



1251 Weatherstone Ct. Reston,VA 20194  
703.927.7532 Steve@GreenCleanAir.com

## Mold Reduction Report

November 11, 2011

Rodney Fugitt  
Strategic Property Systems  
10772 Alyssia Lane  
Waldorf, MD 20603

Re: 9201 Messina Drive  
Ft. Washington, MD

Dear Rodney,

We appreciate the opportunity to assess the quality of the air in this property.

On October 26, I took 2 airborne mold samples within the property in order to determine how many airborne spores were present. I used an air pump and drew 75 liters of air through an special filter which captures airborne mold.

The lab report results show that there were:

- 335,518 total airborne mold spores per cubic meter in the main room of the basement.
- 356,912 total airborne mold spores per cubic meter in the back bedroom of the basement.

The predominant species that were captured are chaetomium, cladosporium, aspergillus and penicillium. The airborne samples included several other mold species but they were in much lower levels.

On November 10, I took 2 airborne mold samples in the same places with the same air volumes and sent them to the same lab for consistent comparison analysis.

The lab report results show that there were:

- 9,212 total airborne mold spores per cubic meter in the main room of the basement.
- 2,667 total airborne mold spores per cubic meter in the back bedroom of the basement.

The predominant species that were captured are chaetomium, cladosporium, aspergillus and penicillium. The airborne samples included several other mold species but they are in much lower levels.

Therefore, the total airborne mold spores per cubic meter in the **main room** of the basement were reduced by **97.5%** and, the total airborne mold spores per cubic meter in the **back bedroom** of the basement were reduced by **99.5%**.



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## Report (cont)

A point of explanation about the particular molds in the before and after tests. As seen in the November 4th lab report "comments", there were so many airborne mold spores that the "Spore count may be underestimated due to heavy particulate load". Indeed, with a debris rating of 4, fully "75% to 90% of a sample may be occluded", ie.-spores and spore pieces which cover the spores underneath them. (See footnotes on page 2). This means that there were likely many more airborne spores in the spaces on October 26th. The second samples of November 10th had a debris rating of 3 which lowers the occlusion factor to 26% to 75% of the sample. This explains the apparent discrepancy between the "higher" level spores in the second sample-basidiospores and cladosporium. While these two species may appear to have increased in the second sample, they were under-counted in the initial samples, so a precise count was impossible in the first air samples due to occlusion. The second sample is closer to their correct count and had the first sample not have been so occluded, it would have provided a correct and much higher count of these species.

### **Professional Observations**

It is my understanding that a mold remediation firm had already taken out the moldy sheetrock and carpets from this property. This firm had then applied fungicides (Microban) to the basement walls and floors and then sealed the walls with a mold sealant (Fiberlock). I observed the white coating from the Fiberlock on the exposed walls.

When we visited the property on 10/26/11 and I first took air samples inside the basement, it had very pungent mildew odor which would be indicative of high airborne mold levels. The lab results supported this by showing that there were 335,518 to 356,912 airborne mold spores.

That was not the case when I returned to the property on November 10. The mold levels dropped to 9,212 and 2,667 respectively. The strong mold odors were totally absent. It is my understanding that you installed two Global Plasma Systems RN units on November 6th, so they had been operating for 4 days. These units produce cold plasma fields and it is significant that this cold plasma technology was able to effect the drop in airborne mold levels by 99.5% and 97.5%. In my professional career of taking airborne mold samples, I have never seen such a reduction as this within such a short period of time except by a total mold remediation. That this technology was able to produce such significant results post-facto a mold remediation, is unknown to me up till now. As the chairman of the nonprofit Indoor Environmental Standards Organization (IESO.org) committee which is writing the first mold investigation standard for educational facilities, it is my business to be aware of effective mold reduction technologies like cold plasma. Had the Lab results not have confirmed what my nose had no longer smelled, I would never have believed that this was possible.

The other significant feature of the second lab report was how the cold plasma had reduced the airborne stachybotrys levels. Stachybotrys mold is considered to produce one of the most toxic mold chemicals (mycotoxin) and the reduction to negligible levels was an important health benefit, along with the large drops in aspergillus and penicillium species which produce also mycotoxins.

Therefore, it is my professional opinion that if you allow the G.P.S. RN cold plasma unit to run longer, that the remaining airborne mold levels should be even further reduced.

If you have any questions, please contact me.

Regards,

*Steve*

Steven Welty CIE, CAFS, LEED® AP

enclosure: Aerobiology Test Results

Green Clean Air  
 1251 Weatherstone Ct.  
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 Attn: Steven Welty

 Date Collected: 10/26/2011  
 Date Received: 11/01/2011  
 Date Analyzed: 11/03/2011  
 Date Reported: 11/04/2011  
**Project ID: 11013282**
**Project : Ft Washington Home**

Condition of Sample(s) Upon Receipt: Acceptable

Page 1 of 2

## 1054 Spore Trap Analysis: SOP 3.8

Client Sample Number	17582436				17582536			
Sample Location	Main Room Basement				Back Bedroom Basement			
Sample Volume (L)	75				75			
Lab Sample Number	11013282-001				11013282-002			
Spore Identification	Raw Ct	spr/m <sup>3</sup>	% Ttl	In/Out	Raw Ct	spr/m <sup>3</sup>	% Ttl	In/Out
Alternaria	1	13	-	-	-	-	-	-
ascospores	9	120	-	-	5	67	-	-
basidiospores	17	227	-	-	16	213	-	-
Chaetomium	43	4587	1	-	25	2667	1	-
Cladosporium	15	200	-	-	20	267	-	-
clear brown	20	1067	-	-	18	960	-	-
Drechslera/Bipolaris group	3	40	-	-	-	-	-	-
Epicoccum	-	-	-	-	1	13	-	-
hyphal elements	23	307	-	-	17	227	-	-
Penicillium/Aspergillus group	411	328144	98	-	440	351297	98	-
Pithomyces	4	53	-	-	-	-	-	-
rusts	-	-	-	-	8	107	-	-
smuts,Periconia,myxomycetes	22	293	-	-	29	387	-	-
Stachybotrys	35	467	-	-	53	707	-	-
	Debris Rating 4*				Debris Rating 4*			
Comments	Spore count may be underestimated due to heavy particulate.				Spore count may be underestimated due to heavy particulate.			
	Analytical Sensitivity: 13				Analytical Sensitivity: 13			
Total	603	335518	~100%	-	632	356912	~100%	-

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Page 2 of 2

## Footnotes and Additional Report Information

### Debris Rating Table

1	Minimal (<5%) particulate present	Reported values are minimally affected by particulate load
2	5% to 25% of the trace occluded with particulate	Negative bias is expected. The degree of bias increases directly with the percent of the trace that is occluded
3	26% to 75% of the trace occluded with particulate	Negative bias is expected. The degree of bias increases directly with the percent of the trace that is occluded
4	75% to 90% of the trace occluded with particulate	Negative bias is expected. The degree of bias increases directly with the percent of the trace that is occluded
5	Greater than 90% of the trace occluded with particulate	Quantification not possible due to large negative bias. A new sample should be collected at a shorter time interval or other measures taken to reduce particulate load

1. Penicillium/Aspergillus group spores are characterized by their small size, round to ovoid shape, being unicellular, and usually colorless to lightly pigmented. There are numerous genera of fungi whose spore morphology is similar to that of the Penicillium/Aspergillus type. Two common examples would be Paecilomyces and Acremonium. Although the majority of spores placed in this group are Penicillium, Aspergillus, or a combination of both; keep in mind that these are not the only two possibilities.

2. Ascospores are sexually produced fungal spores formed within an ascus. An ascus is a sac-like structure designed to discharge the ascospores into the environment, e.g. Ascobolus.

3. Basidiospores are typically blown indoors from outdoors and rarely have an indoor source. However, in certain situations a high basidiospores count indoors may be indicative of a wood decay problem or wet soil.

4. The Smut, Periconia, Myxomycete group is a group composed of three different groups whose spores have similar morphologies. Smuts are plant pathogens, Periconia is a relatively uncommon mold indoors, and Myxomycetes are not fungi but slime molds. Although these organisms do not typically proliferate indoors their spores are potentially allergenic.

5. The colorless group contains colorless spores which were unidentifiable to a specific genus. Examples of this group include Acremonium, Aphanocladium, Beauveria, Chrysosporium, Engyodontium microconidia, yeast, some arthrospores, as well as many others.

6. Rusts are plant pathogens that do not typically proliferate indoors unless an infected plant is present; their spores are potentially allergenic and reflect entrainment from outdoor air.

7. Hyphae are the vegetative mode of fungi. Hyphal elements are fragments of individual Hyphae. They can break apart and become airborne much like spores and are potentially allergenic. A mass of hyphal elements is termed the mycelium. Hyphae in high concentration are indicative of colonization.

8. The positive-hole correction factor is a statistical tool which calculates a probable count from the raw count, taking into consideration that multiple particles can impact on the same hole; for this reason the sum of the calculated counts may be less than the particle hole corrected total.

9. Due to rounding totals may not equal 100%.

10. Minimum Reporting Limits (MRL) for BULKS, DUSTS, SWABS, and WATER samples are a calculation based on the sample size and the dilution plate on which the organism was counted. Results are a compilation of counts taken from multiple dilutions and multiple medias. This means that every genus of fungi or bacteria recovered can be counted on the plate on which it is best represented.

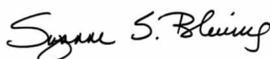
11. If the final quantitative result is corrected for contamination based on the blank, the blank correction is stated in the sample comments section of the report.

12. Analysis conducted on non-viable spore traps is completed using Indoor Environmental Standards Organization (IESO) Standard 2210.

13. The results in this report are related to this project and these samples only.

### Terminology Used in Direct Exam Reporting

**Conidiophores are a type of modified hyphae from which spores are born. When seen on a surface sample in moderate to numerous concentrations they may be indicative of fungal growth.**



 Suzanne S. Blevins, B.S., SM (ASCP)  
 Laboratory Director



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Date Collected: 11/10/2011  
Date Received: 11/10/2011  
Date Analyzed: 11/10/2011  
Date Reported: 11/11/2011  
**Project ID: 11013710**

**Project : Ft. Washington 2 Samples**

Condition of Sample(s) Upon Receipt: Acceptable

Non-Viable 24hr TAT Spore: SOP 3.8

Client Sample Number	17582516				17581475			
Sample Location	Main Basement Room				Back Basement Room			
Sample Volume (L)	75				75			
Lab Sample Number	11013710-001				11013710-002			
Spore Identification	Raw Ct	spr/m <sup>3</sup>	% Ttl	In/Out	Raw Ct	spr/m <sup>3</sup>	% Ttl	In/Out
Alternaria	1	13	-	-	-	-	-	-
ascospores	1	13	-	-	3	40	1	-
basidiospores	16	853	9	-	26	347	13	-
Chaetomium	12	160	2	-	7	93	3	-
Cladosporium	35	467	5	-	23	307	12	-
Epicoccum	1	13	-	-	-	-	-	-
hyphal elements	6	80	1	-	5	67	3	-
Penicillium/Aspergillus group	71	7573	82	-	132	1760	66	-
Pithomyces	1	13	-	-	-	-	-	-
smuts,Periconia,myxomycetes	-	-	-	-	1	13	-	-
Stachybotrys	2	27	-	-	2	27	1	-
unknown	-	-	-	-	1	13	-	-
	Debris Rating 3*				Debris Rating 3*			
	Analytical Sensitivity: 13				Analytical Sensitivity: 13			
Total	146	9212	~100%	-	200	2667	~100%	-

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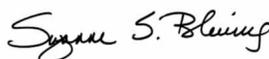
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