ati INC
Architecture | Engineering | Construction

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February 26, 2021

Prince George's County Public Schools
13300 Old Marlboro Pike
Upper Marlboro, MD 20722
Attention: Mr. Alex Baylor

RE: Indoor Air Quality Assessment, Dodge Park Elementary School
Purchase Order: 734977
ATI Project Number: 20-693

Dear Mr. Baylor:

Prince George's County Public Schools requested that ATI, Inc., conduct a proactive indoor air quality (IAQ) assessment at Dodge Park Elementary School on December 2, 2020 and a follow-up assessment on February 23, 2021. The assessments' key findings are enclosed in the Executive Summary on page three, and the official laboratory reports for total fungal spore trap sampling are enclosed in Appendix A.

Thank you for the opportunity to provide Industrial Hygiene services for Prince George's County Public Schools. If you have any questions regarding this report, please contact us at (202) 643-4283.

Sincerely,
ATI, INC.

Reviewed By:

Courtney E. McCall
Project Manager

Nate Burgei, CIH, CSP
Certified Industrial Hygienist

Indoor Air Quality Assessment Report

Prince George's County Public Schools
Dodge Park Elementary School
3401 Hubbard Lane
Landover, MD 20785

Prepared for:

Prince George's County Public Schools
13300 Old Marlboro Pike
Upper Marlboro, Maryland 20722

February 26, 2021

Submitted by:

ATI Job # 20-893

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Abbreviations and Acronyms

AHU	Air-Handling Unit
AIHA	American Industrial Hygiene Association
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASTM	American Society for Testing and Materials
CO	Carbon Monoxide
CO_2	Carbon Dioxide
EMLAP	Environmental Microbiology Laboratory Accreditation Program
HVAC	Heating, Ventilating, And Air-Conditioning
IAQ	Indoor Air Quality
NIST	National Institute for Standards and Technology
NVLAP	National Voluntary Laboratory Accreditation Program
RH	Relative Humidity
Rev.	Revision

Abbreviations involving scientific volume and measurements involving media or water sampling

Spores/m^3	Mold spores per cubic meter of air
LPM	Liters Per Minute
NTE	Not to exceed
°F	degree Fahrenheit
PPM	Parts Per Million

1 Executive Summary

ATI conducted a proactive Indoor Air Quality (IAQ) assessment on December 2, 2020, at Dodge Park Elementary School, located at 3401 Hubbard Lane in Landover, MD and a follow-up assessment on February 23, 2021, in select rooms that had unusual mold results in the initial inspection.

The initial assessment on December 2, 2020 included a visual assessment of randomly selected classrooms and other frequently occupied spaces, such as the cafeteria/gym, the main office, and randomly selected classrooms, for potential IAQ contributors and pathways. Rooms 24, 28 and the Media Center had unusual fungal spore concentrations during the initial assessment and were selected for a follow-up assessment February 23, 2021 after actions were taken to reduce the presence of mold and repair any water issues discovered. As part of both assessments, ATI measured common IAQ comfort parameters, including temperature, relative humidity, carbon dioxide, and carbon monoxide. Also, ATI collected total fungal air samples on spore trap cassettes for microbiological analysis.

The following is a summary of the key findings from these assessments:

1. One of the tested spaces had a temperature less than the ASHRAE recommended winter range of 68-75°F on December 2, 2020. On the February 23, 2021 resampling assessment, two spaces had a temperature less than the recommended range. During both sampling dates, the school was not fully occupied, and the HVAC was likely set to a cooler mode for energy efficiency.
2. The relative humidity in all tested spaces on both December 2, 2020 and February 23, 2021 was less than the ASHRAE guidelines of <65%, and most spaces were <30%, which is drier than the recommended range.
3. Carbon dioxide concentrations in all tested spaces were less than the ASHRAE limit for carbon dioxide relative to the outdoor carbon dioxide concentration on the day of each assessment.
4. Carbon monoxide concentrations during both assessments were less than the ASHRAE/EPA recommended limit.
5. The mold spore trap samples from December 2, 2020 had unusual spore concentrations in Rooms 24, 28 and the Media Center and were selected to be addressed and reassessed after remediation actions were completed. The other tested spaces had mold spore concentrations that were typical for occupied spaces.
6. *Aspergillus/Penicillium* concentrations in Rooms 24, 28 and the Media Center during the February 23, 2021 reassessment were 75-99% lower than the initial assessment. Other spore types decreased significantly as well. Because of the favorable decrease in spore counts at the reassessment, ATI has no further recommendations at this time.

2 Assessment Methods

Courtney McCall, IH of ATI, Inc. conducted the initial visual assessment and air sampling on December 2, 2020. Sampled rooms were randomly selected and accounted for approximately 10% of classrooms or a minimum of five samples. Ms. McCall documented visual observations at the time she collected the air samples. Sama Wanigasundara conducted a follow-up inspection on February 23, 2021 in Rooms 24, 28 and the Media Center after the areas were treated for mold presence. ATI references the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) *Standard 62.1 – 2016* and ASHRAE *Standard 55 – 2017* when providing IAQ services to clients. ASHRAE is an industry leader on energy efficiency and indoor air quality.

All measurements and air samples were collected between three-six feet from floor elevation, which represents a typical adult breathing zone, and away from air-supply and return diffusers. Real-time direct readings for temperature, relative humidity, carbon dioxide (CO_2), and carbon monoxide (CO), were measured with a calibrated TSI Q-Trak 7575-X Meter and attached 982 Probe.

Total fungal air samples were collected with a field calibrated Buck BioAire High-Volume Sampling Pump on Zefon Air-O-Cell spore-trap cassettes at a flow rate of 15 liters per minute for five minutes, for a sample volume of 75 liters. AMA Analytical Services, Inc. of Lanham, MD analyzed the samples using direct microscopic examination per ASTM D7391, which counts both viable and non-viable mold spores and particulates, which combined yields total fungal results. AMA participates in the National Institute of Standards and Technology's (NIST) National Voluntary Laboratory Accreditation Program (NVLAP) for general laboratory performance and management, and the American Industrial Hygiene Association (AIHA) for Environmental Microbial Laboratory Accreditation Program (EMLAP). The AMA laboratory reports are included in Appendix A.

3 Visual Observations

Table 1 lists the areas, conditions, observations, and other pertinent details related to the initial and follow-up IAQ assessments. On both sampling events, few occupants were present in the school because of the COVID-19 global pandemic.

Table 1: Visual Observations and Sampling Locations

Sample Location	December 2, 2020 Observations
Parking Lot – Outside	• Sampled near a tree buffer at edge of parking lot • Light to moderate wind at time of sampling under sunny skies
Main Office	• There are three occupants in this area during sampling • There is no odor or visible mold in this area • One photocopier is present • Two houseplants are present • A conference room and two closets are attached • Many files and stacks of paper, but housekeeping appears to be good and room is tidy. • Old radiator unit on the wall not turned on (may not function). No dust observed on it. • Two mini-split AC/heat units are present and provide the heat. • Room is approx. 500 sq. ft.
Room 24	• Nobody is present during sampling • Approx. eleven ceiling tiles were removed from the grid after water leaks and repairs. Grey mold growth is observed on the seams of the fiberglass insulation. • Many student materials are staged around the room • The attached restroom has no dripping faucets or obvious signs of leaks • Wall vent has debris and dust load present • A large oval area rug is present on the tile floor, which appears clean • Room is approx. 800 sq. ft.
Room 17	• Nobody is present during sampling • The ceiling tiles appear to be newer • Dust was not observed on the window sills and ventilator grill and student materials and chairs were stacked around room • The adjoining bathroom sink is not dripping and no apparent leaks or stains are seen. The classroom also has a sink in the room, which was dry at the time of sampling • Room is approx. 960 sq. ft. with a large area rug (approx. 150 sq. ft)

Sample Location	December 2, 2020 Observations
Media Center	• One occupant is present during sampling • Two offices and a closet adjoin the room • Five large library book stacks are present on the far side of the room (opposite the room entrance) with light dust • Floor and ceiling tiles are in good condition and appear newer • A few computer monitors are present • Room is approx. 950 sq. ft.
Room 11	• No occupants are present during sampling • Science classroom with soil present in a fishbowl and a sink in the back of the room which was dry during sampling • Fifty quart bag of soil/compost present • Classroom is tidier than others. Student materials are stored on perimeter shelves in plastic and cardboard boxes. Some light dust is present on wall ventilator. • Room is approx. 800 sq. ft.
Room 2	• No occupants are present during sampling • There is no odor or visible mold in this area • Light dust accumulation on the wall ventilator and window sills • Ceiling tiles and floors looked clean • Nitrate test bottles and empty aquarium are present • Room is approx. 800 sq. ft.
Room 28	• No occupants are present during sampling • One ceiling tile is missing • Wall ventilator is not on during sampling • Desks are cleaned off but there are lots of toys and games in boxes that could harbor dust • Attached restroom does not have obvious leaks or drips in the sink • Room is approx. 800 sq. ft.
Cafetorium	• No occupants present during sampling but cooks are nearby in the kitchen preparing meals for pickup. The door to the parking lot is propped open for their work. • Room is a large storage area for student materials: stacks of hundreds of books, computer servers/IT equipment on carts • Curtains on the stage are pulled closed • Planters with soils are present • Three exit doors to outdoors are present • Dirt load present on six large overhead diffusers • Ceiling tiles appear newer

Sample Location	2/23/2021 Reassessment Observations
Ambient	• Sampled near a tree at edge of parking lot • Light to moderate wind at time of sampling under sunny skies
Room 24	• No occupants are present during sampling • Observed new ceiling tiles

Sample Location	2/23/2021 Reassessment Observations
	• Many student materials are staged around the room • The attached restroom faucets no leaks • A large oval area rug is which appears clean. No dust on floor and furniture • No mold growth observed
Room 28	• No occupants are present during sampling • Observed new ceiling tiles 2X4 • Wall ventilator is not on during sampling • Desks are cleaned and no dust on floor • Attached restroom does not have obvious leaks or drips in the sink
Media Center	• No occupant is present during sampling • Floor and ceiling tiles are in good condition and appear newer • A few computer monitors are present • No mold growth observed. No dust on floor and furniture.

4 Thermal Environmental Conditions for Human Occupancy

ASHRAE *Standard 55-2017, Thermal Environmental Conditions for Human Occupancy*, addresses thermal comfort in an office environment, which means that an employee wearing a normal amount of clothing feels neither too cold nor too warm. This standard discusses thermal comfort within the context of air temperature, humidity, and air movement and provides recommended ranges for temperature and humidity that are intended to satisfy 80% of occupants. The recommended ASHRAE ranges are referenced below by each comfort parameter.

4.1 Temperature

The ASHRAE standard establishes a winter comfort range of between 68°F and 75°F and a summer range of between 73°F and 79°F. The temperatures measured during the December 2, 2020 initial assessment and reassessment from February 23, 2021 are summarized in Table 2. As indicated by the data in the table, temperatures in the school on December 2 averaged between 66°F and 72°F, with one test location less than the ASHRAE recommended winter range.

ATI reassessed select rooms that had unusual fungal spore concentrations on February 23, 2021, after remediation actions were completed and collected temperature readings. The average temperatures in the reassessed locations ranged from 57°F to 70°F, with one room less than the ASHRAE recommended winter temperature range. This is not unusual for an unoccupied space since heaters are often turned down or off to save on electricity.

Table 2: Temperature

Sample Location	12/2/2020 Initial Assessment Temperature in °F			ASHRAE Standard °F
	Min	Max	Average	
Outside	66	66	66	N/A
Indoors				
Main Office	71	72	72	68-75°F
Room 24	68	68	68	68-75°F
Room 17	71	71	71	68-75°F
Media Center	71	71	71	68-75°F
Room 11	71	72	72	68-75°F

Sample Location	12/2/2020 Initial Assessment Temperature in ºF			ASHRAE Standard ºF
	Min	Max	Average	
Room 2	68	69	69	68-75°F
Room 28	68	68	68	68-75°F
Cafetorium	65	66	66	68-75°F
02/23/2021 Reassessment Temperature in ºF				
Outdoors	48.7	49	49	N/A
Indoors				
Room 24	70	70	70	68-75°F
Media Center	57	57	57	68-75°F
Room 28	64	64	64	68-75°F

4.2 Relative Humidity

Relative humidity is a key factor for mold growth. Mold has the potential of growing on suitable surfaces with humidity levels above 65%. ASHRAE *Standard 62.1-2016*, *Ventilation for Acceptable Indoor Air Quality,* recommends a maximum indoor relative humidity of 65% to prevent condensation of moisture on surfaces. Relative humidity less than 30% may result in drying of occupants' mucous membranes and skin. Relative humidity measurements for December 2, 2020 and February 23, 2021 are summarized in Table 3. As indicated by the data in the table, the average relative humidity ranged between 24% and 34% with all tested locations measuring less than the ASHRAE maximum recommendation of 65% relative humidity, and seven of eight locations less than 30% relative humidity.

ATI reassessed select rooms that had unusual fungal spore concentrations on February 23, 2021, after remediation actions were completed. ATI also reassessed the relative humidity in the space, and the average relative humidity again ranged between 24% and 34% with all tested locations less than the ASHRAE maximum recommendation of 65% relative humidity, and two of three locations less than 30% relative humidity.

Table 3: Relative Humidity

Sample Location	12/2/2020 Initial Assessment (% RH)			ASHRAE Standard (% RH)
	Min	Max	Average	
Outside	73	74	74	N/A
Indoors				
Main Office	25	25	25	< 65
Room 24	33	34	34	< 65
Room 17	27	27	27	< 65
Media Center	28	28	28	< 65
Room 11	23	23	23	< 65
Room 2	23	24	24	< 65
Room 28	24	24	24	< 65
Cafetorium	25	28	27	< 65
02/23/2021 Reassessment Relative Humidity (%RH)				
Outdoors	42	43	43	N/A
Indoors				

Sample Location	12/2/2020 Initial Assessment (% RH)			ASHRAE Standard (% RH)
	Min	Max	Average	
Room 24	26	27	27	< 65
Media Center	34	34	34	< 65
Room 28	24	24	24	< 65

4.3 Carbon Dioxide

Carbon dioxide concentrations within an occupied building are a standard method used to gauge the efficiency of ventilation systems. Carbon dioxide is a by-product of human respiration and does not pose an acute health hazard alone. Elevated concentrations may suggest that insufficient fresh air is being supplied to an occupied space and/or that the ventilation system does not provide a sufficient rate of air exchange.

Research has indicated that buildings with adequately operating ventilation systems are able to remove odors generated by activities in an indoor office environment efficiently. ASHRAE *Standard 62.1-2016* states that comfort (odor) criteria with respect to human bio effluents are likely to be satisfied if the ventilation can maintain indoor carbon dioxide concentrations less than 700 parts per million (ppm) greater than the outdoor air concentration. Typically, outdoor carbon dioxide concentrations range from 300 ppm to 450 ppm, with the higher range typically found in urban areas during peak rush hour.

Carbon dioxide concentrations for December 2, 2020 are summarized in Table 4. On the day of the assessment, the average outdoor carbon dioxide concentration was 389 ppm, which calculates to a maximum indoor concentration of 1,089 ppm (700 + 389). All tested locations indoors were less than the recommended maximum for the day of the assessment.

ATI reassessed select rooms that had unusual fungal spore concentrations on February 23, 2021, after remediation actions were completed. The carbon dioxide concentrations measured during the reassessment are included in Table 4. The average outdoor carbon dioxide concentration on February 23, 2021 was 369 ppm, which calculates to a maximum indoor concentration of 1,069 ppm (700 + 369). All tested locations indoors were less than the recommended maximum for the day of the reassessment.

Table 4: Carbon Dioxide

Sample Location	12/2/2020 Initial Assessment Concentration (parts per million)			ASHRAE Standard (ppm) NTE
	Min	Max	Average	
Outside	385	393	389	N/A
Indoors				
Main Office	500	532	516	< 1,089
Room 24	401	415	408	< 1,089
Room 17	415	423	419	< 1,089
Media Center	445	481	463	< 1,089
Room 11	430	435	433	< 1,089
Room 2	397	400	399	< 1,089
Room 28	402	418	410	< 1,089
Cafetorium	396	404	400	< 1,089

Sample Location	12/2/2020 Initial Assessment Concentration (parts per million)			ASHRAE Standard (ppm) NTE
	Min	Max	Average	
02/23/2021 Reassessment Concentration (parts per million)				
Outdoors	368	370	369	N/A
Indoors				
Room 24	481	483	482	<1,069
Media Center	423	424	424	<1,069
Room 28	398	400	399	<1,069

4.4 Carbon Monoxide

Carbon monoxide is a colorless and odorless gas produced by the incomplete combustion of carbon containing fuels. Oil, gasoline, diesel fuels, wood, coke, and coal are the major sources of carbon monoxide. ASHRAE recommends that carbon monoxide not exceed nine ppm indoors over an eight-hour time-weighted average. ATI measured carbon monoxide concentrations using a TSI Q-Trak model number 7575-X with an attached IAQ probe (model number 982). The instrument's carbon monoxide sensor has an error range of ± 3% of the reading or three (3) ppm, whichever is greater. As indicated by the data in Table 5, carbon monoxide concentrations for December 2, 2020 were less than the Q-Trak's detection limit throughout the school.

ATI reassessed select rooms that had unusual fungal spore concentrations on February 23, 2021, after remediation actions were completed. The carbon monoxide concentrations measured during the reassessment are included in Table 5. The carbon monoxide concentrations from the reassessment were less than the EPA/ASHRAE recommended maximum of 9 ppm.

Table 5: Carbon Monoxide

Sample Location	12/2/2020 Initial Assessment Concentration (parts per million)			ASHRAE Standard (ppm)
	Min	Max	Average	
Outdoors	< 3	< 3	< 3	N/A
Indoors				
Main Office	< 3	< 3	< 3	< 9
Room 24	< 3	< 3	< 3	< 9
Room 17	< 3	< 3	< 3	< 9
Media Center	< 3	< 3	< 3	< 9
Room 11	< 3	< 3	< 3	< 9
Room 2	< 3	< 3	< 3	< 9
Room 28	< 3	< 3	< 3	< 9
Cafetorium	< 3	< 3	< 3	< 9
02/23/2021 Reassessment Concentration (parts per million)				
Outdoors	< 3	< 3	< 3	N/A
Indoors				
Room 24	< 3	< 3	< 3	< 9
Media Center	< 3	< 3	< 3	< 9
Room 28	< 3	< 3	< 3	< 9

5 Total Fungal Air Sampling Results

Mold is carried indoors through building entrances, open windows, loading docks, foot traffic into buildings, and the HVAC system. To thrive indoors, mold requires a food source, proper temperature and humidity to foster its growth.

The December 2, 2020 and February 23, 2021 mold assessments sampled air using spore trap cassettes in randomly selected classrooms and other areas throughout the facility. These cassettes collect both viable spores, those capable of producing more fungal colonies, and non-viable spores, which cannot reproduce. Based upon recognized industry practices, indoor mold concentrations are compared with those detected outdoors, which are also known as ambient or baseline samples.

In normal circumstances, the diversity of spores identified indoors and outdoors should be similar with some exceptions. The high concentration of one or two species of fungal spores identified indoors and the absence of the same species outdoors can indicate a moisture problem with the potential to degrade the air quality. Fungi species present indoors are typically found at levels ranging from approximately 10-50% of their levels in the outdoor air, reflecting the filtering by the building's HVAC system.

The results from December 2, 2020 suggested unusual mold spore concentrations in three tested locations: Rooms 24 and 28, and the Media Center. The *Aspergillus/Penicillium*-like concentration in Room 24 was 20,540 spores/m^3, which was greater than the outdoor sample which had a concentration of 312 spores/m^3. The *Aspergillus/Penicillium*-like concentration in Room 28 was 4,056 spores/m^3, and the Media Center had 832 spores/m^3. However, the Media Center also had elevated *Cladosporium* at 5,096 spores/m^3, which was elevated enough to warrant corrective actions and reassessment.

At the time of the initial sampling round in December, Room 24 had ceiling tiles removed from the ceiling grid and mold growth was observed on fiberglass insulation along the ceiling. ATI inferred that this area was being treated for water damage. Room 28 had one missing ceiling tile in December, yet no signs of water damage or mold were observed. Moreover, the Media Center did not have signs of water damage or mold in December. ATI recommended evaluating these tested spaces and the surrounding areas to try and identify water sources, abate any mold issues and clean the area before retesting the space.

Stachybotrys/Memnoniella was detected in Room 2, but at a concentration less than a reportable amount, less than 52 spores/m^3. *Stachybotrys/Memnoniella* is often associated with chronic water intrusion; however, this low concentration does not suggest active mold growth and is likely residual contamination from past mold growth. Other tested rooms had relatively low concentrations of spores that were detected in the ambient sample, such as *Myxomycetes, Pithomycetes, Epicoccum,* and *Cladosporium*. However, the concentrations measured in those rooms do not suggest significant mold growth and could be residual spores from prior growth, contamination from outdoors, or possibly trivial amounts of mold growth normal in occupied spaces.

After mold abatement and cleaning, Rooms 24, 28 and the Media Center were reassessed on February 23, 2021 after the initial assessment indicated the unusual presence of airborne mold spores. ATI reassessed these three rooms, which had a significant decrease in measured spores. Room 24 had a 99% reduction in *Aspergillus/Penicillium*, Room 28 had a 93% reduction, and the Media Center had a 75% reduction. Moreover, at the initial testing round, the Media Center had a concentration of 5,096 spores/m^3 of *Cladosporium*, which decreased to non-detected in the reassessment.

As the mold abatement yielded favorable results in the reassessment, ATI had no further recommendations at this time.

Differences in concentrations between both assessments are summarized in Table 6.

Table 6: *Aspergillus/Penicillium* Concentration Comparison

Sample Location	December 2, 2020 Concentration	February 23, 2021 Concentrations	% Change
Room 24	20,540	106	-99%
Media Center*	832	212	-75%
Room 28	4,056	265	-93%

*Media Center also had 5,096 spores/m^3 of *Cladosporium* at the initial testing round. By the reassessment, these spores were not detected.

The official laboratory reports with spore trap samples collected on December 2, 2020 and February 23, 2021 are presented in Appendix A.

6 Summary of Findings

1. One of the tested spaces had a temperature less than the ASHRAE recommended winter range of 68-75°F on December 2, 2020. On the February 23, 2021 resampling assessment, two spaces had a temperature less than the recommended range. During both sampling dates, the school was not fully occupied, and the HVAC was likely set to a cooler mode for energy efficiency.
2. The relative humidity in all tested spaces on both December 2, 2020 and February 23, 2021 was less than the ASHRAE guidelines of <65%, and most spaces were <30%, which is drier than the recommended range.
3. Carbon dioxide concentrations in all tested spaces were less than the ASHRAE limit for carbon dioxide relative to the outdoor carbon dioxide concentration on the day of each assessment.
4. Carbon monoxide concentrations during both assessments were less than the ASHRAE/EPA recommended limit.
5. The mold spore trap samples from December 2, 2020 had unusual spore concentrations in Rooms 24, 28 and the Media Center and were selected to be addressed and reassessed after remediation actions were completed. The other tested spaces had mold spore concentrations that were typical for occupied spaces.
6. *Aspergillus/Penicillium* concentrations in Rooms 24, 28 and the Media Center during the February 23, 2021 reassessment were 75-99% lower than the initial assessment. Other spore types decreased significantly as well. Because of the favorable decrease in spore counts at the reassessment, ATI has no further recommendations at this time.

We appreciate the opportunity to provide these IAQ testing services for you. If you have any questions, please contact us at (202) 643-4283.

Sincerely,
ATI, INC.

Reviewed By:

Courtney E. McCall
Project Manager

Nate Burgei, CIH, CSP
Certified Industrial Hygienist

Appendix A: Laboratory Report and Chain of Custody

AMA Analytical Services, Inc.
Focused On Results.

CERTIFICATE OF ANALYSIS

ASTM D7391-09 Spore Trap Analysis Report

Chain of Custody: 624349
Client: ATI, Inc.
Address: 9220 Rumsey Road
Suite 100
Columbia, MD 21045
Attention: Courtney McCall

Job Name: Dodge Park Elementary School
Job Location: 3401 Hubbard Road, Landover, MD 20785
Job Number: 20-693
P.O. Number: Not Provided

Date Submitted: 12/03/2020
Person Submitting: Courtney McCall
Date Analyzed: 12/09/2020
Report Date: 12/10/2020

AMA Sample #	624349-1
Client ID	3146 1976
Analyst ID	TLW
Collection Apparatus	Air-O-Cell
Sample Volume (L)	75
Sample Condition	Acceptable
Debris Loading	3
Location	Main Office

	Raw Ct	Trav/Flds	A.S.	sp/m³	%
Alternaria					
Ascospores	1	15	52	52	2.9%
Basidiospores	11	15	52	572	32.4%
Bipolaris/Drechslera/Helm.					
Chaetomium					
Cladosporium	8	15	52	416	23.5%
Curvularia					
Penicillium / Aspergillus	4	15	52	208	11.8%
Smuts/Periconia/Myxomycetes	6	15	52	312	17.6%
Stachybotrys/Memnoniella					
Ulocladium					
Unknown	1	15	52	52	2.9%
Pithomyces	1	15	52	52	2.9%
Rusts	2	15	52	104	5.9%
Other Colorless					
Hyphal Fragments*	1	15	52	52	2.9%
Total Raw Ct:	34		**Total sp/m³:**	1768	

Comments

AMA Sample #	624349-2
Client ID	3146 1925
Analyst ID	TLW
Collection Apparatus	Air-O-Cell
Sample Volume (L)	75
Sample Condition	Acceptable
Debris Loading	1
Location	Room 24

	Raw Ct	Trav/Flds	A.S.	sp/m³	%
Alternaria					
Ascospores	1	15	52	52	0.3%
Basidiospores	3	15	52	156	0.9%
Bipolaris/Drechslera/Helm.					
Chaetomium					
Cladosporium	1	15	52	52	0.3%
Curvularia					
Penicillium / Aspergillus	316	12	65	20540	98.4%
Smuts/Periconia/Myxomycetes					
Stachybotrys/Memnoniella					
Ulocladium					
Unknown					
Pithomyces					
Rusts					
Other Colorless					
Hyphal Fragments*					
Total Raw Ct:	321		**Total sp/m³:**	20800	

Comments

AMA Sample #	624349-3
Client ID	3146 1936
Analyst ID	TLW
Collection Apparatus	Air-O-Cell
Sample Volume (L)	75
Sample Condition	Acceptable
Debris Loading	1
Location	Room 17

	Raw Ct	Trav/Flds	A.S.	sp/m³	%
Alternaria					
Ascospores					
Basidiospores					
Bipolaris/Drechslera/Helm.					
Chaetomium					
Cladosporium	Present	15	52	<52	
Curvularia					
Penicillium / Aspergillus	5	15	52	260	83.3%
Smuts/Periconia/Myxomycetes	1	15	52	52	16.7%
Stachybotrys/Memnoniella					
Ulocladium					
Unknown					
Pithomyces					
Rusts					
Other Colorless					
Hyphal Fragments*					
Total Raw Ct:	6		**Total sp/m³:**	312	

Comments

AMA Analytical Services, Inc.
Focused On Results.

CERTIFICATE OF ANALYSIS

ASTM D7391-09 Spore Trap Analysis Report

Chain of Custody:	624349	**Job Name:**	Dodge Park Elementary School	**Date Submitted:**	12/03/2020
Client:	ATI, Inc.	**Job Location:**	3401 Hubbard Road, Landover, MD 20785	**Person Submitting:**	Courtney McCall
Address:	9220 Rumsey Road Suite 100 Columbia, MD 21045	**Job Number:**	20-693	**Date Analyzed:**	12/09/2020
		P.O. Number:	Not Provided	**Report Date:**	12/10/2020
Attention:	Courtney McCall				

AMA Sample #	624349-4	**AMA Sample #**	624349-5	**AMA Sample #**	624349-6
Client ID	3146 1910	**Client ID**	3146 1904	**Client ID**	3146 1927
Analyst ID	TLW	**Analyst ID**	TLW	**Analyst ID**	TLW
Collection Apparatus	Air-O-Cell	**Collection Apparatus**	Air-O-Cell	**Collection Apparatus**	Air-O-Cell
Sample Volume (L)	75	**Sample Volume (L)**	75	**Sample Volume (L)**	75
Sample Condition	Acceptable	**Sample Condition**	Acceptable	**Sample Condition**	Acceptable
Debris Loading	1	**Debris Loading**	1	**Debris Loading**	1
Location	Media Center	**Location**	Room 11	**Location**	Room 2

	Raw Ct	Trav/Flds	A.S.	sp/m³	%
Alternaria					
Ascospores	2	15	52	104	1.5%
Basidiospores	5	15	52	260	3.8%
Bipolaris/Drechslera/Helm.					
Chaetomium					
Cladosporium	98	15	52	5096	74.2%
Curvularia					
Penicillium / Aspergillus	16	15	52	832	12.1%
Smuts/Periconia/Myxomycetes	6	15	52	312	4.5%
Stachybotrys/Memnoniella					
Ulocladium					
Unknown					
Pithomyces					
Rusts					
Other Colorless	5	15	52	260	3.8%
Hyphal Fragments*	1	15	52	52	0.8%
Total Raw Ct:	132		**Total sp/m³:**	6864	

Comments

	Raw Ct	Trav/Flds	A.S.	sp/m³	%
Alternaria					
Ascospores					
Basidiospores					
Bipolaris/Drechslera/Helm.					
Chaetomium					
Cladosporium	1	15	52	52	12.5%
Curvularia					
Penicillium / Aspergillus	7	15	52	364	87.5%
Smuts/Periconia/Myxomycetes	Present	15	52	<52	
Stachybotrys/Memnoniella					
Ulocladium					
Unknown					
Pithomyces					
Rusts					
Other Colorless					
Hyphal Fragments*					
Total Raw Ct:	8		**Total sp/m³:**	416	

Comments

	Raw Ct	Trav/Flds	A.S.	sp/m³	%
Alternaria					
Ascospores	1	15	52	52	4.5%
Basidiospores	3	15	52	156	13.6%
Bipolaris/Drechslera/Helm.					
Chaetomium	2	15	52	104	9.1%
Cladosporium	3	15	52	156	13.6%
Curvularia					
Penicillium / Aspergillus	12	15	52	624	54.5%
Smuts/Periconia/Myxomycetes	1	15	52	52	4.5%
Stachybotrys/Memnoniella	Present	15	52	<52	
Ulocladium					
Unknown					
Pithomyces					
Rusts					
Other Colorless					
Hyphal Fragments*	Present	15	52	<52	
Total Raw Ct:	22		**Total sp/m³:**	1144	

Comments

AMA Analytical Services, Inc.
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CERTIFICATE OF ANALYSIS

ASTM D7391-09 Spore Trap Analysis Report

Chain of Custody: 624349
Client: ATI, Inc.
Address: 9220 Rumsey Road
Suite 100
Columbia, MD 21045
Attention: Courtney McCall

Job Name: Dodge Park Elementary School
Job Location: 3401 Hubbard Road, Landover, MD 20785
Job Number: 20-693
P.O. Number: Not Provided

Date Submitted: 12/03/2020
Person Submitting: Courtney McCall
Date Analyzed: 12/09/2020
Report Date: 12/10/2020

AMA Sample #	624349-7
Client ID	3146 2032
Analyst ID	TLW
Collection Apparatus	Air-O-Cell
Sample Volume (L)	75
Sample Condition	Acceptable
Debris Loading	1
Location	Room 28

	Raw Ct	Trav/Flds	A.S.	sp/m³	%
Alternaria					
Ascospores	1	15	52	52	1.1%
Basidiospores	6	15	52	312	6.8%
Bipolaris/Drechslera/Helm.					
Chaetomium					
Cladosporium	2	15	52	104	2.3%
Curvularia					
Penicillium / Aspergillus	78	15	52	4056	88.6%
Smuts/Periconia/Myxomycetes	Present	15	52	<52	
Stachybotrys/Memnoniella	1	15	52	52	1.1%
Ulocladium					
Unknown					
Pithomyces					
Rusts					
Other Colorless					
Hyphal Fragments*					

Total Raw Ct: 88 **Total sp/m³:** 4576

Comments

AMA Sample #	624349-8
Client ID	3146 1932
Analyst ID	TLW
Collection Apparatus	Air-O-Cell
Sample Volume (L)	75
Sample Condition	Acceptable
Debris Loading	1
Location	Cafetorium

	Raw Ct	Trav/Flds	A.S.	sp/m³	%
Alternaria					
Ascospores	2	15	52	104	8%
Basidiospores	11	15	52	572	44%
Bipolaris/Drechslera/Helm.					
Chaetomium					
Cladosporium	Present	15	52	<52	
Curvularia					
Penicillium / Aspergillus	5	15	52	260	20%
Smuts/Periconia/Myxomycetes	6	15	52	312	24%
Stachybotrys/Memnoniella					
Ulocladium					
Unknown	1	15	52	52	4%
Pithomyces					
Rusts					
Other Colorless					
Hyphal Fragments*	1	15	52	52	4%

Total Raw Ct: 25 **Total sp/m³:** 1300

Comments

AMA Sample #	624349-9
Client ID	3146 1929
Analyst ID	TLW
Collection Apparatus	Air-O-Cell
Sample Volume (L)	75
Sample Condition	Acceptable
Debris Loading	2
Location	Ambient

	Raw Ct	Trav/Flds	A.S.	sp/m³	%
Alternaria					
Ascospores	11	15	52	572	26.2%
Basidiospores	21	15	52	1092	50%
Bipolaris/Drechslera/Helm.					
Chaetomium					
Cladosporium	2	15	52	104	4.8%
Curvularia					
Penicillium / Aspergillus	6	15	52	312	14.3%
Smuts/Periconia/Myxomycetes	2	15	52	104	4.8%
Stachybotrys/Memnoniella					
Ulocladium					
Unknown					
Pithomyces					
Rusts					
Other Colorless					
Hyphal Fragments*	1	15	52	52	2.4%

Total Raw Ct: 42 **Total sp/m³:** 2184

Comments

AMA Analytical Services, Inc.
Focused On Results.

CERTIFICATE OF ANALYSIS

ASTM D7391-09 Spore Trap Analysis Report

Chain of Custody:	624349	**Job Name:**	Dodge Park Elementary School	**Date Submitted:**	12/03/2020
Client:	ATI, Inc.	**Job Location:**	3401 Hubbard Road, Landover, MD 20785	**Person Submitting:**	Courtney McCall
Address:	9220 Rumsey Road Suite 100 Columbia, MD 21045	**Job Number:**	20-693	**Date Analyzed:**	12/09/2020
		P.O. Number:	Not Provided	**Report Date:**	12/10/2020
Attention:	Courtney McCall				

AMA Sample #	624349-10
Client ID	3146 1940
Analyst ID	TLW
Collection Apparatus	Air-O-Cell
Sample Volume (L)	0
Sample Condition	Acceptable
Debris Loading	1
Location	Field Blank

	Raw Ct	Trav/Flds	A.S.	sp/m^3	%
Alternaria					
Ascospores					
Basidiospores					
Bipolaris/Drechslera/Helm.					
Chaetomium					
Cladosporium					
Curvularia					
Penicillium / Aspergillus					
Smuts/Periconia/Myxomycetes					
Stachybotrys/Memnoniella					
Ulocladium					
Unknown					
Pithomyces					
Rusts					
Other Colorless					
Hyphal Fragments*					
Total Raw Ct:	0		**Total sp/m^3:**	0	

Comments

No mold spores observed.

AMA Analytical Services, Inc.
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CERTIFICATE OF ANALYSIS

ASTM D7391-09 Spore Trap Analysis Report

Chain of Custody:	624349	**Job Name:**	Dodge Park Elementary School	**Date Submitted:**	12/03/2020
Client:	ATI, Inc.	**Job Location:**	3401 Hubbard Road, Landover, MD 20785	**Person Submitting:**	Courtney McCall
Address:	9220 Rumsey Road Suite 100 Columbia, MD 21045	**Job Number:**	20-693	**Date Analyzed:**	12/09/2020
		P.O. Number:	Not Provided	**Report Date:**	12/10/2020
Attention:	Courtney McCall				

Spore Comparison Guide

The criteria for these specifications are outlined, but not limited to those listed, below. Final specifications may differ from the listed criteria for certain samples. AMA Analytical Services, Inc. reserves the right to make changes to these criteria at any time without notice.

Normal ecology	Slightly above normal ecology	Moderately above normal ecology	Substantially above normal ecology

Stachybotrys / Memnoniella, and Chaetomium	**Other Spores* (Control Present)**	**Other Spores* (No Control)**
1-4 Spores: Yellow 5-9 Spores: Orange 10+ Spores: Red	< 10 Spores: Insignificant (no color) <= Control's spore count: Green Between Control and 2x Control: Yellow Between 2x Control and 3x Control: Orange 3x+ Control: Red	< 10 Spores: Insignificant (no color) 10-20 Spores: Yellow 20-50 Spores: Orange 50+ Spores: Red

*No evalutation is provided for the following spore types: Other, Other Colorless, and Unknown Fungi, and Misc

Interpretation of the data contained in this report is the sole responsibility of the client or the persons who conducted the field work. There are no federal or national standards for the number of fungal spores that may be present in the indoor environment. As a general rule and guideline that is widely accepted in the indoor air quality field, the numbers and types of spores that are present in the indoor environment should be comparable to those that are present outdoors at any given time. There will always be some mold spores present in "Normal" indoor environments. The purpose of sampling and counting spores is to help determine whether an abnormal condition exists within the indoor environment and if it does, to help pinpoint the area of contamination. Spore counts should not be used as the sole determining factor of mold contamination. There are many factors that can cause anomalies in the comparison of indoor and outdoor samples due to the dynamic nature of both of those environments.

This report is provided for informational and comparative purposes only and should not be relied upon for any other purpose. Sampling techniques, possible contaminants, unrepresentative samples and other similar or dissimilar factors may affect these results. With the statistical evaluation provided, as with all statistical comparisons and analyses, false-positive and false-negative results can and do occur. AMA Analytical Services, Inc. hereby disclaims any liability for any and all direct, indirect, punitive, incidental, special or consequential damages arising out of the use or interpretation of the data contained in, or any actions taken or omitted in reliance upon, this report.

AMA Analytical Services, Inc.
Focused On Results.

CERTIFICATE OF ANALYSIS

ASTM D7391-09 Spore Trap Analysis Report

Chain of Custody:	624349	**Job Name:**	Dodge Park Elementary School	**Date Submitted:**	12/03/2020
Client:	ATI, Inc.	**Job Location:**	3401 Hubbard Road, Landover, MD 20785	**Person Submitting:**	Courtney McCall
Address:	9220 Rumsey Road Suite 100 Columbia, MD 21045	**Job Number:**	20-693	**Date Analyzed:**	12/09/2020
		P.O. Number:	Not Provided	**Report Date:**	12/10/2020
Attention:	Courtney McCall				

General Comments, Disclaimers, and Footnotes

Analytical Method: Sample are analyzed following the instructions and guidelines outlined in ASTM 7391-09.

Sample Condition: Acceptable: The sample was collected and delivered to the our location without disturbing the material on the sampling media.
Unacceptable: 1. The sample trace (TR) has been disturbed. 2. The sample was damaged or otherwise unsuitable for analysis.
0 = No particulate matter detected; 1= >nd-~5% Particulate Loading; 2 = ~5%-25% Particulate Loading; 3 = ~25%- 75% Particulate Loading; 4 = ~75%-90% Particulate Loading; 5 = >90% Particulate Loading

Spore Notes: Based on their small size and very few distinguishing characteristics, Aspergillus and Penicillium cannot be differentiated by non-viable sampling methods. There are other types of spores whose morphology is similar to Aspergillus and Penicillium and cannot be differentiated by non-viable sampling methods. Examples of these similar spores are Acremonium, Paecilomyces, Wallemia, Trichoderma, Scopulariopsis, and Gliocladium.
Smuts, Periconia and Myxomycetes are three different types of genera that have similar morphological characteristics.
Bipolaris/Dreschlera/Helm: Bipolaris / Dreschlera / Helminthosporium are three different types of genera that have smiliar morphological characteristics.
Other Colorless represents all colorless spores that are non-distinctive and unidentifiable.
*Hyphal Fragments: A portion of the mycelium that becomes separated from the remainder of the thallus (vegetative body), each of which has the capacity to grow and form new individuals. Results for hyphal fragments are in fragments/m3 and are not incorporated in the total spore concentration.
The droplet symbol (💧) refers to water-intrusion indicator spores. These fungal spores, when found on indoor air samples, can be an indication of moisture sources and resultant fungal growth that may be problematic.

Quantification: Analytical Sensitivity (A.S.): This is dependent on the volume of air collected, size of the trace, ocular diameter, and the amount of the trace that was analyzed.
The value of "Present" indicated in the Raw Count column represents the presence of this spore type during the preliminary exam at 400x. The Raw Count converts to a whole number if the spore type is encountered again during the 600x-1,000x enumeration. The sp/m3concentration will be reported as less than the analytical sensitivity if "Present" is reported in the Raw Count.
Results are reported to 3 significant figures. sp/m3: Spores per cubic meter.
Uncertainty: for raw count in the range of 0-50 the SR is 0.375, 51-100 SR=0.333, 101-200 SR=0.257, >200 SR=0.245
All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.
Analyst(s): Tristan Ward

Technical Director Tristan Ward

MOLD SPORE DESCRIPTIONS

Ascospores

Ascospores are spores formed inside an ascus (asci-plural) or sac-like cell which is contained inside a fruiting body called an ascocarp or an ascoma (ascomata-plural). An ascus typically contains a definite nuimber of ascospores, usually eight. Ascospores are unique in shape, size, and color as to the Genus/species they represent. These spores are specific to fungi classified as Ascomycetes. They are ubiquitous in nature. Many decay organic matter, others are plant or animal pathogens. They can grow indoors on damp materials. Release of ascospores are released by forcible ejection and dispersed by wind, water, animals and other agents. Health Effects: Depending on the Genera, Ascospores may be allergenic.

Basidiospores

Basidiospores are reproductive spores produced by a group of fungi called basidiomycetes. This group includes the mushrooms, shelf fungi and various other macrofungi. Basidipspores serve as the main air (wind) dispersal units for the fungi and their release is dependent upon moisture. The structure of the spore complex can develop in various manners resulting in different appearances. It is often found growing in soil, decaying plant debris, compost piles and fruit rot. Indoors, it can be found on water damaged building materials (chipboard /OSB, plywood, wallpaper, and glue) as well as on food items (dried foods, cheeses, fruits, herbs, spices, cereals). Health effects: Some basidiospores may produce toxins and can act as allergens. They have not been reported to be pathogens.

Chaetomium

Chaetomium is a genus of ascomycete fungi. It is a cosmopolitan, dark colored fungus (grayish-green to brown) commonly isolated from soil, seeds, dung, wood, and straw materials. Indoors, it is very commonly found on damp sheetrock and paper or cellulose-containing materials. There are certain characteristics such as color, shape, and size of the Chaetomium ascopores, asci, and ascomata that are unique in identification of the different species. Wind, insects, and water aid dispersal of spores. Due to their large size, they settle out of the air after just a few minutes. As a consequence, airborne mold levels are usually low even in infested environments. Due to this, exposure levels are likely to be low as well. Health Effects: Chaetomium does produce a variety of mycotoxins called chaetoglobsins, whose health effects on humans are unknown. Due to its toxigenic nature, special precautions may be required during remediation.

Cladosporium

Cladosporium is the most common indoor and outdoor mold. The spores are wind dispersed and are often extremely abundant in outdoor air. Many species are commonly found on living and dead plant material. Indoors, they may grow on surfaces with high moisture or high humidity levels such as damp window sills, poorly ventilated bathrooms and soiled refrigerators. It produces powdery or velvety olive-green to brown or black colonies. The conidia (spores) vary depending on the species and are formed in simple or branching chains with multi-attachment points. Health Effects: Cladosporium species are rarely pathogenic to humans, but have been reported to occassionally cause sinusitis and pulmonary infections as well as infections of the skin and toenails. The airborne spores are significant allergens, and in large amounts they may severely affect asthmatics and people with respiratory diseases.

Hyphal Fragments

Hyphal Fragments are segments or pieces of hyphae or mycelium that may have broken off during sampling (air, tape, dust). The mycelium is the entire mass of hyphae that makes up the vegetative body of a fungus. The presence of hyphal fragments may indicate the presence of viable mold.

Memnoniella

Memnoniella is closely related Stachybotrys and they are often found growing together. Like Stachybotrys, it is a cosmopolitan fungus and commonly found in soil, plant debris as well as plants and trees. It is also cellulolytic or has the capacity to degrade cellulose and found on wet materials containing cellulose as well as other substrates. Unlike Stachybotrys, the spores form chains and not aggregated in slimy heads. Spores are spherical to sub-spherical, gray, dark brown or black in color, and smooth to rough walled. Colonies are black to blackish-green. Health Effects: Some species may produce mycotoxins with similar toxicities as some species of Stachybotrys. These mycotoxins may have the ability to infect humans and animals after ingestion, inhalation or absorption through unbroken skin.

Other Colorless

- “Other Colorless” are all non-distinctive, unidentifiable, colorless spores seen on spore trap samples and include all the genera that do not have distinguishing morphology to belong to any of the other defined categories."

Penicillium/Aspergillus Like

Penicillium and Aspergillus are ubiquitous, filamentous fungi that are found in soil, decaying plant debris, compost piles, and in the air. Indoors, spores are commonly found in house dust, in water-damaged buildings (wallpaper, wallpaper glue, decaying fabrics, moist chipboards, and behind paint) as well as fruit and grains. They are the most common fungal genera, worldwide. Both produce chains of spores that are small, round to oval, colorless or slightly pigmented, and smooth to rough walled. These spores are indistinguishable between the two as well as other genera, such as Gliocladium, Trichoderma, Paecilomyces, and Scopulariopsis. They differ as to their conidiophores or fruiting bodies. While, Aspergillus spores are produced from phialides supported on conidia heads or swollen vesicles, Penicillium spores are produced on finger-like projections. Depending on species, typical colonies of Aspergillus are initially white and later turn to either shades of green, yellow, orange, brown or black. Texture is usually velvety to cottony. Typical colonies of Penicillium, other than Penicillium marneffei (yeast-like at 37oC), grow rapidly, white in color at first, later becoming bluish green with white borders with velvety to powdery textures depending on species. Some species produce radial patterns. Health Effects: Both Aspergillus and Penicillium are potential allergens. Several species of Aspergillus (A. flavus and A. parasiticus) produce aflatoxins or natually occurring mycotoxins that are toxic and carcinogenic. These are found in contaminated foodstuff and are hazardous to consumers. Penicillium has only one known species that is pathogenic to humans (P. marneffei) that causes lethal systemic infection (Penicilliosis) in immunocompromised individuals.

Pithomyces

Pithomyces is a cosmopolitan, dark-walled fungus often found growing outside in soil, decaying leaves, and grasses. It is rarely found growing indoors, but will grow on paper given the right conditions. Colonies grow rapidly, cottony in texture with light to dark brownish black surface color. Spores are single, oval yellow to dark brown, multi-celled, and usually rough. One identification feature of the spores is the resemblance to barrels. Another identifying character is beak-like structures on young spores. Spores of Pithomyces chartarum are most common and are identified by distinctive tranverse septa. This species has been linked to facial eczema in sheep. Health Effects: It is a potential but not well-studied allergen or human pathogen.

Rusts

Rusts are of the order Uredinales. Certain species produce spores that are often reddish in color and resemble the corrosion process known as rust. This is how this group derived its common name-Rusts. The spores are airborne and can travel long distances. Some spores slightly resemble Smuts. Rusts are plant parasites and may require two or more different plant hosts to complete their life cycle. Their complex life cycle includes production of five different spore stages. Their infection rate is enhanced by wet weather. Health Effects: Rusts can cause allergen type I allergies (hay fever, asthma). No human infection and known toxins have been reported.

Smuts/Periconia/Myxomycetes

Smuts, Periconia, and Myxomycetes spores are grouped together due to their similar round, brown morphology. Smuts are outdoor parasitic plant pathogens. They rarely grow indoors but may grow on host plants if appropriate conditions are present. They are parasitic plant pathogens. They can be found on cereal crops, grasses, flowing plants, weed, and other fungi. They can cause allergies. Periconia are found in soils, dead herbaceous stems and leaf spots, and grasses. They have wind dispersed dry spores. Their spores are abundant in the air but it is not known if they are allergenic. Myxomycetes are found on decaying logs, stumps and dead leaves. They have wind-dispersed dry spores and wet motile (amoebic phase) spores. During favorable conditions they move about like amoebae. They form dry airborne spores when conditions are unfavorable. They are rarely found indoors. Health Effects: They may cause Type 1 allergies (hay fever, asthma). No human infections have been reported.

Stachybotrys

Stachybotrys is known as black mold or toxic black mold. It is a worldwide, filamentous fungus that is commonly found growing on water damaged materials such as ceiling tiles, insulation, wallpaper, wood, and sheetrock. It is highly cellulolytic (has the capacity to degrade cellulose) and commonly isolated on wet materials containing cellulose, such as wallboard, jute carpet backing along with associated glues, straw baskets, and paper materials. The spores are slimy, ellipsoidal to, sub-spherical in shape, single-celled, gray to black in color, and smooth to rough walled. They usually form in clusters on the phialides. Colonies have a powdery to cottony texture and white in color at first, later turning dark gray to black. Health Effects: Certain species of Stachybotrys produce mycotoxins that may be harmful to human and animal after ingestion. They can cause allergic and asthmatic reactions in sensitive individuals.

Unknown Fungi

“Unknown Fungi” are spores that cannot be identified under direct microscopic analysis. This includes partial spores. This category also includes spores that are hidden or hard to see during microscopic examination due to heavy presence of particulate.

AMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA-LAP (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires) 62 4349

Mailing/Billing Information:

1. Client Name: ATI Inc
2. Address 1: 4221 Forbes Blvd
3. Address 2: Suite 250
4. Address 3: Lanham, MD 20706
5. Phone #: _____ Fax #: _____

Submittal Information:

1. Job Name: Dodge Park Elem School
2. Job Location: 3401 Hubbard Rd. Landover, MD 20785
3. Job #: 20-693 P.O. #: _____
4. Contact Person: Courtney McCall Cell: 703 399 5423
5. Collected by: Courtney McCall Cell: _____

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign defaults of 5-Day and email/fax to contacts on file.

AFTER HOURS (must be pre-scheduled)
☐ 4 Hours ☐ Late Night
☐ Immediate Date Due: _____
☐ 24 Hours Time Due: _____
Comments: _____

NORMAL BUSINESS HOURS
☐ 4 Hours ☐ 3 Day ☐ Results Required By Noon
☐ Same Day ☑ 5 Day + Date Due: 12/10/20
☐ Next Day
☐ 2 Day

REPORT TO:
☐ Email: courtney@atiinc.com
☐ Email 2: _____
☐ Verbals: _____

Asbestos Analysis
*PCM Air – Please Indicate Filter Type: _____
☐ NIOSH 7400 _____ (QTY)
☐ Fiberglass _____ (QTY)
TEM Air* – Please Indicate Filter Type: _____
☐ AHERA _____ (QTY)
☐ NIOSH 7402 _____ (QTY)
☐ Other (specify _____) _____ (QTY)
PLM Bulk
☐ EPA 600 – Visual Estimate _____ (QTY) ☐ Pos Stop
☐ EPA Point Count _____ (QTY)
☐ NY State Friable 198.1 _____ (QTY)
☐ Grav. Reduction ELAP 198.6 _____ (QTY)
☐ Other (specify _____) _____ (QTY)
MISC
☐ Asbestos Soil PLM☐ (Qual) PLM☐ (Quan) PLM/TEM☐ (Qual) PLM/TEM☐ (Quan)
*It is recommended that blank samples be submitted with all air and surface samples

TEM Bulk
☐ ELAP 198.4/Chatfield _____ (QTY)
☐ NY State PLM/TEM _____ (QTY)
☐ Residual Ash _____ (QTY)
☐ Vermiculite
TEM Dust*
☐ Qual. (pres/abs) Vacuum/Dust _____ (QTY)
☐ Quan. (s/area) Vacuum D5755-95 _____ (QTY)
☐ Quan. (s/area)Dust D6480-99 _____ (QTY)
TEM Water
☐ Qual. (pres/abs) _____ (QTY)
☐ ELAP 198.2/EPA 100.2 _____ (QTY)
☐ EPA 100.1 _____ (QTY)
☒ All samples received in good condition unless otherwise noted.
(TEM Water samples _____ °C)
If field data sheets are submitted, there is no need to complete bottom section.

Metals Analysis
☐ Pb Paint Chip _____ (QTY)
☐ *Pb Dust Wipe (wipe type _____) _____ (QTY)
☐ *Pb Air _____ (QTY)
☐ Pb Soil/Solid _____ (QTY)
☐ Pb TCLP _____ (QTY)
☐ Drinking Water ☐ Pb _____ (QTY) ☐ Cu _____ (QTY) ☐ As _____ (QTY)
☐ Waste Water ☐ Pb _____ (QTY) ☐ Cu _____ (QTY) ☐ As _____ (QTY)
☐ Pb Furnace (Media _____) _____ (QTY)

Fungal Analysis
Collection Apparatus for Spore Traps/Air Samples: _____
Collection Media _____
☑ *Spore-Trap 10 (QTY) ☐ Surface Vacuum Dust _____ (QTY)
☐ *Surface Swab _____ (QTY)
☐ *Surface Tape _____ (QTY)
☐ Other (Specify _____) _____ (QTY

CLIENT ID #	SAMPLE INFORMATION SAMPLE LOCATION/ ID	DATE/ TIME	VOL (L)/ Wipe Area	ANALYSIS / MATRIX: TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	WATER AND OTHER	SPORE TRAP	TAPE	SWAB	COMMENTS / SPECIAL INSTRUCTIONS
3146 1976	Main Office	120220 1108	75L					X	X				X			
3146 1925	Room 24	120220 1128	75L					X	X				X			
3146 1936	Room 17	120220 1140	75L					X	X				X			
3146 1910	Media Center	120220 1156	75L					X	X				X			
3146 1904	Room 11	120220 1205	75L					X	X				X			
3146 1927	Room 2	120220 1220	75L					X	X				X			
3146 2032	Room 28	120220 1227	75L					X	X				X			
3146 1932	Cafetorium	120220 1235	75L					X	X				X			
3146 1929	Ambient	120220 1245	75L					X	X				X			
3146 1940	Field Blank	120220 NA	NA					X	X				X			

	Print Name	Signature	Date	Time
Relinquished by:	Courtney McCall	Courtney McCall	12/3/20	
			12/3/20	

Shipping Information
☐ UPS ☐ In-Person ☐ Other
☐ FedEx ☒ Drop Box
☐ USPS ☐ Courier

AMA Analytical Services, Inc.
Focused On Results.

CERTIFICATE OF ANALYSIS

ASTM D7391-09 Spore Trap Analysis Report

Chain of Custody:	327011	**Job Name:**	Dodge Park Elementary School	**Date Submitted:**	02/23/2021
Client:	ATI, Inc.	**Job Location:**	School Classrooms	**Person Submitting:**	Sama W.
Address:	9220 Rumsey Road Suite 100 Columbia, MD 21045	**Job Number:**	20-693	**Date Analyzed:**	02/25/2021
		P.O. Number:	Not Provided	**Report Date:**	02/25/2021
Attention:	Courtney McCall				

AMA Sample #	327011-1	**AMA Sample #**	327011-2	**AMA Sample #**	327011-3
Client ID	3157-0040-A1	**Client ID**	3157-9971-A2	**Client ID**	3157-0047-A3
Analyst ID	TLW	**Analyst ID**	TLW	**Analyst ID**	TLW
Collection Apparatus	Air-O-Cell	**Collection Apparatus**	Air-O-Cell	**Collection Apparatus**	Air-O-Cell
Sample Volume (L)	75	**Sample Volume (L)**	75	**Sample Volume (L)**	75
Sample Condition	Acceptable	**Sample Condition**	Acceptable	**Sample Condition**	Acceptable
Debris Loading	1	**Debris Loading**	1	**Debris Loading**	1
Location	Media Center	**Location**	Classroom 24	**Location**	Classroom 28

	Raw Ct	Trav/Flds	A.S.	sp/m^3	%
Alternaria					
Ascospores	1	15	53	53	16.7%
Basidiospores	1	15	53	53	16.7%
Bipolaris/Drechslera/Helm.					
Chaetomium					
Cladosporium					
Curvularia					
Penicillium / Aspergillus	4	15	53	212	66.7%
Smuts/Periconia/Myxomycetes					
Stachybotrys/Memnoniella					
Ulocladium					
Unknown					
Other Colorless					
Nigrospora					
Hyphal Fragments*					
Total Raw Ct:	6	**Total sp/m^3:**	318		

Comments
No visible trace.

	Raw Ct	Trav/Flds	A.S.	sp/m^3	%
Alternaria					
Ascospores					
Basidiospores					
Bipolaris/Drechslera/Helm.					
Chaetomium					
Cladosporium					
Curvularia					
Penicillium / Aspergillus	2	15	53	106	50%
Smuts/Periconia/Myxomycetes					
Stachybotrys/Memnoniella					
Ulocladium					
Unknown					
Other Colorless	2	15	53	106	50%
Nigrospora					
Hyphal Fragments*					
Total Raw Ct:	4	**Total sp/m^3:**	212		

Comments

	Raw Ct	Trav/Flds	A.S.	sp/m^3	%
Alternaria					
Ascospores	1	15	53	53	10%
Basidiospores	4	15	53	212	40%
Bipolaris/Drechslera/Helm.					
Chaetomium					
Cladosporium					
Curvularia					
Penicillium / Aspergillus	5	15	53	265	50%
Smuts/Periconia/Myxomycetes					
Stachybotrys/Memnoniella					
Ulocladium					
Unknown					
Other Colorless					
Nigrospora					
Hyphal Fragments*					
Total Raw Ct:	10	**Total sp/m^3:**	530		

Comments

AMA Analytical Services, Inc.
Focused On Results.

CERTIFICATE OF ANALYSIS

ASTM D7391-09 Spore Trap Analysis Report

Chain of Custody:	327011	**Job Name:**	Dodge Park Elementary School	**Date Submitted:**	02/23/2021
Client:	ATI, Inc.	**Job Location:**	School Classrooms	**Person Submitting:**	Sama W.
Address:	9220 Rumsey Road Suite 100 Columbia, MD 21045	**Job Number:**	20-693	**Date Analyzed:**	02/25/2021
		P.O. Number:	Not Provided	**Report Date:**	02/25/2021
Attention:	Courtney McCall				

AMA Sample #	327011-4
Client ID	3157-0014-A4
Analyst ID	TLW
Collection Apparatus	Air-O-Cell
Sample Volume (L)	75
Sample Condition	Acceptable
Debris Loading	2
Location	Outside

	Raw Ct	Trav/Flds	A.S.	sp/m^3	%
Alternaria					
Ascospores	16	15	53	848	39%
Basidiospores	23	15	53	1219	56.1%
Bipolaris/Drechslera/Helm.					
Chaetomium					
Cladosporium	Present	15	53	<53	
Curvularia					
Penicillium / Aspergillus	1	15	53	53	2.4%
Smuts/Periconia/Myxomycetes					
Stachybotrys/Memnoniella					
Ulocladium					
Unknown					
Other Colorless					
Nigrospora	1	15	53	53	2.4%
Hyphal Fragments*					

Total Raw Ct: 41 **Total sp/m^3:** 2173

Comments

AMA Sample #	327011-5
Client ID	3157-0006-A5
Analyst ID	TLW
Collection Apparatus	Air-O-Cell
Sample Volume (L)	0
Sample Condition	Acceptable
Debris Loading	1
Location	Field Blank

	Raw Ct	Trav/Flds	A.S.	sp/m^3	%
Alternaria					
Ascospores					
Basidiospores					
Bipolaris/Drechslera/Helm.					
Chaetomium					
Cladosporium					
Curvularia					
Penicillium / Aspergillus					
Smuts/Periconia/Myxomycetes					
Stachybotrys/Memnoniella					
Ulocladium					
Unknown					
Other Colorless					
Nigrospora					
Hyphal Fragments*					

Total Raw Ct: 0 **Total sp/m^3:** 0

Comments

No mold spores observed.

AMA Analytical Services, Inc.
Focused On Results.

CERTIFICATE OF ANALYSIS

ASTM D7391-09 Spore Trap Analysis Report

Chain of Custody:	327011	**Job Name:**	Dodge Park Elementary School	**Date Submitted:**	02/23/2021
Client:	ATI, Inc.	**Job Location:**	School Classrooms	**Person Submitting:**	Sama W.
Address:	9220 Rumsey Road Suite 100 Columbia, MD 21045	**Job Number:**	20-693	**Date Analyzed:**	02/25/2021
		P.O. Number:	Not Provided	**Report Date:**	02/25/2021
Attention:	Courtney McCall				

Spore Comparison Guide

The criteria for these specifications are outlined, but not limited to those listed, below. Final specifications may differ from the listed criteria for certain samples. AMA Analytical Services, Inc. reserves the right to make changes to these criteria at any time without notice.

Normal ecology	Slightly above normal ecology	Moderately above normal ecology	Substantially above normal ecology

Stachybotrys / Memnoniella, and Chaetomium	**Other Spores* (Control Present)**	**Other Spores* (No Control)**
1-4 Spores: Yellow 5-9 Spores: Orange 10+ Spores: Red	< 10 Spores: Insignificant (no color) <= Control's spore count: Green Between Control and 2x Control: Yellow Between 2x Control and 3x Control: Orange 3x+ Control: Red	< 10 Spores: Insignificant (no color) 10-20 Spores: Yellow 20-50 Spores: Orange 50+ Spores: Red

*No evalutation is provided for the following spore types: Other, Other Colorless, and Unknown Fungi, and Misc

Interpretation of the data contained in this report is the sole responsibility of the client or the persons who conducted the field work. There are no federal or national standards for the number of fungal spores that may be present in the indoor environment. As a general rule and guideline that is widely accepted in the indoor air quality field, the numbers and types of spores that are present in the indoor environment should be comparable to those that are present outdoors at any given time. There will always be some mold spores present in "Normal" indoor environments. The purpose of sampling and counting spores is to help determine whether an abnormal condition exists within the indoor environment and if it does, to help pinpoint the area of contamination. Spore counts should not be used as the sole determining factor of mold contamination. There are many factors that can cause anomalies in the comparison of indoor and outdoor samples due to the dynamic nature of both of those environments.

This report is provided for informational and comparative purposes only and should not be relied upon for any other purpose. Sampling techniques, possible contaminants, unrepresentative samples and other similar or dissimilar factors may affect these results. With the statistical evaluation provided, as with all statistical comparisons and analyses, false-positive and false-negative results can and do occur. AMA Analytical Services, Inc. hereby disclaims any liability for any and all direct, indirect, punitive, incidental, special or consequential damages arising out of the use or interpretation of the data contained in, or any actions taken or omitted in reliance upon, this report.

AMA Analytical Services, Inc.
Focused On Results.

CERTIFICATE OF ANALYSIS

ASTM D7391-09 Spore Trap Analysis Report

Chain of Custody:	327011	**Job Name:**	Dodge Park Elementary School	**Date Submitted:**	02/23/2021
Client:	ATI, Inc.	**Job Location:**	School Classrooms	**Person Submitting:**	Sama W.
Address:	9220 Rumsey Road Suite 100 Columbia, MD 21045	**Job Number:**	20-693	**Date Analyzed:**	02/25/2021
		P.O. Number:	Not Provided	**Report Date:**	02/25/2021
Attention:	Courtney McCall				

General Comments, Disclaimers, and Footnotes

Analytical Method: Sample are analyzed following the instructions and guidelines outlined in ASTM 7391-09.

Sample Condition: Acceptable: The sample was collected and delivered to the our location without disturbing the material on the sampling media.
Unacceptable: 1. The sample trace (TR) has been disturbed. 2. The sample was damaged or otherwise unsuitable for analysis.
0 = No particulate matter detected; 1= >nd-~5% Particulate Loading; 2 = ~5%-25% Particulate Loading; 3 = ~25%- 75% Particulate Loading; 4 = ~75%-90% Particulate Loading; 5 = >90% Particulate Loading

Spore Notes: Based on their small size and very few distinguishing characteristics, Aspergillus and Penicillium cannot be differentiated by non-viable sampling methods. There are other types of spores whose morphology is similar to Aspergillus and Penicillium and cannot be differentiated by non-viable sampling methods. Examples of these similar spores are Acremonium, Paecilomyces, Wallemia, Trichoderma, Scopulariopsis, and Gliocladium.
Smuts, Periconia and Myxomycetes are three different types of genera that have similar morphological characteristics.
Bipolaris/Dreschlera/Helm: Bipolaris / Dreschlera / Helminthosporium are three different types of genera that have smiliar morphological characteristics.
Other Colorless represents all colorless spores that are non-distinctive and unidentifiable.
*Hyphal Fragments: A portion of the mycelium that becomes separated from the remainder of the thallus (vegetative body), each of which has the capacity to grow and form new individuals. Results for hyphal fragments are in fragments/m3 and are not incorporated in the total spore concentration.
The droplet symbol (💧) refers to water-intrusion indicator spores. These fungal spores, when found on indoor air samples, can be an indication of moisture sources and resultant fungal growth that may be problematic.

Quantification: Analytical Sensitivity (A.S.): This is dependent on the volume of air collected, size of the trace, ocular diameter, and the amount of the trace that was analyzed.
The value of "Present" indicated in the Raw Count column represents the presence of this spore type during the preliminary exam at 400x. The Raw Count converts to a whole number if the spore type is encountered again during the 600x-1,000x enumeration. The sp/m3concentration will be reported as less than the analytical sensitivity if "Present" is reported in the Raw Count.
Results are reported to 3 significant figures. sp/m3: Spores per cubic meter.
Uncertainty: for raw count in the range of 0-50 the SR is 0.375, 51-100 SR=0.333, 101-200 SR=0.257, >200 SR=0.245
All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.
Analyst(s): Tristan Ward

Technical Director Tristan Ward

MOLD SPORE DESCRIPTIONS

Ascospores

Ascospores are spores formed inside an ascus (asci-plural) or sac-like cell which is contained inside a fruiting body called an ascocarp or an ascoma (ascomata-plural). An ascus typically contains a definite nuimber of ascospores, usually eight. Ascospores are unique in shape, size, and color as to the Genus/species they represent. These spores are specific to fungi classified as Ascomycetes. They are ubiquitous in nature. Many decay organic matter, others are plant or animal pathogens. They can grow indoors on damp materials. Release of ascospores are released by forcible ejection and dispersed by wind, water, animals and other agents. Health Effects: Depending on the Genera, Ascospores may be allergenic.

Basidiospores

Basidiospores are reproductive spores produced by a group of fungi called basidiomycetes. This group includes the mushrooms, shelf fungi and various other macrofungi. Basidipspores serve as the main air (wind) dispersal units for the fungi and their release is dependent upon moisture. The structure of the spore complex can develop in various manners resulting in different appearances. It is often found growing in soil, decaying plant debris, compost piles and fruit rot. Indoors, it can be found on water damaged building materials (chipboard /OSB, plywood, wallpaper, and glue) as well as on food items (dried foods, cheeses, fruits, herbs, spices, cereals). Health effects: Some basidiospores may produce toxins and can act as allergens. They have not been reported to be pathogens.

Cladosporium

Cladosporium is the most common indoor and outdoor mold. The spores are wind dispersed and are often extremely abundant in outdoor air. Many species are commonly found on living and dead plant material. Indoors, they may grow on surfaces with high moisture or high humidity levels such as damp window sills, poorly ventilated bathrooms and soiled refrigerators. It produces powdery or velvety olive-green to brown or black colonies. The conidia (spores) vary depending on the species and are formed in simple or branching chains with multi-attachment points. Health Effects: Cladosporium species are rarely pathogenic to humans, but have been reported to occassionally cause sinusitis and pulmonary infections as well as infections of the skin and toenails. The airborne spores are significant allergens, and in large amounts they may severely affect asthmatics and people with respiratory diseases.

Nigrospora

Nigrospora is a ubiquitous, filamentous, dark colored fungus commonly isolated from soil, decaying plants, and seeds. Indoors, it is considered a laboratory contaminant. Colonies grow rapidly, initially white and woolly, later turning gray with black areas, and eventually turning black (both front and reverse). Its conidia are black, solitary, unicellular, slightly flattened horizontally, and have a thin equatorial germ slit. Health Effects: This mold may be a potential allergen. It is uncertain whether it is pathogenic to humans.

Other Colorless

- “Other Colorless” are all non-distinctive, unidentifiable, colorless spores seen on spore trap samples and include all the genera that do not have distinguishing morphology to belong to any of the other defined categories."

Penicillium/Aspergillus Like

Penicillium and Aspergillus are ubiquitous, filamentous fungi that are found in soil, decaying plant debris, compost piles, and in the air. Indoors, spores are commonly found in house dust, in water-damaged buildings (wallpaper, wallpaper glue, decaying fabrics, moist chipboards, and behind paint) as well as fruit and grains. They are the most common fungal genera, worldwide. Both produce chains of spores that are small, round to oval, colorless or slightly pigmented, and smooth to rough walled. These spores are indistinguishable between the two as well as other genera, such as Gliocladium, Trichoderma, Paecilomyces, and Scopulariopsis. They differ as to their conidiophores or fruiting bodies. While, Aspergillus spores are produced from phialides supported on conidia heads or swollen vesicles, Penicillium spores are produced on finger-like projections. Depending on species, typical colonies of Aspergillus are initially white and later turn to either shades of green, yellow, orange, brown or black. Texture is usually velvety to cottony. Typical colonies of Penicillium, other than Penicillium marneffei (yeast-like at 37oC), grow rapidly, white in color at first, later becoming bluish green with white borders with velvety to powdery textures depending on species. Some species produce radial patterns. Health Effects: Both Aspergillus and Penicillium are potential allergens. Several species of Aspergillus (A. flavus and A. parasiticus) produce aflatoxins or natually occurring mycotoxins that are toxic and carcinogenic. These are found in contaminated foodstuff and are hazardous to consumers. Penicillium has only one known species that is pathogenic to humans (P. marneffei) that causes lethal systemic infection (Penicilliosis) in immunocompromised individuals.

AMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA-LAP (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires) 327011

Mailing/Billing Information:
1. Client Name: ATI, INC.
2. Address 1: 4221 Forbes Blvd
3. Address 2: Lanham MD 20706
4. Address 3:
5. Phone #: 202-643-4283 Fax #:

Submittal Information:
1. Job Name: Dodge Park ES
2. Job Location: School class rooms
3. Job #: 20-693 P.O. #:
4. Contact Person: Courtny McCall Cell: 703-399-5423
5. Collected by: Sama W. Cell: 240-413-3728

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign defaults of 5-Day and email to contacts on file.

AFTER HOURS (must be pre-scheduled)
☐ 4 Hours ☐ Late Night
☐ Immediate Date Due: ~~02/22/21~~
☒ 24 Hours Time Due:
Comments:

NORMAL BUSINESS HOURS
☐ 4 Hours ☐ 3 Day
☐ Same Day ☐ 5 Day +
☐ Next Day Date Due: 02-25-21
☒ 2 Day
☐ Results Required By Noon (Additional fee may apply)

REPORT TO:
☒ Email: Courtny@atiinc.com
☐ Email 2:
☐ Verbals:

Asbestos Analysis
*PCM Air – Please Indicate Filter Type:
☐ NIOSH 7400 (QTY)
☐ Fiberglass (QTY)
TEM Air* – Please Indicate Filter Type:
☐ AHERA (QTY)
☐ NIOSH 7402 (QTY)
☐ Other (specify) (QTY)
PLM Bulk
☐ EPA 600 – Visual Estimate (QTY) ☐ Pos Stop
☐ EPA Point Count (QTY)
☐ NY State Friable 198.1 (QTY)
☐ Grav. Reduction ELAP 198.6 (QTY)
☐ Other (specify) (QTY)
MISC
☐ Asbestos Soil ASTM D7521 PLM (Qual) PLM (Quan) PLM/TEM (Qual) PLM/TEM (Quan)
*It is recommended that blank samples be submitted with all air and surface samples

TEM Bulk
☐ ELAP 198.4/Chatfield (QTY)
☐ NY State PLM/TEM (QTY)
☐ Residual Ash (QTY)
☐ Vermiculite (QTY)
TEM Dust*
☐ Qual. (pres/abs) Vacuum/Dust (QTY)
☐ Quan. (s/area) Vacuum D5755-95 (QTY)
☐ Quan. (s/area)Dust D6480-99 (QTY)
TEM Water
☐ Qual. (pres/abs) (QTY)
☐ ELAP 198.2/EPA 100.2 (QTY)
☐ EPA 100.1 (QTY)
☒ All samples received in good condition unless otherwise noted.
Lab use only (TEM Water samples °C)
If field data sheets are submitted, there is no need to complete bottom section.

Metals Analysis
☐ Pb Paint Chip ☐ % by Weight (QTY) ☐ mg/cm² (QTY)
☐ *Pb Dust Wipe (wipe type) (QTY)
☐ *Pb Air (QTY)
☐ Pb Soil/Solid (QTY)
☐ Pb TCLP (QTY)
☐ Drinking Water ☐ Pb (QTY) ☐ Cu (QTY)
☐ Waste Water ☐ Pb (QTY) ☐ Cu (QTY)
☐ Pb Furnace (Media) (QTY)
Fungal Analysis
Collection Apparatus for ~~Spore Traps~~/Air Samples: Aw
Collection Media Aw - 0 - Cell
☒ *Spore-Trap ~~5~~ (QTY) 5 ☐ Surface Vacuum Dust (QTY)
☐ *Surface Swab (QTY)
☐ *Surface Tape (QTY)
☒ Other (Specify ~~Lab~~) (QTY

CLIENT ID #	SAMPLE LOCATION/ ID	DATE/ TIME	VOL (L)/ Wipe Area	ANALYSIS: TEM	PCM	PLM	LEAD	MOLD	MATRIX: AIR	BULK	DUST	WATER AND OTHER	SPORE TRAP	TAPE	SWAB	COMMENTS / SPECIAL INSTRUCTIONS
3157-0040-A1	Media Center	02/23/21	75 L					✓					✓			
3156-9971-A2	Class Room 24	"	"					✓					✓			
3157-0047-A3	Class Room 28	"	"					✓					✓			
3157-0014-A4	Outside	"	"					✓					✓			
3157-0086-A5	Field Blank	"	—													

	Print Name	Signature	Date	Time
Relinquished by:	Don Sama W.		01/23/21	01.30 PM
Received by:			2/23/21	1330

Shipping Information
☐ UPS ☒ In-Person ☐ Other
☐ FedEx ☐ Drop Box
☐ USPS ☐ Courrier

Appendix B: Instrument Calibration Records

Certificate of Calibration

(✓) Buck™ BioAire Pump Calibration Rotameter
( ) Buck™ BioSlide Pump Calibration Rotameter

Serial number: R15042
Date Calibrated: 11/12/2020 **Calibration Due Date:** 11/12/2021

Flow Calibration

This is to certify that the rotameter listed above has been calibrated using a Buck Primary calibrator listed below which is calibrated according to A.P. Buck, Inc. calibration procedure APB-1, Ver. 6.2 and is traceable to the National Institute of Standards & Technology (N.I.S.T). A.P. Buck guarantees the accuracy of the rotameter to be within ± 5% of the actual flow rate.

AMBIENT CONDITIONS: Temperature 74±3° F Relative Humidity 50±10%

Description	MFR.	Model	Serial #
Primary Calibrator	A.P. Buck Inc.	M30B	☐ A40020 ☑ A40021

QA Approval By: Moroni Menk

A.P. BUCK, INC.
7101 Presidents Drive, Suite 110
Orlando, FL 32809
Phone: 407-851-8602
Fax: 407-851-8910

BUCK

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	71.33 (21.9)	°F (°C)
RELATIVE HUMIDITY	53.9	%RH
BAROMETRIC PRESSURE	28.81 (975.6)	inHg (hPa)

MODEL	7575-X
SERIAL NUMBER	7575X1711004

☒ AS LEFT ☐ AS FOUND

☒ IN TOLERANCE ☐ OUT OF TOLERANCE

– CALIBRATION VERIFICATION RESULTS –

THERMO COUPLE — SYSTEM PRESSURE01-02 — *Unit: °F (°C)*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	70.9 (21.6)	71.1 (21.7)	68.9~72.9 (20.5~22.7)				

BAROMETRIC PRESSURE — SYSTEM PRESSURE01-02 — *Unit: inHg (hPa)*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	28.82 (976.0)	28.82 (976.0)	28.24~29.40 (956.3~995.6)				

TSI does hereby certify that the above described instrument conforms to the original manufacturer's specification (not applicable to As Found data) and has been calibrated using standards whose accuracies are traceable to the United States National Institute of Standards and Technology (NIST) or has been verified with respect to instrumentation whose accuracy is traceable to NIST, or is derived from accepted values of physical constants. TSI's calibration system is registered to ISO-9001:2015.

Measurement Variable	System ID	Last Cal.	Cal. Due	Measurement Variable	System ID	Last Cal.	Cal. Due
Temperature	E004626	02-14-20	02-28-21	Pressure	E005254	10-10-19	10-31-20
Pressure	E003982	07-21-20	01-31-21	DC Voltage	E003493	06-17-20	06-30-21

CALIBRATED

August 31, 2020
DATE

Doc. ID: CERT_GEN_WCC

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	71.24 (21.8)	°F (°C)
RELATIVE HUMIDITY	54.8	%RH
BAROMETRIC PRESSURE	28.74 (973.2)	inHg (hPa)

MODEL	7575-X
SERIAL NUMBER	7575X1711004

☐ AS LEFT ☒ IN TOLERANCE
☒ AS FOUND ☐ OUT OF TOLERANCE

– CALIBRATION VERIFICATION RESULTS –

THERMO COUPLE — **SYSTEM PRESSURE01-02** — *Unit: °F (°C)*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	70.8 (21.6)	70.5 (21.4)	68.8~72.8 (20.4~22.7)				

BAROMETRIC PRESSURE — **SYSTEM PRESSURE01-02** — *Unit: inHg (hPa)*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	28.75 (973.6)	28.84 (976.6)	28.17~29.33 (953.9~993.2)				

TSI does hereby certify that the above described instrument conforms to the original manufacturer's specification (not applicable to As Found data) and has been calibrated using standards whose accuracies are traceable to the United States National Institute of Standards and Technology (NIST) or has been verified with respect to instrumentation whose accuracy is traceable to NIST, or is derived from accepted values of physical constants. TSI's calibration system is registered to ISO-9001:2015.

Measurement Variable	System ID	Last Cal.	Cal. Due	Measurement Variable	System ID	Last Cal.	Cal. Due
Temperature	E004626	02-14-20	02-28-21	Pressure	E005254	10-10-19	10-31-20
Pressure	E003982	07-21-20	01-31-21	DC Voltage	E003493	06-17-20	06-30-21

VERIFIED

August 31, 2020
DATE

Doc. ID: CERT_GEN_WCC

TSI P/N 2300157

CERTIFICATE OF CALIBRATION AND TESTING

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

ENVIRONMENT CONDITIONS		
TEMPERATURE	75.8 (24.3)	°F (°C)
RELATIVE HUMIDITY	48	%RH
BAROMETRIC PRESSURE	28.72 (972.6)	inHg (hPa)

MODEL	982
SERIAL NUMBER	P17100006

☐ AS LEFT ☐ IN TOLERANCE
☒ AS FOUND ☒ OUT OF TOLERANCE

– CALIBRATION VERIFICATION RESULTS –

GAS CO_2 AS FOUND — SYSTEM G-101 — *Unit: ppm*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	0	0	0~50	4	3020.5	* 2874.5	2929.9~3111.1
2	504	460	454~554	5	5037	* 4771.8	4885.9~5188.1
3	1008	964	958~1058				

GAS CO AS FOUND — SYSTEM G-101 — *Unit: ppm*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	35.3	* 30.8	32.3~38.3	2	100.7	* 87.7	97.7~103.7

TEMPERATURE AS FOUND — SYSTEM T-101 — *Unit: °F (°C)*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	32.0 (0.0)	32.6 (0.3)	31.0~33.0 (−0.5~0.6)	2	139.8 (59.9)	140.6 (60.3)	138.8~140.8 (59.4~60.5)

HUMIDITY AS FOUND — SYSTEM H-102 — *Unit: %RH*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	10.0	10.5	7.0~13.0	4	70.0	69.6	67.0~73.0
2	30.0	30.4	27.0~33.0	5	90.0	88.9	87.0~93.0
3	50.0	50.4	47.0~53.0				

**Indicates Out-of-Tolerance Condition*

TSI does hereby certify that the above described instrument conforms to the original manufacturer's specification (not applicable to As Found data) and has been calibrated using standards whose accuracies are traceable to the United States National Institute of Standards and Technology (NIST) or has been verified with respect to instrumentation whose accuracy is traceable to NIST, or is derived from accepted values of physical constants. TSI's calibration system is registered to ISO-9001:2015.

Measurement Variable	System ID	Last Cal.	Cal. Due	Measurement Variable	System ID	Last Cal.	Cal. Due
5000 CO_2	T-0660	07-15-20	07-15-28	200 CO	149848	03-24-20	03-24-28
N2	CT308798	06-28-20	06-28-28	Air	T608955	06-17-20	06-17-28
Flow	E003341	09-03-19	09-30-20	Flow	E003980	04-22-20	04-30-21
Flow	E003525	01-06-20	01-31-21	Flow	E003342	09-03-19	09-30-20
2000 C4H8	EB0054467	08-13-19	08-12-22	100 C4H8	CC507339	03-24-20	03-24-28
Temperature	E010657	02-14-20	02-28-21	Temperature	E010658	02-14-20	02-28-21
Temperture	E010655	01-21-20	01-31-21	Humidity	E003539	08-21-20	02-28-21

ChaoVang
VERIFIED

August 31, 2020
DATE

DOC ID CERT_GEN_WCC

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	71.33 (21.9)	°F (°C)
RELATIVE HUMIDITY	53.9	%RH
BAROMETRIC PRESSURE	28.81 (975.6)	inHg (hPa)

MODEL	982
SERIAL NUMBER	P17100006

☒ AS LEFT ☐ AS FOUND

☒ IN TOLERANCE ☐ OUT OF TOLERANCE

– CALIBRATION VERIFICATION RESULTS –

TEMPERATURE VERIFICATION — SYSTEM T-101 — *Unit: °F (°C)*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	32.0 (0.0)	32.6 (0.3)	31.0~33.0 (−0.5~0.6)	2	139.8 (59.9)	140.6 (60.3)	138.8~140.8 (59.4~60.5)

HUMIDITY VERIFICATION — SYSTEM H-102 — *Unit: %RH*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	10.0	10.5	7.0~13.0	4	70.0	69.6	67.0~73.0
2	30.0	30.4	27.0~33.0	5	90.0	88.9	87.0~93.0
3	50.0	50.4	47.0~53.0				

CO_2 GAS VERIFICATION — SYSTEM G-101 — *Unit: ppm*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	0	0	0~50	4	3020	3025	2929~3110
2	504	501	454~554	5	5037	5026	4886~5188
3	1008	1027	958~1058				

CO GAS VERIFICATION — SYSTEM G-101 — *Unit: ppm*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	35	36	32~38	2	101	100	98~104

TSI does hereby certify that the above described instrument conforms to the original manufacturer's specification (not applicable to As Found data) and has been calibrated using standards whose accuracies are traceable to the United States National Institute of Standards and Technology (NIST) or has been verified with respect to instrumentation whose accuracy is traceable to NIST, or is derived from accepted values of physical constants. TSI's calibration system is registered to ISO-9001:2015.

Measurement Variable	System ID	Last Cal.	Cal. Due
Temperature	E010657	02-14-20	02-28-21
Temperture	E010655	01-21-20	01-31-21
5000 CO_2	T-0660	07-15-20	07-15-28
N_2	CT308798	06-28-20	06-28-28
Flow	E003341	09-03-19	09-30-20
Flow	E003525	01-06-20	01-31-21
2000 C4H8	EB0054467	08-13-19	08-12-22

Measurement Variable	System ID	Last Cal.	Cal. Due
Temperature	E010658	02-14-20	02-28-21
Humidity	E003539	08-21-20	02-28-21
200 CO	149848	03-24-20	03-24-28
Air	T608955	06-17-20	06-17-28
Flow	E003980	04-22-20	04-30-21
Flow	E003342	09-03-19	09-30-20
100 C4H8	CC507339	03-24-20	03-24-28

Bao Yang
CALIBRATED

August 31, 2020
DATE

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TSI P/N 2300157