ESI Environmental Solutions, Inc.

www.esi4u.com (410)-867-6262

Discovery Report

Project Contact Information

Alex Baylor Prince George's County Public Schools Alex.Baylor@pgcps.org	Margaret Brent Regional 2816 Lamont Terrace New Carrollton, MD 20784	Vinny Gigliotti Environmental Solutions, Inc. 6114 Drum Point Rd Deale, MD 20751 410-867-6262 Vinny@esi4u.com

Property Location

2816 Lamont Terrace, New Carrollton, MD 20784

Date of Inspection: 4/15/2019

Prepared By: Vinny Gigliotti

Certified Indoor Environmentalist

Dear Alex,

The results of the inspection and testing performed in Classroom #9 at Margaret Brent Regional, located at 2816 Lamont Terrace, New Carrollton, MD 20784, are concluded and the findings are enclosed. I want to thank you for allowing ESI the opportunity to service your indoor environmental needs. Included in this report are the observations, lab results, and recommendations from ESI's April 15th, 2019 inspection and testing.

Background Information

ESI inspected and tested the school on 2/27/2019 and developed a remediation protocol due to the visible mold growth and the elevated levels of Aspergillus / Penicillium detected. After the PGCPS Environmental Team remediated the school, they conducted indoor air quality testing. Eleven of the areas / classrooms of the school that had elevated levels of Aspergillus / Penicillium were tested by the Environmental Team and the spore count was acceptable, except for Classroom #9 which had 16,0000 spores per cubic meter of Aspergillus / Penicillium.

Purpose

Based upon the above background information, Mr. Alex Baylor of the Environmental team contacted ESI to reinspect and test Classroom #9 to determine the cause and effect of the elevated spore count.

Observations/Cause & Effect

During the inspection and testing of Classroom #9, I interviewed the Environmental Supervisor for this project and he indicated the Environmental Team followed the remediation recommendations from ESI within a methodical process listed below.

1. Engage HEPA filtered air scrubber 1000-1500 CFM
2. HEPA vacuum ceiling to floor and wall to wall to remove dust and debris that could be harboring mold spores.
3. Remove any visible mold by washing with an antimicrobial.
4. Disengage HEPA filtered air scrubber and fog the classroom with an electrostatic sprayer with Total 360® Disinfectant Cleaner

As I inspected Classroom #9, there were no signs of visible mold growth and the HVAC systems appeared to be very clean. I inspected the contents within the room and there were no signs of water damage and/or mold growth. The room did not have any distinct odors. Once the classroom was inspected, the supervisor opened the hatch door to the pipe chase under the floor of the classroom and there was standing water. Once the door was opened, I could smell the stagnate water.

Once this was discovered, Mr. Baylor requested an emergency response to have the water evacuated. I then inspected the exterior of the building to determine where the water was coming from. In direct relationship to the pipe chase under the floor, there was an exterior down spout discharging into a cased iron drain pipe. I could see water inside the pipe. This is an indication that the drain may not be discarding the storm water properly and causing this pipe chase to flood. The pipe under the floor was a steam pipe, and it did not appear to be leaking during the time of my inspection. However, if that steam pipe leaked and went undetected, this could have also contributed to the standing water within the pipe chase under the floor in Classroom #9.

Sampling Procedures

Two indoor NON-Viable air samples were collected via Micro-5 bio-aerosol Cassette. After a five - minute sampling period, the impacted samples are sealed and voided of all ambient light. The samples are sealed, labeled and delivered to the San-Air Technologies laboratory within 24 hours.

Environmentalist Interpretation of Lab Results

After the interior and exterior of the class room was inspected, ESI conducted two indoor air quality samples to determine if the spore count was still elevated. In doing so, the attached lab results indicate the spore count has been reduced to a normal fungal ecology.

Air Sampling Lab Results

SanAir Technologies Laboratory

Name: Environmental Solutions, Inc
Address: 534-A Deale Road
Deale, MD 20751
Phone: 410-867-6262

Project Number: 5816 Lamont
P.O. Number: VJG
Project Name: Margaret Brent
Collected Date: 4/15/2019
Received Date: 4/16/2019 9:40:00 AM

SanAir ID Number
19017895
FINAL REPORT
4/18/2019 10:07:12 AM

Analyst: Goodwin, Aaron

Air Cassette Analysis

ND = None Detected. Blank spaces indicate no spores detected.

SanAir ID Number	19017895-001			19017895-002				
Analysis Using STL	107C			107C				
Sample Number	2374480			2374471				
Sample Identification	Room 9 Entrance			Room 9 Near Crawlspace				
Sample Type	Air Cassette - Micro-5			Air Cassette - Micro-5				
Volume	25 Liters			25 Liters				
Analytical Sensitivity	40 Count/M³			40 Count/M³				
Background Density	1+			1+				
Other	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**		
Dander	43	1720	n/a	41	1640	n/a		
Fibers	4	160	n/a	1	40	n/a		
Mycelial Fragments	1	40	n/a					
Pollen	1	40	n/a					
Fungal Identification	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**		
Ascospores	4	160	9	5	200	14		
Aspergillus/Penicillium	17	680	37	4	160	11		
Basidiospores	15	600	33	19	760	54		
Cladosporium species	10	400	22	7	280	20		
TOTAL	**46**	**1840**		**35**	**1400**			

Signature: Date: 4/18/2019 Reviewed: Date: 4/18/2019

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Organism Descriptions

The descriptions of the organisms presented are derived from various reference materials. The laboratory report is based on the data derived from the samples submitted and no interpretation of the data, as to potential, or actual, health effects resulting from exposure to the numbers of organisms found, can be made by laboratory personnel. Any interpretation of the potential health effects of the presence of this organism must be made by qualified professional personnel with first hand knowledge of the sample site, and the problems associated with that site.

Dander - Comprised of human and/or animal skin cells. Counts may be higher in carpeted rooms and in rooms with more traffic.
Health Effects: May cause allergies.

Fibers - This category can include clothing, carpet, and insulation fibers.

Mycelial Fragments - A mycelium (plural = mycelia) is the "body" of a fungus. It is a collective term for hyphae (singular = hypha), which are the tubular units of the mycelium usually composed of chitin. The terms hyphae and mycelial fragments are used interchangeably. [This information was referenced from the mycology text "The Fifth Kingdom"]In some cases a fungal identification cannot be obtained due to lack of sporulation. Only the mycelial fragments are present, and cannot be identified without the distinguishing characteristics of the spores or the structures they grow from.
Health Effects: Allergic reactions may occur in the presence of spores (conidia) or mycelial/hyphal fragments.

Pollen - Produced by trees, flowers, weeds and grasses. The level of pollen production can depend on water availability, precipitation, temperature, and light. Pollen is usually dispersed by either insects or the wind.
Health Effects: Mostly effects the respiratory tract with hay fever symptoms but has also been shown to trigger asthma in some people.

Ascospores - From the fungal Subphylum Ascomycotina. Ascospores are ubiquitous in nature and are commonly found in the outdoor environment. This class contains the "sac fungi" and yeasts. Some ascospores can be identified by spore morphology, however; some care should be excercised with regard to specific identification. They are identified on tape lifts and non-viable analysis by the fact that they have no attachment scars and are sometimes enclosed in sheaths with or without sacs. Ascomycetes may develop both sexual and asexual stages. Rain and high humidity may help asci to release, and dispurse ascospores, which is why during these weather conditions there is a great increase in counts.
Health Effects: This group contains possible allergens.

Aspergillus/Penicillium - These spores are easily aerosolized. Only through the visualization of reproductive structures can the genera be distinguished. Also included in this group are the spores of the genera Acremonium, Phialophora, Verticillium, Paecilomyces, etc. Small, round spores of this group lack the necessary distinguishing characteristics when seen on non-viable examination.
Health Effects: Can cause a variety of symptoms including allergic reactions. Most symptoms occur if the individual is immunocompromised in some way (HIV, cancer, etc). Both Penicillium and Aspergillus spores share similar morphology on non-viable analysis and therefore are lumped together into the same group.

Basidiospores - From the Subphylum Basidiomycotina which contains the mushrooms, shelf fungi, and a variety of other macrofungi. They are saprophytes, ectomycorrhizal fungi or agents of wood rot, which may destroy the structure wood of buildings. It is extremely difficult to identify a specific genera of mushrooms by using standard culture plate techniques. Some basidiomycete spores can be identified by spore morphology; however, some care should be exercised with regard to specific identification. The release of basidiospores is dependant upon moisture, and they are dispersed by wind.
Health Effects: Many have the potential to produce a variety of toxins. Members of this group may trigger Type I and III fungal hypersensitivity reactions. Rarely reported as opportunistic pathogens.

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Cladosporium species - The most commonly identified outdoor fungus. The outdoor numbers are reduced in the winter and are often high in the summer. Often found indoors in numbers less than outdoor numbers. It is commonly found on the surface of fiberglass duct liner in the interior of supply ducts. A wide variety of plants are food sources for this fungus. It is found on dead plants, woody plants, food, straw, soil, paint and textiles. Often found in dirty refrigerators and especially in reservoirs where condensation is collected, on moist window frames it can easily be seen covering the whole painted area with a velvety olive green layer.
Health Effects: It is a common allergen. It can cause mycosis. Common cause of extrinsic asthma (immediate-type hypersensitivity: type I). Acute symptoms include edema and bronchiospasms, chronic cases may develop pulmonary emphysema. Illnesses caused by this genus can include phaeohyphomycosis, chromoblastomycosis, hay fever and common allergies.
References: Flannigan, Brian, Robert A. Samson, and J. David Miller, eds. Microorganisms in Home and Indoor Work Environments: Diversity, Health Impacts, Investigation, and Control. London and New York: Taylor & Francis,2001.

Conclusions/Recommendations

Based upon my observations and lab analysis, I believe the elevated spores detected in the PGCPS lab results from EMSL may have been elevated due to a spore cloud present during the time of the sampling. Spore clouds are produced when HEPA filtered air scrubbers are turned off after remediation without covering the filters. It is also known as "blowback". This could distribute thousands of mold spores back into a clean environment.

My recommendation for Classroom #9 is to have the water evacuated from the pipe chase and ensure the exterior downspout drain is clear. The indoor air quality of Classroom #9 should not pose any environmental risk based upon the two samples collected on April 15, 2019. Therefore, no other remediation efforts are needed at this time.

I hope you found our service beneficial. If you have any questions or concerns, please feel free to contact me directly at 301-509-0010, or call my office at 410-867-6262.

Respectfully,

Vinny Gigliotte

Vinny Gigliotti (CIE)
Environmental Solutions, Inc.

Industry References

Since the 1993 New York City Department of Health (NYCDOH) document (Assessment and remediation of *Stachybotrys Atra* in Indoor Environments) was produced, several other guidance documents have been written. This report was developed in accordance with and including:

- *Fungal Contamination in Buildings: A Guide to Recognition and Management* (Health Canada, 1995).
- *Control of Moisture Problems Affecting Biological Indoor Air Quality* (Flannigan and Morey, 1996).
- *Bioaerosols: Assessment and Control* (American Conference of Government Industrial Hygienists [ACGIH], 1999).
- *Guidelines on Assessment and Remediation of Fungi in Indoor Environments* (NYCDOH, 2000). [external link]
- *Mold Remediation in Schools and Commercial Buildings* (U.S. EPA, 2001).
- *Report of the Microbial Growth Task Force* (The American Industrial Hygiene Association, 2001).
- *Fungal Contamination: A manual for investigation, remediation and control (BECi) 2005*.
- *29 CFR 1910, Occupational Safety and Health Standards for General Industry, U.S. Department of Labor*
- Institute of Inspection, Cleaning and Restoration Certification Standard IICRC S520 *29 CFR 1926, Occupational Safety and Health Standards for the Construction Industry*, U.S. Department of Labor
- *40 CFR 61, National Emission Standards for Hazardous Air Pollutants (NESHAP), U.S. Environmental Protection Agency*
- *ACR 2006, Assessment, Cleaning and Restoration of HVAC Systems, National Air Duct Cleaners Association, 2006**
- *ASHRAE Standards 62.1 or 62.2*
- *ASTM D-1653, Standard Test Methods for Water Vapor Transmission of Organic Coating Films*
- *Bioaerosols: Assessment and Control,* American Conference of Governmental Industrial Hygienists, 1999
- *Field Guide for Determination of Biological Contaminants in Environmental Samples, American Industrial Hygiene Association, 2005*
- *A Guide for Mold Remediation in Schools and Commercial Buildings, US Environmental Protection Agency, 2001 Protecting the Built Environment: Cleaning for Health, Michael A. Berry Ph.D., 1993*
- *IICRC S100 Standard and Reference Guide for Professional Carpet Cleaning, Fourth Edition, Institute of Inspection, Cleaning and Restoration Certification, (S100)**
- *IICRC S300 Standard and Reference Guide for Professional Upholstery Cleaning, First Edition, Institute of Inspection, Cleaning and Restoration Certification, (S300)**
- *ANSI/IICRC S500 Standard and Reference Guide for Professional Water Damage Restoration, Third Edition, Institute of Inspection, Cleaning and Restoration Certification, (S500)**

Report Limitations

All the professional opinions presented in this report are based solely on the scope of work conducted and sources referred to in our report. The data presented by ESI in this report was collected and analyzed using generally accepted industry methods and practices at the time the report was generated. This report represents the conditions, locations and materials that were observed at the time the fieldwork was conducted. The scope of work for this project did not include an assessment of other environmental conditions which could exist on the property. No inferences regarding other conditions, locations or materials at any other time may be made based on the contact of this report. No warranty is made. ESI liability and that of its contractors and subcontractors shall not exceed the total fee paid by the client to ESI. This report was prepared for the sole use of our client. The use of this report by anyone other than our client or ESI is strictly prohibited without the expressed written consent of either. Portions of this report may not be used independently of the entire report.