

DATE: February 4, 2015

TO: Martha Gooding, Principal

SUBJECT: Ethridge ES - IAQ - Results report - Room D-9

On Monday 1/26, Apex-Titan Air tested Room D-9. 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 Room D-9, was **26.6%** 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



January 30, 2015

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

Re: Limited Mold Assessment Services
Ethridge Elementary School
Room D-9
6001 Ethridge
The Colony, Texas
Apex Project No. 7210114H330
LISD PO# 91515200-00

Introduction

Apex TITAN, Inc. a subsidiary of Apex Companies, LLC (APEX) conducted limited mold assessment activities for the Lewisville Independent School District (Lewisville I.S.D.) within the Ethridge Elementary School located at 6001 Ethridge in The Colony, 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 January 26, 2015. Apex'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 D-9. Apex'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 Apex's mold assessment or this report at this time.

Scope of Work

As set forth in Apex's Mold Assessment Proposal (No. P0114H1504) dated December 17, 2014. Apex's scope-of-work was to provide visual and/or analytical mold assessment and related services in the Investigation Areas which included:

Visual Reconnaissance: Apex 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. Apex's visual reconnaissance only included readily accessible or visible portions of the Investigation Areas.

Suspect Mold Growth Sampling and Analysis: Apex 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

Apex' Mold Assessment Site reconnaissance was performed on January 26, 2015 by Mr. Clinton S. Jech. Apex's visual reconnaissance of the Investigation areas revealed the following:

Temperature and Relative Humidity

Temperature readings collected inside the room was reported as 70.1 degrees Fahrenheit while relative humidity was reported as 34.4 percent. Temperature readings collected outside the building ranged from 58.8 to 59.3 degrees Fahrenheit while outside relative humidity ranged from 23.4 to 23.6 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/workplace 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.

Table I Acceptable Ranges Of Temperature And Humidity		
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

Apex 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 ranged from 6 to 8% which is considered normal by the manufacturer.

Air Monitoring Results

Apex collected one (1) sample from the interior of the investigation area 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 indicated that total airborne mold spores in the classrooms were lower as compared to those measured outside of the building at the time the sampling was performed. The total fungal spore concentration within the investigation area was reported as 1,161 counts/m³, while exterior levels ranged from 2,679 to 4,359 counts/m³.

Two (2) 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 D-9 reported *Stachybotrys* as 7 counts/m³ and *Curvularia* as 7 counts/m³ 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

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

Conclusions and Recommendations

Based on Apex's limited assessment and the analytical results collected, it appears that the indoor air quality, as it relates to airborne fungi was within recommended guidelines on the day of the assessment. Due to the presence of *Stachybotrys*, 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,
Apex TITAN, Inc.



Darren G. Bowden
Senior Program Manager
Industrial Hygiene Services
Texas Mold Assessment Consultant
Lic. No. MAC0321

Attachments: Analytical Results/Chain of Custody, Mold Services Definitions & Limitations

ATTACHMENT 1

Analytical Results/Chain of Custody

IAQ Mold Report

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

Summary

DSHS License No.: LAB0117
AIHA EMPAT ID: 102577

Client : Apex TITAN, Inc. - Dallas, TX **Lab Job No.** 15F-00912
Project : Ethridge ES Room D-9 **Report Date** 01/28/2015 9:50 AM
Project # : 7210114H330 **Sample Date :** 01/26/2015
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 1/26/2015, three (3) samples were submitted by Clint Jech of Apex TITAN, Inc. - Dallas, TX (located at 2351 W. NW Highway #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	Basidiospores	1053 39%
			Aspergillus / Penicillium	786 29%
			Cladosporium	293 11%
			Myxomycete / Periconia / Rust / Smut	227 8%
			Hyphal / Spore Fragments	160 6%
			Ascospores	53 2%
			Agaricales group	40 1%
			Epicoccum	40 1%
			Chaetomium	27 1%
2	75	Exterior, Northeast	Basidiospores	1760 40%
			Cladosporium	1360 31%
			Aspergillus / Penicillium	613 14%
			Myxomycete / Periconia / Rust / Smut	293 7%
			Hyphal / Spore Fragments	227 5%
			Agaricales group	53 1%
			Alternaria	40 <1%
			Ascospores	13 <1%

IAQ Mold Report

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

Summary

DSHS License No.: LAB0117
AIHA EMPAT ID: 102577

Client : Apex TITAN, Inc. - Dallas, TX **Lab Job No.** 15F-00912
Project : Ethridge ES Room D-9 **Report Date** 01/28/2015 9:50 AM
Project # : 7210114H330 **Sample Date :** 01/26/2015
Sample Type: Spore Trap, Non-cultured **Spore Trap Type:** Zefon - Air-O-Cell
Test Method: Mold: ASTM D7391-09 - Standard Profile Page 2 of 2

On 1/26/2015, three (3) samples were submitted by Clint Jech of Apex TITAN, Inc. - Dallas, TX (located at 2351 W. NW Highway #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.

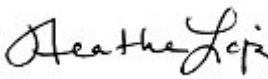
Sample Number	Volume (liters)	Sample Description	Identification	Concentration spores/cubic meter
3	150	Room D9 * See Analytical Notes report for further details	Aspergillus / Penicillium Cladosporium Myxomycete / Periconia / Rust / Smut Hyphal / Spore Fragments Basidiospores Alternaria Ascospores Epicoccum Stachybotrys Curvularia <div style="text-align: right;">Total:</div>	374 32% 280 24% 173 15% 140 12% 120 10% 27 2% 20 2% 13 1% 7 <1% 7 <1% 1161 100%

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 Manager : Heather Lopez

Approved Signatory : 

Lab Director : Bruce Crabb

Approved Signatory : 

Thank you for choosing Steve Moody Micro Services

IAQ Mold Report

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

Data Detail

DSHS License No.: LAB0117
AIHA EMPAT ID: 102577

Client : Apex TITAN, Inc. - Dallas, TX **Lab Job No. :** 15F-00912
Project : Ethridge ES Room D-9 **Report Date :** 01/28/2015 9:50 AM
Project # : 7210114H330 **Sample Date :** 01/26/2015
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, Southeast				Exterior, Northeast				Room D9			
Media Expires On:	Feb 2015				Feb 2015				Feb 2015			
Notes Included:												
Volume:	75				75				150			
	raw ct.	MDL	spores/m ³		raw ct.	MDL	spores/m ³		raw ct.	MDL	spores/m ³	
Agaricales group	3	13.33	40	1%	4	13.33	53	1%				
Alternaria					3	13.33	40	<1%	4	6.67	27	2%
Ascospores	4	13.33	53	2%	1	13.33	13	<1%	3	6.67	20	2%
Aspergillus / Penicillium	59	13.33	786	29%	46	13.33	613	14%	56	6.67	374	32%
Basidiospores	79	13.33	1053	39%	132	13.33	1760	40%	18	6.67	120	10%
Chaetomium	2	13.33	27	1%								
Cladosporium	22	13.33	293	11%	102	13.33	1360	31%	42	6.67	280	24%
Curvularia									1	6.67	7	<1%
Epicoccum	3	13.33	40	1%					2	6.67	13	1%
Hyphal / Spore Fragments	12	13.33	160	6%	17	13.33	227	5%	21	6.67	140	12%
Memnoniella												
Myxomycete / Periconia / Rust / Smut	17	13.33	227	8%	22	13.33	293	7%	26	6.67	173	15%
Stachybotrys									1	6.67	7	<1%
TOTALS	201		2679	100%	327		4359	100%	174		1161	100%
Analyst	Rob Greene				Rob Greene				Rob Greene			
Analysis Date	1/28/2015				1/28/2015				1/28/2015			
Debris Rating	4				4				5			
Debris Composition												
Fibers	1/5				1/5				5/5			
Inorganic/Other	4/5				4/5				5/5			
Insect Parts	0/5				0/5				1/5			
Pollen	0/5				0/5				2/5			
Skin/Dander	1/5				1/5				5/5			

IAQ Mold Report

Moody Labs

2051 Valley View Lane

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

Analytical Notes

DSHS License No.: LAB0117

AIHA EMPAT ID: 102577

Client : Apex TITAN, Inc. - Dallas, TX

Lab Job No. : 15F-00912

Project : Ethridge ES Room D-9

Report Date : 01/28/2015 9:50 AM

Project # : 7210114H330

Sample Date : 01/26/2015

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

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.

Samples Analyzed

Sample No: 3 : Room D9

Notes: 85% 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.

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.

10 - Hold Sample

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

IAQ Mold Report

Moody Labs

2051 Valley View Lane

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

Analytical Notes

DSHS License No.: LAB0117

AIHA EMPAT ID: 102577

Client : Apex TITAN, Inc. - Dallas, TX

Lab Job No. : 15F-00912

Project : Ethridge ES Room D-9

Report Date : 01/28/2015 9:50 AM

Project # : 7210114H330

Sample Date : 01/26/2015

Sample Type: Spore Trap, Non-cultured

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.



LAB # 102577



IAQ Mold Report

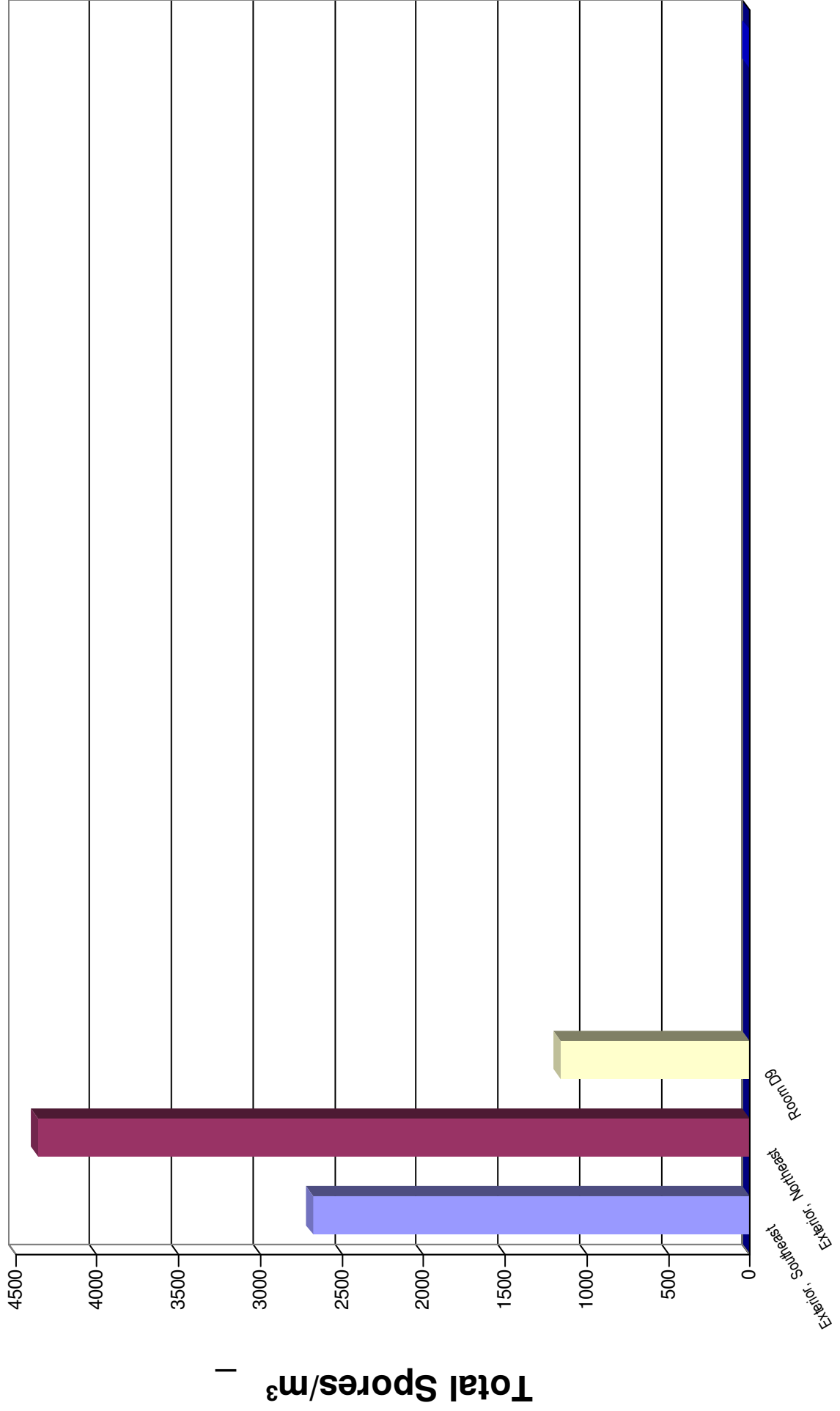
Supplemental Overview

DSHS License No.: LAB0117
AIHA EMPAT ID: 102577

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

Client : Apex TITAN, Inc. - Dallas, TX
Project : Ethridge ES Room D-9
Project # : 7210114H330

Lab Job No. 15F-00912
Report Date 01/28/2015 9:50 AM
Sample Date : 01/26/2015



IAQ Mold Report

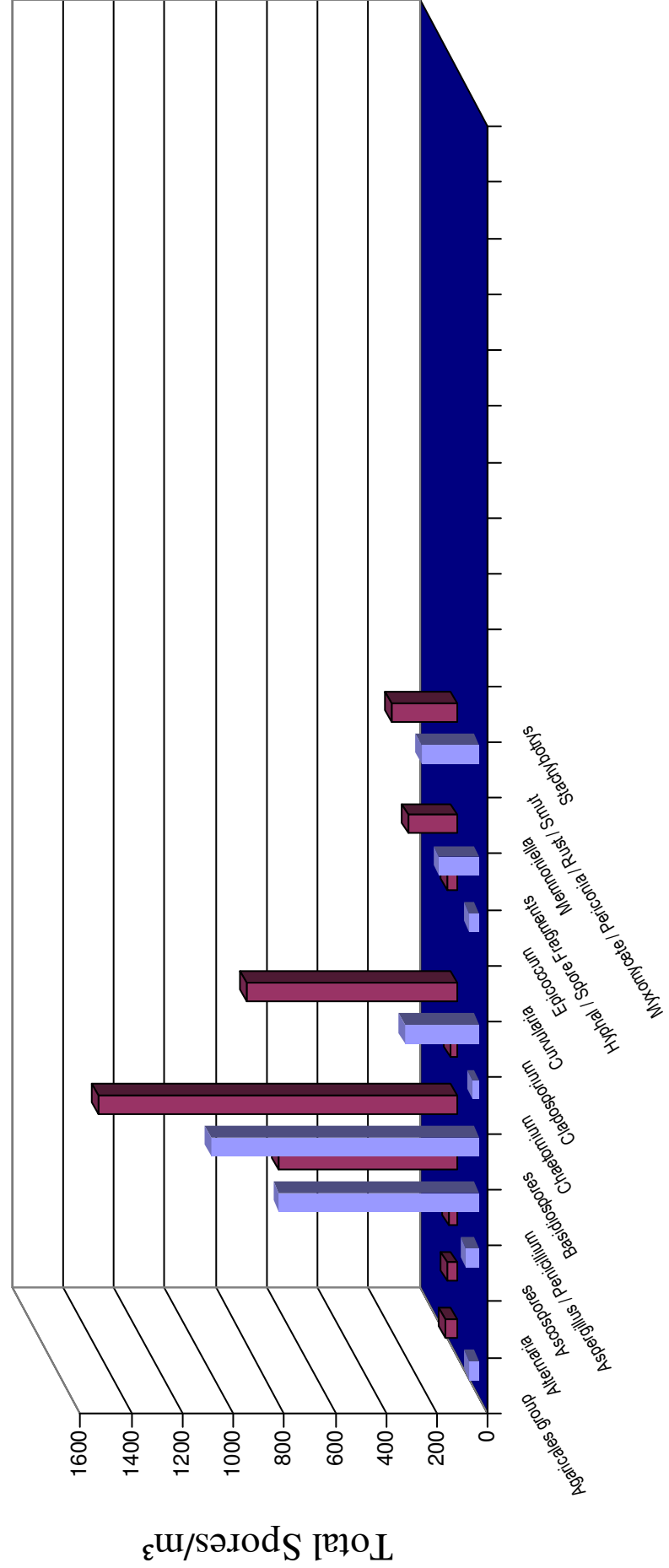
Supplemental Overview

Client : Apex TITAN, Inc. - Dallas, TX
Project : Ethridge ES Room D-9
Project # : 7210114H330

Lab Job No. 15F-00912
Report Date 01/28/2015 9:50 AM
Sample Date : 01/26/2015

Exterior, Southeast

■ Sample ■ Average Reference 1 □ Average Reference 2



Average Reference 1 = Exterior, Southeast, Exterior, Northeast

IAQ Mold Report

Supplemental Overview

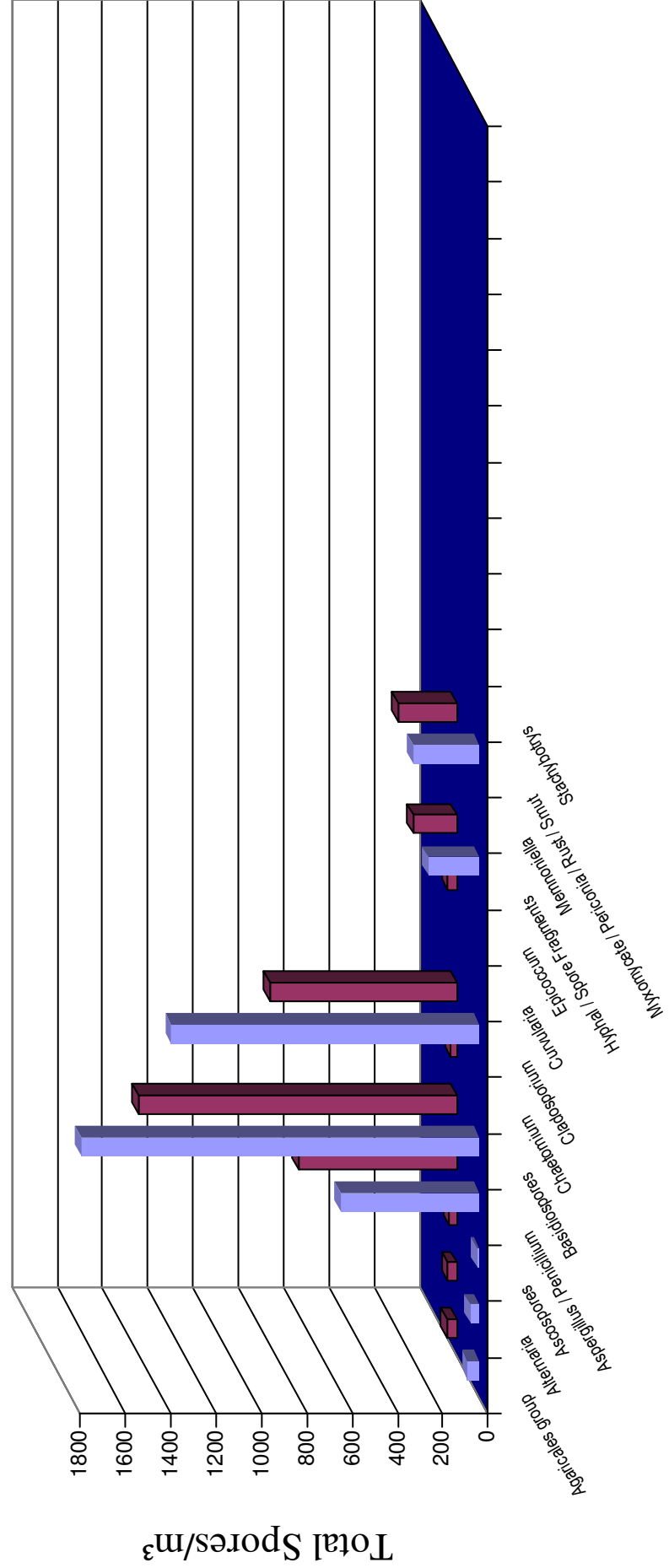
DSHS License No.: LAB0117
 AIHA EMPAT ID: 102577

Client : Apex TITAN, Inc. - Dallas, TX
Project : Ethridge ES Room D-9
Project # : 7210114H330

Lab Job No. 15F-00912
Report Date 01/28/2015 9:50 AM
Sample Date : 01/26/2015

Exterior, Northeast

■ Sample ■ Average Reference 1 □ Average Reference 2



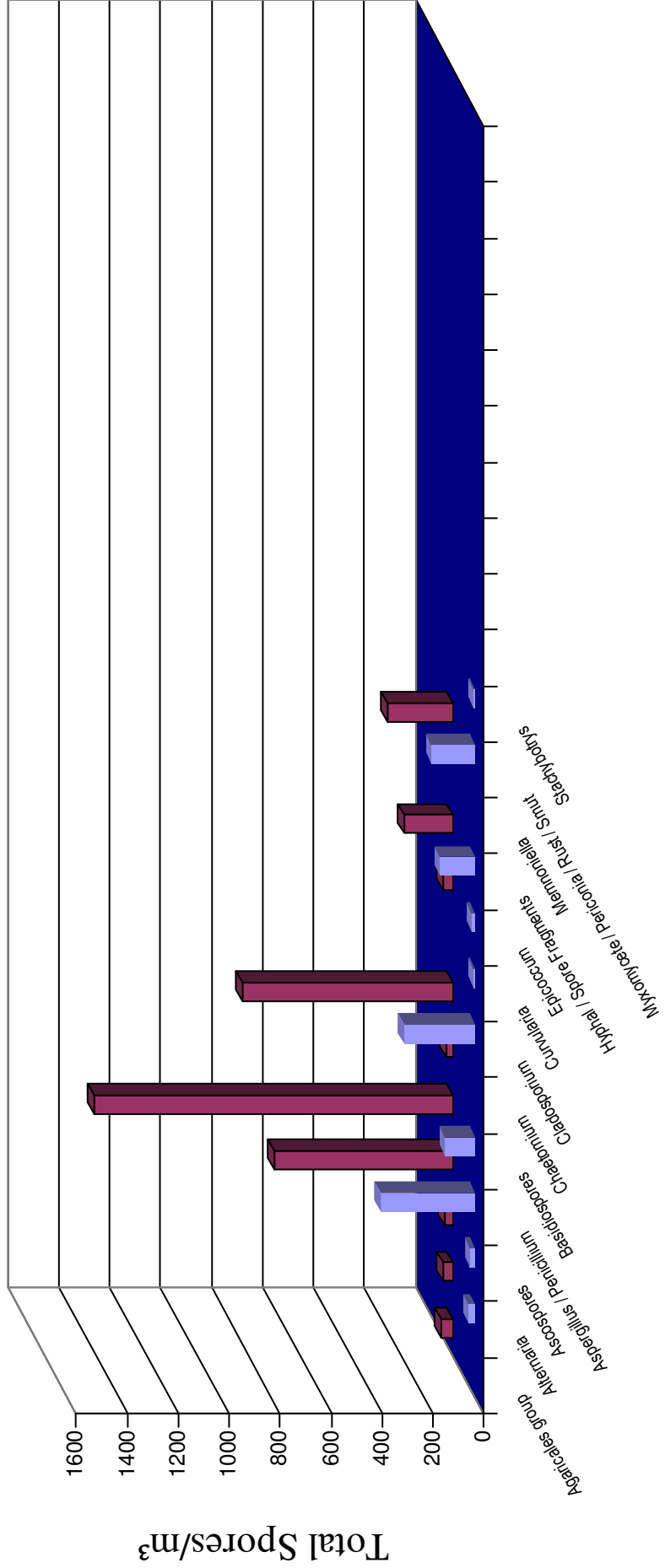
Average Reference 1 = Exterior, Southeast, Exterior, Northeast

IAQ Mold Report
Supplemental Overview

Client : Apex TITAN, Inc. - Dallas, TX
Project : Ethridge ES Room D-9
Project # : 7210114H330

Lab Job No. 15F-00912
Report Date 01/28/2015 9:50 AM
Sample Date : 01/26/2015

Room D9



Average Reference 1 = Exterior, Southeast, Exterior, Northeast



Chain of Custody

Lab Job # 15F-00912 AOC: 3
Lab Job #
Lab Job #

Please call in advance for immediate, after-hour, & weekend pricing & availability.

ASBESTOS PLM

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

PCM Air (7400)

Immediate 1 day 2 day 3 day 5 day

TOTAL DUST (0500/0600)

1 day 2 day

ASBESTOS TEM

Air AHERA Method 6 hr 12 hr 24 hr
Air 7402 (Modified) 1 day 2 day 3 day
Bulk/Wipe/Micro Vac 1 day 2 day 3 day 5 day
Water 1 day 2 day 3 day
Analyze Blanks Yes No

MOLD

Direct Exam Immediate 1 day 2 day
Standard Air Immediate 1 day 2 day
Expanded Air Immediate 1 day 2 day
Culture** 10-14 days
Analyze Blanks Yes No

Turnaround of Culture Samples subject to Culture Growth

BACTERIA*

Total Colony Counts (CC) 3 day 5 day
CC + Gram Stain 3 day 5 day
Total Coliform & E. coli (P/A) 2-3 day

OTHER:

Billing Company / City: Apex Titan (Dallas South)
Submitter's Company:
Submitter's Name: Clint Jech
Project: Ethridge ES Room D-1
Contact Information: Name:
E-mail Results to: Clint/Darren/Vernice
Invoice Address: Vernice

of Samples: 3
Sample Date: 1/26/2015
Project #: 7210114H380
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:

Table with 4 columns: Sample #, Sample Description, Vol. / Area (if applicable), Location / Notes. Contains handwritten data for 3 samples and general location notes.

Released By: [Signature] Date / Time: 1/26/2015 1:12
Received By: [Signature] Date / Time: 1/26/15 1:12 pm

ATTACHMENT 2

Mold Services Definitions & Limitations/Standard of Care and Reliance



Mold Services Definitions & Limitations

“Mold” defined. Mold is a general term used to describe various types of singled-celled naturally occurring biological organisms occurring worldwide. For purposes of this report 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 Apex’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 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, Apex 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). Apex cannot warrant the accuracy of prior or subsequent information/data, reports and services performed by other firms at the Site. Apex assumes no responsibility or liability for errors in information or data provided by or through the client or third party sources. Apex’s services are not to be construed as legal or medical interpretation or advice.

Moisture Intrusion Limitation. Apex 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, Apex will report observed areas of apparent moisture intrusion. Apex does not and will not investigate the cause or causes of such observed moisture intrusion. In the event apparent moisture intrusion is observed, Apex 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.

Standard of Care

Apex 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

Apex'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 Apex 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, Apex may offer reliance to third parties 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 Apex.