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Customer Name:	Stachybotrys Remediation, Inc.	Sample Date:	November 25, 2007
Customer Address:	1234 Fungus Lane Air-O-Cell, PA 16152	Date Received:	November 28, 2007
		Date of Report:	December 5, 2007
Customer Phone:	(724) 555-1212	Fax:	(724) 555-1234
PO Number:	11022007	Attention:	Joe Stachy
Project Number:	456 Mushroom Ave - #1234		

Customer sample numbers below are uniquely identified by prefixing Laboratory # 1112354-07

Culturable Bioaerosol Samples (Fungi) - Analytical Method USMS-M002

Sample Number	Media	Sample Description	Results of Microbial Analysis	%	Raw CTs
F-1	IMA	Outdoor - Rear	Total Fungal Count	777	CFU/m ³ of air
			<i>Cladosporium spp.</i>	61%	67
			<i>Arthroconidia spp.</i>	11%	12
			<i>Fusarium spp.</i>	5%	5
			<i>Aspergillus fumigatus</i>	5%	5
			<i>Penicillium spp.</i>	2%	2
			<i>Paecilomyces spp.</i>	2%	2
			<i>Epicoccum spp.</i>	2%	2
Total Raw Count:	110				
Total Volume:	141.5 liters of air				
Analytical Sensitivity:	7 CFU/m ³ of air				
F-2	IMA	SE Basement Room	Total Fungal Count	3,823	CFU/m ³ of air
			<i>Penicillium spp.</i>	73%	398
			<i>Aspergillus niger</i>	12%	65
			<i>Aspergillus spp.</i>	7%	38
			<i>Paecilomyces spp.</i>	4%	21
			<i>Aspergillus ochraceus</i>	2%	11
			<i>Chaetomium spp.</i>	2%	11
			Total Raw Count:	541	
Total Volume:	141.5 liters of air				
Analytical Sensitivity:	7 CFU/m ³ of air				

Example Report

Note: Results are reported as calculated. For interpreted purposes of biological data, the first and/or second digit generally should be considered significant. Note: Total percentages may not equal 100% due to rounding.

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Technical Manager:

Herbert Layman

Herbert Layman, BS, SM, CIEC

Cladosporium spp. - *Cladosporium* species are ubiquitous with worldwide distribution and are the most common mould on dead organic matter and in the air. The highest concentrations outdoors of *Cladosporium* species occur in summer and early fall in temperate areas. *Cladosporium* species are common in indoor environments and often isolated from the surface of fiberglass duct liners around return and supply ducts, shower walls & curtains, and basement walls. They are usually found indoors in numbers less than outdoor numbers.

Arthroconidia spp. - *Arthroconidia* are one of the simplest forms of sporulation. The spores form directly from the hyphae by fragmentation. When the spores mature, they appear rectangular with thick walls. Several species of fungi form arthroconidia. Examples are *Geotrichum* and *Trichosporon* species.

Fusarium spp. - *Fusarium* species are widespread as a common soil saprophyte and are an important plant pathogen. Some species produce toxins in grains or stored animal feed. On culture media, this rapidly growing fungus appears in pink, yellow, red, or purple shades. *Fusarium* species are usually identified by their characteristic multicellular sickle-shaped macroconidia, but identification may be difficult with some species.

Aspergillus fumigatus - *Aspergillus fumigatus*, the most pathogenic species, is responsible for about 90% of all invasive aspergillosis cases. Of the *Aspergillus* species, over 95% of all infections are caused by three species: *Aspergillus fumigatus*, *A. flavus*, and *A. niger*. Several more species have been reported in association with aspergillosis cases, including *A. nidulans*, *A. terreus*, *A. oryzae*, *A. ustus*, and *A. versicolor*. *Aspergillus fumigatus* may be recovered from the indoor environment and is common in trash, house dust, and compost. It is commonly recovered outdoors in compost piles, wood chips, soil, plants, seeds, and cotton. It flourishes in mild to warm soils and vegetable matter decomposing in warm environments, such as self-heating hay and composts.

Penicillium spp. - *Penicillium* species are a very large and ubiquitous genus with worldwide distribution over a broad range of climates in soil, decaying vegetation, and foods. They are the most abundant genus of mesophilic fungi in temperate soils. About 200 species have been identified. Their role in these habitats is to act as decay fungi; they are important agents in the natural processes of recycling used biological material. *Penicillium* species are indoor contaminants commonly found in carpet, wallpaper, and inside fiberglass duct insulation. High viable or spore trap air counts may be detected where water damaged materials such as drywall, wallpaper, wood, and wood products are present.

Paecilomyces - Most species of *Paecilomyces* are commonly isolated worldwide from soil and decaying plant material and are often implicated in decay of food products and cosmetics. Some species are able to tolerate high temperatures; thus are inhabitants of compost piles. *Paecilomyces spp.* is a common contaminant in air and is often isolated from substrates originating from higher temperatures (e.g., compost).

Aspergillus ochraceus - *Aspergillus ochraceus* is a common fungus reported in soils, desert soils, plant rhizospheres, stored seeds, a wide range of foods, and indoor environments.

Epicoccum spp. - *Epicoccum* species are dematiaceous moulds that have widespread distribution being isolated from air, animals, foodstuffs, and textiles. They are common early secondary invaders of numerous plants causing leaf spots. *Epicoccum* species are allergenic fungus, but not documented as an etiologic agent in human or animal disease.

Aspergillus niger - *Aspergillus niger* is commonly found in the environment on textiles, in soils, grains, fruits, and vegetables. This species is considered common to indoor environments and usually displays a very musty odor.

CULTURABLES - GUIDELINES FOR INDOOR MICROBIAL CONTAMINATION

Currently there are no numeric standards for airborne or surface microbial contamination indoors. Suggested guidelines are constantly being reviewed and edited as more information surrounding microbial IAQ issues surface. Some common denominators should be considered when interpreting results:

1. Comparison of indoor/outdoor concentration ratios.
2. Complaint vs. non-complaint areas or affected vs. non-affected areas.
3. Consider air exchange rates and activity levels in a building structure, weather, and season of the year.
4. Rank order assessment and concentration (e.g. CFU/m³ or Spores/m³ of air) of the microbe.
5. Predominant fungal genera / Opportunistic, Pathogenic or water indicator organisms such as but not limited to: *Chaetomium*, *Stachybotrys*, *Rhodotorula*, *Trichoderma* and *Scopulariopsis*.
6. Generally fungal counts indoors should be lower than outdoor counts; however, there is always a potential bias from infiltration of outdoor air, poor housekeeping, excessive indoor relative humidity or potential contamination sources (e.g. water intrusion thru a basement wall).

These guidelines are intended to be a "reactionary threshold" to incite further investigation. They are not intended for use of health significance nor are they necessarily representative of unacceptable indoor environments.[‡]

TYPE OF SAMPLE	LOW LEVELS OF FUNGAL CONTAMINATION	ELEVATED LEVELS OF FUNGAL CONTAMINATION
[†] Culturable Bioaerosol Samples	< 250 CFU/m ³ of air	> 1,000 CFU/m ³ of air
[†] Bulk Samples	< 25,000 CFU/gram of material	> 1 x 10 ⁶ CFU/gram of material
[€] Carpet Vac – Dust	< 5,000 CFU/ft ²	> 75,000 CFU/ft ²
[°] Contact Agar Plates	< 50 CFU/plate	> 50 CFU/plate

*SWAB GUIDELINES

BACTERIA	FUNGI	CONTAMINATION
< 10,000 CFU/in ²	< 10,000 CFU/in ²	Low Contamination
10,000 – 100,000 CFU/in ²	10,000 – 100,000 CFU/in ²	Moderate Contamination
> 100,000 CFU/in ²	> 100,000 CFU/in ²	Elevated Contamination

REFERENCES

[‡] *Recommended Guidelines for Indoor Environments*, Indoor Air Quality Association, Inc., 10400 Connecticut Avenue, Suite 510, Kensington, MD 20895, IAQA 01-2000.

[†] Rao, C., Burge, H., and Chang, J., "Review of Quantitative Standards and Guidelines for Fungi in Indoor Air". *Journal of the Air and Waste Management Association*, 1996; 46: 899-908.

[€]Tiffany, J., Bader, H., *Industrial Hygiene and Clearance Considerations for a Microbial Remediation Project*, Tiffany Bader Environmental, Inc., 355 Long Lane, Bedminister, NJ, 07921.

^{*}Clark, G., "Assessment and Sampling Approaches for Indoor Microbiological Assessments", *The Synergist*, November 2001.

End of Report