February 26, 2015

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

RE: Jordan Elementary School – Rooms 69, 76, and 79
Follow-up Fungal Air Sampling
IEA Project #201410785

Dear Mr. Helgerson:

IEA is pleased to provide this report for the follow-up fungal air sampling conducted at Jordan Elementary School in Jordan, Minnesota, on February 16, 2015. The purpose for the air sampling was to document conditions in the classrooms due to indoor air quality concerns. The current sampling is part of a proposed monthly sampling to be conducted for the remainder of the school year, to address concerns.

SAMPLE RESULTS AND DISCUSSION

IEA collected fungal air samples in Rooms 69, 76, and 79, 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.

CULTURABLE AIRBORNE FUNGAL RESULTS

- ***Rooms 69, 76, and 79***
  No fungal colonies were detected on the samples, indicating normal conditions at the time of sampling.

CONCLUSIONS/RECOMMENDATIONS

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.

George Rosburg
Project Manager
IEA-Mankato

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

GR/slj 022615

Enclosure

Appendix A

Laboratory Results

Prestige EnviroMicrobiology, Inc

AIHA Environmental Microbiology PAT Program participant
EMLAP Laboratory ID Number 192810
Website: www.prestige-em.com

Analytical Test Report

Client: Institute for Environmental Assessment, IEA, 9201 West Broadway North, Suite 600, Brooklyn Park, MN

Client Project: 201410785

Sample date: 2-16-2015

Submittal date: NA

Date samples received: 2-18-2015

Inoculation date: 2-16-2015 (Andersen)

Samples submitted by: G. Rosburg

Date analysis completed: February 25, 2015

Prestige report number: 150218-10

Culture Method (P006): Culture Analysis of Andersen Samples for Airborne Fungi

Prestige # Client sample ID Location	Air vol. (m^3)	Medium used	Fungal Identification	Colony counts	CFU/ m^3	Percentage
150218-10-051 021615-GR-01 Room 79	0.085	DG18	No fungal colony detected	ND	<12 Total <12	NA
150218-10-052 021615-GR-02 Room 76	0.085	DG18	No fungal colony detected	ND	<12 Total <12	NA
150218-10-053 021615-GR-03 Room 69	0.085	DG18	No fungal colony detected	ND	<12 Total <12	NA
150218-10-054 021615-GR-04 Outdoors	0.085	DG18	*Aspergillus nidulans* *Aspergillus penicillioides* *Cladosporium* sp. *Eurotium amstelodami*	1 1 1 1	12 12 12 12 Total 48	25% 25% 25% 25%

Report approved: Theresa Lehman

Theresa Lehman, MPH, Lab Director

Technical Manager:

Chin S Yang, Ph.D.

Analyst: Chin S. Yang, Ph.D.

1. The samples in this report were received in good, acceptable conditions. Prestige EnviroMicrobiology has not performed sample collection for the sample items listed in this report. Results relate only to the items tested.
2. Concentrations and percentages are rounded to the nearest two significant digits. Total percentage may not add up to 100% due to rounding. Percentage is for each group of fungal structures/fungi in total population.

3. Abbreviations where applicable: CMA = cornmeal agar, DG18 = Dichloran 18% glycerol agar, MEA = 2% malt extract agar, PCA = plate count agar, TSA = tryptic soy agar, ND = not detected, NA = not applicable.
4. All culture samples are incubated at 25±0.5ºC unless otherwise indicated.
5. The detection limit of this analysis is one fungal colony, one bacterial colony or one fungal structure. The analytical sensitivities vary from analysis to analysis or by air volume. For calculation of your analytical sensitivities, please visit our webpage http://prestige-em.com/index-tech.htm or contact us by calling 856-767-8300 or by email info@Prestigeem.com.

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150218-10

IAQ Chain of Custody

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

IEA

CLIENT NAME: Jordan Public Schools	PROJECT #: 201410785	ANALYTICAL LAB: Prestige	# OF SAMPLES @ $ /sample
IEA CONTACT NAME:	BUILDING NAME: Elementary School	VERBAL RESULTS: ☐ NO ☐ YES	# OF SAMPLES @ $ /sample
PHONE # FAX #	PROJECT NAME:	WRITTEN SAMPLE RESULTS TO:	# OF SAMPLES @ $ /sample
			TOTAL $

Sample #	Sample Location	Sample Type: Air	Bulk	Wipe	Swab	Tape	Chamber	Other	Media Type: Specific type, filter type, etc.	Area (sf) or VOL (L)	Instructions: Type of analysis, analytical method requested, etc.	Comments & Observations: Environmental factors - temp., RH, outdoor conditions, unusual conditions, visible stains, reported leaks, sample composition, etc.
021615-GR-1	Room 79	X							DG-18	85L	P006	
-2	Room 76	X										
-3	Room 69	X										
-4	Outdoors	X										

OTHER INFORMATION:

SAMPLED BY: G. Rosbuck	DATE: 2-16-15	TIME: 3:00pm	ANALYZED BY (COMPANY):	ANALYST:	DATE:	TIME:
SHIPPED BY:	DATE:	TIME:	TURNAROUND TIME: ☐ NORMAL ☐ RUSH ☐ OTHER			
RECEIVED BY: K. Bluck, PRESTIGE	DATE: 2-17-15	TIME: 9:55am				

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Appendix B

Existing Guidelines and Sampling Methodology

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.[1]

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.[1] 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.

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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

Fungal Air Samples – Culturable

Culturable airborne fungal samples were collected with a single-stage Andersen impact sampler, and DG-18 agar sample plates. The sampler was calibrated at 28.3 liters per minute, and was run for three minutes per sample for a total volume of 85 liters. The edge of each sample plate was sealed with masking tape to protect against cross-contamination. An outdoor reference sample was also collected.