Environmental Resources Group
3125 Sovereign Drive • Suite B • Lansing, MI 48911
Phone: 517-999-6020 • Fax 248-924-3108

September 5, 2024

Brian Lieber
Facility Director
Okemos Public Schools
4000 Okemos Road
Okemos, Michigan 48664

RE: Okemos High School, Bathroom Mold Removal Project
2800 Jolly Road, Okemos, Michigan
ERG Project No.: 240447

Dear Mr. Lieber:

Environmental Resources Group, LLC. (ERG) is pleased to provide the following report of findings.

On Saturday, August 31, 2024, ERG collected bioaerosol samples outside the 1st and 2nd floor bathrooms located at the intersection of the C and D Hallways at Okemos High School.

The testing was conducted in response to a pipe leak and visible mold being discovered in both the 1st and 2nd floor bathrooms. Both the 1st and 2nd floor bathrooms had been isolated with plastic sheeting and HEPA filter-equipped negative air machines. Rooms near these bathrooms had no visible mold or musty odors but had damp or wet drywall that was in the process of being dried. Mold remediation and drying were underway in the 1st floor Men's bathroom at the time of testing. Only drying was taking place on the 2nd floor at the time of testing.

The air quality samples were collected by ERG using Zefon Air-O-Cell cassettes (or an equivalent device) and pursuant to the manufacturers' recommendations. Collected samples were submitted to and analyzed in the Indoor Air Quality Laboratory of ERG for same-day analysis. ERG employed the modified ASTM International Standard D-7391 as the method of sample analysis. The collected data was compared to the Baxter Criteria which have been discussed in prior reports. The laboratory reports are attached for your review.

The results of testing on Saturday, August 31, 2024, indicated the following:

- Room D236 was clean. Spore concentrations were low, and no highly allergenic spores were detected.

- Room D239 was clean. Spore concentrations were low, and no highly allergenic spores were detected.
- **The Hallway between Rooms D236 and D239** was clean from a mold spore perspective, and no highly allergenic spores were detected. However, this sample had a very high mineral fiber (likely gypsum fibers) concentration. ERG advised that the hallway be recleaned by the restoration contractor and HEPA filter equipped air scrubber(s) be placed in the hall to filter these fibers from the air.
- **Room D241** had low mold spore concentrations, but highly allergenic mold spores and a high mineral fiber concentration were detected in the air. ERG advised that the room be cleaned (HEPA vacuum horizontal surfaces) and the air scrubbed with a HEPA filter-equipped air filtration device.
- Room D135 was clean. Spore concentrations were low, and no highly allergenic spores were detected.
- Room D136 was clean. Spore concentrations were low, and no highly allergenic spores were detected.
- **The 1st floor hallway at the double doors** had a low mold spore concentration, but highly allergenic mold spores were detected in the air. ERG advised that this area be cleaned by the restoration contractor by HEPA vacuuming horizontal surfaces and the air scrubbed with HEPA filter equipped air filtration devices.
- The second floor near the stairwell end of the hallway was not tested as cleaning was underway at the time ERG was performing air quality testing.

Those items in **bold** were those that required action on the part of the restoration contractor.

Following the completion of cleaning and air filtration procedures on Sunday, September 1, 2024, ERG returned to the High School to visually inspect these areas and conduct follow-up testing. All inspected areas were visually clean, had no visible mold and no musty odors. The results of that testing indicated the following:

- Room D241 was clean. Spore concentrations were low, and no highly allergenic spores were detected. This room previously had highly allergenic mold spores and high mineral fiber concentrations. Those conditions were corrected.
- The 2nd floor Hallway (pillar near the stairs) was clean. Spore concentrations were low, and no highly allergenic spores were detected. This area was not previously tested as the restoration contractor was cleaning at the time of initial testing.
- The 2nd floor Hallway between Rooms D236 and D239 was clean. This area previously had a very high mineral fiber concentration. That condition has been corrected.
- The 1st floor Hallway between the double doors was clean. This area previously had highly allergenic mold spores present. That condition has been corrected.

All tested areas are clean, have no highly allergenic spores and either no detectable or normal mineral fiber concentrations.

The areas outside the 1st and 2nd floor bathroom work areas at the intersection of corridors C and D are safe for staff and students to occupy. Bathrooms remain off limits until further notice to all but remediation professionals and those working to facilitate remediation and testing (plumbers, etc.).

Should you have any questions or need additional information feel free to contact us.

Sincerely,

ENVIRONMENTAL RESOURCES GROUP

Phillip A. Peterson
Senior Project Manager

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IAQ Bioaerosol Analytical Reports

IAQ Bioaerosol Analytical Report

ERG Project Number: 240447

Client Name: Okemos Public Schools

Project Name: Okemos High School, Okemos, Michigan

Date of Sample Collection: 8/31/2024
Date of Submittal: 8/31/2024
Date of Analysis: 8/31/2024

Report Date: 8/31/2024
Analyst: Phillip A. Peterson
Minimum Reporting Limit: 60 s/m³

Sample #	1			2			3		
Sample Location	Room D239, near Teacher's desk			Field Blank			Room D236, near room center		
Spores	structures/ sample	s/m³	% trace scanned	structures/ sample	s/m³	% trace scanned	structures/ sample	s/m³	% trace scanned
Alternaria	ND			ND			ND		
Ascospore	10	100	20.3%	ND			ND		
Aspergillus/Penicillium	ND			ND			5	60	20.3%
Basidiospore	ND			ND			5	60	20.3%
Botrytis	ND			ND			ND		
Chaetomium	ND			ND			ND		
Cladosporium	ND			ND			ND		
Curvularia	ND			ND			ND		
Drechslera/Bipolaris	ND			ND			ND		
Epicoccum	ND			ND			ND		
Erysiphae/Oidium	ND			ND			ND		
Fusarium	ND			ND			ND		
Hyphal Fragments	ND			ND			ND		
Nigrospora	ND			ND			ND		
Periconia/ Myxomycete/Smut	ND			ND			ND		
Ulocladium/Pithomyces	ND			ND			ND		
Rhizopus	ND			ND			ND		
Stachybotrys	ND			ND			ND		
Stemphyllium	ND			ND			ND		
Torula	ND			ND			ND		
Miscellaneous/Unidentified Spores	ND			ND			ND		
Total	10	100		ND			10	120	
Pollen									
Grass	ND			ND			ND		
Tree	ND			ND			ND		
Other/Unknown Pollen	ND			ND			ND		
Total	ND			ND			ND		
Other Particulate									
Cellulose Fibers	20	300	20.3%	ND			15	200	20.3%
Fibrous Glass	ND			ND			ND		
Synthetic Fibers	ND			ND			ND		
Mineral Fibers	ND			ND			ND		
Opaque Particles	10	100	20.3%	ND			10	100	20.3%
Insect Fragments	ND			ND			ND		
Total	30	400		ND			25	300	
*Debris rating	1						1		

Notes:

All samples prepared and analyzed per the modified ASTM D7391-09.

IAQ Bioaerosol Analytical Report
ERG Project Number: 240447

Client Name: Okemos Public Schools
Project Name: Okemos High School, Okemos, Michigan

Date of Sample Collection: 8/31/2024
Date of Submittal: 8/31/2024
Date of Analysis: 8/31/2024
Report Date: 8/31/2024
Analyst: Phillip A. Peterson
Minimum Reporting Limit: 60 s/m³

Sample #	4			5			6		
Sample Location	Hallway between Rooms D236 and 239			Room D241, 10' from cabinet			Room D135, small interior room		
Spores	structures/ sample	s/m³	% trace scanned	structures/ sample	s/m³	% trace scanned	structures/ sample	s/m³	% trace scanned
Alternaria	ND			5	60	20.3%	ND		
Ascospore	30	400	20.3%	20	300	20.3%	ND		
Aspergillus/Penicillium	5	60	20.3%	5	60	20.3%	15	200	20.3%
Basidiospore	5	60	20.3%	10	100	20.3%	ND		
Botrytis	ND			ND			ND		
Chaetomium	ND			ND			ND		
Cladosporium	5	60	20.3%	ND			ND		
Curvularia	ND			ND			ND		
Drechslera/Bipolaris	ND			ND			ND		
Epicoccum	ND			ND			10	100	20.3%
Erysiphae/Oidium	ND			ND			ND		
Fusarium	ND			ND			ND		
Hyphal Fragments	5	60	20.3%	ND			ND		
Nigrospora	ND			5	60	20.3%	ND		
Periconia/ Myxomycete/Smut	ND			ND			ND		
Ulocladium/Pithomyces	ND			5	60	20.3%	ND		
Rhizopus	ND			ND			ND		
Stachybotrys	ND			5	60	20.3%	ND		
Stemphyllium	ND			ND			ND		
Torula	ND			ND			ND		
Miscellaneous/Unidentified Spores	ND			10	100	20.3%	ND		
Total	50	640		65	800		25	300	
Pollen									
Grass	10	100	20.3%	ND			ND		
Tree	ND			ND			ND		
Other/Unknown Pollen	ND			ND			ND		
Total	10	100		ND			ND		
Other Particulate									
Cellulose Fibers	59	750	20.3%	5	60	20.3%	15	200	20.3%
Fibrous Glass	15	200	20.3%	ND			10	100	20.3%
Synthetic Fibers	69	870	20.3%	ND			ND		
Mineral Fibers	394	5000	20.3%	99	1300	20.3%	49	620	20.3%
Opaque Particles	69	870	20.3%	49	620	20.3%	10	100	20.3%
Insect Fragments	ND			ND			ND		
Total	606	7690		153	1980		84	1020	
*Debris rating	3			2			1		

Notes:

All samples prepared and analyzed per the modified ASTM D7391-09.

IAQ Bioaerosol Analytical Report
ERG Project Number: 240447

Client Name: Okemos Public Schools
Project Name: Okemos High School, Okemos, Michigan

Date of Sample Collection: 8/31/2024
Date of Submittal: 8/31/2024
Date of Analysis: 8/31/2024
Report Date: 8/31/2024
Analyst: Phillip A. Peterson
Minimum Reporting Limit: 60 s/m³

Sample #	7			8			9		
Sample Location	Rom D136, near room center			1st floor hallway at double doors			Area outside of 1st floor work area near stairs		
Spores	structures/ sample	s/m³	% trace scanned	structures/ sample	s/m³	% trace scanned	structures/ sample	s/m³	% trace scanned
Alternaria	ND			ND			ND		
Ascospore	5	60	20.3%	10	100	20.3%	15	200	20.3%
Aspergillus/Penicillium	30	400	20.3%	5	60	20.3%	ND		
Basidiospore	ND			ND			ND		
Botrytis	ND			ND			ND		
Chaetomium	ND			ND			ND		
Cladosporium	ND			5	60	20.3%	79	1000	20.3%
Curvularia	ND			ND			ND		
Drechslera/Bipolaris	ND			ND			ND		
Epicoccum	ND			ND			ND		
Erysiphae/Oidium	ND			ND			ND		
Fusarium	ND			ND			ND		
Hyphal Fragments	ND			ND			5	60	20.3%
Nigrospora	ND			ND			ND		
Periconia/ Myxomycete/Smut	5	60	20.3%	ND			ND		
Ulocladium/Pithomyces	ND			ND			ND		
Rhizopus	ND			ND			ND		
Stachybotrys	ND			5	60	20.3%	ND		
Stemphyllium	ND			ND			ND		
Torula	ND			ND			ND		
Miscellaneous/Unidentified Spores	ND			ND			5	60	20.3%
Total	40	520		25	280		104	1320	
Pollen									
Grass	ND			10	100	20.3%	ND		
Tree	ND			ND			ND		
Other/Unknown Pollen	ND			ND			ND		
Total	ND			10	100		ND		
Other Particulate									
Cellulose Fibers	5	60	20.3%	10	100	20.3%	15	200	20.3%
Fibrous Glass	ND			5	60	20.3%	5	60	20.3%
Synthetic Fibers	ND			ND			10	100	20.3%
Mineral Fibers	ND			ND			ND		
Opaque Particles	25	300	20.3%	10	100	20.3%	79	1000	20.3%
Insect Fragments	ND			ND			ND		
Total	30	360		25	260		109	1360	
*Debris rating	1			1			1		

Notes:

All samples prepared and analyzed per the modified ASTM D7391-09.

IAQ Bioaerosol Analytical Report

ERG Project Number: 240447

Client Name: Okemos Public Schools

Project Name: Okemos High School, Okemos, Michigan

Date of Sample Collection: 8/31/2024
Date of Submittal: 8/31/2024
Date of Analysis: 8/31/2024

Report Date: 8/31/2024
Analyst: Phillip A. Peterson
Minimum Reporting Limit: 60 s/m³

	Sample #									
		10								
	Sample Location	Out-of-doors								
Spores		structures/ sample	s/m³	% trace scanned	structures/ sample	s/m³	% trace scanned	structures/ sample	s/m³	% trace scanned
Alternaria		10	100	20.3%						
Ascospore		256	3200	20.3%						
Aspergillus/Penicillium		44	600	20.3%						
Basidiospore		20	300	20.3%						
Botrytis		ND								
Chaetomium		ND								
Cladosporium		305	3900	20.3%						
Curvularia		ND								
Drechslera/Bipolaris		ND								
Epicoccum		ND								
Erysiphae/Oidium		ND								
Fusarium		ND								
Hyphal Fragments		ND								
Nigrospora		ND								
Periconia/ Myxomycete/Smut		64	810	20.3%						
Ulocladium/Pithomyces		15	200	20.3%						
Rhizopus		ND								
Stachybotrys		ND								
Stemphyllium		ND								
Torula		ND								
Miscellaneous/Unidentified Spores		10	100	20.3%						
Total		724	9210							
Pollen										
Grass		5	60	20.3%						
Tree		ND								
Other/Unknown Pollen		ND								
Total		5	60							
Other Particulate										
Cellulose Fibers		ND								
Fibrous Glass		ND								
Synthetic Fibers		ND								
Mineral Fibers		ND								
Opaque Particles		5	60	20.3%						
Insect Fragments		ND								
Total		5	60							
*Debris rating		1								

Comments

*Debris rating (% obstructed by particulate matter): 0= no particulate matter detected, 1= >0-5%, 2= 6%-25%, 3= 26%-76%, 4= 75%-90%, 5= >90%. Where debris rating =5, fungal/pollen/other particulate are reported as "present." For debris ratings 2-4, negative bias is expected. The degree of negative bias increases with the percent of the trace that is obstructed.

Samples were received in acceptable condition, unless otherwise indicated. Results relate only to items tested. Results are reported in units of structures per cubic meter of air (s/m³), except blank samples, where the actual number of observed particles are reported. Spore types listed without a count or other data indicate that the specific analyte was not detected during the course of sample analysis. Spores of the genera *Aspergillus* and *Penicillium* are categorized together due to their small size and spherical shape with few distinguishing characteristics. Other similar spores will be categorized as *Aspergillus*/*Penicillium* unless fruiting bodies allow more precise identifications.

ND= none detected (minimum of 20.3% trace scanned) unless otherwise reported .

Minimum Reporting Limit represents the lowest calculated limit in this report.

Flow Rate is in liters per minute. Time is reported in minutes.

The enclosed data from Environmental Resources Group, LLC (ERG) is for sample(s) collected on behalf of our client. The client bears all risk relative to the use of this data, including any course of action or inaction. Further, ERG asserts that industry appropriate care and consideration were exercised in the collection of these samples, including the manner, number, and distribution of collected samples.

Approved Signatory: 

Date: 8/31/2024

IAQ Bioaerosol Analytical Report

ERG Project Number: 240447-2

Client Name: Okemos Public Schools

Project Name: Okemos High School, Okemos, Michigan

Date of Sample Collection: 9/1/2024
Date of Submittal: 9/1/2024
Date of Analysis: 9/1/2024

Report Date: 9/1/2024
Analyst: Phillip A. Peterson
Minimum Reporting Limit: 60 s/m³

Sample #	1			2			3		
Sample Location	Room D241, near cabinet			Field Blank			2nd floor hallway pillar (near stairs)		
Spores	structures/ sample	s/m³	% trace scanned	structures/ sample	s/m³	% trace scanned	structures/ sample	s/m³	% trace scanned
Alternaria	ND			ND			ND		
Ascospore	10	100	20.3%	ND			5	60	20.3%
Aspergillus/Penicillium	10	100	20.3%	ND			10	100	20.3%
Basidiospore	ND			ND			ND		
Botrytis	ND			ND			ND		
Chaetomium	ND			ND			ND		
Cladosporium	ND			ND			ND		
Curvularia	ND			ND			ND		
Drechslera/Bipolaris	ND			ND			ND		
Epicoccum	ND			ND			ND		
Erysiphae/Oidium	ND			ND			ND		
Fusarium	ND			ND			ND		
Hyphal Fragments	ND			ND			ND		
Nigrospora	ND			ND			ND		
Periconia/ Myxomycete/Smut	ND			ND			ND		
Ulocladium/Pithomyces	ND			ND			ND		
Rhizopus	ND			ND			ND		
Stachybotrys	ND			ND			ND		
Stemphyllium	ND			ND			ND		
Torula	ND			ND			ND		
Miscellaneous/Unidentified Spores	ND			ND			ND		
Total	20	200		ND			15	160	
Pollen									
Grass	ND			ND			ND		
Tree	ND			ND			ND		
Other/Unknown Pollen	ND			ND			ND		
Total	ND			ND			ND		
Other Particulate									
Cellulose Fibers	20	300	20.3%	ND			5	60	20.3%
Fibrous Glass	ND			ND			5	60	20.3%
Synthetic Fibers	5	60	20.3%	ND			ND		
Mineral Fibers	49	620	20.3%	ND			ND		
Opaque Particles	39	500	20.3%	ND			30	400	20.3%
Insect Fragments	ND			ND			ND		
Total	113	1480		ND			40	520	
*Debris rating	1			0			0		

Notes:

All samples prepared and analyzed per the modified ASTM D7391-09.

IAQ Bioaerosol Analytical Report

ERG Project Number: 240447-2

Client Name: Okemos Public Schools
Project Name: Okemos High School, Okemos, Michigan

Date of Sample Collection: 9/1/2024
Date of Submittal: 9/1/2024
Date of Analysis: 9/1/2024
Report Date: 9/1/2024
Analyst: Phillip A. Peterson
Minimum Reporting Limit: 60 s/m³

Sample #	4			5			6		
Sample Location	2nd fl. Hallway between Rms. D236 and D239			1st floor Hallway between double doors			Out-of-doors		
Spores	structures/ sample	s/m³	% trace scanned	structures/ sample	s/m³	% trace scanned	structures/ sample	s/m³	% trace scanned
Alternaria	ND			ND			5	60	20.3%
Ascospore	5	60	20.3%	ND			236	3000	20.3%
Aspergillus/Penicillium	5	60	20.3%	5	60	20.3%	54	680	20.3%
Basidiospore	ND			ND			59	750	20.3%
Botrytis	ND			ND			ND		
Chaetomium	ND			ND			ND		
Cladosporium	5	60	20.3%	ND			350	4400	20.3%
Curvularia	ND			ND			ND		
Drechslera/Bipolaris	ND			ND			ND		
Epicoccum	ND			ND			5	60	20.3%
Erysiphae/Oidium	ND			ND			ND		
Fusarium	ND			ND			ND		
Hyphal Fragments	ND			ND			ND		
Nigrospora	ND			ND			ND		
Periconia/ Myxomycete/Smut	ND			ND			ND		
Ulocladium/Pithomyces	ND			ND			ND		
Rhizopus	ND			ND			ND		
Stachybotrys	ND			ND			ND		
Stemphyllium	ND			ND			ND		
Torula	ND			ND			ND		
Miscellaneous/Unidentified Spores	ND			ND			10	100	20.3%
Total	15	180		5	60		719	9050	
Pollen									
Grass	ND			ND			ND		
Tree	ND			ND			ND		
Other/Unknown Pollen	ND			ND			ND		
Total	ND			ND			ND		
Other Particulate									
Cellulose Fibers	ND			15	200	20.3%	ND		
Fibrous Glass	ND			ND			ND		
Synthetic Fibers	ND			5	60	20.3%	ND		
Mineral Fibers	ND			54	680	20.3%	ND		
Opaque Particles	5	60	20.3%	10	100	20.3%	10	100	20.3%
Insect Fragments	ND			ND			ND		
Total	5	60		84	1040		10	100	
*Debris rating	0			0			1		

Notes:

All samples prepared and analyzed per the modified ASTM D7391-09.

Comments

*Debris rating (% obstructed by particulate matter): 0= no particulate matter detected, 1= >0-5%, 2= 6%-25%, 3= 26%-76%, 4= 75%-90%, 5= >90%. Where debris rating =5, fungal/pollen/other particulate are reported as "present." For debris ratings 2-4, negative bias is expected. The degree of negative bias increases with the percent of the trace that is obstructed.

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ND= none detected (minimum of 20.3% trace scanned) unless otherwise reported .

Minimum Reporting Limit represents the lowest calculated limit in this report.

Flow Rate is in liters per minute. Time is reported in minutes.

The enclosed data from Environmental Resources Group, LLC (ERG) is for sample(s) collected on behalf of our client. The client bears all risk relative to the use of this data, including any course of action or inaction. Further, ERG asserts that industry appropriate care and consideration were exercised in the collection of these samples, including the manner, number, and distribution of collected samples.

Approved Signatory: 

Date: 9/1/2024