

**DATE:** December 4, 2013

**TO:** Tim Greenwell, Principal

**SUBJECT:** Liberty ES - IAQ - Air Test request - Room 502

Yesterday 12/3, I received W.O. #172119: "Room #502 - Has mildew and a smell that doesn't go away." I inspected the room about 1:30 PM, and found no water intrusions. I am requesting an Air Test. The test should be done next week, when the temperature is above 60 degrees, and not raining. If you have any questions, please contact me.

Thanks,  
Paul

Paul Siddall  
Maintenance Energy Auditor (IAQ)  
Facility Services  
Lewisville ISD  
469-446-8882

**DATE:** December 19, 2013

**TO:** Tim Greenwell, Principal

**SUBJECT:** Liberty ES - IAQ - Air Test Results - Room 502

On Tuesday 12/17, SWG Air tested the Room 502. It is typically assumed that indoor spore levels in an area with filtered or air conditioned air, and activity levels associated with schools average 10% to 40% of the outdoor levels. Data from the airborne fungi sampling indicated that the total indoor concentration of mold/fungi in the Room 502, was **50.0%** of the outdoor levels. Utilizing this theory, the indoor concentrations are **above** the acceptable guidelines for areas with filtered air or air conditioning. **There were 3 spores of Stachybotrys in the room, with 2 spores outside. I am requesting Custodial Services to Steam Clean the carpets. This process will be done during the Holiday break. We will retest during the week of 1/6 – 1/10, depending on weather. Temperature needs to be above 60 degrees and not raining.** If you have any questions, please call me.

Thanks,  
Paul

Paul Siddall  
Maintenance Energy Auditor (IAQ)  
Facility Services  
Lewisville ISD  
469-446-8882

# Southwest GEOSCIENCE

2351 W. Northwest Hwy., Suite 3321  
Dallas, Texas 75220  
Ph: (214) 350-5469  
Fax: (214) 350-2914

December 19, 2013

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

Re: Limited Mold Assessment Services  
Liberty Elementary School  
Room 502  
4600 Quail Run  
Flower Mound, Texas  
SWG Project No. 0113H288  
LISD PO# P252123

## **Introduction**

Southwest Geoscience (SWG) conducted limited mold assessment activities for the Lewisville Independent School District (Lewisville I.S.D.) within Liberty Elementary School located at 4600 Quail Run 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 December 17, 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 room 502. 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. 0113H1429 dated December 4, 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 December 17, 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 investigation area on December 17, 2013 reported as 70.8 degrees Fahrenheit while relative humidity reported as 29.5 percent. Temperature readings

collected outside the building ranged from 67.8 to 73.5 degrees Fahrenheit while outside relative humidity ranged from 24.6 to 25.0 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

### **Air Monitoring Results**

SWG collected one (1) sample from the interior of the building 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 840 counts/m<sup>3</sup> reported, while the exterior level ranged from 1,480 to 1,680 counts/m<sup>3</sup>.

One (1) type of mold was identified at a higher concentration within the investigation area as compared to the samples collected from the exterior of the building. Air sample(s) collected within the room reported *Stachybotrys* as 60 counts/m<sup>3</sup> while exterior levels were reported as 40 counts/m<sup>3</sup>.

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.

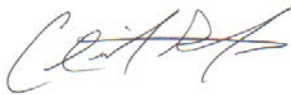
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**Conclusions and Recommendations**

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 a higher presence of *Stachybotrys* within the room, additional testing may be considered 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**



Clinton S. Jech  
Project Manager  
Field Services  
Texas Mold Assessment Technician  
Lic. No. MAT1075



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

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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-13770  
**Project :** Liberty ES Room 502 **Report Date** 12/18/2013 4:15 PM  
**Project # :** 0113H288 **Sample Date :** 12/17/2013  
**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 12/17/2013, 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, Northwest	Agaricus / Agrocybe	120
			Alternaria	80
			Ascospores	40
			Aspergillus / Penicillium	240
			Basidiospores	200
			Cladosporium	280
			Hyphal / Spore Fragments	200
			Myxomycete / Periconia / Rust / Smut	240
			Nigrospora	40
			Stachybotrys	40
			Total:	1480
2	75	Exterior, Southwest	Agaricus / Agrocybe	80
			Alternaria	40
			Ascospores	80
			Aspergillus / Penicillium	360
			Basidiospores	480
			Cerebella / Monodictys / Stemphylium / Ulocladium	80
			Cladosporium	80
			Hyphal / Spore Fragments	240
			Myxomycete / Periconia / Rust / Smut	160
			Stachybotrys	40
			Torula	40
			Total:	1680

# IAQ Mold Report

Steve Moody Micro Services, LLC

2051 Valley View Lane

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

## Summary

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**Lab Job No.** 13F-13770

**Project :** Liberty ES Room 502

**Report Date** 12/18/2013 4:15 PM

**Project # :** 0113H288

**Sample Date :** 12/17/2013

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

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

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Page 2 of 2

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Sample Number	Volume (liters)	Sample Description	Identification	Concentration spores/cubic meter
3	150	Room 502	Alternaria Ascospores Aspergillus / Penicillium Basidiospores Cladosporium Hyphal / Spore Fragments Myxomycete / Periconia / Rust / Smut Stachybotrys  Total:	20 20 240 140 60 100 200 60  840

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: Bruce Crabb

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

**Client :** Southwest Geoscience - Dallas, TX **Lab Job No. :** 13F-13770  
**Project :** Liberty ES Room 502 **Report Date :** 12/18/2013 4:15 PM  
**Project # :** 0113H288 **Sample Date :** 12/17/2013  
**Sample Type:** Spore Trap, Non-cultured **Spore Trap Type:** Zefon - Air-O-Cell  
**Test Method:** Mold: ASTM D7391-09 - Standard Profile Page 1 of 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.

Sample ID:	1			2			3					
Location:	Exterior, Northwest			Exterior, Southwest			Room 502					
Debris Rating:	3			3			4					
Media Expires On:	Feb 2014			Feb 2014			Feb 2014					
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	3	40.00	120	2	40.00	80						
Alternaria	2	40.00	80	1	40.00	40	1	20.00	20			
Ascospores	1	40.00	40	2	40.00	80	1	20.00	20			
Aspergillus / Penicillium	6	40.00	240	9	40.00	360	12	20.00	240			
Basidiospores	5	40.00	200	12	40.00	480	7	20.00	140			
Cerebella / Monodictys / Stemphylium / Ulocladium				2	40.00	80						
Chaetomium												
Cladosporium	7	40.00	280	2	40.00	80	3	20.00	60			
Hyphal / Spore Fragments	5	40.00	200	6	40.00	240	5	20.00	100			
Memnoniella												
Myxomycete / Periconia / Rust / Smut	6	40.00	240	4	40.00	160	10	20.00	200			
Nigrospora	1	40.00	40									
Stachybotrys	1	40.00	40	1	40.00	40	3	20.00	60			
Torula				1	40.00	40						
<b>TOTALS</b>	<b>37</b>		<b>1480</b>	<b>42</b>		<b>1680</b>	<b>42</b>		<b>840</b>			
Analyst	Rob Greene			Rob Greene			Rob Greene					
Analysis Date	12/18/2013			12/18/2013			12/18/2013					

**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

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

**Lab Job No. :** 13F-13770

**Project :** Liberty ES Room 502

**Report Date :** 12/18/2013 4:15 PM

**Project # :** 0113H288

**Sample Date :** 12/17/2013

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

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

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

Page 1 of 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

Chain of Custody

Page 1 of 1



Lab Job # 13F-13770 AOC: 3  
 Lab Job # \_\_\_\_\_  
 Lab Job # \_\_\_\_\_

\*Please call in advance for immediate, after-hour, & weekend pricing & availability.\*  
 \*\*Turnaround of Culture Samples subject to Culture Growth\*\*

**ASBESTOS PLM**

Bulk  1 day  2 day  3 day  5 day  Immediate  
 Analyze All  Positive Stop

PCM Air (7400)  1 day  2 day  3 day  5 day  Immediate  
**TOTAL DUST** (0500/0600)  1 day  2 day

**MOLD**

Non-culture (Tape / Bulk / Air)  1 day  2 day  Immediate  
 Air Standard Profile  Air Expanded Profile  
 Analyze Blanks  Yes  No  
 Culture (Swab / Bulk / Plate)  7-14 day

**OTHER:** \_\_\_\_\_

**ASBESTOS TEM**

Air AHERA Method  6 hr  12hr  24 hr  
 Air 7402 (Modified)  1 day  2 day  3 day  
 Bulk/Wipe/Micro Vac  1 day  2 day  3 day  
 Water  1 day  2 day  3 day  
 Analyze Blanks  Yes  No

**BACTERIA**

Heterotrophic Plate Count (HPC)  3 day  
 HPC + Gram Stain  3 day  5 day  
 HPC + 3 Gram Neg ID  6-8 day  
 HPC + 5 Gram Neg ID  6-8 day  
 Fecal Coliform (MPN)  3 day  
 Total Coliform & E Coli (P/A)  2-3 day

Billing Company / City: SWG Dallas  
 Submitter's Company: \_\_\_\_\_  
 Submitter's Name: Clinton S. Jech  
 Project: Liberty ES Room 502  
 Contact Information: Name: Clinton S. Jech  
 E-mail Results to: Clint/Darren/Veronica  
 Invoice Address: Veronica

# of Samples: 3  
 Sample Date: 12/17/2013  
 Project #: 0113M288  
 Phone #: \_\_\_\_\_  
 Mobile #: (972) 989-1031  
 Fax #: \_\_\_\_\_  
 P.O. #: \_\_\_\_\_

\*Please review paperwork and samples before submitting to lab. Unsealed / improperly packaged / damaged / expired samples or excessive administrative requests may incur additional fees\*

Notes: \_\_\_\_\_

Sample #	Sample Description	Vol. / Area if applicable	Location / Notes
1	Exterior, Northwest	75	T= 67.8 ° H= 25.0 %
2	Exterior, Southwest	75	T= 73.5 ° H= 24.6 %
3	Room 502	150	T= 70.8 ° H= 29.5 %
			M=
			Ceilings = Ceiling Tile
			Walls = Sheetrock
			Floors = Carpet / Floor Tile
			No signs of moisture intrusion

Released By: <u>[Signature]</u>	Date / Time: <u>12/17/2013 1707</u>	Received By: <u>JC</u>	Date / Time: <u>12-17-13 5:07 PM</u>
Released By: _____	Date / Time: _____	Received By: _____	Date / Time: _____

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.

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**DATE:** February 25, 2014

**TO:** Tim Greenwell, Principal

**SUBJECT:** Liberty ES - IAQ - Re-test Air Test Results - Liberty ES - Room 502

On Wednesday 2/19, SWG Air retested the Room 502. It is typically assumed that indoor spore levels in an area with filtered or air conditioned air, and activity levels associated with schools average 10% to 40% of the outdoor levels. Data from the airborne fungi sampling indicated that the total indoor concentration of mold/fungi in the Room 502, was 28.6% of the outdoor levels. Utilizing this theory, the indoor concentrations are within the acceptable guidelines for areas with filtered air or air conditioning. If you have any questions, please call me.

Thanks,  
Paul

Paul Siddall  
Maintenance Energy Auditor (IAQ)  
Facility Services  
Lewisville ISD  
469-446-8882



February 27, 2014

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

Re: Limited Mold Assessment Services  
Liberty Elementary School  
Room 502  
4600 Quail Run  
Flower Mound, Texas.  
SWG Project No. 0113H288A

## **Introduction**

Southwest Geoscience (SWG) conducted limited mold assessment activities for the Lewisville Independent School District (Lewisville I.S.D.) within Liberty Elementary School located at 4600 Quail Run 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 (Lic. No. MAT1075) on February 19, 2014. SWG's mold services definitions and limitations are included as an attachment to this report.

## **Investigation Areas**

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## **Scope of Work**

As set forth in SWG's Mold Assessment Proposal (No. P0114H1013) dated January 9, 2014, 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 February 19, 2014 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 reported as 77.0 degrees Fahrenheit while relative humidity was reported as 38.7 percent. Temperature readings collected outside the building ranged from 67.2 to 69 degrees Fahrenheit while outside relative humidity ranged from 61.6 to 70.8 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.

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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 were reported as 8-10% which is considered normal by the manufacturer.

### **Air Monitoring Results**

SWG collected one (1) sample from the interior of the building 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 2,820 counts/m<sup>3</sup>, while the exterior level ranged from 6,902 to 9,849 counts/m<sup>3</sup>.

Five (5) types of mold were 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 room 502 reported Hyphal/Spore Fragments as 740 counts/m<sup>3</sup> while exterior levels were reported as 173 counts/m<sup>3</sup>. Drechslera/Bipolaris group was reported as 60 counts/m<sup>3</sup> while exterior levels were reported as 27 counts/m<sup>3</sup>. Curvularia was reported as 53 counts/m<sup>3</sup> while exterior levels were reported as 13 counts/m<sup>3</sup>, Pithomyces as 7 counts/m<sup>3</sup> while no exterior levels were reported, and Stachybotrys as 13 counts/m<sup>3</sup> while no exterior levels were reported.

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.

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.** 14F-02007

**Project :** Liberty ES Room 502

**Report Date** 02/21/2014 2:25 PM

**Project # :** 0113H288A

**Sample Date :** 02/19/2014

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

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

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

Page 1 of 3

On 2/19/2014, 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	Agrocybe	40
			Alternaria	173
			Ascospores	520
			Aspergillus / Penicillium	533
			Basidiospores	2759
			Cercospora	13
			Cladosporium	2479
			Drechslera / Bipolaris group	27
			Epicoccum	13
			Fusarium	53
			Hyphal / Spore Fragments	120
			Myxomycete / Rust / Smut	120
			Nigrospora	13
			Peronospora	13
			Spegazzinia	13
Torula	13			
			<b>Total:</b>	<b>6902</b>

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Sample Number	Volume (liters)	Sample Description	Identification	Concentration spores/cubic meter
2	75	Exterior, Southwest	Agrocybe	293
			Alternaria	133
			Ascospores	400
			Aspergillus / Penicillium	173
			Basidiospores	2146
			Cladosporium	6078
			Curvularia	13
			Epicoccum	53
			Hyphal / Spore Fragments	173
			Myxomycete / Rust / Smut	320
			Oidium	67
3	150	Room 502 * See Analytical Notes report for further details	Agrocybe	40
			Alternaria	93
			Ascospores	20
			Aspergillus / Penicillium	520
			Basidiospores	720
			Cladosporium	407
			Curvularia	53
			Drechslera / Bipolaris group	60
			Epicoccum	13
			Hyphal / Spore Fragments	740
			Myxomycete / Rust / Smut	120
			Nigrospora	7
			Pithomyces	7
			Spegazzinia	7
Stachybotrys	13			
			Total:	2820

# IAQ Mold Report

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Sample Number	Volume (liters)	Sample Description	Identification	Concentration spores/cubic meter

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): Rebecca Lutz

Lab Director: Bruce Crabb

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

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Page 1 of 2

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.

Sample ID:	1			2			3					
Location:	Exterior, Southeast			Exterior, Southwest			Room 502					
Debris Rating:	4			4			5					
Media Expires On:	Sep 2014			Sep 2014			Sep 2014					
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>			
Agrocyebe	3	13.33	40	22	13.33	293	6	6.67	40			
Alternaria	13	13.33	173	10	13.33	133	14	6.67	93			
Ascospores	39	13.33	520	30	13.33	400	3	6.67	20			
Aspergillus / Penicillium	40	13.33	533	13	13.33	173	78	6.67	520			
Basidiospores	207	13.33	2759	161	13.33	2146	108	6.67	720			
Cercospora	1	13.33	13									
Chaetomium												
Cladosporium	186	13.33	2479	456	13.33	6078	61	6.67	407			
Curvularia				1	13.33	13	8	6.67	53			
Drechslera / Bipolaris group	2	13.33	27				9	6.67	60			
Epicoccum	1	13.33	13	4	13.33	53	2	6.67	13			
Fusarium	4	13.33	53									
Hyphal / Spore Fragments	9	13.33	120	13	13.33	173	111	6.67	740			
Memnoniella												
Myxomycete / Rust / Smut	9	13.33	120	24	13.33	320	18	6.67	120			
Nigrospora	1	13.33	13				1	6.67	7			
Oidium				5	13.33	67						
Peronospora	1	13.33	13									
Pithomyces							1	6.67	7			
Spegazzinia	1	13.33	13				1	6.67	7			
Stachybotrys							2	6.67	13			
Torula	1	13.33	13									
<b>TOTALS</b>	<b>518</b>		<b>6902</b>	<b>739</b>		<b>9849</b>	<b>423</b>		<b>2820</b>			
Analyst	Rebecca Lutz			Rebecca Lutz			Rebecca Lutz					
Analysis Date	2/21/2014			2/21/2014			2/21/2014					



# IAQ Mold Report

Steve Moody Micro Services, LLC

2051 Valley View Lane

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

## Data Detail

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AIHA EMPAT ID: 102577

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**Lab Job No. :** 14F-02007

**Project :** Liberty ES Room 502

**Report Date :** 02/21/2014 2:25 PM

**Project # :** 0113H288A

**Sample Date :** 02/19/2014

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

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

Page 2 of 2

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.

### 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

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## Samples Analyzed

Sample No: 3 : Room 502

Notes: 45% Occluded.

## Field Blanks

No discernable field blanks were submitted with this set of samples.

**NOTE: All remaining samples suitable for analysis.**

## 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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## CONSUMER MOLD INFORMATION SHEET\*

### Regulation of Mold Assessment and Remediation in Texas

#### How are businesses that do testing for mold or mold cleanup regulated?

Such businesses are now regulated by the Department of State Health Services (DSHS), based on legislation passed in 2003 ([Texas Occupations Code, Chapter 1958](#)). Under the **Texas Mold Assessment and Remediation Rules (Rules) (25 TAC §§295.301-295.338)**, all companies and individuals who perform mold-related activities will have to obtain appropriate licensing from the department by January 1, 2005. Applicants must meet certain qualifications, have required training and pass a state exam in order to receive their licenses. Mold remediation workers must have training and be registered with the department. Laboratories that analyze mold samples must also be licensed and meet certain qualifications. The rules set minimum work standards that licensees must follow and require them to follow a code of ethics. To prevent conflicts of interest, the rules also prohibit a licensee from conducting both mold assessment and mold remediation on the same project.

#### How can I know if someone is licensed?

A licensed individual is required to carry a photo ID issued by the department with a license number on it. The names of currently licensed companies and individuals are available on the Mold Licensing Program website at: [www.tdh.state.tx.us/beh/mold](http://www.tdh.state.tx.us/beh/mold).

#### What is “mold assessment?”

**Mold assessment** involves an inspection of a building to evaluate whether mold growth is present, and to what extent. Samples may be taken to determine the amount and types of mold that are present; however, sampling is not necessary in many cases. A mold assessment consultant is responsible for developing a **mold remediation protocol**, that specifies the estimated quantities and locations of materials to be remediated, the proposed methods to use and clearance criteria that must be met.

#### What is meant by “clearance criteria?”

**Clearance criteria** refer to the level of “cleanliness” that is to be achieved by the persons conducting the mold clean up. It is very important that you understand and agree with the assessor prior to starting the project what an acceptable clearance level will be, including what will be acceptable results for any air sampling or surface sampling for mold. There are no national or state standards identifying a “safe” level of mold. Mold spores are a natural part of the environment that are always present at some level in the air and on surfaces all around us. See below for more information about **post-remediation assessments**.

#### What is “mold remediation?”

**Mold remediation** is the clean up and removal of mold growth from surfaces and/or contents in a building. It also refers to actions taken to prevent mold from growing. **Mold remediators** must follow the **mold remediation protocol** described above and their own **mold remediation work plan** that provides specific instructions and/or standard operating procedures for how the project will be done.

Before a remediation project can be deemed successful, a **post-remediation assessment** must be conducted by a **mold assessment consultant**. This is an inspection to ensure that the work area is free from all visible mold and wood rot, the project was completed in compliance with the remediation protocol and remediation work plan, and meets all clearance criteria that were specified in the protocol. The assessment consultant must give you a **passed clearance report** documenting the results of this inspection. If the project fails clearance, further remediation as prescribed by a consultant will be necessary.

#### What is a Certificate of Mold Remediation?

No later than 10 days after a mold remediation job has passed a clearance inspection, the remediation contractor is required to give you a **Certificate of**

**Mold Remediation.** This certificate must also be signed by the licensed **mold assessment consultant** who conducted the post-remediation assessment. The consultant is required to state on the certificate that the mold contamination identified for the project has been remediated and whether or not the underlying cause of the mold has been corrected. (That work may involve other types of professional services that are not regulated by these rules, such as plumbers or carpenters.) Receiving a **Certificate of Mold Remediation** documenting that the underlying cause of the mold was remediated is an advantage for a homeowner. This certificate prevents an insurer from make an underwriting decision on the residential property based on previous mold damage or a claim for mold damage. If you later sell your property, the law requires that you provide the buyer a copy of all **Certificates of Mold Remediation** you have received for that property.

**How is a property owner protected if a mold assessor or remediator does a poor job or actually damages the property?**

The rules require licensees to have commercial general liability insurance in the amount of \$1 million, or be self-insured, to cover any damage to your property. Before hiring anyone, you should ask for proof of such insurance coverage. You may wish to inquire if the company carries additional insurance, such as professional liability/errors and omissions (for consultants) or pollution insurance (for contractors), that would provide additional recourse to you, the consumer, should the company fail to perform properly.

**How is my confidentiality protected if I share personal information about myself with a company?**

The code of ethics in the rules states that licensees are required to the extent required by law, to keep confidential any personal information about a client (including medical conditions) obtained during the course of a mold-related activity. If you desire more privacy, you may be able to negotiate a

contract to include language that other personal information be kept confidential unless disclosure “is required by law.” However, licensees are required to identify dates and addresses of projects and other details that can become public information.

**How do I file a complaint about a company?**

Anyone who believes a company or individual has violated the rules can file a complaint with the Department of State Health Services. For more information on this process and to obtain a complaint form, call (800) 293-0753, or download the complaint form at [www.tdh.state.tx.us/beh/mold](http://www.tdh.state.tx.us/beh/mold).

**Can property owners do mold assessment or remediation on their own property without being licensed?**

Yes. A homeowner can take samples for mold or clean up mold in his own home without a license. An owner, or a managing agent or employee of an owner of a residential property owned by that person is not required to be licensed, **unless** the property has 10 or more residential dwelling units. For non-residential properties, an owner or tenant, or a managing agent or employee of an owner or tenant, is not required to be licensed to do mold assessment or remediation on property owned or leased by the owner or tenant, **unless** the mold contamination affects a total surface area of 25 contiguous square feet or more. Please refer to 25 TAC 295.303 for further details on exceptions and exemptions to licensing requirements.

**Where can I get more information?**

For more information about mold and the Texas Mold Assessment and Remediation Rules, please visit the Mold Licensing Program website at [www.tdh.state.tx.us/beh/mold](http://www.tdh.state.tx.us/beh/mold), or contact program staff at 512-834-4509 or 800-293-0753.

\*\*\*\*\*  
\*State law [25 TAC 295.306(c)] requires a licensee, except for a mold analysis laboratory, who is overseeing mold-related activities, to give each client a copy of this **Consumer Mold Information Sheet** before starting any mold-related activity.