March 2, 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
Clemson Forever Fund Offices
110 Daniel Drive
Clemson, South Carolina 29631
Terracon Project No. 86127158 – Task 80

Dear Mr. Newberry:

Terracon Consultants, Inc. (Terracon) conducted a limited mold and allergen investigation in the offices of the Clemson Forever Fund, 110 Daniel Drive, Clemson, South Carolina. Reportedly, employees in the offices have experienced allergy-like symptoms of late, when spending time in this office. 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 in the offices of the Clemson Forever Fund, on Wednesday, February 8, 2017.

On our February 8th visit, Terracon made measurements of temperature and relative humidity and conducted airborne mold sampling which consisted of collecting spore trap air samples in six locations inside the office and the collection of two additional samples outside for comparison. We also collected two microvac dust samples, one from each side of the room, for allergen 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 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. 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 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.

An allergen dust sample was collected from carpet, chair fabrics and furniture surfaces in the cubicle areas of Paula Page and Scott Sampson using a high volume air sampling pump in conjunction with a 3-piece 37 millimeter dust sampling cassette preloaded with a 5.0 micrometer polyvinyl chloride (PVC) filter.

After dust sample collection, the allergen samples were shipped 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. Allergen samples were analyzed by direct microscopic examination for allergens from dust mites, mouse, rat, cat, dog, and cockroach. Allergen results are reported in micrograms per gram of dust (µg/g) or nanograms (ng) per filter where smaller quantities of dust were collected.

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

- The office is located on the lowest level at the back of the building and is partially below ground as you move towards the front of the building within the office.
- The office consisted of approximately 6 cubicles, 2 connected office rooms, a conference/work room, a copier/storage room and restrooms.
- No evidence of water intrusion or mold growth were observed or reported.
- Recent landscaping work included the addition of wood mulch in a large area on both sides of the main entrance to the office.
- Photographs from the assessment are attached.

Mold Air Sampling

On the afternoon of February 8, 2017, Terracon collected six mold spore trap samples inside the offices at 110 Daniel Drive and two samples in outdoor locations for comparison. The results of the total spore count samples analyses are summarized in Table 1 below:

Table 1: Summary of Total Spore Count Analyses – February 8, 2017

Sample #	110-1	110-2	110-3	110-4	110-5	110-6
Location Description	**Desk of Amy Craft**	**Phone/Work Room**	**Desk of Paula Page**	**Desk of Ann Smith**	**Storage/ Copy Room**	**Desk of Kelli Moore**
Spore Type	**Spores/m³**	**Spores/m³**	**Spores/m³**	**Spores/m³**	**Spores/m³**	**Spores/m³**
Alternaria	---	---	40	---	---	---
Ascospores	40	40	100	40	---	100
Basidiospores	840	200	400	580	200	440
Cladosporium	---	---	---	400	---	---
Curvularia	---	---	---	40	---	---
Epicoccum	---	40	---	---	---	---
Penicillium/ Aspergillus	---	---	---	40	---	---
Smuts/*Periconia*/ Myxomycetes	40	---	---	---	---	---
Pithomyces	---	---	---	---	---	---
Rust	40	---	40	---	---	---
Spegazzinia	---	---	---	---	---	---
Unidentifiable Spores	---	---	---	---	---	---
Total	**960**	**280**	**580**	**1,100**	**200**	**540**

Table 1 Continued: Summary of Total Spore Count Analyses – February 8, 2017

Sample #	110-9	110-10
Location Description	**Outside – picnic table**	**Outside – parking lot**
Spore Type	**Spores/m^3**	**Spores/m^3**
Alternaria	---	---
Ascospores	200	760
Basidiospores	22,200	23,600
Cladosporium	580	530
Epicoccum	---	---
Penicillium/ Aspergillus	---	---
Smuts/*Periconia*/ Myxomycetes	---	---
Pithomyces	---	---
Rust	---	---
Spegazzinia	---	---
Unidentifiable Spores	---	90
Total	**22,980**	**24,980**

There was no visual evidence of water leaks or mold growth in the accessible portions of the office. The lowest outdoor total spore count was approximately 20 times higher than the highest total spore count inside. The dominant molds indoors were *Basidospores* and *Cladosporium* spores. The dominant mold spore types outdoors were *Basidiospores, Ascospores and Cladosporium*. The weather on the day we sampled was warm (68ºF) and cloudy with a light breeze (winds less than 10 mph).

The laboratory analytical report is attached.

Temperature and Relative Humidity

The indoor temperature was 73ºF and the relative humidity was 46%. The outdoor temperature was 68ºF and the relative humidity was 63%.

Dust Sampling

On the morning of February 8, 2017, Terracon collected two (2) dust samples from the carpeting, chair fabric and furniture in two cubicles in the offices at 110 Daniel Drive. The cubicles were occupied by Paula Page (sample 110-7) and Scott Sampson (sample 110-8), respectively. The samples were analyzed for allergens from dust mites, mouse, rat, cat, dog, and cockroach.

Allergens were identified in the samples. The quantity of dust collected was not enough for the lab to assign allergen risk levels in sample 110-7. Table 2 below summarizes the laboratory results. The laboratory analytical report is attached and references additional information.

Table 2: Summary of Allergen Analyses – February 8, 2017

Sample #	110-7	110-8	110-8 Risk Factors
Location Description	**Cubicle of Paula Page**	**Cubicle of Scott Sampson**	**Cubicle of Scott Sampson**
Allergen Type/Antigen	**Concentrations (ng/filter)**	**Concentrations (ug/g)**	**Risk Factor**
Dust Mites / Der fl	ND	**0.06**	**Low**
Dust Mites / Der pl	ND	**0.10**	**Low**
Mouse / Mus ml	ND	ND	ND
Rat / Rat nl	ND	ND	ND
Cat / Fel dl	**0.014**	**1.57**	**Moderate**
Dog / Can fl	**0.65**	**0.58**	**Low**
Cockroach / Bla G2	ND	ND	ND

Note: ng = nanogram (10^{-9} grams), ug = microgram (10^{-6} grams)

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. This is considered to be a favorable condition in the indoor environment.
- Cat allergens were the highest levels of the allergens identified from the dust samples in the office.
- Temperature levels were within ASHRAE guideline ranges and relative humidity levels were within EPA guideline ranges.
- The office appeared to be in good condition with no obvious water leaks or mold growth.

RECOMMENDATIONS

The following recommendations are provided based on our assessment:

- The laboratory assigned a risk level of Moderate for the cat allergens, while other allergens tested were Low or Non-Detect. Please share the results with the occupants of the room and discuss potential cat allergies.

- If any allergens found that may cause allergic symptoms with the occupant(s), cleaning is recommended. Cleaning should be conducted using true HEPA vacuums and wet wiping surfaces to remove dust from the office.

Terracon appreciates the opportunity to provide this service to Clemson University. If you have any questions regarding this limited mold investigation 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 Location of air sample 110-1 – office of Amy Craft

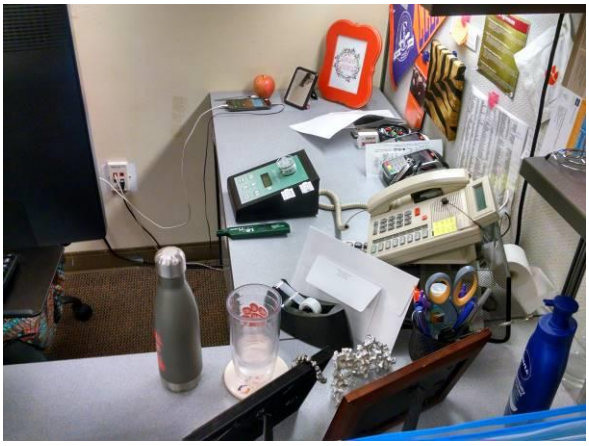


Photo #2 Location of air sample110-3 – desk of Paula Page



Photo #3 Location of air sample 110-5 – storage/work room



Photo #4 Location of air sample110-9 – outside on break area picnic table



Photo #5 Location of air sample 110-10 – outside in parking lot to north of office entrance

Laboratory Results

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

Order ID: 371702592
Customer ID: GTER78
Customer PO: 86127158-Task80
Project ID:

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

Phone: (864) 292-2901
Fax: (864) 292-6361
Collected: 02/08/2017
Received: 02/10/2017
Analyzed: 02/15/2017

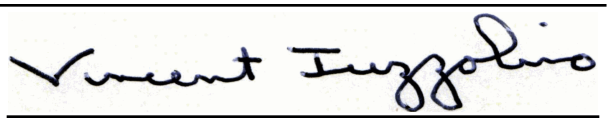
Proj: CU - 110 Daniel Dr

Test Report: Allergenco-D(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number:	371702592-0001			371702592-0002			371702592-0003		
Client Sample ID:	110-1			110-2			110-3		
Volume (L):	75			75			75		
Sample Location:	Desk Of Amy Craft			Phone/Work Room			Desk Of Paula Page		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria	-	-	-	-	-	-	1	40	6.9
Ascospores	1	40	4.2	1	40	14.3	3	100	17.2
Aspergillus/Penicillium	-	-	-	-	-	-	-	-	-
Basidiospores	19	840	87.5	5	200	71.4	9	400	69
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	1	40	14.3	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	1	40	4.2	-	-	-	-	-	-
Pithomyces	-	-	-	-	-	-	-	-	-
Rust	1	40	4.2	-	-	-	1	40	6.9
Scopulariopsis	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-	-	-	-
Torula	-	-	-	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Total Fungi	**22**	**960**	**100**	**7**	**280**	**100**	**14**	**580**	**100**
Hyphal Fragment	2	90	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	2	90	-
Pollen	-	-	-	-	-	-	1	40	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	3	-	-	2	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	-	-	2	-

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

No discernable field blank was submitted with this group of samples.



Vincent Iuzzolino, M.S., Laboratory Director
or Other Approved Signatory

High levels of background particulate can obscure spores and other particulates leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. Present = Spores detected on overloaded samples. Results are not blank corrected unless otherwise noted. The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment. "*" Denotes particles found at 300X. *-* denotes not detected. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ AIHA-LAP, LLC--EMLAP Lab 100194

Initial report from: 02/17/2017 10:17:47

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

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

Order ID: 371702592
Customer ID: GTER78
Customer PO: 86127158-Task80
Project ID:

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

Phone: (864) 292-2901
Fax: (864) 292-6361
Collected: 02/08/2017
Received: 02/10/2017
Analyzed: 02/15/2017

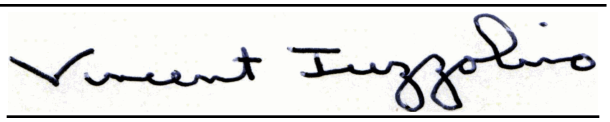
Proj: CU - 110 Daniel Dr

Test Report: Allergenco-D(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number:	371702592-0004			371702592-0005			371702592-0006		
Client Sample ID:	110-4			110-5			110-6		
Volume (L):	75			75			75		
Sample Location:	Desk Of Ann Smith			Storage/Copy Room			Desk Of Kelli Moore		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria	-	-	-	-	-	-	-	-	-
Ascospores	1	40	3.6	-	-	-	3	100	18.5
Aspergillus/Penicillium	1	40	3.6	-	-	-	-	-	-
Basidiospores	13	580	52.7	4	200	100	10	440	81.5
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	8	400	36.4	-	-	-	-	-	-
Curvularia	1	40	3.6	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-	-	-	-
Torula	-	-	-	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Total Fungi	**24**	**1100**	**100**	**4**	**200**	**100**	**13**	**540**	**100**
Hyphal Fragment	2	90	-	-	-	-	1	40	-
Insect Fragment	2	90	-	2	90	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	1	-	-	1	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	-	-	2	-

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

No discernable field blank was submitted with this group of samples.



Vincent Iuzzolino, M.S., Laboratory Director
or Other Approved Signatory

High levels of background particulate can obscure spores and other particulates leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. Present = Spores detected on overloaded samples. Results are not blank corrected unless otherwise noted. The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment. "*" Denotes particles found at 300X. *-* denotes not detected. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ AIHA-LAP, LLC--EMLAP Lab 100194

Initial report from: 02/17/2017 10:17:47

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

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

Order ID:	371702592
Customer ID:	GTER78
Customer PO:	86127158-Task80
Project ID:	

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

Phone:	(864) 292-2901
Fax:	(864) 292-6361
Collected:	02/08/2017
Received:	02/10/2017
Analyzed:	02/15/2017

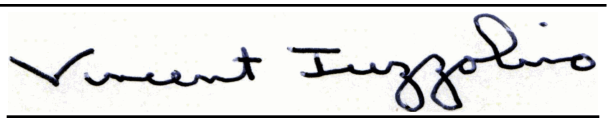
Proj: CU - 110 Daniel Dr

Test Report: Allergenco-D(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number:	371702592-0009			371702592-0010		
Client Sample ID:	110-9			110-10		
Volume (L):	75			75		
Sample Location:	Outside Picnic Table			Outside - Parking Lot		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria	-	-	-	-	-	-
Ascospores	5	200	0.9	17	760	3
Aspergillus/Penicillium	-	-	-	-	-	-
Basidiospores	500	22200	96.6	532	23600	94.5
Bipolaris++	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-
Cladosporium	13	580	2.5	12	530	2.1
Curvularia	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-
Pithomyces	-	-	-	-	-	-
Rust	-	-	-	-	-	-
Scopulariopsis	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-
Torula	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	2	90	0.4
Zygomycetes	-	-	-	-	-	-
Total Fungi	**518**	**22980**	**100**	**563**	**24980**	**100**
Hyphal Fragment	-	-	-	3	100	-
Insect Fragment	-	-	-	2	90	-
Pollen	8	400	-	10	440	-
Analyt. Sensitivity 600x	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	1	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	-

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

No discernable field blank was submitted with this group of samples.



Vincent Iuzzolino, M.S., Laboratory Director
or Other Approved Signatory

High levels of background particulate can obscure spores and other particulates leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. Present = Spores detected on overloaded samples. Results are not blank corrected unless otherwise noted. The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment. "*" Denotes particles found at 300X. *-* denotes not detected. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ AIHA-LAP, LLC--EMLAP Lab 100194

Initial report from: 02/17/2017 10:17:47

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

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 #:	**371702592**
Customer ID:	**GTER78**
Customer PO:	**86127158-Task80**

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

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

Project: **CU - 110 Daniel Dr**

Date Collected: **2/8/2017**
Date Received: **2/10/2017**
Date Analyzed: **2/15/2017**

Sample Summary -Indoor Allergen Analysis by MARIA®



Lab Sample Number	Client Sample ID	Sample Location	Sample Type
371702592-0007	110-7	Paula Page Work Area (Chair, Carpet, Desk)	Bulk
371702592-0008	110-8	Scott Sampson Work Area (Chair, Carpet, Desk)	Bulk

Report Date	Report Revision	Revision Comments
2/17/2017	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



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/
© 2016, EMSL Analytical, Inc., All rights reserved. No part of this report may be reproduced or otherwise distributed or used without the express written consent of EMSL.

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 #: **371702592**
Customer ID: **GTER78**
Customer PO: **86127158-Task80**

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

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

Project: **CU - 110 Daniel Dr**

Date Collected: **2/8/2017**
Date Received: **2/10/2017**
Date Analyzed: **2/15/2017**

EMSL Sample #: **371702592-0007**
Client ID: **110-7**
Location: **Paula Page Work Area (Chair, Carpet, Desk)**

Sample Type: **Bulk**
Sample Size: **1 Filter**
Sample Units: **Filter**

Analytical Results -Indoor Allergen Analysis by MARIA®

Test Parameter	*Antigens*	*Detection Limits*		*Concentrations*		*Allergen Risk Levels*
Dust Mites Allergen	Der f1	0.03	ng/filter	**ND**	ng/filter	†
Dust Mites Allergen	Der p1	0.03	ng/filter	**ND**	ng/filter	†
Mouse Allergen	Mus m1	0.005	ng/filter	**ND**	ng/filter	†
Rat Allergen	Rat n1	0.01	ng/filter	**ND**	ng/filter	†
Cat Allergen	Fel d1	0.01	ng/filter	**0.014**	ng/filter	†
Dog Allergen	Can f1	0.03	ng/filter	**0.65**	ng/filter	†
Cockroach Allergen	Bla g2	0.03	ng/filter	**ND**	ng/filter	†

†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**
2/17/2017	R0	Initial Report

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

Please visit our website at http://www.microbiologytestinglab.com/
© 2016, EMSL Analytical, Inc., All rights reserved. No part of this report may be reproduced or otherwise distributed or used without the express written consent of EMSL.

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 #: **371702592**
Customer ID: **GTER78**
Customer PO: **86127158-Task80**

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

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

Project: **CU - 110 Daniel Dr**

Date Collected: **2/8/2017**
Date Received: **2/10/2017**
Date Analyzed: **2/15/2017**

EMSL Sample #: **371702592-0008**
Client ID: **110-8**
Location: **Scott Sampson Work Area (Chair, Carpet, Desk)**

Sample Type: **Bulk**
Sample Size: **31**
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	**0.06**	µg/g	☑
Dust Mites Allergen	Der p1	0.012	µg/g	**0.10**	µg/g	☑
Mouse Allergen	Mus m1	0.002	µg/g	**ND**	µg/g	☑
Rat Allergen	Rat n1	0.004	µg/g	**ND**	µg/g	†
Cat Allergen	Fel d1	0.004	µg/g	**1.57**	µg/g	⚠
Dog Allergen	Can f1	0.012	µg/g	**0.58**	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**
2/17/2017	R0	Initial Report

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

Please visit our website at http://www.microbiologytestinglab.com/
© 2016, EMSL Analytical, Inc., All rights reserved. No part of this report may be reproduced or otherwise distributed or used without the express written consent of EMSL.

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 #: **371702592**
Customer ID: **GTER78**
Customer PO: **86127158-Task80**

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

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

Project: **CU - 110 Daniel Dr**

Date Collected: **2/8/2017**
Date Received: **2/10/2017**
Date Analyzed: **2/15/2017**



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

Please visit our website at http://www.microbiologytestinglab.com/
© 2016, EMSL Analytical, Inc., All rights reserved. No part of this report may be reproduced or otherwise distributed or used without the express written consent of EMSL.

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 #: **371702592**
Customer ID: **GTER78**
Customer PO: **86127158-Task80**

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

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

Project: **CU - 110 Daniel Dr**

Date Collected: **2/8/2017**
Date Received: **2/10/2017**
Date Analyzed: **2/15/2017**

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.

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 the original sample delivery group (SDG) samples. In no event shall EMSL be liable to a client orvalue of 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.

Report Date	Report Revision	Revision Comments
2/17/2017	R0	Initial Report

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

Please visit our website at http://www.microbiologytestinglab.com/
© 2016, EMSL Analytical, Inc., All rights reserved. No part of this report may be reproduced or otherwise distributed or used without the express written consent of EMSL.

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Industrial Hygiene Chain of Custody

EMSL Order Number (Lab Use Only): 371702592

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

OrderID: 371702592

Report To Contact Name: Ben Hestir	**Bill To Company:** Terracon	**Client ID #:**
Company Name: Terracon	**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: CU - 110 Daniel Dr	**Email Results To:** ben.hestir@terracon.com	**U.S. State where Samples Collected:** SC
# Samples in Shipment: 10 **Date of Shipment:** 2/9/17	**Purchase Order:** 86127158 - Task 80	**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
110-1	Desk of Amy Craft	M032	Allergen	15	1048	1053	75	☑ Area ☐ Personal	2/8/17	
110-2	Phone/Work Room	M032	Allergen	15	1057	1102	75	☑ Area ☐ Personal	2/8/17	
110-3	Desk of Paula Page	M032	Allergen	15	1105	1110	75	☑ Area ☐ Personal	2/8/17	
110-4	Desk of Ann Smith	M032	Allergen	15	1113	1118	75	☑ Area ☐ Personal	2/8/17	
110-5	Storage/Copy Room	M032	Allergen	15	1120	1125	75	☑ Area ☐ Personal	2/8/17	
110-6	Desk of Kelli Moore	M032	Allergen	15	1127	1132	75	☑ Area ☐ Personal	2/8/17	
110-7	Paula Page work area	M038, M039, M044	Dust Cas	NA	1135	1138	NA	☑ Area ☐ Personal	2/8/17	Chair, carpet, desk
110-8	Scott Sampson work area	M038, M039, M044	Dust Cas	NA	1141	1145	NA	☑ Area ☐ Personal	2/8/17	Chair, carpet, desk

RECEIVED EMSL CINNAMINSON, N.J. 2017 FEB 10 A 10:31

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	2/9/17	DW Fx	2/10/17 0920

Comments:

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Industrial Hygiene Chain of Custody

EMSL Order Number (Lab Use Only): 371702592

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

OrderID: 371702592

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Client Sample ID	Location/Description	Analyte / Method	Media	Flow (lpm)	Sample Time On	Sample Time Off	Volume / Area	Sample Type	Sample Date	Comments
110-9	Outside picnic table	M032	Allergen	15	1153	1158	75	☑ Area ☐ Personal	2/8/17	
110-10	Outside - parking lot	M032	Allergen	15	1202	1207	75	☑ Area ☐ Personal	2/8/17	
								☐ Area ☐ Personal		
								☐ Area ☐ Personal		
								☐ Area ☐ Personal		
								☐ Area ☐ Personal		
								☐ Area ☐ Personal		
								☐ Area ☐ Personal		
								☐ Area ☐ Personal		
								☐ Area ☐ Personal		
								☐ Area ☐ Personal		
								☐ Area ☐ Personal		
								☐ Area ☐ Personal		
								☐ Area ☐ Personal		

RECEIVED
EMSL
CINNAMINSON, N.J.
2017 FEB 10 A 10 31

Comments: