February 10, 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)
Bonnie F. Johns Educational Media Center
8437 Landover Road, Landover, Maryland 20785
Contract No.: IFB 022-19: Indoor Air Quality Services at Various Locations
Tidewater Project No.: 5419-042

Dear Mr. Baylor:

Tidewater, Inc. (Tidewater) is pleased to present this report regarding the results of the preliminary Indoor Air Quality (IAQ) and Mold Assessment Services conducted by Tidewater at Bonnie F. Johns Educational Media Center located at 8437 Landover Road in Landover, Maryland. Tidewater's Project Manager and Certified Industrial Hygienist, Mr. Skanda Abeyesekere MS, CIH, CSP, CHMM conducted these services on December 8, 2020.

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: Library, Computer Laboratory 107, Computer Laboratory 110, Classroom 101, Home Teaching Library, Classroom 209 (Photography), Classroom 214, Classroom 200 and Classroom 205. 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 (CO_2) 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:

Library

No signs of ongoing water-intrusion problems or suspect mold growth were observed in the Library. Furthermore, no odors were detected. Two (2) ceiling-mounted air conditioning units were installed in the library. A total of six (6) fan coil units were operating and were emitting warm air at the time of the inspection. The Library appeared to be clean and well maintained.

Computer Laboratory 107

No signs of ongoing water-intrusion problems or suspect mold growth were observed. Furthermore, no odors were detected. Two (2) widow-mounted air conditioning units and two (2) ceiling-mounted air conditioning units were installed in the laboratory. Three (3) wall-mounted fan coil units were operating and were emitting warm air at the time of the inspection. Housekeeping appeared to be satisfactory.

Computer Laboratory 110

No suspect mold growth nor notable odors were detected. A water-stained ceiling tile was observed. One (1) widow-mounted air conditioning unit and one (1) ceiling-mounted air conditioning unit were installed in the laboratory. Four (4) wall-mounted fan coil units were operating and were emitting warm air at the time of the inspection. The front panel of one of the fan coil units was dismantled. Housekeeping appeared to be satisfactory

Classroom 101

No suspect mold growth nor notable odors were detected. Numerous water-stained ceiling tiles were observed. One (1) widow-mounted air conditioning unit was installed in the classroom. One (1) wall-mounted fan coil unit was operating and was emitting warm air at the time of the inspection. Numerous flower pots were observed in the classroom. These flower pots were poorly maintained and can act as amplification sites for mold. The classroom appeared to be clean and well maintained.

Home Teaching Library

No suspect mold growth nor notable odors were detected. Multiple water-stained ceiling tiles were observed throughout the classroom. The ceiling-mounted air supply grills and return air grills contained heavy dust accumulations. Housekeeping appeared to be satisfactory.

Classroom 209 (Photography)

One (1) ceiling-mounted air conditioning unit was installed in the classroom. Three (3) wall-mounted fan coil units were operating and were emitting warm air at the time of the inspection. Water-stained ceiling tiles with surface mold were observed around the ceiling-mounted air conditioning unit. Furthermore, surface mold was also observed on the pipe joints and insulation located behind the ceiling-mounted air conditioning unit.

Classroom 214

No suspect mold growth nor notable odors were detected. One (1) ceiling-mounted air conditioning unit was installed in the classroom. One (1) wall-mounted fan coil unit was operating and was emitting warm air at the time of the inspection. The classroom appeared to be clean and well maintained.

Classroom 200

Numerous ceiling tiles with heavy water stains and visible mold were observed throughout the classroom. One (1) widow-mounted air conditioning unit was installed in the classroom. One (1) wall-mounted fan coil unit was operating and was emitting warm air at the time of the inspection.

Classroom 205

No suspect mold growth nor notable odors were detected. One (1) ceiling-mounted air conditioning unit was installed in the classroom. One (1) wall-mounted fan coil unit was operating and was emitting warm air at the time of the inspection. Housekeeping appeared to be satisfactory.

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 Engineers (ASHRAE) Standard 62.1 – 2019, *Ventilation for Acceptable Indoor Air Quality*. Tidewater also obtained an "outdoor [exterior] background" 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 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 December 8, 2020 ranged between 70.2°F and 80.9°F. The background temperature outside the building was 50.4°F. The temperature levels recorded within Classrooms 200, 205, 209 and 214 were above the upper temperature standard of 74.5°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.

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 December 8, 2020 ranged between 18.4% and 30.2%. The background relative humidity level outside the building was 24.0%. 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 CO_2 levels not exceed 700 ppm above the outdoor background CO_2 level. The CO_2 levels in the assessed areas on December 8, 2020 ranged between 440 ppm and 477 ppm. The background CO_2 level outside the building was 430 ppm. The CO_2 levels within all interior locations assessed did not exceed 700 ppm above the outdoor background CO_2 level of 430 ppm.

The CO levels in all areas assessed on December 8, 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 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 "outdoors background" measurement at 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 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 0.033 mg/m^3 and 0.076 mg/m^3. The average PM10 dust concentration in the background sample obtained outside the building was 0.042 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 "outdoors background" 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 outdoor 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 90 spores/m^3 and 820 spores/m^3. The total mold spore concentrations in the background sample obtained outdoors was 1,020 spores/m^3. The total mold spore concentrations in all interior samples were below the background sample concentration of 1,020 spores/m^3 (sample # BJMC-BG.)

The concentrations of *Aspergilllus/ Penicllium* spores identified in samples # BJMC-1, #BJMC-2, #BJMC-8 (200 spores/m^3), BJMC-5 (80 spores/m^3) and BJMC-6 (100 spores/m^3) were significantly higher than the concentration of *Aspergilllus/ Penicllium* spores detected in the background sample # BJMC-BG (40 spores/m^3.) However, the fungal species observed in all interior samples were consistent with those observed in the background sample, and no significant concentrations of pathogenic fungal species were identified in the interior samples.

These results do not indicate elevated levels of airborne total fungal spores in the interior locations sampled, nor do the results suggest the presence of potential significant sources of indoor fungi in the 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 following issues were identified during the visual inspections:
  - Computer Lab 110: A water-stained ceiling tile was observed. The front panel of one of the fan coil units was dismantled.
  - Classroom 101: Numerous water-stained ceiling tiles were observed. Numerous flower pots which were poorly maintained were also noted. The flower pots can act as amplification sites for mold.
  - Home Teaching Library: Multiple water-stained ceiling tiles were observed throughout the classroom. The ceiling-mounted air supply grills and return air grills contained heavy dust accumulations.
  - Classroom 209 (Photography) - Water-stained ceiling tiles with surface mold was observed around the ceiling-mounted air conditioning unit. Visible surface mold was observed on pipe joints and insulation behind the ceiling-mounted air conditioning unit.
  - Classroom 200: Numerous ceiling tiles with heavy water stains and visible mold were observed throughout the classroom.

- The temperature levels in Classrooms 200, 205, 209 and 214 were above the upper temperature standard of 74.5°F recommended by ASHRAE for winter months.
- The Relative Humidity, CO_2, CO readings and PM10 readings 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:

- Investigate the drop ceiling above the water-stained ceiling tiles in Computer Lab 110, Classroom 101, Home Teaching Library, Classroom 200 and Classroom 209 for any ongoing condensation leaks or potential water sources. If any ongoing water leaks are detected, take immediate action to repair them. Remove all water-stained ceiling tiles in the above mentioned areas. Clean the ceiling grids in these areas with an EPA-approved fungicide prior to installing new ceiling tiles.
- Re-install the dismantled fan coil unit panel in Computer Laboratory 110.
- Discard all poorly maintained flower pots in Classroom 101 and clean the surrounding area with an EPA–approved fungicide to eliminate potential fungal spores.
- The ceiling-mounted supply air and return air grills in Home Tracing Library should be cleaned with a commercially available (EPA approved) disinfectant on a routine basis to remove dust and grime buildup.
- Appropriate steps should be taken to remediate the mold-impacted pipe joints and pipe insulation behind the ceiling-mounted air conditioning unit in Classroom 209 and mold impacted ceiling tiles in Classroom 200. The surrounding areas should be sanitized. Tidewater recommends hiring a 3rd party remediation company specializing in mold remediation to abate all mold-impacted and water damaged pipe joints and insulation and clean the surrounding area with a commercially available (EPA approved) fungicide to mitigate existing fungal spores prior to installing new pipe joints and pipe insulation;
- 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 furniture and window sills should be cleaned on a routine basis to prevent the accumulation of dust.

Qualifications

Tidewater investigated the existing conditions in select areas of Bonnie F. Johns Educational Media Center located at 8437 Landover Road in Landover, 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 collected during the assessment, and information provided by the 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 Abeyesekere, MS, CIH, CSP, CHMM
Project Manager

Jonathan N. Schatz, MS
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 Plans

APPENDIX A

COMFORT PARAMETERS, PM10 PARTICULATE DUST, AND MICROBIAL RESULTS

Table 1: Indoor Air Quality Comfort Parameters Bonnie F. Johns Educational Media Center				
Location	**Temperature (°F)**	**Carbon Dioxide (ppm)**	**Relative Humidity (%)**	**Carbon Monoxide (ppm)**
December 8, 2020				
Library	70.2	446	30.0	0.0
Computer Laboratory 107	73.1	454	30.2	0.0
Computer Laboratory 110	74.2	444	25.7	0.0
Classroom 101	74.3	440	24.6	0.0
Home Teaching Library	72.5	442	20.7	0.0
Classroom 209 (Photography)	**75.4**	448	22.6	0.0
Classroom 214	**77.1**	453	19.0	0.0
Classroom 200	**78.4**	450	18.7	0.0
Classroom 205	**80.8**	477	18.4	0.0
Background (Outdoors)	50.4	450	24.0	0.1

*Highlighted Areas indicate locations in which temperature levels exceeded 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) Bonnie F. Johns Educational Media Center	
Location	**Particulate Matter (PM10)** **Concentration (mg/m^3)**
December 8, 2020	
Library	0.076
Computer Laboratory 107	0.034
Computer Laboratory 110	0.033
Classroom 101	0.034
Home Teaching Library	0.037
Classroom 209 (Photography)	0.033
Classroom 214	0.038
Classroom 200	0.045
Classroom 205	0.038
Background (Outdoors)	0.042

Table 3: Spore Trap Sampling Results Bonnie F. Johns Educational Media Center				
December 8, 2020				
Sample Number	**Sample Location**	**Sample Volume (L)**	***Aspergillus Penicillium* Concentration (Counts/m^3)**	**Total Fungi Concentration (Counts/m^3)**
BJMC-1	Library	75.0	200	820
BJMC-2	Computer Laboratory 107	75.0	200	240
BJMC-3	Computer Laboratory 110	75.0	-	140
BJMC-4	Classroom 101	75.0	-	220
BJMC-5	Home Teaching Library	75.0	80	120
BJMC-6	Classroom 209 (Photography)	75.0	100	150
BJMC-7	Classroom 214	75.0	-	280
BJMC-8	Classroom 200	75.0	200	570
BJMC-9	Classroom 205	75.0	-	90
BJMC-BG	Background (Outdoors)	75.0	40	1,020

APPENDIX B

LABORATORY REPORTS AND CHAIN OF CUSTODY FORMS

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: 182004027
Customer ID: TIDE50
Customer PO:
Project ID:

Attention: Skanda Abeyeskere
Tidewater, Inc.
6625 Selnick Drive
Suite A
Elkridge, MD 21075
Project: Bonnie Jones Media Center

Phone: (443) 983-0362
Fax: (410) 997-8713
Collected Date: 12/08/2020
Received Date: 12/09/2020 02:15 PM
Analyzed Date: 12/15/2020

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

Lab Sample Number:	182004027-0001			182004027-0002			182004027-0003		
Client Sample ID:	BJMC-1			BJMC-2			BJMC-3		
Volume (L):	75			75			75		
Sample Location:	Library			Room 107 Comp. Lab			Room 110 Comp. Lab		
Spore Types	**Raw Count**	**Count/M³**	**% of Total**	**Raw Count**	**Count/M³**	**% of Total**	**Raw Count**	**Count/M³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	2*	30*	3.7	-	-	-	-	-	-
Aspergillus/Penicillium	4	200	24.4	4	200	83.3	-	-	-
Basidiospores	6	300	36.6	1	40	16.7	3	100	71.4
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	2	80	9.8	-	-	-	1*	10*	7.1
Curvularia	1	40	4.9	-	-	-	-	-	-
Epicoccum	2	80	9.8	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	1	40	4.9	-	-	-	2*	30*	21.4
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	1*	10*	1.2	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Bispora	-	-	-	-	-	-	-	-	-
Peronospora	-	-	-	-	-	-	-	-	-
Torula-like	1	40	4.9	-	-	-	-	-	-
Total Fungi	**20**	**820**	**100**	**5**	**240**	**100**	**6**	**140**	**100**
Hyphal Fragment	-	-	-	1	40	-	-	-	-
Insect Fragment	1	40	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	42	-	-	42	-	-	42	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	2	-	-	1	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	2	-	-	1	-	-	1	-

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

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

Kevin Ream, Laboratory Manager
or other Approved Signatory

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: 12/16/2020 08:29 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

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

EMSL Order: 182004027
Customer ID: TIDE50
Customer PO:
Project ID:

Attention: Skanda Abeyeskere
Tidewater, Inc.
6625 Selnick Drive
Suite A
Elkridge, MD 21075
Project: Bonnie Jones Media Center

Phone: (443) 983-0362
Fax: (410) 997-8713
Collected Date: 12/08/2020
Received Date: 12/09/2020 02:15 PM
Analyzed Date: 12/15/2020

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

Lab Sample Number:	182004027-0004			182004027-0005			182004027-0006		
Client Sample ID:	BJMC-4			BJMC-5			BJMC-6		
Volume (L):	75			75			75		
Sample Location:	Room 101			Home Teaching Area			209 - Photography		
Spore Types	**Raw Count**	**Count/M³**	**% of Total**	**Raw Count**	**Count/M³**	**% of Total**	**Raw Count**	**Count/M³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	1	40	18.2	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	2	80	66.7	3	100	66.7
Basidiospores	2	80	36.4	1	40	33.3	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	2	80	36.4	-	-	-	1	40	26.7
Curvularia	1*	10*	4.5	-	-	-	-	-	-
Epicoccum	1*	10*	4.5	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	1*	10*	6.7
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Bispora	-	-	-	-	-	-	-	-	-
Peronospora	-	-	-	-	-	-	-	-	-
Torula-like	-	-	-	-	-	-	-	-	-
Total Fungi	**7**	**220**	**100**	**3**	**120**	**100**	**5**	**150**	**100**
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	1*	10*	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	42	-	-	42	-	-	42	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	2	-
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

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: 12/16/2020 08:29 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

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

EMSL Order: 182004027
Customer ID: TIDE50
Customer PO:
Project ID:

Attention: Skanda Abeyeskere
Tidewater, Inc.
6625 Selnick Drive
Suite A
Elkridge, MD 21075
Project: Bonnie Jones Media Center

Phone: (443) 983-0362
Fax: (410) 997-8713
Collected Date: 12/08/2020
Received Date: 12/09/2020 02:15 PM
Analyzed Date: 12/15/2020

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

Lab Sample Number:	182004027-0007			182004027-0008			182004027-0009		
Client Sample ID:	BJMC-7			BJMC-8			BJMC-9		
Volume (L):	75			75			75		
Sample Location:	Room 214			Room 220			Room 205		
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	-	-	-	4	200	35.1	-	-	-
Basidiospores	2	80	28.6	4	200	35.1	1	40	44.4
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	4	200	71.4	1	40	7	4*	50*	55.6
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	1	40	7	-	-	-
Myxomycetes++	-	-	-	1*	10*	1.8	-	-	-
Pithomyces++	-	-	-	1	40	7	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Bispora	-	-	-	-	-	-	-	-	-
Peronospora	-	-	-	1	40	7	-	-	-
Torula-like	-	-	-	-	-	-	-	-	-
Total Fungi	**6**	**280**	**100**	**13**	**570**	**100**	**5**	**90**	**100**
Hyphal Fragment	-	-	-	1	40	-	1*	10*	-
Insect Fragment	-	-	-	1*	10*	-	-	-	-
Pollen	-	-	-	1	40	-	-	-	-
Analyt. Sensitivity 600x	-	42	-	-	42	-	-	42	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	2	-	-	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

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: 12/16/2020 08:29 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

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

EMSL Order: 182004027
Customer ID: TIDE50
Customer PO:
Project ID:

Attention: Skanda Abeyeskere
Tidewater, Inc.
6625 Selnick Drive
Suite A
Elkridge, MD 21075
Project: Bonnie Jones Media Center

Phone: (443) 983-0362
Fax: (410) 997-8713
Collected Date: 12/08/2020
Received Date: 12/09/2020 02:15 PM
Analyzed Date: 12/15/2020

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

Lab Sample Number:	**182004027-0010**		
Client Sample ID:	**BJMC-10**		
Volume (L):	**75**		
Sample Location:	**Background**		
Spore Types	**Raw Count**	**Count/M³**	**% of Total**
Alternaria (Ulocladium)	-	-	-
Ascospores	2	80	7.8
Aspergillus/Penicillium	1	40	3.9
Basidiospores	16	680	66.7
Bipolaris++	-	-	-
Chaetomium	-	-	-
Cladosporium	5	200	19.6
Curvularia	-	-	-
Epicoccum	1*	10*	1
Fusarium	-	-	-
Ganoderma	-	-	-
Myxomycetes++	-	-	-
Pithomyces++	-	-	-
Rust	-	-	-
Scopulariopsis/Microascus	-	-	-
Stachybotrys/Memnoniella	-	-	-
Unidentifiable Spores	-	-	-
Zygomycetes	-	-	-
Bispora	1*	10*	1
Peronospora	-	-	-
Torula-like	-	-	-
Total Fungi	**26**	**1020**	**100**
Hyphal Fragment	1	40	-
Insect Fragment	-	-	-
Pollen	-	-	-
Analyt. Sensitivity 600x	-	42	-
Analyt. Sensitivity 300x	-	13*	-
Skin Fragments (1-4)	-	1	-
Fibrous Particulate (1-4)	-	1	-
Background (1-5)	-	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

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: 12/16/2020 08:29 AM

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

OrderID: 182004027

Microbiology Chain of Custody

EMSL Order Number (*Lab Use Only*):

182004027

PHONE:
FAX:

Company: Tidewater Inc	**EMSL-Bill to:** ☐ Different ☐ Same If Bill to is Different note instructions in Comments** *Third Party Billing requires written authorization from third party*
Street: 6625 Selnick Drive, Suite A	
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: Bonnie Jonas media eval	**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
BJMC-1	Library	Air	~~M001~~ M001	75-0 ✓	12/8/20
BJMC-2	Room T67 comp. Lab			✓	
3	Room 110 Comp Lab			✓	
4	Room 101			✓	
5	Home teaching Area			✓	
6	209 - photography			✓	
7	Room 204			✓	
8	Room 200			✓	
9	Room 195			✓	
10	Background				

Client Sample # (s): **Total # of Samples:** 10

Relinquished (Client): **Date:** 12/08/2020 **Time:** 6:30 pm

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

Comments:

RECEIVED
EMSL ANALYTICAL, INC.
BELTSVILLE, MD
2020 DEC -9 P 2:15

182004027

GEN-FM-10-1: Sample Transfer-One Time
Revision 4.2
Revision Date: 1/05/2016
Effective Date: 1/05/2016

EMSL Analytical, Inc.

Sample Transfer Form

Receiving Lab:	EMSL- BELTSVILLE	**Phone Number:**	3019375700
		Fax Number:	3019375701
Relinquished to:	EMSL- PLYMOUTH MEETING	**Phone Number:**	8002203675
		Fax Number:	8567860262
Does new lab hold equivalent or additional accreditation? *		☒ Yes ☐ No	

EMSL Customer ID # (if known):	TIDE50
Client Name:	TIDEWATER
Client Project:	BONNIE JONES MEDIA CENTER
Tests to be Performed:	M001
Date Received:	12/10/20
Date Relinquished:	12/10/20
Date Due:	1 WEEK - 12/16/20
Special Instructions: (e.g. Work Order # , required qualifications, project specific procedures/modifications)	

Relinquished by (Signature): L. Lamworth	**Date:** 12/10/20	**Received by (Signature):**	**Date:** 12-11-20
Relinquished by (Signature):	**Date:**	**Received by (Signature):**	**Date:**

Customer Agreement- Please sign form and send to the receiving laboratory. By signing below, you agree to permit the above named receiving lab to transfer samples to a separate EMSL lab with equivalent qualifications* for analysis. The final report will be issued from the analyzing laboratory. Ensure any requirements are listed in special instructions.

Name (please print):	**Signature:**	**Agent of:**	**Date:**

If this is a recurring project or sample type that may require samples to be relinquished on a regular basis, a Standing Agreement form must be completed.

* Receiving and analyzing labs shall be aware of required qualifications of project prior to transfer of samples.

Note: If customer has been notified and approved this transfer verbally or by e-mail, the receiving lab must sign for the customer above. EMSL employee filling out form on behalf of customer shall print name of person to whom they spoke, date agreement was received, and then sign under Signature.

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

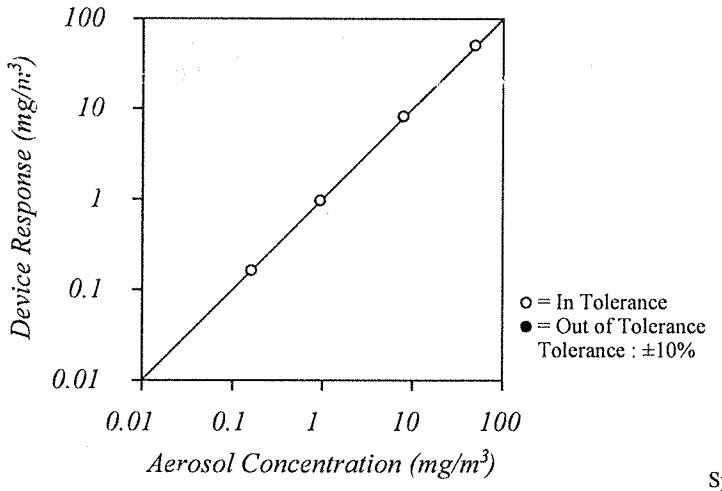
TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

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

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.

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

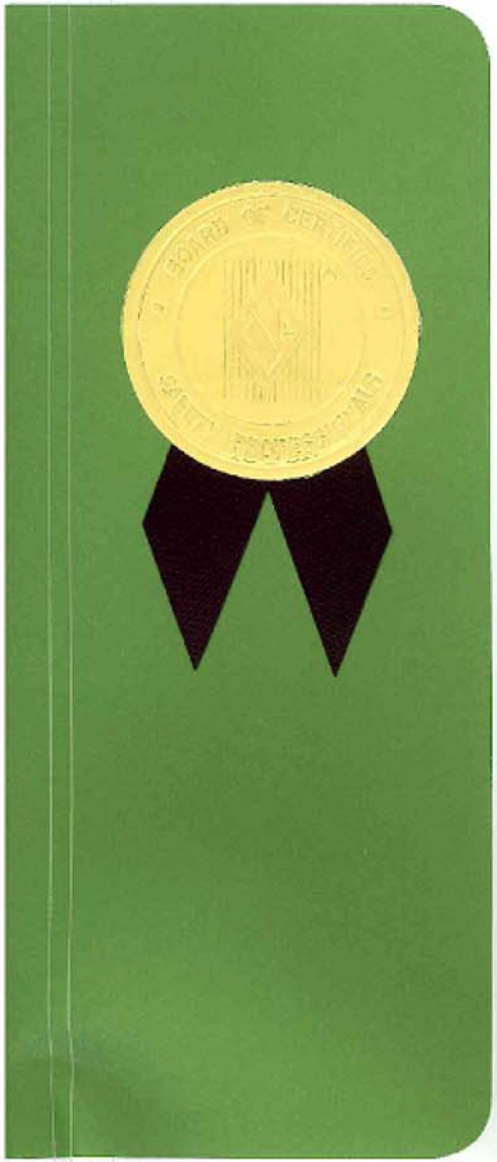
CERTIFIED INDUSTRIAL HYGIENIST

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

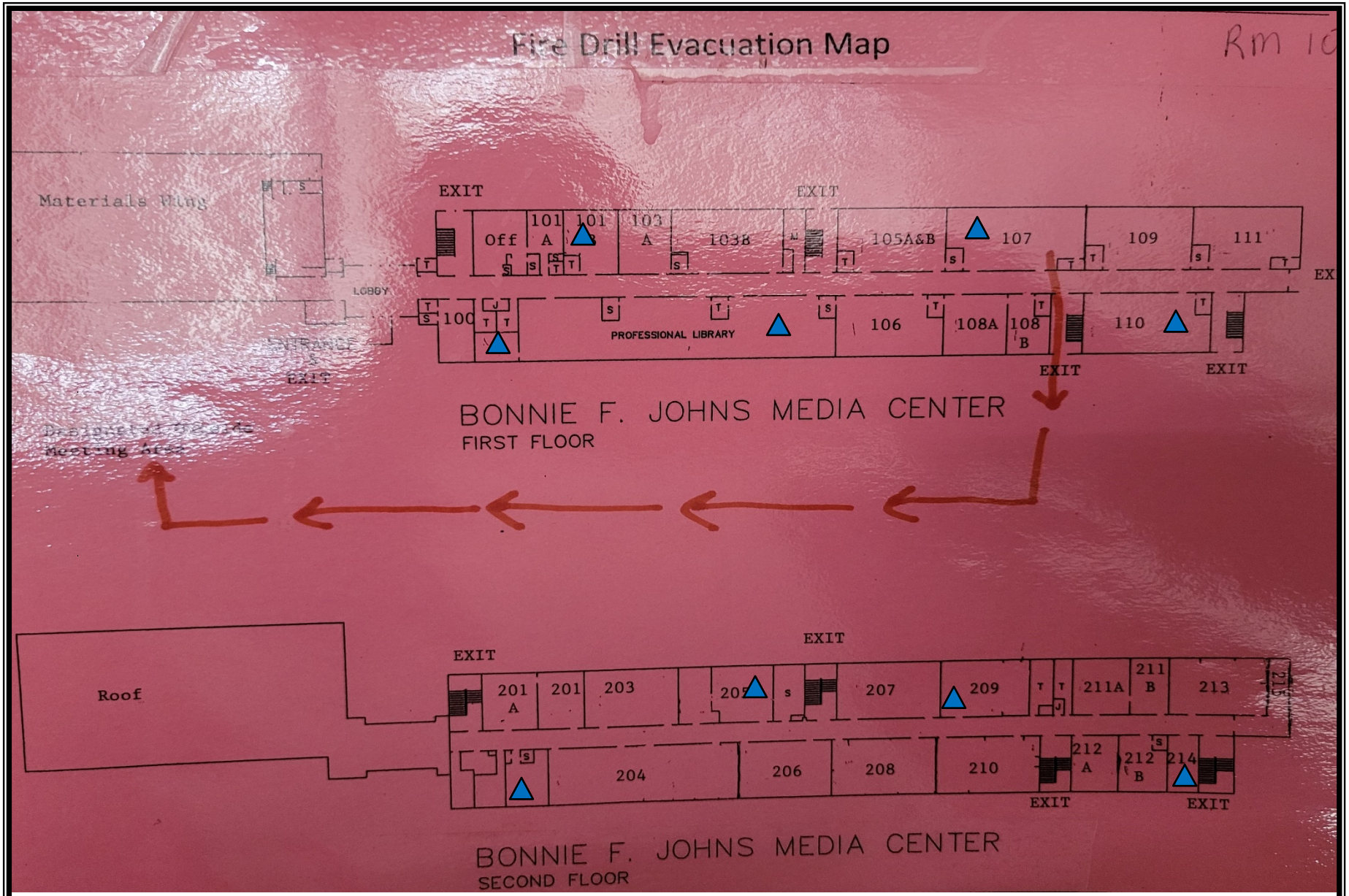
VALID SO LONG AS THIS CREDENTIAL IS RENEWED ACCORDING TO SCHEDULE AND IS NOT OTHERWISE REVOKED.

ANSI Accredited Program PERSONNEL CERTIFICATION

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

APPENDIX E

FLOOR PLANS



TIDEWATER INC	**Attachment C** **Bonnie F. Johns Educational Media Center** **Floor Plan with Sampling Locations**	Scale: N/A Project #: 5419 - 042 Date: December 8, 2020	**General Notes** ▲ = Sample Location