



October 4, 2022

Herb Wagner
Portland Public Schools
Facilities and Assets Management

Via email: hwagner@pps.net

Regarding: Fungal Assessment and Air Sampling Report
 Ockley Green Middle School
 Portland Public Schools
 PBS 6500.873 Phase 0001

Mr. Wagner,

On September 29, 2022, PBS Engineering and Environmental Inc. (PBS) performed fungal air sampling in the portable buildings of Ockley Green Middle School in Portland, Oregon. PBS understands that the District is seeking air monitoring in the areas to determine if an abnormal fungal condition is present.

VISUAL INSPECTION

Three portable classrooms are present in the rear of Ockley Green Middle School. Rooms 152 and 153 share a common manufactured portable building. Room 151 is located within an adjacent portable building of a different construction. PBS observed that the portable exteriors were in fair condition with some evidence of deterioration on siding and at doorways. The interiors were in good condition, with some small areas of moisture staining on ceiling tiles. Air purifiers were present in all classrooms but did not appear to be in use at the time of testing. Air quality monitoring had been installed in all three classrooms, providing a readout for carbon dioxide, temperature, and relative humidity. Relative humidity appeared to be higher than is typically observed or targeted in indoor commercial spaces. No odor in the interior areas were observed during PBS' site visit. Air conditioning and ventilation was operating normally at the time of testing, and the temperature was fairly cool.

AIRBORNE PARTICULATE SAMPLING

PBS collected five airborne particulate samples using AllergencoD impactor cassettes and a high-volume vacuum pump. One sample was collected from each classroom and two were collected outdoors to establish background conditions. Each sample was collected at a flow rate of 15 liters per minute for 10 minutes (150 liters) from an elevation of approximately 4 feet above ground level. The samples were submitted to Lab/Cor Inc. in Seattle, Washington, for fungal particulate identification under chain of custody.

It should be noted that the weather during PBS' site investigation was overcast and 60° F. Table 1 summarizes the findings of this phase of the investigation.

Table 1. Air Sample Laboratory Results

Sample	Location	Fungal Spore Concentration*	Predominant Spore Types
01	Room 152	1,333	<i>Ascospores, Basidiospores-like</i>
02	Room 153	2,534	<i>Ascospores, Basidiospores-like, Cladosporium</i>
03	Exterior by 152	12,534	<i>Ascospores, Basidiospores-like, Cladosporium</i>
04	Room 151	133	<i>Cladosporium</i>
05	Exterior by 153	14,266	<i>Ascospores, Basidiospores-like, Cladosporium</i>

*Spore concentration is presented in spores per cubic meter.

In reviewing airborne fungal spore data, two main considerations in each sample are the total number of spores and the relative proportions of the various spore types. These two considerations are then compared for samples collected indoors and samples collected outdoors. The overall spore concentrations noted in the indoor samples were fairly low, and were significantly lower than those noted in outdoor samples. Spore varieties observed indoors were similar to those observed outdoors. This result indicates that there is not a significant concern of fungal activity in the tested areas.

For more detailed information regarding the laboratory results of these analyses, please refer to the attached laboratory reports.

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. PBS is not able to represent conditions on the site or adjoining sites beyond those detected or observed by PBS.

PBS respectfully submits these results of our indoor air quality investigation. Please feel free to contact me at 503.515.7489 or james.mastanduno@pbsusa.com with any questions or comments.

Sincerely,

James Mastanduno
Project Manager

Attachment: Laboratory Analytical Report

Nonviable Air Report

Job Number: 220959

Client: PBS Engineering + Environmental

**Address: 4412 South Corbett Ave
Portland, OR 97239**

Project Name: Ockley Green MS

Project No.: 6500.873 Phase 01

PO Number:

Sub Project:

Reference No.:

Report Number: 220959R01

Report Date: 9/30/2022

Enclosed please find results for samples submitted to our laboratory. A list of samples and analyses follows:

Lab/Cor Num.	Client Sample Number	Analysis	Analysis Notes	Date Sampled:	Date Received:
220959 - S1	4751251	NV, Air, Fungal ID		9/29/2022	9/30/2022
220959 - S2	4751245	NV, Air, Fungal ID		9/29/2022	9/30/2022
220959 - S3	4751202	NV, Air, Fungal ID		9/29/2022	9/30/2022
220959 - S4	4751164	NV, Air, Fungal ID		9/29/2022	9/30/2022
220959 - S5	4751248	NV, Air, Fungal ID		9/29/2022	9/30/2022

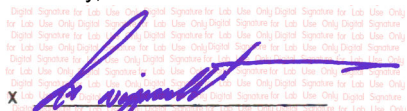
Nonviable Air Air samples follow preparation and analysis techniques outlined in Method 5 of the laboratory SOP; this method is based on guidelines from the Pan-American Aerobiology Association Standardized Protocol and ASTM Method 7391-09. Samples were collected using either an Air-O-Cell, Cyclex-D, Allergenco-D, or M2 Multi-Mold nonviable air sampling cassette. Characteristic morphologies were observed by optical microscopy at a magnification of 600x. For each individual particle type observed, data was reported in particles per cubic meter of air (m3).

Due to various factors that influence uncertainty (media type, particle loading, staining, instrumentation and other variable aspects of the method), only the first two figures reported are considered to be significant. The area analyzed on each sample is 20%.

Disclaimer The results reported relate only to the samples tested or analyzed; the laboratory is not responsible for data collected by personnel who are not affiliated with the laboratory. Results reported in both structures/cm3 and structures/mm2 are dependent on the sample volume and area. These parameters are measured and recorded by non-laboratory personnel and are not covered by the laboratory's accreditation. Interpretation of these results is the sole responsibility of the client.

If further clarification of these results is needed, please call us. Thank you for allowing the staff at Lab/Cor, Inc. the opportunity to provide you with the analytical services.

Sincerely,



Derk Wipprecht
Laboratory Supervisor

Nonviable Air - Final Report

Job Number: 220959

Client: PBS Engineering + Environmental

Project Name: Ockley Green MS

Project No.: 6500.873 Phase 01

Reference No.:

Report Number: 220959R01

Date Received: 9/30/2022

Lab/Cor ID:	S1			S2		
Sample No.:	4751251			4751245		
Sample Measure:	75 L			75 L		
Media Type:	Fungal-AllergencoD			Fungal-AllergencoD		
Analyst - Analysis Date:	DW - 9/30/2022			DW - 9/30/2022		
MRL:	67			67		
Scope - Magnification:	Olympus BHS - 600			Olympus BHS - 600		
Notes:						
Fungal Identification	Raw Count*	Total Count**	Total/m³	Raw Count*	Total Count**	Total/m³
Ascospores, non-specified	8	40	533	13	65	867
Aspergillus/ Penicillium-like	1	5	67	2	10	133
Basidiospores - like	11	55	733	19	95	1267
Cladosporium				4	20	267
Epicoccum						
Ganoderma						
Summary Total:	20	100	1333	38	190	2534

Lab/Cor ID:	S3			S4		
Sample No.:	4751202			4751164		
Sample Measure:	75 L			75 L		
Media Type:	Fungal-AllergencoD			Fungal-AllergencoD		
Analyst - Analysis Date:	DW - 9/30/2022			DW - 9/30/2022		
MRL:	67			67		
Scope - Magnification:	Olympus BHS - 600			Olympus BHS - 600		
Notes:						
Fungal Identification	Raw Count*	Total Count**	Total/m³	Raw Count*	Total Count**	Total/m³
Ascospores, non-specified	52	260	3467			
Aspergillus/ Penicillium-like	3	15	200			
Basidiospores - like	96	480	6400			
Cladosporium	31	155	2067	2	10	133
Epicoccum	1	5	67			
Ganoderma	5	25	333			
Summary Total:	188	940	12534	2	10	133

* - Raw Counts per 20% of Sample

** - Total Count per Sample

Nonviable Air - Final Report

Job Number: 220959

Client: PBS Engineering + Environmental

Project Name: Ockley Green MS

Project No.: 6500.873 Phase 01

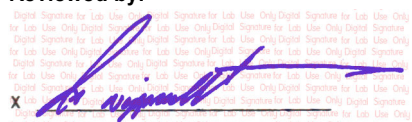
Reference No.:

Report Number: 220959R01

Date Received: 9/30/2022

Lab/Cor ID:	S5					
Sample No.:	4751248					
Sample Measure:	75 L					
Media Type:	Fungal-AllergencoD					
Analyst - Analysis Date:	DW - 9/30/2022					
MRL:	67					
Scope - Magnification:	Olympus BHS - 600					
Notes:						
Fungal Identification	Raw Count*	Total Count**	Total/m³	Raw Count*	Total Count**	Total/m³
Ascomycetes, non-specified	61	305	4067			
Aspergillus/ Penicillium-like	2	10	133			
Basidiospores - like	104	520	6933			
Cladosporium	32	160	2133			
Epicoccum						
Ganoderma	15	75	1000			
Summary Total:	214	1070	14266			

Reviewed by:


Derk Wipprecht
Laboratory Supervisor

* - Raw Counts per 20% of Sample

** - Total Count per Sample