

December 17, 2024

Will Wenzloff
Hillsboro School District
4901 SE Witch Hazel Road
Hillsboro, Oregon 97123

Via email: wenzloffw@hsd.k12.or.us

Regarding: Indoor Air Quality Report
Liberty High School – Room 131
7445 NE Wagon Drive
Portland, Oregon
PBS Project No. 23440.193 / 0007

Dear Mr. Wenzloff:

On December 10, 2024, PBS Engineering and Environmental LLC (PBS) collected non-viable fungal air samples at Liberty High School in Hillsboro, Oregon. The testing was conducted in response to staff concerns of a possible fungal amplification condition in Room 131. PBS collected air samples from rooms 131 and 124. The sample from Room 124 was collected for comparison from a non-complaint area. Two additional air samples were collected outdoors as baseline comparison samples.

Airborne fungal spore concentrations in the samples from both classrooms were quite low and give no evidence of a fungal amplification condition.

No unusual odors were noted in either classroom. No visual evidence of fungal growth, and no staining to indicate current or past water intrusion events, was observed. Both classrooms were free of plants and pets, but in Room 131 there was accumulated food waste in the trash, both near the teacher's desk and entry door, as well as open empty food containers. In addition, there were three coffee cups on a counter near the back of the room that had been left long enough for the coffee to completely evaporate from at least one of the mugs. Food and beverage waste, if left out for even a relatively short time, can readily become a prime substrate for fungal growth.

The air samples were collected using Allergenco-D impactor cassettes and a high-volume vacuum pump. Each sample was collected at a flow rate of 15 liters per minute for five minutes from an elevation of approximately four feet above floor level. The samples were submitted to Eurofins Built Environment Testing in Portland, Oregon, for nonviable fungal identification.

The airborne fungal concentration and predominant spore types from each sample are shown in the following table. Laboratory analytical reports are attached.

Table 1. Air Sample Laboratory Results

Sample	Location	Fungal Spore Concentration*	Predominant Spore Types
001	Room 131	160	<i>Penicillium/aspergillus types; basidiospores</i>
002	Room 124	53	<i>Penicillium/aspergillus types</i>
003	Outdoors – East Side	3,200	<i>Basidiospores; cladosporium; ascospores; penicillium/aspergillus types</i>
004	Outdoors – East Side	2,900	<i>Basidiospores; ascospores; penicillium/aspergillus types</i>

*Spore concentrations are reported in total spores per cubic meter.

Airborne fungal spore concentrations fluctuate seasonally and with changing weather conditions. In reviewing airborne fungal spore sample data, the two main points of comparison are the total spore concentrations and the relative proportions of the various spore types. Typically, fungal spore concentrations indoors are expected to be much lower than fungal spore concentrations outdoors. And, in the absence of an indoor fungal amplification condition, the relative proportions of spore types found indoors will generally be similar to the proportions of spore types found outdoors. High spore concentrations indoors, especially of spore types that are not well represented in the outdoor samples, indicate a possible fungal amplification condition.

Based on a review of the laboratory analytical data, the types and relative proportions of the fungal spores identified in the indoor samples were similar to the types and relative proportions of the fungal spores identified in the outdoor samples. Additionally, the overall concentration of fungal spores in the indoor samples was significantly lower than the concentration observed in the outdoor samples. These two observations are a strong indication that the fungal spores identified in the indoor samples originated from outdoor sources and that there is not an unusual or elevated fungal condition in the indoor test areas.

LIMITATIONS OF SCOPE

This study was limited to the tests and locations as indicated above. The site as a whole may have other environmental concerns that will not be characterized by this study. The findings and conclusions of this work are not scientific certainties, but probabilities based on professional judgment concerning the significance of the data gathered during the course of this investigation.

Please feel free to contact me at 503.515.4726 or dale.voeller@pbsusa.com with any questions or comments.

Sincerely,

Dale Voeller
Digitally signed
by Dale Voeller
Date: 2024.12.17
09:25:43 -08'00'
Dale Voeller, CHMM, CSP
Senior Project Manager

Attachment: Laboratory Analytical Reports

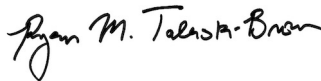
Report for:

Dale Voeller
PBS Engineering and Environmental: Portland
4412 S Corbett Ave.
Portland, OR 97239

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: 23440.193/0007; Liberty HS, Room 131
EML ID: 3879319

Approved by:

Dates of Analysis:
Spore trap analysis: 12-12-2024



Technical Manager
Ryan Talaski-Brown

Service SOPs: Spore trap analysis (EB-MY-S-1038)

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 and tested. Information supplied by the client which can affect the validity of results: sample air volume.

Eurofins EPK Built Environment Testing, LLC ("the Company"), a member of the Eurofins Built Environment Testing group of companies, 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.

Client: PBS Engineering and Environmental: Portland
C/O: Dale Voeller
Re: 23440.193/0007; Liberty HS, Room 131

Date of Sampling: 12-10-2024
Date of Receipt: 12-11-2024
Date of Report: 12-13-2024

SPORE TRAP REPORT: NON-VIABLE METHODOLOGY

Location:	001: Room 131			002: Room 124		
Comments (see below)	None			None		
Lab ID-Version‡:	19210498-1			19210499-1		
Analysis Date:	12/12/2024			12/12/2024		
	raw ct.	% read	spores/m3	raw ct.	% read	spores/m3
Ascospores						
Basidiospores	1	25	53			
Chaetomium						
Cladosporium						
Curvularia						
Epicoccum						
Fusarium						
Myrothecium						
Nigrospora						
Oidium						
Other colorless						
Penicillium/Aspergillus types†	2	25	110	1	25	53
Pithomyces						
Rusts						
Smuts, Periconia, Myxomycetes						
Stachybotrys						
Stemphylium						
Torula						
Ulocladium						
Zygomycetes						
Background debris (1-4+)	1+			< 1+		
Hyphal fragments/m3	< 13			< 13		
Pollen/m3	< 13			< 13		
Skin cells (1-4+)	1+			< 1+		
Sample volume (liters)	75			75		
§ TOTAL SPORES/m3			160			53

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 spores of *Aspergillus* and *Penicillium* (and others such as *Acremonium*, *Paecilomyces*) are small and round with very few distinguishing characteristics. They cannot be differentiated by non-viable sampling methods. Also, some species with very small spores are easily missed, and may be undercounted.

†† 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.

The analytical sensitivity is the spores/m³ divided by the raw count, expressed in spores/m³, per spore and per sample.

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

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

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SPORE TRAP REPORT: NON-VIABLE METHODOLOGY

Location:	003: Outdoors - East Side			004: Outdoors - East Side		
Comments (see below)	A			None		
Lab ID-Version‡:	19210500-1			19210501-1		
Analysis Date:	12/12/2024			12/12/2024		
	raw ct.	% read	spores/m3	raw ct.	% read	spores/m3
Ascospores	19	25	1,000	17	25	910
Basidiospores	29	25	1,500	36	25	1,900
Chaetomium						
Cladosporium	2/22	25/100	400			
Curvularia						
Epicoccum						
Fusarium						
Myrothecium						
Nigrospora						
Oidium	1	100	13			
Other colorless						
Penicillium/Aspergillus types†	5	25	270	2	25	110
Pithomyces						
Rusts						
Smuts, Periconia, Myxomycetes						
Stachybotrys						
Stemphylium						
Torula						
Ulocladium						
Zygomycetes						
Background debris (1-4+)	2+			2+		
Hyphal fragments/m3	27			27		
Pollen/m3	13			< 13		
Skin cells (1-4+)	< 1+			< 1+		
Sample volume (liters)	75			75		
§ TOTAL SPORES/m3			3,200			2,900

Comments: A) 22 of the raw count *Cladosporium* spores were present as a single clump.

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SPORE TRAP REPORT: NON-VIABLE METHODOLOGY

PROJECT ANALYST AND SIGNATORY REPORT

Project Analyst



Analyst: Alys Bos

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by AIHA LAP, LLC, or any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

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