

March 14, 2011

Mr. Leonard Costable Director of Facilities Mahopac Central School District 179 East Lake Boulevard Mahopac, NY 10541 E Mail Address: <u>costablel@mahopac.k12.ny.us</u> Telephone: (845) 628 3415

Re: Air Quality Screening Inspection Inspection of Classroom 103 Austin Road Elementary School 390 Austin Rd, Mahopac, NY

Dear Mr. Costable:

At the request of the Mahopac Central School District (Mahopac), Louis Berger Group, Inc. (Berger) performed an air quality screening inspection at the above referenced address (hereafter referred to as "the School"). The purpose of the inspection was to assess conditions which could potentially impact classroom and/or School Indoor Air Quality (IAQ) through a combination of real time air testing and visual inspection methods within the above referenced class room. This site inspection was performed on November 30, 2010, December 1 2011, December 2, 2011 and December 8, 2011 by Berger Industrial Hygienist; Ms. Chawinie Miller.

History

Room 103 is located on the first floor and utilized as a music classroom. Based on discussions with Austin Road School Head Custodian Mr. Tom Wellington, Berger is not aware of any standard air quality issues related to water infiltration or visible mold. Berger was notified of a gas like odor within the classroom that had been occurring for approximately one month, which Faculty confirmed. No student complaints were reported. This area is currently unoccupied due to odor complaint.

Methodology

Berger performed real time testing utilizing a TSI, Inc. (TSI) Q-TRAC[®] IAQ Meter, measuring carbon dioxide, carbon monoxide, relative humidity and temperature. This meter was calibrated/ field challenged immediately prior to the site visit as per manufacturer recommendations.

Analytical sampling for mold spores was performed utilizing Air O Cell cassettes fitted to Gast[®] high flow pumps. Samples were collected at a flow rate of approximately fifteen (15) liters per minute such that a total volume of one hundred fifty (150) liters was achieved. Two (2) samples were collected within Room 103 with one (1) sample on the east and west sides of the room. In additional two (2) references samples were collected outdoors at the time of the site visit. These results are presented as an attachment at the end of this report for further review.

As a proactive measure, Berger also performed moisture screening of accessible wall and floor surfaces through the use of a Protimeter Moisture Measurement System (MMS). The Protimeter MMS provides percent moisture content values in wood or wood moisture equivalent (WME) and

other non-conductive materials (e.g., masonry). The MMS displays the measurements on a relative scale of 0 - 1,000. Additionally, the instrument indicates whether the material sampled is "dry", "at risk", or "wet". A "dry" result indicates that the material has a WME of $\ge 5\%$ but < 17%. An "at risk" measurement indicates that the material has a WME of $\ge 17\%$ but < 20%. A "wet" result indicates that the material has a WME of $\ge 20\%$.

Real time screening was performed utilizing a MultiRae instrument measuring nitric oxide (NO), volatile organic compounds (VOCs), hydrogen sulfide (H_2S), oxygen and the lower explosive limit (LEL) based on a methane calibration standard, in addition to a VRae instrument measuring nitrogen dioxide (NO₂), sulfur dioxide (SO₂), in addition to similar sensors for hydrogen sulfide (H_2S), oxygen and lower explosive level (LEL). Instruments were calibrated as per manufacturer's recommendations prior to use.

Berger lastly performed a visual screening of the room for additional problems that may play a supporting role in creating conditions conducive to poor building IAQ, such as water damage, microbial growth or neighboring facility processes or activities.

Physical Survey Findings

Room 103

On November 30, 2011; the initial inspection of room 103 was performed. In general, the classroom was noted to be clean and well kept. In addition, Berger also did not observe any plants or animals in this classroom that could potentially be responsible for common or potential IAQ odor or sensitivity complaints.

This room is equipped with one (1) packaged roof top HVAC unit (installed in approximately 2000) which was inspected by Berger through the assistance of School Maintenance Staff. This HVAC unit services only Classroom 103. Maintenance staff removed HVAC/univent access covers (intake and mixing chamber) for inspection, which revealed that filters were noted to be in fair condition and changed at least three (3) times per year. Maintenance staff informed Berger that a duct cleaning was performed on week prior and natural gas screenings performed by a local utility company and ABM (HVAC service contractor) were non-detect.

On December 2, 2011; Based on the natural gas-like odor within the room, Berger screened the interior of the HVAC unit (intake, mixing chamber and manifold) utilizing a Rae Systems MultiRae and V Rae instrument to determine if a natural gas leak was in fact present. Berger additionally partially traced and screened available gas lines and joints leading to and from the HVAC unit gas manifold located on the roof to determine if a potential gas leak was present in these locations. Screening of the gas lines and interior of HVAC units did not detect any parameters that exceeded acceptable limits, although Berger did note that the gas like odor became stronger as the HVAC unit started up to level out temperatures within the room. Condensate drains were observed to be properly directed to roof drains.

On December 8, 2011; an additional screening was performed with ABM who provided access to the natural gas manifold for inspection and real time testing purposes. Results were again within acceptable parameters and natural gas was not detected. Based on these findings, Berger recommended a deodorizing of the HVAC unit with Evap No Rinse Foam Aerosol by ABM during un-occupied hours and prior to a weekend to ensure sufficient time for the room to air out to limit potential odors. The MSDS was reviewed by Berger who determined that the compound was not dangerous so long as the product was utilized as specified.

The deodorizing was performed by ABM as specified and odor returned to the room. According to head custodian, this HVAC unit was turned off and ducting from adjacent room was fitted and attached to ducting for room 103. These two rooms now share an HVAC unit and old HVAC unit for room 103 was properly sealed off and decommissioned.

A thorough inspection of the ceiling plenum was also performed in this room. The room is equipped with a dropped ceiling and finished with acoustical ceiling tiles, above which is a two (2) foot ceiling plenum space. No odors, water staining, or mold was observed in this area. Small amounts of rodent droppings and concrete debris were noted within the ceiling plenum.

This room was noted to be equipped with a sink area and wooden cabinets. Berger inspected and screened this area to determine if this could be the source of the noted odor. All parameters were non-detect while screening of the sink drain was performed. Inspection of wooden cabinets under the sink area revealed approximately three (3) square feet of visible mold growth.

During inspection, Berger did note chemicals within the room; hand sanitizer, hand soap, sliding oil and valve oil. A small amount of food storage was observed within the room.

Representative moisture meter readings were taken within this room along the floor and walls at the base, 3 feet high and 6 feet high. Moisture mapping of this area did not reveal any elevated moisture readings.

Real Time Screening Findings

Please see below for a summary of data:

QTRAC IAQ Meter:

A QTRAC ® IAQ Meter was utilized to measure carbon monoxide, carbon dioxide, relative humidity and temperature. Data was collected for a forty eight (48) hour period and is summarized in the following table and discussed in the following sections.

Location	Temperature	Relative Humidity	Carbon Monoxide	Carbon Dioxide
	61.5 to	35 to	1.2 to 2.4	383 to
	70.6°F	60%	ppm	1295 ppm
Room 103	65.0°F	45.0%	1.4 ppm	698 ppm
	(average)	(average)	(average)	(average)

ND = Not Detected

Please see guidelines on the following page summarizing OSHA, ACGIH and the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) Standard 55-1992, Thermal Environmental Conditions for Human Occupancy and ASHRAE Standard 62-1999/2000, Ventilation for Acceptable Indoor Air Quality:

Comfort Parameter	Acceptable Value
Carbon Dioxide	ASHRAE: $CO_{2 (Outside Air)} + 700 = 1,100 \text{ ppm}$ NIOSH Guideline: 1,000 ppm
Temperature	ASHRAE: 73.0°F – 79.0°F (Summer Season) ASHRAE: 68°F – 75.0°F (Winter Season) OSHA Technical Guideline: 68°F – 76.0°F (Year Round)
Relative Humidity	ASHRAE: 30% – 60% OSHA Technical Guideline: 20% – 60%
Carbon Monoxide	ACGIH TLV: 25 ppm; OSHA TWA: 50 ppm

A review of the data for carbon monoxide, temperature and carbon dioxide, indicate that averaged levels are within the applicable standards, although transient exceedance of carbon dioxide guidelines will occasionally occur in a classroom setting. Carbon dioxide exceedances occurred within the room for a period of five (5) minutes; transient exceedances should not be regarded as a cause for concern. A review of the relative humidity and temperature data indicated that levels were below OSHA and ASHRAE minimum *recommended* relative humidity and temperature values. Although this is the case, these conditions are reflective of outside conditions at this time of year and therefore should not be regarded as a cause for concern. In addition, temperature readings below the OSHA and ASHRAE recommended minimum values occurred during period when the room was unoccupied and being de-energized for screening purposes.

Rae Multi Rae Plus Findings:

A Rae Multi Rae Plus five gas meter was utilized to measure nitric oxide, volatile organic compounds, hydrogen sulfide, lower explosive limit as methane over a forty-eight (48) hour period. Data is summarized in the following table and discussed in the following sections.

Parameter	Peak (ppm)	Minimum (ppm)	Average (ppm)
NO (ppm)	0.6	ND	0.1
VOC (ppm)	ND	ND	n/a
H ₂ S (ppm)	0.4	ND	0.1
LEL (ppm)	ND	ND	n/a

November 30th to December 2nd; Room 103

ND = Not Detected above Minimum Detection Limit of Instrument n/a = Not Applicable

Comfort Parameter	Acceptable Value
Nitric Oxide	OSHA Standards; 8 hour TWA PEL of 25 ppm NIOSH Guidelines; 8 hour TWA PEL of 25 ppm ACGIH Guidelines; 8 hour TWA PEL of 25 ppm
Volatile Organic Compounds (VOCs)	General Industry Practice: <1 ppm
Hydrogen Sulfide	ACGIH TLV: 10 ppm; OSHA TWA: None; OSHA Ceiling: 20 ppm
LEL as Aliphatic Hydrocarbon Gases	ACGIH TLV: 1,000 ppm

Nitric Oxide

A review of the data indicates that nitric oxide levels peaked at 0.6 ppm for a period of thirty (30) minutes on 11/30 at approximately 10:30 am. Outside of potential vehicle traffic or combustion of natural gas associated with heating operations, Berger did not identify an additional specific sources of this gas, although concentrations of NO were noted to be well below occupational Standards and Guidelines.

Volatile Organic Compounds (VOCs)

A review of VOC concentrations indicated levels were non-detect and well below General Industry Guidelines traditionally utilized for screening purposes.

Hydrogen Sulfide

A review of data indicates that low level concentrations of hydrogen sulfide ranged from nondetect to a peak of 0.4 ppm for a period of fifteen (15) minutes. Outside of potential vehicle traffic or combustion of natural gas associated with heating operations, Berger did not identify an additional specific sources of this gas, although the concentration observed (e.g., average = 0.1 ppm) was noted to be well below any applicable any occupational Standards/Guidelines.

Lower Explosion Limit (As Methane)

A review of LEL concentrations indicate that methane was not detected, and was therefore well below potentially applicable Federal Standards/Industry Guidelines.

V Rae meter:

A V Rae meter was utilized to measure nitrogen dioxide, sulfur dioxide, hydrogen sulfide, methane as the Lower Explosion Limit [LEL] and oxygen over a forty-eight (48) hour period. Data is summarized in the following table and discussed in the following sections.

Parameter	Peak (ppm)	Minimum (ppm)	Average (ppm)
NO2	0.1	ND	0.0
SO2	ND	ND	n/a
H ₂ S (ppm)	ND	ND	n/a
LEL (ppm)	ND	ND	n/a

November 30th to December 2nd; Room 103

ND = Not Detected above Minimum Detection Limit of Instrument n/a = Not Applicable

Comfort Parameter	Acceptable Value
Sulfur Dioxide (SO2)	OSHA Standards; 8 hour TWA PEL of 5 ppm USEPA NAAQs: 0.14 ppm as averaged over a 24 hrs period
Nitrogen Dioxide (NO2)	OSHA Standards; Ceiling Limit of 5 ppm ACGIH Guidelines; 8 Hour TWA of 3 ppm
Hydrogen Sulfide	ACGIH TLV: 10 ppm; OSHA TWA: None; OSHA Ceiling: 20 ppm
LEL as Aliphatic Hydrocarbon Gases	ACGIH TLV: 1,000 ppm

Nitrogen Dioxide (NO2)

Outside of potential vehicle traffic or combustion of natural gas associated with heating operations, Berger did not identify an additional specific sources of this gas, although a review of the data indicates that nitrogen oxide levels peaked at 0.1ppm for a period of ten (10) minutes during the screening period, and therefore were well below occupational Standards and Guidelines.

Sulfur Dioxide (SO2)

A review of SO2 concentrations indicate that levels were non detect. These levels are well below General Industry Guidelines or any potentially applicable Federal Standards/Guidelines.

Hydrogen Sulfide

A review of data indicate that concentrations indicate that levels were non-detect and are well below any applicable any occupational Standards/Guidelines.

Lower Explosion Limit (As Methane)

A review of LEL concentrations indicate that they were not detected, and therefore well below potentially applicable Federal Standards/Guidelines.

Analytical Results/Mold Spores

At the request of the Mahopac School District Berger collected total mold spore samples did not reveal the presence of particular genera in concentrations that could indicate a concern as compared to outside air or other School classrooms. A copy of laboratory results and Chain of Custody are present at the end of this report in Attachment A.

Recommendations

Although the physical inspection and real time air sampling did not reveal any conditions of concern, Berger still suspects that a minor natural gas leak is associated with the use of the HVAC unit serving classroom 103 under the right conditions. In order to promote good IAQ, Berger would like to offer the following recommendations:

- Continue to leave the HVAC unit serving classroom 103 out of commission until such time that the gas leak can be identified and corrected.
- Remove rodent droppings from ceiling plenum area as necessary as per guidance from the centers from Disease Control (CDC) located at <u>http://www.cdc.gov/ncidod/diseases/hanta/hps_stc/stc_clean.htm</u>.
- Based on the presence of visible mold (3 sq ft), Berger recommends the removal of wood with visible growth. Utilize practice and procedure clearly outlined in the United States Environmental Protection Agency (USEPA) document "Mold Remediation in Schools & Commercial Buildings".
- Based on the presence of food storage within the classroom, Berger recommends the removal, and/or proper containerizing foodstuffs within the classroom. Please also ensure that an Integrated Pest Management program has been implemented at the School designed to limit access, food stuffs or any other condition which may promote pest habitation on the property.
- Remove chemicals from the classroom if not approved for use. For approved chemicals, and as required by federal regulations; Berger recommends that an accessible copy of each Material Safety Data Sheet (MSDS) for each chemical be kept on site.
- Berger recommends the proper disposal of all chemicals not in compliance with Mahopac Central School District Policy.

If you have any questions concerning this information, please feel free to contact me at (212)-612-7991.

Sincerely, LOUIS BERGER & ASSOCIATES, P.C.

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Chawinie Miller Industrial Hygienist

C: J. Cupriks, R. Almonacy

Attachment

Attachment A

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Controlled Document - Environmental Microbiology COC - EM1.0 - 11/23/2009

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Environmental Microbiology Chain of Custody

EMSL Order Number(Lab Use Only):

Westmont, NJ 3 Cooper Street Westmont, NJ 08108 PHONE: 1-800-220-3675 FAX: (856) 858-4960

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cmiller@louisberger.com as well with results

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Page ____ of ____ Pages

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Proj:

The Louis Berger Group, Inc. 199 Water Street 23rd Floor New York, NY 10038 KT710G2

031102220
LOUI56
1/11/2011
1/28/2011
1/29/2011

Test Report: Air-O - Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (EMSL Method 05-TP-003)

Lab Sample Number: Client Sample ID: Volume (L): Sample Location:		031102220-0001 247-1 150 H.S RM 247		(031102220-0002 247-2 150 H.S RM 247			031102220-0003 OWA-1 150 OUTSIE H.S	
Spore Types	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total
Alternaria	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	-	-	-	1	21	33.3
Basidiospores	-	-	-	2	42	50	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	2	42	66.7
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	2	42	50	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-	-	-	-
Torula	-	-	-	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Total Fungi	-	-	-	4	84	100	3	63	100
Hyphal Fragment	1	21	-	-	-	-	1*	7*	-
Insect Fragment	-	-	-	-	-	-	1*	7*	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	21	-	-	21	-	-	21	-
Analyt. Sensitivity 300x	-	7*	-	-	7*	-	-	7*	-
Skin Fragments (1-4)	-	2	-	-	1	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	2	-	-	2	-

Bipolaris++ = Bipolaris/Dreschlera/Exserohilum

Myxomycetes++ = Myxomycetes/Periconia/Smut

Samples analyzed by EMSL Analytical, Inc. 307 West 38th Street, New York NY AIHA-LAP, LLC--EMLAP Lab 102581

High levels of background particulate can obscure spores and other particulates leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. Present = Spores detected on overloaded samples. Results are not blank corrected unless othewise noted. The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment. *** Denotes particles found at 300X. **. Denotes not detected. EMSL maintains liability limited to cost of anaysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

John Mc Cauley

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Attn:

Proj:

The Louis Berger Group, Inc. 199 Water Street 23rd Floor New York, NY 10038 KT710G2

EMSL Order:	031102220
Customer ID:	LOUI56
Collected:	1/11/2011
Received:	1/28/2011
Analyzed:	1/29/2011

Test Report: Air-O - Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (EMSL Method 05-TP-003)

Lab Sample Number: Client Sample ID: Volume (L): Sample Location:		031102220-0004 OWA-2 150 OUTSIE H.S			031102220-0005 208-1 150 JSTIN RD RM 208			031102220-0006 208-2 150 JSTIN RD RM 208	
Spore Types	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total
Alternaria	-	-	-	-	-	-	- '	-	-
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	2	42	66.7	2	42	66.7	1	21	50
Basidiospores	-	-	-	-	-	-	1	21	50
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	1	21	33.3	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces	-	-	-	1	21	33.3	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-	-	-	-
Torula	-	-	-	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Total Fungi	3	63	100	3	63	100	2	42	100
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	21	-	-	21	-	-	21	-
Analyt. Sensitivity 300x	-	7*	-	-	7*	-	-	7*	-
Skin Fragments (1-4)	-	1	-	-	2	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	2	-	-	2	-	-	2	-

Bipolaris++ = Bipolaris/Dreschlera/Exserohilum

Myxomycetes++ = Myxomycetes/Periconia/Smut

Samples analyzed by EMSL Analytical, Inc. 307 West 38th Street, New York NY AIHA-LAP, LLC--EMLAP Lab 102581

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The Louis Berger Group, Inc. 199 Water Street 23rd Floor New York, NY 10038 KT710G2

031102220
LOUI56
1/11/2011
1/28/2011
1/29/2011

Test Report: Air-O - Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (EMSL Method 05-TP-003)

Lab Sample Number: Client Sample ID: Volume (L): Sample Location:	OWA-3 150		031102220-0008 OWA-4 150 OUTSIDE AUSTIN RD			031102220-0009 GYM 150 GUSTINED RD GYM			
Spore Types	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total
Alternaria	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	-	-	-	-	-	-
Basidiospores	-	-	-	-	-	-	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-	-	-	-
Torula	-	-	-	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Total Fungi	-	None Detected	-	-	-	-	-	None Detected	-
Hyphal Fragment	-	-	-	1	21	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	21	-	-	21	-	-	21	-
Analyt. Sensitivity 300x	-	7*	-	-	7*	-	-	7*	-
Skin Fragments (1-4)	-	1	-	-	1	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	-	-	1	-

Bipolaris++ = Bipolaris/Dreschlera/Exserohilum

Myxomycetes++ = Myxomycetes/Periconia/Smut

Samples analyzed by EMSL Analytical, Inc. 307 West 38th Street, New York NY AIHA-LAP, LLC--EMLAP Lab 102581

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Attn:

The Louis Berger Group, Inc. 199 Water Street 23rd Floor New York, NY 10038

EMSL Order:	031102220
Customer ID:	LOUI56
Collected:	1/11/2011
Received:	1/28/2011
Analyzed:	1/29/2011

Proj: KT710G2

Test Report: Air-O - Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (EMSL Method 05-TP-003)									
Lab Sample Number: Client Sample ID: Volume (L): Sample Location:	031102220-0010 COUCH OFFICE 150 GUSTINED RD GYM			031102220-0011 OWA-5 150 OUTSIDE AUSTIN RD			031102220-0012 OWA-6 150 OUTSIDE AUSTIN RD		
Spore Types	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total
Alternaria	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	-	-	-	-	-	-
Basidiospores	-	-	-	-	-	-	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-	-	-	-
Torula	-	-	-	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Total Fungi	_	None Detected	-	_	None Detected	_	_	None Detected	-
Hyphal Fragment	-	-	-	-	-	-	-	-	_
Insect Fragment	-	_	-	_	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	21	-	_	21	-	-	21	-
Analyt. Sensitivity 300x	-	7*	-	-	7*	-	-	7*	_
Skin Fragments (1-4)	-	1		-	1	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	1	_	-	1	_
Background (1-5)	-			_		_	_		_

Bipolaris++ = Bipolaris/Dreschlera/Exserohilum

Myxomycetes++ = Myxomycetes/Periconia/Smut

Samples analyzed by EMSL Analytical, Inc. 307 West 38th Street, New York NY AIHA-LAP, LLC--EMLAP Lab 102581

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031102220
LOUI56
1/11/2011
1/28/2011
1/29/2011

Test Report: Air-O - Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (EMSL Method 05-TP-003)

Lab Sample Number: Client Sample ID: Volume (L): Sample Location:	(031102220-0013 217-1 150 RM 217		٥	31102220-0014 217-2 150 RM 217			031102220-0015 OWA-7 150 TSIDE AUSTIN R	D
Spore Types	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total
Alternaria	-	-	-	-	-	-	- '	-	-
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	-	-	-	1	21	50
Basidiospores	-	-	-	-	-	-	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	1	21	33.3	-	-	-
Cladosporium	1	21	100	2	42	66.7	1	21	50
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-	-	-	-
Torula	-	-	-	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Total Fungi	1	21	100	3	63	100	2	42	100
Hyphal Fragment	-	-	-	1	21	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	21	-	-	21	-	-	21	-
Analyt. Sensitivity 300x	-	7*	-	-	7*	-	-	7*	-
Skin Fragments (1-4)	-	1	-	-	1	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	2	-	-	2	-	-	1	-

Bipolaris++ = Bipolaris/Dreschlera/Exserohilum

Myxomycetes++ = Myxomycetes/Periconia/Smut

Samples analyzed by EMSL Analytical, Inc. 307 West 38th Street, New York NY AIHA-LAP, LLC--EMLAP Lab 102581

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Attn:

Proj:

The Louis Berger Group, Inc. 199 Water Street 23rd Floor New York, NY 10038 KT710G2

EMSL Order:	031102220
Customer ID:	LOUI56
Collected:	1/11/2011
Received:	1/28/2011
Analyzed:	1/29/2011

Test Report: Air-O - Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (EMSL Method 05-TP-003)

Lab Sample Number: Client Sample ID: Volume (L): Sample Location:	OWA-8 150		031102220-0017 22-1 150 RM 22			031102220-0018 22-2 150 RM 22			
Spore Types	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total
Alternaria	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	-	-	-	1	21	100
Basidiospores	-	-	-	-	-	-	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-	-	-	-
Torula	-	-	-	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Total Fungi	-	None Detected	-	-	-	-	1	21	100
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	1	21	-	-	-	-
Analyt. Sensitivity 600x	-	21	-	-	21	-	-	21	-
Analyt. Sensitivity 300x	-	7*	-	-	7*	-	-	7*	-
Skin Fragments (1-4)	-	1	-	-	1	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	2	-	-	2	-

Bipolaris++ = Bipolaris/Dreschlera/Exserohilum

Myxomycetes++ = Myxomycetes/Periconia/Smut

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EMSL Order:	031102220
Customer ID:	LOUI56
Collected:	1/11/2011
Received:	1/28/2011
Analyzed:	1/29/2011

Test Report: Air-O - Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (EMSL Method 05-TP-003)

Lab Sample Number: Client Sample ID: Volume (L): Sample Location:	OWA-9 150		031102220-0020 OWA-10 150 OUTSIDE AUSTIN RD			031102220-0021 MAIN-1 150 MAIN OFFICE AUSTIN RD			
Spore Types	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total
Alternaria	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	1	21	100	3	63	75
Basidiospores	-	-	-	-	-	-	1	21	25
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	1	21	100	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-	-	-	-
Torula	-	-	-	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Total Fungi	1	21	100	1	21	100	4	84	100
Hyphal Fragment	-	-	-	1	21	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	21	-	-	21	-	-	21	-
Analyt. Sensitivity 300x	-	7*	-	-	7*	-	-	7*	-
Skin Fragments (1-4)	-	1	-	-	1	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	2	-	-	2	-	-	2	-

Bipolaris++ = Bipolaris/Dreschlera/Exserohilum

Myxomycetes++ = Myxomycetes/Periconia/Smut

Samples analyzed by EMSL Analytical, Inc. 307 West 38th Street, New York NY AIHA-LAP, LLC--EMLAP Lab 102581

High levels of background particulate can obscure spores and other particulates leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. Present = Spores detected on overloaded samples. Results are not blank corrected unless othewise noted. The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment. *** Denotes particles found at 300X. **. Denotes not detected. EMSL maintains liability limited to cost of anaysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

John Mc Cauley

John McCauley, Laboratory Manager or Other Approved Signatory



307 West 38th Street New York, NY 10018

Phone: (212) 290-0051 Fax: (212) 290-0058 Web: http://www.emsl.com Email:manhattanlab@emsl.com

Attn:

Proj:

The Louis Berger Group, Inc. 199 Water Street 23rd Floor New York, NY 10038 KT710G2

EMSL Order:	031102220
Customer ID:	LOUI56
Collected:	1/11/2011
Received:	1/28/2011
Analyzed:	1/29/2011

Test Report: Air-O - Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (EMSL Method 05-TP-003)

Lab Sample Number: Client Sample ID: Volume (L): Sample Location:	031102220-0022 MAIN-2 150 MAIN OFFICE AUSTIN RD			031102220-0023 OWA-11 150 OUTSIDE AUSTIN RD			031102220-0024 OWA-12 150 OUTSIDE AUSTIN RD		
Spore Types	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total
Alternaria	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	2	42	100	-	-	-	-	-	-
Basidiospores	-	-	-	-	-	-	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	1	21	100	1	21	100
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-	-	-	-
Torula	-	-	-	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Total Fungi	2	42	100	1	21	100	1	21	100
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	21	-	-	21	-	-	21	-
Analyt. Sensitivity 300x	-	7*	-	-	7*	-	-	7*	-
Skin Fragments (1-4)	-	1	-	-	1	-	-	1	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	2	-	-	1	-	-	1	-

Bipolaris++ = Bipolaris/Dreschlera/Exserohilum

Myxomycetes++ = Myxomycetes/Periconia/Smut

Samples analyzed by EMSL Analytical, Inc. 307 West 38th Street, New York NY AIHA-LAP, LLC--EMLAP Lab 102581

High levels of background particulate can obscure spores and other particulates leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. Present = Spores detected on overloaded samples. Results are not blank corrected unless othewise noted. The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment. "" Denotes particles found at 300X. "-" Denotes not detected. EMSL maintains liability limited to cost of anaysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

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Attn:

Proj:

The Louis Berger Group, Inc. 199 Water Street 23rd Floor New York, NY 10038 KT710G2

EMSL Order:	031102220
Customer ID:	LOUI56
Collected:	1/11/2011
Received:	1/28/2011
Analyzed:	1/29/2011

Test Report: Air-O - Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (EMSL Method 05-TP-003)

Lab Sample Number: Client Sample ID: Volume (L): Sample Location:		031102220-0025 FB1 0 FIELD BLANK			031102220-0026 FB2 0 FIELD BLANK				
Spore Types	Raw Count	Count/m ³	% of Total	Raw Count	Count/m ³	% of Total	-	-	-
Alternaria	-	-	-	-	-	-		-	-
Ascospores	-	-	-	-	-	-			
Aspergillus/Penicillium	-	-	-	-	-	-			
Basidiospores	-	-	-	-	-	-			
Bipolaris++	-	-	-	-	-	-			
Chaetomium	-	-	-	-	-	-			
Cladosporium	-	-	-	-	-	-			
Curvularia	-	-	-	-	-	-			
Epicoccum	-	-	-	-	-	-			
Fusarium	-	-	-	-	-	-			
Ganoderma	-	-	-	-	-	-			
Myxomycetes++	-	-	-	-	-	-			
Pithomyces	-	-	-	-	-	-			
Rust	-	-	-	-	-	-			
Scopulariopsis	-	-	-	-	-	-			
Stachybotrys	-	-	-	-	-	-			
Torula	-	-	-	-	-	-			
Ulocladium	-	-	-	-	-	-			
Unidentifiable Spores	-	-	-	-	-	-			
Zygomycetes	-	-	-	-	-	-			
Total Fungi	-	No Trace	-	-	No Trace	-			
Hyphal Fragment	-	-	-	-	-	-			
Insect Fragment	-	-	-	-	-	-			
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	0	-	-	0	-	-	-	-
Analyt. Sensitivity 300x	-	0*	-	-	0*	-			
Skin Fragments (1-4)	-	-	-	-	-	-			
Fibrous Particulate (1-4)	-	-	-	-	-	-			
Background (1-5)	-	-	-	-	-	-	-	-	-

Bipolaris++ = Bipolaris/Dreschlera/Exserohilum

Myxomycetes++ = Myxomycetes/Periconia/Smut

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High levels of background particulate can obscure spores and other particulates leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. Present = Spores detected on overloaded samples. Results are not blank corrected unless othewise noted. The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment. *** Denotes particles found at 300X. **. Denotes not detected. EMSL maintains liability limited to cost of anaysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

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