

March 10, 2021

Mr. Alex Baylor
Environmental Specialist
Environmental Safety Office
Prince George's County Public Schools
Division of Supporting Services / Building Services
13306 Old Marlboro Pike
Upper Marlboro, MD 20772

via email: alex.baylor@pgcps.org

**RE: Indoor Air Quality (IAQ) and Mold Assessment Services
Prince George's County Public Schools (PGCPS) – Kingsford Elementary School
1401 Enterprise Road, Mitchellville, Maryland 20721
Contract No.: IFB 022-19: Indoor Air Quality Services at Various Locations
Tidewater Project No.: 5419-052**

Dear Mr. Baylor:

Tidewater, Inc. (Tidewater) is pleased to present this final report regarding the results of the Indoor Air Quality (IAQ) and Mold Assessment Services conducted by Tidewater at Kingsford Elementary School located at 1401 Enterprise Road, in Mitchellville, Maryland. Tidewater's Project Manager and Certified Industrial Hygienist, Mr. Skanda Abeyesekere MS, CIH, CSP, CHMM conducted these services on January 29, 2021. Re-sampling of areas with elevated mold concentrations was conducted on March 5, 2021.

The scope of work for the IAQ assessment and mold survey included:

- Inspecting, taking direct read measurements and conducting air sampling at the following select areas of the school: Room 106, Media Center, Room 138, Room 130, Room 127, Room 120, Vocal Music Room 117, Room 115 and Classroom 113. These areas were inspected for evidence of potential indoor air quality problems (including suspect microbial growth, water damage, chemical use/ storage, drain traps, sources of allergens/ contaminants, etc.) that may contribute to indoor air quality problems;
- Taking direct read air measurements for comfort parameters including temperature (T), relative humidity (RH), carbon dioxide (CO₂), and carbon monoxide (CO) for comparison with standards established by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 62.1–2019, *Ventilation for Acceptable Indoor Air Quality*, and The United States Environmental Protection Agency (US EPA) National Ambient Air Quality Standards (NAAQS);
- Taking direct read measurements for Particulate Matter less than 10 microns (PM₁₀) for comparison with standards established by the US EPA NAAQS Final Action (December 7, 2020); and
- Air sampling for microbial spores in the above locations for total airborne fungal spore analysis.



Visual Observation

The school building was occupied by a limited number of staff, and no students were present at the time of the survey because of the on-going COVID-19 pandemic. The majority of the classrooms and other common areas inspected were vacant. The results of Tidewater's visual inspection are presented below:

Room 106

No signs of ongoing water-intrusion problems or suspect mold growth were observed. Furthermore, no notable odors were detected. The ceiling-mounted supply grills appeared to have deposits of rust. The fan coil units were operating and were emitting warm air at the time of the inspection. Room 106 was clean and well maintained. Housekeeping was satisfactory.

Media Center

No signs of ongoing water-intrusion problems or suspect mold growth were observed in the Media Center. Furthermore, no notable odors were detected. The ceiling-mounted air supply grills and wall-mounted return air grills were clean. The Media Center was clean and well maintained.

Room 138

No signs of ongoing water-intrusion problems or suspect mold growth were observed. Furthermore, no notable odors were detected. The ceiling-mounted supply air grills were clean. The fan coil units were emitting warm air at the time of the inspection. Housekeeping was satisfactory.

Room 130

No suspect mold growth nor notable odors were detected. The ceiling-mounted supply air grills appeared to be clean. The fan coil units were not operating at the time of the inspection. Housekeeping was satisfactory.

Room 127

No signs of ongoing water-intrusion problems or suspect mold growth were observed. Furthermore, no notable odors were detected. The ceiling-mounted air supply grills were clean. A few displaced ceiling tiles were observed. Housekeeping was satisfactory.

Room 120

No suspect mold growth nor notable odors were detected. The ceiling-mounted supply air grills appeared to be clean. The fan coil units were not operating at the time of the inspection. The Room was clean and well maintained. A few ceiling-mounted light covers were dismantled.

Vocal Music Room 117

No signs of ongoing water-intrusion problems or suspect mold growth were observed. Furthermore, no notable odors were detected. The ceiling-mounted supply air grills were clean. The fan coil units were emitting warm air at the time of the inspection. The Room was clean and well maintained.

Room 115

No suspect mold growth nor notable odors were detected. The ceiling-mounted supply air grills appeared to be clean. The fan coil units were not operating at the time of the inspection.

Housekeeping was satisfactory.

Room 113

No suspect mold growth nor notable odors were detected. The ceiling-mounted supply air grills appeared to be clean. The fan coil units were not operating at the time of the inspection. The Room was clean and well maintained. Housekeeping was satisfactory.

Comfort Parameter Air Testing

During the IAQ assessment, Tidewater obtained temperature (T), relative humidity (RH), carbon dioxide (CO₂), and carbon monoxide (CO) measurements within select locations using a TSI VelociCalc Indoor Air Quality instrument (Model Number 9565-X, Serial Number 9565X 1945 002, Calibration Date: November 8, 2019.) Measurements were taken after allowing the instrument to become acclimated to the ambient temperature and relative humidity for approximately five (5) minutes. Measurements were taken over a 5-minute time period at each designated location and the average concentration was recorded. Samples were obtained for comparison with standards established by the American Society for Heating Refrigeration and Air Conditioning (ASHRAE) Standard 62.1 – 2019, *Ventilation for Acceptable Indoor Air Quality*. Tidewater also obtained an “outdoors background” [Exterior] measurement in front of the main entrance of the school building for comparison to the interior readings. The results of the IAQ comfort parameter monitoring are provided in Table 1, in **Attachment A**.

According to the American Society for Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1 – 2019, *Ventilation for Acceptable Indoor Air Quality*, the temperature range in summer months should be maintained between 73.0°F and 79.0°F for maximum occupant comfort. The ASHRAE standard for temperature for winter months is between 68.0°F and 74.5°F. The indoor temperature levels within the assessed areas on January 29, 2021 ranged between 62.6°F and 70.3°F. The background temperature outside the building was 38.6°F. The temperature levels recorded within Room 106, Room 130, Room 120, Room 127 and Room 115 were below the lower temperature standard of 68.0°F recommended by ASHRAE for winter months. Most areas inspected were vacant at the time of the inspection. Indoor temperature levels fluctuate with the number of occupants present within the work area. The temperature levels in these areas are likely to be within ASHRAE standards when they are re-occupied.

Per the same ASHRAE standard, a maximum relative humidity level of 65.0% or below is recommended to reduce the likelihood of condensation on cold surfaces. Relative humidity levels within the assessed areas on January 29, 2021 ranged between 10.9% and 18.8%. The background relative humidity level outside the building was 17.0%. The relative humidity levels in all areas assessed were below the ASHRAE recommended maximum relative humidity standard of 65.0%.

ASHRAE Standard 62.1 – 2019 recommends that indoor CO₂ levels not exceed 700 ppm above the outdoor background CO₂ level. The CO₂ levels in the assessed areas on January 29, 2021 ranged between 447 ppm and 496 ppm. The background CO₂ level outside the building was 448 ppm. The CO₂ levels within all interior locations assessed did not exceed 700 ppm above the outdoor background CO₂ level of 448 ppm.

The CO levels in all areas assessed on January 29, 2021 were below the maximum standard of 9.0 ppm recommended by the Indoor Air Quality Association (IAQA) for CO in occupied indoor environments.

Particulate Matter Less Than 10 microns (PM10)

During the assessment, Tidewater obtained particulate matter less than 10 microns (PM10) dust particulate measurements within select locations using a TSI® DUST TRAK II™ Aerosol Monitor (Model 8534, Serial Number 8534170101.) Measurements were taken after allowing the device to become acclimated to the ambient temperature and relative humidity for five (5) minutes. Measurements were taken over a 5-minute time period at each sampling location and the average concentration was recorded for comparison with standards established by the US EPA NAAQS Final Action (December 7, 2020.)

Tidewater also obtained an “outdoor background” [Exterior] sample in front of the main entrance of the school building for comparison to the interior readings.

The results of the particulate matter sampling are provided in Table 2, in **Attachment A**.

Based on the EPA NAAQS for Particulate Matter, Final Action (December 7, 2020), the 24-hour primary and secondary exposure standard for particulate matter less than 10 microns (PM10) is 150.0 micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$) or 0.150 milligrams per cubic meter of air (mg/m^3 .) The results of the PM10 analysis indicate that the average PM10 dust concentrations in all assessed areas ranged between 0.000 mg/m^3 and 0.007 mg/m^3 . The average PM10 dust concentration in the background sample obtained outside the building was 0.002 mg/m^3 . The PM10 concentrations in all areas assessed were below the EPA 24-hour primary and secondary NAAQS of 0.150 mg/m^3 .

Spore Trap Bioaerosol Sampling

Tidewater collected spore trap air samples from the same locations where the comfort parameters were recorded. Tidewater obtained the spore trap samples using Allergenco-D cassettes affixed to a Buck BioAire™ Bioaerosol Sampling Pump (Pump Model Number B520 and Serial Number B153043) calibrated to a flow rate of 15.0 Liters per minute. Each sample was run for a period of five (5) minutes to collect a total sample volume of 75.0 liters of air. Tidewater also obtained an “outdoor background” [Exterior] sample in front of the main entrance of the school building for comparison to the interior readings.

Once collected, the samples were transported to EMSL Analytical Laboratory (EMSL) located in Beltsville, Maryland for analysis via a standard turn-around time. The samples were transported following rigorous chain-of-custody guidelines to ensure proper handling and delivery of the samples. EMSL is accredited in the American Industrial Hygiene Association (AIHA) Environmental Microbiology Laboratory Accreditation Program (EMLAP) and is a successful participant in AIHA's Environmental Microbiology Proficiency Analytical Testing (EMPAT) program (Laboratory Number 102891.) The samples were analyzed via light microscopy at the standardized magnification of 600X. This technique does not allow for the differentiation between *Aspergillus* and *Penicillium* spores because they are morphologically identical. Additionally, the technique does not allow for cultivation, or the identification of spores to the species level, except in a few cases.



There are no universally accepted federal or State of Maryland standards for acceptable airborne concentrations of bioaerosols in an indoor occupational environment. In general, indoor airborne concentrations should be less than that found in the outdoor air, with similar species composition. Indoor spore counts significantly greater than those identified in the outdoors environment, or the presence of large numbers of different types of spores identified in indoor versus the outdoor environments, may indicate contamination and potential indoor air quality problems.

The total mold spore counts in all assessed areas of the school ranged between 100 spores/m³ and 1,010 spores/m³. The total mold spore concentration in the background sample was 170 spores/m³. The total mold spore concentration in sample KES-6 was higher than the total mold spore concentration of the background sample (KES-BG.) The concentration of *Aspergillus/ Penicillium* spores identified in sample KES-6 was also significantly higher than the concentration of *Aspergillus/ Penicillium* spores detected in the background sample KMS-BG.

In addition, species of the genus *Stachybotrys* was identified in relatively low concentrations (40 spores/m³) in samples KES-3 and KES-4. Building materials that are extremely wet for extended periods of time or a relative humidity of 90% or higher is necessary for *Stachybotrys* to germinate and grow.

The area with elevated mold spores were re-sampled on March 5, 2021 following cleanup activities. The results indicated that the total mold spore concentrations in the interior location was consistent with those observed in the background sample. The results did not indicate elevated levels of airborne total fungal spores in the interior location sampled.

The summary of the results for the spore trap sampling are provided in Table 3 in **Attachment A**. The laboratory analytical results, including speciation and chain of custody forms for the spore trap samples are included in **Attachment B**.

CONCLUSIONS

- The following issues were identified during the visual inspections:
 - Room 106: The ceiling-mounted supply air grills appeared to have rust deposits.
 - Room 120: A few ceiling-mounted light covers were dislodged.
- The temperature levels recorded within Room 106, Room 130, Room 120, Room 127 and Room 115 were below the lower temperature standard of 68.0°F recommended by ASHRAE for winter months.
- The Relative humidity, CO₂, CO readings and particulate matter less than 10 microns (PM10) recorded within the assessed areas were within industry standards and guidelines.
- The total mold spore concentrations in all interior locations assessed were below the background sample concentration and were also consistent with those observed in the background sample. The results do not indicate elevated levels of airborne total fungal spores in the interior locations sampled.



RECOMMENDATIONS

Based on the results of our visual inspection, Tidewater proposes the following:

- The following area should be cleaned with a commercially available (EPA approved) disinfectant on a routine basis to remove dust and grime buildup.
 - The ceiling-mounted air supply grills in Room 106.
- Fix the dislodged light covers in Room 120 so that they fit snugly into the light fixture.
- Adjust thermostat of the Heating Ventilation and Air Conditioning (HVAC) System supplying air to the classrooms and common areas to achieve a temperature level between 68.0°F and 74.5°F recommended for winter months per ASHRAE Standard 62.1 – 2019, *Ventilation for Acceptable Indoor Air Quality*.
- Ensure the Heating Ventilation and Air Conditioning (HVAC) System supplying air to all common areas and classrooms is properly balanced per design requirements and are turned on and are operating at all times to ensure adequate ventilation throughout the classrooms and common areas before the school re-opens.
- Maintain good housekeeping practices in all common areas and classrooms. All common area and classrooms floors should be broom cleaned at the end of each day once the school re-opens for students. Furthermore, all horizontal surfaces including desktops, furniture, window sills, and light fixtures should be cleaned on a routine basis to prevent the accumulation of dust.

Qualifications

Tidewater endeavored to investigate existing conditions in select areas of Kingsford Elementary School located at 1401 Enterprise Road, in Mitchellville, Maryland as they pertain to indoor air quality and mold contamination. Our conclusions and recommendations are based on observations made on the day of our assessment, laboratory data from the time of the assessment, and information provided by both our Client and the area occupants. Actual conditions vary from day to day throughout the year.

Tidewater appreciates the opportunity to provide Industrial Hygiene consulting services for Prince George’s County Public Schools. Please contact us should any questions arise concerning this report or if we may be of further assistance.

Sincerely,

Tidewater, Inc.

Skanda Abeysekere, MS, CIH, CSP, CHMM
Project Manager

SA/JNS

Jonathan N. Schatz, MS
Manager, IH Services



- Attachments: **Attachment A – Summary of Comfort Parameters, PM10 Particulate Dust, and Microbial Results**
Attachment B – Laboratory Reports and Chain of Custody Forms
Attachment C – Instrument Calibration Certificates
Attachment D – Relevant Certifications
Attachment E – Floor Plan with Sampling Locations



TIDEWATER INC

ENGINEERS / SCIENTISTS / PROGRAM MANAGERS

APPENDIX A

**COMFORT PARAMETERS, PM10 PARTICULATE DUST, AND
MICROBIAL RESULTS**



Table 1: Indoor Air Quality Comfort Parameters Kingsford Elementary School				
Location	Temperature (°F)	Carbon Dioxide (ppm)	Relative Humidity (%)	Carbon Monoxide (ppm)
January 29, 2021				
Room 106	65.7	496	18.8	0.0
Media Center	69.2	466	13.7	0.0
Room 138	69.0	447	10.9	0.0
Room 130	66.0	447	15.1	0.0
Room 127	68.6	492	15.1	0.0
Room 120	65.6	456	12.8	0.0
Room 117 (Music Room)	62.6	454	17.0	0.0
Room 115	65.0	455	16.4	0.0
Room 113	70.3	475	13.8	0.0
Background (Outdoors)	38.6	448	17.0	0.3

*Highlighted Areas indicate locations in which temperature levels were below the standards established by the American Society for Heating Refrigeration and Air Conditioning (ASHRAE) Standard 62.1 – 2019 recommended standards for winter months.



Table 2: Particulate Matter Less than 10 Microns (PM10) Kingsford Elementary School	
Location	Particulate Matter (PM10)
	Concentration (mg/m³)
January 29, 2021	
Room 106	0.000
Media Center	0.003
Room 138	0.002
Room 130	0.007
Room 127	0.001
Room 120	0.002
Room 117 (Music Room)	0.000
Room 115	0.000
Room 113	0.000
Background (Outdoors)	0.002



Table 3: Spore Trap Sampling Results Kingsford Elementary School				
January 29, 2021				
Sample Number	Sample Location	Sample Volume (L)	<i>Aspergillus Penicillium</i> Concentration (Counts/m³)	Total Fungi Concentration (Counts/m³)
KES-1	Room 106	75.0	70	120
KES-2	Media Center	75.0	40	140
KES-3	Room 138**	75.0	80	280
KES-4	Room 130**	75.0	300	420
KES-5	Room 127	75.0	80	330
KES-6	Room 120	75.0	1,000	1,010
KES-7	Room 117 (Music Room)	75.0	450	450
KES-8	Room 115	75.0	300	340
KES-9	Room 113	75.0	100	100
KES-BG	Background (Outdoors)	75.0	40	170

* Highlighted Areas indicate locations with a significantly high concentration of Total mold spores and/ or *Aspergillus/ Penicillium* spores when compared with the background sample.

** *Stachybotrys* identified in these samples.



Table 3: Spore Trap Sampling Results Kingsford Elementary School				
March 5, 2021				
Sample Number	Sample Location	Sample Volume (L)	<i>Aspergillus Penicillium</i> Concentration (Counts/m³)	Total Fungi Concentration (Counts/m³)
030521-KES-BG	Classroom 120	75.0	None Detected	100
030521-KES-BG	Background (Outdoors)	75.0	None Detected	80



APPENDIX B

LABORATORY REPORTS AND CHAIN OF CUSTODY FORMS



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-0262

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

EMSL Order: 372101482

Customer ID: TIDE50

Customer PO:

Project ID:

Attention: Skanda Abeyeskere
Tidewater, Inc.
6625 Selnick Drive
Suite A
Elkridge, MD 21075

Phone: (410) 540-8700

Fax: (410) 997-8713

Collected Date: 01/29/2021

Received Date: 02/01/2021

Analyzed Date: 02/03/2021

Project: Kingsford ES

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

Lab Sample Number:	372101482-0001			372101482-0002			372101482-0003		
Client Sample ID:	KES-1			KES-2			KES-3		
Volume (L):	75			75			75		
Sample Location:	Room 106			Media Center			Room 138		
Spore Types	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	1*	10*	8.3	1*	10*	7.1	-	-	-
Aspergillus/Penicillium	5*	70*	58.3	1	40	28.6	2	80	28.6
Basidiospores	-	-	-	1*	10*	7.1	2	80	28.6
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	1	40	33.3	3*	40*	28.6	1	40	14.3
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	2*	30*	21.4	-	-	-
Pithomyces++	-	-	-	1*	10*	7.1	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	1	40	14.3
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Torula-like	-	-	-	-	-	-	1	40	14.3
Total Fungi	7	120	100	9	140	100	7	280	100
Hyphal Fragment	-	-	-	2	80	-	1*	10*	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	41	-	-	41	-	-	41	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	2	-
Fibrous Particulate (1-4)	-	2	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	2	-	-	2	-

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

Vincent Iuzzolino, M.S., Laboratory Director
or other Approved Signatory

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

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. 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. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. 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.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ AIHA-LAP, LLC-EMLAP Accredited #100194

Initial report from: 02/03/2021 02:40 PM

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



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-0262

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

EMSL Order: 372101482

Customer ID: TIDE50

Customer PO:

Project ID:

Attention: Skanda Abeyeskere
Tidewater, Inc.
6625 Selnick Drive
Suite A
Elkridge, MD 21075

Project: Kingsford ES

Phone: (410) 540-8700

Fax: (410) 997-8713

Collected Date: 01/29/2021

Received Date: 02/01/2021

Analyzed Date: 02/03/2021

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

Lab Sample Number:	372101482-0004			372101482-0005			372101482-0006		
Client Sample ID:	KES-4			KES-5			KES-6		
Volume (L):	75			75			75		
Sample Location:	Room 130			Room 127			Room 120		
Spore Types	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	1*	10*	1
Aspergillus/Penicillium	7	300	71.4	2	80	24.2	25	1000	99
Basidiospores	2	80	19	4	200	60.6	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	1*	10*	3	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	1	40	9.5	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Torula-like	-	-	-	1	40	12.1	-	-	-
Total Fungi	10	420	100	8	330	100	26	1010	100
Hyphal Fragment	-	-	-	-	-	-	1	40	-
Insect Fragment	1	40	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	41	-	-	41	-	-	41	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	2	-	-	1	-
Background (1-5)	-	2	-	-	2	-	-	2	-

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

Vincent Iuzzolino, M.S., Laboratory Director
or other Approved Signatory

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

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. 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. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. 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.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ AIHA-LAP, LLC-EMLAP Accredited #100194

Initial report from: 02/03/2021 02:40 PM

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



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-0262

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

EMSL Order: 372101482

Customer ID: TIDE50

Customer PO:

Project ID:

Attention: Skanda Abeyeskere
Tidewater, Inc.
6625 Selnick Drive
Suite A
Elkridge, MD 21075

Project: Kingsford ES

Phone: (410) 540-8700

Fax: (410) 997-8713

Collected Date: 01/29/2021

Received Date: 02/01/2021

Analyzed Date: 02/03/2021

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

Lab Sample Number:	372101482-0007			372101482-0008			372101482-0009		
Client Sample ID:	KES-7			KES-8			KES-9		
Volume (L):	75			75			75		
Sample Location:	Vocal Music 117			Room 115			Room 113		
Spore Types	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	11	450	100	8	300	88.2	3	100	100
Basidiospores	-	-	-	-	-	-	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	1	40	11.8	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Torula-like	-	-	-	-	-	-	-	-	-
Total Fungi	11	450	100	9	340	100	3	100	100
Hyphal Fragment	-	-	-	1*	10*	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	41	-	-	41	-	-	41	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	2	-
Background (1-5)	-	2	-	-	2	-	-	1	-

Sample Comment: 372101482-0008 Aspergillus conidiophores present in sample.

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

Vincent Iuzzolino, M.S., Laboratory Director
or other Approved Signatory

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

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. 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. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. 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.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ AIHA-LAP, LLC-EMLAP Accredited #100194

Initial report from: 02/03/2021 02:40 PM

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



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-0262

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

EMSL Order: 372101482

Customer ID: TIDE50

Customer PO:

Project ID:

Attention: Skanda Abeyeskere
Tidewater, Inc.
6625 Selnick Drive
Suite A
Elkridge, MD 21075

Project: Kingsford ES

Phone: (410) 540-8700

Fax: (410) 997-8713

Collected Date: 01/29/2021

Received Date: 02/01/2021

Analyzed Date: 02/03/2021

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

Lab Sample Number:	372101482-0010								
Client Sample ID:	KES-BG								
Volume (L):	75								
Sample Location:	Background								
Spore Types	Raw Count	Count/m ³	% of Total						
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	1	40	23.5	-	-	-	-	-	-
Basidiospores	1	40	23.5	-	-	-	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	2	80	47.1	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	1*	10*	5.9	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Torula-like	-	-	-	-	-	-	-	-	-
Total Fungi	5	170	100	-	-	-	-	-	-
Hyphal Fragment	2	80	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	41	-	-	-	-	-	-	-
Analyt. Sensitivity 300x	-	13*	-	-	-	-	-	-	-
Skin Fragments (1-4)	-	1	-	-	-	-	-	-	-
Fibrous Particulate (1-4)	-	1	-	-	-	-	-	-	-
Background (1-5)	-	2	-	-	-	-	-	-	-

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

Vincent Iuzzolino, M.S., Laboratory Director
or other Approved Signatory

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

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. 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. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. 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.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ AIHA-LAP, LLC-EMLAP Accredited #100194

Initial report from: 02/03/2021 02:40 PM

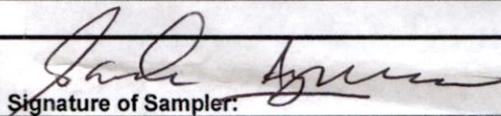
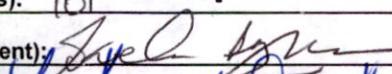
For information on the fungi listed in this report, please visit the Resources section at www.emsl.com

Microbiology Chain of Custody

EMSL Order Number (Lab Use Only):

372101482

RECEIVED
EMSL
CINNAMINSON, NJ
PHONE:
FAX:
2021 FEB - 1 A-11: 52

Company: Tidewater Inc		EMSL-Bill to: <input type="checkbox"/> Different <input checked="" type="checkbox"/> Same <small>If Bill to is Different note instructions in Comments**</small>			
Street: 6625 Selnick Drive, Suite A		Third Party Billing requires written authorization from third party			
City: Elkridge	State/Province: MD	Zip/Postal Code:	Country:		
Report To (Name): Skanda Abeyesekere		Telephone #:			
Email Address: skanda@tideh2o.net		Fax #:	Purchase Order:		
Project Name/Number: Kingsford ES		Please Provide Results: <input type="checkbox"/> FAX <input type="checkbox"/> E-mail <input type="checkbox"/> Mail			
U.S. State Samples Taken: Maryland		Connecticut Samples: <input type="checkbox"/> Commercial <input type="checkbox"/> Residential			
Turnaround Time (TAT) Options* - Please Check					
<input type="checkbox"/> 3 Hour <input type="checkbox"/> 6 Hour <input checked="" type="checkbox"/> 24 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 72 Hour <input type="checkbox"/> 96 Hour <input type="checkbox"/> 1 Week <input checked="" type="checkbox"/> 2 Week					
<small>*Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide. TATs are subject to methodology requirements</small>					
Non Culturable Air Samples (Spore Traps) – Test Codes					
<ul style="list-style-type: none"> • M001 Air-O-Cell • M049 BioSIS • M030 Micro 5 	<ul style="list-style-type: none"> • M173 Allegro M2 • M003 Burkard • M174 MoldSnap 	<ul style="list-style-type: none"> • M004 Allergenco • M043 Cyclex • M176 Relle Smart 	<ul style="list-style-type: none"> • M032 Allergenco-D • M002 Cyclex-d • M130 Via-Cell • M172 Versa Trap 		
Other Microbiology Test Codes					
<ul style="list-style-type: none"> • M041 Fungal Direct Examination • M005 Viable Fungi ID and Count • M006 Viable Fungi ID and Count (Speciation) • M007 Culturable Fungi • M008 Culturable Fungi (Speciation) • M009 Gram Stain Culturable Bacteria • M010 Bacterial Count and ID – 3 Most Prominent • M011 Bacterial Count and ID – 5 Most Prominent • M013 Sewage Contamination in Buildings 	<ul style="list-style-type: none"> • M014 Endotoxin Analysis • M015 Heterotrophic Plate Count • M180 Real Time Q-PCR-ERMI 36 Panel • M018 Total Coliform (Membrane Filtration) • M020 Fecal <i>Streptococcus</i> (Membrane Filtration) • M210-215 <i>Legionella</i> Detection • M026 Recreational Water Screen • M027 Mycotoxin Analysis 	<ul style="list-style-type: none"> • M029 Enterococci • M019 Fecal Coliform • M133 MRSA Analysis • M028 <i>Cryptococcus neoformans</i> Detection • M120 <i>Histoplasma capsulatum</i> Detection • M033-39 Allergen Testing • M044 Group Allergen (Cat, Dog, Cockroach, Dustmites) • Other See Analytical Price Guide 			
Preservation Method (Water):					
Name of Sampler: Skanda Abeyesekere		Signature of Sampler: 			
Sample #	Sample Location	Sample Type	Test Code	Volume/Area	Date/Time Collected
Example: A1	Kitchen	Air	M001	75L	1/1/12 4:00 PM
KES-2	media center	Air	M032	75.0	01/29/2021
KES-1	Room 106				
KES-3	Room 138				
KES-4	Room 130				
KES-5	Room 127				
KES-6	Room 120				
-7	vocal music 117				
-8	Room 115				
-9	Room 113				
Client Sample # (s): 10		Total # of Samples: 10			
Relinquished (Client): 		Date: 01/29/21	Time: 4:00pm		
Received (Client): K. Yonemura Prep for		Date: 1/29/21	Time: 2:50pm		
Comments: Chateau EMGX FX		2/1/21	9:00		



EMSL Analytical, Inc.

5221 Militia Hill Road Plymouth Meeting, PA 19462
Tel/Fax: (610) 828-3102 / (610) 828-3122
<http://www.EMSL.com> / plymouthmeetinglab@emsl.com

EMSL Order: 182100815
Customer ID: TIDE50
Customer PO:
Project ID:

Attention: Skanda Abeyeskere
Tidewater, Inc.
6625 Selnick Drive
Suite A
Elkridge, MD 21075

Phone: (410) 540-8700
Fax: (410) 997-8713

Collected Date: 03/05/2021
Received Date: 03/08/2021
Analyzed Date: 03/09/2021

Project: PGCPs Kingsford ES

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

Lab Sample Number:	182100815-0001			182100815-0002			
Client Sample ID:	030521-KES-1			030521-KES-BG			
Volume (L):	75			75			
Sample Location:	Classroom 120			Background			
Spore Types	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total	
Alternaria (Ulocladium)	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	-	-	-	-
Basidiospores	3	100	100	-	-	-	-
Bipolaris++	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-
Cladosporium	-	-	-	2	80	100	-
Curvularia	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-
Total Fungi	3	100	100	2	80	100	
Hyphal Fragment	-	-	-	1*	10*	-	-
Insect Fragment	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	42	-	-	42	-	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-
Skin Fragments (1-4)	-	2	-	-	1	-	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-
Background (1-5)	-	1	-	-	1	-	-

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

Kevin Ream, Laboratory Manager
or other Approved Signatory

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

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. 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. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. 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.

Samples analyzed by EMSL Analytical, Inc. Plymouth Meeting, PA AIHA-LAP, LLC-EMLAP Accredited #178659

Initial report from: 03/09/2021 12:46 PM

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

Microbiology Chain of Custody

EMSL Order Number (Lab Use Only):

182100815

PHONE:
FAX:

Company: Tidewater Inc.		EMSL-Bill to: <input type="checkbox"/> Different <input type="checkbox"/> Same <small>If Bill to is Different note instructions in Comments**</small>	
Street: 6625 Selnick Drive, Suite A		Third Party Billing requires written authorization from third party	
City: Elkridge	State/Province: MD	Zip/Postal Code:	Country:
Report To (Name): Skanda Abeyesekere		Telephone #:	
Email Address: skanda@tideh2o.net		Fax #:	Purchase Order:
Project Name/Number: PGCPs Kingsford ES		Please Provide Results: <input type="checkbox"/> FAX <input type="checkbox"/> E-mail <input type="checkbox"/> Mail	
U.S. State Samples Taken: MD		Connecticut Samples: <input type="checkbox"/> Commercial <input type="checkbox"/> Residential	

Turnaround Time (TAT) Options* - Please Check

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

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

Non Culturable Air Samples (Spore Traps) - Test Codes

• M001 Air-O-Cell	• M173 Allegro M2	• M004 Allergenco	• M032 Allergenco-D	• M172 Versa Trap
• M049 BioSIS	• M003 Burkard	• M043 Cyclax	• M002 Cyclax-d	
• M030 Micro 5	• M174 MoldSnap	• M176 Relle Smart	• M130 Via-Cell	

Other Microbiology Test Codes

• M041 Fungal Direct Examination	• M014 Endotoxin Analysis	• M029 Enterococci
• M005 Viable Fungi ID and Count	• M015 Heterotrophic Plate Count	• M019 Fecal Coliform
• M006 Viable Fungi ID and Count (Speciation)	• M180 Real Time Q-PCR-ERMI 36	• M133 MRSA Analysis
• M007 Culturable Fungi	• Panel	• M028 <i>Cryptococcus neoformans</i> Detection
• M008 Culturable Fungi (Speciation)	• M018 Total Coliform (Membrane Filtration)	• M120 <i>Histoplasma capsulatum</i> Detection
• M009 Gram Stain Culturable Bacteria	• M020 Fecal <i>Streptococcus</i> (Membrane Filtration)	• M033-39 Allergen Testing
• M010 Bacterial Count and ID - 3 Most Prominent	• M210-215 <i>Legionella</i> Detection	• M044 Group Allergen (Cat, Dog, Cockroach, Dustmites)
• M011 Bacterial Count and ID - 5 Most Prominent	• M026 Recreational Water Screen	• Other See Analytical Price Guide
• M013 Sewage Contamination in Buildings	• M027 Mycotoxin Analysis	

Preservation Method (Water):

Name of Sampler: SKANDA ABESYSEKERE	Signature of Sampler:
-------------------------------------	-----------------------

Sample #	Sample Location	Sample Type	Test Code	Volume/Area	Date/Time Collected
Example A1	Room	Air	M001	75L	1/1/12 4:00 PM
030521-KES-1	CLASSROOM 120	Air	M032	75.0	03/05/2021
030521-KES-09	Background	Air	M032	75.0	03/05/2021

Client Sample # (s): 2	Total # of Samples: 2
Relinquished (Client):	Date: 03/05/2021 Time: 3:00 PM
Received (Client):	Date: 3-8-21 Time: 9:30
Comments:	



APPENDIX C
INSTRUMENT CALIBRATION CERTIFICATES



CERTIFICATE OF CALIBRATION AND TESTING

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
 Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 <http://www.tsi.com>

ENVIRONMENT CONDITIONS			MODEL	9565-X
TEMPERATURE	74.1 (23.4)	°F (°C)		
RELATIVE HUMIDITY	26	%RH		
BAROMETRIC PRESSURE	29.26 (990.9)	inHg (hPa)		
			SERIAL NUMBER	9565X1945002

<input checked="" type="checkbox"/> AS LEFT	<input checked="" type="checkbox"/> IN TOLERANCE
<input type="checkbox"/> AS FOUND	<input type="checkbox"/> OUT OF TOLERANCE

-- CALIBRATION VERIFICATION RESULTS --

THERMO COUPLE [^]				SYSTEM PRESSURE01-01				Unit: °F (°C)
#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE	
1	71.6 (22.0)	71.6 (22.0)	69.6~73.6 (20.9~23.1)					

BAROMETRIC PRESSURE				SYSTEM PRESSURE01-01				Unit: inHg (hPa)
#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE	
1	29.26 (990.9)	29.26 (990.9)	28.67~29.85 (970.9~1010.8)					

[^] Circuit portion of temperature measurement only, not including probe.

TSI does hereby certify that the above described instrument conforms to the original manufacturer's specification (not applicable to As Found data), and has been calibrated using standards whose accuracies are traceable to the United States National Institute of Standards and Technology (NIST) or has been verified with respect to instrumentation whose accuracy is traceable to NIST, or is derived from accepted values of physical constants. TSI's calibration system is registered to ISO 9001:2015

<u>Measurement Variable</u>	<u>System ID</u>	<u>Last Cal.</u>	<u>Cal. Due</u>	<u>Measurement Variable</u>	<u>System ID</u>	<u>Last Cal.</u>	<u>Cal. Due</u>
DC Voltage	E003299	06-06-19	12-31-20	DC Voltage	E003500	06-06-19	12-31-20
Temperature	E004626	01-09-19	01-31-20	Pressure	E003302	08-07-19	02-29-20
Pressure	E003303	08-26-19	02-29-20				

Rose Germain

CALIBRATED

November 8, 2019

DATE

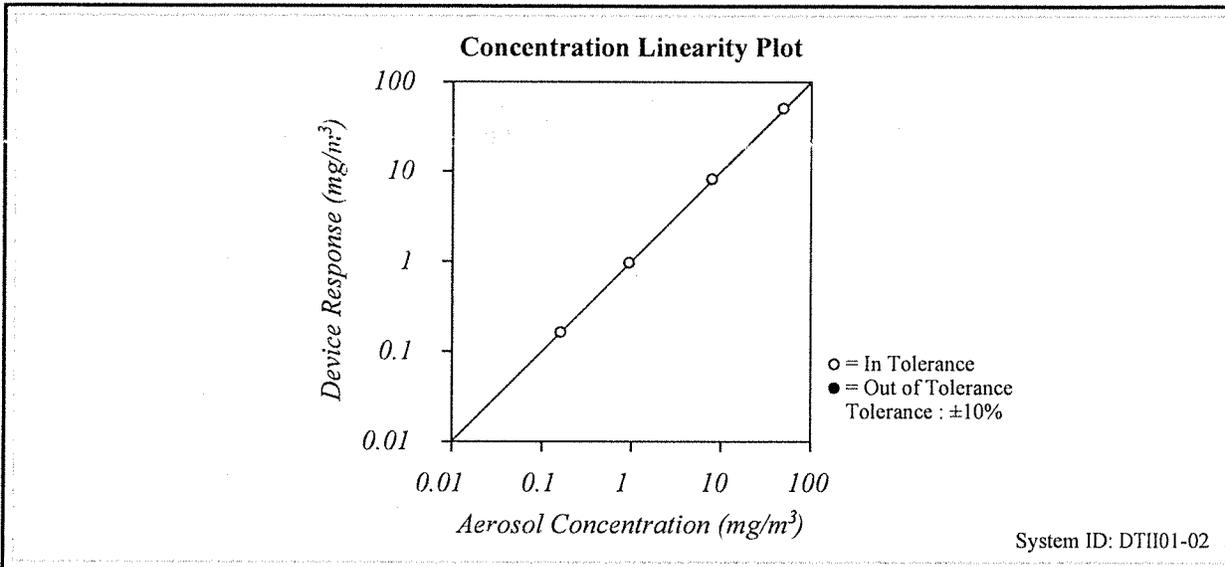


CERTIFICATE OF CALIBRATION AND TESTING

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
 Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 <http://www.tsi.com>

Environment Conditions			Model	8534
Temperature	75.83 (24.4)	°F (°C)	Serial Number	8534170101
Relative Humidity	43.6	%RH		
Barometric Pressure	28.93 (979.7)	inHg (hPa)		

<input checked="" type="checkbox"/> As Left	<input checked="" type="checkbox"/> In Tolerance	
<input type="checkbox"/> As Found	<input type="checkbox"/> Out of Tolerance	



FLOW AND PRESSURE VERIFICATION				SYSTEM DTH01-01			
Parameter	Standard	Measured	Allowable Range	Parameter	Standard	Measured	Allowable Range
Flow lpm	3.00	3.03	2.88 ~ 3.12	Pressure kPa	97.8	97.8	92.95 ~ 102.73
Full Flow lpm	N/A	4.54	>3.80				

TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass per standard ISO 12103-1, Ai test dust (Arizona dust). Our calibration ratio is greater than 1.2:1

Measurement Variable	System ID	Last Cal.	Cal. Due	Measurement Variable	System ID	Last Cal.	Cal. Due
DC Voltage	E003314	01-15-20	01-31-21	Photometer	E005612	08-19-20	02-28-21
Microbalance	M001324	10-03-18	10-31-20	1 um PSL	698880	n/a	n/a
3 um PSL	221853	n/a	n/a	10 um PSL	212455	n/a	n/a
Pressure	E003511	10-04-19	10-31-20	Flowmeter	E005140	01-09-20	01-31-21
DC Voltage	E003315	01-15-20	01-31-21	Photometer	E003433	09-15-20	03-31-21
Flowmeter	E005922	06-29-20	06-30-21	DC Voltage(Keithley)	E002859	06-15-20	06-30-21
Microbalance	M001324	10-03-18	10-31-20	Pressure	E005651	07-06-20	07-31-21
1 um PSL	698880	n/a	n/a	3 um PSL	206030	n/a	n/a
10 um PSL	212455	n/a	n/a				

David Farrell

September 24, 2020

Calibrated

Date

Certificate of Conformance

Buck BioAire™

Buck BioSlide™

Serial number: B153043 Date Issued: 3-18-20

Flow Calibration

The instrument listed above is in conformance with factory specifications and the flow is set to nominal using a BUCK Calibrator which is N.I.S.T. traceable to A. P. Buck, Inc. Calibration Procedure APB-1, Ver. 6.2.

QA APPROVAL BY: Thomas J. Coomaver

Information contained in this document should not be reproduced in any form without the written consent of A.P. Buck Inc. It is for reference only and cannot be used as a form of endorsement by any private or governmental regulatory body.

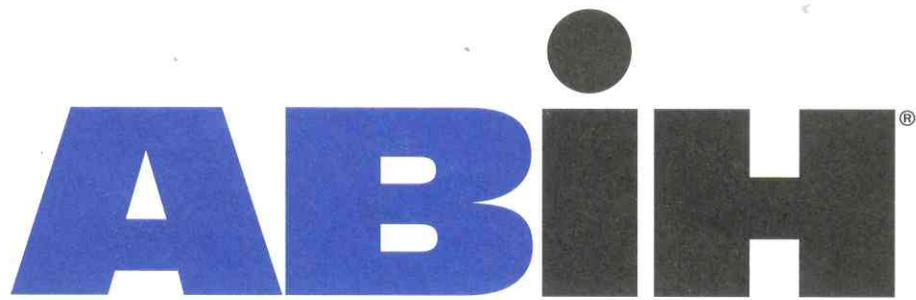
A.P. BUCK, INC.
7101 Presidents Drive, Suite 110
Orlando, FL 32809
Phone: 407-851-8602 • Fax: 407-851-8910

BUCK
A.P. BUCK, INC.

COCR-004 REV-01 3/3/2006



APPENDIX D
RELEVANT CERTIFICATIONS



american board of industrial hygiene®

organized to improve the practice of industrial hygiene
proclaims that

Skandakumar Harshanath Abeyesekere

having met all requirements of
education, experience and examination, and
ongoing maintenance,
is hereby certified in the

**COMPREHENSIVE PRACTICE
of
INDUSTRIAL HYGIENE**

and has the right to use the designations

CERTIFIED INDUSTRIAL HYGIENIST

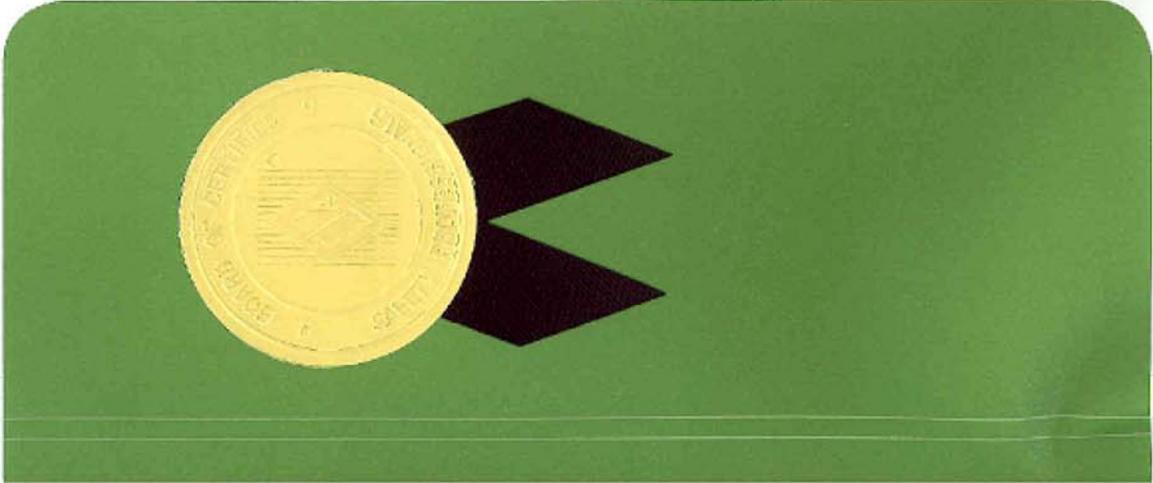
CIH

Certificate Number	9928 CP
Awarded:	May 11, 2011
Expiration Date:	December 1, 2021



Susan Ripple
Chair, ABIH

William K. Oliver
Chief Executive Officer, ABIH



BOARD OF CERTIFIED SAFETY PROFESSIONALS

affirms that

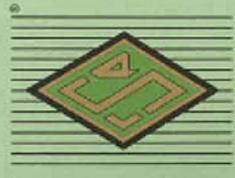
Skandakumar Abeyesekere

Has applied for, met qualifications, and passed required examination(s) and is hereby authorized to use the designation

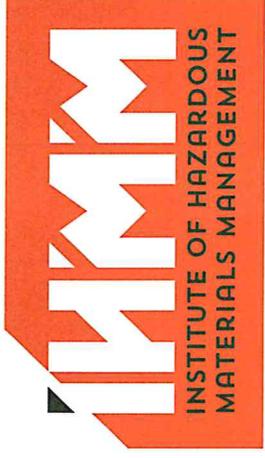
Certified Safety Professional® in Comprehensive Practice

So long as this certificate is not suspended or revoked and the certificant renews this authorization annually and meets Continuance of Certification requirements.

Board of Examiners in witness whereof we have here unto set our hands and affixed the Seal of the Board this 7th Day of April, 2008



<i>Paul S Adams</i>	President
<i>Linda Japp</i>	Secretary
20110	CSP No.



THIS CERTIFIES THAT

Skandakumar Abeyeskere

HAS SUCCESSFULLY MET ALL THE REQUIREMENTS OF EDUCATION, EXPERIENCE AND EXAMINATION, AND IS HEREBY DESIGNATED A

**CERTIFIED HAZARDOUS MATERIALS MANAGER
CHMM**



May 13, 2016

DATE OF CERTIFICATION

19053

CREDENTIAL NUMBER

May 31, 2021

CERTIFICATION EXPIRES

M. Patricia Buley
ACTING EXECUTIVE DIRECTOR

VALID SO LONG AS THIS CREDENTIAL IS RENEWED ACCORDING TO SCHEDULE AND IS NOT OTHERWISE REVOKED.



Accredited by the American National Standards Institute and the Council of Engineering and Scientific Specialty Boards





APPENDIX E

FLOOR PLAN WITH SAMPLING LOCATIONS



Scale: N/A

Project #: 5419-052
Date: January 29, 2021

▲ = Sample Location

Attachment C
Kingsford Elementary School
Floor Plan with Sampling Locations