assessment". This deliverable uses the term "Limited Mold Assessment" to denote that Ensolum's mold assessment services are limited: (i) to certain portions of the building structure (e.g., the Investigation Areas), by non-destructive sampling methodologies, and/or by access limitations to building materials or components within the Investigation Area(s). In contrast to a "Limited Assessment" is a comprehensive assessment would involve destructive sampling methods with the assessment to be conducted throughout the entire building structure.

Time sensitive. One must keep in mind that mold assessments are essentially a "snap shot in time," and the results are only relevant at the time of site reconnaissance. Because mold, when biologically active, is a living organism, its presence is influenced and controlled by environmental conditions. Mold assessments, therefore, are "time sensitive" in that the presence and concentration of mold and similar organisms in building structures or in the air is directly influenced by environmental conditions (such as humidity, moisture, nutrients and substrates), whether natural or caused by man, which conditions may vary significantly over relatively short periods of time.

Methodologies. Currently, mold assessment methodologies and protocols in Texas are governed by persuasive guidelines (rather than promulgated federal/state or local regulations). Presently, there is no data that supports a threshold limit or dose-response relationship for exposure to mold aeroallergens, individual pathogens, opportunistic pathogens and/or mycotoxins. The Occupational Safety and Health Administration (OSHA), the National Institute of Occupational Safety and Health (NIOSH) and other non-governmental associations, have not yet established permissible exposure limits (PELs), recommended exposure limits (RELs), or other limit values for fungi. Because no limit values presently exist. Ensolum will not and cannot represent that the site contains no harmful microbes, mold, fungi, or their metabolites, or other latent conditions beyond those identified by the limited scope of this mold assessment.

Findings limited. Findings in an LMA are limited due to the nature of the information obtained such as a visual reconnaissance of readily accessible areas of building structures, interview information, anecdotal information, and limited sampling data derived from one or more specific sampling events. Ensolum cannot warrant the accuracy of prior or subsequent information/data, reports and services performed by other firms at the Site. Ensolum assumes no responsibility or liability for errors in information or data provided by or through the client or third party sources. Ensolum's services are not to be construed as legal or medical interpretation or advice.

Moisture Intrusion Limitation. Ensolum performs mold assessment services and is not a moisture intrusion, HVAC, plumbing or building envelope specialist. However, during the course of conducting its mold assessment services, Ensolum will report observed areas of apparent moisture intrusion. Ensolum does not and will not investigate the cause or causes of such observed moisture intrusion. In the event apparent moisture intrusion is observed, Ensolum will recommend that the client contact a specialist (i.e., plumbing contractor, building envelope specialist, HVAC contractor, water intrusion specialist, etc.) to assist the client in determining the specific cause or causes of the moisture intrusion and remedial options.

Certificate of Mold Damage Remediation (CMDR). For mold remediation projects (above certain size thresholds), applicable Texas law (i.e., Texas Occupation Code Section 1958.54 and T.A.C. Section 295.397 (the Texas Mold Assessment and Remediation Rules), requires that a "Certificate of Mold Damage Remediation" be issued by the Mold Remediation Contractor upon successful completion of the project. This certificate must be provided to property owners no later than the 10th day after the date on which the mold remediation is completed at a property. The Mold Remediation Certificate issued by the Mold Remediation Contractor must include a certification by the Mold Assessor that the mold remediation project has been successfully completed in accordance with the mold remediation protocol.

Be advised that Ensolum's issuance of a CMDR upon successful completion of a Mold Remediation project does not mean, warrant or otherwise guarantee that mold will not be subsequently found in any portion of an Investigation Area or the Site. In the event that Ensolum is engaged to render services in connection with a mold remediation project, ENSOLUM will require Client to provide to Ensolum written documentation that all sources of moisture which contributed to the presence of mold in the Investigation Area have been fully remediated and corrected prior to achieving clearance.