July 2, 2019

Mr. Alex Baylor, Environmental Specialist via email: alex.baylor@pgcps.org
Environmental Safety Office
Prince Georges 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
Parkdale High School
6601 Good Luck Road, Riverdale, MD 20737
Contract No.: IFB 022-19; Tidewater Project No.: 5419-005

Dear Mr. Baylor:

Tidewater, Inc. (Tidewater) is pleased to present this Indoor Air Quality (IAQ) and Mold Assessment Report describing the results of the IAQ assessment and mold survey conducted by Tidewater at Parkdale High School located at 6601 Good Luck Road, Riverdale, Maryland. The survey was conducted on May 20, 2019, by Tidewater's Project Manager and Certified Industrial Hygienist, Mr. Skanda Abeyesekere MS, CIH, CSP, CHMM.

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

- Visual inspections of the following representative areas of the school: 1st Floor Library, Classroom 134, Multipurpose Room, Gymnasium, Band Room and Classroom 141, 2nd Floor Classroom 236, Classroom 221, Classroom 261A, Classroom 252 and Classroom 217 of Parkdale High School 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.
- Comfort parameter air testing at the above areas utilizing a direct-reading IAQ monitor for temperature (T), relative humidity (RH), carbon monoxide (CO), and carbon dioxide (CO_2.) Measurements were taken 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.)
- Measurement of particulate matter less than 10 microns (PM10) concentrations utilizing a direct-reading instrument at the above areas for comparison with guidelines established by the United States Environmental Protection Agency (US EPA.)
- Measurement of Total Volatile Organic Compounds (TVOCs) concentrations utilizing a direct-reading instrument at the above areas for comparison with relevant guidelines.
- Air sampling for total airborne fungal spore concentrations at the above areas using Allergenco-D cassettes affixed to a Buck BioAire™ Model B520 Bioaerosol Sampling Pump.

Visual Observations

Tidewater's assessment included a visual inspection of representative areas of the school including 1st Floor Library, Classroom 134, Multipurpose Room, Gymnasium, Band Room and Classroom 141, 2nd Floor Classroom 236, Classroom 221, Classroom 261A, Classroom 252 and Classroom 217 of Parkdale High School.

Visual Inspection

The results of Tidewater's visual inspection are as follows:

1st Floor – Library

The Library had over 20 students at the time of the inspection. The supply air vents and return air grills were covered with polyethylene sheeting to limit ventilation in the Library. The air conditioning system was not in operation at the time of the inspection. No signs of suspect mold growth, or prior or ongoing water-intrusion problems, were observed in the Library. No unusual odors were detected from the Library. A protruding ceiling tile was observed in the Library.

1st Floor - Classroom 134

Classroom 134 contained several water-stained ceiling tiles in multiple locations. The HVAC system was not in operation and the room was very warm at the time of the inspection. The supply and return air grills located in the ceiling were rusty and contained excessive levels of dirt/dust. Housekeeping within the classroom can improve. No signs of suspect mold growth were observed. No unusual odors were detected.

Multipurpose Room

The Multipurpose Room was vacant at the time of the inspection. No signs of suspect mold growth, or prior or ongoing water-intrusion problems, were observed in the Multipurpose Room. Air circulation within the Multi-purpose room was satisfactory. No unusual odors were detected in the room apart from the odor of prepared food. All trash receptacles were empty and the general housekeeping appeared to be satisfactory.

Gymnasium

The Gymnasium had over 40 students at the time of the inspection. The gymnasium was relatively warm. Numerous exhaust fans were running adjacent to the ceiling to increase the air circulation. A supply air grill located in the base of the west wall of the gymnasium was dismantled. General housekeeping appeared to be satisfactory. No signs of suspect mold growth, or prior or ongoing water-intrusion problems, were observed. Tidewater did not detect any unusual odors form the Gymnasium.

Band Room

The Band Room had around 12 occupants at the time of the inspection. Tidewater observed the air supply grills located in the ceiling to contain excessive levels of dirt/dust. Furthermore, Tidewater observed multiple water-stained ceiling tiles. General housekeeping within the classroom appeared to be deficient. No signs of suspect mold growth, or prior or ongoing water intrusion problems, were observed within the Band Room. No unusual odors were detected within the Band Room.

1st Floor - Classroom 141

Classroom 141 was vacant at the time of the inspection. The ceiling-mounted air supply grills were clean. However, some of the ceiling tiles contained black particulate deposits. General housekeeping within the classroom appeared to be deficient. No signs of suspect mold growth, or prior or ongoing water-intrusion problems, were observed within the Classroom 141. Furthermore, no unusual odors were detected.

2nd Floor - Classroom 236

Classroom 236 was vacant at the time of the inspection. No signs of suspect mold growth, or prior or ongoing water intrusion problems, were observed in the classroom. Air circulation within the classroom was satisfactory. No unusual odors were detected from the classroom. General housekeeping appeared to be satisfactory. No signs of suspect mold growth, or water intrusion problems were observed. The air supply grills located in the ceiling were rusty.

2nd Floor - Classroom 221

Classroom 221 was vacant at the time of the inspection. No signs of suspect mold growth, or prior or ongoing water intrusion problems, were observed in the classroom. The room was very warm and the air circulation within the classroom was poor. No unusual odors were detected from the classroom. General housekeeping appeared to be satisfactory. No signs of suspect mold growth, or prior or ongoing water intrusion problems, were observed. The air supply grills located in the ceiling were rusty.

2nd Floor - Classroom 261A

Classroom 261A had around 5 students at the time of the inspection. No signs of suspect mold growth, or prior or ongoing water intrusion problems, were observed in the classroom. Air circulation within the classroom was satisfactory. No unusual odors were detected from the classroom. General housekeeping appeared to be satisfactory. No signs of suspect mold growth, or water intrusion problems were observed. Tidewater observed a protruding ceiling tile in the classroom. The air supply grills located in the ceiling were rusty.

2nd Floor - Classroom 252

Classroom 252 had around 6 students at the time of the inspection. No signs of prior or ongoing water intrusion problems were observed in the classroom. However, the supply air grills located on the ceiling contained black spots which could potentially be mold. The room was very warm and the air circulation within the classroom was poor. No unusual odors were detected while in the classroom. The trash receptacle in the classroom was full and general housekeeping appeared to be unsatisfactory. The air supply grills located in the ceiling were rusty.

2nd Floor - Classroom 217

Classroom 217 had around 10 occupants at the time of the inspection. The air conditioning system was not in operation at the time of the inspection and the room was warm. The air circulation within the classroom was very poor. A pedestal fan was in operation to improve the air circulation within the classroom. Furthermore, several windows were left open to allow outside air to enter the classroom. No signs of suspect mold growth or water intrusion problems were observed within the classroom. No unusual odors were detected within the classroom.

Comfort Parameter Air Testing

During the assessment, Tidewater recorded temperature, relative humidity, carbon dioxide (CO_2), and carbon monoxide (CO) measurements in the above-mentioned locations of Parkdale High School using a TSI Q-Track Air Quality Meter (Model Number TSI Q-Track 7565, Serial Number 7565x0931002, Calibration Date: April 18, 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 obtained in front of the main entrance to the school building for comparison to the interior readings.

The results of the IAQ comfort parameter monitoring are provided in Table 1, in **Attachment A**.

According to the American Society for Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1 – 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. The indoor temperature levels recorded in the assessed areas ranged between 70.0°F and 74.7°F, and the background temperature outside the building was 76.2°F. The temperature levels recorded within the majority of the common areas and classrooms were within the recommended range for the spring-summer transitional period.

Per the same guideline, a maximum recommended relative humidity level of 65.0% is recommended to reduce the likelihood of condensation on cold surfaces. Relative humidity levels recorded in the assessed areas ranged between 48.1% and 63.1%. The background relative humidity level outside the building was 53.2%. The relative humidity levels in all areas assessed were below the ASHRAE recommended maximum relative humidity guideline of 65.0%.

ASHRAE Standard 62.1 – 2016 recommends that indoor CO_2 concentrations not exceed 700 ppm above the outdoor background CO_2 level. The CO_2 levels recorded in the assessed areas ranged between 360 ppm to 739 ppm. The background CO_2 level outside the building was 450 ppm. The CO_2 levels within all interior locations assessed did not exceed 700 ppm above the outdoor background CO_2 level of 450 ppm.

The CO concentrations recorded in all of the assessed areas were below the maximum guideline of 9 ppm recommended by the Indoor Air Quality Association (IAQA) for CO in occupied indoor environments.

Particulate Matter Less than 10 Microns (PM 10)

Tidewater conducted air sampling for respirable dust particulates using a TSI® DUST TRAK DRX™ Aerosol Monitor (Serial Number 8534170101, Calibrated Date: March 1, 2019.) The TSI® DUST TRAK DRX™ Aerosol Monitor was equipped with a PM10 (10 µm) respirable impactor. 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. Samples were taken for comparison with guidelines established by the EPA NAAQS.

Tidewater also obtained a background sample from outside 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 National Ambient Air Quality Standard (NAAQS) for Particulate Matter, Final Rule (January 15, 2013), the 24-hour primary and secondary exposure standard for particulate matter less than 10 microns (PM10) is 150.0 micrograms per cubic meter of air (µg/m^3) or 0.150 milligrams per cubic meter of air (mg/m^3.) The results of the PM10 measurements indicate that the average PM10 dust concentration recorded in all of the assessed areas ranged between 0.019 mg/m^3 and 0.051 mg/m^3. The average PM10 dust concentration in the background sample obtained in front of the main entrance was 0.034 mg/m^3.

The results of this monitoring indicate that the PM10 dust concentrations all areas assessed were below the EPA 24-hour primary and secondary NAAQS of 0.150 mg/m^3.

Total Volatile Organic Compound (TVOC) Air Testing

Tidewater obtained direct read measurements for Total Volatile Organic Compounds (TVOCs) using a Mini-RAE 2000 Hand Held VOC meter (Model Number MINIRAE 2000, Serial Number 110-010833, Calibration Date April 9, 2019.) 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 threshold limits recommended for typical indoor occupied environments.

A background sample was also obtained outdoors in front of the main entrance of the school building for comparison to the indoor readings.

The results of the particulate matter sampling are provided in Table 3, in **Attachment A**.

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 all of the assessed areas were below the recommend threshold level of 1.0 ppm.

Spore Trap Bioaerosol Sampling

On May 20, 2019, Tidewater collected a total of 11 spore trap air samples using Allegenco-D cassettes to characterize potential airborne fungal spores within select areas of Parkdale High School. A background sample was also collected outside the main entrance to the school building for comparison purposes.

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, Calibration Date: February 6, 2019) 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.

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.

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 those detected outdoors, or the presence of large numbers of different types of spores indoors that are not found outdoors, may indicate contamination and potential indoor air quality problems.

The total mold spore counts for the interior samples ranged between none detect and 340 spores per cubic meter (spores/m^3.) The total mold spore concentration in the outdoors (background) sample was 4,240 spores/m^3. The mold spore concentrations in all interior locations sampled were significantly below the outdoors (background) total mold spore concentration.

Additionally, the individual fungal species concentrations observed in the interior samples were generally consistent with those observed in the background reference samples with no significant concentrations of an individual fungal species identified in the interior samples.

The summary of the results for the spore trap sampling are provided in Table 4 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

Based on this IAQ and mold assessment survey, Tidewater offers the following conclusions:

- Tidewater's visual inspection did not reveal any evidence of standing water, active water intrusion or suspect mold growth on accessible walls, floors and ceilings in the assessed areas.
- Tidewater did observe water-stained ceiling tiles in Classroom 134 and the Band Room.
- The air supply grills located in the ceiling in Classroom 134 and the Band Room contained excessive levels of dirt/dust.
- A supply air grill located in the base of the west wall of the gymnasium was dismantled.
- Some of the supply air vents and return air grills were covered with polyethylene sheeting to limit air flow into the Library.
- Protruding ceiling tiles were observed in the Library and in Classroom 261A.
- General housekeeping in all classrooms appeared to be deficient.
- Temperature, relative humidity, CO_2, CO, PM10, and TVOC readings recorded within the assessed areas were all within industry standards and guidelines.

- The total mold spore concentrations in all interior locations sampled were significantly below the outdoors (background) total mold spore concentration. Additionally, the individual fungal species concentrations observed in the interior samples were generally consistent with those observed in the background reference samples with no significant concentrations of an individual fungal species identified in the interior samples.

Recommendations

Based on the results of the assessment, Tidewater offers the following recommendations:

- Investigate above the water-stained ceiling tiles in Classroom 134 and the Band room for any ongoing water leaks and surface mold formations. If any 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 the water-stained ceiling tiles in Classroom 134 and the Band room. Ensure that the perimeters of the ceiling grids are cleaned with a 10% bleach solution to eliminate exiting fungal spores prior to installing new ceiling tiles.
- Clean all air supply grills in the ceiling mounted HVAC units in Classroom 134, the Band Room and Classroom 252 with a 10% bleach solution to eliminate observed dirt/dust/mold.
- Ensure that all cleaning activities are conducted after hours when the classrooms are vacant to minimize exposure to occupants.
- Repair or replace the dismantled air supply grill located in the base of the west wall of the gymnasium.
- Remove the polyethylene sheeting covering in the air vents and return air grills in the Library to allow proper air circulation within the Library;
- Remove and replace all protruding ceiling tiles in the Library and Classroom 261A.
- 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. All trash receptacles should be emptied on a daily basis. Furthermore, all horizontal surfaces including desk tops, furniture, window sills and suspended light fixtures should be cleaned on a routine basis to prevent the accumulations of dust.
- Ensure HVAC System supplying is properly balanced per design requirements and current use/occupancy in order to ensure adequate ventilation throughout the classrooms.
- Ensure the ventilation systems are turned on in all classrooms and are operating at all times when the classrooms are occupied to provide sufficient air flow and ventilation to the classrooms**.**
- Keep all windows in Classroom 217 (and throughout the building) closed at all times, if possible.

Qualifications

Tidewater has endeavored to investigate existing conditions in representative areas of Parkdale High School located at 6601 Good Luck Road, Riverdale, Maryland as they pertain to indoor air quality. Our conclusions and recommendations are based on the observations made on the day of our assessment, laboratory data from the time of the assessment, and information provided by both our Client and the area occupants. Actual conditions vary from day to day throughout the year.

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

Sincerely,
Tidewater, Inc.

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

Jonathan N. Schatz, MS
Manager, IH Services

SA/JNS

Attachments: **Attachment A – Summary of Comfort Parameters, Total (Nuisance) Dust, TVOC and Non-Viable Spore Trap Sampling**
Attachment B – Laboratory Reports for Non-Viable Spore Trap Sampling
Attachment C – Calibration Certificates
Attachment D – Qualifications
Attachment E – Floor Plan with Sampling Locations

Attachment A

Summary of Comfort Parameters, Total (Nuisance) Dust, TVOC and Non-Viable Spore Trap Sampling

Table 1: Indoor Air Quality Comfort Parameters Parkdale High School				
Location	**Temperature (°F)**	**Relative Humidity (%)**	**Carbon Dioxide (ppm)**	**Carbon Monoxide (ppm)**
May 20, 2019				
Library	70.0	48.1	739	0.0
Classroom 134	73.0	60.8	586	0.0
Multipurpose Room	73.6	62.4	391	0.0
Gymnasium	74.4	62.8	527	0.0
Bandroom	74.7	62.1	626	0.0
Classroom 141	70.8	63.1	385	0.0
Classroom 236	74.4	56.7	360	0.1
Classroom 221	74.3	55.9	400	0.0
Classroom 261A	72.6	52.3	431	0.0
Classroom 252	72.4	55.8	661	0.0
Classroom 217	75.5	55.6	750	0.0
Background	76.2	53.2	450	0.0

*Numbers highlighted in red indicates locations in which temperature, carbon dioxide or relative humidity levels were either above or below the guidelines recommended by the American Society for Heating Refrigeration and Air Conditioning (ASHRAE) Standard 62.1 – 2016.

Table 2: Particulate Matter Less than 10 Microns (PM10) Parkdale High School	
Location	**Particulate Matter (PM10)** **Concentration (mg/m^3)**
May 20, 2019	
Library	0.024
Classroom 134	0.019
Multipurpose Room	0.021
Gymnasium	0.030
Bandroom	0.022
Classroom 141	0.026
Classroom 236	0.051
Classroom 221	0.031
Classroom 261A	0.021
Classroom 252	0.019
Classroom 217	0.024
Background (Outdoors)	0.034

Table 3: Total Volatile Organic Compounds (TVOCs) Parkdale High School	
Location	**Concentration (ppm)**
May 20, 2019	
Library	0.0
Classroom 134	0.0
Multipurpose Room	0.0
Gymnasium	0.0
Bandroom	0.0
Classroom 141	0.0
Classroom 236	0.0
Classroom 221	0.0
Classroom 261A	0.0
Classroom 252	0.0
Classroom 217	0.0
Background (Outdoors)	0.0

Table 4: Spore Trap Sampling Results Parkdale High School			
May 20, 2019			
Sample Number	**Sample Location**	**Sample Volume (L)**	**Total Fungi Concentration (Counts/m^3)**
PDHS-1	Classroom 236	75.0	None Detected
PDHS-2	Classroom 221	75.0	None Detected
PDHS-3	Classroom 261A	75.0	None Detected
PDHS-4	Classroom 252	75.0	340
PDHS-5	Classroom 217	75.0	80
PDHS-6	Library	75.0	340
PDHS-7	Classroom 134	75.0	None Detected
PDHS-8	Multipurpose Room	75.0	170
PDHS-9	Gymnasium	75.0	340
PDHS-10	Bandroom	75.0	80
PDHS-11	Classroom 141	75.0	330
BG-1	Background (Outdoors)	75.0	4,240

*Highlighted Area indicates location where the concentrations of the indoor sample exceeded the level detected in the background sample.

Attachment B

Laboratory Reports for Non-Viable Spore Trap Mold Sampling

EMSL Analytical, Inc.

528 Mineola Avenue Carle Place, NY 11514
Phone/Fax: (516) 997-7251 / (516) 997-7528
http://www.EMSL.com / carleplacelab@emsl.com

Order ID: 061909645
Customer ID: TIDE50
Customer PO:
Project ID:

Attn: Skanda Abeyeskere
Tidewater, Inc.
6625 Selnick Drive
Suite A
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Phone: (410) 540-8700
Fax: (410) 997-8713
Collected: 05/20/2019
Received: 05/21/2019
Analyzed: 05/22/2019

Proj: PGCPS Parkdale HS, MD 5419-005

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

Lab Sample Number:	061909645-0001			061909645-0002			061909645-0003		
Client Sample ID:	PDHS-1			PDHS-2			PDHS-3		
Volume (L):	75			75			75		
Sample Location:	Room 236			Room 221			Room 261A		
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	-	-	-	-	-	-	-	-	-
Polythrincium	-	-	-	-	-	-	-	-	-
Total Fungi	-	None Detected	-	-	None Detected	-	-	None Detected	-
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	-	-	-	2	-	-	2	-
Fibrous Particulate (1-4)	-	-	-	-	1	-	-	1	-
Background (1-5)	-	-	-	-	1	-	-	1	-

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

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

Jeffrey Lau, Microbiology Laboratory Manager
or Other Approved Signatory

Initial report from: 05/24/2019 13:17:06

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

EMSL Analytical, Inc.

528 Mineola Avenue Carle Place, NY 11514
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Order ID: 061909645
Customer ID: TIDE50
Customer PO:
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Phone: (410) 540-8700
Fax: (410) 997-8713
Collected: 05/20/2019
Received: 05/21/2019
Analyzed: 05/22/2019

Proj: PGCPS Parkdale HS, MD 5419-005

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

Lab Sample Number:	061909645-0004			061909645-0005			061909645-0006		
Client Sample ID:	PDHS-4			PDHS-5			PDHS-6		
Volume (L):	75			75			75		
Sample Location:	Room 252			Room 217			Room 124 (Library)		
Spore Types	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	1	40	11.8	-	-	-	-	-	-
Aspergillus/Penicillium	8	300	88.2	1	40	50	8	300	88.2
Basidiospores	-	-	-	1	40	50	1	40	11.8
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Polythrincium	-	-	-	-	-	-	-	-	-
Total Fungi	**9**	**340**	**100**	**2**	**80**	**100**	**9**	**340**	**100**
Hyphal Fragment	-	-	-	-	-	-	1*	10*	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	1	-	-	2	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	2	-
Background (1-5)	-	1	-	-	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.

Jeffrey Lau, Microbiology Laboratory Manager
or Other Approved Signatory

Initial report from: 05/24/2019 13:17:06

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

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528 Mineola Avenue Carle Place, NY 11514
Phone/Fax: (516) 997-7251 / (516) 997-7528
http://www.EMSL.com / carleplacelab@emsl.com

Order ID: 061909645
Customer ID: TIDE50
Customer PO:
Project ID:

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

Phone: (410) 540-8700
Fax: (410) 997-8713
Collected: 05/20/2019
Received: 05/21/2019
Analyzed: 05/22/2019

Proj: PGCPS Parkdale HS, MD 5419-005

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

Lab Sample Number:	061909645-0007			061909645-0008			061909645-0009		
Client Sample ID:	PDHS-7			PDHS-8			PDHS-9		
Volume (L):	75			75			75		
Sample Location:	Room 134			Multipurpose Room			1st floor gym		
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	23.5	-	-	-
Aspergillus/Penicillium	-	-	-	2	90	52.9	8	300	88.2
Basidiospores	-	-	-	-	-	-	1	40	11.8
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	1	40	23.5	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Polythrincium	-	-	-	-	-	-	-	-	-
Total Fungi	-	None Detected	-	4	170	100	9	340	100
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	1	-	-	1	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	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.

Jeffrey Lau, Microbiology Laboratory Manager
or Other Approved Signatory

Initial report from: 05/24/2019 13:17:06

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

EMSL Analytical, Inc.

528 Mineola Avenue Carle Place, NY 11514
Phone/Fax: (516) 997-7251 / (516) 997-7528
http://www.EMSL.com / carleplacelab@emsl.com

Order ID: 061909645
Customer ID: TIDE50
Customer PO:
Project ID:

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

Phone: (410) 540-8700
Fax: (410) 997-8713
Collected: 05/20/2019
Received: 05/21/2019
Analyzed: 05/22/2019

Proj: PGCPS Parkdale HS, MD 5419-005

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

Lab Sample Number:	061909645-0010			061909645-0011			061909645-0012		
Client Sample ID:	PDHS-10			PDHS-11			BG-1		
Volume (L):	75			75			75		
Sample Location:	Band Room			Room 141			Background		
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	12.1	4	200	4.7
Aspergillus/Penicillium	1	40	50	4	200	60.6	32	1400	33
Basidiospores	-	-	-	2	90	27.3	44	1900	44.8
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	1	40	50	-	-	-	15	660	15.6
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	1	40	0.9
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Polythrincium	-	-	-	-	-	-	1	40	0.9
Total Fungi	**2**	**80**	**100**	**7**	**330**	**100**	**97**	**4240**	**100**
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	2*	30*	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
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	-	-	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.

Jeffrey Lau, Microbiology Laboratory Manager
or Other Approved Signatory

Initial report from: 05/24/2019 13:17:06

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

OrderID: 061909645

Microbiology Chain of Custody

EMSL Order Number (*Lab Use Only*):

061909645

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 Slenick Drive, Suite A	
City: Elkridge **State/Province:** Maryland	**Zip/Postal Code:** **Country:**
Report To (Name): Skanda Abeyesekere	**Telephone #:**
Email Address: skanda@tideh2o.net	**Fax #:** **Purchase Order:**
Project Name/Number: PGCPS Parkdale HS	**Please Provide Results:** ☐ FAX ☐ E-mail ☐ Mail
U.S. State Samples Taken: MD 5419-005	**Connecticut Samples:** ☐ Commercial ☐ Residential

Turnaround Time (TAT) Options* - Please Check

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

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

Non Culturable Air Samples (Spore Traps) – Test Codes

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

Other Microbiology Test Codes

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

Preservation Method (Water):

Name of Sampler: SKANDA ABEYESEKERE **Signature of Sampler:**

Sample #	Sample Location	Sample Type	Test Code	Volume/Area	Date/Time Collected
Example: A1	Kitchen	Air	M001	75L	1/1/12 4:00 PM
PDHS-1	Room 236	AIR	M032	75-0	05/20/2019
PDHS-2	Room 221				
PDHS-3	Room 261A				
PDHS-4	Room 252				
PDHS-5	Room 217				
PDHS-6	Room 124 (Library)				
PDHS-7	Room 134				
PDHS-8	~~Room~~ multipurpose room				
PDHS-9	1st floor Gym				

Client Sample # (s): 12 - **Total # of Samples:** 12

Relinquished (Client): **Date:** 05/20/19 **Time:** 2:00pm

Received (Client): **Date:** 5/21/19 **Time:** 1:26pm

Comments:

*Client said 72 hours is fine. 5/21/19 1:26 PM

5/21/19

OrderID: 061909645

Microbiology Chain of Custody

EMSL Order Number (*Lab Use Only*):

061909645

PHONE:
FAX:

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

Sample #	Sample Location	Sample Type	Test Code	Volume/Area	Date/Time Collected
PDHS-10	Band room	AIR	M032	75.0	05/20/2019
PDHS-11	~~Back~~ Room 141	↓	↓	↓	↓
BG-1	Background	↓	↓	↓	↓

**Comments/Special Instructions:

19 MAY 22 AM 9:48

Page 2 of 2 pages

5/22/19

Attachment C

Calibration Certificates

FIELD ENVIRONMENTAL INSTRUMENTS, INC.
www.fieldenvironmental.com

301 Brushton Avenue
Suite A
Pittsburgh PA 15221
800-393-4009 Toll Free
(412) 436-2600 Local
(412) 436-2616 Fax

IAQ Meter Calibration Certificate

	Lot #	Expiration
Cal Standard	18-6508	4/18/2020

Carbon Monoxide Gas	**Reading ppm**	**Acceptable Range**
35 ppm	35.0	(32 - 38)

Carbon Dioxide Gas	**Reading ppm**	**Acceptable Range**
1000 ppm	1008.0	(950 - 1050)

Model	TSI Q-Trak 7565
S/N	7565x0931002
Barcode	u59038x
Order #	398188

Calibrated By: Bryce Spontak

Date of Calibration: 05/16/19

All calibrations performed by FEI conform to manufacturer's specifications. Please report any issues within 24 hours of receiving equipment.
All calibration gas used is traceable to NIST. Additional documentation is available upon request.

TSI P/N 2300157

CERTIFICATE OF CALIBRATION AND TESTING

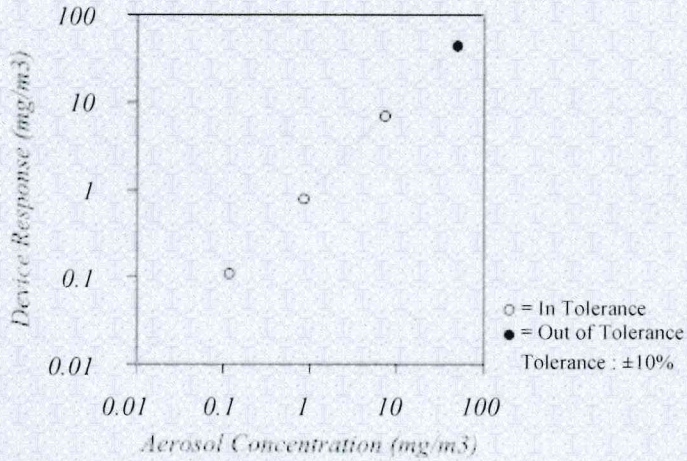
TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

Environment Conditions		
Temperature	76.6 (24.8)	°F (°C)
Relative Humidity	24	%RH
Barometric Pressure	29.14 (986.8)	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 DTII01-02**

Parameter	Standard	Measured	Allowable Range	Parameter	Standard	Measured	Allowable Range
Flow lpm	3.0	3.0	2.85 ~ 3.15	Pressure kPa	98.6	98.6	93.71 ~ 103.57

Pump run time: 25 Hours, Pump voltage: 433 Bits

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
Temp/Humidity	E005409	10-19-17	10-31-18
DC Voltage	E003314	05-03-17	05-31-18
Photometer	E003319	01-09-18	07-31-18
1 um PSL	679755	n/a	n/a
10 um PSL	167947	n/a	n/a
Flowmeter	E002471	04-20-17	04-30-18

Measurement Variable	System ID	Last Cal.	Cal. Due
Temp/Humidity	E005410	10-19-17	10-31-18
DC Voltage	E003315	05-03-17	05-31-18
Microbalance	M001324	11-02-16	11-30-18
3 um PSL	180387	n/a	n/a
Pressure	E003511	10-02-17	10-31-18

Verified

March 1, 2018
Date

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.

Certificate of Conformance

(X) Buck BioAire™ ( ) Buck BioSlide™

Serial number: B153043 **Date Issued:** 2-6-19

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. Gravenor

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.

Attachment D

Qualifications

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

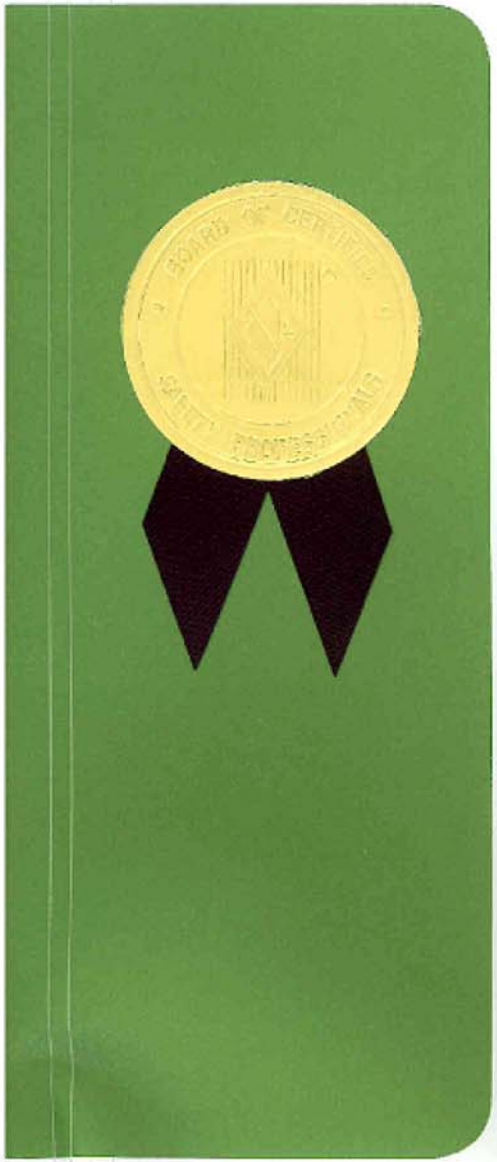
CERTIFIED INDUSTRIAL HYGIENIST

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

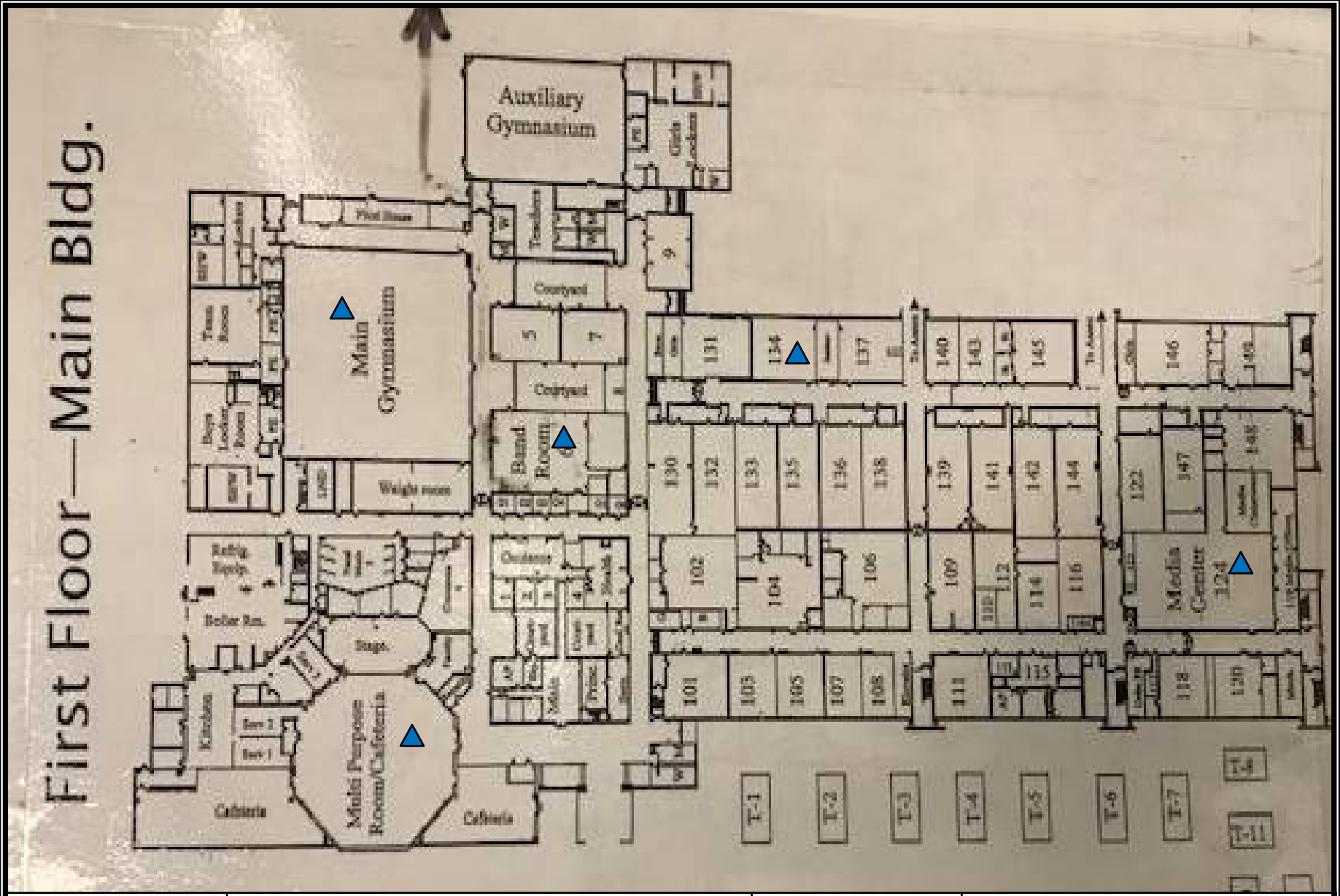
VALID SO LONG AS THIS CREDENTIAL IS RENEWED ACCORDING TO SCHEDULE AND IS NOT OTHERWISE REVOKED.

ANSI Accredited Program PERSONNEL CERTIFICATION

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

Attachment E

Floor Plan with Sampling Locations



TIDEWATER INC

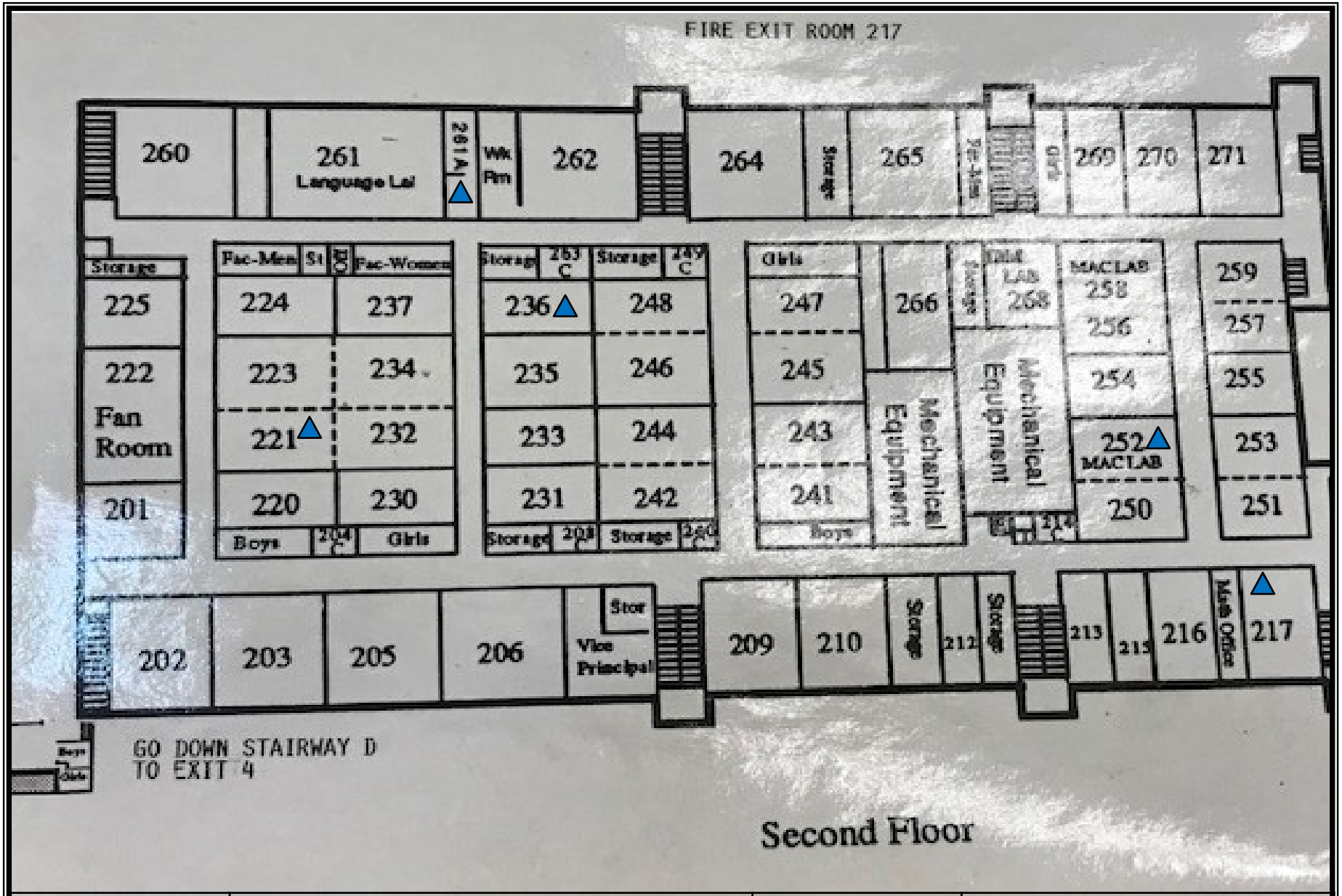
Attachment C
Parkdale High School
First Floor Plan with Sampling Locations

Scale: N/A

Project #: 5419-005
Date: May 20, 2019

General Notes

▲ = Sample Location



TIDEWATER INC	**Attachment C** **Parkdale High School** **Second Floor Plan with Sampling Locations**	Scale: N/A Project #: 5419-005 Date: May 20, 2019	**General Notes** ▲ = Sample Location