March 18, 2021

Mr. Alex Baylor via email: alex.baylor@pgcps.org
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

RE: Indoor Air Quality (IAQ) and Mold Assessment Services
Prince George's County Public Schools (PGCPS) – Kettering Elementary School
11000 Layton Street, Upper Marlboro, Maryland 20774
Contract No.: IFB 022-19: Indoor Air Quality Services at Various Locations
Tidewater Project No.: 5419-032

Dear Mr. Baylor:

Tidewater, Inc. (Tidewater) is pleased to present this final report regarding the results of the preliminary Indoor Air Quality (IAQ) and Mold Assessment Services conducted by Tidewater at Kettering Elementary School located at 11000 Layton Street in Upper Marlboro, Maryland. These services were conducted on November 30, 2020, by Tidewater's Project Manager and Certified Industrial Hygienist, Mr. Skanda Abeyesekere MS, CIH, CSP, CHMM. Re-sampling of areas with elevated mold concentrations were conducted on February 26, 2021.

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

- The following typical occupied areas of the school were chosen at the industrial hygienist's discretion for inspection and sampling: Main Office, Classroom 12, Pre-K Classroom 15, Classroom 6, Classroom 25, Computer room 3, Classroom 17, Classroom 22, Media Center and Multipurpose Room. 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;
- Direct read measurements for temperature (T), relative humidity (RH), carbon dioxide (CO_2), and carbon monoxide (CO) in the above locations 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);
- Direct read measurements for Particulate Matter less than 10 microns (PM10) in the above locations 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

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

Main Office

The Main Office appeared to be clean and well maintained. Housekeeping appeared to be satisfactory. No signs of ongoing water-intrusion problems were observed and no odors were detected; however, several ceiling tiles were missing in numerous locations in the main office. The ceiling-mounted air supply vents also appeared to have accumulations of dust.

Classroom 12

No signs of ongoing water-intrusion problems were observed in the classroom and no odors were detected. There were no window-mounted air conditioning units in the classroom. One (1) wall-mounted fan coil unit was observed in the classroom. This unit was not in operation at the time of the inspection. Several ceiling tiles were missing in numerous locations in the classroom. A ceiling tile with heavy water stains and visible suspect mold growth was observed in the hallway outside Classroom 12 in front of Classroom 14.

Pre-K Classroom 15

No signs of past or ongoing water-intrusion problems were observed in Classroom 15. Furthermore, no suspect mold growth nor notable odors were detected. The front panel of the wall-mounted fan coil unit panel was missing and the fan coil unit was not operating at the time of the inspection. Several ceiling tiles were missing in numerous locations in the classroom. The classroom appeared to be clean.

Classroom 6

No signs of ongoing water-intrusion problems were observed in the classroom and no odors were detected. One (1) wall-mounted fan coil unit was in operation and was emitting warm air at the time of the inspection. The classroom appeared to be clean and well maintained. Housekeeping appeared to be satisfactory.

Classroom 25

Signs of past water-intrusion problems were observed in the classroom. Several ceiling tiles with heavy water stains and visible suspect surface mold growth were observed. Furthermore, a musty odor was also detected in the classroom. Several ceiling tiles were missing in numerous locations in the classroom. The ceiling-mounted air supply vents and return air grills had accumulated dust deposits.

Computer room 3

No signs of ongoing water-intrusion problems were observed in the computer room and no notable odors were detected. The front panel of the wall-mounted fan coil unit was missing and the fan coil unit was not in operation at the time of the inspection. The computer room appeared to be clean and well maintained. Housekeeping appeared to be satisfactory.

Classroom 17

A missing ceiling tile and numerous dislodged ceiling tiles were observed in the classroom. A ceiling tile with heavy water stains and visible suspect mold growth was observed in the hallway outside classroom 17. A wall-mounted fan coil unit was in operation and was emitting warm air at the time of the inspection. No odors were detected in the classroom. The classroom appeared to be clean and well maintained and housekeeping appeared to be satisfactory.

Classroom 22

A missing ceiling tile was observed in the classroom. No signs of ongoing water-intrusion problems were observed in the classroom and no notable odors were detected. A wall-mounted fan coil unit was in operation and was emitting warm air at the time of the inspection. The classroom appeared to be clean and well maintained. Housekeeping appeared to be satisfactory.

Media Center

Ceiling tiles were missing in numerous locations in the Media Center. Two (2) wall-mounted fan coil units were observed in the Media Center. The air supply vents in one of the fan coil units were covered as a result of storage items being placed on top of the vents thereby hindering the air flow when the unit is in operation. No signs of ongoing water-intrusion problems were observed in the Media Center and no notable odors were detected. The Media Center was temporarily used as a storage area. Housekeeping appeared to be satisfactory.

Multipurpose Room

Several ceiling tile were missing in numerous locations in the multipurpose room. No signs of ongoing water-intrusion problems were observed in the multipurpose room and no notable odors were detected. The ceiling-mounted air supply grills appeared to have contain accumulations of dust.

Comfort Parameter Air Testing

During the IAQ assessment, Tidewater obtained temperature (T), relative humidity (RH), carbon dioxide (CO_2), 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 a background sample outdoors 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 November 30, 2020 ranged between 71.0°F and 83.7°F. The background temperature outside the building was

67.6°F. The temperature levels recorded within most areas monitored were above the temperature levels typically observed during the fall-winter transitional period. The areas inspected were vacant at the time of the inspection.

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 November 30, 2020 ranged between 43.7% and 60.9%. The background relative humidity level outside the building was 67.2%. 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 CO_2 levels not exceed 700 ppm above the outdoor background CO_2 level. The CO_2 levels in the assessed areas on November 30, 2020 ranged between 432 ppm to 670 ppm. The background CO_2 level outside the building was 422 ppm. The CO_2 levels within all interior locations assessed did not exceed 700 ppm above the outdoor background CO_2 level of 422 ppm.

The CO levels in all areas assessed on November 30, 2020 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 a background sample outdoors 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 (µg/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 0.071 mg/m^3 and 0.085 mg/m^3. The average PM10 dust concentration in the background sample obtained in front of the main entrance was 0.076 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 select locations within the school to characterize air quality for total airborne total fungal spores. The samples were collected 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 at each sample location to collect a total sample volume of 75.0 liters of air. Tidewater also obtained a background sample outdoors 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 outdoors, or the presence of large numbers of different types of spores indoors that are not found outdoors, may indicate contamination and potential indoor air quality problems.

The total mold spore counts in all assessed areas of the school ranged between 4,170 spores/m^3 and 70,700 spores/m^3. The total mold spore concentrations in the background sample obtained outdoors was 88,670 spores/m^3. The total mold spore concentrations in all indoor samples were below the background sample concentration of 88,670 spores/m^3 (sample # KET-ES-BG.) Although the total mold spore concentrations in all indoor samples were below the background sample concentration, the species composition of one of the indoor samples was different from the composition of mold species in the background sample. The *Aspergillus/ Penicillium* concentration in Classroom 25 (sample # KET-ES-5) was 68,500 spores/m^3 which was significantly higher than the *Aspergillus/ Penicillium* concentration detected in all other indoor samples. The significantly high concentration of *Aspergillus/ Penicillium* detected this sample indicates a potential source or mold reservoirs in Classroom 25, which was confirmed by the visible suspect mold growth observed on the ceiling tiles in Classroom 25. No A*spergillus/ Penicillium* spores were detected in the background sample (KET-ES-BG.)

A*spergillus/ Penicillium* are the most common mold species that are detected in indoor air samples. Most of the hundreds of sub-species are allergenic with only a few that are toxic. This group of species will grow with only the humidity in the air as its water source.

The area with elevated mold spores were re-sampled on February 26, 2021 following cleanup activities. The results indicated that the total mold spore concentrations in these locations have decreased significantly. The results did not indicate elevated levels of airborne total fungal spores in these interior locations 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 follow issues were identified during the visual inspections:
  - Main Office, Classroom 12, Pre-K Classroom 15, Classroom 17, Classroom 25, Classroom 22, Media Center and Multi-purpose Room: Missing ceiling tiles were observed in numerous locations in these areas.
  - Main Office, Classroom 25 and Multipurpose Room: The ceiling-mounted air supply vents appeared to have significant accumulations of dust.
  - Hallway outside Classroom 12 (front of Classroom 14); Hallway outside classroom 17; and Classroom 25: Ceiling tiles with heavy water stains and visible suspect surface mold growth were observed.
  - Computer Room 3 and Classroom 15: The front panels of the window-mounted air conditioning units were removed and the units were not in operation.
  - Media Center: Miscellaneous items were stored on top of the air supply vents of one of the fan coil units hindering the air flow.
- Temperature levels recorded within majority of the interior locations assessed, were above the ASHRAE Standard of 68.0°F and 74.5°F recommended for winter months.
- The Relative humidity, CO_2, 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 following re-cleaning have decreases significantly. 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:

- Replace all missing ceiling tiles in the Main Office, Classroom 12, Pre-K Classroom 15, Classroom 25, Classroom 22, Media Center and the Multi-purpose Room once all on-going repair or maintenance activities above the drop ceilings in these areas are complete.
- Clean the ceiling-mounted air supply vents in the Main Office, Classroom 25 and the Multipurpose Room with a commercially available (EPA approved) disinfectant on a routine basis to remove dust deposits.
- Investigate the drop ceiling above the water-stained ceiling tiles in the hallway outside Classroom 12 (front of Classroom 14), hallway outside Classroom 17, and Classroom 25 for any ongoing water leaks or condensation problems. If any ongoing water leaks are detected, take action to repair them immediately.
- Appropriate steps should be taken to remediate all mold-impacted surfaces and sanitize the surrounding areas. Tidewater recommends hiring a 3rd party remediation company specializing in mold remediation to abate all mold-impacted and water damaged ceiling

tiles and other affected building materials and clean the perimeters of the ceiling grids with a commercially available (EPA approved) fungicide to mitigate existing fungal spores prior to installing new ceiling tiles in the affected areas;

- The missing panels of the widow-mounted air-conditioning unit in Computer Room 3 and Classroom 15 should be replaced once all maintenance activities are complete;
- Ensure that supply grills of the fan coil units in the Media Center are left unobstructed to ensure adequate air supply;
- 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 Kettering Elementary School located at 11000 Layton Street in Upper Marlboro, 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 Georges 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 Abeyesekere, MS, CIH, CSP, CHMM
Project Manager

Jonathan N. Schatz, MS, CES, CEI
Manager, IH Services

SA/JNS

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

APPENDIX A

COMFORT PARAMETERS, PM10 PARTICULATE DUST, AND MICROBIAL RESULTS

Table 1: Indoor Air Quality Comfort Parameters Kettering Elementary School				
Location	**Temperature (°F)**	**Carbon Dioxide (ppm)**	**Relative Humidity (%)**	**Carbon Monoxide (ppm)**
November 30, 2020				
Main Office	74.6	670	60.9	0.0
Classroom 12	73.8	465	56.8	0.0
Pre-K Classroom 15	71.0	470	53.0	0.0
Classroom 6	80.6	454	44.6	0.0
Classroom 25	76.6	442	50.5	0.0
Computer Room 3	77.0	474	46.0	0.0
Classroom 17	80.0	438	49.7	0.0
Classroom 22	83.7	442	43.7	0.0
Media Center	77.1	443	46.3	0.0
Multi-purpose Room	78.2	432	52.6	0.0
Background (Outdoors)	67.6	417	67.2	0.1

*Highlighted Areas indicate locations in which temperature levels were above 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) Kettering Elementary School	
Location	**Particulate Matter (PM10)** **Concentration (mg/m^3)**
November 30, 2020	
Main Office	0.081
Classroom 12	0.076
Pre-K Classroom 15	0.077
Classroom 6	0.081
Classroom 25	0.085
Computer Room 3	0.081
Classroom 17	0.071
Classroom 22	0.073
Media Center	0.071
Multi-purpose Room	0.072
Background (Outdoors)	0.076

Table 3: Spore Trap Sampling Results Kettering Elementary School				
November 30, 2020				
Sample Number	**Sample Location**	**Sample Volume (L)**	***Aspergillus Penicillium* Concentration (Counts/m^3)**	**Total Fungi Concentration (Counts/m^3)**
KET-ES-1	Main Office	75.0	1,700	16,810
KET-ES -2	Classroom 12	75.0	700	12,410
KET-ES-3	Pre-K Classroom 15	75.0	300	17,030
KET-ES-4	Classroom 6	75.0	400	4,170
KET-ES-5	Classroom 25	75.0	**68,500**	70,700
KET-ES-6	Computer Room 3	75.0	300	7,650
KET-ES-7	Classroom 17	75.0	570	7,260
KET-ES-8	Classroom 22	75.0	100	5,740
KET-ES-9	Media Center	75.0	1,900	7,910
KET-ES-10	Multi-purpose Room	75.0	200	47,110
KET-ES-BG	Background	75.0	None Detected	88,670

*Highlighted - indicate location with a significantly high concentration of *Aspergillus/ Penicillium* when compared with other interior locations sampled.

Table 3: Spore Trap Sampling Results Kettering Elementary School				
February 26, 2021				
Sample Number	**Sample Location**	**Sample Volume (L)**	***Aspergillus Penicillium* Concentration (Counts/m^3)**	**Total Fungi Concentration (Counts/m^3)**
KET-ES-7	Hallway Outside 17	75.0	40	180
KET-ES-2	Hallway Outside 12	75.0	None	200
KET-ES-5	Classroom 25	75.0	890	970
KET-ES-10	Multi-purpose Room	75.0	80	90
KET-ES-BG	Background	75.0	None	130

APPENDIX B

LABORATORY REPORTS AND CHAIN OF CUSTODY FORMS

EMSL Analytical, Inc.

10768 Baltimore Avenue Beltsville, MD 20705
Tel/Fax: (301) 937-5700 / (301) 937-5701
http://www.EMSL.com / beltsvillelab@emsl.com

EMSL Order: 192011863
Customer ID: TIDE50
Customer PO:
Project ID:

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

Phone: (410) 540-8700
Fax: (410) 997-8713
Collected Date: 11/30/2020
Received Date: 12/02/2020
Analyzed Date: 12/08/2020

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

Lab Sample Number:	192011863-0001			192011863-0002			192011863-0003		
Client Sample ID:	KET-ES-1			KET-ES-2			KET-ES-3		
Volume (L):	75			75			75		
Sample Location:	Main Office			Classroom 12			Pre-K Class/R 15		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	1	40	0.3	2	90	0.5
Ascospores	17	740	4.4	20	870	7	15	660	3.9
Aspergillus/Penicillium	38	1700	10.1	16	700	5.6	6	300	1.8
Basidiospores	314	13700	81.5	242	10600	85.4	352	15400	90.4
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	1	40	0.2	-	-	-	-	-	-
Cladosporium	3	100	0.6	3	100	0.8	2	90	0.5
Curvularia	1*	10*	0.1	1*	10*	0.1	2	90	0.5
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	11	480	2.9	2	90	0.7	9	400	2.3
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Arthrinium	-	-	-	-	-	-	-	-	-
Chaetoconis	-	-	-	-	-	-	-	-	-
Pestalotia/Pestalotiopsis	1	40	0.2	-	-	-	-	-	-
Total Fungi	**386**	**16810**	**100**	**285**	**12410**	**100**	**388**	**17030**	**100**
Hyphal Fragment	1	40	-	2	90	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	1*	10*	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	4	-	-	4	-	-	2	-
Fibrous Particulate (1-4)	-	2	-	-	2	-	-	1	-
Background (1-5)	-	2	-	-	2	-	-	2	-

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

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

Abubakar Barry, Microbiology Lab Manager
or other Approved Signatory

Initial report from: 12/10/2020 09:33 AM

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

EMSL Analytical, Inc.

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

Lab Sample Number:	192011863-0004			192011863-0005			192011863-0006		
Client Sample ID:	KET-ES-4			KET-ES-5			KET-ES-6		
Volume (L):	75			75			75		
Sample Location:	3rd Grade - C/R 6			5th C/R 25			Computer Lab - Classroom 3		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	1	40	1	-	-	-	-	-	-
Ascospores	2	90	2.2	4	200	0.3	1	40	0.5
Aspergillus/Penicillium	9	400	9.6	1570	68500	96.9	7	300	3.9
Basidiospores	77	3400	81.5	43	1900	2.7	165	7200	94.1
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	4	200	4.8	2*	30*	0	2	90	1.2
Curvularia	-	-	-	-	-	-	1*	10*	0.1
Epicoccum	-	-	-	-	-	-	1*	10*	0.1
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	1	40	1	1	40	0.1	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	1*	10*	0	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	1*	10*	0	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Arthrinium	-	-	-	1*	10*	0	-	-	-
Chaetoconis	-	-	-	-	-	-	-	-	-
Pestalotia/Pestalotiopsis	-	-	-	-	-	-	-	-	-
Total Fungi	**94**	**4170**	**100**	**1623**	**70700**	**100**	**177**	**7650**	**100**
Hyphal Fragment	1*	10*	-	-	-	-	1*	10*	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	1	-	-	2	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	2	-	-	2	-	-	2	-

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

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

Abubakar Barry, Microbiology Lab 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.

Samples analyzed by EMSL Analytical, Inc. Beltsville, MD AIHA-LAP, LLC-EMLAP Accredited #102891

Initial report from: 12/10/2020 09:33 AM

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

EMSL Analytical, Inc.

10768 Baltimore Avenue Beltsville, MD 20705
Tel/Fax: (301) 937-5700 / (301) 937-5701
http://www.EMSL.com / beltsvillelab@emsl.com

EMSL Order: 192011863
Customer ID: TIDE50
Customer PO:
Project ID:

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

Phone: (410) 540-8700
Fax: (410) 997-8713
Collected Date: 11/30/2020
Received Date: 12/02/2020
Analyzed Date: 12/08/2020

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

Lab Sample Number:	192011863-0007			192011863-0008			192011863-0009		
Client Sample ID:	KET-ES-7			KET-ES-8			KET-ES-9		
Volume (L):	75			75			75		
Sample Location:	Classroom 17			Classroom 22			Media Center		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	35	1500	20.7	3	100	1.7	8	300	3.8
Aspergillus/Penicillium	13	570	7.9	3	100	1.7	44	1900	24
Basidiospores	112	4890	67.4	125	5460	95.1	130	5670	71.7
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	3	100	1.4	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	4	200	2.8	1	40	0.7	1	40	0.5
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	1	40	0.7	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Arthrinium	-	-	-	-	-	-	-	-	-
Chaetoconis	-	-	-	-	-	-	-	-	-
Pestalotia/Pestalotiopsis	-	-	-	-	-	-	-	-	-
Total Fungi	**167**	**7260**	**100**	**133**	**5740**	**100**	**183**	**7910**	**100**
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	1	40	-
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.

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

Abubakar Barry, Microbiology Lab Manager
or other Approved Signatory

Initial report from: 12/10/2020 09:33 AM

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

EMSL Analytical, Inc.

10768 Baltimore Avenue Beltsville, MD 20705
Tel/Fax: (301) 937-5700 / (301) 937-5701
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EMSL Order: 192011863
Customer ID: TIDE50
Customer PO:
Project ID:

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

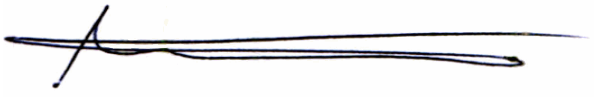
Phone: (410) 540-8700
Fax: (410) 997-8713
Collected Date: 11/30/2020
Received Date: 12/02/2020
Analyzed Date: 12/08/2020

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

Lab Sample Number:	192011863-0010			192011863-0011		
Client Sample ID:	KET-ES-10			KET-ES-11		
Volume (L):	75			75		
Sample Location:	Multipurpose Room			Background		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	1*	10*	0	-	-	-
Ascospores	12	520	1.1	275	12000	13.5
Aspergillus/Penicillium	4	200	0.4	-	-	-
Basidiospores	1050	45800	97.2	1750	76400	86.2
Bipolaris++	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-
Cladosporium	10	440	0.9	2	90	0.1
Curvularia	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-
Fusarium	-	-	-	1	40	0
Ganoderma	1	40	0.1	-	-	-
Myxomycetes++	3	100	0.2	1	40	0
Pithomyces++	-	-	-	-	-	-
Rust	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-
Arthrinium	-	-	-	-	-	-
Chaetoconis	-	-	-	3	100	0.1
Pestalotia/Pestalotiopsis	-	-	-	-	-	-
Total Fungi	**1081**	**47110**	**100**	**2032**	**88670**	**100**
Hyphal Fragment	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-
Pollen	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	1	-	-	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.

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



Abubakar Barry, Microbiology Lab 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.

Samples analyzed by EMSL Analytical, Inc. Beltsville, MD AIHA-LAP, LLC-EMLAP Accredited #102891

Initial report from: 12/10/2020 09:33 AM

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

OrderID: 192011863

Microbiology Chain of Custody

EMSL Order Number (*Lab Use Only*):

192011863

PHONE:
FAX:

Company: Tidewater Inc	**EMSL-Bill to:** ☐ Different ☐ Same If Bill to is Different note instructions in Comments**
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: Kettering ES	**Please Provide Results:** ☐ FAX ☒ E-mail ☐ Mail
U.S. State Samples Taken: Maryland	**Connecticut Samples:** ☐ Commercial ☐ 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** Cyclex	• **M002** Cyclex-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** *Cryptococcus neoformans* Detection
• **M008** Culturable Fungi (Speciation)	• **M018** Total Coliform (Membrane Filtration)	• **M120** *Histoplasma capsulatum* Detection
• **M009** Gram Stain Culturable Bacteria	• **M020** Fecal *Streptococcus* (Membrane Filtration)	• **M033-39** Allergen Testing
• **M010** Bacterial Count and ID – 3 Most Prominent	• **M210-215** *Legionella* 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 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
KET-ES-1	Main office	Air	M032	75≥0	11/30/2020
2	classroom 12				
3	Pre-K class/R 15				
4	3rd Grade- C/R 6				
5	5th ~~Kindergaden~~ C/R ~~30~~ 25				
6	Computer Lab - Classroom 3				
7	classroom 17				
8	classroom 22				
9	media center				

Client Sample # (s): 1 **Total # of Samples:** 11

Relinquished (Client): **Date:** 11/30/ **Time:**

Received (Client): **Date:** **Time:**

Comments:

RECEIVED EMSL ANALYTICAL, INC. BELTSVILLE, MD 2020 DEC -2 A 8:15

OrderID: 192011863

Microbiology Chain of Custody

EMSL Order Number (*Lab Use Only*):

192011863

PHONE:
FAX:

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

Sample #	Sample Location	Sample Type	Test Code	Volume/Area	Date/Time Collected
KET-ES-10	Multipurpose room	Air	M032	75-0	11/30/2020
KET-ES-BG	Background	Air	M032	75 A 0	11/30/2020

****Comments/Special Instructions:**

Page 2 of 2 pages

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: 182100736
Customer ID: TIDE50
Customer PO:
Project ID:

Attention: Skanda Abeyeskere
Tidewater, Inc.
6625 Selnick Drive
Suite A
Elkridge, MD 21075
Project: PGCPS Kettering Elementary School

Phone: (410) 540-8700
Fax: (410) 997-8713
Collected Date: 02/26/2021
Received Date: 03/02/2021
Analyzed Date: 03/03/2021

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

	182100736-0001			182100736-0002			182100736-0003		
Lab Sample Number:									
Client Sample ID:	KET-ES-7			KET-ES-2			KET-ES-5		
Volume (L):	75			75			75		
Sample Location:	Hallway Outside 17			Hallway Outside 12			Classroom 25		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	1	40	22.2	-	-	-	21	890	91.8
Basidiospores	1	40	22.2	4	200	100	1	40	4.1
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	3	100	55.6	-	-	-	3*	40*	4.1
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Arthrinium	-	-	-	-	-	-	-	-	-
Total Fungi	**5**	**180**	**100**	**4**	**200**	**100**	**25**	**970**	**100**
Hyphal Fragment	1	40	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	42	-	-	42	-	-	42	-
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.

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

Kevin Ream, 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.

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

Initial report from: 03/03/2021 11:42 AM

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

EMSL Analytical, Inc.

5221 Militia Hill Road Plymouth Meeting, PA 19462
Tel/Fax: (610) 828-3102 / (610) 828-3122
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Attention: Skanda Abeyeskere
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6625 Selnick Drive
Suite A
Elkridge, MD 21075
Project: PGCPS Kettering Elementary School

Phone: (410) 540-8700
Fax: (410) 997-8713
Collected Date: 02/26/2021
Received Date: 03/02/2021
Analyzed Date: 03/03/2021

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

Lab Sample Number:	182100736-0004			182100736-0005		
Client Sample ID:	KET-ES-10			KET-ES-BG		
Volume (L):	75			75		
Sample Location:	Multipurpose Room			Background		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-
Ascospores	-	-	-	1*	10*	7.7
Aspergillus/Penicillium	2	80	88.9	-	-	-
Basidiospores	-	-	-	1	40	30.8
Bipolaris++	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-
Cladosporium	-	-	-	1	40	30.8
Curvularia	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-
Myxomycetes++	1*	10*	11.1	-	-	-
Pithomyces++	-	-	-	-	-	-
Rust	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-
Arthrinium	-	-	-	1	40	30.8
Total Fungi	**3**	**90**	**100**	**4**	**130**	**100**
Hyphal Fragment	-	-	-	-	-	-
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.

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

Kevin Ream, Laboratory Manager
or other Approved Signatory

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Initial report from: 03/03/2021 11:42 AM

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

OrderID: 182100736

Microbiology Chain of Custody

EMSL Order Number (Lab Use Only)

182100736

PHONE:
FAX:

Company: Tidewater Inc.	**EMSL-Bill to:** ☐ Different ☐ Same If Bill to is Different note instructions in Comments**
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 Kettering Elementary School	**Please Provide Results:** ☐ FAX ☐ E-mail ☐ Mail
U.S. State Samples Taken: MD	**Connecticut Samples:** ☐ Commercial ☐ 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
- **M049** BioSIS
- **M030** Micro 5
- **M173** Allegro M2
- **M003** Burkard
- **M174** MoldSnap
- **M004** Allergenco
- **M043** Cyclex
- **M176** Relle Smart
- **M032** Allergenco-D
- **M002** Cyclex-d
- **M130** Via-Cell
- **M172** Versa Trap

Other Microbiology Test Codes

- **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
- **M014** Endotoxin Analysis
- **M015** Heterotrophic Plate Count
- **M180** Real Time Q-PCR-ERMI 36 Panel
- **M018** Total Coliform (Membrane Filtration)
- **M020** Fecal *Streptococcus* (Membrane Filtration)
- **M210-215** *Legionella* Detection
- **M026** Recreational Water Screen
- **M027** Mycotoxin Analysis
- **M029** *Enterococci*
- **M019** Fecal Coliform
- **M133** MRSA Analysis
- **M028** *Cryptococcus neoformans* Detection
- **M120** *Histoplasma capsulatum* 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
	~~Classroom~~				
KET-ES-7	Hallway outside 17	Air	M032	75	02/26/2021
KET-ES-2	Hallway outside 12	↓	↓	↓	↓
KET-ES-5	classroom 25				
KET-ES-10	Multipurpose room				
KET-ES-BG	Background				

Client Sample # (s): 5 **Total # of Samples:** 5

Relinquished (Client): **Date:** 02/26/2021 **Time:** 12:00pm

Received (Client): **Date:** 3-2-21 **Time:** 10:30

Comments:

Fedex 7842 3037 2127

APPENDIX C

INSTRUMENT CALIBRATION CERTIFICATES

TSI P/N 2300157

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		
TEMPERATURE	74.1 (23.4)	°F (°C)
RELATIVE HUMIDITY	26	%RH
BAROMETRIC PRESSURE	29.26 (990.9)	inHg (hPa)

MODEL	9565-X
SERIAL NUMBER	9565X1945002

☒ AS LEFT ☒ IN TOLERANCE
☐ AS FOUND ☐ 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

Measurement Variable	System ID	Last Cal.	Cal. Due	Measurement Variable	System ID	Last Cal.	Cal. Due
DC Voltage	E003299	06-06-19	12-31-20	DC Voltage	E003300	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

Doc. ID CERT_GEN_WCC_TM

TSI P/N 2300157

CERTIFICATE OF CALIBRATION AND TESTING

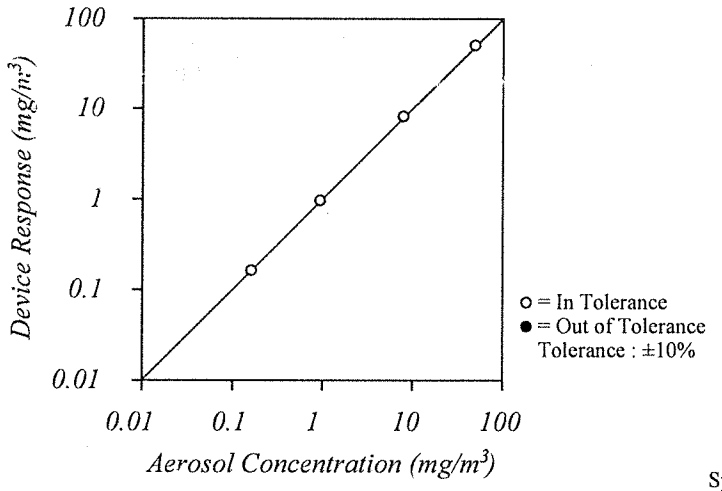
TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

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

Model	**8534**
Serial Number	**8534170101**

☒ As Left ☒ In Tolerance
☐ As Found ☐ Out of Tolerance

Concentration Linearity Plot



System ID: DTII01-02

FLOW AND PRESSURE VERIFICATION — SYSTEM DTII01-01

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, A1 test dust (Arizona dust). Our calibration ratio is greater than 1.2:1

Measurement Variable	System ID	Last Cal.	Cal. Due
DC Voltage	E003314	01-15-20	01-31-21
Microbalance	M001324	10-03-18	10-31-20
3 um PSL	221853	n/a	n/a
Pressure	E003511	10-04-19	10-31-20
DC Voltage	E003315	01-15-20	01-31-21
Flowmeter	E005922	06-29-20	06-30-21
Microbalance	M001324	10-03-18	10-31-20
1 um PSL	698880	n/a	n/a
10 um PSL	212455	n/a	n/a

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

David Farrell
Calibrated

September 24, 2020
Date

Certificate of Conformance

(X) 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. Cranmer

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.

APPENDIX D

RELEVANT CERTIFICATIONS

ABIH®

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

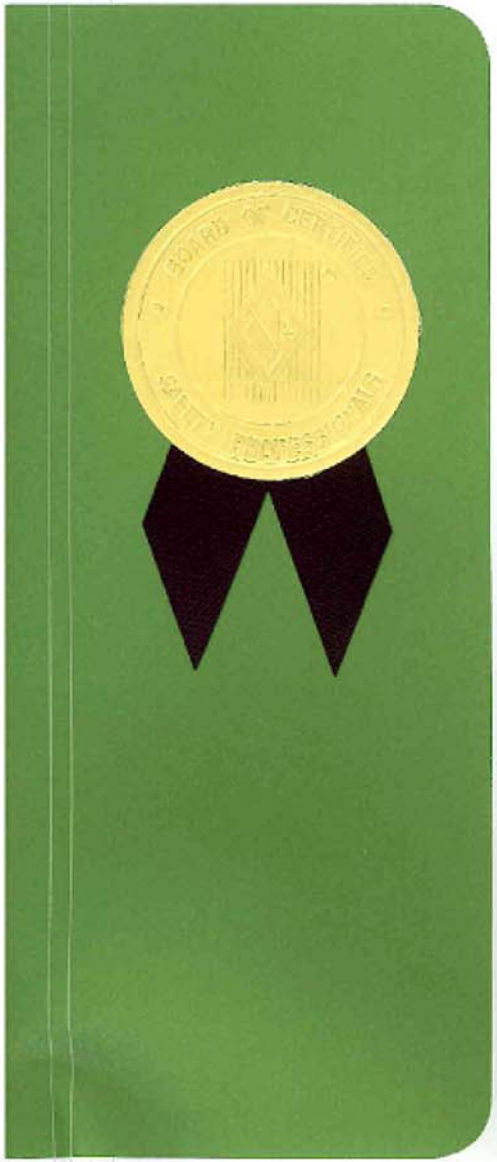
CERTIFIED INDUSTRIAL HYGIENIST

CIH®

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

Susan Ripple
Chair, ABIH

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

Paul S Adams — President

Linda Tapp — Secretary

20110 — CSP No.

INSTITUTE OF HAZARDOUS MATERIALS MANAGEMENT

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

INSTITUTE OF HAZARDOUS MATERIALS MANAGEMENT IHMM CORPORATE SEAL 1984 DISTRICT OF COLUMBIA

May 13, 2016
DATE OF CERTIFICATION

19053
CREDENTIAL NUMBER

May 31, 2021
CERTIFICATION EXPIRES

M. Patricia Buley
ACTING EXECUTIVE DIRECTOR

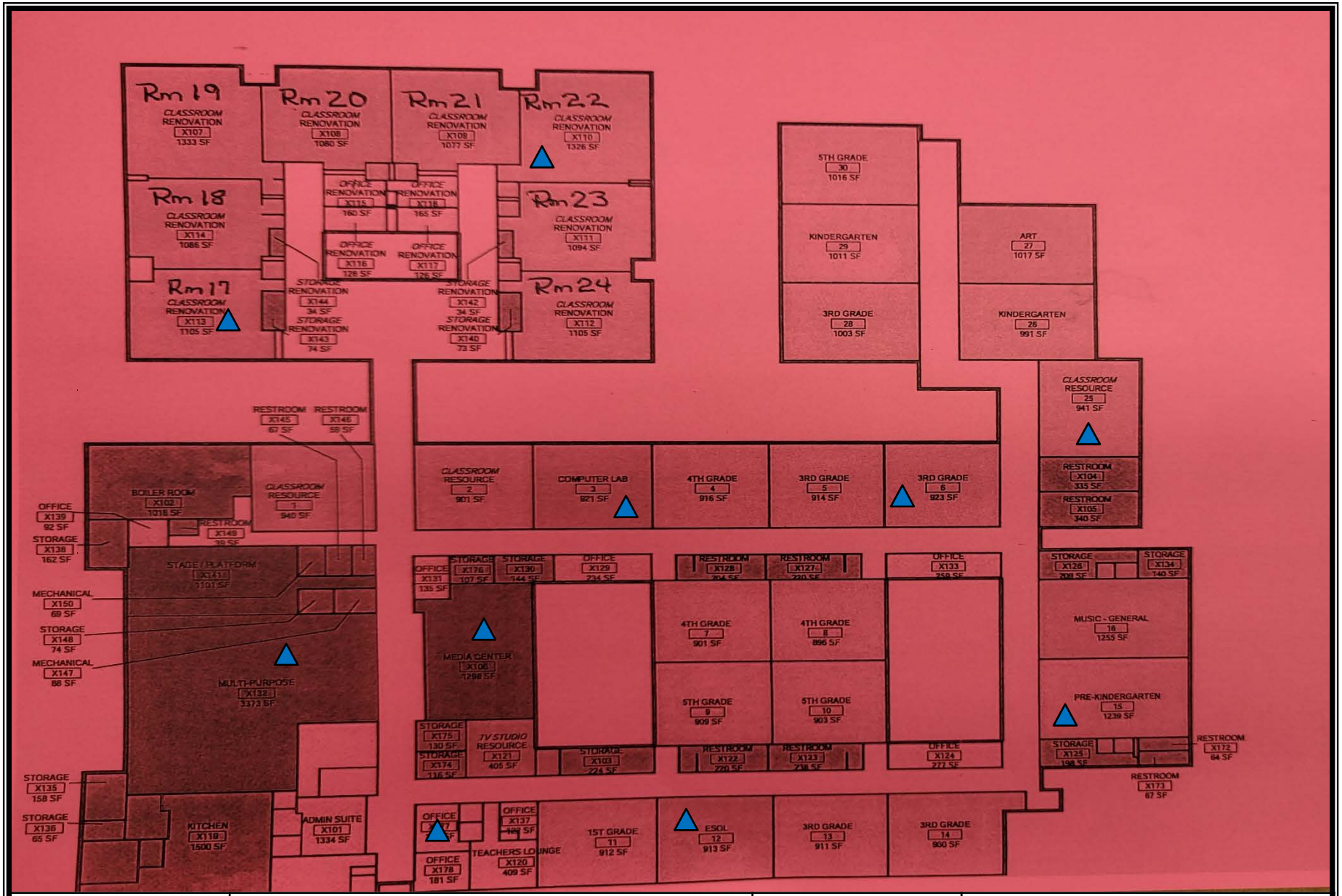
VALID SO LONG AS THIS CREDENTIAL IS RENEWED ACCORDING TO SCHEDULE AND IS NOT OTHERWISE REVOKED.

ANSI Accredited Program PERSONNEL CERTIFICATION

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

APPENDIX E

FLOOR PLAN WITH SAMPLING LOCATIONS



TIDEWATER INC

Attachment C
Kettering Elementary School
Floor Plan with Sampling Locations

Scale: N/A

Project #: 5419-032
Date: November 30, 2020

General Notes

▲ = Sample Location