

July 5, 2019

Mr. Alex Baylor, Environmental Specialist Environmental Safety Office Prince Georges County Public Schools Division of Supporting Services / Building Services 13306 Old Marlboro Pike Upper Marlboro, MD 20772 via email: alex.baylor@pgcps.org

RE: Indoor Air Quality (IAQ) and Mold Assessment Services
Maya Angelou French Immersion School
2000 Callaway Street, Temple Hills, MD 20748
Tidewater Project No.: 5419-023

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 Maya Angelou French Immersion School located at 2000 Callaway Street in Temple Hills, Maryland. The IAQ and Mold survey was conducted on May 31, 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 areas of the school: Classroom 3, Gymnasium, Multipurpose Room, Front Office Guidance Room, Math Room 4, Media Center, Classroom 100, Classroom 201, and Classroom 204 of the Maya Angelou French Immersion 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 (CO₂.) 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 select areas of the school including Classroom 3, Gymnasium, Multipurpose Room, Front Office Guidance Room, Math Room 4, Media Center, Classroom 100, Classroom 201, and Classroom 204 of the Maya Angelou French Immersion School. The results of Tidewater's visual inspection are as follows:

Classroom 3 (K2)

Classroom 3 had one (1) ceiling-mounted air conditioning unit and two (2) window-mounted air conditioning units operating at the time of the inspection. The supply and return grills located on the ceiling appeared to be clean. No signs mold growth or water-intrusion problems were observed in the classroom. No unusual odors were detected from the classroom. General housekeeping appeared to be satisfactory.

Physical Education (PE) Room

The Physical Education Room was vacant at the time of the inspection. The supply air grills located on the walls appeared to be clean. The air conditioning unit was in operation at the time of the inspection. No signs mold growth or water-intrusion problems were observed in the PE Room. No unusual odors were detected from the PE Room. General housekeeping appeared to be satisfactory.

Multipurpose Room

The Multipurpose Room was vacant at the time of the inspection. The supply air grills located on the walls were covered with polyethylene sheeting, hindering air flow. Two (2) large fans were also mounted on the front wall of the Multipurpose room. These were not in operation at the time of the inspection. Multiple window-mounted air conditioning units were observed. No signs mold growth or water-intrusion problems were observed and no unusual odors were detected form the Multipurpose Room.

Main Office Guidance Suite

The Guidance Suite had one (1) occupant at the time of the inspection. The ceiling-mounted supply and return grills appeared to be dusty. No signs mold growth or water-intrusion problems were observed in the classroom. The occupant complained of a mildew odor emanating from the Main Office of the Guidance Suite.

Math Room 4

Math Room 4 had two (2) wall-mounted fan coil units and one (1) window-mounted air conditioning unit operating at the time of the inspection. The supply and return grills located on of these units appeared to be clean. No signs mold growth or water-intrusion problems were observed in the classroom. No unusual odors were detected from the classroom. General housekeeping appeared to be satisfactory.

Media Room

The Media Room had over 30 students at the time of the inspection. One (1) wall-mounted fan coil unit was in operation at the time of the inspection. No signs mold growth or water-intrusion problems were observed in the Media Room; however, a water stained ceiling tile was observed



in the area. No unusual odors were detected from the Media Room. General housekeeping appeared to be satisfactory.

Classroom 100

Classroom 100 was vacant at the time of the inspection. One (1) wall-mounted fan coil unit was observed in the classroom. This fan coil unit was not in operation at the time of the inspection. No signs mold growth or water-intrusion problems were observed in the classroom. Several missing ceiling tiles were observed. No unusual odors were detected from the classroom. General housekeeping appeared to be satisfactory.

Classroom 201

Classroom 201 had two (2) wall-mounted fan coil units and two (2) window-mounted air conditioning unit operating at the time of the inspection. The supply and return grills of these units appeared to be clean. No signs mold growth or water-intrusion problems were observed in the classroom. No unusual odors were detected. General housekeeping appeared to be satisfactory.

Classroom 204

Classroom 204 had over 30 occupants at the time of the inspection. Classroom 204 had one (1) wall-mounted fan coil unit operating at the time of the inspection. The supply and return grills of this unit appeared to be clean. No signs mold growth or water-intrusion problems were observed in the classroom. No unusual odors were detected. General housekeeping appeared to be satisfactory.

Comfort Parameter Air Testing

During the assessment, Tidewater recorded temperature, relative humidity, carbon dioxide (CO₂), and carbon monoxide (CO) measurements in the above-mentioned locations of Maya Angelou French Immersion 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 73.4°F and 79.1°F, and the background temperature outside the building was 92.0°F. The temperature level in the Gymnasium marginally exceeded the upper temperature guideline of 79.0°F recommended in ASHRAE Standard 62.1 – 2016 for summer months.



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 49.4% and 65.3%. The background relative humidity level outside the building was 40.2%. The relative humidity level in Classroom 100 marginally exceeded the maximum relative humidity guideline of 65.0% recommended in ASHRAE Standard 62.1-2016.

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 426 ppm to 823 ppm. The background CO_2 level outside the building was 430 ppm. The CO_2 levels in all areas assessed did not exceed 700 ppm above the outdoor background CO_2 level of 430 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 DRXTM Aerosol Monitor (Serial Number 8534170101, Calibrated Date: March 1, 2019.) The TSI[®] DUST TRAK DRXTM 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/m³) or 0.150 milligrams per cubic meter of air (mg/m³.) The results of the PM10 analysis indicate that the average PM10 dust concentration recorded in all of the assessed areas ranged between 0.018 mg/m³ and 0.037 mg/m³. The average PM10 dust concentration in the background sample obtained in front of the main entrance was 0.020 mg/m³.

The results of the PM10 monitoring indicate that the PM10 dust concentrations all areas assessed were below the EPA 24-hour primary and secondary NAAQS of 0.150 mg/m³.

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 recommended threshold level of 1.0 ppm.

Spore Trap Bioaerosol Sampling

On May 31, 2019, Tidewater collected a total of nine (9) spore trap air samples using Allegenco-D cassettes to characterize potential airborne fungal spores within select areas of Maya Angelou French Immersion School. A background sample was 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 5,470 and 27,390 spores per cubic meter (spores/m³.) The total mold spore concentration in the outdoors (background) sample was 27,840 spores/m³. The total mold spore concentrations in all interior locations sampled were below the outdoors (background) total mold spore concentration.



The concentration of species of the genus *Basidiospores* detected in the Gymnasium (24,500 spores /m³) was higher than the *Basidiospores* concentration detected in the background sample (19,200 spores /m³.) *Basidiospores* can be found anywhere and spread via wind. Concentrations are typically high in the background, as non-dangerous basidiospores are common outdoors. *Basidiospores* are moisture driven as their spores disseminate during rain or in times of high humidity, and often indicate outside air infiltration into the building. Further investigation is warranted in the Gymnasium.

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. Water-stained ceiling tiles were observed in the Media Center.
- Multiple missing ceiling tiles were observed in Classroom 100.
- Occupants have reported an unidentified mildew odor in the Front Office of the Guidance Room
- The supply and return grills on the ceiling in the Front Office Guidance Room contained dust deposits.
- The supply air grills located on the walls of the Multipurpose Room were covered with polyethylene sheeting, hindering air flow.
- General housekeeping in most classrooms appeared to be satisfactory.
- CO₂, CO, PM10 and TVOC readings recorded within the assessed areas were all within industry standards and guidelines.
- The temperature level in the Gymnasium marginally exceeded the upper temperature guideline of 79.0°F recommended in ASHRAE Standard 62.1 – 2016 for summer months.
- The relative humidity level in Classroom 100 marginally exceeded the maximum relative humidity guideline of 65.0% recommended in ASHRAE Standard 62.1 2016.
- The mold spore concentrations in all interior locations sampled were below the outdoors (background) total mold spore concentration. However, species of the genus *Basidiospores* detected in the Gymnasium (24,500 spores /m³) was higher than the *Basidiospores* concentration detected in the background sample (19,200 spores /m³) and may be an indicator of potential fungal contamination. Further investigation is warranted.



Recommendations

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

- Abate the water-stained ceiling tiles in Media Center. Ensure that the perimeters of the ceiling grids are cleaned with a 10% bleach solution to mitigate exiting fungal spores prior to installing new ceiling tiles.
- Replace missing ceiling tiles in Classroom 100.
- Investigate the source of the mildew odor detected in the Front Office Guidance Room.
- Clean air supply grills and return air grills in the Front Office Guidance with a 10% bleach solution to mitigate dust deposits.
- Remove the polyethylene sheeting from the supply air grills located on the walls of the Multipurpose Room to assist in proper air flow.
- Ensure that all cleaning activities are conducted after hours when the above areas are vacant to minimize exposure to occupants.
- 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.
 Furthermore, all horizontal surfaces including desktops, 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.
- Adjust the HVAC system in the Gymnasium to achieve a temperature level recommended by ASHRAE Standard 62.1 2016 (73.0°F and 79.0°F.)
- Install a de-humidifier or adjust the thermostat in the HVAC systems in Classroom 100 in order to maintain a relative humidity level below 65.0% per ASHRAE recommendations to minimize the potential for mold formations.
- It is recommended that the Gymnasium is re-tested for non-viable mold spores after all cleaning activities are complete.

Qualifications

Tidewater has endeavored to investigate existing conditions in representative areas of the Maya Angelou French Immersion School located at 2000 Callaway Street in Temple Hills, 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

Skumber Argunerus

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 Maya Angelou French Immersion School											
Location	Temperature (°F)	Relative Humidity (%)	Carbon Dioxide (ppm)	Carbon Monoxide (ppm)							
	May 31, 2019										
Classroom 3	75.7	57.9	440	0.0							
Gymnasium	79.1	59.3	620	0.0							
Multipurpose Room	74.4	53.2	453	0.0							
Front office Guidance Suite	77.0	54.9	690	0.0							
Math Room 4	76.3	57.8	450	0.0							
Media Center	73.4	49.4	823	0.0							
Classroom 100	74.5	65.3	426	0.0							
Classroom 201	76.2	55.9	719	0.0							
Classroom 204	76.9	50.5	682	0.1							
Background	92.0	40.2	430	0.0							

• Numbers highlighted in red indicates locations in which relative humidity level exceeded 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) Maya Angelou French Immersion School							
Location	Particulate Matter (PM10)						
Location	Concentration (mg/m³)						
May 31, 2019							
Classroom 3	0.023						
Gymnasium	0.037						
Multipurpose Room	0.020						
Front office Guidance Suite	0.018						
Math Room 4	0.021						
Media Center	0.032						
Classroom 100	0.020						
Classroom 201	0.023						
Classroom 204	0.021						
Background (Outdoors)	0.020						

 Numbers highlighted in red indicates locations where PM10 dust concentration exceeded the EPA 24-hour primary and secondary NAAQS of 0.150 mg/m³.



Table 3: Total Volatile Organic Compounds (TVOCs) Maya Angelou French Immersion School						
Location	Concentration (ppm)					
May 31, 2019						
Classroom 3	0.0					
Gymnasium	0.0					
Multipurpose Room	0.0					
Front office Guidance Suite	0.0					
Math Room 4	0.0					
Media Center	0.0					
Classroom 100	0.0					
Classroom 201	0.0					
Classroom 204	0.0					
Background (Outdoors)	0.0					



Table 4: Spore Trap Sampling Results Maya Angelou French Immersion School

May 31, 2019

Sample Number	Sample Location	Sample Volume (L)	Total Fungi Concentration (Counts/m³)
AFIS-1	Classroom 3	75.0	21,100
AFIS-2	Gymnasium	75.0	27,390
AFIS-3	Multipurpose Room	75.0	13,590
AFIS-4	Front office Guidance Suite	75.0	5,470
AFIS-5	Math Room 4	75.0	17,550
AFIS-6	Media Center	75.0	13,190
AFIS-7	FIS-7 Classroom 100 75.0		16,900
AFIS-8	Classroom 201	75.0	7,150
AFIS-9	Classroom 204	75.0	13,300
BG-1	Background (Outdoors)	75.0	27,840

 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: Customer ID: 061910773

er 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

Fax: (410) 997-8713 Collected: 05/31/2019 Received: 06/03/2019

Analyzed: 06/05/2019

Proj: Maya Angelou French Immersion School 5419-023

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

Lab Sample Number: Client Sample ID: Volume (L): Sample Location:		061910773-0001 061910773-0002 061910773-0003 AFIS-1 AFIS-2 AFIS-3 75 75 75 Room 3 (K2) Gymnasium Multipurpose Room			AFIS-1 AFIS-2 AFIS-75 75 75		AFIS-1 75		AFIS-2 75		m
Spore Types	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total		
Alternaria (Ulocladium)	-	-	-	-	-	-	2*	30*	0.2		
Ascospores	80	3500	16.6	40	1700	6.2	68	3000	22.1		
Aspergillus/Penicillium	-	-	-	3	100	0.4	-	-	-		
Basidiospores	330	14400	68.2	561	24500	89.4	231	10100	74.3		
Bipolaris++	1*	10*	0	1*	10*	0	-	-	-		
Chaetomium	-	-	-	-	-	-	-	-	-		
Cladosporium	68	3000	14.2	20	870	3.2	9	400	2.9		
Curvularia	-	-	-	2*	30*	0.1	-	-	-		
Epicoccum	-	-	-	6*	80*	0.3	-	-	-		
Fusarium	-	-	-	-	-	-	-	-	-		
Ganoderma	-	-	-	-	-	-	1	40	0.3		
Myxomycetes++	2	90	0.4	1*	10*	0	1*	10*	0.1		
Pithomyces++	-	-	-	-	-	-	-	-	-		
Rust	-	-	-	1*	10*	0	-	-	-		
Scopulariopsis/Microascus	-	-	-	1	40	0.1	-	-	-		
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-		
Unidentifiable Spores	-	-	-	-	-	-	-	-	-		
Zygomycetes	-	-	-	-	-	-	-	-	-		
Arthrospores	-	-	-	-	-	-	-	-	-		
Cercospora++	2	90	0.4	-	-	-	1*	10*	0.1		
Polythrincium	1*	10*	0	1	40	0.1	-	-	-		
Total Fungi	484	21100	100	637	27390	100	313	13590	100		
Hyphal Fragment	-	-	-	-	-	-	-	-	-		
Insect Fragment	-	-	-	-	-	-	-	-	-		
Pollen	-	-	-	1*	10*	-	-	-	-		
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-		
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-		
Skin Fragments (1-4)	-	1	-	-	2	-	-	1	-		
Fibrous Particulate (1-4)	-	1	-	-	2	-	-	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.

Jeffrey Lau, 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. Carle Place, NY



Proj:

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: Customer ID: 061910773

D: TIDE50

Customer PO: Project ID:

Attn: Skanda Abeyeskere

Tidewater, Inc. 6625 Selnick Drive Suite A

Elkridge, MD 21075

Fax: Collected: Received:

Phone:

(410) 540-8700 (410) 997-8713 05/31/2019

Received: 06/03/2019 Analyzed: 06/05/2019

Maya Angelou French Immersion School 5419-023

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

Lab Sample Number: Client Sample ID: Volume (L): Sample Location:		AFIS-4 AFIS-5 AFIS-6 75 75			AFIS-5 75		061910773-0006 AFIS-6 75 Media Center		
Spore Types	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total
Alternaria (Ulocladium)	-	-	-	1	40	0.2	1*	10*	0.1
Ascospores	13	570	10.4	50	2200	12.5	24	1000	7.6
Aspergillus/Penicillium	3	100	1.8	1	40	0.2	2	90	0.7
Basidiospores	102	4450	81.4	260	11300	64.4	227	9910	75.1
Bipolaris++	-	-	-	1	40	0.2	1*	10*	0.1
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	6	300	5.5	89	3900	22.2	48	2100	15.9
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	2*	30*	0.2	1*	10*	0.1
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	1*	10*	0.1
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	1	40	0.3
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Arthrospores	4*	50*	0.9	-	-	-	-	-	-
Cercospora++	-	-	-	-	-	-	1*	10*	0.1
Polythrincium	-	-	-	-	-	-	-	-	-
Total Fungi	128	5470	100	404	17550	100	307	13190	100
Hyphal Fragment	-	-	-	-	-	-	1	40	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	1	40	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	2	-	-	2	-
Background (1-5)	-	2	-	-	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

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. Carle Place, NY



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: Customer ID: 061910773 TIDE50

Customer ID: TID
Customer PO:

Project ID:

Attn: Skanda Abeyeskere

Tidewater, Inc. 6625 Selnick Drive Suite A

Elkridge, MD 21075

Phone: Fax: (410) 540-8700 (410) 997-8713 05/31/2019

Collected: Received:

06/03/2019

Analyzed: 06/05/2019

Proj: Maya Angelou French Immersion School 5419-023

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

Lab Sample Number: Client Sample ID: Volume (L): Sample Location:	061910773-0007 061910773-0008 AFIS-7 AFIS-8 75 75 Room 100 Room 201			AFIS-8 75		061910773-0009 AFIS-9 75 Room 204			
Spore Types	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	-	- '	-	-
Ascospores	83	3600	21.3	23	1000	14	55	2400	18
Aspergillus/Penicillium	-	-	-	2	90	1.3	5	200	1.5
Basidiospores	281	12300	72.8	120	5240	73.3	224	9780	73.5
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	24	1000	5.9	16	700	9.8	20	870	6.5
Curvularia	-	-	-	1*	10*	0.1	-	-	-
Epicoccum	-	-	-	-	-	-	3*	40*	0.3
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	3	100	1.4	-	-	-
Pithomyces++	-	-	-	1*	10*	0.1	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Arthrospores	-	-	-	-	-	-	-	-	-
Cercospora++	-	-	-	-	-	-	-	-	-
Polythrincium	-	-	-	-	-	-	1*	10*	0.1
Total Fungi	388	16900	100	166	7150	100	308	13300	100
Hyphal Fragment	-	-	-	1	40	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	1*	10*	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	1	-	-	2	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	2	-	-	1	-
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

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. Carle Place, NY



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: 061910773 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: 05/31/2019
Received: 06/03/2019

Analyzed:

06/05/2019

Proj: Maya Angelou French Immersion School 5419-023

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

Lab Sample Number: Client Sample ID: Volume (L): Sample Location:		061910773-0010 BG-1 75 Outdoors			•				
Spore Types	Raw Count	Count/m³	% of Total	-	_	-	-	_	-
Alternaria (Ulocladium)	4*	50*	0.2	-		-	-		_
Ascospores	102	4450	16	-		-	-		
Aspergillus/Penicillium	7	300	1.1	-		-	-		
Basidiospores	440	19200	69	-		-	-		
Bipolaris++	-	-	-	-		-	-		
Chaetomium	-	-	-	-		-	-		
Cladosporium	84	3700	13.3	-		-	-		
Curvularia	-	-	-	-		-	-		
Epicoccum	1*	10*	0	-		-	-		
Fusarium	-	-	-	-		-	-		
Ganoderma	-	-	-	-		-	-		
Myxomycetes++	3	100	0.4	-		-	-		
Pithomyces++	1*	10*	0	-		-	-		
Rust	-	-	-	-		-	-		
Scopulariopsis/Microascus	-	-	-	-		-	-		
Stachybotrys/Memnoniella	-	-	-	-		-	-		
Unidentifiable Spores	-	-	-	-		-	-		
Zygomycetes	-	-	-	-		-	-		
Arthrospores	-	-	-	-		-	-		
Cercospora++	1*	10*	0	-		-	-		
Polythrincium	1*	10*	0	-		-	-		
Total Fungi	644	27840	100	-		-	-		
Hyphal Fragment	-	-	-	-		-	-		
Insect Fragment	-	-	-	-		-	-		
Pollen	1	40	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	-		-	-	
Analyt. Sensitivity 300x	-	13*	-			-	-		
Skin Fragments (1-4)	-	1	-	-		-	-		
Fibrous Particulate (1-4)	-	1	-	-		-	-		
Background (1-5)	-	2	-	-		-	-		

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

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

Jeffrey Lau, 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. Carle Place, NY

Microbiology Chain of Custody EMSL Order Number (Lab Use Only):

061910773

PHONE:

Company .	ater Inc			SL-Bill to: Diff o is Different note instructi	ferent Same ons in Comments**
Street: 6625 Selnick	Drive, Suite A		Third Party Bills	ing requires written aut	thorization from third party
City: Elkridge	State/Province	: MD	Zip/Postal Code	: Co	ountry:
	Skanda Abeyesekere		Telephone #:		
	anda@tideh2o.net	•	Fax #:	Purc	hase Order:
Project Name/Numbe	r: 5419-023		Please Provide	Results: FAX	E-mail Mail
U.S. State Samples T		ou Fed	 	•	cial Residential
	ersion School Turnaround Time	(TAT) Optic	ns* - Please Che	ck	
	6 Hour 🔳 24 Hour 📋 <u>48 Ho</u>	ur 🔲 7	2 Hour 📙 96	Hour 1 W	
*Analysis completed in ad	ccordance with EMSL's Terms and Conditions				to methodology requirements
	Non Culturable Air Sar				M470 V T
M001 Air-O-Cell M049 BioSIS	 M173 Allegro M2 M003 Burkard M043 	Allergenco Cyclex	• M032 All • M002 Cy		M172 Versa Trap
• M030 Micro 5		Relle Smar			
	Other Mic	robiology	Test Codes		
M041 Fungal Direct		Endotoxin A		M029 Enter	
 M005 Viable Fungi M006 Viable Fungi 			ic Plate Count Q-PCR-ERMI 36	 M019 Fecal M133 MRS/ 	
M000 Viable Fully M007 Culturable Fully			2-1 OIV-LIVIII 30		ococcus neoformans
M008 Culturable Full	ingi (Speciation) • M018	Total Colifor		Detection	
M009 Gram Stain C M010 Bacterial Cou		(Membrane Fecal Strept		M120 Histor Detection	plasma capsulatum
M010 Bacterial Cou Prominent		(Membrane			lergen Testing
M011 Bacterial Cou	ent and ID – 5 Most • M210-	215 Legione	ella Detection	 M044 Group 	p Allergen
Prominent M013 Sewage Con		Recreationa Mycotoxin A	il Water Screen		Cockroach, Dustmites) Analytical Price Guide
Preservation Method		NIYCOIOXIII A	andry 515	ounce coo.	Tallaly to dal 1 1100 Galage
Freservation method	(water).			/ /.	
Sk	anda Abeyesekere	_~	John Co	- 152	
Name of Sampler:		∠org	nature of Sample Test		
Sample #	Sample Location	Туре		Volume/Area	Date/Time Collected
Example: A1	Kitchen	Air	M001	75L '	1/1/12 4:00 PM
AFIS-1	Noon 3 (KZ)	MIR	MO32	75.0	05-/21
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Client Sample # (s): ¹	10		Total # of Samp	oles:- /6	
Relinquished (Client)	Sold De	Date:	05, /7-1 /ic	Time:	
1 /	L (Aments Alball Son	Date: 4	6/3//9	Time: //4	Spr
Received (Client):					,
Received (Client): Comments:	1. for way	•	()	•	U .
	1. July way was the will		7		-

Page 1 of 2 pages

OrderID: 061910773

Microbiology Chain of Custody EMSL Order Number (Lab Use Only):

$1 \circ 61 \circ 1 \circ 11$	
1 6 10 1 4 5 1 1 0 7 4 5	

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
39-1	outdox5	Arr	m032	750	05/31/19 11
					
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			<u> </u>		
omments/Specia	al Instructions:	,I	<u></u>	w -	<u> </u>

Page _____ of ____ pages



Attachment C Calibration Certificates



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

		IAQ Meter Ca	alibration Certificate	
Cal Standard		Lot #	Expiration 4/18/2020	
		10 0200		l
Carbon Monox 35 ppm	tide Gas ▼		Reading ppm 35.0	Acceptable Range (32 - 38) ▼
Carbon Dioxid	e Gas ▼		Reading ppm 1008.0	Acceptable Range (950 - 1050) ▼
Model S/N Barcode Order#	TSI Q-Trak 7565 7565x0931002 u59038x 398188			
		Calibrated By	Bryce Spontak ▼	
		Date of Calibration	05/16/19	

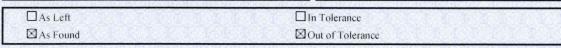


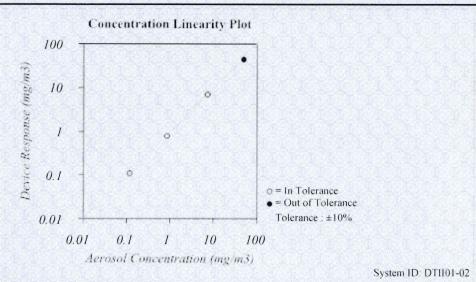
CERTIFICATE OF CALIBRATION AND TESTING

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			





FLOW AND PRESSURE VERIFICATION							SYSTEM DTH01-02	
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	Measurement Variable	System ID	Last Cal.	Cal. Due
Temp/Humidity	E005409	10-19-17	10-31-18	Temp/Humidity	E005410	10-19-17	10-31-18
DC Voltage	E003314	05-03-17	05-31-18	DC Voltage	E003315	05-03-17	05-31-18
Photometer	E003319	01-09-18	07-31-18	Microbalance	M001324	11-02-16	11-30-18
1 um PSL	679755	n/a	n/a	3 um PSL	180387	n/a	n/a
10 um PSL	167947	n/a	n/a	Pressure	E003511	10-02-17	10-31-18
Flowmeter	E002471	04.20.17	04.30.19				

Ton Verified Verified

March 1, 2018

Date





Pine Environmental Services, LLC.

Tidewater MD

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

ManufacturerRae SystemsFrequency6 MonthsModel NumberMINIRAE 2000StatusPassSerial Number110-010833Temp24LocationMarylandHumidity39DepartmentCATHY MOORE

Calibration Specifications

Group #1Range Acc %0.0000Group NameISOBUTYLENEReading Acc %3.0000Stated AccyPct of ReadingPlus/Minus0.00

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 II MD ISO	Description MD ISO 100PPM	<u>Manufacturer</u> Pine	Model Number FBI-248-100-12	Serial Number / Lot Number 34LS-248-100	Last Cal Date / Expiration Date 5/23/2022		
100PPM FBI-248-100-12		Environmental Services, Inc.					
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.









() Buck BioSlideTM





Serial number: <u>B153043</u> Date Issued: <u>2-6-19</u>



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.













COCR-004 REV-01 3/3/2006

























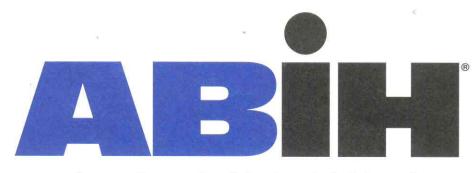






Attachment D

Qualifications



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

of INDUSTRIAL HYGIENE

and has the right to use the designations

CERTIFIED INDUSTRIAL HYGIENIST

CIH

Certificate Number

9928 CP

Awarded:

May 11, 2011

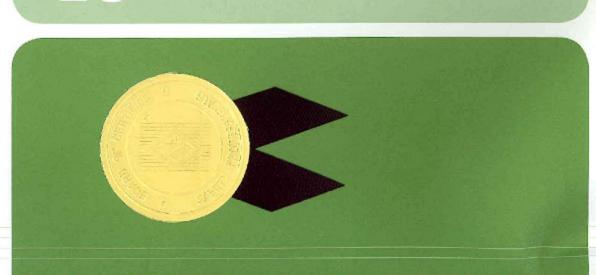
Expiration Date:

December 1, 2021

A 3- 13-

Chair, ABIH

Chief Executive Officer, ABIH



CERTIFIED SAFETY PROFESSIONALS **BOARD OF**

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



President

Secretary

20110

CSP No.



THIS CERTIFIES THAT

Skandakumar Abeyeskere

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

CERTIFIED HAZARDOUS MATERIALS MANAGER C E C E



May 13, 2016

DATE OF CERTIFICATION

May 31, 2021

CREDENTIAL NUMBER

M. Patricia Buly

ACTING EXECUTIVE DIRECTOR



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





Attachment E Floor Plan with Sampling Locations

