



October 16, 2019

Brent Paul, Director of Facility Operations
Lake Oswego School District
2455 Country Club Road
Lake Oswego, Oregon 97034

Via Email: paulb@loswego.k12.or.us

Regarding: Indoor Air Quality Testing Report
Lakeridge Jr. High School
PBS Project 21600.034 Phase 0006

Dear Mr. Paul:

On Monday, September 4, 2019, PBS Engineering and Environmental Inc. (PBS) performed indoor air quality testing at Lakeridge Junior High School located at 4700 Jean Road in Lake Oswego, Oregon. PBS understands the air quality testing was performed in response to a water intrusion event that impacted classrooms 6 and 7 and the boiler room.

AIRBORNE PARTICULATE SAMPLING

PBS collected six (6) nonviable fungal particulate air samples using Allergenco-D impactor cassettes and a high-volume vacuum pump. Indoor samples were collected indoors in Room 6, hallway between Room 6 and the Boiler Room, Boiler room and Room 7. Two (2) samples were collected outdoors to establish background levels and for comparison purposes. Samples were collected at a flow rate of 15 liters per minute for five minutes at an approximate height of 4 feet. The samples were submitted under chain of custody to Lab/Cor Inc. in Seattle, Washington, for fungal particulate identification. Table 1 summarizes the findings of this phase of the investigation.

Table 1. Air Sample Laboratory Results: Fungal

Sample Number	Location	Fungal Spore Concentration*	Concentration Breakdown	
3144552	Room 6, SW Corner	150	50	Basidiospores-like
			45	Ascospores, non-specified
			45	Cladosporium
			5	Aureobasidium
			5	Ganoderma
3143921	Hallway between Room 6 and Boiler Room	190	80	Basidiospores-like
			45	Cladosporium
			40	Ascospores, non-specified
			10	Aureobasidium
			10	Hyphal Fragments
			5	Aspergillus/Penicillium-like

Sample Number	Location	Fungal Spore Concentration*	Concentration Breakdown	
3144562	Boiler Room, SW Corner	265	105 85 50 10 10 5	Cladosporium Ascospores, non-specified Basidiospores-like Aureobasidium Ganoderma Hyphal Fragments
3143920	Room 7, West Wall	205	75 55 50 10 10 5	Basidiospores-like Cladosporium Ascospores, non-specified Ganoderma Hyphal Fragments Myxo./Periconia/Smuts/Rusts
3143916	Outside; North Parking Lot	550	215 165 90 30 15 10 5 5 5 5 5	Basidiospores-like Cladosporium Ascospores, non-specified Hyphal Fragments Ganoderma Myxo./Periconia/Smuts/Rusts Alternaria Botrytis Chaetomium Epicoccum Oidium/Peronospora
3144559	Outside; North Parking Lot	375	160 120 55 15 15 10	Basidiospores-like Cladosporium Ascospores, non-specified Ganoderma Hyphal Fragments Aspergillus/Penicillium-like

* Spore concentration is presented in total count per sample.

FINDINGS

Based on the analysis results, indoor airborne fungal particulate concentrations were lower when compared to the samples collected outdoors. Additionally, the types of predominant spores identified in the indoor samples were also present in the samples collected outdoors. This indicates that most of the fungal spores identified in the indoor samples were likely carried in on air currents and/or tracked in by building occupants. There does not appear to be an elevated fungal particulate concern within the test areas at the time of this monitoring event.

For more detailed information regarding the results, please refer to the attached laboratory report.

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 503.417.7607 or bob.kleckner@pbsusa.com with any questions or comments.

Sincerely,

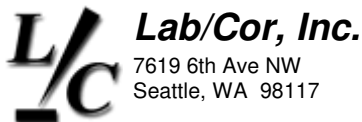


Digitally signed by Bob
Kleckner
Date: 2019.10.16
09:38:48 -07'00'

Bob Kleckner
Senior Project Manager

Attachments: Lab/Cor Inc. Laboratory Report and Sample Chain of Custody

BK:mo



Analysis Report Cover Final Report

Phone: (206) 781-0155
<http://www.labcor.net>

A Professional Service Corporation in the Northwest

Job Number: 190916 **SEA**
Client: PBS Engineering + Environmental
Address: 4412 SW Corbett Ave
Portland, OR 97239
Project Name: Lakeridge Junior High School (LJHS)
Project No.: 21600.034
PO Number:
Sub Project:
Reference No.:

Report Number: 190916R01
Report Date: 9/10/2019

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

Lab/Cor Sample #	Client Sample # and Description	Analysis	Analysis Notes	Date Received:
190916 - S1	3144552 - Lakeridge Junior High School Room 6, SW Corner	NV, Air, Fungal ID		9/6/2019
190916 - S2	3143921 - LJHS Hallway between Room 6 and Boiler Room	NV, Air, Fungal ID		9/6/2019
190916 - S3	3144562 - LJHS Boiler Room Southwest Corner	NV, Air, Fungal ID		9/6/2019
190916 - S4	3143920 - LJHS Room 7 Middle at West Facing Wall	NV, Air, Fungal ID		9/6/2019
190916 - S5	3143916 - LJHS Outside in North Parking Lot	NV, Air, Fungal ID		9/6/2019
190916 - S6	3144559 - LJHS Outside in North Parking Lot	NV, Air, Fungal ID		9/6/2019

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,



Kate March
Quality Control Officer

Nonviable Air

Job Number: 190916

Client: PBS Engineering + Environmental

Project Name: Lakeridge Junior High School (LJHS)

Project No.: 21600.034

Reference No.:

Report Number: 190916R01

Date Received: 9/6/2019

Lab/Cor ID:	S1	S2
Sample No.:	3144552	3143921
Description:	Lakeridge Junior High School Room 6, SW Corner	LJHS Hallway between Room 6 and Boiler Room
Sample Measure:	75 L	75 L
Media Type:	Fungal-AllergencoD	Fungal-AllergencoD
Analyst - Analysis Date:	KM - 9/10/2019	KM - 9/10/2019
MRL:	67	67
Scope - Magnification:	Olympus BHT-BH2 - 600	Olympus BHT-BH2 - 600
Notes:		

Fungal Identification	Raw Count*	Total Count**	Total/m ³	Raw Count*	Total Count**	Total/m ³
Alternaria						
Ascospores, non-specified	9	45	600	8	40	533
Aspergillus/ Penicillium-like				1	5	67
Aureobasidium	1	5	67	2	10	133
Basidiospores - like	10	50	667	16	80	1067
Botrytis						
Chaetomium						
Cladosporium	9	45	600	9	45	600
Epicoccum						
Ganoderma	1	5	67			
Hyphal Fragments				2	10	133
Myxo./Periconia/Smuts/Rusts						
Oidium/Peronospora						
Summary Total:	30	150	2001	38	190	2533

* - Raw Counts per 20% of Sample

** - Total Count per Sample

Nonviable Air

Job Number: 190916

Client: PBS Engineering + Environmental

Project Name: Lakeridge Junior High School (LJHS)

Project No.: 21600.034

Reference No.:

Report Number: 190916R01

Date Received: 9/6/2019

Lab/Cor ID:	S3	S4
Sample No.:	3144562	3143920
Description:	LJHS Boiler Room Southwest Corner	LJHS Room 7 Middle at West Facing Wall
Sample Measure:	75 L	75 L
Media Type:	Fungal-AllergencoD	Fungal-AllergencoD
Analyst - Analysis Date:	KM - 9/10/2019	KM - 9/10/2019
MRL:	67	67
Scope - Magnification:	Olympus BHT-BH2 - 600	Olympus BHT-BH2 - 600
Notes:		

Fungal Identification	Raw Count*	Total Count**	Total/m ³	Raw Count*	Total Count**	Total/m ³
Alternaria						
Ascospores, non-specified	17	85	1133	10	50	667
Aspergillus/ Penicillium-like						
Aureobasidium	2	10	133			
Basidiospores - like	10	50	667	15	75	1000
Botrytis						
Chaetomium						
Cladosporium	21	105	1400	11	55	733
Epicoccum						
Ganoderma	2	10	133	2	10	133
Hyphal Fragments	1	5	67	2	10	133
Myxo./Periconia/Smuts/Rusts				1	5	67
Oidium/Peronospora						
Summary Total:	53	265	3533	41	205	2733

* - Raw Counts per 20% of Sample

** - Total Count per Sample

Nonviable Air

Job Number: 190916

Client: PBS Engineering + Environmental

Project Name: Lakeridge Junior High School (LJHS)

Project No.: 21600.034

Reference No.:

Report Number: 190916R01

Date Received: 9/6/2019

Lab/Cor ID:	S5	S6
Sample No.:	3143916	3144559
Description:	LJHS Outside in North Parking Lot	LJHS Outside in North Parking Lot
Sample Measure:	75 L	75 L
Media Type:	Fungal-AllergencoD	Fungal-AllergencoD
Analyst - Analysis Date:	KM - 9/10/2019	KM - 9/10/2019
MRL:	67	67
Scope - Magnification:	Olympus BHT-BH2 - 600	Olympus BHT-BH2 - 600
Notes:		

Fungal Identification	Raw Count*	Total Count**	Total/m³	Raw Count*	Total Count**	Total/m³
Alternaria	1	5	67			
Ascospores, non-specified	18	90	1200	11	55	733
Aspergillus/ Penicillium-like				2	10	133
Aureobasidium						
Basidiospores - like	43	215	2867	32	160	2133
Botrytis	1	5	67			
Chaetomium	1	5	67			
Cladosporium	33	165	2200	24	120	1600
Epicoccum	1	5	67			
Ganoderma	3	15	200	3	15	200
Hyphal Fragments	6	30	400	3	15	200
Myxo./Periconia/Smuts/Rusts	2	10	133			
Oidium/Peronospora	1	5	67			
Summary Total:	110	550	7335	75	375	4999

Reviewed by:

Kate March
X

Kate March

Quality Control Officer

Fungal / Particulate Sample Chain of Custody Record

1909114

1909905

Lab/Cor, Inc
7619 6th Ave NW
Seattle, WA 98117
Office (206) 781-0155
Fax (206) 789-8424
mail@labcor.net
www.labcor.net

Client: PBS Engineering and Environmental
Address: 4412 SW Corbett Ave
City, State, Zip: Portland OR 97239
Contact: Bob Kleckner
Phone: _____ Fax: _____
Email: Bob.Kleckner@PBSusa.com
Other Info: _____

Analysis Type:
Nonviable Options:
☒ Fungal ID
Fungal & Particulate ID
Particulate ID
Quantitative Analysis
(Total Count)
Qualitative Analysis
(Relative Abundance)
Viable Options:
Complete Analysis
Genera Only Staphy Only

Turnaround Time:
6 hr RUSH*
24 hours*
48 hours
3 days
(N/A Std)
5 days
Viable
(7-10 days)

Project Name: Lake Oswego School District Project Number: 21600.034 / 21600.009 P.O. Number: _____

Sample #	Sample Description	Sample Information						Sampling Information					
		Sample Type			Media Type			Sample Date	Sample Time		Sample Flow		Total Volume / Area
		Air	Swab	Bulk	Dust	Tape	Media		On	Off	Start	End	
3144560	Hallway Elementary School room 15 near South wall	X						9/14/2009					75 L
3144558	Hallway Elementary Outside East from room 15	X											
3144561	Hallway Elementary Outside East from room 15	X											
3144552	Lake Ridge Junior High School room 6, SW corner	X											
3143921	LJ HS room hallway between room 6 and boiler room	X											
3144562	LJ HS boiler room South west corner	X											
3143920	LJ HS room 7 middle of west facing wall	X											
3143916	LJ HS Outside in north parking lot	X											
3144559	LJ HS Outside in north parking lot	X											

Internal Use Only:
Prelim Released: _____ Final Results Released: 9/14/09
By: ☐ Fax ☐ Phone ☐ E-mail ☐ Verbal By: ☐ Fax ☐ Phone ☒ E-mail
Characopy//Invoice/Mailed: 9/14/09
QC & Data Reviewed By: 9/14/09

By signing below you are agreeing to comply with Lab/Cor's Requests, Tenders and Contracts.
Relinquished by: Grace Hancock Date: 9/14/2009 Time: 5:45
Received by: Sierra Hinkle Date: 9/16/09 Time: 1000
Relinquished by: _____ Date: _____ Time: _____
Received by: _____ Date: _____ Time: _____

* Call ahead for TATs of 24hrs or less