October 2, 2020

Client Name and Address:
MAC Services, LLC
21 Mill Pond Drive
Rochester, MA 02770

Re: Microbial Analytical Results from: Middle School; 1141 Brayton Ave; Somerset, MA

H2O Laboratory Number:03586

Dear Joseph Cooney,

We at H2O EnviroComp would like to thank you for your recent business. Samples were received on 10/1/2020 from a job located at Middle School; 1141 Brayton Ave; Somerset, MA. The final report is enclosed for the following samples: 1-3.

Please note that environmental conditions should be taken into account when interpreting the associated data and sampling at any other time period may produce differing results. H2O EnviroComp follows prescribed procedures for the analysis of air cassettes and direct samples to identify and quantify particulate and microbiological contamination.

These results only pertain to this job and should not be used in the interpretation of any other job. This report may be reproduced only in its entirety.

If you have any questions please do not hesitate to call me at the number below.

Regards,

Steven Grevelis
Laboratory Director

Enclosures:
- Analytical results
- Chain of Custody
- Fungal glossary

H2O EnviroComp
Indoor Air Quality Report
Air Sample Report

24 School Street
P.O. Box 444
West Dennis, MA 02670
Phone 508.737.4289

Company:	MAC Services, LLC	**Inspector:**	Joseph Cooney	**Date Sampled:**	10/1/2020
Contact:	Joseph Cooney	**Project Name:**	Middle School; 1141 Brayton Ave; Somerset, MA	**Date Received:**	10/1/2020
Address:	21 Mill Pond Drive	**Project Notes:**	Project Number: 2020-225	**Date Analyzed:**	10/1/2020
City, ST, Zip:	Rochester, MA 02770	**Lab No:**	03586	**Date Reported:**	10/1/2020
Phone:	508-789-0983			**Report Status:**	Version 1

Mold Identification by Samples

Sample Number: 03586-01
Client Sample ID: **4047779**
Magnification: **600 X**

Sample Medium: Allergenco-D
Sampling Rate: 15L/Min for 5 Minutes
Total Liters: 75
Location: Room 48

Sample Data:

Type:	Raw Count	Count/ Cubic Meter	Type:	Raw Count	Count/ Cubic Meter
Ascospores, Non-specified	ND	ND	Smuts	**25**	**1053**
Basidiospores, Non-specified	**1**	**42**	Rusts	ND	ND
Aspergillus/Penicillium-Like	**3**	**126**	Spegazzinia	ND	ND
Cladosporium	ND	ND	Stachybotrys	ND	ND
Chaetomium	ND	ND	Ulocladium	ND	ND
Ganoderma	ND	ND	Nigrospora	ND	ND
Pithomyces	**1**	**42**	Un-ID Spore	ND	ND
Alternaria	ND	ND	Pollen	ND	ND
Cercospora-like	ND	ND	Hyphal Frags	ND	ND
Curvularia	ND	ND	Insect Frags	ND	ND
Epicoccum	ND	ND			
Oidium	ND	ND			

Skin Fragment Prevalence; 1 (Low) to 4 (High):	1
Background Density; 1 (Low) to 5 (Overloaded):	1
Total Fungal Raw Count:	30
Analytical Sensitivity (Spore/Cubic Meter):	42
Number of Traverses:	12
Total Fungal Count (Spore/Cubic Meter):	**1263**

Sample Data Comments:

Reporting Notes:
N/A = Not Applicable
ND = None Detected
* = Type detected observed in clumps

Analyzed by: Steven Grevelis
Analyzed Date: 10/1/2020

H2O EnviroComp
Indoor Air Quality Report
Air Sample Report

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Company:	MAC Services, LLC	**Inspector:**	Joseph Cooney	**Date Sampled:**	10/1/2020
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City, ST, Zip:	Rochester, MA 02770	**Lab No:**	03586	**Date Reported:**	10/1/2020
Phone:	508-789-0983			**Report Status:**	Version 1

Mold Identification by Samples

Sample Number: 03586-02
Client Sample ID: **4047754**
Magnification: **600 X**

Sample Medium: Allergenco-D
Sampling Rate: 15L/Min for 5 Minutes
Total Liters: 75
Location: Office off Media Center

Sample Data:

Type:	Raw Count	Count/ Cubic Meter	Type:	Raw Count	Count/ Cubic Meter
Ascospores, Non-specified	**5**	**211**	Smuts	**34**	**1432**
Basidiospores, Non-specified	**11**	**463**	Rusts	ND	ND
Aspergillus/Penicillium-Like	**26**	**1095**	Spegazzinia	**1**	**42**
Cladosporium	**6**	**253**	Stachybotrys	ND	ND
Chaetomium	ND	ND	Ulocladium	ND	ND
Ganoderma	ND	ND	Nigrospora	ND	ND
Pithomyces	ND	ND	Un-ID Spore	ND	ND
Alternaria	ND	ND	Pollen	ND	ND
Cercospora-like	ND	ND	Hyphal Frags	ND	ND
Curvularia	ND	ND	Insect Frags	ND	ND
Epicoccum	ND	ND			
Oidium	ND	ND			

Skin Fragment Prevalence; 1 (Low) to 4 (High):	1
Background Density; 1 (Low) to 5 (Overloaded):	2
Total Fungal Raw Count:	83
Analytical Sensitivity (Spore/Cubic Meter):	42
Number of Traverses:	12
Total Fungal Count (Spore/Cubic Meter):	**3495**

Sample Data Comments:

Reporting Notes:
N/A = Not Applicable
ND = None Detected
* = Type detected observed in clumps

Analyzed by: Steven Grevelis
Analyzed Date: 10/1/2020

H2O EnviroComp
Indoor Air Quality Report
Air Sample Report

24 School Street
P.O. Box 444
West Dennis, MA 02670
Phone 508.737.4289

Company:	MAC Services, LLC	**Inspector:**	Joseph Cooney	**Date Sampled:**	10/1/2020
Contact:	Joseph Cooney	**Project Name:**	Middle School; 1141 Brayton Ave; Somerset, MA	**Date Received:**	10/1/2020
Address:	21 Mill Pond Drive	**Project Notes:**	Project Number: 2020-225	**Date Analyzed:**	10/1/2020
City, ST, Zip:	Rochester, MA 02770	**Lab No:**	03586	**Date Reported:**	10/1/2020
Phone:	508-789-0983			**Report Status:**	Version 1

Mold Identification by Samples

Sample Number: 03586-03
Client Sample ID: **4047763**
Magnification: **600 X**

Sample Medium: Allergenco-D
Sampling Rate: 15L/Min for 5 Minutes
Total Liters: 75
Location: Outdoors @ Side Parking Lot

Sample Data:

Type:	Raw Count	Count/ Cubic Meter	Type:	Raw Count	Count/ Cubic Meter
Ascospores, Non-specified	**43**	**1811**	Smuts	**35**	**1474**
Basidiospores, Non-specified	**189**	**7958**	Rusts	ND	ND
Aspergillus/Penicillium-Like	ND	ND	Spegazzinia	ND	ND
Cladosporium	**10**	**421**	Stachybotrys	ND	ND
Chaetomium	ND	ND	Ulocladium	ND	ND
Ganoderma	**2**	**84**	Coprinus	ND	ND
Pithomyces	**3**	**126**	Un-ID Spore	ND	ND
Alternaria	ND	ND	Pollen	ND	ND
Cercospora-like	ND	ND	Hyphal Frags	ND	ND
Curvularia	ND	ND	Insect Frags	ND	ND
Epicoccum	ND	ND			
Memnoniella	ND	ND			

Skin Fragment Prevalence; 1 (Low) to 4 (High):	1
Background Density; 1 (Low) to 5 (Overloaded):	1
Total Fungal Raw Count:	282
Analytical Sensitivity (Spore/Cubic Meter):	42
Number of Traverses:	12
Total Fungal Count (Spore/Cubic Meter):	**11874**

Sample Data Comments:

Reporting Notes:
N/A = Not Applicable
ND = None Detected
* = Type detected observed in clumps

Analyzed by: Steven Grevelis
Analyzed Date: 10/1/2020

H2O EnviroComp
24 School Street
P.O. Box 444
West Dennis, MA 02670

Microbial Chain of Custody
Version 1.0
4/9/2012

Client: MAC Services, LLC Phone: 508-789-0983 Client Address: 21 Mill Pond Drive Rochester, MA

Project Name: Somerset Middle School Project Number: 2020-225

Proj. Address: 1141 Brayton Avenue Town: Somerset State: MA Zip Code

Sampled By: Joseph Cooney

Date: 10-1-20 Project Manager: Joseph Cooney

Turn Around Time: ☒ Rush ☐ 24 Hour ☐ 48 Hour ☐ 3 Day ☐ 5 Day

Email Address(es) to Send Report to:
Email 1: jcooney@macmoldandmore.com
Email 2:

H2O Lab ID:
03586

SAMPLE ID	LOCATION	Sample Type (Air, Tape Lift, Bulk)	Volume Data			Sample Media (Air-O-Cell, Allergenco-D, etc)
			Rate (l/min)	Time (min)	Volume	
4047770	Room 48	Air	15	5	75	Allergenco-D
4047754	Office off Media Center	Air	15	5	75	Allergenco-D
4047763	Outdoors @ side parking lot	Air	15	5	75	Allergenco-D
		Air	15	5	75	Allergenco-D

Relinquished by: Joseph Cooney Date/Time: 10-1-20

Received by: Steven Grevelis Date/Time: 10/1/2020

H2O EnviroComp Fungal Glossary

Note: The following list is not inclusive of all molds and fungi.

Absidia: Found outdoors in soil and decaying vegetation. Found indoors in stored grains and other foods. Absidia is recognized as an allergen. In immunocompromised patients pulmonary invasions, the meninges (brain or spinal cord), and kidney infections can result from exposure.

Acremonium: Found outdoors in decaying or dead plant materials. Found indoors in food and wet, cellulose based building materials. Grows well indoors when there is a high water content (>0.90 Aw). Type I (hat fever, asthma) and Type III (hypersensitivity pneumonitis) allergen. Known to cause infections in immunodeficient patients and persons with wound injuries. There are 100 known species.

Alternaria: Common saprobe and pathogen of plants. Typically found on plant tissue, decaying wood, and foods, soil and air outdoors. Indoors it is found near condensation (window frames, showers), house dust (in carpets, and air). It also colonizes building supplies, computer disks, cosmetics, leather, optical instruments, paper, sewage, stone monuments, textiles, wood pulp, and jet fuel. Type I allergies (hay fever, asthma) and Type III (hypersensitivity pneumonitis). Alternaria spores are one of the most common and potent indoor and outdoor airborne allergens. Additionally, Alternaria sensitization has been determined to be one of the most important factors in the onset of childhood asthma. Synergy with Cladosporium or Ulocladium may increase the severity of symptoms.

Arthrinium: Found outdoors in decaying plant material and soil. Found indoors on cellulose containing materials. *Arthrinium sphaerospermum* is recognized as an allergen.

Ascospores: Ascospores are found everywhere in nature. Ascospores are the result of sexual reproduction and produced in a saclike structure called an ascus. All ascospores belong to members of the Phylum Ascomycota, which encompasses a plethora of genera worldwide.

Asperigillus/**Penicillium**: These species are common contaminants on various substances. This organism causes food spoilage and is an indicated organism for dampness indoors. Some of these species are known to produce mycotoxins. If health effects are noticed by occupants or workers, in an environment that evidences an amplification of Penicillium, identification of species is helpful. These especially opportunistic pathogens may cause respiratory infections. Some varieties produce mycotoxins and aflatoxins.

Basidiospores: Found outdoors in gardens forests and woodlands. Plant pathogen. Indoors it is the agent of “dry rot” and other fungi causing white and brown wood rot. Grow and destroy the structural wood of buildings. Poria incrassata causes a particularly destructive dry rot in buildings. A probably common allergen. Type I allergies (hay fever, asthma).

Bipolaris: Found outdoors in plant debris and soil. Found indoors on houseplants and indoor building materials. Type I allergies (hay fever, asthma). Most commonly reported cause of allergic and chronic invasive sinusitis.

Botrytis: Plant pathogen responsible for causing gray mold (*B. cincera)* on grapes, strawberries, raspberries, blackberries, low bush blueberries, lettuce, cabbage and onion. Indoors it is found on houseplants fruits and vegetables. Type I (hay fever, asthma) and type III (hypersensitivity) allergies.

Candida: Found in leaves, flowers, soil, water and is an inhabitant of the skin, mouth and vagina. It is unknown what suitable substrates are in the indoor environment. Has been reported as an allergen. Occurs in patients taking drugs such as oral contraceptives and antibiotics.

Cercospora: Found outdoors on plants. It is a plant parasite causing leaf spot. It is unknown what substrates it prefers indoors. Thrives in moderate to high humidity its allergenic potential is unknown.

Chaetomium: Found outdoors in soil, seeds, dung, woody and straw materials. Indoors found on damp sheet rock paper. Type I allergies (hay fever, asthma).

Coprinus: Found outdoors in wood, dung, litter and soil. Industrial uses: Popular experimental organism in genetic research

Cladosporium: Found outdoors in soil of many different types. Indoors it is found on many substrates including textiles, wood, and moist windowsills. Cladosporium grows at 0degrees C, and so is associated with refrigerated foods. It is a common and important allergen. Type I allergies (hay fever, asthma).

Cladophialophora (form of Cladosporium): Phialophora: Found outdoors in wood roots, stems and leaves of plants and grasses, and soil. It is a water loving fungus. Allergenicity has not been studied.

Coprinus: Found outdoors in wood, dung, litter and soil. Industrial uses: Popular experimental organism in genetic research

Curvularia: found outdoors in plant saprobe and pathogen to cereal plants and soil. Found indoors in paper and wood products. Type I allergies (asthma and hay fever) A relatively common cause of allergic fungal sinusitis.

Dactylaria: Found outdoors in decaying soil and leaves. Dactylaria species comprise a very small proportion of the fungal biota. There have been several reports of opportunistic infections caused by these genera but a true pathogenic role has not been firmly established. No information is available regarding upper respiratory health effects, or toxicity. Allergenicity has not been studied.

Epicoccum: Found outdoors in plant debris and soil. Found indoors in paper and textiles. Type I allergies (asthma and hay fever).

Fusarium: Found outdoors in soil. Occasionally found on a variety of substrates. Fusarium requires very wet conditions. Aw=0.86-0.91 (minimum for various species). . Type I allergies (asthma and hay fever).

Gandomera: Found outdoors on conifers and hardwoods worldwide, causing white rot, root rot, and stem rot. Ganoderma species are known to cause allergies in people on a worldwide scale.

Memnoniella: Found outdoors in plant litter soil and many types of plants and trees. Found indoors on a variety of substrates (cellulolytic). Allergens are unknown. Very closely related to Stachybotrys.

Myxomycetes: Found outdoors in decaying logs and stumps, particularly in forested areas. Only found occasionally indoors. Type I allergies (hay fever, asthma)

Nigrospora: Found outdoors in decaying plants and soil. Rarely found indoors. Type I allergies (asthma and hay fever).

Pithomyces: Found outdoors in bark, leaf litter and soils. Indoors it is found in paper and requires high levels of moisture for spore germination. Its allergenic potential is unknown.

Rust: Rusts are parasitic to many types of plants. Rust fungi require a living plant host for growth. Type I allergens (hay fever, asthma). There are 5000 known species of rusts belonging to at least 150 different genera. Rusts are the cause of great economic losses on many cultivated plants.

Scopulariopsis (Hyphomycetes) Teleomorph: *Microascus* (Ascomycetes) Mainly soil-borne, but also frequently isolated from wood, grain, fruit, paper, and food such as meat and dairy products. Also isolated from indoor environments. ***Most species can liberate arsenic gaseous compounds that can lead to arsenic poisoning. Has recently been associated with invasive human infections***.

Spegazzinia: Found outdoors in plants and soil. It is unknown what substrates it is found on indoors. Allergenic properties are unknown.

Stachybotrys: Stachybotrys: Stachybotrys grows on wet materials that contain cellulose and low nitrogen content. Usually but not limited to building materials such as wallboard paper (unfinished drywall) that has a high water activity over a long period of time. It produces several types of toxic metabolites and mycotoxins that can irritate skin and mucous membranes. One of the mycotoxins it produces called satratoxin is also toxic when inhaled. ***Extreme care should be taken when this organism is amplified indoors***. Individuals with chronic exposure to the toxin produced by this fungus reported cold and flu symptoms, sore throat, diarrhea, headaches, fatigue, dermatitis, intermittent local hair loss, and generalized malaise. The toxins produced by this fungus will suppress the immune system affecting the lymphoid tissue and the bone marrow.

Stemphylium: Found outdoors in soil, wood, decaying vegetation. Some species found on leaves are plant pathogens. Indoors growth is rare. Known allergen. Shares allergens with Alternaria. Type I allergies (hay fever, asthma).

Trichoderma: Found outdoors in soil, wood, decaying vegetation. Some species found on leaves are plant pathogens. Indoors growth on paper, textiles, and wet wood. Known allergen. Type I allergies (hay fever, asthma), Type III allergies (hypersensitivity), and has occasionally been associated with disease in immunocompromised individuals.

Torula: Found outdoors in leaves, plant roots, plant litter, soil and wood. Indoors it is found in paper, wicker furniture and wood. Type I allergies (hay fever, asthma).

Ulocladium: Found outdoors in soil, dung paint, grasses, fibers, wood, decaying plant material, paper and textiles. Indoors it is found in gypsum board, paper, paint, tapestries, jute and other straw materials. Ulocladium has a high water requirement. As an allergen it is major with type I allergies (hay fever, asthma) and it cross reacts with Alternaria, adding to the burden of Alternaria –sensitive patients.

Wallemia: Found outdoors in hay and soil. Found indoors in jams, salted fish, mattresses, textiles and wood in crawl spaces. It is a Type I (hay fever and asthma) allergen.

Zygomycetes: Found outdoors in decaying plant and animal matter. Found indoors in fruits and vegetables. It is a Type1 (hay fever, asthma) and Type III (hypersensitivity) allergen. Many zygomycetes are extremely fast growing and can inhibit other fungi when competing for food and space.