February 12, 2020

Ms. Sharmila Pradhan *CHMM* **via e-mail: sharmila.pradhan@montgomerycollege.edu**
Environmental Safety Manager
Montgomery College
Office of Facilities
9221 Corporate Boulevard
Rockville, MD 20850

RE: Indoor Environmental Quality and Mold Assessment Survey Report
Counseling & Advising (CB) Building
Montgomery College - Rockville Campus
51 Mannakee Street, Rockville, Maryland 20850
Tidewater Project Number: 5089-017

Dear Ms. Pradhan:

Tidewater, Inc. (Tidewater) performed a pre-occupancy Indoor Environmental Quality (IEQ) and Mold Assessment survey within the Counselling & Advising (CB) Building of Montgomery College's Rockville, Maryland Campus located at 51 Mannakee Street in Rockville, Maryland. Tidewater performed the IEQ and mold survey on January 31, 2020 between the hours of 7:00 AM and 1:00 PM.

The CB Building is currently shut down due to on-going water intrusion problems that have affected the building. The testing was conducted on behalf of Montgomery College to document background IEQ comfort parameters, total volatile organic compounds (TVOCs) concentrations, and total airborne mold spore concentrations within select locations of the CB Building. The purpose of the survey was to determine if the test parameters were within established guidelines prior to the relocation of employees from the Physical Education (PE) building to the CB Building. The IEQ and mold assessment survey was performed by Tidewater's Project Manager and Certified Industrial Hygienist, Mr. Skanda Abeyesekere MS, CIH, CSP, CHMM.

SCOPE

The testing was limited to select locations located on the 1st and 2nd Floors of the CB Building that are anticipated to be occupied by the relocating employees. The scope of work for this IEQ and mold survey included the following:

- Visual inspection 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 of indoor air quality parameters including temperature (T), relative humidity (RH), carbon dioxide (CO_2), carbon monoxide (CO), and total volatile organic compounds (TVOCs) for comparison with guidelines established by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 62.1–2016, Ventilation for Acceptable Indoor Air Quality, and The United States Environmental Protection Agency (US EPA) National Ambient Air Quality Standards (NAAQS); and
- Spore trap air sampling to characterize for total airborne mold spores.

SAMPLING METHODOLOGY

Comfort Parameter Air Testing

During the assessment, Tidewater obtained temperature (T), relative humidity (RH), carbon dioxide (CO_2), and carbon monoxide (CO) measurements within select locations of the CB Building using a Metrosonics Indoor Air Quality instrument (Model Number AQ-5000, Serial Number 2319, Calibration Date: February 25, 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 guidelines established by the American Society for Heating Refrigeration and Air Conditioning (ASHRAE) Standard 62.1 – 2016, Ventilation for Acceptable Indoor Air Quality.

A background sample was also obtained outside of the building for comparison to the interior readings.

Total Volatile Organic Compounds (TVOCs)

Tidewater collected direct-read measurements for TVOCs from select locations of the CB Building to characterize concentrations of airborne Total Volatile Organic Compounds. The measurements for TVOCs were obtained using a Mini-RAE 2000 Hand Held VOC meter (Model MINIRAE 2000, Serial Number 110-010833.) 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 designated location and the average concentration was recorded.

A background measurement was also obtained outside of the building for comparison to the interior readings.

Spore Trap Bioaerosol Sampling (Total Spore Analysis)

Tidewater collected spore trap air samples from select locations of the CB Building to characterize potential 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 B152473) 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 collected a background sample outside of the building for comparison to the interior spore concentrations.

Once collected, the samples were transported to EMSL Analytical Laboratory (EMSL) located in Beltsville, Maryland for analysis. 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.

FIELD INSPECTION

Visual Observations

Counseling & Advising (CB) Building

The following offices were inspected during the visual inspection of the Counseling and Advising (CB) Building: Rooms 105, 109, 116H, 116A, 119, 122D, 122A located on the 1st Floor and Rooms 204, 218, and 215 located on the 2nd Floor. Tidewater's assessment included a visual inspection of these rooms for evidence of indoor air quality problems (including suspect mold growth, water damage, chemical use/storage, drain traps, sources of allergens/contaminants) that may contribute to indoor air quality problems.

Tidewater did not observe any evidence of past water intrusion on accessible floors or walls in the majority of the rooms inspected on the 1st Floor. However, water stained ceiling tiles were observed in Room 109 and Room 116-A. Additionally, missing ceiling tiles were observed in Room 112 and Room 116-H. No suspect mold formations were observed in any of the areas inspected. The office areas appeared to be relatively clean; however, particulate matter/accumulated dust was observed on the supply air diffusers in Room 105 and Room 109. Tidewater did not detect any significant odors emanating from any of the areas inspected on the 1st Floor of the CB Building, although the overall air appeared to be stagnant with poor ventilation.

The areas inspected on the 2nd Floor, Rooms 204 and 218, and the lobby area of Suite 215 appeared to be cluttered. Furthermore, the carpeting in Room 204, Room 218 and Suite 215 were stained. Access debris and settled dust was observed on the carpet in these areas. Water stained ceiling tiles and missing ceiling tiles were observed in multiple locations in Suite 215. No suspect mold formations were observed in any of the areas inspected.

The Counseling and Advising (CB) Building is equipped with constant volume heating ventilation and air conditioning systems. There is no means of humidity control in the CB building. The humidity is lowered by lowering the temperature of the thermostats of the Heating Ventilation and Air Conditioning (HVAC) systems. The CB Building is currently unoccupied. The employees in the CB Building have been temporarily relocated to other buildings on the campus due to on-going water intrusion problems. The HVAC system is not in operation at it optimum capacity due to the building being vacant. Maintenance of the HVAC systems in the CB Building is reportedly performed approximately every three (3) months on a preventive maintenance schedule.

SAMPLING RESULTS

The indoor air quality parameters, total volatile organic compounds, and microbial spore traps results are summarized in this section. The corresponding laboratory analytical reports and chain of custody forms are included as appendices.

Comfort Parameters

According to the American Society for Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) guidelines Standard 62.1 – 2016, the temperature range in summer months should be maintained between 73.0° F and 79.0° F for maximum occupant comfort. The ASHRAE guideline for temperature for winter months is between 68.0° F and 74.5° F. Temperature levels within the assessed areas of the CB Building ranged between 64.7° F and 68.7° F, compared with a background (outdoors) average temperature of 58.4° F. The interior temperature

readings in a number of locations assessed in the CB Building were below the ASHRAE recommended temperature guideline of 68.0° F and 74.5° F for winter months.

Per the same guidelines, a maximum recommended relative humidity level of 65.0% is recommended to reduce the likelihood of condensation on cold surfaces and potential microbial growth. Measurements of relative humidity levels within the assessed areas of the CB Building ranged between 20.5% and 25.0%, compared with a background (outdoors) relative humidity level of 28.6%. All interior readings were below the ASHRAE Standard 62.1 – 2016 recommended guideline of 65.0%.

ASHRAE Standard 62.1 – 2016 recommends that indoor CO_2 levels not exceed 700 ppm above the outdoor (background) CO_2 level. The CO_2 readings in the assessed areas of the CB Building ranged between 456 ppm and 578 ppm, compared with an outdoor concentration of 520 ppm. The interior CO_2 readings in all areas assessed in the CB Building did not exceed 700 ppm above the outdoor (background) CO_2 levels and therefore were within ASHRAE Standard 62.1 – 2016 for CO_2.

The CO levels were taken for comparison to the primary standard established by the Environmental Protection Agency (EPA.) Based on the National Ambient Air Quality Standard (NAAQS) set by the EPA, the maximum CO concentration for occupational settings is 9.0 ppm. The CO levels within all areas assessed in the CB building were below 9.0 ppm and therefore were within the EPA NAAQ standard.

The results for the comfort parameter monitoring are provided in Table 1, below. A floor plan including sampling locations is included in **Appendix C**. The calibration certificate for the AQ-5000 Indoor Air Quality instrument is included in **Appendix D**.

TABLE 1: Comfort Parameters

Sample Location	Temperature (°F)	Relative Humidity (%)	Carbon Dioxide (ppm)	Carbon Monoxide (ppm)
Counseling & Advising Building January 31, 2020				
Office 105	**67.0**	23.0	468	0.0
Office 109	**67.2**	23.0	470	0.0
Office 116-H	68.0	22.9	476	0.0
Office 116-A	68.5	22.4	476	0.0
Office 119	68.7	22.0	519	0.0
Office 122-D	68.1	23.8	507	0.0
Office 122-A	**66.9**	24.2	578	0.0
Office 204	**64.7**	25.0	523	0.0
Office 218	**67.6**	20.8	456	0.0
Office 215 - Central Areas	68.5	20.5	462	0.0
Background (Outdoors)	58.4	28.6	520	0.0

Red = Below American Society for Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) guidelines Standard 62.1 – 2016 for winter months.

Total Volatile Organic Compounds (TVOCs) - MiniRAE

There are no OSHA published guidelines for TVOCs. However, in general, the indoor air quality TVOC threshold for typical indoor occupied environments should not exceed 1,000 ppb (1.0 ppm) isobutylene units. The TVOC concentrations recorded in the building were all well below the recommend threshold level.

The results of the direct read TVOC monitoring are provided in Table 2, below. A floor plan including sampling locations is included in **Appendix C**. The calibration certificate for the Mini-RAE 2000 Hand Held VOC meter is included in **Appendix D**.

TABLE 2: TVOC Measurements		
Location	**Average Result (ppm)**	**Threshold of 1000 ppb (1.0 ppm) Exceeded?**
Counseling & Advising Building January 31, 2020		
Office 105	0.0	No
Office 109	0.0	No
Office 116-H	0.0	No
Office 116-A	0.0	No
Office 119	0.0	No
Office 122-D	0.0	No
Office 122-A	0.0	No
Office 204	0.0	No
Office 218	0.0	No
Office 215 - Central Areas	0.0	No
Background (Outdoors)	0.0	No

Spore Trap Bioaerosol Sampling

There are no universally accepted federal or State of Maryland standards for acceptable airborne concentrations of bioaerosols in an indoor occupational environment. In general, airborne concentrations indoors should be less than that found in the outdoor air, with similar species composition. Indoor spore counts significantly greater than outdoor concentrations, or the presence of large concentrations of different spore types indoors which are not found outdoors, may indicate potential microbial contamination in the sampled areas. Elevated counts are not necessarily an indication of active microbial growth.

The total mold spore concentrations in the samples collected inside the CB building ranged between None Detected and 300 Counts/m^3. The background mold spore concentration was 240 Counts/m^3. It should be noted that precipitation during this testing likely resulted in lower ambient spore concentrations.

The interior total mold spore concentration in Office 122-D marginally exceeded the total mold spore concentration of the background sample. Additionally, the *Aspergillus/Penicillium* concentration in Office 122-D exceeded the concentration detected in the background/outside

sample (None Detected.) Although the *Aspergillus/Penicillium* concentration in Office 122-D was slightly higher than the outside concentration, it was consistent with the total spore concentration outside and is unlikely to be an indication of a fungal reservoir inside the building. Tidewater did not observe any evidence of suspect mold formations in Office 122-D at the time of this testing.

The results for the spore trap sampling are provided in Table 3, below. The laboratory analytical reports and chain of custody forms are included in **Appendix B.** A floor plan including sampling locations is included in **Appendix C**.

Table 3: Spore Trap Bioaerosol Results

Sample #	Sample Location (Room / Cubicle)	Sample Volume (L)	*Aspergillus/ Penicilium* (Counts/m^3)	Total Fungi Concentration (Counts/m^3)
Counseling & Advising Building January 31, 2020				
CB-1	Office 105	75.0	40	170
CB-2	Office 109	75.0	None Detected	90
CB-3	Office 116-H	75.0	None Detected	40
CB-4	Office 116-A	75.0	None Detected	40
CB-5	Office 119	75.0	90	220
CB-6	Office 122-D	75.0	**300**	**300**
CB-7	Office 122-A	75.0	None Detected	None Detected
CB-8	Office 204	75.0	None Detected	None Detected
CB-9	Office 218	75.0	None Detected	None Detected
CB-10	Office 215 - Central Areas	75.0	None Detected	None Detected
BG-1	Background	75.0	None Detected	240

Red = Total mold spore concentration is above background concentration.

CONCLUSIONS

- The following conditions of concern were noted during the visual inspection: water-stained ceiling tiles in Room 109, Room 116-A and Room 215; missing ceiling tiles in Room 116-H and Suite 215; excessive particulate matter/accumulated dust on supply air diffusers in Room 105 and Room 109.; and stained/dirty carpet in Room 204, Room 218, and the lobby area of Suite 215.
- The interior temperature readings in a number of locations assessed in the CB Building were below the temperature guideline of 68.0°F and 74.5°F recommended in ASHRAE Standard 62.1 – 2016 for winter months.
- Relative humidity, CO_2, CO, and TVOC readings recorded in the building during this survey were within industry standards and guidelines.
- A review of the spore trap bioaerosol sampling results did not indicate the presence of a fungal reservoir inside the building. Tidewater did not observe any evidence of suspect mold formations on readily accessible surfaces in the surveyed building areas.

RECOMMENDATIONS

- Adjust the thermostats of the HVAC systems supplying the CB building in order to maintain a temperature level between 68.0°F and 74.5°F recommended in ASHRAE Standard 62.1 – 2016 for winter months.
- Investigate above drop ceiling in Room 109, Room 116-A and Suite 215 for ongoing condensation leaks or other potential water sources within the CB Building. If any on-going water leaks are detected, repair them immediately. If surface mold contamination is observed, appropriate steps should be taken to remediate and sanitize the affected areas.
- Remove all water stained/ water damaged ceiling tiles in the above mentioned areas. Ensure that the perimeter of the ceiling grids in each area is cleaned with a 10% bleach solution prior to installing new ceiling tiles. Replace all missing ceiling tiles in these areas.
- Ensure that all reinstallation and cleanup activities are conducted after hours when the rooms are unoccupied to minimize exposure to occupants.
- Replace missing ceiling tiles in Room 116-H and Suite 215.
- Cleaned/disinfect the return air grills in Room 109 and Room 105 to remove visible particulate matter and accumulated dust.
- Ensure the Heating Ventilation and Air Conditioning (HVAC) System supplying air to the CB Building is properly balanced per design requirements and current occupancy/use in order to ensure adequate ventilation throughout the rooms.
- Ensure that the ventilation systems are turned on in all rooms and are operating at all times when the rooms are occupied to provide sufficient air flow and ventilation.
- Tidewater recommends vacuum cleaning (stream cleaning) all carpeting on the 1st and 2nd Floors and wiping down all horizontal surfaces with disinfectant cleaning solution to remove settled dust and debris prior to relocating employees to the CB Building

- All complaints related to allergies, odors, and poor indoor quality should be closely monitored and recorded after employees are relocated.

QUALIFICATIONS

Tidewater has endeavored to investigate existing conditions associated with select areas of the Counseling & Advising (CB) Building located on the Montgomery College Rockville Campus at 51 Mannakee Street in Rockville, Maryland as they pertain to indoor air quality. Regardless of the thoroughness of our investigation, it is possible that some contributing factor may have been overlooked or that circumstances have changed without our knowledge. Our results are based on the observations made on the day of our investigation and information provided by our Client. Actual conditions vary from day to day throughout the year.

Tidewater appreciates the opportunity to provide consulting services for Montgomery College on this matter. 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/ Certified Industrial Hygienist

SA/JG

Appendices: Appendix A – Photograph Log
Appendix B – Laboratory Reports and Chain of Custody Forms
Appendix C – Building Floorplan with Sample Locations
Appendix D – Instrument Calibration Reports

APPENDIX A

PHOTOGRAPH LOG

Photo No. 1: CB Building, Room 105 - particulate matter and accumulated dust on air supply diffuser.

Photo No. 2: CB Building, Room 109 – particulate matter and accumulated dust on air supply diffuser.

Photo No. 3: CB Building, Room 109 – Ceiling tile with minor water stains.

Photo No. 4: CB Building, Room 122 - Missing Ceiling Tile.

Photo No. 5: CB Building, Room 116-H - Missing Ceiling Tile.

Photo No. 6: CB Building, Room 122-D.

Photo No. 7: CB Building, Room 204 – Heavily-stained carpeting.

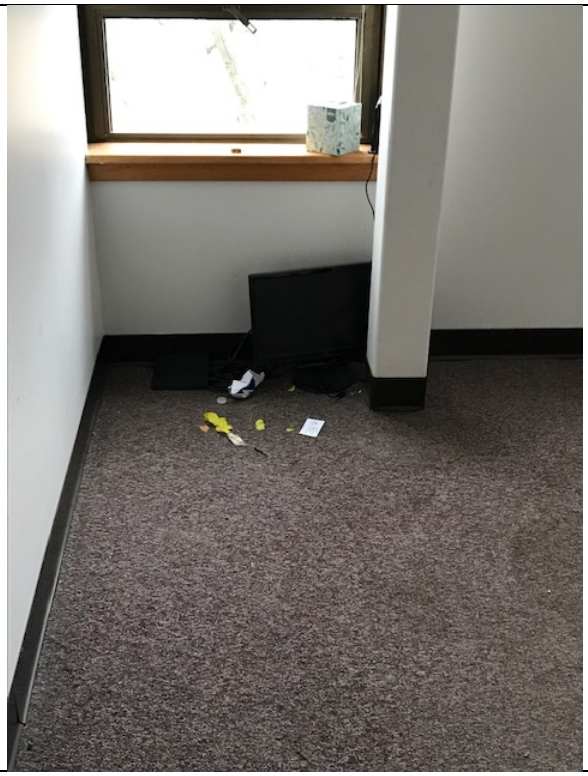

Photo No. 8: CB Building, Room 204 – Debris on Carpeting.

Photo No. 9: CB Building, Room 218 – Heavily-stained carpeting.

Photo No. 10: CB Building, Suite 215 (Center) – Heavily-stained carpeting.

Photo No. 11: CB Building, Room 215 – Water-stained / missing ceiling tiles.

Photo No. 12: CB Building, Room 215 – Water-stained ceiling tiles.

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: 192001188
Customer ID: TIDE50
Customer PO:
Project ID:

Attn: Skanda Abeyeskere
Tidewater, Inc.
6625 Selnick Drive
Suite A
Elkridge, MD 21075
Project: CB-Building (Air Samples) MC-Rockville

Phone: (443) 983-0362
Fax: (410) 997-8713
Collected: 01/31/2020
Received: 01/31/2020
Analyzed: 01/31/2020

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

Lab Sample Number:	192001188-0001			192001188-0002			192001188-0003		
Client Sample ID:	CB-1			CB-2			CB-3		
Volume (L):	75			75			75		
Sample Location	Room 105			Room 109			Room 116H		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	1	40	100
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	1	40	23.5	-	-	-	-	-	-
Basidiospores	2	90	52.9	-	-	-	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	1	40	23.5	-	-	-	-	-	-
Cladosporium	-	-	-	1	40	44.4	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	1*	10*	11.1	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	1	40	44.4	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Total Fungi	**4**	**170**	**100**	**3**	**90**	**100**	**1**	**40**	**100**
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	2	-	-	3	-	-	3	-
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.

Stefanie Schneider

Stefanie Schneider, Microbiology Laboratory Manager or other approved signatory

Samples received in good condition 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. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

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

Initial report from: 01/31/2020 16:18:46

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

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Phone: (443) 983-0362
Fax: (410) 997-8713
Collected: 01/31/2020
Received: 01/31/2020
Analyzed: 01/31/2020

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

Lab Sample Number:	192001188-0004			192001188-0005			192001188-0006		
Client Sample ID:	CB-4			CB-5			CB-6		
Volume (L):	75			75			75		
Sample Location	Room 116A			Room 119			Room 122D		
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	-	-	-	2	90	40.9	7	300	100
Basidiospores	1	40	100	2	90	40.9	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	1	40	18.2	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Total Fungi	**1**	**40**	**100**	**5**	**220**	**100**	**7**	**300**	**100**
Hyphal Fragment	-	-	-	1	40	-	-	-	-
Insect Fragment	-	-	-	-	-	-	1	40	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	3	-	-	4	-	-	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.

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Stefanie Schneider

Stefanie Schneider, Microbiology Laboratory Manager or other approved signatory

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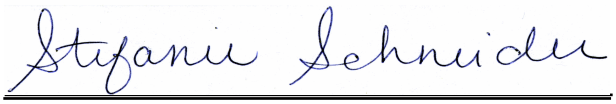
Collected: 01/31/2020
Received: 01/31/2020
Analyzed: 01/31/2020

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

Lab Sample Number:	192001188-0007			192001188-0008			192001188-0009		
Client Sample ID:	CB-7			CB-8			CB-9		
Volume (L):	75			75			75		
Sample Location	Room 122A			Room 204			Room 218		
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	-	-	-	-	-	-	-	-	-
Basidiospores	-	-	-	-	-	-	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Total Fungi	**-**	**None Detect**	**-**	**-**	**None Detect**	**-**	**-**	**None Detect**	**-**
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	1	40	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	3	-	-	4	-	-	3	-
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.



Stefanie Schneider, Microbiology Laboratory Manager
or other approved signatory

Samples received in good condition 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. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

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

Initial report from: 01/31/2020 16:18:46

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: 192001188
Customer ID: TIDE50
Customer PO:
Project ID:

Attn: Skanda Abeyeskere
Tidewater, Inc.
6625 Selnick Drive
Suite A
Elkridge, MD 21075
Project: CB-Building (Air Samples) MC-Rockville

Phone: (443) 983-0362
Fax: (410) 997-8713
Collected: 01/31/2020
Received: 01/31/2020
Analyzed: 01/31/2020

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

Lab Sample Number:	192001188-0010			192001188-0011		
Client Sample ID:	CB-10			BG		
Volume (L):	75			75		
Sample Location	Room 215G			Background		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	-	-	-
Basidiospores	-	-	-	5	200	83.3
Bipolaris++	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-
Myxomycetes++	-	-	-	3*	40*	16.7
Pithomyces++	-	-	-	-	-	-
Rust	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-
Total Fungi	**-**	**None Detect**	**-**	**8**	**240**	**100**
Hyphal Fragment	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-
Pollen	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	2	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-
Background (1-5)	-	1	-	-	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.

Stefanie Schneider

Stefanie Schneider, Microbiology Laboratory Manager or other approved signatory

Samples received in good condition 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. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the result, it will be noted on the report.

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

Initial report from: 01/31/2020 16:18:46

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

OrderID: 192001188

Microbiology Chain of Custody

EMSL Order Number (*Lab Use Only*):

192001188

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:** 21075 **Country:** U.S.
Report To (Name): Skanda Abeyesekere	**Telephone #:** 443-983-0362
Email Address: skanda@tideh2o.net	**Fax #:** 410-579-1685 **Purchase Order:**
Project Name/Number: CB E-Building (Air-Samples)MC-Rockville	**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: [signature] **Signature of Sampler:** SKANDA ABEYESEKERE

Sample #	Sample Location	Sample Type	Test Code	Volume/Area	Date/Time Collected
Example: A1	Kitchen	Air	M001	75L	1/1/12 4:00 PM
CB-1	Room 105	AIR	M001	75.	01/31/2020
CB-2	Room 109	"	"	"	"
CB-3	Room 116H	"	"	"	"
CB-4	Room 116A	"	"	"	"
CB-5	Room 119	"	"	"	"
CB-6	Room 122D	"	"	"	"
CB-7	Room 122A	"	"	"	"
CB-8	Room 204	"	"	"	"
CB-9	Room 218	"	"	"	"

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

Relinquished (Client): [signature] **Date:** 01/31/20 **Time:** 8:30pm

Received (Client): Hawthorne Walk In **Date:** 01/31/20 **Time:** 1:11PM

Comments:
skanda@tideh2o.net / okahawita@yahoo.com / (sharmila.pradhan@montgomerycollege.edu) / michael.rocke@montgomerycollege.edu) (mai.toyofuku@montgomerycollege.edu)

OrderID: 192001188

Microbiology Chain of Custody

EMSL Order Number (*Lab Use Only*):

192001188

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:** 21075 **Country:** U.S.
Report To (Name): Skanda Abeyesekere	**Telephone #:** 443-983-0362
Email Address: skanda@tideh2o.net	**Fax #:** 410-579-1685 **Purchase Order:**
Project Name/Number: CB-E-Building (Air-Samples)MC-Rockville	**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
- **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: **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
CB-10	Room 215G	Air	M001	75	01/31/2020
BG	Background	Air	M001	75	

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

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

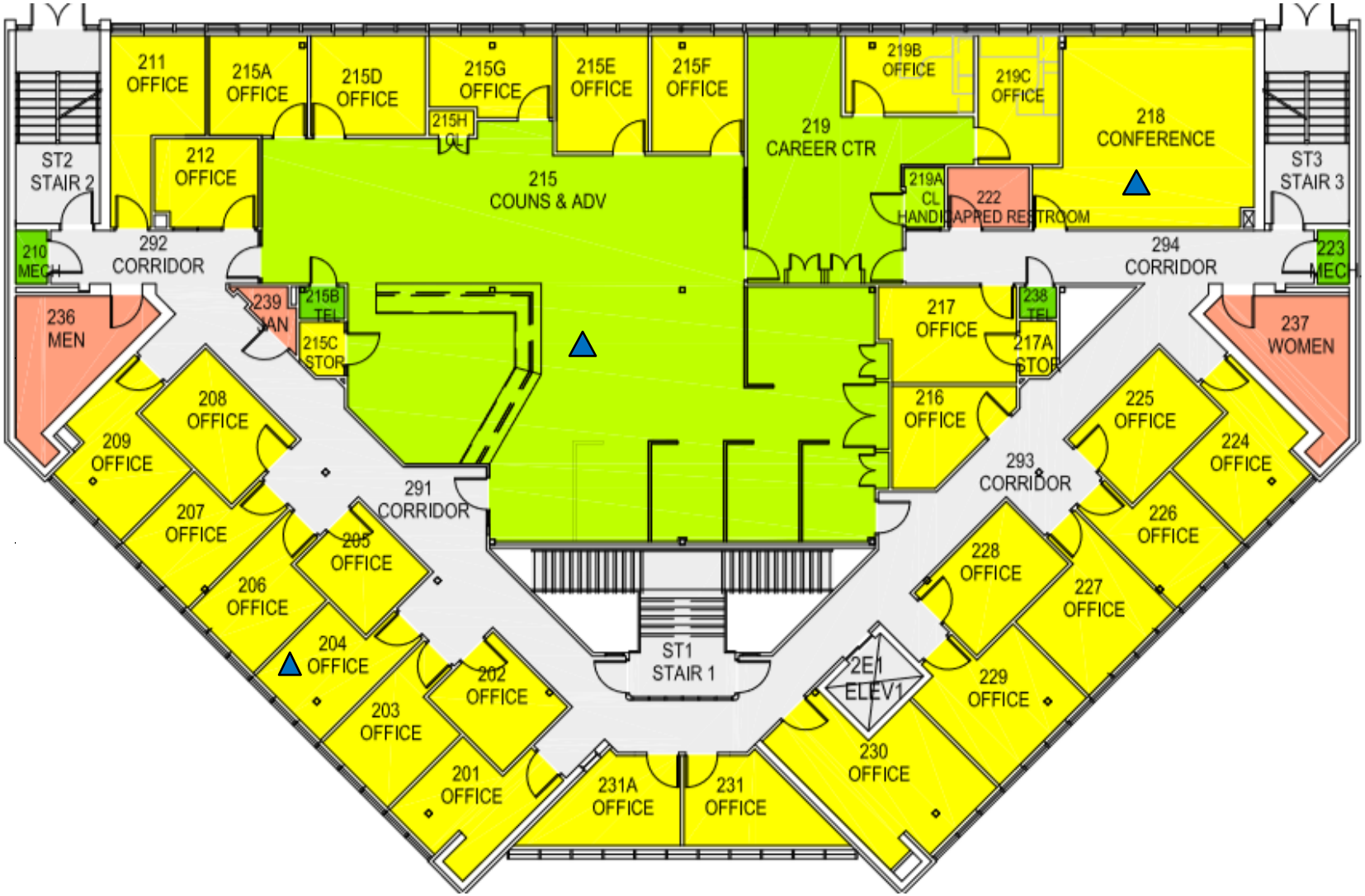
Received (Client): **Date:** **Time:**

Comments:
skanda@tideh2o.net / okahawita@yahoo.com / (sharmila.pradhan@montgomerycollege.edu) / michael.rocke@montgomerycollege.edu) (mai.toyofuku@montgomerycollege.edu)

APPENDIX C

BUILDING FLOOR PLAN WITH SAMPLE LOCATIONS

TIDEWATER INC	**Attachment C** **CB Building** **First Floor Sampling Locations**	Scale: N/A Project #: 5089-017 Date: January 31, 2020	**General Notes** ▲ = Sample Location



TIDEWATER INC	**Attachment C** **CB Building** **Second Floor Sampling Locations**	Scale: N/A Project #: 5089-017 Date: January 31, 2020	**General Notes** ▲ = Sample Location

APPENDIX D

INSTRUMENT CALIBRATION REPORTS

INSTRUMENT CALIBRATION REPORT

Advanced Labs, Inc.

Tidewater, Inc.

Instrument ID 2319
Description Metrosonics AQ-5000
Calibrated 2/25/2019

Manufacturer Metrosonics
Model Number AQ-5000
Serial Number 2319
Location New Jersey
Temp 71

Classification
Status Pass
Frequency Yearly EOM
Department
Humidity 21

Calibration Specifications

Group # 1
Group Name Carbon Dioxide
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
0.00 / 0.00	PPM	0.00	PPM	20.00	0.00	0.00%	Pass
5000.00 / 5000.00	PPM	5000.00	PPM	5,080.00	4,960.00	-0.80%	Pass

Group # 2
Group Name Relative Humidity
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
30.00 / 30.50	%	30.50	%	30.20	30.20	-0.98%	Pass

Group # 3
Group Name Temperature
Stated Accy Plus / Minus
Range Acc % 0.0000
Reading Acc % 0.0000
Plus/Minus 0.90

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
70.00 / 66.00	°F	66.00	°F	66.20	66.20	0.30%	Pass

Group # 4
Group Name Carbon Monoxide
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
0.00 / 0.00	PPM	0.00	PPM	0.00	0.00	0.00%	Pass
200.00 / 200.00	PPM	200.00	PPM	170.00	201.00	0.50%	Pass

INSTRUMENT CALIBRATION REPORT

Advanced Labs, Inc.

Tidewater, Inc.

Instrument ID 2319
Description Metrosonics AQ-5000
Calibrated 2/25/2019

Test Instruments Used During the Calibration

				(As Of Cal Entry Date)	
Test Instrument ID	**Description**	**Manufacturer**	**Serial Number**	**Last Cal Date**	**Next Cal Date**
CO 200PPM 34LS-50-200	CO 200ppm GAP-50-200-3	Spec Air	34LS-50-200	6/1/2015	6/16/2019
CO2 5000PPM CAQ-34-5000-5	Carbon Dioxide 5000 PPM LOT # LTB192-MD-CM	Liquid Technology	CAQ-35-5000-5	2/1/2016	2/22/2020
MICHELL DM-509-TX-01	Relative Humidity Meter	Michell	273296	9/17/2018	9/17/2019
NITROGEN	Nitrogen 99.999%	Liquid Technology	7727-37-9	6/1/2016	6/1/2019
ZERO_AIR_105 L-1	Zero Grade Air THC <1.0 PPM	Liquid Technology	KAP-A-10	10/1/2015	10/20/2019

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated David Galego

Advanced Labs, Inc. hereby certifies that this instrument is calibrated and functions to meet the manufacture's specifications using NIST traceable standards, or is derived from accepted values of physical constants.

Certificate of Conformance

(X) Buck BioAire™ ( ) Buck BioSlide™

Serial number: B152473 **Date Issued:** 3-29-19

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. Trowbridge

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.

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services, LLC.

Tidewater MD

Instrument ID 110-010833
Description MINIRAE 2000
Calibrated 4/9/2019

Manufacturer Rae Systems
Model Number MINIRAE 2000
Serial Number 110-010833
Location Maryland
Department CATHY MOORE

Frequency 6 Months
Status Pass
Temp 24
Humidity 39

Calibration Specifications

Group # 1
Group Name ISOBUTYLENE
Stated Accy Pct of Reading

Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
100.00 / 100.00	ppm	100.00	ppm	92.80	101.00	1.00%	Pass

Test Instruments Used During the Calibration (As Of Cal Entry Date)

Test Instrument ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	Last Cal Date	Next Cal Date / Expiration Date
MD ISO 100PPM FBI-248-100-12	MD ISO 100PPM	Pine Environmental Services, Inc.	FBI-248-100-12	34LS-248-100	5/23/2022	
MD ZERO AIR FBI-1-25	ZERO AIR Oxygen 20.9%VOL, Nitrogen Balance	Pine Environmental Services, Inc.	31844	FBI-1-25		

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Ryan Armstrong

Pine Environmental Services, LLC. hereby certifies that this instrument is calibrated and functions to meet the manufacturer's specifications using NIST traceable standards, or is derived from accepted values of physical constants.