October 6, 2017

Clemson University
310 Klugh Avenue
Clemson, South Carolina 29634

Attn: Mr. W. Robert Newberry, IV
E-mail: wnewber@clemson.edu

Re: Limited Mold and Allergen Investigation Report
Martin Hall – Room E103E1
Clemson, South Carolina
Terracon Project No. 86127158 – Task 103

Dear Mr. Newberry:

Terracon Consultants, Inc. (Terracon) conducted a limited mold and allergen investigation in an office (Room E103E1) occupied by Amber Mulkey in Martin Hall Suite E103, located on the main campus of Clemson University in Clemson, South Carolina. Reports of respiratory irritation have been reported in the recent past. Reportedly, cleaning of surficial mold growth was conducted just prior to our air sampling events. This service was conducted in general accordance with our Master Service Agreement with Clemson University.

PROJECT DESCRIPTION

Scope of Services

At the request of Clemson University, Terracon representative Mr. Benjamin Hestir conducted a limited mold and allergen investigation including sample collection in Amber Mulkey's office (Room E103E1) within Suite E103 in Martin Hall, on August 21 and 22, 2017. This four story, three wing building was constructed in 1962 and contains approximately 72,000 square feet of classroom and office space. Ms. Mulkey has reported significant respiratory irritation prior to our investigation.

The investigation included measurements of temperature and relative humidity, the collection of three (3) spore trap samples inside the facility, two (2) spore trap samples outside the facility and the collection of one (1) dust sample from Room E103E1 for allergens analysis.

Standard of Care

This limited mold and allergen investigation was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same locale. Terracon did not attempt to identify every potential exposure or hazard present in the subject building. The results, findings, conclusions and recommendations expressed in this report are based on conditions observed during our sampling. Many factors, such as weather conditions, building occupancy, ventilation patterns and seasonal variations in fungal concentrations, can affect the conditions observed. The information contained in this report should not be relied upon to represent conditions that existed prior to or after this sampling. Terracon does not warrant the services of regulatory agencies, laboratories or other third parties supplying information that may have been used in the preparation of this report.

SAMPLING CRITERIA AND METHODS

Mold and Allergen Sampling

Total mold spore trap samples were collected using Allergenco-D™ spore trap cassettes specifically designed for the collection of airborne mold spores. Air samples were collected using a calibrated Zefon Bio-Pump™ at a flow rate of 15 liters per minute (LPM) for 5 minutes at each location.

After collection, the spore trap samples were hand delivered to the Southeastern Environmental Microbiology Lab (SEEML) in Greenville, South Carolina. SEEML is accredited by the AIHA® Laboratory Accreditation Programs, LLC under the Environmental Microbiology Laboratory Accreditation Program (EMLAP), Accreditation #173667. Air samples were analyzed by direct microscopic examination and results are reported in spores per cubic meter of air (spores/m^3).

To help interpret the mold spore trap sampling results, we compared indoor air and outdoor air measurements. High variability in airborne fungal spore concentrations can exist in different geographic locations, during different seasons, and weather patterns, and over the course of a given day. As a general rule, indoor air fungal spore concentrations in a heating, ventilation and air-conditioning (HVAC)-supplied building are typically less than, but qualitatively similar to, fungal spore concentrations found in the outside environment.

No state or federal exposure limits have been established for fungal aerosols. Regulatory standards, medically based threshold limit or dose-response relationships have not been established for exposure to airborne or surface concentrations of mold spores. Terracon relies upon experience, professional judgment, current scientific literature, guidelines and recommendations made by professional organizations and experts, and statistical methods in interpreting mold sampling results.

One (1) dust sample for allergens analysis was collected from flooring and fixtures in the office of Amber Mulkey within Room E103 using a high volume air sampling pump in conjunction with a Zefon 25-millimeter dust sampling cassette preloaded with a 0.45 micrometer mixed cellulose ester (MCE) filter.

After collection, the dust sample was delivered by overnight courier to EMSL in Cinnaminson, New Jersey. EMSL is accredited by the AIHA® Laboratory Accreditation Programs, LLC under the Environmental Microbiology Laboratory Accreditation Program (EMLAP), Accreditation #100194. Dust samples were analyzed for allergens (dust mites, mouse, rat, cat, dog, and cockroach). Allergen results are reported in micrograms per gram (µg/g).

To help interpret the allergen results, EMSL provides risk levels associated with the amount of each allergen found in each sample. Those risk levels are shown in the allergen results tables and also in the attached analytical reports.

Temperature and Relative Humidity

Indoor air temperature and relative humidity are physical conditions important to the perception of comfort. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) has published recommendations regarding thermal comfort. ASHRAE Standard 55-2013, Thermal Environmental Conditions for Human Occupancy, identifies six primary factors that affect comfort: metabolic rate (affected by the activity being performed); clothing insulation; air temperature; radiant temperature; air speed; and humidity.

Although the relationships are complex, a temperature range between 73 and 79 degrees Fahrenheit (°F) with relative humidity between roughly 20 and 60 percent (%) are recommended for persons in a conditioned setting wearing light summer clothing. Higher temperatures require lower humidity for comfort. For persons in winter clothing, temperatures can range between 68 and 75°F, with relative humidity between 20% and 60%, with preferred conditions falling between 30% and 50% for both winter and summer temperatures.

EPA recommends maintaining indoor humidity below 60%, ideally 30-50%, if possible.

Readings of temperature and relative humidity were collected with an Extech Model 445580 IAQ instrument which was calibrated by the manufacturer.

FINDINGS

General Observations

- All measurements of relative humidity within the E103 office suite were elevated.
- According to the office occupant (Room E103E1 - Ms. Amber Mulkey) surficial mold growth was recently cleaned off of a wall and the air handler unit by University Facilities.
- A dehumidifier is present in the office of Ms. Mulkey and has to be emptied frequently.
- Photographs from the assessment are attached.

Mold Air Sampling Results

The results of the total spore count samples analyses and IAQ measurements are presented in Table 1. The laboratory analytical reports are attached. Samples A & B were mistakenly labeled in the field with the same sample number, but both were inside the E103 office suite. One was collected on the window ledge in Ms. Mulkey's office (E103E1) and the other on the desk in the E103 reception area.

Table 1: Summary of Total Spore Count Analyses and IAQ Measurements – August 21, 2017

Sample #	E103-1	A	B	E103-4	E103-5
Location Description	**Rm E103 On Desk**	**Room E103**	**Room E103**	**Outside North entrance - Martin**	**Outside West Entrance - Sikes**
Spore Type	**Spores/ m^3**	**Spores/m^3**	**Spores/m^3**	**Spores/m^3**	**Spores/m^3**
Ascospores	78	39	78	3,860	4,080
Alternaria	---	---	---	13	104
Basidiospores	156	156	273	5,990	5,580
Bipolaris/Dreschlera	---	---	---	338	754
Cladosporium	234	117	156	1,290	728
Curvularia	---	---	---	195	364
Penicillium/ Aspergillus	3,200	468	819	1,400	429
Smuts/*Periconia*/ Myxomycetes	---	---	13	78	39
Oidium	---	---	---	52	---
Torula	---	---	---	---	52
Total	**3,670**	**780**	**1,340**	**13,200**	**12,100**
Temperature (ºF)	73.2	75.0	74.4	80.7	---
Relative Humidity (%)	67.1	63.4	61.5	75.0	---

The lowest outdoor total spore count was approximately 3.3 times higher than the highest total spore count inside. The dominant mold genera indoors were *Basidiospores and Aspergillus/Penicillium* type spores. The dominant mold spore types outdoors were *Basidiospores* and *Ascospores*. The laboratory analytical report is attached.

Conditions outside on the day we sampled were warm and sunny. The highest indoor temperature was 75.0ºF and the highest indoor relative humidity was 67.1%. The outdoor temperature was 80.7ºF and the relative humidity was 75.0% (See Table 1 above for all readings).

Dust Sampling

On the afternoon of August 22, 2017, Terracon collected a dust sample from the flooring and fixtures in the office (Room E103E1 – office of Amber Mulkey). The sample was analyzed for allergens from dust mites, mouse, rat, cat, dog, and cockroach. The sample (Sample E103-A-1) is reported in micrograms per gram. The lab assigned allergen risk levels based on the findings as described in their full analytical results.

Allergens were identified in the samples. Table 2 below summarizes the laboratory results. The laboratory analytical report is attached and references additional information regarding the risk levels assigned by the lab.

Table 2: Summary of Allergen Analyses – August 22, 2017

Sample #	**E103-A-1**	**E103-A-1**
Location Description	**Composite from Room E103E1 office**	**See Risk Level Below**
Allergen Type/Antigen	**Concentrations (ug/g)**	**Allergen Risk Level assigned by the lab**
Dust Mites / Der fl	0.61	Low
Dust Mites / Der pl	ND	Low
Mouse / Mus ml	ND	Low
Rat / Rat nl	0.66	NA
Cat / Fel dl	0.11	Low
Dog / Can fl	0.11	Low
Cockroach / Bla G2	ND	Low

Note: ug = microgram (10^{-6} grams), ND = Not detected

CONCLUSIONS

The following conclusions are provided based on our assessment:

- The results of mold air sampling indicated that total airborne mold spore concentrations inside the building were below the total mold spore levels measured in the two outdoor samples and concentrations of mold spore types inside the building were less than the highest corresponding outdoor mold spore levels measured with one exception noted below.
- Aspergillus/penicillium type mold spores were elevated in indoor sample E103-1 in comparison to outdoor levels. Elevated aspergillus/penicillium type mold spores may be attributed to elevated and sustained humidity levels above 60% as these types of molds are generally the first to colonize in high humidity conditions. Additionally elevated airborne spores may have be created from the recent cleaning practices used to remove surficial mold on the walls of Room E103E1.
- Levels of dust in allergen Sample E103-A-1 collected in Room E103E1 were found to contain four of the seven standard allergens but all at low risk levels as assigned by the lab.
- Temperature levels measured were within ASHRAE guideline ranges. Relative humidity levels measured indoors exceeded EPA guideline ranges.

RECOMMENDATIONS

The following recommendations are provided based on our assessment:

- Elevated Aspergillus/penicillium type mold spores in the suite may be contributed to past sustained humidity levels above 60% and/or the recent cleaning practices. A temporary HEPA filtration device and general cleaning should reduce mold spore levels.
- Clemson should continue to work on the HVAC system to control relative humidity levels. Until the system(s) can adequately reduce relative humidity in the offices, temporary dehumidifiers should be continuously used to maintain humidity levels below 60%. Temporary dehumidifiers should be maintained and cleaned periodically.

Terracon appreciates the opportunity to provide this service to Clemson University. If you have any questions regarding this report, please contact the undersigned at 864-292-2901.

Sincerely,
Terracon Consultants, Inc.

Benjamin Hestir, P.E.
Project Industrial Hygienist

Jeffrey A. Gurrie
Senior Industrial Hygienist

Attachments: Photographs
Laboratory Results

Photographs



Photo #1 Room of investigation



Photo #2 Location of mold sample E103-1 – desk of Amber Mulkey



Photo #3 View of Room E103E1



Photo #4 View of air handler in Room E103E1



Photo #5 View of outdoor air sample location for E103-4 – N entrance to Martin Hall



Photo #6 View of outdoor air sample location for E103-5 – W entrance to Sikes Hall

Laboratory Results

SEEML Reference Number:
170822022

Southeast Environmental Microbiology Laboratories
506 Laurens Rd
Greenville, SC 29607
Phone: (864) 233-3770
FAX: (864) 233-6589

The information and data for **Terracon** has been checked for thoroughness and accuracy. The following reports are contained within this document:

- ☐ Direct Exam Report
- ☒ Spore Trap Report
- ☐ Quantitative Fungal Report
- ☐ Andersen Fungal Report
- ☐ Quantitative Direct Exam Report

Lab Manager Review: Rafael Berrios Date: 08/22/17

Thank you for using SEEML laboratories. We strive to provide superior quality and service.
SEEML laboratories are AIHA (American Industrial Hygiene Association) Environmental Microbiology Accredited laboratory for only fungal analysis Air-Direct Examination (EMLAP # 173667).

The data within this report is reliable to three significant figures. The third significant figure is technically unjustified. In this instance, the third figure is reported as an estimate to facilitate the interpretation by the customer.

Confidentiality Notice:
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Guidelines for Interpretation:
No accepted quantitative regulatory standards currently exist by which to assess the health risks related to mold and bacterial exposure. Molds and bacteria have been associated with a variety of health effects and sensitivity varies from person to person.
Several organizations, including: the American Conference of Government Industrial Hygienists (ACGIH); the American Industrial Hygiene Association (AIHA); the Indoor Air Quality Association (IAQA); the United States Environmental Protection Agency (USEPA); the Centers for Disease Control (CDC), as well as the California Department of Health Services (CADHS), have all published guidelines for assessment and interpretation of mold resulting from water intrusion in buildings.

Interpretation of the data and information within this document is left to the company, consultant, and/or persons who conducted the fieldwork.

Spore Trap Report

Attention: Ben Hestir	Date Sampled: 08/21/17
Terracon	Date Received: 08/22/17
72 Pointe Circle	Date Analyzed: 08/22/17
Greenville, SC 29615	Date Reported: 08/22/17
	Date Revised:
	Project Name: 86127158 Task 103
	Project Address:
	Project City, State, ZIP:
	SEEML Reference # : 170822022

TEST METHOD: DIRECT MICROSCOPY EXAMINATION AT 400X (100% OF TRACE ANALYZED) SEEML SOP 7

Client Sample ID	E103-1			A			B		
Location	On Desk of AM			A			B		
Lab Sample ID	170822022-110			170822022-111			170822022-112		
Detection Limit (spores/m^3)	13			13			13		
Hyphal Fragments				2	26		1	13	
Pollen									
Spore Trap Used	AOC			AOC			AOC		
	raw ct.	spores/m^3	%	raw ct.	spores/m^3	%	raw ct.	spores/m^3	%
Alternaria									
Ascospores	6	78	2	3	39	5	6	78	6
Basidiospores	12	156	4	12	156	20	21	273	20
Bipolaris/Drechslera									
Chaetomium									
Cladosporium	18	234	6	9	117	15	12	156	12
Curvularia									
Epicoccum									
Cercospora									
Fusarium									
Memnoniella									
Nigrospora									
Penicillium/Aspergillus	246	3200	87	36	468	60	63	819	61
Polythrincium									
Rusts									
Smuts/Periconia/Myxomy							1	13	<1
Spegazzinia									
Stachybotrys									
Stemphylium									
Tetraploa									
Torula									
Ulocladium									
Colorless/Other Brown 2									
Oidium									
Zygomycetes									
Pithomyces									
Background debris (1-5)3	3			3			2		
Sample Volume(liters)	75			75			75		
TOTAL SPORES/M^3	282	**3670**		60	**780**		103	**1340**	

Comments: Condition of the sample(s) upon receipt: Acceptable.

1=Total % may not equal 100 due to rounding.

2 = Colorless,other Brown are spores without a distinctive morphology on spore traps and non-viable surface samples.

3 = Background debris is the amount of particulate matter present on the slide and is graded from 1-5 with 1 = very light, 2= Light, 3 = Medium, 4 = Heavy, 5 = Very Heavy. The higher the rating the more likelihood spores may be underestimated. A rating of 5 should be interpreted as minimal counts and may actually be higher than reported.

The reporting limit is 1 Spore/sample.

Disclaimer: This report relates only to the samples tested

Respectfully submitted, SEEML

Rafael Berrios

Rafael Berrios, Approved Laboratory Signatory

506 Laurens Road
Greenville, SC 29607
Phone: (864) 233- 3770
Fax: (864) 233-6589
AIHA-LAP, LLC EMLAP # 173667

Spore Trap Report

Attention: Ben Hestir	Date Sampled: 08/21/17
Terracon	Date Received: 08/22/17
72 Pointe Circle	Date Analyzed: 08/22/17
Greenville, SC 29615	Date Reported: 08/22/17
	Date Revised:
	Project Name: 86127158 Task 103
	Project Address:
	Project City, State, ZIP:
	SEEML Reference # : 170822022

TEST METHOD: DIRECT MICROSCOPY EXAMINATION AT 400X (100% OF TRACE ANALYZED) SEEML SOP 7

Client Sample ID	E103-4			E103-5					
Location	Outside N Entrance Martin			Outside W Entrance Sikes					
Lab Sample ID	170822022-113			170822022-114					
Detection Limit (spores/m^3)	13			13					
Hyphal Fragments	13	169		14	182				
Pollen	1	13		4	52				
Spore Trap Used	AOC			AOC					
	raw ct.	spores/m^3	%	raw ct.	spores/m^3	%			
Alternaria	1	13	<1	8	104	<1			
Ascospores	297	3860	29	314	4080	34			
Basidiospores	461	5990	45	429	5580	46			
Bipolaris/Drechslera	26	338	3	58	754	6			
Chaetomium									
Cladosporium	99	1290	10	56	728	6			
Curvularia	15	195	1	28	364	3			
Epicoccum									
Cercospora									
Fusarium									
Memnoniella									
Nigrospora									
Penicillium/Aspergillus	108	1400	11	33	429	4			
Polythrincium									
Rusts									
Smuts/Periconia/Myxomy	6	78	<1	3	39	<1			
Spegazzinia									
Stachybotrys									
Stemphylium									
Tetraploa									
Torula				4	52	<1			
Ulocladium									
Colorless/Other Brown 2									
Oidium	4	52	<1						
Zygomycetes									
Pithomyces									
Background debris (1-5)3	3			3					
Sample Volume(liters)	75			75					
TOTAL SPORES/M^3	1017	**13200**		933	**12100**				

Comments: Condition of the sample(s) upon receipt: Acceptable.

1=Total % may not equal 100 due to rounding.

2 = Colorless,other Brown are spores without a distinctive morphology on spore traps and non-viable surface samples.

3 = Background debris is the amount of particulate matter present on the slide and is graded from 1-5 with 1 = very light, 2= Light, 3 = Medium, 4 = Heavy, 5 = Very Heavy. The higher the rating the more likelihood spores may be underestimated. A rating of 5 should be interpreted as minimal counts and may actually be higher than reported.

The reporting limit is 1 Spore/sample.

Disclaimer: This report relates only to the samples tested

Respectfully submitted, SEEML

Rafael Berrios

Rafael Berrios, Approved Laboratory Signatory

506 Laurens Road
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SEEML Labs

Southeast Environmental Microbiology Laboratories

Chain of Custody

506 Laurens Rd, Greenville, SC 29607

Phone : 864-233-3770, Fax: 864-233-6589, www.seeml.com, AIHA-LAP, LLC. (EMLAP) #173667

For Lab Use Only			
Condition of samples is acceptable	☑ YES ☐ NO	SEEML Ref #: 170822022	Lab ID: 110 - 114

Company Information		Client Information		Environmental Conditions	
(Project Manager)	Ben Hestir	Date Sampled:	8/21/17	Precipitation in last 16hrs:	No
(Company Name)	Terracon	Project Name:	86127158 Task 103	Relative Humidity I/O:	63%/ 75%
(Address)	72 Pointe Circle	Project Address:		Temperature I/O:	75° / 80°
(City, State, Zip)	Greenville, SC 29615	City, State, Zip:		Wind Conditions	5-10 mph
(Phone)	864-293-7348				
(Email)	ben.hestir@terracon.com				

Sample Type Abbreviations:

A- Allergenco S-Swab AP-Andersen Plate
AOC- Air O Cell T-Tape W- Water
MS- Micro 5 B- Bulk D- Dust

Analysis Type:

1. SporeTrap, Air Sample Analysis-Same Day
2. Direct Exam Surface Sample Analysis -Same Day
3. Culturable Air / Surface Samples -7-10 days

Sample ID	Sample Location	Sample Type	Analysis Type	*Area	**Volume (L)	Notes
E103-1	On desk of A.M.	A	1		75	
~~E103-2~~ A	A On ~~window~~ ledge	"	"		"	
~~E103-3~~ B	B ~~At~~ reception desk	"	"		"	
E103-4	Outside N entrance Martin	"	"		"	
E103-5	Outside W entrance Sikes	"	"		"	
	2 samples double labeled					

Relinquished By	Date/Time	Received By	Date/Time
Ben Hestir	8/22/17 10:10	Blake R	1122

* Area is only required for culturable surface samples.

** Volume = Pump setting (L/min) x minutes

EMSL Analytical, Inc.
200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (800)220-3675 / (856)786-0262
http://www.EMSL.com cinnmicrolab@emsl.com

EMSL Order #:	**371717755**
Customer ID:	**GTER78**
Customer PO:	**86127158-Tsk103**

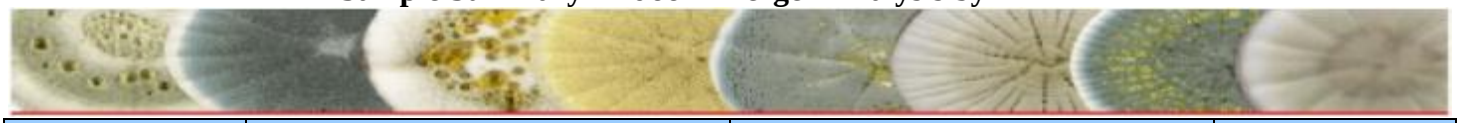
Attn: **Ben Hestir**
Terracon Consultants, Inc.
72 Pointe Circle
Greenville, SC 29615

Phone: **864-292-2901**
Fax: **864-292-6361**

Project: **Martin Hall Room E103**

Date Collected: **8/22/2017**
Date Received: **8/23/2017**
Date Analyzed: **8/24/2017**

Sample Summary -Indoor Allergen Analysis by MARIA®



Lab Sample Number	Client Sample ID	Sample Location	Sample Type
371717755-0001	E103-A-1	Office Dust Composite	Bulk

Report Date	Report Revision	Revision Comments
8/30/2017	R0	Initial Report

Vincent Iuzzolino, M.S., Laboratory Director
or approved EMSL Analytical, Inc. signatory

About Us

EMSL Analytical, Inc. offers a full line of analytical solutions for over 30 years across North America. For more information about our nationally accredited locations, vast line of testing services, and our food safety solutions please visit www.EMSL.com or call



Disclaimers

All samples were collected by and all sampling data was provided by the client. The results are valid only for those samples analyzed, and only for those samples collected in accordance with the appropriate methodology as determined by the client. The results herein do not denote or represent a medical or clinical diagnosis or conclusion. In the event that sample(s) were submitted in opened, used, non-sterile or otherwise adulterated condition, EMSL shall not be responsible or liable. EMSL Analytical (Cinnaminson, NJ) is accredited by the American Industrial Hygiene Association (AIHA) in the EMLAP accreditation program for specified Field(s) of Testing as documented on the scope of accreditation.

Please visit our website at http://www.microbiologytestinglab.com/
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EMSL Order #: **371717755**
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Greenville, SC 29615

Phone: **864-292-2901**
Fax: **864-292-6361**

Project: **Martin Hall Room E103**

Date Collected: **8/22/2017**
Date Received: **8/23/2017**
Date Analyzed: **8/24/2017**

EMSL Sample #: **371717755-0001**
Client ID: **E103-A-1**
Location: **Office Dust Composite**

Sample Type: **Bulk**
Sample Size: **30**
Sample Units: **mg**

Analytical Results -Indoor Allergen Analysis by MARIA®

Test Parameter	*Antigens*	*Detection Limits*		*Concentrations*		*Allergen Risk Levels*
Dust Mites Allergen	Der f1	0.012	µg/g	**0.61**	µg/g	☑
Dust Mites Allergen	Der p1	0.012	µg/g	**ND**	µg/g	☑
Mouse Allergen	Mus m1	0.002	µg/g	**ND**	µg/g	☑
Rat Allergen	Rat n1	0.004	µg/g	**0.66**	µg/g	†
Cat Allergen	Fel d1	0.004	µg/g	**0.11**	µg/g	☑
Dog Allergen	Can f1	0.012	µg/g	**0.11**	µg/g	☑
Cockroach Allergen	Bla g2	0.012	µg/g	**ND**	µg/g	☑

†Sufficient evidence is not available for risk levels.

Allergen Risk Levels:

High -Risk of acute asthmatic attack.

Moderate -Risk for sensitization and bronchial hyperactivity.

Low -Not sufficient to cause symptoms or ND (None Detected); Indicates that the amount of allergen in the sample is below the detection limits.

All samples were collected by and all sampling data was provided by the client. The results are valid only for those samples analyzed, and only for those samples collected in accordance with the appropriate methodology as determined by the client. The results herein do not denote or represent a medical or clinical diagnosis or conclusion. In the event that sample(s) were submitted in opened, used, non-sterile or otherwise adulterated condition, EMSL shall not be responsible or liable.

EMSL Analytical (Cinnaminson, NJ) is accredited by the American Industrial Hygiene Association (AIHA) in the EMLAP accreditation program for specified Field(s) of Testing as documented on the scope of accreditation.

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

Report Date	**Report Revision**	**Revision Comments**
8/30/2017	R0	Initial Report

Vincent Iuzzolino, M.S., Laboratory Director
or approved EMSL Analytical, Inc. signatory

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Fax: **864-292-6361**

Project: **Martin Hall Room E103**

Date Collected: **8/22/2017**
Date Received: **8/23/2017**
Date Analyzed: **8/24/2017**



Guidelines to Interpretation

µg/g

Allergens	<DL	<1	1	2	3	4	5	6	7	8	9	>10
Fel d1	ND	Low	Mod	Mod	Mod	Mod	Mod	Mod	Mod	High	High	High
Can f1	ND	Low	Low	Mod	Mod	Mod	Mod	Mod	Mod	Mod	Mod	High
Der p1	ND	Low	Low	Mod	Mod	Mod	Mod	Mod	Mod	Mod	Mod	High
Der f1	ND	Low	Low	Mod	Mod	Mod	Mod	Mod	Mod	Mod	Mod	High
Mus m1	ND	Low	Mod	Mod	Mod	High	High	High	High	High	High	High

µg/m3

Rat n1	ND	<0.7 µg /m3 = Not associated with increased risk of asthma

µg/g

	<DL	<0.08	0.08	0.09	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
Bla g2 †	ND	Low	Mod	Mod	Mod	Mod	Mod	Mod	High	High	High	High

† *Suggested levels. Not officially established.*

Note: *This report and guidelines furnish information only. Whether an individual suffers allergic symptoms or not depends on his/her medical history and previous exposure.*

References

Journal of Allergy and Clinical Immunology 1989; 83:416-427
Journal of Allergy and Clinical Immunology 1995; 96:449-456
The American review of respiratory disease 1990; 141:361-367
The American review of respiratory disease 1993; 147:573-578
Environmental Health Perspectives 2002; 110:419-425
Clinical and Experimental Allergy 1998; 28(5):537-44
Pediatric allergy-principles and practice. Mosby Inc 2003: 261-268.

Terminology

ELISA Enzyme-linked Immunosorbent Assay
MARIA® Multiplex Array for Indoor Allergens
Allergen A substance which reacts with the body's immune system to produce an allergic reaction.
Antigen A substance, foreign to the body, which stimulates the production of antibodies by the immune system.
Bla g2 *Blattella germanica* (Cockroach) allergen 2
Can f1 *Canis familiaris* (Dog) allergen 1
Der f1 *Dermatophagoides farinae* (Dust Mites) allergen 1
Der p1 *Dermatophagoides pteronyssinus* (Dust Mites) allergen 1
Detection Limits DL is the smallest amount of a substance, in this case antigens, which can be measured.
Fel d1 *Felis domesticus* (Cat) allergen 1
Mus m1 *Mus musculus* (Mouse) allergen 1
ND None detected, if any allergens are present they are below the detection limits.
Rat n1 *Rattus norvegicus* (Rat) allergen 1

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EMSL Order #: **371717755**
Customer ID: **GTER78**
Customer PO: **86127158-Tsk103**

Attn: **Ben Hestir**
Terracon Consultants, Inc.
72 Pointe Circle
Greenville, SC 29615

Phone: **864-292-2901**
Fax: **864-292-6361**

Project: **Martin Hall Room E103**

Date Collected: **8/22/2017**
Date Received: **8/23/2017**
Date Analyzed: **8/24/2017**

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.

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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.

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Report Date	Report Revision	Revision Comments
8/30/2017	R0	Initial Report

Vincent Iuzzolino, M.S., Laboratory Director
or approved EMSL Analytical, Inc. signatory

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LABORATORY • PRODUCTS • TRAINING

Industrial Hygiene Chain of Custody

EMSL Order Number (Lab Use Only): 371717755

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 858-3502

Report To Contact Name: Ben Hestir	**Bill To Company:** Terracon (GTER78)	**Client ID #:**
Company Name: Terracon Consultants, Inc.	**Attention To:**	
Street: 72 Pointe Circle	**Street:**	
City: Greenville **State/Province:** SC **Zip/Postal Code:** 29615	**City:** **State/Province:** **Zip/Postal Code:**	
Phone : 864-293-7348 **Fax :**	**Phone:** **Fax:**	
Project Name: Martin Hall Room E103	**Email Results To:** ben.hestir@terracon.com	**U.S. State where Samples Collected:** SC
# Samples in Shipment: 1 **Date of Shipment:** 8/22/17	**Purchase Order:** 86127158 - Task 103	**Sampled By (Signature):** Ben Hestir

Turnaround Time (TAT) – Please Check: If No Selection Made, Standard 2 Week TAT Will Apply

☐ 2 Week ☑ 1 Week ☐ 4 Day ☐ 3 Day ☐ 2 Day ☐ 1 Day ☐ Other (Call Lab)

Media Type:

Manufacturer/Part #: **Lot #:**

Client Sample ID	Location/Description	Analyte / Method	Media	Flow (lpm)	Sample Time On	Sample Time Off	Volume / Area	Sample Type	Sample Date	Comments
E103 - A-1	Office dust composite	M038, M039, M044	cassette					☑ Area ☐ Personal	8/22/17	Office of Amber Mulkey
								☐ Area ☐ Personal		
								☐ Area ☐ Personal		
								☐ Area ☐ Personal		
								☐ Area ☐ Personal		
								☐ Area ☐ Personal		
								☐ Area ☐ Personal		
								☐ Area ☐ Personal		

RECEIVED EMSL CINNAMINSON, NJ AUG 23 A 10:02

Note: Most NIOSH and OSHA methods require field blanks. It is the IH field sampler's responsibility to submit the proper number of field blanks and duplicates.

Released By	Date	Received By	Date
Ben Hestir / Terracon	8/22/17	akm	8/23/17

Comments:

OrderID: 371717755

1 BC