ESI Environmental Solutions, Inc.

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

Discovery Post Remediation Clearance Report

Project Contact Information

Sam Stefanelli Prince Georges County Public Schools 13300 Old Marlboro Pike, Trailer #5 Upper Marlboro, MD 20772 sam.stefanelli@pgcps.org	Alex Baylor Environmental Specialists Prince Georges County Public Schools 13306 Old Marlboro Pike Upper Marlboro, MD alex.baylor@pgcps.org>	Vinny Gigliotti Environmental Solutions Inc. (410) 867-6262 6114 Drum Point Road Deale, MD 20751 vinny@esi4u.com

Property Location

4901 Collington Rd, Bowie, MD 20715

Date of Inspection 1/30/2019

Prepared By: Vinny Gigliotti

Certified Indoor Environmentalist (CIE)

Dear Sam and Alex,

The results of the post remediation inspection and testing performed at Benjamin Tasker Middle School, located at 4901 Collington Rd, Bowie, MD 20715, 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, instrument readings, lab results, and recommendations for any areas inspected and or tested that need additional cleaning or remediations.

Background Information

The school was first inspected and tested on 12/11/2018, and ESI returned to the school on 1/30/19 to conduct a post remediation inspection and testing. The purpose of this post remediation inspection and testing is to determine if the areas remediated were properly cleaned and that NO health or environmental risk are present. If any problematic conditions are detected, then ESI will make recommendations for corrective actions to be implemented by the PGCPS Environmental Team.

Observations and instrument readings

Location	IAQ Sample #	R/H	Temp	CO2	Co	Other
Room 104	2358370	29	70	642	001	
Observations						
• There were NO signs of mold growth on the cabinetry and the bottom of the sink cabinet was removed. However, there was a minimal amount of mold growth (2-3") on the back side of the kick plate. • The attached lab results indicate no elevated levels of microbial or biological contaminates were found within the breathable airspace. The indoor air quality should not pose any health or environmental exposure risk.						
Recommendations						
• Remove visible mold growth from the backside of the sink cabinetry kick plate.						

Location	IAQ Sample #	R/H	Temp	CO2	Co	Other
Room 116	2358359	33	71	667	000	
Observations						
• The visible mold growth on the backside of the projector screen was removed. • The attached lab results indicate no elevated levels of microbial or biological contaminates were found within the breathable airspace. The indoor air quality should not pose any health or environmental exposure risk.						
Recommendations						
NONE						

Location	IAQ Sample #	R/H	Temp	CO2	Co	Other
Room 117	2358369	29	70	653	001	

Observations

- The water damage and contaminated ceiling tiles were removed.
- There were no signs of mold growth on any of the contents.
- The vent inside the teacher's office has an accumulated amount of dust and debris, which should be cleaned to ensure adequate air flow.
- The attached lab results indicate no elevated levels of microbial or biological contaminates were found within the breathable airspace. The indoor air quality should not pose any health or environmental exposure risk.

Recommendations

Clean vents.

Location	IAQ Sample #	R/H	Temp	CO2	Co	Other
Room 132	2358361	25	68	1600	002	

Observations

- The Carbon Dioxide Detector indicated elevated levels of CO2 at 1600, whereas 1,000-2,000 ppm, could cause drowsiness and or headaches. This room had elevated levels of C02 during the first inspection. You may need to install UF IND Carbon Dioxide (CO2) Air Scrubbers, which remove excess carbon dioxide from the premises and maintain a comfortable and safe level of carbon dioxide in your room. CO2 Scrubbers make it possible to keep the stable ambient carbon dioxide level indoors even, about 400ppm.
- The guitar cases did not show any signs of mold growth, but they are scratched / scuffed, and these scuff marks could be misconstrued as mold spores, which they are NOT.
- The attached lab results indicate no elevated levels of microbial or biological contaminates were found within the breathable airspace. The indoor air quality should not pose any health or environmental exposure risk, once the CO2 levels are reduced.

Recommendations

- Install a UF IND Carbon Dioxide (CO2) Air scrubbers to reduce elevated levels of CO2.

Location	IAQ Sample #	R/H	Temp	CO2	Co	Other
Room 215	2358362	12	74	604	002	

Observations

- There were NO signs of mold growth or elevated levels of moisture detected within this location.
- The water damage and contaminated ceiling tile were removed.
- The attached lab results indicate no elevated levels of microbial or biological contaminates were found within the breathable airspace. The indoor air quality should not pose any health or environmental exposure risk.
- The temperature was 74 degrees. With the temperature at 74 degrees and the relative humidity at 12%, this may cause the occupants physical discomfort, based upon the dry heated air.

Recommendations

- Lower the air temperature between 69-72 degrees Fahrenheit and increase the relative humidity between 30-50%

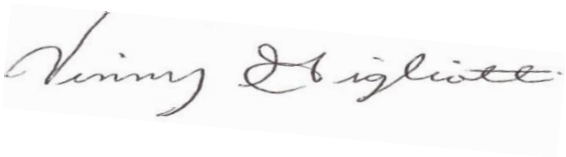
Location	IAQ Sample #	R/H	Temp	CO2	Co	Other
Room 225	2358372	13	76	604	002	
Observations						
• There were NO signs of mold growth or elevated levels of moisture detected within this location. • The temperature was 76 degrees. With the temperature at 78 degrees and the relative humidity at 13%, this may cause the occupants physical discomfort, based upon the dry heated air.						
Recommendations						
• Lower the air temperature between 69-72 degrees Fahrenheit and increase the relative humidity between 30-50%						

Conclusions/Recommendations

Once I concluded the visual inspection and didn't see any residual mold growth, besides room 104, or contributing factors as to why mold would recolonize, I collected indoor air quality samples of microbial and biological contaminates to be analyzed by an independent laboratory. The samples in this report indicate a normal fungal ecology for the specific locations tested. Therefore, the indoor air quality passed and based on the visual inspection and the lab results, there are no health or environmental risks related to the remediation areas of the school. (Please refer to the attached lab results below for identification and spore count per location.)

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

Respectfully,



Vinny Gigliotti (CIE)
Environmental Solutions, Inc.

Interpretation of Lab Results

In the enclosed Air Cassette Analysis report, you will notice Fungal Identification, which is the species detected in the breathable airspace inside, and outside. The Raw count is the actual number of spores counted on the slide, and the Count/m3 are the spores per cubic meter of air. The other particles are non-living particles such as dander, mycelial fragments, pollens, etc.

In order for humans to be exposed indoors, fungal spores, fragments, or metabolites must be released into the air and inhaled, physically contacted (dermal exposure), or ingested. Whether symptoms develop in people exposed to fungi depends on the nature of the fungal material (e.g., allergenic, toxic, or infectious), the amount of exposure, and the susceptibility of exposed persons.

Susceptibility varies with genetic predisposition (e.g., allergic reactions do not always occur in all individuals), age, state of health, and concurrent exposures.

SanAir Technologies Laboratory

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

Project Number: 4901
P.O. Number: VJG
Project Name: Benjamin Taker
Collected Date: 1/30/2019
Received Date: 2/1/2019 10:05:00 AM

SanAir ID Number
19004760
FINAL REPORT
2/4/2019 10:48:33 AM

Analyst: Smith, Kiersten

Air Cassette Analysis

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

SanAir ID Number	19004760-001			19004760-002			19004760-003			19004760-004		
Analysis Using STL	107C			107C			107C			107C		
Sample Number	2358370			2358359			2358369			2358361		
Sample Identification	Room 104			Room 116			Room 117			Room 132		
Sample Type	Air Cassette - Micro-5			Air Cassette - Micro-5			Air Cassette - Micro-5			Air Cassette - Micro-5		
Volume	25 Liters			25 Liters			25 Liters			25 Liters		
Analytical Sensitivity	40 Count/M³			40 Count/M³			40 Count/M³			40 Count/M³		
Background Density	1+			1+			1+			1+		
Other	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**
Dander	15	600	n/a	40	1600	n/a	38	1520	n/a	14	560	n/a
Fibers				3	120	n/a	4	160	n/a			
Mycelial Fragments												
Fungal Identification	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**
Ascospores										1	40	50
Aspergillus/Penicillium	1	40	25	7	280	88	4	160	44			
Basidiospores							2	80	22			
Cladosporium species	3	120	75	1	40	13	2	80	22	1	40	50
Curvularia species							1	40	11			
Smuts/Myxomycetes												
TOTAL	**4**	**160**		**8**	**320**		**9**	**360**		**2**	**80**	

Signature: K. Smith Date: 2/4/2019 Reviewed: Johnathan Wilson Date: 2/4/2019

SanAir Technologies Laboratory

Analyst: Smith, Kiersten

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

Project Number: 4901
P.O. Number: VJG
Project Name: Benjamin Taker
Collected Date: 1/30/2019
Received Date: 2/1/2019 10:05:00 AM

SanAir ID Number
19004760
FINAL REPORT
2/4/2019 10:48:33 AM

Air Cassette Analysis

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

SanAir ID Number	19004760-005			19004760-006			19004760-007			
Analysis Using STL	107C			107C			107C			
Sample Number	2358362			2358372			2358371			
Sample Identification	Room 215			Room 225			Outside Control Sample			
Sample Type	Air Cassette - Micro-5			Air Cassette - Micro-5			Air Cassette - Micro-5			
Volume	25 Liters			25 Liters			25 Liters			
Analytical Sensitivity	40 Count/M³			40 Count/M³			40 Count/M³			
Background Density	1+			1+			1+			
Other	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	
Dander	26	1040	n/a	13	520	n/a				
Fibers							2	80	n/a	
Mycelial Fragments	3	120	n/a	1	40	n/a	1	40	n/a	
Fungal Identification	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	**Raw Count**	**Count/M³**	**%**	
Ascospores				1	40	20	1	40	14	
Aspergillus/Penicillium	1	40	33							
Basidiospores	2	80	67	2	80	40	3	120	43	
Cladosporium species				2	80	40	2	80	29	
Curvularia species										
Smuts/Myxomycetes							1	40	14	
TOTAL	**3**	**120**		**5**	**200**		**7**	**280**		

Signature: K. Smith Date: 2/4/2019 Reviewed: Johnathan Wilson Date: 2/4/2019

SanAir ID Number
19004760
FINAL REPORT
2/4/2019 10:48:33 AM

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

Project Number: 4901
P.O. Number: VJG
Project Name: Benjamin Taker
Collected Date: 1/30/2019
Received Date: 2/1/2019 10:05:00 AM

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.

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.

SanAir ID Number
19004760
FINAL REPORT
2/4/2019 10:48:33 AM

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

Project Number: 4901
P.O. Number: VJG
Project Name: Benjamin Taker
Collected Date: 1/30/2019
Received Date: 2/1/2019 10:05:00 AM

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.

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.

Curvularia species - Curvularia is found on plant material and is considered a saprobe. It has also been isolated from dust samples and from wallpaper.
Health Effects: It has been reported to cause type I hypersensitivity and to be a cause of allergic fungal sinusitis. It may cause corneal infections, mycetoma and infections in immune compromised hosts.
References: De Hoog, G.S., J. Guarro, J. Gene, and M.J. Figueras. Atlas of Clinical Fungi, 2nd Edition. The Netherlands: CBS, 2000.

Smuts/Myxomycetes - Smuts and Myxomycetes are parasitic plant pathogens. They are typically grouped together due to their association with plants, the outdoors and because they share similar microscopic morphology.
Health Effects: Can produce type I fungal hypersensitivity reactions.
References: Martin, G.W., C.J. Alexopoulos, and M.L. Farr. The Genera of Myxomycetes. Iowa City, Iowa: University of Iowa Press, 1983.

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)**