



Accredited Environmental Technologies, Inc.

September 21, 2018

Mr. Frank Randza
Mars Area School District
545 Route 228
Mars, PA 16046

sent via email: frandza@marsk12.org

RE: Visual Inspection/Mold Spore Air Quality (MSAQ) Testing Building
Mars Elementary School – Classrooms 126 and 128
AET Project #PGH136

Dear Mr. Randza:

This letter report is to document Accredited Environmental Technologies, Inc. (AET's) 9/19/18 Visual Inspection and Mold Spore Air Quality (MSAQ) testing for Mars Area School District ("Client"). AET's services were requested due to reported concerns of periodic odors within Classrooms 126 and 128 at the Mars Elementary School. Classrooms 126 and 128 are located in the new addition (less than 6 years old) of the school facility. This addition is serviced by an air handling unit (AHU) located within the rooftop penthouse. Reportedly, remediation had recently been completed in the penthouse associated with the removal of bat guano.

Results of AET's 9/19/18 Visual Assessment and MSAQ testing include:

- 1. Odors:** AET's environmental professional did note the presence of musty/mold-like odors within Classrooms 126 and 128. Odors were also intermittent in other areas including the hallways of the new addition.
- 2. Visual Inspection:** No water staining or visible mold growth was noted on exposed/accessible walls, floors or ceilings in Classrooms 126 and 128. Visual inspection above the drop ceiling system found the decking dry and the pipe insulation within the ceiling space in good condition with no significant water staining. Housekeeping with Classrooms 126 and 128 appeared adequate with no significant accumulations of surface dust on furnishings.

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3. **Surface Mold:** Tape Lift sampling was performed on the back side of the ceiling tile in Classroom 126 and two (2) locations within the Rooftop Penthouse associated with the air handling unit to identify the presence of surface mold spores by optical microscopic examination. As shown in the table below, a minimal dust accumulation including limited mold spore growth (basidiospores) was confirmed in Room 126. Laboratory analysis confirmed the presence of Hyphae within the 2 samples collected associated with the rooftop air handling units and is an indication that mold is actively growing.

Surface Mold Sampling Predominate Identified Fungal Group				
Location	Fungal Group/Spore Loading			
	Basidiospores	Cladosporium	Aspergillus/Penicillium	Hyphae*
Room 126 Back Side of Ceiling Tile	2+	ND	ND	ND
Rooftop Air Handling Unit, Inside Penthouse, Air Intake	3+	ND	ND	2+
Rooftop Air Handling Unit, Insulation inside Main Supply Ductwork	ND	5+	ND	5+
AOC=Area of Concern *Non-spore type typically indicative of mold growth at $\geq 2+$				

4. **Mold Spore Air Quality Testing (MSAQ):** MSAQ testing consisted of the collection of two (2) samples each within Classrooms 126 and 128 (Areas of Concern) and were compared to one (1) sample within Classroom 105 (non-concern area) and outdoors. Total airborne mold spores were all below outdoor levels; A detectable airborne level of Aspergillus/Penicillium mold spores were found within Classroom 128. However, the significance of Aspergillus/Penicillium is unknown due to the high Aspergillus/Penicillium levels found outdoors. Reportedly, Classroom windows were open 1-2 hours prior to initial sampling. Elevated Aspergillus/Penicillium levels in the interior space are an indication of active mold growth. See Table Below.

Total Airborne Mold Spore Concentrations – Table 1					
Sample#	Location	Total Concentration	Specific Mold Genus		
			Basidiospores	Cladosporium	Aspergillus/Penicillium
26835670	AOC: Classroom 126	12,530 S/m ³	9,971 S/m ³	1,066 S/m ³	ND
26835572	AOC: Classroom 128	5,705 S/m ³	4,745 S/m ³	427 S/m ³	213 S/m ³
26835599	Non-Concern Area: Classroom 105	3,252 S/m ³	2,666 S/m ³	ND	ND
26835577	Outdoors: Adj. to 1-4 Entrance	36,895 S/m ³	30,552 S/m ³	3,412 S/m ³	906 S/m ³
26835568	AOC: Classroom 126	1,867 S/m ³	1,760 S/m ³	107 S/m ³	ND
26835587	AOC: Classroom 128	1,120 S/m ³	1,120 S/m ³	ND	ND
AOC – Area of Concern					

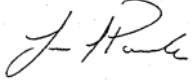
Conclusion: Mold growth was identified on interior air handling unit insulation downstream of the unit. Mold growth is presumed to be a condition of accumulated surface particulate and damp conditions from the cooling air stream. No significant impact was identified to Indoor Air Quality regarding airborne mold spores. However, conditions observed can present musty odors within the indoor environment during air handling unit operation.

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Remedial actions including removal of affected insulation and cleaning of the rooftop air handling unit must be coordinated with the Schools HVAC Vendor. Mold remediation/cleaning must be performed by trained workers with specialty designed equipment (such as HEPA vacuums) under controlled conditions incorporating work area isolation and detailed cleaning activity. Following HVAC remediation and cleaning, MSAQ testing should be conducted. AET's visual inspection was limited to exposed/accessible areas (concealed areas such as inside ductwork was not performed).

If you have any questions or require any additional information, please feel free to contact me.

Sincerely,



Lou Pergola
Vice President



Prepared by: Alan J. Sutherland, CIH Ret.
President

Accredited Environmental Technologies, Inc.

AIRBORNE FUNGAL SPORE ANALYSIS REPORT

CLIENT: MARS AREA SCHOOL DISTRICT

AET PROJECT #: 9-18-PGH136

LOCATION: MARS ELEMENTARY SCHOOL
549 ROUTE 228
MARS, PENNSYLVANIA

DATE COLLECTED: 9/19/18

DATE ANALYZED: 9/20/18

FUNGAL SPORES BY OPTICAL MICROSCOPY									
Sample #	26835670			26835572			26835599		
Location	Area of Concern: Classroom #126			Area of Concern: Classroom #128			Non-Concern Area: Classroom #105		
Volume (Liters)	75			75			75		
Non-Spore Loading									
Background Debris	3+			3+			4+		
Hyphal Fragments	ND			4			8		
Pollen	ND			ND			12		
Presumptive Spore Types	Count	%	S/m3	Count	%	S/m3	Count	%	S/m3
Alternaria	-	-	-	-	-	-	-	-	-
Arthrinium	-	-	-	-	-	-	-	-	-
Ascospores	88	8	1,173	20	5	267	16	7	213
Aspergillus/Penicillium	-	-	-	16	4	213	-	-	-
Basidiospores	748	80	9,971	356	83	4,745	200	82	2,666
Bipolaris/Drechslera	-	-	-	-	-	-	-	-	-
Botrytis	-	-	-	-	-	-	-	-	-
Cercospora	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	80	9	1,066	32	7	427	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Fusicladium	-	-	-	-	-	-	-	-	-
Geotrichum	-	-	-	-	-	-	-	-	-
Nigrospora	-	-	-	-	-	-	-	-	-
Oidium/Erysiphe	-	-	-	-	-	-	-	-	-
Peronospora	-	-	-	-	-	-	-	-	-
Pestilotia	-	-	-	-	-	-	-	-	-
Pithomyces	-	-	-	-	-	-	-	-	-
Polythrincium	-	-	-	-	-	-	-	-	-
Rusts	-	-	-	-	-	-	-	-	-
Smuts/Periconia/Myxomycetes	16	2	213	4	1	53	28	11	373
Spegazzinia	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-	-	-	-
Stemphylium	-	-	-	-	-	-	-	-	-
Tetraploa	-	-	-	-	-	-	-	-	-
Torula	-	-	-	-	-	-	-	-	-
Trichoderma	-	-	-	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-	-	-	-
Unknown/other	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Zygothiala	8	1	107	-	-	-	-	-	-
TOTAL FUNGAL SPORES	940	-	12,530	428	-	5,705	244	-	3,252


Kelly Eckhart – Fungal Spore Analyst

Background Debris Rating Scale:

ND = None Detected, 1+ = Minimal, 2+ = Up to 25%, 3+ = >25% to 50%, 4+ = >50% to 75%, 5+ = >75%

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AIRBORNE FUNGAL SPORE ANALYSIS REPORT

CLIENT: MARS AREA SCHOOL DISTRICT

AET PROJECT #: 9-18-PGH136

LOCATION: MARS ELEMENTARY SCHOOL
549 ROUTE 228
MARS, PENNSYLVANIA

DATE COLLECTED: 9/19/18

DATE ANALYZED: 9/20/18

FUNGAL SPORES BY OPTICAL MICROSCOPY									
Sample #	26835577			26835568			26835587		
Location	Outdoors: Adj. to 1-4 Entrance			Area of Concern: Classroom #126			Area of Concern: Classroom #128		
Volume (Liters)	75			75			75		
Non-Spore Loading									
Background Debris	2+			3+			2+		
Hyphal Fragments	ND			4			ND		
Pollen	4			ND			ND		
Presumptive Spore Types	Count	%	S/m3	Count	%	S/m3	Count	%	S/m3
Alternaria	-	-	-	-	-	-	-	-	-
Arthrinium	-	-	-	-	-	-	-	-	-
Ascospores	76	3	1,013	-	-	-	-	-	-
Aspergillus/Penicillium	68	2	906	-	-	-	-	-	-
Basidiospores	2,292	83	30,552	132	94	1,760	84	100	1,120
Bipolaris/Drechslera	4	<1	53	-	-	-	-	-	-
Botrytis	-	-	-	-	-	-	-	-	-
Cercospora	24	1	320	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	256	9	3,412	8	6	107	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	4	<1	53	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Fusicladium	-	-	-	-	-	-	-	-	-
Geotrichum	-	-	-	-	-	-	-	-	-
Nigrospora	4	<1	53	-	-	-	-	-	-
Oidium/Erysiphe	4	<1	53	-	-	-	-	-	-
Peronospora	-	-	-	-	-	-	-	-	-
Pestilotia	-	-	-	-	-	-	-	-	-
Pithomyces	12	<1	160	-	-	-	-	-	-
Polythrincium	-	-	-	-	-	-	-	-	-
Rusts	-	-	-	-	-	-	-	-	-
Smuts/Periconia/Myxomycetes	16	1	213	-	-	-	-	-	-
Spegazzinia	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-	-	-	-
Stemphylium	-	-	-	-	-	-	-	-	-
Tetraploa	-	-	-	-	-	-	-	-	-
Torula	-	-	-	-	-	-	-	-	-
Trichoderma	-	-	-	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-	-	-	-
Unknown/other	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Zygomycetes	8	<1	107	-	-	-	-	-	-
TOTAL FUNGAL SPORES	2,768	-	36,895	140	-	1,867	84	-	1,120


Kelly Eckhart – Fungal Spore Analyst

Background Debris Rating Scale:

ND = None Detected, 1+ = Minimal, 2+ = Up to 25%, 3+ = >25% to 50%, 4+ = >50% to 75%, 5+ = >75%

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BULK ANALYSIS MOLD REPORT

CLIENT: MARS AREA SCHOOL DISTRICT
545 ROUTE 228
MARS, PENNSYLVANIA

AET PROJECT#: 9-18-PGH136

LOCATION: MARS ELEMENTARY SCHOOL

DATE COLLECTED: 9/19/18

DATE ANALYZED: 9/20/18

SAMPLE NO./ DESCRIPTION	GROSS SAMPLE APPEARANCE	PRESUMPTIVE STRUCTURE TYPE	LOADING
PGH136-TL01: Tape Lift Room 126, Back Side of Ceiling Tile	N/A	Basidiospores Smuts/Periconia/Myxomycetes	2+ 1+
	Comments: Heavy Background Debris. Pollen Loading 1+		
PGH136-TL02: Tape Lift Air Intake, Inside Penthouse	N/A	Ascospores Basidiospores	2+ 3+
	Comments: Heavy Background Debris. Hyphae Loading 2+. Pollen Loading 5+		
PGH136-TL03: Main Supply Internal Insulation	N/A	Cladosporium	5+
	Comments: Moderate Background Debris; Hyphae Loading 5+.		



Reviewed by: Kelly Eckhart
Fungal Spore Analyst

Note: The report refers specifically to samples tested and shall not be reproduced, except in full, without the written approval of the laboratory. Sample analysis was conducted in accordance with AET's SOP No. 3.0.

Loading Rating Scale:

ND = None Detected	3+ 26% to 50% Microbial Loading
1+ Minimal Microbial Loading	4+ 51% to 75% Microbial Loading
2+ Up to 25% Microbial Loading	5+ >75% Microbial Loading