PathCon® Laboratories

November 27, 2013
Final Report V2491

Stephen Ellis
Terracon
3534 Rutherford Road
Taylors, SC 29687

Re: Tillman Hall

Dear Mr. Ellis,

The analysis of environmental samples submitted to PathCon Laboratories (see Table 1) has been completed. Samples were received and analysis initiated on November 12, 2013. Samples received in acceptable condition were analyzed by the viable culture method and reported herein. Results are presented in attached table(s). Results in this report are based on samples submitted by the on-site investigator.

The purpose of this report is to identify and quantify microorganisms from collected samples at the time they are submitted. It is not the intent of this report to make any suggestions or associations concerning potential health effects of building occupants, nor to suggest any remediation procedures. There are no governmental regulations concerning permissible numbers of fungi and bacteria in environmental samples.

Your invoice will follow under separate cover. Thank you for your business.

Sincerely,

PATHOGEN CONTROL ASSOCIATES, INC.
By:

Kimberly H. Kirkland, M.P.H.
Director of Laboratory Services

Pathogen Control Associates, Inc.
270 Scientific Drive Suite 3 Norcross, Georgia 30092
Phone: 770-446-0540 Fax: 770-446-0610

Table 1. Identification of Air Sampling Sites

Site No.	Description
1	Basement hallway
2	Rm. 108
3	4th floor hallway
4	Rm. 324
5	Rm. 206
6	Outdoors
7	Blank

Table 2. Summary of Viable Counts Per Cubic Meter of Air[1,2]

Site	Fungi	Bacteria Incubated at RT	Bacteria Incubated at 35°C	Bacteria Incubated at 56°C
1	236	141	141	12
2	742	212	236	<12
3	165	106	59	<12
4	118	59	12	<12
5	35	12	24	<12
6	236	271	94	<12
7	<12	<12	<12	<12

[1] These counts are based on an Andersen sampler flow rate of 28.3 liters per minute and a sample exposure time of 3 minutes.

[2] Limits of the test were approximately 12 colony forming units per cubic meter of air.

Table 3. Concentration of Fungi in Air Samples

Sample	Concentration[1,2,3]	Genera Prevalence[4,5]
1	236	Sterile Mycelia (4/20) Cladosporium (3/20) Tritirachium-like (3/20) Penicillium 1 (1/20) Penicillium 2 (1/20) Penicillium 3 (1/20) Penicillium 4 (1/20) Penicillium 5 (1/20) Aspergillus fumigatus group (1/20) Yeast (1/20) Penicillium 6 (1/20)
2	742	Penicillium 1 (13/63) Penicillium 2 (9/63) Cladosporium (9/63) Penicillium 3 (6/63) Penicillium 4 (5/63) Sterile Mycelia (3/63) Penicillium 5 (3/63) Penicillium 6 (3/63) Penicillium 7 (3/63) Penicillium 8 (2/63) Tritirachium-like (2/63) Penicillium 9 (1/63) Yeast (1/63) Torulomyces-like (1/63) Penicillium 10 (1/63)

[1] Colony forming units on Rose Bengal Agar media per cubic meter of air.

[2] These counts are based on an Andersen sampler flow rate of 28.3 liters per minute and a sample exposure time of 3 minutes.

[3] Limits of the test were approximately 12 colony forming units per cubic meter of air.

[4] Fungi listed in descending order of occurrence.

[5] ( ) = Taxon Count/Total Count.

Table 3. Concentration of Fungi in Air Samples

Sample		Concentration[1,2,3]	Genera Prevalence[4,5]
3		165	Cladosporium (3/14) Penicillium 1 (2/14) Penicillium 2 (2/14) Tritirachium-like (2/14) Hyalodendron (1/14) Penicillium 3 (1/14) Penicillium 4 (1/14) Penicillium 5 (1/14) Torulomyces-like (1/14)
4		118	Sterile Mycelia (3/10) Cladosporium (2/10) Penicillium 1 (2/10) Penicillium 2 (1/10) Penicillium 3 (1/10) Penicillium 4 (1/10)
5		35	Cladosporium (2/3) Sterile Mycelia (1/3)
6		236	Cladosporium (6/20) Sterile Mycelia (3/20) Curvularia (2/20) Paecilomyces-like (2/20) Aspergillus fumigatus group (1/20) Penicillium (1/20) Yeast (1/20)
7	Blank	<12	

[1] Colony forming units on Rose Bengal Agar media per cubic meter of air.

[2] These counts are based on an Andersen sampler flow rate of 28.3 liters per minute and a sample exposure time of 3 minutes.

[3] Limits of the test were approximately 12 colony forming units per cubic meter of air.

[4] Fungi listed in descending order of occurrence.

[5] ( ) = Taxon Count/Total Count.

Table 4. Analysis of Air Samples for Bacteria on R2Ac Agar Incubated at Room Temperature[1]

Sample		Concentration[2,3,4]	Genera Prevalence[5,6]
1		141	Corynebacterium-like (3/12) Pseudomonas, not aeruginosa (2/12) Streptomyces-like (2/12)
2		212	Corynebacterium-like (8/18) Pseudomonas, not aeruginosa (3/18) Bacillus-like (2/18)
3		106	Brevibacterium-like (3/9) Micrococci (2/9) Curtobacterium-like (2/9)
4		59	Gram positive cocci (2/5) Gram positive rod (1/5) Moraxella (1/5)
5		12	Corynebacterium-like (1/1)
6		271	Arthrobacter-like (6/23) Gram negative rod (4/23) Methylobacterium-like (3/23)
7	Blank	<12	

[1] R2Ac Agar is designed to culture environmental bacteria; however, this medium may also support the growth of human commensal bacteria.

[2] Colony forming units on R2Ac Agar media per cubic meter of air.

[3] These counts are based on an Andersen sampler flow rate of 28.3 liters per minute and a sample exposure time of 3 minutes.

[4] Limits of the test were approximately 12 colony forming units per cubic meter of air.

[5] Bacteria listed in descending order of occurrence.

[6] ( ) = Taxon Count/Total Count.

Table 5. Analysis of Air Samples for Bacteria on Blood Agar Incubated at 35°C[1]

Sample	Concentration[2,3,4]	Genera Prevalence[5,6]
1	141	Staphylococcus, not aureus (4/12) Micrococci (2/12) Bacillus (1/12)
2	236	Corynebacterium-like (4/20) Bacillus-like (3/20) Streptomyces-like (3/20)
3	59	Staphylococcus, not aureus (1/5) Curtobacterium-like (1/5) Micrococci (1/5)
4	12	Micrococci (1/1)
5	24	Micrococci (1/2) Aeromonas-like (1/2)
6	94	Corynebacterium-like (3/8) Streptomyces-like (2/8) Corynebacterium-like (1/8)
7 Blank	<12	

[1] Blood Agar is designed to culture human-associated bacteria; however, this medium may also support the growth of environmental bacteria.

[2] Colony forming units on Blood Agar media per cubic meter of air.

[3] These counts are based on an Andersen sampler flow rate of 28.3 liters per minute and a sample exposure time of 3 minutes.

[4] Limits of the test were approximately 12 colony forming units per cubic meter of air.

[5] Bacteria listed in descending order of occurrence.

[6] ( ) = Taxon Count/Total Count.

Table 6. Concentration of Thermophilic Bacteria (56°C Incubation) in Air Samples

Sample		Concentration[1,2,3]	Genera Prevalence[4,5]
1		12	Thermophilic actinomycete (1/1)
2		<12	
3		<12	
4		<12	
5		<12	
6		<12	
7	Blank	<12	

[1] Colony forming units on Tryptic Soy agar (TSA) per cubic meter of air.

[2] These counts are based on an Andersen sampler flow rate of 28.3 liters per minute and a sample exposure time of 3 minutes.

[3] Limits of the test were approximately 12 colony forming units per cubic meter of air.

[4] Bacteria listed in descending order of occurrence.

[5] ( ) = Taxon Count/Total Count.

PathCon® Laboratories

270 Scientific Drive, Suite 3
Norcross, GA 30092

Phone: 770-446-0540
Fax: 770-446-0610

PathCon Number: V2491 Date: 11-8-13 Sampler Air Flow Rate: 28.3 L/min

Investigator: Stephen Ellis Tel. 864-292-2901

Company/Agency: Terracon Fax.

Address for Report: 3534 Rutherford Rd

City Taylors State SC Zip 29687 Purchase or Reference No. Tillman Hall

Address for Invoice: Same as Above

City State Zip

This protocol is suggested to assist the on-site investigator in developing an overall sampling strategy. PathCon Laboratories does not assume responsibility for selection of the appropriate sampling protocol or interpretation of the findings. These decisions must be made by the on-site investigator. Sampling should be done by a trained environmental health professional with experience in sampling for microorganisms; therefore, this protocol should not be considered a complete sampling guide.

INSTRUCTIONS FOR USING **ANDERSEN** SAMPLER AND RECORDING DATA

1) At the job location, record the Site number and the Site description on the Sample Record Sheet (back of this page).

2) Before sampling at each sampling site, clean the top inlet and sieve plate by unscrewing them and wiping them both inside and outside with an alcohol sponge. Reassemble and run the sampler for 20 seconds to dry the alcohol; then load media for sampling. Be careful to use aseptic technique. Do not touch agar surface with fingers.

3) Air should be collected at each sampling site as follows:

Plate	Medium	Sample Time (seconds)
1	MEA or RBA	60
2	R2Ac Agar	60
3	TSA or Blood Agar	60
4	MEA or RBA	120
5	R2Ac Agar	120
6	TSA or Blood Agar	120
7	TSA	180

4) Reseal plates with parafilm strips after exposure in the sampler. Put plates back into plastic bags in which they were originally packed. **Pack plates with the exposed agar side up to prevent agar from falling out during shipment. DO NOT SHIP PLATES UPSIDE DOWN.** **It is essential that plates be shipped to the laboratory by overnight courier for morning delivery.** It is necessary that the plates arrive at the laboratory and be incubated at appropriate temperatures before visible growth develops on them. For this reason, a return Federal Express Airbill is provided.

5) Enclose a copy of the Sample Record Sheet(s) with the exposed sample plates being returned to the laboratory.

PathCon Laboratories - Project Number V2491

Sample Identification Record

Health Complaint Location:

Site # 1 Description: Basement Hallway — Yes ☐ No ☐

Comments:

Site # 2 Description: Rm 108 — Yes ☐ No ☐

Comments:

Site # 3 Description: 4th Floor Hallway — Yes ☐ No ☐

Comments:

Site # 4 Description: Rm 324 — Yes ☐ No ☐

Comments:

Site # 5 Description: Rm 206 — Yes ☐ No ☐

Comments:

Site # 6 Description: Outdoors — Yes ☐ No ☐

Comments:

Site # 7 Description: Blank — Yes ☐ No ☐

Comments:

Site # _____ Description: — Yes ☐ No ☐

Comments:

Site # _____ Description: — Yes ☐ No ☐

Comments:

Site # _____ Description: — Yes ☐ No ☐

Comments:

For client signature:
Released by: Stephen Ellis

Date: 11-11-13 Time: 17:00

For PathCon signature:
Received by: Michael

Date: 11/12/13 Time: 9:15 am