

Mold Inspection Report

USDA - 3505 25th Avenue

Barclay Assessment Services, L.L.C.

Report Number:
1756-05

Date of Testing:
10/04/2005

Date of Report:
10/8/2005

Prepared For:
James Moody

Prepared By:
Barclay Assessment Services, LLC

Assessor/Analyst:



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Summary

Introduction

On September October 4th, Michael Barclay, a Certified Industrial Hygienist and Licensed Home Inspector, did a mold inspection and testing at USDA, 3505 25th Avenue 51, in Gulfport, Ms. The inspection was done in Building 1 of this story laboratory and office complex at request of Jimmy Moody. Mr. Moody reported that Hurricane Katrina caused damage and water intrusion to the Laboratory/Office complex, resulting in suspect mold contamination on sheetrock, contents, and furnishings. To address this, a ServPro contractor employed restorative remediation and intensive drying measures.

The purpose of the inspection was to identify the presence of mold contamination and its impact on the indoor air quality.

To complete the assessment a limited inspection for visible mold was done in the affected areas of the building. Also, air samples were obtained to assess the presence and concentration of mold contaminants in air. For comparison, another air sample was obtained outdoors. All samples were analyzed for the presence, concentration, and identification of mold genera.

In addition, the indoor relative humidity was measured and moisture checks were made on representative surfaces suspected of being impacted by water intrusion.

Sample summary table

The following table is a summary of all samples that were collected and analyzed for mold (Attachment A).

Sample Number	Sample Type	Sample Description
349596	Air	Outdoors
349455	Air	Room 130
349438	Air	Receptionist Desk - Lobby

Results and findings

The following is a summary of sample results (Attachment A) and other findings obtained at the time of the inspection and testing:

- The visual mold inspection did not reveal any presence of suspect mold sources on accessible furnishings, contents, or construction materials in affected areas.
 - The air sample results indicated the presence of good indoor air quality with respect to mold in Room 130 and the Receptionist/Lobby Area.
 - Although moisture measurements obtained in Room 130 indicated dry conditions were present, the representative indoor relative humidity in this area was greater than 80 percent. The relative humidity in the Receptionist/Lobby area was approximately 50 percent.
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Summary, Continued

Methods	<p>The following describes the methods used to assess mold during the inspection. Sampling for fungal contaminants was done in accordance with methods derived from "Bioaerosols: Assessment and Control", published by the ACGIH, 1999.</p> <p>The air and source samples were analyzed via light microscopy at 600X magnification. The air samples were analyzed over 100% of the trace. These results are reported as total, meaning they include both viable and non-viable fungal spores.</p> <p>However, please note that the scope of the inspection was limited and not exhaustive or intrusive, and included only specified accessible and observable areas. Consequently, sources of mold or water intrusion may be present that were not detected or identified.</p>
Report conditions	<p>This report is based on information available to BAS at this time. We reserve the right to revise our opinions and conclusions, if necessary and warranted by the discovery of new or additional information. This report is specific in nature and shall not be relied upon for real estate transactions.</p> <p>The findings, opinions, and conclusions contained within this report are not intended to reflect all problems relative to the subject matter that made the basis of this inspection and investigation. The findings, opinions, and conclusions contained herein are solely limited to only the areas inspected and investigated by BAS as requested by the company and/or individual who requested the inspection and investigation. BAS did not undertake to expand the scope of the investigation and inspection beyond that requested and approved by the person and/ or entity requesting the investigation and inspection. Accordingly, other problems may exist that are not identified in this report in the event the same were outside of the scope of the investigation and inspection requested by the person and/or entity requesting the same. The findings, opinions, and conclusions contained within this report are intended solely for the benefit of the person and/or entity who requested that BAS conduct the inspection and investigation, and the same are not intended to benefit any third party.</p>
Conclusions and other considerations	<p>The results of the air sampling revealed normal levels of mold particulates in the indoor air, indicating the presence of good indoor air quality with respect to mold. However, the relative humidity in Room 130 was greater than 80 percent, while the air conditioning was operating.</p> <p>The relative humidity in an indoor environment should be maintained between 30 and 50 percent to prevent mold growth, according to the American Society of Heating and Refrigeration Engineers (ASHRAE) and the Consumer Product Safety Commission. Humidity levels above 60% may allow moisture to build up indoors and condense on surfaces, where bacteria and fungi can settle and grow. Humidity levels above 70 percent create an atmosphere that is highly conducive to rapid microorganism growth. Therefore, we recommend that an qualified HVAC technician review the HVAC system to ensure proper levels of humidification to the area.</p>
Contact	<p>If you have any questions or need additional support, please contact Michael Barclay at 985-626-7685.</p>

ATTACHMENT A
MOLD SAMPLING RESULTS

AIR SAMPLE RESULTS

Barclay Assessment Services, L.L.C.
 Sample Collection Center
 141 Robert E. Lee Blvd., #181 (985) 626-7685
 New Orleans, La. 70124

IHLAB.COM

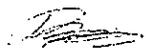
Project Name: Jimmy Moody Client Name: USDA
 Project Number: 1756-05 Jimmy Moody
 Sample Date: 10/04/05



AIHA EMPAT #164494

Sample Number	349596	349455	349438					
Location	Outdoors	Room 130	Receptionist Desk - Lobby					
Volume (Liters)	35	35	35					
Dabris Rank	Reference	Less than reference	Less than reference					
Sample Medium	Micro5	Micro5	Micro5					
Detection Limit (Spores/Meter ³)	29	29	29					
Total Count (Spores/Meter ³)	2,343	57	229					
PRESUMPTIVE ID	Count/Meter ³	%	Count/Meter ³	%	Count/Meter ³	%	Count/Meter ³	%
<i>Acremonium</i>	0	0.0	0	0.0	0	0.0		
<i>Alternaria</i>	0	0.0	0	0.0	0	0.0		
<i>Ascospores</i>	543	23.2	0	0.0	57	25.0		
<i>Aspergillus-Penicillium like</i>	171	7.3	0	0.0	0	0.0		
<i>Aureobasidium</i>	0	0.0	0	0.0	0	0.0		
<i>Basidiospores</i>	371	15.9	0	0.0	0	0.0		
<i>Botrytis</i>	0	0.0	0	0.0	0	0.0		
<i>Cercospora</i>	0	0.0	0	0.0	0	0.0		
<i>Coprinus</i>	57	2.4	0	0.0	0	0.0		
<i>Chaetomium</i>	0	0.0	0	0.0	0	0.0		
<i>Cladosporium</i>	743	31.7	0	0.0	86	37.5		
<i>Curvularia</i>	171	7.3	57	100.0	29	12.5		
<i>Drechslera-Bipolaris like</i>	57	2.4	0	0.0	29	12.5		
<i>Fusarium</i>	0	0.0	0	0.0	0	0.0		
<i>Ganoderma</i>	114	4.9	0	0.0	0	0.0		
<i>Geotrichum</i>	0	0.0	0	0.0	0	0.0		
<i>Leptosphaeria</i>	0	0.0	0	0.0	0	0.0		
<i>Memnoniella</i>	0	0.0	0	0.0	0	0.0		
<i>Rusts, Myxomycetes, Smuts</i>	0	0.0	0	0.0	0	0.0		
<i>Nigrospora</i>	57	2.4	0	0.0	29	12.5		
<i>Paecilomyces</i>	0	0.0	0	0.0	0	0.0		
<i>Periconia</i>	57	2.4	0	0.0	0	0.0		
<i>Pestalotia</i>	0	0.0	0	0.0	0	0.0		
<i>Pithomyces</i>	0	0.0	0	0.0	0	0.0		
<i>Polythrincium</i>	0	0.0	0	0.0	0	0.0		
<i>Pleospora</i>	0	0.0	0	0.0	0	0.0		
<i>Scopulariopsis</i>	0	0.0	0	0.0	0	0.0		
<i>Stachybotrys</i>	0	0.0	0	0.0	0	0.0		
<i>Torula</i>	0	0.0	0	0.0	0	0.0		
<i>Tetraploa</i>	0	0.0	0	0.0	0	0.0		
<i>Ulocladium / Stemphylium</i>	0	0.0	0	0.0	0	0.0		
<i>Wallemia</i>	0	0.0	0	0.0	0	0.0		
Total (Counts / Meter³)	2,343	100%	57	100%	229	100%		
Fungal Fragments	0		57		29			
Data Qualifiers								

Note: Counts exceeding 500 are approximations.

Analyst: 
 Michael Barclay, M.S., CIH

Analysis Date: 10/6/2005

ATTACHMENT B

THE MEANING OF SAMPLING RESULTS AND MOLD

MEANING OF SAMPLING RESULTS AND MOLD

Types of Mold Sampling

The types of samples collected for indoor mold assessment will depend on the specific objective of the assessment. Source samples are generally obtained with swabs or tape lifts. An air sample is considered to be a source sample when obtained from a suspected source of mold contamination (e.g. Wall cavity). However, a positive source sample result for mold indicates that the hazard is present, but does not necessarily mean that exposure has occurred. A bulk sample is a type of source sample that is obtained directly from the source (sample of sheetrock, insulation, tiling, etc.). Source samples are obtained to identify the location and types of mold present, which if growing or disturbed could impact indoor air quality, health, and property. Source samples are analyzed via light microscopy at 1000X magnification.

Air samples involve collection of a metered amount of air through a spore trap. The results obtained indicate the types and concentration of viable and non-viable mold spores present in the air. Samples collected in indoor areas of interest are often compared with a reference or control sample, such as from an unaffected indoor or outdoor area.

Sample analysis

Air samples are analyzed via light microscopy at 600X magnification. The amount of trace (sample deposit) analyzed varies 25 to 100%, depending on the laboratory. This lab analyzes 100% of the trace. The results are reported as total, meaning they include both viable and non-viable fungal spores.

The microscopic techniques applicable to air samples do not always allow for the differentiation between *Aspergillus* and *Penicillium* spores. Small (~1-3 micron) spherical fungal spores that cannot be identified and which may include *Aspergillus*, *Penicillium*, *Trichoderma* or other genera, are grouped together as *Aspergillus/Penicillium*-like spores. Additionally, depending on morphology, other non-distinctive spores will be reported in categories such as ascospores (produced in an ascus) or basidiospores (including the mushrooms and other microfungi). Genera with greater than 200 spores on a slide are difficult to count and are therefore estimations. Similarly, excessive non-microbial particulates (overloading) can mask the presence of fungal spores, thereby reducing counting accuracies. All air samples are ranked against the reference sample for the amount of particulate (debris) observed, provided that the sample collection method used is comparable to the reference sample.

Meaning of air sampling results

When the total mold spore count is comparable or lower than the outdoor or reference total mold spore count, then the quality of the indoor air would appear to be good with respect to mold spores (conidia). If the indoor level exceeds the outdoor or reference levels, a possibility exist that indoor sources of mold and conditions conducive to mold growth are present. Excessive indoor mold growth can impact the air quality by causing odors and potential health effects. It can also cause property damage and diminish its aesthetic value and utility.

Indoor mold spore counts that appear to be elevated in comparison to the reference are boldfaced and italicized for emphasis. Similarly, the genus is emphasized when elevated with respect to the identical genus in the reference sample. Care must be used in interpreting the indoor results when they exceed the reference results by a margin of less

Continued on next page

MEANING OF SAMPLING RESULTS AND MOLD, Continued

Meaning of air sampling results (Cont.) than 10 fold. In any case, the significance of the results will depend on the judgment of a qualified professional.

Debris rank Another useful measure is the "Debris Rank" parameter found near the top of the column. This indicator is intended to provide a qualitative measure of the amount of airborne debris (i.e. particulates), as compared to the reference sample. The Debris Rank is available for air samples (not source samples) that are collected with the same media and air volume as the reference sample. This indicator may have relevance in assessing the effectiveness of the air filtration and relative cleanliness of the heating, ventilation, and air-conditioning (HVAC) system. A qualified professional should be consulted to interpret these results and assess the affect of the HVAC system on air quality.

Water indicator mold Certain authorities have recognized that selected mold found indoors indicates the presence of excessive moisture. The presence of a few spores of these indicator mold should be interpreted with caution. Additionally, it should be recognized that the following mold (Table I) are not necessarily the only ones of potential significance. Although a potential health effect has been published does not infer that a significant health risk exists.

Table I: Summary of Specific Mold Characteristics

Spore Name	Growth Indoors
<i>Alternaria</i>	Reported to be allergenic. <i>Alternaria</i> can grow indoors on a variety of substrates. Commonly found growing in carpets and on indoor textiles. This fungus has been indicated as a potential cause of hypersensitivity Pneumonitis. Rare species known to produce tenuazonic acid and other toxic metabolites that may cause disease in humans.
<i>Acremonium</i>	Has been involved in localized disease, such as nail infections and corneal or endophthalmic infections.
<i>Arthrinium</i>	Widespread fungus found on plants. It is rarely found growing indoors.
Ascospores	A general classification for spores produced by sexual reproduction and formed in an ascus. Frequently found growing on damp substrates.
<i>Aspergillus</i>	Reported to be an opportunistic pathogen, allergenic, and mycotoxic. Tends to colonize continuously damp materials such as damp wallboard and fabrics.
<i>Aspergillus/Penicillium</i> -like	<i>Aspergillus</i> and <i>Penicillium</i> spores in air samples are mostly indistinguishable via direct microscopic examination. Small (~1-3 micron) spherical fungal spores that cannot be identified and which may include <i>Aspergillus</i> , <i>Penicillium</i> , <i>Trichoderma</i> or other Small (~1-3 micron) spherical fungal spores are grouped together as <i>Aspergillus/Penicillium</i> -like spores.
<i>Aureobasidium</i>	Reported to be allergenic. It is found in a variety of soils. Indoors, it is commonly found where moisture accumulates, especially bathrooms and kitchens, on shower curtains, tile grout, windowsills, textiles, and liquid waste materials.
Basidiospores	Basidiospore is a general classification of spore that is commonly found in gardens, forests and woodlands. They are also agents of dry, white and brown rot.

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MEANING OF SAMPLING RESULTS AND MOLD, Continued

Water indicator mold (continued)

Spore Name	Growth Indoors
<i>Bipolaris/Dreschlera</i>	<i>Bipolaris</i> reported to be a cause of mycotic infections and is recognized as an allergen. <i>Dreschlera</i> has been reported to cause eye infections.
<i>Botrytis</i>	A mold that can be found associated with indoor plants.
<i>Cercospora</i>	No information regarding the health effects of this genus is available at this time. All mold should be treated as potential allergens.
<i>Chaetomium</i>	Reported to be allergenic. Some species may be associated with disease in humans. Commonly found on damp sheetrock paper.
<i>Cladosporium</i>	Reported to be allergenic. Most commonly identified spore in outdoor samples. Highly seasonal. Indoor <i>Cladosporium</i> is a common outdoor mold that can colonize continuously damp materials such as damp wallboard and fabrics but also found on air
<i>Curvularia</i>	Reported to be allergenic. <i>Curvularia</i> can grow on a variety of substrates.
<i>Epicoccum</i>	Reported to be allergenic. Commonly found on plants, textiles and products made of paper. <i>Epicoccum</i> tends to colonize continuously damp materials such as damp wallboard and fabrics.
<i>Fusarium</i>	<i>Fusarium</i> have been reported to be causative agents of superficial and systemic infections in humans. <i>Fusarium</i> colonizes continuously wet materials such as soaked wallboard and water reservoirs for humidifiers and drip pans.
<i>Memnoniella</i>	<i>Memnoniella</i> can be found growing on a variety of cellulose-containing materials.
<i>Nigrospora</i>	<i>Nigrospora</i> is rarely found growing indoors.
<i>Oidium / Peronospora</i>	Both of these organisms are plant pathogens and cannot grow on indoor surfaces.
<i>Penicillium</i>	<i>Penicillium spp.</i> Have been reported to causes infection in humans and the resulting disease is known generically as penicilliosis. Tends to colonize continuously damp materials such as damp wallboard and fabrics.
<i>Pithomyces/Ulocladium</i>	Both reported to be allergenic. Some species of <i>Pithomyces</i> may, in rare instances, produce the toxin sporidesmin. <i>Pithomyces</i> are rarely found indoors. <i>Ulocladium</i> colonize continuously damp materials such as wallboard and fabrics.
Rusts	Rusts are plant pathogens and only grow on host plants.
Smuts / Myxomycetes	Smuts do not usually grow indoors. They are parasitic plant pathogens that require a living host. Myxomycetes are occasionally found indoors.
<i>Stachybotrys</i>	Reported to be toxigenic. Also recognized as an allergen. Typically a fungus of dark green/black coloration, it grows readily on building materials with a high cellulose content but low in nitrogen, and is rarely observed in outdoor samples. Certain strains of <i>Stachybotrys</i> may produce the mycotoxin, trichothecene under appropriate conditions which has been documented to cause problems associated with the circulatory, alimentary, skin and nervous systems. Absorption of trichothecene into the tissues of the human lung may cause a condition known as pneumomycosis. Although there have been conflicting studies concerning the toxicity of this fungi, it still appears that extreme caution should be practiced when dealing with this mold.

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MEANING OF SAMPLING RESULTS AND MOLD, Continued

Water indicator mold (continued)

Spore Name	Growth Indoors
<i>Stemphylium</i>	Reported to cause mycotic infections characterized by the presence of dematiaceous (dark-walled) septate hyphae and sometimes yeast or a combination of both in tissue. <i>Stemphylium</i> is rarely found growing indoors.
<i>Torula</i>	<i>Torula</i> can grow indoors on cellulose containing materials.
Fungal fragment	A fungal spore or vegetative fungal component that does not lend itself to classification via direct microscopy.

Descriptions of the hazardous properties of mold

The following provides descriptions of the hazardous properties associated with mold, although all mold may or may not have one or more of these hazardous properties:

Allergenic mold can cause allergic or asthmatic symptoms such as wheezing or runny nose, and rashes.

Mycotoxic mold have been reported by some authorities to cause health effects in humans and animals. Health effects range from short-term irritation to more serious health effects.

Pathogenic mold can cause serious health effects in susceptible persons. For example, those with suppressed immune system from undergoing chemotherapy, or who are affected with HIV/AIDS, or have an impaired or underdeveloped immune system or other auto-immunity disorder can be at risk from exposure to mold.

Although fungi have hazardous properties, the likelihood that a health effect will occur depends on many factors requiring professional judgment. None of the information contained in this section should be construed as medical advice or a call to action for evacuation or remediation. Any decision relative to medical significance should be made by a qualified health professional or physician.

What causes mold?

Mold naturally grow in the indoor environment. Mold spores may also enter your building through open doorways, windows, heating, ventilation, and air conditioning systems. Spores in the air outside also attach themselves to people and animals, making clothing, shoes, bags, and pets convenient vehicles for carrying mold indoors. When mold spores drop on places where there is excessive moisture, such as where leakage may have occurred in roofs, pipes, walls, plant pots, or where there has been flooding, they will grow. Many building materials provide suitable nutrients that encourage mold to grow. Wet cellulose materials, including paper and paper products, cardboard, ceiling tiles, wood, and wood products, are particularly conducive for the growth of some mold.

Other materials such as dust, certain paints, wallpaper, insulation materials, drywall, carpet, fabric, and upholstery, commonly support mold growth.

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MEANING OF SAMPLING RESULTS AND MOLD, Continued

**What causes mold?
(Cont.)**

Excessively moldy buildings generally have a consistent and/or significant source of moisture leading to unusually elevated levels of mold growth. The source of moisture may be a leaky basement, a dripping pipe, a roof in need of repair, poor ventilation or air circulation, a recent flood or water infiltration event, or some other less obvious cause. In most cases the mold can be seen growing on walls or other materials in contact with the moisture, but sometimes the moisture can occur inside walls and not be apparent. Wall cavities are especially suited to mold growth when damp because they provide nutrients (cellulose from wood) and a dark environment favorable to mold growth.

What are the potential health effects from exposure to mold

People become exposed to mold and their products either by direct contact on surfaces, or through inhalation should mold spores or mold products become airborne. Mold can have an impact on human health, depending on the nature of the mold involved, the metabolic products it produces, the amount and duration of exposure, and the specific susceptibility of those exposed.

Health effects from exposures to mold in indoor environments can result from allergy, infection, mucous membrane and sensory irritation or in combination. Some people may have more severe reactions to mold. People with allergies may be more sensitive to mold. People with immune suppression or underlying lung disease are more susceptible to fungal infections. Severe reactions may include fever and shortness of breath. People with chronic illnesses, such as obstructive lung disease, may develop mold infections in their lungs. Although substantial research is still needed to develop a database which reflects typical microbial levels in a variety of indoor air environments, if mold are present, potential exposure concerns through direct contact or inhalation of airborne spores exist. When excess mold growth occurs, exposure of individuals and remediation of the moisture problem must be addressed. It is not the purpose, nor intent of this report to define your particular health risk, based upon these test results. Anyone who may be experiencing adverse health effects should consult their medical advisor.

Can mold cause other impacts

Mold are organisms whose natural purpose in life is to decompose organic matter. Consequently, they can have an impact on many materials found in a building. For example, cellulose is an organic material found in many products such as paper products and wood studs that bear the load of the walls, ceilings, and roof. Consequently, mold can cause significant structural damage to a building and render it unsafe. Besides causing damage to building components and furnishings, it can also impact the indoor air quality by producing objectionable odors.

Additional information and references

For additional information about the assessment and control of mold in occupied buildings, please refer to the following authoritative guidance: The Environmental Protection Agency (EPA), Building Air Quality: a Guide for Building Owners and Facility Managers available at <http://www.epa.gov/iaq/largebdgs/baqtoc.html>; the American Conference of Governmental Industrial Hygienist (1999), Bioaerosols: Assessment and Control. ISBN:882517-29-1; and, the New York City Department of Health (2000), Guidelines on Assessment and Remediation of Fungi in Indoor Environments. New York City Department of Health.
