

April 15, 2015



Providing Trusted  
Health & Safety Solutions

Mr. Matt Helgerson  
Jordan Public Schools  
500 Sunset Drive  
Jordan, MN 55352

**RE: Jordan Elementary School – Rooms 21, 69, and 76  
Routine Fungal Air Sampling  
IEA Project #201410785**

Dear Mr. Helgerson:

IEA, Inc. is pleased to provide this report for the follow-up fungal air sampling conducted in rooms 21, 69, and 76 at Jordan Elementary School in Jordan, Minnesota, on April 13, 2015. The purpose for the air sampling was to document conditions in the classrooms due to indoor air quality concerns.

## **OBSERVATIONS**

No evidence of moisture or fungal growth was observed in the tested classrooms.

## **SAMPLE RESULTS AND DISCUSSION**

IEA collected fungal air samples in rooms 21, 69, and 76, and outdoors for comparison. The analysis of the air samples was performed by EMSL Analytical, Inc. of Minneapolis, Minnesota.

A copy of the laboratory analysis report can be found in Appendix A. Sampling methodologies and existing guidelines can be found in Appendix B.

## **TOTAL SPORE COUNT AIR SAMPLES (AIR-O-CELL) SAMPLES**

### Room 21

- The result identified a low level of fungal counts (spores) on the sample. The dominant organism, *Cladosporium*, is associated with migration from outdoors. The result indicates normal conditions at the time of the assessment.

### Room 69

- The result identified a low level of fungal counts (spores) on the sample. *Cladosporium* spp. was the only organism identified on the sample. The result indicates normal conditions at the time of the assessment.

INSTITUTE FOR ENVIRONMENTAL ASSESSMENT, INC.  
[www.ieasafety.com](http://www.ieasafety.com)

BROOKLYN PARK  
9201 West Broadway, #600  
Brooklyn Park, MN 55445  
763-315-7900 / FAX 763-315-7920  
800-233-9513

MANKATO  
610 North Riverfront Drive  
Mankato, MN 56001  
507-345-8818 / FAX 507-345-5301  
800-233-9513

ROCHESTER  
210 Woodlake Drive SE  
Rochester, MN 55904  
507-281-6664 / FAX 507-281-6695  
800-233-9513

BRAINERD  
13432 Elmwood Drive, Ste. #5  
Baxter, MN 56425  
218-454-0703 / FAX 218-454-0703  
800-233-9513

OMAHA  
7887 "L" Street  
Ralston, NE 68127  
402-339-6240 / FAX 402-339-7504  
800-233-9513

Room 76

- The result identified a low level of fungal counts (spores) on the sample. *Cladosporium* and *Basidiospores* were identified on the sample. These organisms are both associated with migration from outdoors. The result indicates normal conditions at the time of the assessment.

**CONCLUSIONS/RECOMMENDATIONS**

No evidence of moisture or fungal growth was observed during the site visit. The air sample results indicate normal conditions at the time of sampling.

**GENERAL COMMENTS**

The analysis and opinions expressed in this report are based upon data obtained from Jordan Public Schools at the indicated locations. This report does not reflect variations in conditions that may occur across the site, property, or facility. Actual conditions may vary and may not become evident without further assessment.

The report is prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted indoor air quality practices. Other than as provided in the preceding sentence and in our EH&S proposal #3929 dated July 14, 2014, including the General Conditions attached thereto, no warranties are extended or made.

If you have any questions, please contact George Rosburg in our Mankato office at 507-345-8818, or Leslie Cloonan in our Brooklyn Park office at 763-315-7900.

Sincerely,

IEA, Inc.



Leslie Cloonan, CIH, MPH, LEED AP O+M  
Senior Project Manager  
Indoor Environments Division

LC/wb 041515

Enc.

# **Appendix A**

## *Laboratory Results*



# EMSL Analytical, Inc.

14375 23rd Avenue North Minneapolis, Mn 55447  
Phone/Fax: (763) 449-4922 / (763) 449-4924  
<http://www.EMSL.com> / [minneapolislab@emsl.com](mailto:minneapolislab@emsl.com)

Order ID: 351502047  
Customer ID: IFEA50  
Customer PO:  
Project ID:

**Attn:** Denice Kuchta  
Inst. For Environmental Assessment  
9201 West Broadway  
Suite 600  
Brooklyn Park, MN 55445

Phone: (763) 315-7900  
Fax: (763) 315-7920  
Collected:  
Received: 04/14/2015  
Analyzed: 04/15/2015

**Proj:** 201410785 - Jordan ES

### Test Report: Air-O-Cell™ Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number:	351502047-0001			351502047-0002			351502047-0003		
Client Sample ID:	20811771			21112430			21112437		
Volume (L):	44.01			73.35			73.35		
Sample Location:	Outdoors			Room 69			Room 76		
Spore Types	Raw Count	Count/m <sup>3</sup>	% of Total	Raw Count	Count/m <sup>3</sup>	% of Total	Raw Count	Count/m <sup>3</sup>	% of Total
Alternaria	1	70	11.9	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	-	-	-	-	-	-
Basidiospores	-	-	-	-	-	-	1	40	80
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	7	500	84.7	3*	40*	100	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	1*	20*	3.4	-	-	-	1*	10*	20
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-	-	-	-
Torula	-	-	-	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
<b>Total Fungi</b>	<b>9</b>	<b>590</b>	<b>100</b>	<b>3</b>	<b>40</b>	<b>100</b>	<b>2</b>	<b>50</b>	<b>100</b>
Hyphal Fragment	1*	20*	-	1*	10*	-	1*	10*	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	1	70	-	2*	30*	-	-	-	-
Analyt. Sensitivity 600x	-	72	-	-	43	-	-	43	-
Analyt. Sensitivity 300x	-	23*	-	-	14*	-	-	14*	-
Skin Fragments (1-4)	-	1	-	-	1	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	2	-	-	1	-	-	1	-

Bipolaris++ = Bipolaris/Drechslera/Exserohilum  
Myxomycetes++ = Myxomycetes/Periconia/Smut

Jodie Bourgerie, Laboratory Manager  
or Other Approved Signatory

No discernable field blank was submitted with this group of samples.

High levels of background particulate can obscure spores and other particulates leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. Present = Spores detected on overloaded samples. Results are not blank corrected unless otherwise noted. The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment. "\*" Denotes particles found at 300X. "-" Denotes not detected. Due to method stopping rules, raw counts in excess of 100 are extrapolated based on the percentage analyzed. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Minneapolis, Mn AIHA-LAP, LLC EMLAP 163162

Initial report from: 04/15/2015 10:25:20

For Information on the fungi listed in this report please visit the Resources section at [www.emsl.com](http://www.emsl.com)



# EMSL Analytical, Inc.

14375 23rd Avenue North Minneapolis, Mn 55447  
Phone/Fax: (763) 449-4922 / (763) 449-4924  
<http://www.EMSL.com> / [minneapolislab@emsl.com](mailto:minneapolislab@emsl.com)

Order ID: 351502047  
Customer ID: IFEA50  
Customer PO:  
Project ID:

**Attn:** Denice Kuchta  
Inst. For Environmental Assessment  
9201 West Broadway  
Suite 600  
Brooklyn Park, MN 55445

Phone: (763) 315-7900  
Fax: (763) 315-7920  
Collected:  
Received: 04/14/2015  
Analyzed: 04/15/2015

**Proj:** 201410785 - Jordan ES

### Test Report: Air-O-Cell™ Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods EMSL 05-TP-003, ASTM D7391)

<b>Lab Sample Number:</b>	351502047-0004		
<b>Client Sample ID:</b>	20811729		
<b>Volume (L):</b>	73.35		
<b>Sample Location:</b>	Room 21		
<b>Spore Types</b>	<b>Raw Count</b>	<b>Count/m<sup>3</sup></b>	<b>% of Total</b>
Alternaria	-	-	-
Ascospores	1	40	14.3
Aspergillus/Penicillium	-	-	-
Basidiospores	1	40	14.3
Bipolaris++	-	-	-
Chaetomium	-	-	-
Cladosporium	4	200	71.4
Curvularia	-	-	-
Epicoccum	-	-	-
Fusarium	-	-	-
Ganoderma	-	-	-
Myxomycetes++	-	-	-
Pithomyces	-	-	-
Rust	-	-	-
Scopulariopsis	-	-	-
Stachybotrys	-	-	-
Torula	-	-	-
Ulocladium	-	-	-
Unidentifiable Spores	-	-	-
Zygomycetes	-	-	-
<b>Total Fungi</b>	<b>6</b>	<b>280</b>	<b>100</b>
Hyphal Fragment	1	40	-
Insect Fragment	-	-	-
Pollen	-	-	-
Analyt. Sensitivity 600x	-	43	-
Analyt. Sensitivity 300x	-	14*	-
Skin Fragments (1-4)	-	1	-
Fibrous Particulate (1-4)	-	1	-
Background (1-5)	-	1	-

Jodie Bourgerie, Laboratory Manager  
or Other Approved Signatory

Bipolaris++ = Bipolaris/Drechslera/Exserohilum  
Myxomycetes++ = Myxomycetes/Periconia/Smut

No discernable field blank was submitted with this group of samples.

High levels of background particulate can obscure spores and other particulates leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. Present = Spores detected on overloaded samples. Results are not blank corrected unless otherwise noted. The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment. \*\*\* Denotes particles found at 300X. "-" Denotes not detected. Due to method stopping rules, raw counts in excess of 100 are extrapolated based on the percentage analyzed. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Minneapolis, Mn AIHA-LAP, LLC EMLAP 163182

Initial report from: 04/15/2015 10:25:20

For Information on the fungi listed in this report please visit the Resources section at [www.emsl.com](http://www.emsl.com)



9201 West Broadway North, Suite 600  
 Brooklyn Park, MN 55445  
 763-315-7900 1-800-233-9513

24 Hour TAT

2047

# IAQ Chain of Custody

Page 1 of 1

CLIENT NAME Jordan PS	PROJECT # 201410785	ANALYTICAL LAB EMSL	# OF SAMPLES @ \$	/sample
IEA CONTACT NAME Leslie Cogan	BUILDING NAME Jordan ES	VERBAL RESULTS A NO	# OF SAMPLES @ \$	/sample
PHONE # 763 315 7900	PROJECT NAME "Fungal Air Sampling"	WRITTEN SAMPLE RESULTS TO Deice Kuchta	# OF SAMPLES @ \$	/sample
FAX # 7976			TOTAL \$	

Sample #	Sample Location	Sample Type						Media Type Specific agar, filter tube, etc.	Area (in <sup>2</sup> ) VOL (L)	Instructions Type of analysis, analytical method requested, etc.	Comments & Observations Environmental factors-temp., RH, outdoor conditions, interior conditions, water stains, reported leaks, sample composition, etc.)
		Air	Bulk	Microvac	Swab	TI	Contact				
20811771	Outdoors	x						AOC	44.01	M001	3" No evidence of f.g. windy or moisture
21112430	Room 69	x						AOC	73.35		5"
21112437	Room 76	x						AOC	73.35		5"
20811729	Room 21	x						AOC	73.35		5"

OTHER INFORMATION

SAMPLED BY Julie Cleam	DATE 4/13/15	TIME 5:00 PM	ANALYZED BY (COMPANY)	DATE	TIME
SHIPPED BY	DATE	TIME	TURNAROUND TIME		
RECEIVED BY Cather wi	DATE 4/14/15	TIME 10:55 am			

# **Appendix B**

## *Sampling Methodology and Existing Guidelines*

## Existing Guidelines/Health Concerns for Fungi

High levels of fungi in the indoor environment are known to cause a variety of human health concerns and may constitute one aspect of environmental sensitivity known as “sick building syndrome.” Several fungal species are known to be allergenic, toxigenic, and/or pathogenic if present at elevated levels. However, the most common type of response is allergic in nature and is manifested by irritation to the respiratory system and eyes, sneezing, sinus congestion, and rhinitis.

The presence of fungi on building materials as identified by a visual assessment or by bulk/surface sampling results does not necessitate that people will be exposed or exhibit health effects. In order for humans to be exposed indoors, fungal spores, fragments, or metabolites must be released into the air and inhaled, physically contacted (dermal exposure), or ingested. Whether or not symptoms develop in people exposed to fungi depends on the nature of the fungal matter (e.g., allergenic, toxic, or infectious), the amount of exposure, and the susceptibility of the exposed persons. Susceptibility varies with the genetic predisposition (e.g., allergic reactions do not always occur in all individuals), age, state of health, and concurrent exposures. For these reasons, and because measurements of exposure are not standardized and biological markers of exposure to fungi are largely unknown, it is not possible to determine “safe” or “unsafe” levels of exposure in general.<sup>(1)</sup>

In mechanically-ventilated buildings with adequate filtration, the American Conference of Governmental Industrial Hygienists (ACGIH) has indicated that indoor bioaerosol levels should be less than the outdoor levels and the predominant species should be similar.<sup>(1)</sup> The publication also recommends the interpretation of bioaerosol data based on a combination of the following:

- ◆ indoor/outdoor concentration ratios,
- ◆ a comparison of species composition indoors and outdoors, and
- ◆ The presence of “indicator species” (those that indicate excessive moisture or a specific health hazard) isolated from the indoor environment.

---

1. New York City Department of Health, 2000. *Guidelines on Assessment and Remediation of Fungi in Indoor Environments*.  
2. ACGIH, 1999. *Bioaerosols: Assessment and Control*, §7.4.2 Fungi



## Sampling Methodologies

The total airborne fungal spore (spore trap) samples were collected with Air-O-Cell™ cassettes. This type of sampling involves impacting fungal spores and other structures onto a sticky medium. The samples provide an overview of the total number of airborne spores present (both viable and non-viable). A disadvantage of total spore trap samples is that some organisms have spores that are similar in appearance to each other and thus cannot be distinguished, as is the case with *Aspergillus* and *Penicillium* spores, which are reported as a group (*Aspergillus/Penicillium* like spores).

The air samples were collected with a Buck BioAire™ Bioaerosol Sampling Pump at a flow rate of 15 liters per minute. The samples were collected for 5 minutes for a total volume of 75 liters.

Sample analysis was performed by EMSL Analytical, Inc. of Minneapolis, Minnesota.