



30 August 2019

1. General

In accordance with your request and authorization, this office has performed a limited evaluation of four (4) classrooms located at Bridgeport Elementary School, 23670 Newhall Ranch Rd, Valencia, CA 91355. On 12 July, 2019, we conducted air sampling and swab sampling in rooms A74, A79, D1 & D2.

Following the site testing, we have summarized our findings in this report, which reflects our general opinions regarding the results of the testing. The complete laboratory results report is attached as a part of this report. It is submitted, herewith, as a part of the investigation report for the exclusive use of Orbach Huff Suarez & Henderson LLP.

2. Scope of Services

The scope of this assignment included the following:

- A visual evaluation of the existing concrete slab floors in two separate locations in each of the classrooms, adjacent to locations that were being prepared for Calcium Chloride Vapor Emission testing per ASTM F1869.
- Photographic documentation of Test areas.
- A written report to document our observations and any opinions regarding the laboratory results.

3. General Description of Site and Appurtenances

The structures are single story classrooms with what appear to be monolithic slab on grade foundations. The interior walls and ceilings appear to be typical wood stud construction with gypsum board covering and stucco cladding on the exterior. No inspection of the interstitial cavities in the exterior walls or area above the ceiling was made. It is not known whether the building components have asbestos containing materials. The roof was not inspected, but is a flat roof design.

4. Site inspection observations and procedures

We removed a rubber backed carpet section, in two locations in each of the classrooms, which were proximately located to areas that had been previously prepared for a Calcium Chloride Vapor Emissions testing. In each of the test areas an air sample and a swab sample (from the concrete slab) were conducted. An exterior air sample was conducted outside each classroom (4 total) for comparison.

The samples were collected in accordance with accepted industry standards to assess the presence and type of mold spores within the habitable spaces. Sampling methods included nonculturable spore trap cassettes, and noncultural swab samples. All of the samples were shipped overnight to the Aerotech P&K laboratory in Phoenix, Arizona.

All spore trap samples are collected using air Air-O-Cell spore trap cassettes. 75 liters of the air is typically sampled over a 5 minute period, using a pump with a calibrated flow rate of 15 liters per minute.

Swab samples are taken using sample kits provided by Aerotech P&K Labs. Swab sample locations, within the area of slab exposed by removal of the carpet tile, were evaluated visually and swabbed in the area deemed most likely to exhibit microbial growth.

Air sample results are evaluated primarily by comparing the types and levels of fungi found indoors, to those present in the outdoor environment. In general, indoor spore levels should be lower than outdoor spore levels, with the same general distribution of the spore types. A substantial elevation of a number of spore types, over what has been identified in the outdoor environment, is typically indicative of an indoor source of mold growth.

The American industrial hygiene associations *Field guide for the determination of biological contaminants in environmental samples* states, "the significant presence of fungi in indoor air not present or as a minor component of the outdoor air might go for a is taken as unacceptable from a health and building performance point of view." The AIHA *Field Guide* also states that, "dominance in indoor air of fungal species not predominant in outdoor air indicates that these fungi are growing in a building and that the air quality is degrading." Air samples are evaluated primarily by comparing the types and levels of fungi found indoors, to those present in the outdoor environment. While a hard numbers have not been established, such as Threshold Limit Values or Permissible Exposure Levels, in general, indoor spore levels should be lower than outdoor levels, with the same general distribution of spores. A substantial elevation of the select number of spore types, over what has been identified in the outdoor environment, is typically indicative of an indoor source of mold growth.

RESULTS

The laboratory results showed that in all air sample tests, the level of total mold spores were significantly less than those found in the exterior comparison samples. The hierarchy of spores in the classrooms did not contain any marker spores which didn't appear in the outdoor samples or raised any cause for concern. The air samples within the classrooms are within normal ranges. The swab samples did not produce any result which would indicate an indication of microbial growth. Please see the attached Laboratory Report from EMLab P&K for details on exact types and counts of the spores identified.

5 Closure

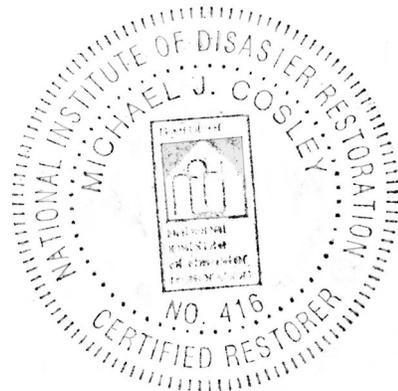
This report was prepared for the use of the Orbach Huff Suarez & Henderson LLP. The opinion expressed here is based on our visual observations, laboratory test results, and experience. As in most projects of this nature, conditions in the future may differ from the conditions at our testing. The recommendations made in this report are based on data that represent conditions at the specific time of testing only. If a change in condition occurs, the changed condition must be evaluated further to adjust our recommendations. The professional services performed by this office for the subject property were conducted in a manner consistent with current technical knowledge in the field of microbial investigation, sound engineering judgment and the writer's own professional judgment. No other warranty is expressed or implied as to the professional advice, conclusions and recommendations included in this study.

Thank you for the chance to be of service. Should you have any further questions or comments regarding our observations or report above, please do not hesitate to contact us at (661) 510-6181.

Respectfully submitted,



Michael J. Cosley Jr.,
B.S. Engineering
Board Certified Indoor Air Quality Consultant
Board Certified Microbial Consultant



Introduction

Molds are a natural and important part of our environment. They are ubiquitous and are found virtually everywhere. Molds produce tiny spores to reproduce. These spores can be found in both indoor and outdoor air and on indoor and outdoor surfaces. When mold spores land on a damp spot, they may begin growing and digesting whatever they are growing on in order to survive, leading to adverse conditions. In response to increasing public concern, a number of government authorities, including the United States EPA, California Department of Health Services and New York City Department of Health, have developed recommendations and guidelines for assessment and remediation of mold. Websites for these organizations can be found at the end of this report.

While it is generally accepted that molds can be allergenic and can lead to adverse health conditions in susceptible people, unfortunately there are no widely accepted or regulated interpretive standards or numerical guidelines for the interpretation of microbial data. The absence of standards often makes interpretation of microbial data difficult and controversial. This report has been designed to provide some basic interpretive information using certain assumptions and facts that have been extracted from a number of peer reviewed texts, such as the American Conference of Governmental Industrial Hygienists (ACGIH). In the absence of standards, the user must determine the appropriateness and applicability of this report to any given situation. Identification of the presence of a particular fungus in an indoor environment does not necessarily mean that the building occupants are or are not being exposed to antigenic or toxic agents.

None of the information contained herein should be construed as medical advice or a call to action for evacuation or remediation. Only a qualified physician should make any decision relative to medical significance.

EMLab P&K did not conduct the site investigation, provide consulting or collect the samples referenced in this report. EMLab P&K's primary involvement in this project is to provide analytical results for the samples submitted. The data presented in this report are based on the samples and accompanying information provided and represents concentrations at a point in time under the conditions sampled.

EMLab P&K's standard terms and conditions govern all aspects of this report.

Materials

Please refer to the chain of custody included with this report.

Methods

1. Surface Samples – Swab, Dust, Tape and Bulk Samples

Swab, Dust and Tape samples are mounted on a glass slide and observed under a bright field microscope for either Qualitative or Quantitative Examination. A bulk sample is also simultaneously observed under a stereomicroscope to look for signs of any visible discoloration or fungal growth, which is then mounted and observed under a bright field microscope for either Qualitative or Quantitative Examination. The samples are analyzed at a minimum of 200X magnification and up to a 1000X magnification. In the qualitative

examination, the prepared samples are observed for the presence of any structures or skewing of spore distribution that may indicate growth in the sample being analyzed. In the quantitative examination, the mold spores detected in the sample are counted and reported as spores per cm², spores per gram (or 1000mg), or spores per swab/wipe, etc depending on the sample type. These methodologies do not differentiate between viable and non-viable fungal spores.

2. Air Samples- Spore Trap Device

Spore traps are a unique sampling device designed for the rapid collection and analysis of a wide range of airborne particulates, including fungal spores. While analyzing the sample, the analyst takes a number of variables into account to select the proper analytical method to accurately determine the densities of the various spores on the trace. The densities of the debris and the spores on the trace will determine the approach to analyzing the sample. In general, the sample is directly mounted under the microscope and the various airborne particles detected are counted at a minimum of 200X magnification and up to 1000X magnification, with the entire trace (100% of the sample) being analyzed at 200X or 600X. This method does not differentiate between viable and non-viable fungal spores. This technique does not allow for the differentiation between *Aspergillus* and *Penicillium* spores. Additionally, depending on morphology, other non-distinctive spores are reported in categories such as ascospores or basidiospores. All slides are graded with the following debris scale for data qualification.

Debris Rating	Description	Interpretation
None	No particles detected.	No particulates on slide. The absence of particulates could indicate improper sampling as most air samples typically capture some particles.
<1+	Good visibility. A few particles detected.	Reported values are not affected by debris.
1+	Good visibility. No crowding of particles.	
2+	Decent visibility. Particles beginning to crowd.	Non-microbial particulates can mask the presence of fungal spores. As a result, actual values could be higher than the numbers reported. Higher debris ratings increase the probability of this bias.
3+	Decent visibility. Particles beginning to crowd.	
4+	Poor visibility. Particles beginning to overlap.	Excessive debris detected in the sample. Counts reported may vary drastically and actual values could be higher than the numbers reported. The sample should be collected at a shorter time interval, or other measures taken to reduce the collection of non-microbial debris. In addition, a >4+ rating will only allow for a count from the perimeter of the slide.
>4+	Poor visibility. Particles overlapping.	

3. Comments

Comments identify issues or events that are relevant to your analytical results. A comment includes information about any peculiar observation or situation encountered while analyzing the sample. In each case, the comments provide significant information vital to the interpretation of the laboratory data.

4. Data Interpretation

According to ACGIH, "Data from individual sampling episodes is often interpreted with respect to baseline data from other environments or the same environment under anticipated low exposure conditions." In the absence of established acceptable exposure limits, it is often necessary to use a comparison standard when interpreting data. In this instance, it will be necessary to sample the suspect area as well as a non-suspect area.

According to ACGIH, "...active fungal growth in indoor environments is inappropriate and may lead to exposure and adverse health effects."

a. Total Fungal Spores

According to ACGIH, "... differences that can detected with manageable sample sizes are likely to be in 10- fold multiplicative steps (e.g., 100 versus 1000...)". Following this logic, if total fungal spores are ten (10) times greater in the sample from a suspect area than in the negative control sample collected from a non-suspect area, then that sample area may be a fungal amplification site.

b. Mycelial Fragments

Mycelium is a fungal mass that constitutes the vegetative or living body of a fungus. Following the same logic above, if total mycelial fragments are ten (10) times greater in the suspect sample than in the negative control, then the sample area is considered to be a fungal amplification site. The presence of mycelial fragments provides evidence of microbial growth.

c. Mycotoxins

Molds can produce toxic substances called mycotoxins. More than 200 mycotoxins have been identified from common molds, and many more remain to be identified. Some of the molds that are known to produce mycotoxins are commonly found in moisture-damaged buildings. Exposure pathways for mycotoxins can include inhalation, ingestion, or skin contact. Although some mycotoxins are well known to affect humans and have been shown to be responsible for human health effects, for many mycotoxins, little information is available, and in some cases research is ongoing. Some molds can produce several toxins, and some molds produce mycotoxins only under certain environmental conditions. The presence of mold in a building does not necessarily mean that mycotoxins are present or that they are present in large quantities.

d. Water Indicator Molds

Certain authorities identify certain molds whose presence indicates excessive moisture. The presence of a few spores of indicator mold should be interpreted with caution. Additionally, it should be recognized that these named molds are not necessarily the only ones of potential significance.

e. Mold Glossary

Specific characteristics of the individual molds listed in the report are presented in Table 1.

f. Useful Resources

- i. Guidelines on Assessment and Remediation of Fungi in Indoor Environments, New York City Department of Health.
www1.nyc.gov/assets/doh/downloads/pdf/epi/epi-mold-guidelines.pdf
- ii. Facts about Mold, New York City Department of Health.
www1.nyc.gov/assets/doh/downloads/pdf/epi/mold-brochure.pdf

www.emlabpk.com • info@emlabpk.com

- iii. Mold Resources, United States Environmental Protection Agency.
<http://www.epa.gov/mold/moldresources.html>
- iv. Mold in My Home, What do I do? California Department of Health Services.
<http://www.lapublichealth.org/eh/docs/housing/brochure/moldhome.pdf>

Table 1: Summary of Specific Mold Characteristics

Fungi	Environmental Indicator		Typically Found
<i>Alternaria</i>			<i>Alternaria</i> is one of the more common fungi found in nature. It is found growing indoors on a variety of substrates including wallboards, painted walls, etc.
<i>Arthrinium</i>			<i>Arthrinium</i> is a saprobe and is found on plants. It is rarely found growing indoors.
Ascospores			Ascospores are ubiquitous in nature and are commonly found in the outdoor environment. Some fungi that belong to the ascomycete family include the sexual forms of <i>Penicillium/Aspergillus</i> , <i>Chaetomium</i> , etc that may be frequently found growing on damp substrates.
<i>Aureobasidium</i>			<i>Aureobasidium</i> is commonly found in a variety of soils. Indoors, it is commonly found where moisture accumulates, especially bathrooms, and kitchens, on shower curtains, tile grout, windowsills, textiles, and liquid waste materials.
Basidiospores			Basidiospores are Saprophytes and plant pathogens and are commonly found in gardens, forests, and woodlands. They also include organisms that are the agent of "dry rot," and other fungi that cause white and brown wood rot, which may grow and destroy the structural wood of buildings.
<i>Bipolaris/ Dreschlera</i>			<i>Bipolaris</i> and <i>Dreschlera</i> are usually found associated with plant debris, and soil. They are plant pathogens of numerous plants, particularly grasses. <i>Bipolaris</i> and <i>Dreschlera</i> can grow indoors on a variety of substrates.
<i>Botrytis</i>			<i>Botrytis</i> is commonly found in tropical and temperate climates growing on vegetative matter. They may be found indoors in conjugation with indoor plants, fruits and vegetables.
<i>Chaetomium</i>			<i>Chaetomium</i> is often found on materials containing cellulose such as sheetrock paper, or other wet materials.
<i>Cladosporium</i>			<i>Cladosporium</i> is a common outdoor mold. They are commonly found on dead plants, food, textiles, and a variety of other surfaces. Indoors, they can grow on a variety of substrates including textiles, wood, moist windowsills, etc. It can grow at 0°C and is associated with refrigerated foods.
<i>Curvularia</i>			<i>Curvularia</i> is found on plant materials and is considered a saprobe. Indoors, they can grow on a variety of substrates.
<i>Epicoccum</i>			<i>Epicoccum</i> is a saprophyte and considered a weekly parasitic secondary invader of plants. They tend to colonize continuously damp materials such as damp wallboard and fabrics.
<i>Fusarium</i>			<i>Fusarium</i> requires very wet conditions and is frequently isolated from plants and grains. They colonize continuously damp materials such as damp wallboard and water reservoirs for humidifiers and drip pans.

<i>Memmoniella</i>			<i>Memmoniella</i> can be found growing on a variety of cellulose-containing materials.
<i>Nigrospora</i>			<i>Nigrospora</i> is especially abundant in warm climates and is rarely found growing indoors.
<i>Oidium/Peronospora</i>			<i>Oidium</i> and <i>Peronospora</i> are plant pathogens and are not found growing indoors.
<i>Penicillium/Aspergillus</i>			<i>Penicillium</i> and <i>Aspergillus</i> are ubiquitous in environment. <i>Aspergillus</i> tends to colonize continuously damp materials such as damp wallboard and fabrics. <i>Penicillium</i> is commonly found in house dusts, wallpaper, decaying fabrics, moist clipboards, etc.
<i>Pithomyces/Ulocladium</i>			<i>Pithomyces</i> is commonly found on grass and decaying plant material and are rarely found growing indoors. <i>Ulocladium</i> has a high water requirement and therefore colonizes continuously damp materials such as damp wallboard and fabrics.
Rusts			Rusts are plant pathogens and only grow on host plants.
Smuts/Periconial/Myxomycetes			Smuts and Myxomycetes are parasitic plant pathogens that require a living host. Smuts do not usually grow indoors. <i>Periconia</i> are rarely found growing indoors. Myxomycetes are occasionally found indoors, but rarely growing.
<i>Stachybotrys</i>			<i>Stachybotrys</i> are commonly found indoors on wet materials containing cellulose, such as wallboard, jute, wicker, straw baskets, and other paper materials.
<i>Stemphylium</i>			<i>Stemphylium</i> is either parasitic or saprophytic and is rarely found growing indoors.
<i>Torula</i>			<i>Torula</i> can grow indoors on cellulose containing materials such as wallboard, jute, wicker, straw baskets, and other paper materials.
Other brown/colorless			An uncharacteristic fungal spore that does not lend itself to classification via direct microscopy.



Potential Water Intrusion/Indicator Mold Capable of Mycotoxin Production



Potential Water Intrusion/Indicator Mold

Quality Programs

The EMLab P&K's laboratory network is staffed with highly trained analysts, the majority of which hold advanced degrees. The reliability of test results depends on many factors such as the personnel performing the tests, environmental conditions, selection and validation of test methods, equipment functioning, as well as the sampling, storage and handling of test items, all of which are a reflection of the overall quality system of the laboratory.

EMLab P&K has modeled its quality system after ISO 17025, General Requirements for the Competence of Testing and Calibration Laboratories, one of the most stringent sets of standards in the industry, to ensure that its customers receive the highest standard of accuracy, reliability, and impartiality that they have come to expect from the leader in the environmental industry. EMLab P&K's laboratories adherence to the standards set forth in ISO 17025 has been validated and formally recognized through accreditations granted by an independent outside agency, American Industrial Hygiene Association Laboratory Accreditation Program, LLC (AIHA-LAP, LLC), on a site by site basis. As an additional measure to demonstrate its competency to perform the analyses it offers to its clients, EMLab P&K laboratories

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also participate in a variety of different proficiency testing programs, including the Environmental Microbiology Proficiency Analytical Testing Program (EMPAT) sponsored by the American Industrial Hygiene Association Proficiency Analytical Testing Programs.

As part of our continuous commitment to excellence, EMLab P&K laboratories are also inspected, licensed and/or accredited by a number of governmental agencies and independent associations in addition to those already mentioned above. The scope of services, accreditation certificates, and proficiency results can all be accessed at www.emlabpk.com.

References

1. Bioaerosols: Assessment and Control. Janet Macher, Ed., American Conference of Government Industrial Hygienists, Cincinnati, OH (1999).
2. EPA: The Inside Story. A Guide to Indoor Air Quality, United States Environmental Protection Agency and the United States Consumer Product Safety Commission, Washington DC (1995).
3. Health Canada: Exposure Guidelines for Residential Indoor Air Quality. Environmental Health Directorate. Health Protection Branch, Health Canada, Ottawa, Ontario (1989).
4. IIRC: Standard and Reference Guide for Professional Water Damage Restoration, 2nd Ed. Institute of Inspection, Cleaning and Restoration, Vancouver, WA (1999).
5. Field Guide for the Determination of Biological Contaminants in Environmental Samples. American Industrial Hygiene Association, Fairfax, VA (1996).
6. Standards of Practice for the Assessment of Indoor Environmental Quality, Volume I: Mold Sampling, Assessment of Mold Contamination. Indoor Environmental Standards Organization (2002).



Report for:

Mr. Mike Cosley
Construction Defect Forensics
26074 Avenue Hall, Suite 10
Valencia, CA 91355

Regarding: Project: Bridgeport ES
EML ID: 2204880

Approved by:

Technical Manager
Joyce Van Ommen

Dates of Analysis:

Quantitative spore count direct exam: 07-17-2019

Service SOPs: Quantitative spore count direct exam (EM-MY-S-1041)
AIHA-LAP, LLC accredited service, Lab ID #179768

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the samples as received.

EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

EMLab P&K's LabServe® reporting system includes automated fail-safes to ensure that all AIHA-LAP, LLC quality requirements are met and notifications are added to reports when any quality steps remain pending.

Client: Construction Defect Forensics
 C/O: Mr. Mike Cosley
 Re: Bridgeport ES

Date of Sampling: 07-12-2019
 Date of Receipt: 07-15-2019
 Date of Report: 07-17-2019

QUANTITATIVE SPORE COUNT REPORT

Location:	1: Swab A79-51 Classroom A79				2: Swab A79-52 Classroom A79				6: Swab Class Rm A74				7: Swab Class Rm A74			
Comments (see below)	None				None				None				None			
Sample type	Swab sample				Swab sample				Swab sample				Swab sample			
Lab ID-Version‡:	10482398-1				10482399-1				10482400-1				10482401-1			
Analysis Date:	07/17/2019				07/17/2019				07/17/2019				07/17/2019			
Background debris (1-4+)	2+				2+				3+				1+			
Sample size	1 cm2				1 cm2				1 cm2				1 cm2			
Reporting unit	1 cm2				1 cm2				1 cm2				1 cm2			
	Count	Count/sample	Count/unit	%	Count	Count/sample	Count/unit	%	Count	Count/sample	Count/unit	%	Count	Count/sample	Count/unit	%
Hyphal fragments		< 40	< 40	n/a		< 40	< 40	n/a	3	230	230	n/a		< 40	< 40	n/a
§ TOTAL FUNGAL SPORES		< 40	< 40	100		< 40	< 40	100	4	300	300	100		< 40	< 40	100
Ascospores																
Basidiospores									1	76	76	25				
Cladosporium									1	76	76	25				
Fusarium																
Myrothecium																
Nigrospora																
Other brown									1	76	76	25				
Other colorless																
Penicillium/Aspergillus types									1	76	76	25				
Pithomyces																
Rusts																
Smuts, Periconia, Myxomycetes																
Stachybotrys																
Stemphylium																
Torula																
Ulocladium																
Zygomycetes																

Comments:

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

§ Total Fungal Spores has been rounded to two significant figures to reflect analytical precision.

Spore types listed without a count or data entry were not detected during the course of the analysis for the respective sample, indicating a raw count of <1 spore.

The limit of detection is 1 spore per area analyzed.

The analytical sensitivity is (1 Spore/Total Number of Fields Observed)*(Total Sample Area(cm2)/Field Area of the microscope objective (cm2))*(1/unit volume)*Dilution Factor.

For more information regarding analytical sensitivity, please contact QA by calling the laboratory.

Client: Construction Defect Forensics
 C/O: Mr. Mike Cosley
 Re: Bridgeport ES

Date of Sampling: 07-12-2019
 Date of Receipt: 07-15-2019
 Date of Report: 07-17-2019

QUANTITATIVE SPORE COUNT REPORT

Location:	11: Swab D1-51 Class Rm D1				12: Swab D1-52 Class Rm D1				16: Swab D2-15 Class Rm D2				17: Swab D2-25 Class Rm D2			
Comments (see below)	None															
Sample type	Swab sample															
Lab ID-Version‡:	10482402-1				10482403-1				10482404-1				10482405-1			
Analysis Date:	07/17/2019				07/17/2019				07/17/2019				07/17/2019			
Background debris (1-4+)	2+				3+				1+				1+			
Sample size	1 cm2															
Reporting unit	1 cm2															
	Count	Count/sample	Count/unit	%												
Hyphal fragments		< 40	< 40	n/a		< 40	< 40	n/a		< 40	< 40	n/a		< 40	< 40	n/a
§ TOTAL FUNGAL SPORES	1	76	76	100		< 40	< 40	100		< 40	< 40	100		< 40	< 40	100
Ascospores	1	76	76	100												
Basidiospores																
Cladosporium																
Fusarium																
Myrothecium																
Nigrospora																
Other brown																
Other colorless																
Penicillium/Aspergillus types																
Pithomyces																
Rusts																
Smuts, Periconia, Myxomycetes																
Stachybotrys																
Stemphylium																
Torula																
Ulocladium																
Zygomycetes																

Comments:

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

§ Total Fungal Spores has been rounded to two significant figures to reflect analytical precision.

Spore types listed without a count or data entry were not detected during the course of the analysis for the respective sample, indicating a raw count of <1 spore.

The limit of detection is 1 spore per area analyzed.

The analytical sensitivity is (1 Spore/Total Number of Fields Observed)*(Total Sample Area(cm2)/Field Area of the microscope objective (cm2))*(1/unit volume)*Dilution Factor.

For more information regarding analytical sensitivity, please contact QA by calling the laboratory.



Report for:

Mr. Mike Cosley
Construction Defect Forensics
26074 Avenue Hall, Suite 10
Valencia, CA 91355

Regarding: Project: Bridgeport ES
EML ID: 2204880

Approved by:

Dates of Analysis:
Spore trap analysis: 07-17-2019

Technical Manager
Joyce Van Ommen

Service SOPs: Spore trap analysis (EM-MY-S-1038)
AIHA-LAP, LLC accredited service, Lab ID #179768

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the samples as received. Sample air volume is supplied by the client.

EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

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Client: Construction Defect Forensics
 C/O: Mr. Mike Cosley
 Re: Bridgeport ES

Date of Sampling: 07-12-2019
 Date of Receipt: 07-15-2019
 Date of Report: 07-17-2019

SPORE TRAP REPORT: NON-VIABLE METHODOLOGY

Location:	3: Air #2846-9221 Class Room A79				4: Air #2846-9243 Class Rm A79				5: Air #2846-9278 Exterior Control A79				8: Air #2846-9303 Class Rm A74			
Comments (see below)	None				None				None				None			
Lab ID-Version‡:	10476918-1				10476919-1				10476920-1				10476921-1			
Analysis Date:	07/17/2019				07/17/2019				07/17/2019				07/17/2019			
Sample volume (liters)	75				75				75				75			
Background debris (1-4+)††	3+				3+				3+				3+			
	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%
Hyphal fragments									6	80	13	n/a	1	13	13	n/a
Pollen					2	27	13	n/a	4	53	13	n/a				
§ TOTAL FUNGAL SPORES	6	120	n/a	100	10	250	n/a	100	31	770	n/a	100	7	130	n/a	100
Alternaria	1	13	13	11					2	27	13	3	1	13	13	10
Ascospores																
Basidiospores	1	53	53	44					4	210	53	28				
Botrytis	1	13	13	11												
Chaetomium									1	13	13	2				
Cladosporium					3	160	53	63	4	210	53	28	1	53	53	40
Epicoccum	1	13	13	11												
Other brown					2	27	13	11					2	27	13	20
Other colorless									2	27	13	3				
Penicillium/Aspergillus types									1	53	53	7				
Rusts	1	13	13	11												
Smuts, Periconia, Myxomycetes	1	13	13	11	5	67	13	26	17	230	13	29	3	40	13	30
Stachybotrys																

Comments:

Spore types listed without a count or data entry were not detected during the course of the analysis for the respective sample, indicating a raw count of <1 spore.

The analytical sensitivity/limit of detection is the Count/m³ divided by the raw count, expressed in Count/m³.

*The detection limit/limit of detection (DL) per cubic meter (m3) has been rounded to two significant figures to reflect analytical precision.

††Background debris indicates the amount of non-biological particulate matter present on the trace (dust in the air) and the resulting visibility for the analyst. It is rated from 1+ (low) to 4+ (high). Counts from areas with 4+ background debris should be regarded as minimal counts and may be higher than reported. It is important to account for samples volumes when evaluating dust levels.

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

§ Total Fungal Spores has been rounded to two significant figures to reflect analytical precision.

Client: Construction Defect Forensics
 C/O: Mr. Mike Cosley
 Re: Bridgeport ES

Date of Sampling: 07-12-2019
 Date of Receipt: 07-15-2019
 Date of Report: 07-17-2019

SPORE TRAP REPORT: NON-VIABLE METHODOLOGY

Location:	9: Air #2846-9300 Class Rm A74				10: Air #2846-9219 Exter. Control				13: Air #2846-9298 Class Rm D1				14: Air #2846-9213 Class Rm D1			
Comments (see below)	None				None				None				None			
Lab ID-Version‡:	10476922-1				10476923-1				10476924-1				10476925-1			
Analysis Date:	07/17/2019				07/17/2019				07/17/2019				07/17/2019			
Sample volume (liters)	75				75				75				75			
Background debris (1-4+)††	2+				3+				3+				2+			
	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%
Hyphal fragments	1	13	13	n/a	6	80	13	n/a	2	27	13	n/a	1	13	13	n/a
Pollen					4	53	13	n/a								
§ TOTAL FUNGAL SPORES	3	80	n/a	100	29	910	n/a	100	6	160	n/a	100	4	130	n/a	100
Alternaria					4	53	13	6	1	13	13	8				
Ascospores																
Basidiospores					1	53	53	6					1	53	53	40
Botrytis																
Chaetomium					1	13	13	1								
Cladosporium	1	53	53	67	10	530	53	59	1	53	53	33	1	53	53	40
Nigrospora					1	13	13	1								
Oidium					1	13	13	1								
Other brown	1	13	13	17	1	13	13	1								
Penicillium/Aspergillus types					2	110	53	12	1	53	53	33				
Smuts, Periconia, Myxomycetes	1	13	13	17	5	67	13	7	3	40	13	25	2	27	13	20
Stachybotrys																
Torula					3	40	13	4								

Comments:

Spore types listed without a count or data entry were not detected during the course of the analysis for the respective sample, indicating a raw count of <1 spore.

The analytical sensitivity/limit of detection is the Count/m³ divided by the raw count, expressed in Count/m³.

*The detection limit/limit of detection (DL) per cubic meter (m³) has been rounded to two significant figures to reflect analytical precision.

††Background debris indicates the amount of non-biological particulate matter present on the trace (dust in the air) and the resulting visibility for the analyst. It is rated from 1+ (low) to 4+ (high). Counts from areas with 4+ background debris should be regarded as minimal counts and may be higher than reported. It is important to account for samples volumes when evaluating dust levels.

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

§ Total Fungal Spores has been rounded to two significant figures to reflect analytical precision.

Client: Construction Defect Forensics
 C/O: Mr. Mike Cosley
 Re: Bridgeport ES

Date of Sampling: 07-12-2019
 Date of Receipt: 07-15-2019
 Date of Report: 07-17-2019

SPORE TRAP REPORT: NON-VIABLE METHODOLOGY

Location:	15: Air #2846-9223 Exterior Control				18: Air #2846-9275 Class Rm D2				19: Air #2846-9228 Class Rm D2				20: Air #2846-9293 Exterior Control			
Comments (see below)	None				None				None				None			
Lab ID-Version‡:	10476926-1				10476927-1				10476928-1				10476929-1			
Analysis Date:	07/17/2019				07/17/2019				07/17/2019				07/17/2019			
Sample volume (liters)	75				75				75				75			
Background debris (1-4+)††	3+				3+				3+				3+			
	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%	raw ct.	Count/m3	DL/m3*	%
Hyphal fragments	8	110	13	n/a									9	120	13	n/a
Pollen	8	110	13	n/a									2	27	13	n/a
§ TOTAL FUNGAL SPORES	21	760	n/a	100	7	210	n/a	100	8	110	n/a	100	30	1,200	n/a	100
Alternaria	3	40	13	5	1	13	13	6					3	40	13	3
Ascospores													1	53	53	5
Basidiospores	1	53	53	7									6	320	53	28
Chaetomium													1	13	13	1
Cladosporium	11	590	53	77	1	53	53	25					11	590	53	51
Oidium	2	27	13	4									2	27	13	2
Other brown					2	27	13	13	1	13	13	13				
Penicillium/Aspergillus types					2	110	53	50					1	53	53	5
Rusts	1	13	13	2					1	13	13	13				
Smuts, Periconia, Myxomycetes	3	40	13	5	1	13	13	6	6	80	13	75	4	53	13	5
Stachybotrys																
Stemphylium													1	13	13	1

Comments:

Spore types listed without a count or data entry were not detected during the course of the analysis for the respective sample, indicating a raw count of <1 spore.

The analytical sensitivity/limit of detection is the Count/m³ divided by the raw count, expressed in Count/m³.

*The detection limit/limit of detection (DL) per cubic meter (m3) has been rounded to two significant figures to reflect analytical precision.

††Background debris indicates the amount of non-biological particulate matter present on the trace (dust in the air) and the resulting visibility for the analyst. It is rated from 1+ (low) to 4+ (high). Counts from areas with 4+ background debris should be regarded as minimal counts and may be higher than reported. It is important to account for samples volumes when evaluating dust levels.

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

§ Total Fungal Spores has been rounded to two significant figures to reflect analytical precision.

Client: Construction Defect Forensics
C/O: Mr. Mike Cosley
Re: Bridgeport ES

Date of Sampling: 07-12-2019
Date of Receipt: 07-15-2019
Date of Report: 07-17-2019

MoldRANGE™: Extended Outdoor Comparison
Outdoor Location: 4, Air #2846-9243 Class Rm A79

Fungi Identified	Outdoor data	Typical Outdoor Data for: July in California† (n‡=23703)						Typical Outdoor Data for: The entire year in California† (n‡=288062)					
		very low	low	med	high	very high	freq %	very low	low	med	high	very high	freq %
Generally able to grow indoors*													
Alternaria	-	13	13	27	67	100	60	13	13	27	67	110	53
Bipolaris/Drechslera group	-	7	13	13	27	53	14	7	13	13	27	53	12
Chaetomium	-	8	13	13	27	47	25	10	13	13	27	41	19
Cladosporium	160	160	270	640	1,500	2,300	98	110	210	630	1,700	2,800	97
Curvularia	-	7	13	13	38	53	8	7	13	13	29	53	7
Epicoccum	-	10	13	13	40	67	25	8	13	13	40	53	19
Nigrospora	-	7	13	13	27	53	7	7	13	13	33	53	9
Other brown	27	13	13	13	40	53	37	13	13	13	40	53	34
Other colorless	-	13	13	13	40	53	5	10	13	13	40	53	5
Penicillium/Aspergillus types	-	53	89	210	590	960	84	53	100	210	640	1,000	83
Stachybotrys	-	8	13	13	40	69	5	7	13	13	33	67	4
Stemphylium	-	7	13	13	27	40	12	7	13	13	27	40	9
Torula	-	8	13	13	40	62	14	10	13	13	40	67	11
Seldom found growing indoors**													
Ascospores	-	13	40	80	230	400	67	27	53	110	380	800	70
Basidiospores	-	33	53	150	370	640	88	53	80	250	1,100	2,500	92
Botrytis	-	13	13	20	53	80	15	13	13	20	53	80	15
Oidium	-	13	13	13	40	67	21	13	13	13	53	80	19
Rusts	-	13	13	13	53	80	28	13	13	14	53	93	26
Smuts, Periconia, Myxomycetes	67	13	13	53	120	210	72	13	13	40	120	230	68
§ TOTAL SPORES/m3	250												

†The 'Typical Outdoor Data' represents the typical outdoor spore levels for the location and time frame indicated. The last column represents the frequency of occurrence. The very low, low, med, high, and very high values represent the 10, 20, 50, 80, and 90 percentile values of the spore type when it is detected. For example, if the frequency of occurrence is 63% and the low value is 53, it would mean that the given spore type is detected 63% of the time and, when detected, 20% of the time it is present in levels above the detection limit and below 53 spores/m3. These values are updated periodically, and if enough data is not available to make a statistically meaningful assessment, it is indicated with a dash.

§ Total Spores/m3 has been rounded to two significant figures to reflect analytical precision.

* The spores in this category are generally capable of growing on wet building materials in addition to growing outdoors. Building related growth is dependent upon the fungal type, moisture level, type of material, and other factors. *Cladosporium* is one of the predominant spore types worldwide and is frequently present in high numbers. *Penicillium/Aspergillus* species colonize both outdoor and indoor wet surfaces rapidly and are very easily dispersed. Other genera are usually present in lesser numbers.

** These fungi are generally not found growing on wet building materials. For example, the rusts and smuts are obligate plant pathogens. However, in each group there are notable exceptions. For example, agents of wood decay are members of the basidiomycetes and high counts of a single morphological type of basidiospore on an inside sample should be considered significant.

‡n = number of samples used to calculate data.

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Client: Construction Defect Forensics
C/O: Mr. Mike Cosley
Re: Bridgeport ES

Date of Sampling: 07-12-2019
Date of Receipt: 07-15-2019
Date of Report: 07-17-2019

MoldRANGE™: Extended Outdoor Comparison

Outdoor Location: 10, Air #2846-9219 Exter. Control

Fungi Identified	Outdoor data	Typical Outdoor Data for: July in California† (n‡=23703)						Typical Outdoor Data for: The entire year in California† (n‡=288062)					
		very low	low	med	high	very high	freq %	very low	low	med	high	very high	freq %
Generally able to grow indoors*													
Alternaria	53	13	13	27	67	100	60	13	13	27	67	110	53
Bipolaris/Drechslera group	-	7	13	13	27	53	14	7	13	13	27	53	12
Chaetomium	13	8	13	13	27	47	25	10	13	13	27	41	19
Cladosporium	530	160	270	640	1,500	2,300	98	110	210	630	1,700	2,800	97
Curvularia	-	7	13	13	38	53	8	7	13	13	29	53	7
Epicoccum	-	10	13	13	40	67	25	8	13	13	40	53	19
Nigrospora	13	7	13	13	27	53	7	7	13	13	33	53	9
Other brown	13	13	13	13	40	53	37	13	13	13	40	53	34
Other colorless	-	13	13	13	40	53	5	10	13	13	40	53	5
Penicillium/Aspergillus types	110	53	89	210	590	960	84	53	100	210	640	1,000	83
Stachybotrys	-	8	13	13	40	69	5	7	13	13	33	67	4
Stemphylium	-	7	13	13	27	40	12	7	13	13	27	40	9
Torula	40	8	13	13	40	62	14	10	13	13	40	67	11
Seldom found growing indoors**													
Ascospores	-	13	40	80	230	400	67	27	53	110	380	800	70
Basidiospores	53	33	53	150	370	640	88	53	80	250	1,100	2,500	92
Botrytis	-	13	13	20	53	80	15	13	13	20	53	80	15
Oidium	13	13	13	13	40	67	21	13	13	13	53	80	19
Rusts	-	13	13	13	53	80	28	13	13	14	53	93	26
Smuts, Periconia, Myxomycetes	67	13	13	53	120	210	72	13	13	40	120	230	68
§ TOTAL SPORES/m3	910												

†The 'Typical Outdoor Data' represents the typical outdoor spore levels for the location and time frame indicated. The last column represents the frequency of occurrence. The very low, low, med, high, and very high values represent the 10, 20, 50, 80, and 90 percentile values of the spore type when it is detected. For example, if the frequency of occurrence is 63% and the low value is 53, it would mean that the given spore type is detected 63% of the time and, when detected, 20% of the time it is present in levels above the detection limit and below 53 spores/m3. These values are updated periodically, and if enough data is not available to make a statistically meaningful assessment, it is indicated with a dash.

§ Total Spores/m3 has been rounded to two significant figures to reflect analytical precision.

* The spores in this category are generally capable of growing on wet building materials in addition to growing outdoors. Building related growth is dependent upon the fungal type, moisture level, type of material, and other factors. *Cladosporium* is one of the predominant spore types worldwide and is frequently present in high numbers. *Penicillium/Aspergillus* species colonize both outdoor and indoor wet surfaces rapidly and are very easily dispersed. Other genera are usually present in lesser numbers.

** These fungi are generally not found growing on wet building materials. For example, the rusts and smuts are obligate plant pathogens. However, in each group there are notable exceptions. For example, agents of wood decay are members of the basidiomycetes and high counts of a single morphological type of basidiospore on an inside sample should be considered significant.

‡n = number of samples used to calculate data.

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Client: Construction Defect Forensics
C/O: Mr. Mike Cosley
Re: Bridgeport ES

Date of Sampling: 07-12-2019
Date of Receipt: 07-15-2019
Date of Report: 07-17-2019

MoldRANGE™: Extended Outdoor Comparison

Outdoor Location: 15, Air #2846-9223 Exterior Control

Fungi Identified	Outdoor data	Typical Outdoor Data for: July in California† (n‡=23703)						Typical Outdoor Data for: The entire year in California† (n‡=288062)					
		very low	low	med	high	very high	freq %	very low	low	med	high	very high	freq %
Generally able to grow indoors*													
Alternaria	40	13	13	27	67	100	60	13	13	27	67	110	53
Bipolaris/Drechslera group	-	7	13	13	27	53	14	7	13	13	27	53	12
Chaetomium	-	8	13	13	27	47	25	10	13	13	27	41	19
Cladosporium	590	160	270	640	1,500	2,300	98	110	210	630	1,700	2,800	97
Curvularia	-	7	13	13	38	53	8	7	13	13	29	53	7
Epicoccum	-	10	13	13	40	67	25	8	13	13	40	53	19
Nigrospora	-	7	13	13	27	53	7	7	13	13	33	53	9
Other brown	-	13	13	13	40	53	37	13	13	13	40	53	34
Other colorless	-	13	13	13	40	53	5	10	13	13	40	53	5
Penicillium/Aspergillus types	-	53	89	210	590	960	84	53	100	210	640	1,000	83
Stachybotrys	-	8	13	13	40	69	5	7	13	13	33	67	4
Stemphylium	-	7	13	13	27	40	12	7	13	13	27	40	9
Torula	-	8	13	13	40	62	14	10	13	13	40	67	11
Seldom found growing indoors**													
Ascospores	-	13	40	80	230	400	67	27	53	110	380	800	70
Basidiospores	53	33	53	150	370	640	88	53	80	250	1,100	2,500	92
Botrytis	-	13	13	20	53	80	15	13	13	20	53	80	15
Oidium	27	13	13	13	40	67	21	13	13	13	53	80	19
Rusts	13	13	13	13	53	80	28	13	13	14	53	93	26
Smuts, Periconia, Myxomycetes	40	13	13	53	120	210	72	13	13	40	120	230	68
§ TOTAL SPORES/m3	760												

†The 'Typical Outdoor Data' represents the typical outdoor spore levels for the location and time frame indicated. The last column represents the frequency of occurrence. The very low, low, med, high, and very high values represent the 10, 20, 50, 80, and 90 percentile values of the spore type when it is detected. For example, if the frequency of occurrence is 63% and the low value is 53, it would mean that the given spore type is detected 63% of the time and, when detected, 20% of the time it is present in levels above the detection limit and below 53 spores/m3. These values are updated periodically, and if enough data is not available to make a statistically meaningful assessment, it is indicated with a dash.

§ Total Spores/m3 has been rounded to two significant figures to reflect analytical precision.

* The spores in this category are generally capable of growing on wet building materials in addition to growing outdoors. Building related growth is dependent upon the fungal type, moisture level, type of material, and other factors. *Cladosporium* is one of the predominant spore types worldwide and is frequently present in high numbers. *Penicillium/Aspergillus* species colonize both outdoor and indoor wet surfaces rapidly and are very easily dispersed. Other genera are usually present in lesser numbers.

** These fungi are generally not found growing on wet building materials. For example, the rusts and smuts are obligate plant pathogens. However, in each group there are notable exceptions. For example, agents of wood decay are members of the basidiomycetes and high counts of a single morphological type of basidiospore on an inside sample should be considered significant.

‡n = number of samples used to calculate data.

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Client: Construction Defect Forensics
C/O: Mr. Mike Cosley
Re: Bridgeport ES

Date of Sampling: 07-12-2019
Date of Receipt: 07-15-2019
Date of Report: 07-17-2019

MoldRANGE™: Extended Outdoor Comparison

Outdoor Location: 20, Air #2846-9293 Exterior Control

Fungi Identified	Outdoor data	Typical Outdoor Data for: July in California† (n‡=23703)						Typical Outdoor Data for: The entire year in California† (n‡=288062)					
		very low	low	med	high	very high	freq %	very low	low	med	high	very high	freq %
Generally able to grow indoors*													
Alternaria	40	13	13	27	67	100	60	13	13	27	67	110	53
Bipolaris/Drechslera group	-	7	13	13	27	53	14	7	13	13	27	53	12
Chaetomium	13	8	13	13	27	47	25	10	13	13	27	41	19
Cladosporium	590	160	270	640	1,500	2,300	98	110	210	630	1,700	2,800	97
Curvularia	-	7	13	13	38	53	8	7	13	13	29	53	7
Epicoccum	-	10	13	13	40	67	25	8	13	13	40	53	19
Nigrospora	-	7	13	13	27	53	7	7	13	13	33	53	9
Other brown	-	13	13	13	40	53	37	13	13	13	40	53	34
Other colorless	-	13	13	13	40	53	5	10	13	13	40	53	5
Penicillium/Aspergillus types	53	53	89	210	590	960	84	53	100	210	640	1,000	83
Stachybotrys	-	8	13	13	40	69	5	7	13	13	33	67	4
Stemphylium	13	7	13	13	27	40	12	7	13	13	27	40	9
Torula	-	8	13	13	40	62	14	10	13	13	40	67	11
Seldom found growing indoors**													
Ascospores	53	13	40	80	230	400	67	27	53	110	380	800	70
Basidiospores	320	33	53	150	370	640	88	53	80	250	1,100	2,500	92
Botrytis	-	13	13	20	53	80	15	13	13	20	53	80	15
Oidium	27	13	13	13	40	67	21	13	13	13	53	80	19
Rusts	-	13	13	13	53	80	28	13	13	14	53	93	26
Smuts, Periconia, Myxomycetes	53	13	13	53	120	210	72	13	13	40	120	230	68
§ TOTAL SPORES/m3	1,200												

†The 'Typical Outdoor Data' represents the typical outdoor spore levels for the location and time frame indicated. The last column represents the frequency of occurrence. The very low, low, med, high, and very high values represent the 10, 20, 50, 80, and 90 percentile values of the spore type when it is detected. For example, if the frequency of occurrence is 63% and the low value is 53, it would mean that the given spore type is detected 63% of the time and, when detected, 20% of the time it is present in levels above the detection limit and below 53 spores/m3. These values are updated periodically, and if enough data is not available to make a statistically meaningful assessment, it is indicated with a dash.

§ Total Spores/m3 has been rounded to two significant figures to reflect analytical precision.

* The spores in this category are generally capable of growing on wet building materials in addition to growing outdoors. Building related growth is dependent upon the fungal type, moisture level, type of material, and other factors. *Cladosporium* is one of the predominant spore types worldwide and is frequently present in high numbers. *Penicillium/Aspergillus* species colonize both outdoor and indoor wet surfaces rapidly and are very easily dispersed. Other genera are usually present in lesser numbers.

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‡n = number of samples used to calculate data.

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