Soil and Land Use Technology, Inc.
1818 New York Ave. NE, Ste 231, Washington, DC 20002
Telephone: (301) 595-3783
www.salutinc.com

June 26, 2019

Prince George's County Public School (PGCPS)
Environmental Safety Office
13306 Old Marlboro Pike
Upper Marlboro, MD 20772

Attention: Alex Baylor
alex.baylor@pgcps.org

Subject: Indoor Air Quality Survey
Duval High School
9880 Good Luck Road
Lanham, MD 20706

Mr. Baylor:

On June 2, 2019, a Soil and Land Use Technology, Inc. (SaLUT) Industrial Hygienist conducted an indoor air quality (IAQ) evaluation at Duval High School, a property maintained by Prince George's County Public Schools (PGCPS) located at 9880 Good Luck Rd., Lanham, MD 20706. The inspection was performed in accordance with PGCPS contract number IFB 022-19.

Methodology

The IAQ evaluation conducted by SaLUT included a visual assessment, IAQ instrumentation screening, and a collection of interior air samples for mold in representative locations throughout the building. Additionally, one building exterior environmental air sample was taken for comparison.

Air-borne fungal spore samples were collected on *Air-O-Cell* cassettes using a Buck BioAire calibrated pump. The air samples were taken between three and five feet from the ground. In tandem with collecting mold samples, real-time readings for carbon dioxide, carbon monoxide, temperature and relative humidity were collected using a Fluke 975 Air Meter in representative areas within the facility. A MiniRAE 3000-photoionization detector (PID) was used to measure total volatile organic compounds (TVOC).

Respirable particulate in air (size classes PM2.5µ and PM10µ) was measured using the Particles Plus 8306 Handheld Particle Counter which was calibrated prior to sampling. The fungal spore air samples were delivered to EMSL Analytical, Inc. of Beltsville,

Maryland for analysis. Fungal spores and particulates in air samples were analyzed by Optical Microscopy (methods EMSL 05-TP-003 and ASTM D7391). The sample chain-of-custody and laboratory reports are attached.

Observations

The table below summarizes the main observations from the IAQ survey at Duval High School, visited on June 2, 2019.

Table 1-Observations

Location	Summary of Observations 6-2-2019
Classroom 41B	2′ x 4′ ceiling tile and 1′x1′ tile floor; No visual signs of microbial growth, and no odor; No visible dust on floor/ other furniture surfaces.
Classroom 51	2′ x 4′ ceiling tile and 1′x1′ tile floor; No visual signs of microbial growth, and no odor; No visible dust on floor/other furniture surfaces.
Classroom 56	2′ x 4′ ceiling tile and 1′x1′ tile floor; No visual signs of microbial growth, and no odor; No visible dust on floor/other furniture surfaces.
Classroom 60	2′ x 4′ ceiling tile and 1′x1′ tile floor; No visual signs of microbial growth, and no odor; No visible dust on floor/other furniture surfaces.
Classroom 61	2′ x 4′ ceiling tile and 1′x1′ tile floor; No visual signs of microbial growth, and no odor; No visible dust on floor/other furniture surfaces.
Classroom 102	2′ x 4′ ceiling tiles and 1′x1′ tile floor; No visual signs of microbial growth, and no odor; No visible dust on floor/other furniture surfaces.
Classroom 108	2′ x 4′ ceiling tile and 1′x1′ tile floor; No visual signs of microbial growth, and no odor; No visible dust on floor/other furniture surfaces.
Classroom 123	2′ x 4′ ceiling tile and 1′x1′ tile floor; No visual signs of microbial growth, and no odor; No visible dust on floor/other furniture surfaces.
Classroom A- 208	2′x4′ ceiling tiles and 2′x2′ tile floor; No visual signs of microbial growth, and no odor; No visible dust on floor/other furniture surfaces.
Classroom A- 247	2′x4′ ceiling tiles and 2′x2′ tile floor; No visual signs of microbial growth, and no odor; No visible dust on floor/other furniture surfaces.
Hallway Adjacent to Classroom A-110	2′x4′ ceiling tiles and 1′x1′ tile floor; No visual signs of microbial growth, and no odor; No visible dust on floor/other furniture surfaces.

Location	Summary of Observations 6-2-2019
Hallway Adjacent to Classroom A-232	2′ x 4′ ceiling tile and 1′x1′ tile floor; No visual signs of microbial growth, and no odor; No visible dust on floor/other furniture surfaces.
Annex Office	2′ x 4′ ceiling tile and 1′x1′ tile floor; No visual signs of microbial growth, and no odor; No visible dust on floor/other furniture surfaces.
Front Entrance	2′ x 4′ ceiling tile and 4″ x 4″ tile floor; No visual signs of microbial growth, and no odor; No visible dust on floor/other furniture surfaces.

Measurements of Indoor Environmental Quality Parameters

Table 2 depicts a summary of average measurements of comfort parameters and respirable particulates.

Temperature

The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) have published recommendations for year round acceptable temperatures in Standard 55-2010 *Thermal Environmental Conditions for Human Occupancy*. The winter comfort range is 20 to 24°C (68 to 75°F) and 23 to 26°C (73 to 79°F) is the summer comfort range. The temperature readings were within the ASHRAE recommended ranges in the representative spaces with the exception of some readings which were slightly lower than the ASHRAE comfort level.

Relative Humidity (RH)

RH is a key factor for mold growth. Mold has the potential of growing on suitable surfaces with humidity levels above 60%. ASHRAE Standard 62.1-2010 *Ventilation for Acceptable Indoor Air Quality* recommends a maximum indoor RH of 65% to preclude the likelihood of condensation on cool surfaces encouraging mold growth. The RH readings were within the ASHRAE recommended ranges in the representative areas.

Carbon Dioxide (CO_2)

Under conditions of maximum occupancy, ASHRAE Standard 62.1-2010, Appendix C, infers that the acceptable CO_2 upper limit is the prevailing outdoor CO_2 concentration plus 700 parts per million (ppm). On the day of the space evaluation, the outdoor (building exterior) CO_2 concentration was approximately 518 ppm therefore indoor concentrations should not exceed approximately 1,218 ppm (700 + 518). The maximum average interior CO_2 concentration detected was 544 ppm in Front Entrance, a range within the ASHRAE recommendations, per Table 2 below.

Carbon Monoxide (CO)

CO is a colorless and odorless gas that is produced by the incomplete combustion of carbon containing fuels. Oil, gasoline, diesel fuels, wood, coke, and coal are major sources of CO. All registered CO concentrations were below the EPA National Ambient Air Quality Standard (NAAQS) of 9 ppm, per Table 2 below.

Respirable Particulates

Direct reading particulate monitoring did not identify a condition of concern. Particulate concentrations for two mass ranges with EPA ambient air quality guidelines (PM2.5 and PM10) were below their respective NAAQS levels. On June 2, 2019, the highest average PM2.5 concentration during the monitoring period was 0.003 mg/m^3 (3 $\mu g/m^3$) in hallway adjacent to Classroom 232. This is compared to the NAAQS primary standard for PM2.5 of 12 $\mu g/m^3$ annual mean. The highest average PM10 concentration during the same period was 0.041 mg/m^3 (41 $\mu g/m^3$) in hallway adjacent to Classroom 232. This is compared to NAAQS standard for PM10 of 150 $\mu g/m^3$ 24 hour average.

Total Volatile Organic Chemicals (TVOC)

LEED's standard of 500 $\mu g/m^3$ for TVOC (ANSI/ASHRAE Standard 62.1-2010) concentrations per the instrument's level of detection for a healthy commercial building were used as the standard for TVOCs for this survey. Concentrations below this value can be considered as "background levels" and, at such low concentrations, they are extremely unlikely to cause any adverse health conditions to the occupants. Generally, values below 3000 $\mu g/m^3$ are unlikely to cause more than mild irritation or headaches, but to date no recognized industry standard has been established for TVOCs. Perfumes, colognes, and air fresheners as well as certain cleaning chemicals can all cause temporary increases in TVOC readings. TVOC readings cannot be used to establish OSHA limits on specific VOCs or be attributed to specific compounds.

Table 2: Duval High School Instrumental Screening Levels
June 2, 2019

Sample Location	Temp °F	RH%	CO ppm	CO_2 ppm	PM 2.5 mg/m³	PM 10 mg/m³	TVOC ppm
Standards	ASHRAE 73 to 79°F*	ASHRAE <65%	NAAQS 9	ASHRAE 1,218	NAAQS 0.012	NAAQS 0.150	1.0
Classroom 41B	77.9	42.1	0	466	0.001	0.019	0
Classroom 51	71.6	53.0	0	475	0.002	0.029	0
Classroom 56	69.8	57.0	0	440	0.002	0.031	0
Classroom 60	77.9	50.3	0	476	0.001	0.035	0
Classroom 61	76.1	50.1	0	450	0.001	0.021	0
Classroom 102	79.0	52.1	0	495	0.002	0.028	0
Classroom 108	78.6	46.4	0	507	0.002	0.021	0
Classroom 123	76.1	38.9	0	467	0.001	0.026	0
Classroom 208	72.5	56.3	0	459	0.001	0.028	0
Classroom 247	71.8	54.7	0	439	0.001	0.031	0.1
Hallway Adjacent to Classroom 110	73.4	56.8	0	491	0.001	0.018	0
Hallway Adjacent to Classroom 232	74.5	53.3	0	443	0.003	0.041	0.1
Annex Office	76.1	57.2	0	492	0.002	0.021	0
Front Entrance	78.8	46.4	0	544	0.002	0.039	0
Outside Exterior EV Sample	84.2	44.9	0	518	0.003	0.048	0

PM – Particulate Matter size
°F – Degrees Fahrenheit
CO – Carbon Monoxide
ppm – parts per million
µg/m³ – micrograms per cubic meter
RH% - % Relative Humidity
CO_2 – Carbon Dioxide
*** - Summer Comfort Range**

Mold-in-Air Samples

There are no definitive regulations or standardized guidelines for addressing airborne mold in an indoor setting. If building systems (ventilation, envelope) are functioning properly, the indoor population profile should mimic what is encountered outdoors and the concentrations should be below the outdoor (building exterior) environmental sample levels.

Tables 3 summarizes airborne mold spore sampling results and locations. On June 2, 2019, total mold counts in representative samples (spore count/m³ of air) in all the areas inspected were lower than the outdoor concentrations. Laboratory analysis follows this report (see attachment).

Table 3: Duval High School - Measurements of Mold-in-Air Samples
June 2, 2019

Spore Types	Classroom 41B	Classroom 51	Classroom 56	Classroom 60
Alternaria (Ulocladium)	-	-	-	-
Ascospores	300	-	-	90
Aspergillus/Penicillium	40	-	-	40
Basidiospores	520	-	90	300
Bipolaris++	-	-	-	-
Chaetomium	-	-	-	-
Cladosporium	40	-	-	40
Curvularia	-	-	-	-
Epicoccum	-	-	-	-
Fusarium	-	-	-	-
Ganoderma	-	-	-	-
Myxomycetes++	-	-	-	-
Pithomyces++	-	-	-	-
Rust	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-
Unidentifiable Spores	-	-	-	-
Zygomycetes	-	-	-	-
Cercospora++	-	-	-	-
Odium	-	-	-	-
Hyphal Fragment	-	-	-	-
Insect Fragment	-	-	-	-
Pollen	-	-	-	-
Total Fungi	**900**	**0**	**90**	**470**

***Spore Counts per cubic meter of air (Counts/m^3).**
++Includes other spores with similar morphology.

Table 3: Duval High School - Measurements of Mold-in-Air Samples Continued
June 2, 2019

Spore Types	Classroom 61	Classroom 102	Classroom 108	Classroom 123
Alternaria (Ulocladium)	-	-	-	-
Ascospores	40	90	100	40
Aspergillus/Penicillium	-	-	40	-
Basidiospores	870	300	440	40
Bipolaris++	-	-	-	-
Chaetomium	-	-	-	-
Cladosporium	200	90	-	-
Curvularia	-	-	-	-
Epicoccum	-	-	-	-
Fusarium	-	-	-	-
Ganoderma	-	-	-	-
Myxomycetes++	-	-	-	-
Pithomyces++	-	-	-	-
Rust	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-
Unidentifiable Spores	-	-	-	-
Zygomycetes	-	-	-	-
Cercospora++	-	-	-	-
Odium	-	-	-	-
Hyphal Fragment	-	-	-	-
Insect Fragment	-	-	-	-
Pollen	-	-	-	10*
Total Fungi	**1,110**	**480**	**580**	**80**

***Spore Counts per cubic meter of air (Counts/m^3).**
++Includes other spores with similar morphology.

Table 3: Duval High School - Measurements of Mold-in-Air Samples Continued
June 2, 2019

Spore Types	Classroom A208	Classroom A247	Classroom A 110 Hallway	Hallway Adjacent to A232
Alternaria (Ulocladium)	-	-	-	-
Ascospores	-	-	40	40
Aspergillus/Penicillium	-	-	-	-
Basidiospores	90	40	200	200
Bipolaris++	-	-	-	-
Chaetomium	-	-	-	-
Cladosporium	100	-	90	100
Curvularia	-	-	-	-
Epicoccum	-	-	40	-
Fusarium	-	-	-	-
Ganoderma	-	-	-	-
Myxomycetes++	-	-	-	-
Pithomyces++	-	-	-	-
Rust	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-
Unidentifiable Spores	-	-	-	-
Zygomycetes	-	-	-	-
Cercospora++	-	-	-	-
Odium	-	-	-	-
Hyphal Fragment	-	-	-	-
Insect Fragment	-	-	-	-
Pollen	-	-	-	-
Total Fungi	**190**	**40**	**370**	**340**

***Spore Counts per cubic meter of air (Counts/m^3).**
++Includes other spores with similar morphology.

Table 3: Duval High School - Measurements of Mold-in-Air Samples Continued
June 2, 2019

Spore Types	Main Entrance	Annex Office	Outside Exterior EV Sample	Field Blank
Alternaria (Ulocladium)	-	-	-	-
Ascospores	90	-	1400	-
Aspergillus/Penicillium	90	-	90	-
Basidiospores	610	40	4300	-
Bipolaris++	-	-	-	-
Chaetomium	-	-	-	-
Cladosporium	90	-	610	-
Curvularia	-	-	-	-
Epicoccum	-	-	-	-
Fusarium	-	-	-	-
Ganoderma	-	-	90	-
Myxomycetes++	-	-	80*	-
Pithomyces++	-	-	-	-
Rust	-	-	10*	-
Scopulariopsis/Microascus	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-
Unidentifiable Spores	-	-	40	-
Zygomycetes	-	-	-	-
Cercospora++	-	-	10*	-
Oiduim	-	30*	-	
Hyphal Fragment	-	40	-	-
Insect Fragment	-	-	-	-
Pollen	-	30*	-	-
Total Fungi	**880**	**70**	**6,630**	**No Trace**

***Spore Counts per cubic meter of air (Counts/m^3).**
++Includes other spores with similar morphology.

Findings and Conclusions

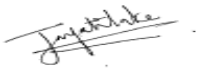
The comfort parameters (i.e., temperature, RH, CO_2, and CO levels) and respirable particulates in the representative areas conform to ASHRAE and/or NAAQS guidelines with the exception of some temperature readings which were slightly lower than the ASHRAE comfort level. On June 2, 2019, total mold counts in representative area samples (spore count/m^3 of air) in all the areas inspected were lower than the outdoor concentrations, indicating no amplified mold growth.

Recommendations

Based on the observations, mold spore results, and the results of the indoor air quality parameters tested, we have no recommendations at this time.

Thank you for the opportunity to provide industrial hygiene services for PGCPS. If you have any questions, please contact me at 301.595.3783.

Sincerely,



Chaminda Jayatilake, PE, CIH, CSP, CHMM
Certified Industrial Hygienist
Soil and Land Use Technology Inc. (SaLUT)

Attachment

Attachment - Mold Spore Sample Analytical Results and Chain-of-Custody Forms

Attachment

Mold Spore Sample Analytical Results and Chain-of-Custody Forms

EMSL Analytical, Inc.

528 Mineola Avenue Carle Place, NY 11514

Tel/Fax: (516) 997-7251 / (516) 997-7528

http://www.EMSL.com / carleplacelab@emsl.com

EMSL Order: 061910932
Customer ID: SALU50
Customer PO:
Project ID:

Attn: Indika Jayatilake
SaLUT
1818 New York Avenue, NE
Suite 218A
Washington, DC 20002
Project: PGCPS IAQ/19-035 Duval HS

Phone: (301) 595-3783
Fax: (301) 595-3787
Collected: 06/02/2019
Received: 06/03/2019
Analyzed: 06/06/2019

Test Report: Air-O-Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number:	061910932-0001			061910932-0002			061910932-0003		
Client Sample ID:	28398655			28398873			28398893		
Volume (L):	75			75			75		
Sample Location	Classroom 102			Classroom 56			Classroom A208		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	2	90	18.8	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	-	-	-	-	-	-
Basidiospores	6	300	62.5	2	90	100	2	90	47.4
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	2	90	18.8	-	-	-	3	100	52.6
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Cercospora++	-	-	-	-	-	-	-	-	-
Oidium	-	-	-	-	-	-	-	-	-
Total Fungi	**10**	**480**	**100**	**2**	**90**	**100**	**5**	**190**	**100**
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	1	-	-	1	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	2	-	-	1	-	-	1	-

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.

Jeffrey Lau, Microbiology Laboratory Manager
or other approved signatory

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. Carle Place, NY AIHA-LAP, LLC--EMLAP Accredited #102344

Initial report from: 06/09/2019 10:29:40

For information on the fungi listed in this report, please visit the Resources section at www.emsl.com

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Test Report: Air-O-Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number:	061910932-0004			061910932-0005			061910932-0006		
Client Sample ID:	28398693			28398870			28398880		
Volume (L):	75			75			75		
Sample Location	Classroom 123			Classroom 60			Classroom 61		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	1	40	50	2	90	19.1	1	40	3.6
Aspergillus/Penicillium	-	-	-	1	40	8.5	-	-	-
Basidiospores	1	40	50	7	300	63.8	20	870	78.4
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	1	40	8.5	4	200	18
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Cercospora++	-	-	-	-	-	-	-	-	-
Oidium	-	-	-	-	-	-	-	-	-
Total Fungi	**2**	**80**	**100**	**11**	**470**	**100**	**25**	**1110**	**100**
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	1*	10*	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	1	-	-	1	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	-	-	1	-

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.

Jeffrey Lau, Microbiology Laboratory Manager
or other approved signatory

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Lab Sample Number:	061910932-0007			061910932-0008			061910932-0009		
Client Sample ID:	28398863			28398614			28398659		
Volume (L):	75			75			75		
Sample Location	Classroom 108			Classroom 41B			Opposite A 110 Hallway		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	3	100	17.2	6	300	33.3	1	40	10.8
Aspergillus/Penicillium	1	40	6.9	1	40	4.4	-	-	-
Basidiospores	10	440	75.9	12	520	57.8	4	200	54.1
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	1	40	4.4	2	90	24.3
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	1	40	10.8
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Cercospora++	-	-	-	-	-	-	-	-	-
Oidium	-	-	-	-	-	-	-	-	-
Total Fungi	**14**	**580**	**100**	**20**	**900**	**100**	**8**	**370**	**100**
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	1	-	-	1	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	-	-	1	-

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.

Jeffrey Lau, Microbiology Laboratory Manager
or other approved signatory

Initial report from: 06/09/2019 10:29:40

For information on the fungi listed in this report, please visit the Resources section at www.emsl.com

EMSL Analytical, Inc.

528 Mineola Avenue Carle Place, NY 11514

Tel/Fax: (516) 997-7251 / (516) 997-7528

http://www.EMSL.com / carleplacelab@emsl.com

EMSL Order: 061910932
Customer ID: SALU50
Customer PO:
Project ID:

Attn: Indika Jayatilake
SaLUT
1818 New York Avenue, NE
Suite 218A
Washington, DC 20002
Project: PGCPS IAQ/19-035 Duval HS

Phone: (301) 595-3783
Fax: (301) 595-3787
Collected: 06/02/2019
Received: 06/03/2019
Analyzed: 06/06/2019

Test Report: Air-O-Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number:	061910932-0010			061910932-0011			061910932-0012		
Client Sample ID:	28399068			28398624			28398622		
Volume (L):	75			75			75		
Sample Location	Classroom A 247			Main Entrance			Classroom 51		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	2	90	10.2	-	-	-
Aspergillus/Penicillium	-	-	-	2	90	10.2	-	-	-
Basidiospores	1	40	100	14	610	69.3	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	2	90	10.2	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Cercospora++	-	-	-	-	-	-	-	-	-
Oidium	-	-	-	-	-	-	-	-	-
Total Fungi	**1**	**40**	**100**	**20**	**880**	**100**	**-**	**0**	**-**
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	1	-	-	1	-	-	-	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	-	-
Background (1-5)	-	1	-	-	1	-	-	-	-

061910932-0012 - Not Analyzed

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.

Jeffrey Lau, Microbiology Laboratory Manager
or other approved signatory

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Attn: Indika Jayatilake
SaLUT
1818 New York Avenue, NE
Suite 218A
Washington, DC 20002
Project: PGCPS IAQ/19-035 Duval HS

Phone: (301) 595-3783
Fax: (301) 595-3787
Collected: 06/02/2019
Received: 06/03/2019
Analyzed: 06/06/2019

Test Report: Air-O-Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number:	061910932-0013			061910932-0014			061910932-0015		
Client Sample ID:	28398665			28398609			28398881		
Volume (L):	75			75			75		
Sample Location	Hallway Adj A 232			Annex Office			Outside Exterior EV Sample		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	1	40	11.8	-	-	-	31	1400	21.1
Aspergillus/Penicillium	-	-	-	-	-	-	2	90	1.4
Basidiospores	4	200	58.8	1	40	57.1	98	4300	64.9
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	3	100	29.4	-	-	-	14	610	9.2
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	2	90	1.4
Myxomycetes++	-	-	-	-	-	-	6*	80*	1.2
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	1*	10*	0.2
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	1	40	0.6
Zygomycetes	-	-	-	-	-	-	-	-	-
Cercospora++	-	-	-	-	-	-	1*	10*	0.2
Oidium	-	-	-	2*	30*	42.9	-	-	-
Total Fungi	**8**	**340**	**100**	**3**	**70**	**100**	**156**	**6630**	**100**
Hyphal Fragment	-	-	-	1	40	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	2*	30*	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	1	-	-	2	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	-	-	1	-

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.

Jeffrey Lau, Microbiology Laboratory Manager
or other approved signatory

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. Carle Place, NY AIHA-LAP, LLC--EMLAP Accredited #102344

Initial report from: 06/09/2019 10:29:40

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Attn: Indika Jayatilake
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1818 New York Avenue, NE
Suite 218A
Washington, DC 20002
Project: PGCPS IAQ/19-035 Duval HS

Phone: (301) 595-3783
Fax: (301) 595-3787
Collected: 06/02/2019
Received: 06/03/2019
Analyzed: 06/06/2019

Test Report: Air-O-Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number:	061910932-0016		
Client Sample ID:	28398637		
Volume (L):			
Sample Location	Field Blank		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-
Ascospores	-	-	-
Aspergillus/Penicillium	-	-	-
Basidiospores	-	-	-
Bipolaris++	-	-	-
Chaetomium	-	-	-
Cladosporium	-	-	-
Curvularia	-	-	-
Epicoccum	-	-	-
Fusarium	-	-	-
Ganoderma	-	-	-
Myxomycetes++	-	-	-
Pithomyces++	-	-	-
Rust	-	-	-
Scopulariopsis/Microascus	-	-	-
Stachybotrys/Memnoniella	-	-	-
Unidentifiable Spores	-	-	-
Zygomycetes	-	-	-
Cercospora++	-	-	-
Oidium	-	-	-
Total Fungi	**-**	**No Trace**	**-**
Hyphal Fragment	-	-	-
Insect Fragment	-	-	-
Pollen	-	-	-
Analyt. Sensitivity 600x	-	0	-
Analyt. Sensitivity 300x	-	0*	-
Skin Fragments (1-4)	-	-	-
Fibrous Particulate (1-4)	-	-	-
Background (1-5)	-	-	-

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.

Jeffrey Lau, Microbiology Laboratory Manager
or other approved signatory

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.

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OrderID: 061910932

EMSL ANALYTICAL, INC.
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Microbiology Chain of Custody

EMSL Order Number (*Lab Use Only*): 061910932

PHONE:
FAX:

Company Name: SaLUT Inc.	**EMSL-Bill to:** ☒ Same ☐ Different If Bill to is Different note instructions in Comments** *Third Party Billing requires written authorization from third party*
Street: 1818 New York Ave NE Suite 231	
City: Washington **State/Province:** DC	**Zip/Postal Code:** 20002 **Country:** USA
Report To (Name): Indika Jayatilake	**Telephone #:** 301-595-3783
Email Address: ijayatilake@salutinc.com	**Fax #:** **Purchase Order:**
Project Number/Location: PGCPS IAQ/19-035 Duval HS	**Please Provide Results:** ☐ Fax ☒ Email
Location Address: 9880 Good Luck Road, Lanham MD	**Connecticut Samples:** ☐ Commercial ☐ Residential

**Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide. TATs are subject to methodology requirements*

Sterile, Sodium Thiosulfate Preserved Bottle Used: ☐ **Biocide Used in Source (specify):** _____ ☐

Public Water Supply Samples: ☐ **Note: All results may automatically be reported to DOH if required by state.**

Turnaround Time (TAT) Options * - Please Check

☐ 3 Hour	☐ 6 Hour	☐ 24 Hour	☐ 48 Hour	☐ 72 Hour	☐ 96 Hour	☒ 1 Week	☐ 2 Week

Microbiology Test Codes

M001 Air-O-Cell
M030 Micro 5
M174 MoldSnap
M032 Allergenco-D
M041 Fungal Direct Examination
M169 Pollen ID & Enumeration
M280 Dust Characterization Level-1
M281 Dust Characterization Level-2
M005 Viable Fungi- Air Samples (Genus ID & Count)
M006 Viable Fungi- Air Samples (Includes *Penicillium, Aspergillus, Cladosporium, Stachybotrys* Species ID & Count)
M007 Culturable fungi - Surface Samples (Genus ID & Count)
M008 Culturable fungi - Surface Samples (Includes *Penicillium, Aspergillus, Cladosporium, Stachybotrys* Species ID & Count)
M009 Bacteria Culture Gram Stain & Count
M010 Bacteria Count & ID - 3 Most Prominent
M011 Bacteria Count & ID - 5 Most Prominent
M012 Pseudomonas aeruginosa (P/A***)

M024 Pseudomonas aeruginosa (MFT*)
M015 Heterotrophic Plate Count
M017 Total Coliform & E. coli (Colilert P/A***)
M018 Total Coliform & E. coli (MFT*)
M114 Total Coliform & E. coli Enumeration (Colilert MPN**)
M019 Fecal Coliform (MFT*)
M020 Fecal Streptococcus (MFT*)
M029 Enterococci (MFT*)
M129 Enterococci (Enterolert P/A***)
M180 Real Time qPCR-ERMI 36 Panel
M025 Sewage Screen –Water (MFT*)

M115 Sewage Screen - Water (P/A***)
M116 Sewage Screen - Water (MPN**)
M117 Sewage Screen - Swab (P/A***)
M013 Sewage Screen - Swab (MFT*)
M133 Methicillin-resistant Staph. aureus (MRSA)
M031 Rapid-growing non-TB Mycobacteria - Detection & Enumeration
M014 Endotoxin Analysis
M044 Group Allergen (Cat, Dog, Cockroach, Dust Mite)
Other See Analytical Price Guide
Legionella Analysis Please use EMSL Legionella COC

*MFT= Membrane Filtration Technique
**MPN= Most Probable Number
***P/A= Presence/Absence

Name of Sampler: Jude Fonseka **Signature of Sampler:**

Sample #	Sample Location/Description	Sample Type	Potable/ NonPotable (only for waters)	Test Code	Volume/ Area	Date/Time Collected	Temperature (°C) (Lab Use Only)
28398655	Classroom 102	Air	☐P ☐NP	M001	75L	6/2/2019	
28398873	Classroom 56	Air	☐P ☐NP	M001	75L	6/2/2019	
28398893	Classroom A208	Air	☐P ☐NP	M001	75L	6/2/2019	
28398693	Classroom 123	Air	☐P ☐NP	M001	75L	6/2/2019	
28398870	Classroom 60	Air	☐P ☐NP	M001	75L	6/2/2019	
28398880	Classroom 61	Air	☐P ☐NP	M001	75L	6/2/2019	

Client Sample # (s): - **Total # of Samples:** 16 **Samples Received Chilled? Yes / No**

Relinquished (Client): **Date:** **Time:**

Received (Lab): Hamin Ramara **Date:** 6/5/2019 **Time:** 11:25

Comments/Special Instructions: Walk-In

6/6/19

OrderID: 061910932

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Microbiology Chain of Custody

EMSL Order Number (*Lab Use Only*):

061910937

PHONE:
FAX:

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	Sample Location/Description	Sample Type	Potable/ NonPotable	Test Code	Volume/ Area	Date/Time Collected	Temperature (°C) (Lab Use Only)
28398863	Classroom 108	Air	☐P ☐NP	M001	75L	6/2/2019	
28398614	Classroom 41B	Air	☐P ☐NP	M001	75L	6/2/2019	
28398659	Opposite A 110 Hallway	Air	☐P ☐NP	M001	75L	6/2/2019	
28399068	Classroom A 247	Air	☐P ☐NP	M001	75L	6/2/2019	
28398624	Main Entrance	Air	☐P ☐NP	M001	75L	6/2/2019	
28398622	Classroom 51	Air	☐P ☐NP	M001	75L	6/2/2019	
28398665	Hallway Adj A 232	Air	☐P ☐NP	M001	75L	6/2/2019	
28398609	Annex Office	Air	☐P ☐NP	M001	75L	6/2/2019	
28398881	Outside Exterior EV Sample	Air	☐P ☐NP	M001	75L	6/2/2019	
28398637	Field Blank	N/A	☐P ☐NP	N/A	N/A	6/2/2019	
			☐P ☐NP				
			☐P ☐NP				
			☐P ☐NP				
			☐P ☐NP				
			☐P ☐NP				
			☐P ☐NP				
			☐P ☐NP				
			☐P ☐NP				
			☐P ☐NP				
			☐P ☐NP				
			☐P ☐NP				
			☐P ☐NP				
			☐P ☐NP				

Comments/Special Instructions: