

# Southwest GEOSCIENCE

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March 29, 2013

Lewisville Independent School District  
340 Lake Haven  
Lewisville, Texas 75057  
Attn: Mr. Paul Siddall

Re: Limited Mold Assessment Services  
Forest Vista Elementary School  
Nurses Office  
900 Forest Vista Drive  
Flower Mound, Texas.  
SWG Project No. 0113H060

## **Introduction**

Southwest Geoscience (SWG) conducted limited mold assessment activities for the Lewisville Independent School District (Lewisville I.S.D.) within Forest Vista Elementary School located at 900 Forest Vista Drive in Flower Mound, Texas (hereinafter referred to as the "Site"). The investigation was limited to areas of the Site identified by Lewisville I.S.D. as described below. The assessment was performed by Mr. Clinton S. Jech a State of Texas licensed Mold Assessment Technician (License #MAT1075), on March 28, 2013. SWG's mold services definitions and limitations are included as an attachment to this report.

## **Investigation Areas**

Lewisville I.S.D. identified the following physical portions of the Site as the target investigation areas ("Investigation Areas") for mold assessment: readily accessible areas within Nurses Office. SWG's mold assessment services were limited to the Investigation Area(s) identified by Lewisville I.S.D. Additional areas or portions of the Site were out-of-scope and not included in SWG's mold assessment or this report at this time.

## **Scope of Work**

As set forth in SWG's Mold Assessment Proposal (No. 0113H1090) dated February 27, 2013, SWG's scope-of-work was to provide visual and/or analytical mold assessment and related services in the Investigation Areas which included:

*Visual Reconnaissance:* SWG performed a visual reconnaissance of the Investigation Areas for visible indications of moisture intrusion (as indicated by staining or visible moisture) and/or suspect mold growth. SWG's visual reconnaissance only included readily accessible or visible portions of the Investigation Areas.

*Suspect Mold Growth Sampling and Analysis:* SWG collected limited ambient air samples for nonviable mold spores utilizing Air-O-Cell cassettes. "Air-O-Cell" refers to slit impaction air sampling cassettes manufactured by Zefon Analytical Accessories, St. Petersburg, Florida.

## **Site Reconnaissance Observations/Findings and Recommendations**

SWG's Mold Assessment Site reconnaissance was performed on March 28, 2013 by Mr. Clinton S. Jech. SWG's visual reconnaissance of the Investigation areas revealed the following:

### **Temperature and Relative Humidity**

Temperature readings collected inside the room was 71.9 degrees Fahrenheit while relative humidity was 45.3 percent. Temperature readings collected outside the building ranged from 69.9 to 70.8 degrees Fahrenheit while outside relative humidity ranged from 49.8 to 51.5 percent.

Relative humidity is a measure of the moisture content of air and is closely tied to the comfort of the office/workplace temperature. As with temperature, there are no regulations governing acceptable office/workplace humidity ranges. Humidity levels in the office/work place are not only related to health effects, but also have operational impacts on modern office equipment.

Workplace/office temperatures have historically been considered a subjective factor because the perception of uncomfortable temperature levels is specific to each individual. There are no regulations governing acceptable office/workplace temperature ranges, but significant research has been conducted which indicates that there are temperature ranges that are not only comfortable but also result in optimum performance. ASHRAE (American Society of Heating, Refrigerating & Air Conditioning Engineers) has published guidelines describing thermal environmental conditions that at least 80% of the persons who occupy that environment will find acceptable or "comfortable." Table I below explains the applicable limits and guidelines.

Relative Humidity	Winter Temperatures	Summer Temperatures
30%	68.5 to 76°F	74 to 80°F
40%	68.5 to 75.5°F	73 to 79.5°F
50%	68.5 to 74.5°F	73 to 79°F
60%	68 to 74°F	72.5 to 78°F

SWG utilized a Protimeter Moisture Measurement System (MMS) instrument (Model No. BLD2000) to measure and diagnose dampness in the drywall within random areas. The MMS is a battery powered handheld unit that is equipped with hydrostick probes to measure moisture content in wood, drywall and other and non-conductive materials. The device measures electrical conductivity of building materials and compares the conductivity readings to an internal, electronic standard reading for normal or "dry" materials.

Moisture content readings were obtained by pushing the moisture probe pins into surfaces. The measured values were then displayed on a colored scale depicting if the materials measured were normal (dry), higher than normal but not critical (at risk) or contained excessive moisture levels (wet). Based on the manufacturer's guidelines, the instrument measurement values are described below:

< 5%	Out of Range
> 5% but < 16%	Normal
> 17% but < 20%	Higher than Normal but Not Critical
> 20%	Excessive Moisture Levels

Moisture meter readings taken from the walls within the room range from 6-9% which is considered normal by the manufacturer.

### **Air Monitoring Results**

SWG collected one (1) sample from the interior of the room and two (2) samples from the exterior of the building. The microbial samples were analyzed by Steve Moody Micro Services, Inc. (SMMS) in Farmers Branch, Texas; SMMS is a State of Texas licensed mold analysis laboratory and accredited under the AIHA Laboratory Quality Assurance Program for Environmental Microbiology.

Air testing performed using spore traps found that airborne mold spores in the room were considerably lower and were qualitatively similar to those measured outside of the building at the time the sampling was performed. Total fungal spore concentration within the investigation area was reported as 240 counts/m<sup>3</sup> while the exterior level ranged from 1,360 to 1,800 counts/m<sup>3</sup>.

One type of mold was identified at a higher concentration within the investigation area as compared to the sample collected from the exterior of the building. Air sample(s) collected within the room reported Agaricus/Agrocybe as 20 counts/m<sup>3</sup> while no exterior levels were reported. In addition, Stachybotrys was reported as 40 counts/m<sup>3</sup> on the interior and exterior samples.

The American Conference of Governmental Industrial Hygienists (ACGIH) sets forth assessment criteria related to the "indoor/outdoor" relationship where the indoor air quality should be at or below that of outdoor air quality with regard to fungal spores (see ACGIH Bioaerosols, Assessment and Controls publication, 1999).

#### **Suspect Mold**

SWG observed no visible mold during the assessment. No odors or excessive dust were noted.

#### **Conclusions and Recommendations**

Based on SWG's limited assessment and the analytical results, it appears that the indoor air quality, as it relates to airborne fungi, was within recommended guidelines. However, due to the presence of Stachybotrys, SWG recommends further testing for a higher level of confidence.

If you have any questions regarding this report or if we can assist you with any other matter, please contact the undersigned at (214) 350-5469.

Sincerely,  
**Southwest Geoscience**



Darren G. Bowden  
Corporate Director  
Industrial Hygiene Services  
Texas Mold Assessment Consultant  
Lic. No. MAC0321

Attachments: Analytical Results/Chain of Custody  
Mold Services Definitions & Limitations/Standard of Care and Reliance

Analytical Results/Chain of Custody

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# IAQ Mold Report

Steve Moody Micro Services, LLC

2051 Valley View Lane

Farmers Branch, TX 75234 Phone: (972) 241-8460

## Summary

DSHS License No.: LAB0117

AIHA EMPAT ID: 102577

**Client :** Southwest Geoscience - Dallas, TX

**Lab Job No.** 13F-03443

**Project :** Forest Vista ES Nurses Office

**Report Date** 03/29/2013 3:22 PM

**Project # :** 0113H060

**Sample Date :** 03/28/2013

**Sample Type:** Spore Trap, Non-cultured

**Spore Trap Type:** Zefon - Air-O-Cell

**Test Method:** Mold: ASTM D7391-09 - Standard Profile

Page 1 of 2

On 3/28/2013, three (3) samples were submitted by Clint Jech of Southwest Geoscience - Dallas, TX (located at 2351 W NW Hwy #3321, Dallas, TX 75220) for Spore Trap, Non-cultured mold analysis. This report consists of three sections; a summary section, a data detail section, and an analytical notes section.

Sample Number	Volume (liters)	Sample Description	Identification	Concentration spores/cubic meter
1	75	Exterior, Southeast	Alternaria	80
			Ascospores	40
			Aspergillus / Penicillium	240
			Basidiospores	280
			Cladosporium	360
			Hyphal / Spore Fragments	320
			Myxomycete / Periconia / Rust / Smut	40
			Total:	1360
2	75	Exterior, Southwest	Alternaria	200
			Ascospores	40
			Aspergillus / Penicillium	480
			Basidiospores	520
			Cladosporium	160
			Hyphal / Spore Fragments	320
			Oidium / Peronospora	40
			Stachybotrys	40
Total:	1800			
3	150	Nurses Office	Agaricus / Agrocybe	20
			Alternaria	40
			Aspergillus / Penicillium	40
			Cladosporium	20
			Hyphal / Spore Fragments	80
			Stachybotrys	40
Total:	240			

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Farmers Branch, TX 75234 Phone: (972) 241-8460

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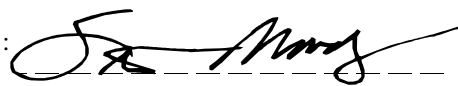
Results may not be reported except in full. Data contained in this test report relates only to the samples tested. This report does not express or imply interpretation of the results contained herein. Interpretation should be made by a qualified professional.

Steve Moody Micro Services assumes no responsibility for the manner in which these samples were collected or handled prior to being received at this laboratory. SMMS assumes no responsibility for the qualifications of personnel performing sampling and/or interpretations of this data.

Analyst(s): Rob Greene

Lab Director: Steve Moody

Approved Signatory :



Thank you for choosing Steve Moody Micro Services

# IAQ Mold Report

Steve Moody Micro Services, LLC  
 2051 Valley View Lane  
 Farmers Branch, TX 75234 Phone: (972) 241-8460

## Data Detail

DSHS License No.: LAB0117  
 AIHA EMPAT ID: 102577

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**Project :** Forest Vista ES Nurses Office **Report Date :** 03/29/2013 3:22 PM  
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Sample ID:	1			2			3					
Location:	Exterior, Southeast			Exterior, Southwest			Nurses Office					
Debris Rating:	3			3			3					
Media Expires On:	Jul 2013			Jul 2013			Jul 2013					
Notes Included?:												
Volume:	75			75			150					
	raw ct.	MDL	spores/m <sup>3</sup>	raw ct.	MDL	spores/m <sup>3</sup>	raw ct.	MDL	spores/m <sup>3</sup>			
Agaricus / Agrocybe							1	20.00	20			
Alternaria	2	40.00	80	5	40.00	200	2	20.00	40			
Ascospores	1	40.00	40	1	40.00	40						
Aspergillus / Penicillium	6	40.00	240	12	40.00	480	2	20.00	40			
Basidiospores	7	40.00	280	13	40.00	520						
Chaetomium												
Cladosporium	9	40.00	360	4	40.00	160	1	20.00	20			
Hyphal / Spore Fragments	8	40.00	320	8	40.00	320	4	20.00	80			
Memnoniella												
Myxomycete / Periconia / Rust / Smut	1	40.00	40									
Non-specified Fungal Spore(s)												
Oidium / Peronospora				1	40.00	40						
Stachybotrys				1	40.00	40	2	20.00	40			
<b>TOTALS</b>	<b>34</b>		<b>1360</b>	<b>45</b>		<b>1800</b>	<b>12</b>		<b>240</b>			
Analyst	Rob Greene			Rob Greene			Rob Greene					
Analysis Date	3/29/2013			3/29/2013			3/29/2013					

**Debris Rating Key:**

- 0 - No debris detected.
- 1 - Trace debris.
- 2 - Light debris.
- 3 - Moderate debris.
- 4 - Substantial debris.
- 5 - Extensive debris.
- 6 - Field blank.

NOTE: Debris defined as skin, fibers, pollen grains, insect parts, and/or other non-fungal particles.

# IAQ Mold Report

Steve Moody Micro Services, LLC  
2051 Valley View Lane  
Farmers Branch, TX 75234 Phone: (972) 241-8460

## Analytical Notes

DSHS License No.: LAB0117  
AIHA EMPAT ID: 102577

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Page 1 of 1

This report consists of three sections; a summary section, a data detail section, and an analytical notes section. Results may not be reported except in full.

**NOTE: No abnormalities or exceptions noted during analysis. All samples suitable for analysis.**

**NOTE: No discernable field blanks were included with this sample set.**

## Methods

Method: ASTM D7391-09: Categorization and Quantification of Airborne Fungal Structures in an Inertial Impaction Sample by Optical Microscopy.

Calculation: Spores/cubic meter = (Raw spore count)\*(MDL)

Note: MDL (Minimum Detection Limit) is calculated based upon 1 raw spore count.

Steve Moody Micro Services recommends two significant figures for calculated values based on ASTM D7391-09.

This report must not be used by the customer to claim product certification, approval, or endorsement by AIHA, ISO, or any agency of the Federal Government.



LAB # 102577





Mold Services Definitions & Limitations/  
Standard of Care and Reliance

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## Mold Services Definitions & Limitations

*“Mold” defined.* Mold is a general term used to describe various types of single-celled naturally occurring biological organisms occurring worldwide. For purposes of this report (and the Texas Mold Assessment & Remediation Rules), the term “mold” is broadly defined to include any living or dead fungi or related products or parts, including spores, hyphae, and mycotoxins.

*Limited Scope of Mold Assessment.* The scope of SWG’s mold assessment services as reflected in the Proposal and this report are limited in that (i) they were physically limited to certain portions of the building structure (e.g., the Client identified Investigation Areas); and (ii) limited by accessibility to building materials or components within the Investigation Area(s). In contrast to a Limited Assessment” is a comprehensive assessment, which involves destructive sampling methods and the scope of the assessment typically extending to the entire building structure.

*Time sensitive.* Mold assessments are essentially a “snap shot in time,” and the results are only relevant at the time of site reconnaissance. Because mold, when biologically active, is a living organism, its presence is influenced and controlled by environmental conditions. Mold assessments, therefore, are “time sensitive” in that the presence and concentration of mold and similar organisms in building structures or in the air is directly influenced by environmental conditions (such as humidity, moisture, nutrients and substrates), whether natural or caused by man, which conditions may vary significantly over relatively short periods of time.

*Methodologies.* Currently, mold assessment methodologies and protocols in Texas are governed by persuasive guidelines (rather than promulgated federal/state or local regulations). Presently, there is no data that supports a threshold limit or dose-response relationship for exposure to mold aeroallergens, individual pathogens, opportunistic pathogens and/or mycotoxins. The Occupational Safety and Health Administration (OSHA), the National Institute of Occupational Safety and Health (NIOSH) and other non-governmental associations, have not yet established permissible exposure limits (PELs), recommended exposure limits (RELs), or other limit values for aeroallergens. Because no limit values presently exist, SWG will not and cannot represent that the site contains no harmful microbes, mold, fungi, or their metabolites, or other latent conditions beyond those identified by the limited scope of this mold assessment.

*Findings limited.* Findings from a limited mold assessment are limited because of the nature of the information obtained (e.g., visual reconnaissance of readily accessible areas of building structures, interview information, anecdotal information, and limited sampling data derived from one or more specific sampling events). SWG cannot warrant the accuracy of prior or subsequent information/data, reports and services performed by other firms at the Site. SWG assumes no responsibility or liability for errors in information or data provided by or through the client or third party sources. SWG’s services are not to be construed as legal or medical interpretation or advice.

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*Moisture Intrusion Limitation.* SWG performs mold assessment services and is not a moisture intrusion, HVAC, roofing, plumbing or building envelope specialist. However, during the course of conducting its mold assessment services, SWG will report observed areas of apparent moisture intrusion. SWG does not and will not investigate the cause or causes of such observed moisture intrusion. In the event apparent moisture intrusion is observed, SWG will recommend that the client contact a specialist (i.e., plumbing contractor, building envelope specialist, HVAC contractor, water intrusion specialist, etc.) to assist the client in determining the specific cause or causes of the moisture intrusion and remedial options.

*Texas Licensing Requirements.* SWG (and/or its personnel) will render the services set forth in this proposal in the capacity of a Texas licensed Mold Assessor. SWG is not licensed as a Mold Remediation Contractor and does not perform mold remediation. As of January 1, 2005, Texas law has required that Mold Assessors and Mold Remediation Contractors be licensed.

*Mold Remediation Certificate.* For mold remediation projects (above certain size thresholds), applicable Texas law (i.e., Texas Occupation Code Section 1958.54 and T.A.C. Section 295.397 (the Texas Mold Assessment and Remediation Rules), requires that a "Certificate of Mold Remediation" be issued by the Mold Remediation Contractor upon successful completion of the project. This certificate must be provided to property owners no later than the 10<sup>th</sup> day after the date on which the mold remediation is completed at a property. The Mold Remediation Certificate issued by the Mold Remediation Contractor must include a certification by the Mold Assessor that the mold remediation project has been successfully completed in accordance with the mold remediation protocol.

Be advised that SWG's issuance of a Mold Remediation Certificate upon successful completion of a Mold Remediation project does not mean, warrant or otherwise guarantee that mold will not be subsequently found in any portion of the Investigation Area or the Site. In the event that SWG is engaged to render services in connection with a mold remediation project, SWG will require *Client to provide to SWG a signed certificate prepared by Client's moisture intrusion specialist or appropriate contractor stating that all sources of moisture which resulted in the presence of mold in the Investigation Area have been fully remediated and corrected.*

#### **Standard of Care**

SWG performed its Services in accordance with generally accepted practices of the profession undertaken in similar services at the same time and in the same geographical area. No other warranties, expressed or implied, apply to the Services hereunder or this report.

#### **Reliance**

SWG's proposal for this project, services and this report have been prepared on behalf of and for the exclusive use of Lewisville Independent School District solely for their use and reliance in assessing the presence of mold in the Investigation Areas of the site. Lewisville Independent School District is the only party to which SWG explained the risks and limitations of the services and was solely involved in shaping the scope of services. Accordingly, reliance on this report by any other party may involve assumptions leading to an unintended interpretation of findings and opinions. With the consent of the client, SWG may offer reliance to third parties

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or contract with other parties to develop findings and opinions related to such party's unique risk management concerns. Notwithstanding the foregoing, reliance by any and all third parties upon the proposal, the Services or this report shall be limited in the aggregate to all relying parties to the fair market value of the Services provided by SWG.