GARDINER CITY COUNCIL
AGENDA ITEM INFORMATION SHEET

Meeting Date	05/13/2020	**Department**	Buildings & Grounds
Agenda Item	4.d Discuss City Hall/Public Safety Building Issues and Mold Report		
Est. Cost	Unknown		

Background Information

In 2011 the city had a mold survey completed. No action was taken as a result of that report.

Chief Nelson was working with his team to complete some upgrades and clean out of areas in his station, when what was perceived to be a mold issue was discovered. Chief Nelson expressed his concern on having a new mold survey conducted. I immediately approved this request. (See attached report.)

Also, Chief Nelson noted that the back of the building is in need of repair. The cinder blocks are crumbling and falling in. As you all know the building abuts a hill that a lot of water seeps from, especially during major storm events. A.E. Hodson Engineering Company came to look at the building (we will have an update by the Council meeting).

This agenda item is strictly to have a discussion on how the City Council would like to proceed with repairs of the building. It is noted that a mold remediation plan must be implemented immediately for safety measures.

Requested Action	n/a
City Manager and/or Finance Review	n/a
Council Vote/ Action Taken	
Departmental Follow-Up	

City Clerk Use Only

1st Reading _____ **Advertised** _____

2nd Reading _____ **Advertised** _____ **w/in 15 Days**

Final to Dept _____ **Updated Book** _____ **Online** _____

EFFECTIVE DATE

_____

Air Quality Management Services, Inc.

"Discovering Solutions for Healthier Living"

May 5th, 2020

City of Gardiner
C/o Christine Landes
6 Church Street
Gardiner, Maine 04345

Re: Mold Assessment at the above location.

AQM Project #: 20-246

Air Quality Management Services, Inc. (AQM) conducted a mold assessment at your request on April 24th, 2020 at the above location (City Hall, Fire Department and Police Department), to characterize airborne and surface mold levels as well mold / moisture issues in the building.

I. Background

Assessment requested as pro-active measure and general concern for possible mold and water intrusion issues. Water intrusion has occurred in the past along the back-side of the building, and interior finish-wall systems have reportedly been replaced along that back wall. Water management improvements have also reportedly been made to reduce or eliminate water intrusion.

II. Testing

Air samples: Air samples were collected using a high-volume sampling pump and Air-O-Cell media (Spore-Trap) cassettes. Samples were collected in representative locations to determine airborne particle and fungal burdens. Samples were collected at 15 liters per minute flow rate for either 5 or 10 minutes. An ambient outdoor sample was collected as a comparative reference.

Surface samples: Tape lift samples were collected from representative surfaces to evaluate mold growth and/or settled spores / dust. Samples were collected using special microscope slides fitted with clear tape tabs.

Samples for mold analysis were submitted to Micro Diagnostic Services in Lewiston, Maine.

Temperature / Relative Humidity: Area temperature and relative humidity were determined using an EXTECH RH300 combination meter.

Moisture Readings: Moisture content of building materials (if applicable) was measured using a Delmhorst "MoistureCheck" meter in either scanning or penetration mode.

III. Observations (see photos for examples and more details)

- Water intrusion appears to be occurring in the Fire Department Weight Room and Hose Tower, due to rainwater runoff and infiltration through concrete wall(s). Visible mold growth is present on concrete / paint surfaces, mostly in the Hose Tower.
- Humidity-type, suspected mold growth was observed on a nightstand in the Fire Department Sleeping Quarters; this was determined not to be mold growth.
- Other than in the Fire Department rooms mentioned above, there does not appear to be significant, recent or ongoing water infiltration through walls along the back-side of the building, possibly because of the water-management improvements that reportedly have been made.

IV. Results

Temperature and Relative Humidity

Area	Temp (°F)	%RH	GPP Moisture
Outdoors	51.1	19.0	ND
FD Weight Room	64.2	21.2	ND
FD Truck Bay	64.7	20.8	ND
FD Sleeping Quarters	69.6	21.4	ND
FD Restroom	69.8	22.7	ND
FD Day Room	69.8	22.6	ND
PD Office Area	70.7	23.9	ND
PD Men's Locker Room	71.4	16.5	ND
PD Chief's Office	72.1	13.6	ND
PD Women's Locker Room	70.8	17.9	ND
CH Back Storage Room	76.6	13.5	ND
CH Council Room	71.4	17.0	ND
CH Front Office	75.2	16.2	ND

Temp = Temperature; %RH = Relative Humidity (%); GPP Moisture = Grains per Pound moisture content of air (higher values indicate greater amounts of water in the air); ND = Not Determined
FD = Fire Dept; PD = Police Dept; CH = City Hall

Moisture Readings (not applicable or not determined if no entry below)

Area	Location	Material	Moisture Elevated
FD Sleeping Quarters	Exterior-facing Wall(s)	sheetrock	No
FD Restroom	Exterior-facing Wall(s)	sheetrock	No
PD Men's Locker Room	Exterior-facing Wall(s)	sheetrock	No
PD Chief's Office	Exterior-facing Wall(s)	sheetrock	No
PD Women's Locker Room	Exterior-facing Wall(s)	sheetrock	No
CH Back Storage Room	Exterior-facing Wall(s)	sheetrock	No

FD = Fire Dept; PD = Police Dept; CH = City Hall

IV. Results (Continued)

Airborne Mold Sampling (refer to lab report for full details)

Air sample results are summarized as follows:

Sample #	Location	Comments	Overall Airborne Mold Level (1)	Mold Type(s) of Concern / Amplified Mold (2)
A1	Outdoors	Comparative Air Sample	Trace	Not Applicable
A2	FD Weight Room	None	Trace	None
A3	FD Truck Bay	None	Trace	None
A4	FD Sleeping Quarters	None	Trace	None
A5	FD Restroom	None	None Detected	None
A6	FD Day Room	None	Trace	None
A7	PD Office Area	None	Trace	None
A8	PD Men's Locker Room	None	Trace	None
A9	PD Chief's Office	None	Trace	None
A10	PD Women's Locker Room	None	None Detected	None
A11	CH Back Storage Room	None	Trace	None
A12	CH Council Room	None	Trace	None
A13	CH Front Office	None	Trace	None

(1) Based on AQM experience
(2) Based on industry consensus and AQM experience. Note that for Aspergillus/Penicillium-like spores, a common spore that is also commonly involved in air quality issues, the typical outdoor level in Maine through much of the warmer months is 200 to 300 counts per cubic meter of air (though wide variations can occur). This common outdoor level may be considered when viewing these spores in terms of occupant exposure or presence of significant elevation, regardless of outdoor levels at the time of sampling.

Indoor air sample results did not identify any significant mold spore elevations relative to the outdoors and/or typical levels in occupied indoor environments – No risks anticipated based on these results.

Surface Mold Sampling (refer to lab report for full details)

Surface sample results are summarized as follows:

Sample #	Location	Comments	Mold Type(s) Present at Excess Level (1) or Mold Type(s) of Concern (2)
T1	Weight Room Wall	Visible / Suspected Mold	Cladosporium species, Moderate
T2	Hose Tower Wall	Visible / Suspected Mold	Cladosporium species, High
T3	Sleeping Quarters Nightstand	Visible / Suspected Mold	None

(1) Based on AQM experience and/or industry consensus; represents mold growth unless stated otherwise
(2) Spore types strongly correlated with water damage and/or air quality concerns, based on scientific literature and/or industry consensus

Results for surface samples T1 and T2 identified moderate to high levels of mold growth. Sample T3 did not identify mold growth or spore types of concern (only trace levels of common, outdoor-type spores settled in dust).

IV. Results (Continued)

Area Characterization of Fungal Presence, per IICRC S520 Standard (1)

Condition-1 Areas: All Areas Sampled, other than below (Condition-2 Areas)
Condition-2 Areas: Fire Department Weight Room and Hose Tower
Condition-3 Areas: None

See Photos and Lab Results for basis of characterization, and Definitions Section for Area Characterization Notes
(1) ANSI/IICRC S520/R520 Standard and Reference Guide for Professional Mold Remediation - Third Edition: 2015, The Institute of Inspection, Cleaning and Restoration Certification, www.iicrc.org

V. Recommendations

- Enlist the services of an IICRC-certified mold remediation company.
- Isolate the Hose Tower and Weight Room from other areas of the building, using proper engineering controls to prevent dispersal of mold, paint and other dust particulates during remediation.
- Hose Tower and Weight Room – Clean / Treat (see Definitions) walls with signs of water infiltration and visible / suspected mold growth. An abrasive-media method (e.g. Soda or dry-ice blasting) may be necessary to remove mold on surfaces as well as impregnated in paint.
- Detail Clean (see Definitions) all surfaces / contents in the Remediation Areas, because of the observed surface-mold growth, elevated levels of airborne fungi and/or probability of settled spores.
- Replace building materials / Release Remediation area ONLY after a successful post remedial evaluation.
- Consult a Professional Engineer or a competent qualified contractor to control groundwater intrusion through perimeter walls and/or prevent saturated soil surrounding the foundation by: installing exterior foundation perimeter drainage, sloping the ground away from the foundation 5% (6" for every 10'), installing gutters (If gutters are to be installed ensure they are kept free of debris and the downspouts direct water well-away from the foundation), and water proofing the foundation walls or utilizing other like systems.
- In addition to the above general recommendations to prevent water impact to exterior walls / foundation, repair exterior concrete wall systems as needed to prevent water infiltration through gaps and physically-damaged areas.

VI. Definitions:

- **Finished System** includes the underlying wall / ceiling insulations and appropriate vapor barriers.
- **Detail Cleaning** involves HEPA vacuuming and damp wiping with a mild detergent (including hard-to-reach areas / inside / underside / behind furniture and other objects). Following cleaning, there should be no area debris or dust. All mold growth must be removed from surfaces.
- **Clean / Treat** involves the application of an appropriate cleaning / treatment system. Surfaces should be thoroughly cleaned including damp / wet cleaning and wiping of surfaces; use cleaning / scrubbing method with appropriate abrasiveness based on characteristics of the material surfaces as well as types and extent of mold growth. All mold growth must be removed from surfaces. Application of any coating must be light; encapsulation is unacceptable unless done after post-remediation testing. **There should never be any visible mold, demolition debris, sheetrock dust, paper or insulation fragments, general dust, etc. remaining on surfaces after Clean / Treatment actions.**

Area Characterization Notes (According to the IICRC S520 Standard):

A "**Condition 1**" environment contains what would be considered normal background amounts of fungal spores and fragments, as well as trace amounts of fungal growth. Normal housekeeping and cleaning procedures can keep a Condition 1 environment under control. Most residential homes and commercial office space would be considered Condition 1.

A "**Condition 2**" environment is associated with an area that has a limited amount of fungal growth present. Condition 2 environments are also associated with areas adjacent to heavy contamination that may contain elevated levels of spores or fungal fragments generated by the adjacent contamination. Condition 2 environments also may contain a limited amount of porous materials and can usually be returned to Condition 1 by diligent cleaning and thorough drying.

"**Condition 3**" environments contain heavy mold growth and usually are associated with persistent moisture or water intrusions. Condition 3 environments often contain hidden mold growth, due to water damage being present in closed areas such as wall cavities.

The overall goal of mold remediation as presented in IICRC S520 Standard is to return the area to a Condition 1. This means that trace amounts of mold may still be present, but the type and amount of mold is consistent with measurements made outdoors or in an adjacent indoor area that is free from amplified levels of mold.

AQM appreciates this opportunity to have aided in this project. In the event you have questions or require further assistance, please do not hesitate to contact us.

Sincerely,

Nick Ferrala

Nick Ferrala, BA, CIEC
Industrial Hygienist, Microbiologist

ASSESSMENT LIMITATIONS

AQM

ASSESSMENT LIMITATIONS

The observations, conclusions and recommendations described in this assessment report were made under the conditions stated herein, taking into account any information / concerns provided or reported to AQM, and were arrived at in accordance with generally accepted standards related to indoor air quality investigations and good industrial hygiene practice. The conclusions presented in the report were based solely upon the services described herein, and not on scientific tasks or procedures beyond the scope of described services, time and / or any budgetary constraints. Assessments were made at the request of the Client based on information provided at the time of authorization to proceed with the evaluation. This report is prepared for the Client's use only and in accordance with scope of services requested, and should not be distributed to other parties for review and reliance.

The findings relating to this assessment were not intended to be exhaustive in nature, nor do they attempt to identify all possible sources of indoor contaminants, chemicals or even mold throughout the entire structure. Building materials may contain asbestos. In the event that asbestos building materials are suspected, further evaluation should be made prior to renovations in accordance with Federal, State, and Local regulations – as applicable. **Note:** Effective April 22nd, 2010 Environmental Protection Agency's (EPA) Renovation, Repair, and Painting (RRP) rule is in effect. This means that any renovation, repair and painting activities on **target housing** or **child-occupied facility** built before 1978 performed for compensation after April 22nd, 2010 falls under this rule. It is mandatory that any renovation impacting painted surfaces in a facility built before 1978 be tested for presence of lead-based paints. A Contractor (or Firm) trained and certified under this rule shall perform removal of lead-base painted surfaces, **ONLY** if lead-based paints are present and renovation / remediation of the structure falls under the definition of EPA's new rule. You can find EPA's RRP rule and definitions at their website: http://www.epa.gov/lead/pubs/renovation.htm. The chosen contractor to perform activities disturbing lead-based painted surfaces will comply with all State, Federal, Local Health and Safety Regulatory Requirements (which ever is more stringent).

Any measured results, analysis data, and / or physical conditions observed are only valid for the period in which this inspection / testing was conducted. Certain assumptions can be made based on information provided to AQM on or before the time of the assessment coupled with analytical data and observations made at the time of the inspection / testing.

Where such quantitative laboratory analyses have been conducted by an outside laboratory, AQM has relied upon the data provided, and has not conducted an independent evaluation of the reliability of the data. This data have been reviewed and interpretations made as presented in the report.

Historical events or ambient air conditions that may have existed prior to this assessment cannot be correlated in any way with the enclosed data. No warranty, real or implied, is made as to what was or is the exact cause or source that may have adversely affected the indoor air quality prior to the date of this assessment.

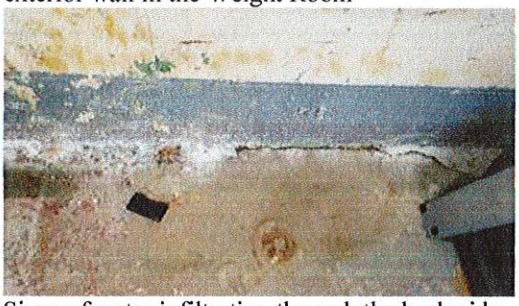
The report is based on AQM's professional opinion and on our experience in conjunction with information gathered during the assessment and laboratory data provided. Information and recommendations set forth in this report are intended to characterize current conditions based on the reported concerns and discoveries made at the time of the inspection and testing period. Information is being provided to aid in the development of corrective actions or remediation that may improve overall conditions identified and/or to improve the overall air quality.

PHOTO DOCUMENTATION

AQM

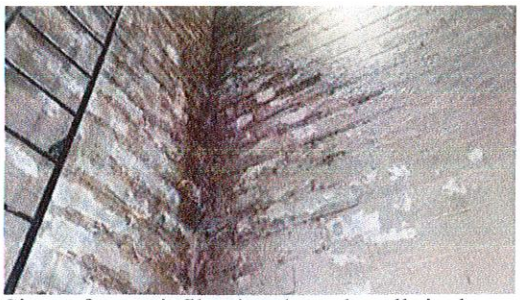

View of Weight Room (Fire Dept)

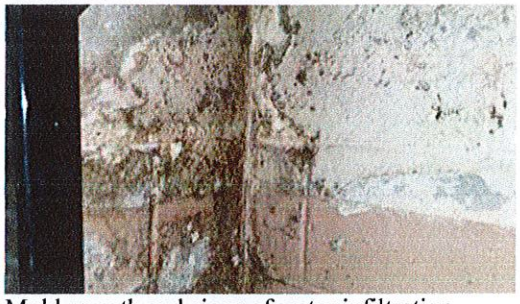

Signs of water infiltration through the back-side exterior wall in the Weight Room

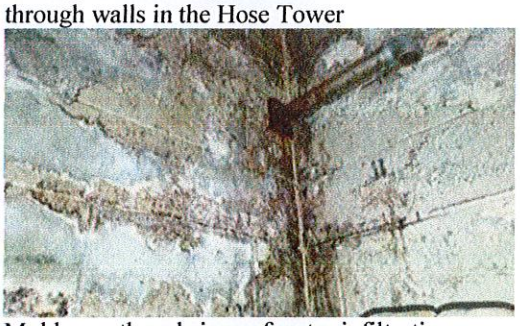

Signs of water infiltration through the back-side exterior wall in the Weight Room

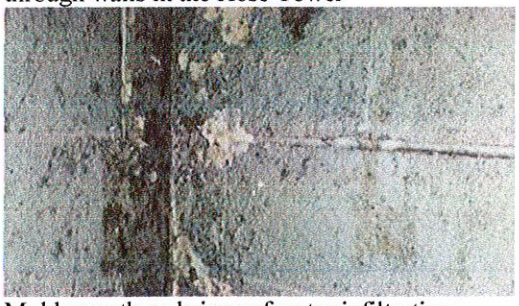

Mold growth on back-side exterior wall in the Weight Room


Hose Tower (Fire Dept)

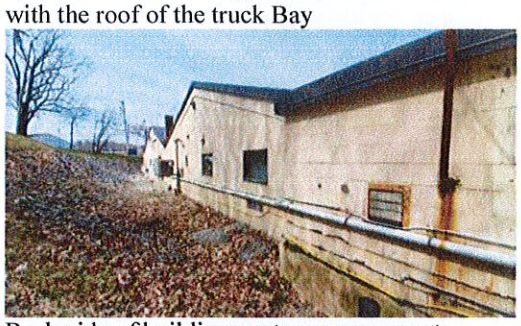

Signs of water infiltration through walls in the Hose Tower


Mold growth and signs of water infiltration through walls in the Hose Tower

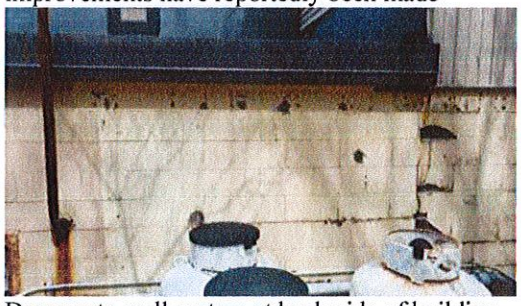

Mold growth and signs of water infiltration through walls in the Hose Tower


Mold growth and signs of water infiltration through walls in the Hose Tower

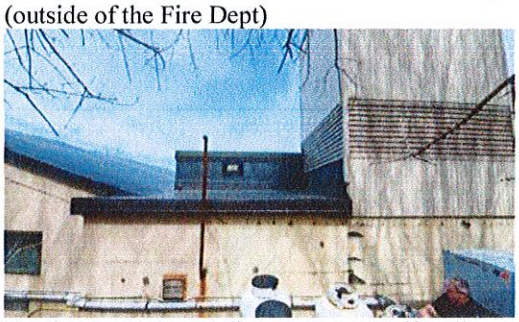
Water infiltration appears to be occurring high up in the Hose Tower, possibly at the interface with the roof of the truck Bay



Back-side of building; water-management improvements have reportedly been made

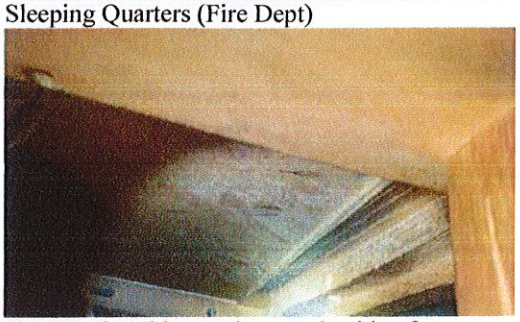


Damage to wall system at back-side of building (outside of the Fire Dept)

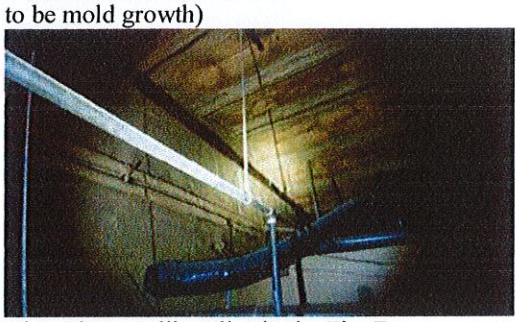


Roof systems do not direct water runoff wall-away from the foundation

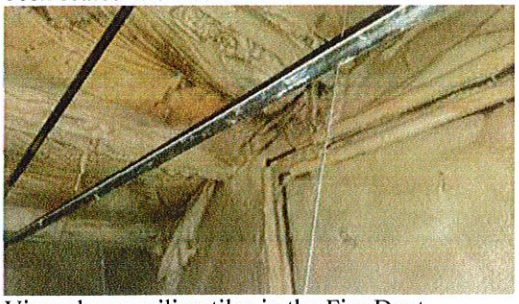
Sleeping Quarters (Fire Dept)



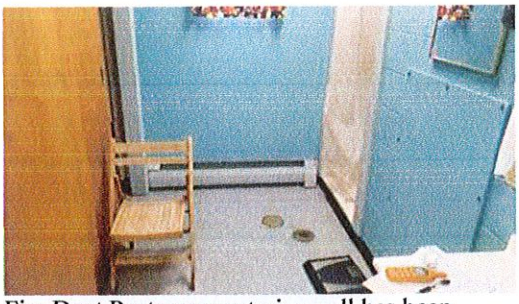
Suspected mold growth on underside of nightstand in Sleeping Quarters (determined not to be mold growth)



View above ceiling tiles in the Fire Dept (Sleeping Quarters / Restroom); surfaces have been sealed with foam



View above ceiling tiles in the Fire Dept (Sleeping Quarters / Restroom); surfaces have been sealed with foam



Fire Dept Restroom; exterior wall has been replaced

Fire Dept Restroom closet; exterior wall has been removed, surfaces appear clean

SUPPORTING DOCUMENTATION

AQM

Micro Diagnostic Services, LLC

349 Randall Rd, Unit 5
Lewiston, Maine 04240
info@microdiagnostic.net

Service Request Record

Please do not write in this space

Assigned WO No: 20113

Customer:	Air Quality Management Services, Inc.		
Address:	P.O. Box 2491		
City, State, Zip:	Lewiston, ME 04241		
Authorized Contact:	Randy Geoffroy	Email:	nick@aqmservices.com
Phone:	207-657-7360 FAX: 207-657-7361	Project Number / Name:	20-246 Gardiner
Sampled by:	Nick Ferrala	P.O. Number:	20-246
Billing:	Connie@aqmservices.com		

Turnaround Time: ☑ 2-day ☐ Next Day ☐ Same Day (RUSH) ☐ 3-5 Day

Sampled by: NF

Sample Information

Sample Identification	Sample Type	Date / Time Sampled	Sample Volume / Area	Analysis Code	MDS Use Only
A1 - Outdoor	Air	4/24/20	75 L	A01	20113-1
A2 - Weight Rm	Air	4/24/20	75 L	A01	-2
A3 - Truck Bay	Air	4/24/20	75 L	A01	-3
A4 - Sleeping Qtr	Air	4/24/20	75 L	A01	-4
A5 - FD Restroom	Air	4/24/20	75 L	A01	-5
A6 - Day Rm	Air	4/24/20	75 L	A01	-6
A7 - PD Offices	Air	4/24/20	75 L	A01	-7
A8 - Men's Locker	Air	4/24/20	75 L	A01	-8
A9 - PD Chief	Air	4/24/20	75 L	A01	-9
A10 - Women's Locker	Air	4/24/20	75 L	A01	-10
A11 - City Storage Rm	Air	4/24/20	75 L	A01	-11
A12 - City Council Rm	Air	4/24/20	75 L	A01	-12
A13 - City Front Office	Air	4/24/20	75 L	A01	-13
T1 - Weight Rm Wall	Tape	4/24/20	1 cm2	S01	-14
T2 - Hose Tower Wall	Tape	4/24/20	1 cm2	S01	-15
T3 - Sleeping Qtr Nightstand	Tape	4/24/20	1 cm2	S01	-16

Sample Types: A = Air, T = Tape, S = Swab, B = Bulk, O = Other

Analysis Codes:

A01 = Air-O-Cell Fungi	**S01 = Direct Exam Fungi**	**B01 = Fungi, Bulk Material**
A02 = Air-O-Cell Expanded	**S02 = Direct Exam Fungi Quant**	**B02 = Substance ID, Bulk Material**
A03 = Burkhard Fungi	**S03 = Direct Exam Expanded**	
A04 = Burkhard Expanded		

Supplementary Information, Testing or Reporting Instructions, Payment Information:

Custody Record - Please complete the first 3 boxes of the first line, below.

Date	Time	Samples Relinquished By	Samples Accepted at MDS
4/24/20	6:00pm		4-24-20 600 PM NP

Micro Diagnostic Services
RESULTS TO RELY ON
Micro Diagnostic Services, LLC
349 Randall Rd, Unit 5
Lewiston, ME 04240
info@microdiagnostic.net

Client: Air Quality Management, Inc.
Project: 20-246 Gardiner
WO: 20113
Medium: Air-O-Cell

Received: 4/24/2020
Reported: 4/27/2020
Method: ASTM D7391

Airborne Fungal Spore Analysis by Direct Optical Microscopy

Lab Number:	20113 -1			20113 -2			20113 -3			20113 -4		
Sample Description:	A1 Outdoor			A2 Weight Rm			A3 Truck Bay			A4 Sleeping Qtr		
Air Volume Sampled (L):	75			75			75			75		
Detection Limit (Ct./m3):	50			50			50			50		
Background (0-5):	2			2			2			2		
Spore Genus/Category	Raw Ct	Ct./m^3	%	Raw Ct	Ct./m^3	%	Raw Ct	Ct./m^3	%	Raw Ct	Ct./m^3	%
Alternaria												
Ascospores	1	50	17							1	50	13
Aspergillus/Penicillium-like												
Basidiospores	3	150	50	1	50	100	2	100	100	1	50	13
Bipolarus++												
Ganoderma												
Chaetomium*												
Cladosporium	1	50	17							1	50	13
Curvularia												
Epicoccum												
Fusarium												
Memnoniella*												
Pithomyces												
Rhizopus												
Rusts										2	100	25
Myxomycetes++										1	50	13
Stachybotrys*												
Stemphilium												
Torula												
Trichoderma												
Ulocladium												
Other Colorless												
Hyphal Fragments	1	50	17							2	100	25
Total Fungi	**6**	**300**	**100**	**1**	**50**	**100**	**2**	**100**	**100**	**8**	**400**	**100**

Comment:

Note: Values may not appear to be additive due to rounding; detection limit may be reduced in some samples by background interference.

Bipolaris++ = Bipolarus/Dreschlera/Exserohilium; Myxomycetes++ = Smuts/Myxomycetes/Periconia

*Denotes spores counted over 100% of the sample trace; Minimum detection limit / multiplier may vary from overall detection limit / multiplier.

Debris Rating Scale: 0 = No trace visible; 5 = Contiguous debris. Background debris levels greater than 3 indicate poor visibilty for the analyst reading the slide, which can result in under-counting of some types of spores, particularly smaller spores such as Apergillus/Penicillium-like.

Analyst: Nick Ferrala

Nick Ferrala, Microbiologist, BA, CIEC

Micro Diagnostic Services
RESULTS TO RELY ON
Micro Diagnostic Services, LLC
349 Randall Rd, Unit 5
Lewiston, ME 04240
info@microdiagnostic.net

Client: Air Quality Management, Inc.
Project: 20-246 Gardiner
WO: 20113
Medium: Air-O-Cell

Received: 4/24/2020
Reported: 4/27/2020
Method: ASTM D7391

Airborne Fungal Spore Analysis by Direct Optical Microscopy

Lab Number:	20113 -5			20113 -6			20113 -7			20113 -8		
Sample Description:	A5 FD Restroom			A6 Day Rm			A7 PD Offices			A8 Men's Locker		
Air Volume Sampled (L):	75			75			75			75		
Detection Limit (Ct./m3):	50			50			50			50		
Background (0-5):	1			2			2			2		
Spore Genus/Category	Raw Ct	Ct./m^3	%	Raw Ct	Ct./m^3	%	Raw Ct	Ct./m^3	%	Raw Ct	Ct./m^3	%
Alternaria												
Ascospores												
Aspergillus/Penicillium-like												
Basidiospores										1	50	100
Bipolarus++												
Ganoderma												
Chaetomium*												
Cladosporium				1	50	50	1	50	100			
Curvularia												
Epicoccum												
Fusarium												
Memnoniella*												
Pithomyces												
Rhizopus												
Rusts												
Myxomycetes++												
Stachybotrys*												
Stemphilium												
Torula												
Trichoderma												
Ulocladium												
Other Colorless												
Hyphal Fragments				1	50	50						
Total Fungi	**0**	**<50**		**2**	**100**	**100**	**1**	**50**	**100**	**1**	**50**	**100**

Comment:

Note: Values may not appear to be additive due to rounding; detection limit may be reduced in some samples by background interference.

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Analyst: Nick Ferrala

Nick Ferrala, Microbiologist, BA, CIEC

Micro Diagnostic Services
RESULTS TO RELY ON
Micro Diagnostic Services, LLC
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info@microdiagnostic.net

Client: Air Quality Management, Inc.
Project: 20-246 Gardiner
WO: 20113
Medium: Air-O-Cell

Received: 4/24/2020
Reported: 4/27/2020
Method: ASTM D7391

Airborne Fungal Spore Analysis by Direct Optical Microscopy

Lab Number:	20113 -9			20113 -10			20113 -11			20113 -12		
Sample Description:	A9 PD Chief			A10 Women's Locker			A11 City Storage Rm			A12 City Council Rm		
Air Volume Sampled (L):	75			75			75			75		
Detection Limit (Ct./m3):	50			50			50			50		
Background (0-5):	2+			2			2			2		
Spore Genus/Category	Raw Ct	Ct./m^3	%	Raw Ct	Ct./m^3	%	Raw Ct	Ct./m^3	%	Raw Ct	Ct./m^3	%
Alternaria												
Ascospores												
Aspergillus/Penicillium-like	1	50	100							2	100	67
Basidiospores							2	100	100	1	50	33
Bipolarus++												
Ganoderma												
Chaetomium*												
Cladosporium												
Curvularia												
Epicoccum												
Fusarium												
Memnoniella*												
Pithomyces												
Rhizopus												
Rusts												
Myxomycetes++												
Stachybotrys*												
Stemphilium												
Torula												
Trichoderma												
Ulocladium												
Other Colorless												
Hyphal Fragments												
Total Fungi	**1**	**50**	**100**	**0**	**<50**		**2**	**100**	**100**	**3**	**150**	**100**

Comment:

Note: Values may not appear to be additive due to rounding; detection limit may be reduced in some samples by background interference.

Bipolaris++ = Bipolarus/Dreschlera/Exserohilium; Myxomycetes++ = Smuts/Myxomycetes/Periconia

*Denotes spores counted over 100% of the sample trace; Minimum detection limit / multiplier may vary from overall detection limit / multiplier.

Debris Rating Scale: 0 = No trace visible; 5 = Contiguous debris. Background debris levels greater than 3 indicate poor visibilty for the analyst reading the slide, which can result in under-counting of some types of spores, particularly smaller spores such as Apergillus/Penicillium-like.

Analyst: Nick Ferrala

Nick Ferrala, Microbiologist, BA, CIEC

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Client: Air Quality Management, Inc.
Project: 20-246 Gardiner
WO: 20113
Medium: Air-O-Cell

Received: 4/24/2020
Reported: 4/27/2020
Method: ASTM D7391

Airborne Fungal Spore Analysis by Direct Optical Microscopy

Lab Number:	20113 -13											
Sample Description:	A13 City Front Office											
Air Volume Sampled (L):	75											
Detection Limit (Ct./m3):	50											
Background (0-5):	2											
Spore Genus/Category	**Raw Ct**	**Ct./m^3**	**%**	**Raw Ct**	**Ct./m^3**	**%**	**Raw Ct**	**Ct./m^3**	**%**	**Raw Ct**	**Ct./m^3**	**%**
Alternaria												
Ascospores												
Aspergillus/Penicillium-like												
Basidiospores												
Bipolarus++												
Ganoderma												
Chaetomium*												
Cladosporium	1	50	50									
Curvularia												
Epicoccum												
Fusarium												
Memnoniella*												
Pithomyces												
Rhizopus												
Rusts												
Myxomycetes++												
Stachybotrys*												
Stemphilium												
Torula												
Trichoderma												
Ulocladium												
Other Colorless												
Hyphal Fragments	1	50	50									
Total Fungi	**2**	**100**	**100**									

Comment:

Note: Values may not appear to be additive due to rounding; detection limit may be reduced in some samples by background interference.

Bipolaris++ = Bipolarus/Dreschlera/Exserohilium; Myxomycetes++ = Smuts/Myxomycetes/Periconia

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Client: Air Quality Management, Inc.
Project: 20-246 Gardiner
WO: 20113
Medium: Tape Lift

Received: 4/24/2020
Reported: 4/27/2020
Method: IH-S01

Microscopic Examination Report - Fungi
Semi-Quantitative Analysis

Lab Number:	20113 -14	20113 -15	20113 -16	
Sample Description:	T1 - Weight Rm Wall	T2 - Hose Tower Wall	T3 - Sleeping Qtr Nightstand	
Spore Genus/Category	Abundance Rating	Abundance Rating	Abundance Rating	Abundance Rating
Alternaria	---	---	---	---
Ascospores	---	---	Trace	---
Aspergillus/Penicillium-like	---	---	---	---
Basidiospores	---	---	Trace	---
Bipolarus++	---	---	---	---
Bispora	---	---	---	---
Chaetomium	---	---	---	---
Cladosporium	*Moderate*	*High*	Trace	---
Curvularia	---	---	---	---
Epicoccum	---	---	---	---
Fusarium	---	---	---	---
Memnoniella	---	---	---	---
Pithomyces	---	---	---	---
Rhizopus	---	---	---	---
Rusts	---	---	---	---
Myxomycetes++	---	---	Trace	---
Stachybotrys	---	---	---	---
Stemphilium	---	---	---	---
Torula	---	---	---	---
Trichoderma	---	---	---	---
Ulocladium	---	---	---	---
Other Colorless	---	---	---	---
Hyphal Fragments	---	---	Trace	---

Comment:

Bipolaris++ = Bipolarus/Dreschlera/Exserohilium; Myxomycetes++ = Smuts/Myxomycetes/Periconia

Relative Abundance Rating, per area analyzed:
"---" = None; no occurrence within the area analyzed.
Trace = 1 to 10 spores / particles within the area analyzed.
Low = 11 to 100 spores / particles within the area analyzed.
Moderate = 101 to 1000 spores / particles within the area analyzed.
High = greater than 1000 spores / particles within the area analyzed.
Note that high spore and background levels may obscure other spore types / particles present at lower levels.
* * = Sample contains vegetative / spore-producing structures in association with spores.

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