ASBESTOS CONTAINING MATERIALS, LEAD-BASED PAINT and MOLD SURVEY

KING FARM FARMSTEAD PROPERTY
16100 FREDERICK ROAD
ROCKVILLE, MD

ECS PROJECT NO. 13-6529

FOR

CITY OF ROCKVILLE

JANUARY 15, 2015

January 15, 2015

Mr. Mauricio Daza
City of Rockville
Parks and Facilities Department Specialist
111 Maryland Avenue
Rockville, Maryland 20850

ECS Project #13-6529

Reference: Asbestos Containing Materials, Lead Based Paint and Mold Survey, King Farm Farmstead Property, 16100 Frederick Road, Rockville, Maryland

Dear Mr. Daza:

ECS Mid-Atlantic, LLC (ECS) is pleased to provide you with the results of the above referenced survey for the subject. This work was performed in conformance with ECS proposal 13-7638-EP dated August 27, 2014 as well as the terms and conditions of contract 12-12 (category N).

BACKGROUND

The subject consists of seven buildings associated with the King Farm Farmstead property. The buildings include a house (building 1), garage (building 2), two connected dairy barns (buildings 3 and 4), horse barn (building 5), and two tenant houses (buildings 6 and 7). At the time of the study, the buildings were unoccupied although buildings 3, 5 and 7 were being utilized by Bikes for the World and the City of Rockville; however, we understand the buildings are currently vacant. For the purposes of consistency, ECS will reference the building numbers as previously outlined in the Property Condition Assessment prepared by Wheeler Goodman Masek, dated July 3, 2014, included in the appendix and found on the city website at www.rockvillemd.gov.

SCOPE OF WORK AND METHODOLOGY

The survey work was performed on September 29, 2014. Our services included a renovation-scope survey for asbestos-containing materials (ACMs), lead-based paint (LBP) screening, and a general mold survey.

Due to the nature of an asbestos assessment and the inability and impracticality of accessing all hidden locations, some areas/materials were deemed inaccessible and/or not surveyed. These

areas included the roofs of the structures as well as some windows that were boarded, notably building 2's garage windows which were boarded. It should be noted that roofs were observed to be metal, with exception to the main house (building 1). ECS understands the house roof was recently replaced. The ACM & LBP survey was performed by licensed MD technicians.

A total of 120 suspect ACMs were sampled and analyzed for asbestos content. Samples included drywall, joint compound, skimcoat, plaster, mastics, furnace flue mud, pipe elbow mud, caulks, glazing, and multiple floor tiles, etc.

Lead-Based Paint

Based on the scope of services, the purpose of the screening was to evaluate accessible portions of the interior and exterior of the six structures associated with the King Farm for the possible presence of Lead-Based Paint (LBP). The LBP Screening included the visual assessment of readily accessible representative painted surfaces on and within the structures, which have the possible presence of lead. It should be noted that the roofs and portions of the structures that had been boarded were not accessible.

The LBP Screening was performed utilizing an Innov-X Systems Alpha-4000 Series direct-read X-ray fluorescence (XRF) spectrum analyzer to determine the presence of lead-based paint components. By emitting radiation, the spectrum analyzer is able to determine the presence of lead within painted components. To document that the XRF was functioning properly, calibration readings and standardization readings were collected in accordance with the manufacturer's instructions.

An LBP is defined by the Maryland Department of the Environment (MDE) as any paint, glaze, and other coating, which contain greater than 0.7 milligram per centimeter squared (mg/cm^2) of lead by area.

Approximately 300 painted surfaces were evaluated. The following table summarizes the location and description of the LBP surfaces identified. A copy of the survey log is included as an attachment to this report.

Mold Survey

BACKGROUND INFORMATION

Based on recent discussions, it is understood that the Mold Survey is in response to observed suspect mold in portions of the site. ECS performed a visual survey for obvious areas of mold growth and/or water damaged materials within the project area. In addition, ECS performed sampling and laboratory analysis for mold.

SITE OBSERVATIONS

On-site visual observations and testing services were performed by Michael Smith and Erik Schaberl of ECS on September 29 and 30, 2014, to evaluate the on-site conditions. The weather

on the date of our survey was warm and sunny. The residential structures (buildings 1, 2, 6, and 7) exhibited typical interior building materials, electrical and mechanical components, including plaster and drywall finished walls, concrete floor, and a heating, ventilation, and/or air-conditioning (HVAC) systems. The barns (buildings 3, 4, and 5) were generally wood framed structures, with metal roofs and partial dirt floors and concrete floors.

During our site visit, ECS performed a cursory visual evaluation of the buildings exterior from the ground level. ECS observed the exterior of the buildings for site drainage and visual evidence of irregular building conditions or obvious signs of malfunctioning building components. Most notably, roof damage was observed in the garage (building 2) and tenant house (building 6). As a result, evidence of moisture and mold growth intrusion was observed.

ECS also collected moisture readings utilizing an Extech MO220 moisture meter to check for elevated moisture in building materials. Elevated moisture content (greater than 1 percent) was not observed at the time of our assessment.

Summary of Indoor Air Screening

ECS screened readily accessible areas of the project area using a Fluke Model 971 Temperature and Humidity Meter. The findings of our study were compared to the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommended conditions.

The current ASHRAE recommended temperature and humidity levels for optimum comfort are 70^{o}F to 79^{o}F and 30% to 60%, respectively.

ECS observed temperature ranging between 70.4-75.2^{o}F and relative humidity levels between 65.4-69.3 percent in the buildings. For comparison purposes, ECS observed an average temperature of 78^{o}F and an average relative humidity level of 69 percent outside. Based on the collected data, temperature levels within the facility were within the recommended comfort range at the time of our assessment. Relative humidity appears to be elevated in the residential structures. It should be noted that the HVAC systems did not appear to be operating at the time of our assessment.

Fungal Spore-Trap Collection

Because of the ubiquity of fungi, samples collected from suspect areas are evaluated against samples collected from non-suspect areas or from outdoors. Identification of fungi to genus level is necessary in this evaluation to determine if indoor air is influenced by interior contamination. Generally, the genus of fungi collected from indoor air should be similar to those of outdoor air and be present at lower levels. Indoor levels of similar genera detected at higher concentrations than that detected outside, may indicate inadequate filtration. Levels of fungi indoors of different genera from outdoors can indicate possible interior substrates with fungal reservoirs.

Non-cultured techniques are useful to identify fungi species that are not readily identifiable in culture analysis (e.g., *Stachybotry*s sp.) due to slow growth; therefore, ECS collected indoor and outdoor non-cultured spore-trap samples to achieve a representation of fungi present at the site.

The samples were collected for direct microscopic fungal spore analysis from interior and exterior areas of the building, and the relative humidity was recorded at the time of sampling.

The samples were submitted to EMSL Analytical, Inc. in Cinnaminson, New Jersey for laboratory analysis and chain-of-custody protocol. It should be noted that sample locations/descriptions within the report may be modified from the original sample identification given on the chain-of-custody in order to clarify the samples actual location (i.e., more descriptive). The analytical results and chain of custody are included as an attachment to this report.

To date, action levels have not been established for particulate concentration levels identified on spore-trap cassettes; however, comparative spore type concentrations are made between indoor "subject areas" and "non-subject" areas in and/or outside of the building. This determines the possibility of indoor particulate accumulation from outdoor conditions and/or indoor reservoirs of spores. Spore trap sampling typically detects airborne fungal spores, hyphal fragments, pollen, skin fragments, fibrous particulate and insect fragments.

For air sample collection, a high volume calibrated sampling pump and AllergencoD™ cassettes were utilized in sampling for non-viable airborne fungi spores. Samples were collected with an air flow of 15 liters/minute for approximately 5 minutes for interior and exterior samples, unless otherwise specified on the chain-of-custody.

ECS collected one (1) spore trap sample from within each building for a total of seven (7) interior samples to identify elevated levels of fungal spores. Sample locations are designated as KF-1 through KF-9. In addition, two (2) spore traps were collected outside to provide background/comparison concentrations. The aforementioned spore traps were collected and laboratory analyzed for non-viable spores. In summary, the results of the air sampling revealed that overall airborne fungal spore levels inside the buildings were less than or similar to ambient levels identified exterior of the buildings. However, the spore trap sampling identified counts of *Aspergillum/Penicillium* (common molds) in the basement of the house higher than those identified exterior of the house. In addition, the spore trap sample collected from the Dairy Barn (building 3), contained counts of *Ascospores (common fungi)* higher than those identified exterior of the buildings.

One non-cultured fungal swab/bulk samples was in the suspect areas in each of the buildings. When obvious mold growth was not observed (buildings 3, 4, 5, and 7), a common building material capable of supporting mold growth was swabbed. Additionally, these samples were analyzed for total spore concentrations in accordance to the laboratory's quantification methods. The samples were submitted to EMSL Analytical, Inc. in Cinnaminson, New Jersey for laboratory analysis and chain-of-custody protocol. In general, the presence of mold was confirmed, with the highest concentrations exhibited in the house (building 1), Garage (building 2), and tenant house (building 6). The lab results are included in the appendix.

Summary Table

Location	ACM	LBP	Significant Mold
House (building 1)	X	X	X
Garage (building 2)	X	X	X
Dairy Barn (buildings 3-4)	X	X	
Horse Barn (building 5)		X	
Tenant House (building 6)	X	X	X
Tenant House (building 7)		X	

X=item identified
ACM= Asbestos Containing Material
LBP= Lead-Based Paint

BUILDING RESULTS OVERVIEW

House (Building 1):

Asbestos Containing Materials-House (Building 1)

Material	Description	Location	Friable/Non-Friable
Leveling compound	Gray/tan	Sun room next to kitchen, under vinyl floor by ext. door	Non-Friable
Remnant. pipe elbow mud	Gray	Basement pipe elbows	Friable
Furnace flue mud	Gray	Basement furnace	Friable

Friable= can be crumbled, pulverized, or reduced to powder with hand pressure when dry (more likely to become airborne).

Lead Based Paint- House (Building 1)- Detections above the MD Standard

Location	Wall/Color	Component	Substrate	Lead Content mg/cm^2
Exterior Kitch Window	C/White	Window Frame	Wood	1.97,>5,>5
Exterior Sunroom Door	C/White	Screen Door, Door Jamb, Main Door	Wood	0.05,1.49, ND
Exterior Kitch and DR	C,C,B/Green	Shutters	Wood	>5,>5,>5
Exterior Foundation	C,B,A/Green	Foundation, Foundation, Brick Column	Stone/Brick	>5,>0.95,>.7
Exterior Siding	C,D,A/White	Clapboard Siding	Wood	>5,>5,>5
Rear Entrance	C,C,C/Gray	Stair Tread and Riser	Wood	>5,>5,>5
Kitch, DR, LR, SR	D,A,B,C/White	Window Sill	Wood	ND,1.06,0.14,0.04
Kitch, DR, LR, SR	D,A,B,C/White	Window Trim	Wood	ND,1.24,ND,0.49
Kitch, DR, LR	D,A,B/White	Plaster Wall	Plaster	>1.38,0.46,0.35
DR, LR, Foyer	A,BA/White	Base Board	Wood	>0.88,0.55,0.44
LR, LR, LR	D,D,D/White	Mantle	Wood	0.79,0.68,0.43
Powder Room	A,B,C/Pink	Walls	Ceramic	>5,>5,>5
Bedroom 5, 3, and 1	A,D,B/White	Doors	Wood	>5, 0.48,0.36
Bedroom 5, 3, and 1	B,B,D/White	Baseboards	Wood	>0.7,0.45,0.22
Bedroom 5, 3, and 1	C,B,D/White	Walls	Drywall	>0.7,ND,0.12
Bedroom 1 attached Bathroom	C,B,C/Green	Walls	Ceramic	1.55,2.10,2.54
Second Floor Bathroom	A,B,C/White	Walls	Ceramic	3.40,2.93,3.06

mg/cm^2 = milligrams per square centimeter LR= Living Room, Kitch= Kitchen, DR= Dining Room, FL= Floor, A/B/C/D= room orientation ID, Maryland defines a LBP as greater than 0.7 mg/cm^2

Mold- House (Building 1)

Building	Location	Observation
1-House	Basement	Mold growth on wood wall paneling

The spore trap sampling identified counts of *Aspergillum/Penicillium* in the basement of the house higher than those identified exterior of the house. The mold swab test identified high concentrations of *dipplococcium* on the wood paneling in the basement. Moisture intrusion is apparent in the basement and mold colonization is evident along the wood paneling of the northern room, which is approximately 15' x20'. ECS recommends a mold abatement contractor remove mold impacted building materials. Subsequent to the mold abatement, outside drainage issues (grading) need to be corrected to prevent future moisture intrusion. In addition, the sub-wall should not be re-paneled or otherwise covered with material that can support mold growth.

Hazardous Material Removal Cost and Prioritization

Item	Priority	Abatement Estimate
Mold	Moderate	$5,000
Asbestos Containing Material	Moderate	$10,000
Lead-based Paint	Low	$0*

*Disturbance of lead paint recommendations included on page 15.

Garage- Building 2

Asbestos Containing Material-Garage (building 2)

Material	Description	Location	Friable/non-Friable
Floor Tile & Mastic	9"x9" White/green	2nd floor hall and bathroom under vinyl floor	Non-Friable
Floor Tile & Mastic	9"x9" Black	2nd floor hall	Non-Friable

Friable= can be crumbled, pulverized, or reduced to powder with hand pressure when dry (more likely to become airborne).

Lead Based Paint-Garage (building 2) - Detections above the MD Standard

Location	Wall/Color	Component	Substrate	Lead Content mg/cm^2
Exterior Garage Door	A,A,A/White	Door, Door Frame	Wood	>5,>5,>5
Exterior Siding	A,B,C/White	Clapboard Siding	Wood	>5,>5,>5
Exterior Doors Garage, 2nd Fl and Smokehouse	A,A,D/White	Door Frames	Wood	0.04,>5,0.12
Exterior Doors Garage, 2nd Fl and Smokehouse	A,A,D/White	Doors	Wood	>5,>5,>5
Interior Doors 2nd Fl Entrance, Kitch, and Bedroom	A,C,C/White	Doors	Wood	>5,>5,4.32
Hallway, Bath, Kitch	C,A,A/Tan	Window Frames	Wood	>5,>5,>5
Hallway, Bath, Kitch	C,A,A/Tan	Window Trim	Wood	>5,>5,>5
Hallway, Bath, Kitch	C,A,A/Tan	Window Sill	Wood	>5,>5,>5
Hallway, Bath, Kitch	C,A,A/Tan	Baseboard	Wood	>5,>5,4.41

mg/cm^2 = milligrams per square centimeter LR= Living Room, Kitch= Kitchen, DR= Dining Room, FL= Floor, A/B/C/D= room orientation ID, Maryland defines a LBP as greater than 0.7 mg/cm^2

Mold-Garage (building 2)

Building	Location	Observation
2-Garage	Upstairs rooms	Collapsed ceiling, mold growth evident

The spore trap sampling identified counts of *Pithomyces* in the upstairs of the house higher than those identified exterior of the house. The mold swab test identified high concentrations of *Stachybotrys (black mold)* on the drywall upstairs. Structural damage including ceiling and wall collapse was observed in the interior of this building. This has caused obvious moisture intrusion and mold colonization rendering the building uninhabitable at this time. If the building is to be utilized in the future, ECS recommends a structural assessment be performed and repairs be made. Subsequently mold remediation of select building materials to include impacted drywall, plaster, lathe, and carpeting should be performed.

Other: Chemical Storage: ECS observed several 5-gallon buckets on the ground level of the Garage (building 2). The containers included three buckets of roof coating, 1 bucket of joint compound, and one bucket of wood primer. In addition, a quart container of paint thinner and a one gallon can of paint were observed.

ECS did not observe staining or evidence of leaks from the containers; however, they should be disposed of according to applicable rules and regulations. The City of Rockville may have a hazardous waste disposal program that could be utilized.

Hazardous Material Removal Cost and Prioritization

Item	Priority	Abatement Estimate
Mold	High	$10,000
Asbestos Containing Material	Low	$5,000
Lead-based Paint	Low	$0*

*Disturbance of lead paint recommendations included on page 15.

Dairy Barns, connectors and Milk-House (buildings 3 and 4)

Asbestos Containing Material-Dairy Barn (buildings 3 and 4)

Material	Description	Location	Friable/non-Friable
Transite	Gray	Ceiling	Non-Friable

Friable= can be crumbled, pulverized, or reduced to powder with hand pressure when dry (more likely to become airborne).

Lead Based Paint-Dairy Barn (building 3) - Detections above the MD Standard

Location	Wall/Color	Component	Substrate	Lead Content mg/cm^2
Exterior Siding	A,D,C/White	Clapboard Siding	Wood	0.42,1.28,>5
Exterior Windows	A,D,C/White	Window Frame	Wood	ND,>5,0.12
Interior Doors	A,D,C	Door, Door, Door	Wood	ND,>5,2.53
Interior Windows	B,C,D/White	Window Frame	Wood	0.04,0.78,2,86
Interior Windows	B,C,D/White	Window Trim	Wood	>5,>5,>5

Lead Based Paint-Dairy Barn (building 4)

Location	Wall/Color	Component	Substrate	Lead Content mg/cm^2
Exterior Siding	A,A,C/White	Clapboard Siding	Wood	1.34,>5,2.34
Exterior Windows	A,A,C/White	Window Frame	Wood	0.53,1.23,0.12
Interior Doors	A,A,C/White	Door, Door, Door	Wood	3.89,>5,1.68
Interior Windows	B,B,D/White	Window Frames	Wood	>5,>5,>5

mg/cm^2 = milligrams per square centimeter LR= Living Room, Kitch= Kitchen, DR= Dining Room, FL= Floor, A/B/C/D= room orientation ID, Maryland defines a LBP as greater than 0.7 mg/cm^2

Mold- Dairy Barn (buildings 3 and 4)

Building	Location	Observation
3-Dairy	N/a	Not observed
4-Dairy	N/a	Not observed

As obvious evidence of mold was not observed, mold swabs from material capable of supporting mold growth were taken. Rare to low counts of various spores were identified on the wood framing within the buildings. The spore trap sample collected from the Dairy Barn (building 3), contained counts of *Ascospores* higher than those identified exterior of the buildings.

Other: It should be noted that a significant amount of bird feces were observed in the loft area of the dairy barns. If the building is to be occupied in the future, the feces should be removed and the entry point(s) for varmints sealed to prevent bird habitation.

ECS observed one 5-gallon bucket of “magnesium with sulphur” in the Dairy Barn (building 3).

ECS did not observe staining or evidence of leaks from the containers; however, they should be disposed of according to applicable rules and regulations. The City of Rockville may have a hazardous waste disposal program that could be utilized.

It should also be noted that the Property Condition Assessment prepared by WGM and dated July 3, 2014 references a “concrete containment tank” to be addressed by a hazardous materials survey. At the time of ECS’s site visit, an underground concrete tank with a metal tank within was observed west of buildings 3 and 4. This tank appears to be associated with a water holding cistern and is not believed to be nor consistent with typical petroleum storage tanks.

Hazardous Material Removal Cost and Prioritization

Item	Priority	Abatement Estimate
Mold	N/A	$0
Asbestos Containing Material	Low	$6,000
Lead-based Paint	Low	$0*

*Disturbance of lead paint recommendations included on page 15.

Horse Barn- Building 5

Asbestos Containing Material (ACM): ACM was not identified for this building.

Lead-Based Paint-Horse Barn (building 5) - Detections above the MD Standard

Location	Wall/Color	Component	Substrate	Lead Content mg/cm^2
Exterior Siding	A,B,C/White	Clapboard Siding	Wood	>5,4.77,4.87
Interior Walls	A,B,C/White	Walls	Wood	1.29,1.41,1.49

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Mold- Horse Barn (building 5)

Building	Location	Observation
5-Horse Barn	N/a	Not observed

As obvious evidence of mold was not observed, mold swabs from material capable of supporting mold growth were taken. Rare to low counts of various spores were identified on the wood framing within the buildings. Spore trap sampling revealed indoor spore level less then outdoor levels.

Hazardous Material Removal Cost and Prioritization

Item	Priority	Abatement Estimate
Mold	N/A	$0
Asbestos Containing Material	N/A	$0
Lead-based Paint	Low	$0*

*Disturbance of lead paint recommendations included on page 15.

Tenant House (Building 6):

Asbestos Containing Material-Tenant House (building 6)

Material	Description	Location	Friable/non-Friable
Vinyl floor	Brick pattern	Northwest room, under carpet	Non-Friable

Friable= can be crumbled, pulverized, or reduced to powder with hand pressure when dry (more likely to become airborne).

Lead Based Paint-Tenant House (building 6) - Detections above the MD Standard

Location	Wall/Color	Component	Substrate	Lead Content mg/cm^2
Exterior Siding	A,D,C/White	Clapboard Siding	Wood	1.55,0.02,2.07
Exterior Windows	A,B,C/White	Clapboard Siding	Wood	1.31,0.07,0.06
Interior Windows Kitch, LR, 2nd Fl	A,D,C/White	Window Trim	Wood	1.08,1.45,4.40
Interior Windows Kitch, LR, 2nd Fl	A,D,C/White	Window Sill	Wood	0.98,1.1,1.6
Interior Windows Kitch, LR, 2nd Fl	A,D,C/White	Window Frame	Wood	0.85,0.14,0.18
Kitch, LR, 2nd Fl	A,D,C/White	Wall	Plaster	>0.7,0.01,>0.7
Kitch, LR, 2nd Fl	-- /White	Ceiling	Plaster	>0.7, ND,0.01
Enclosed Porch Ceiling	-- / Gray	Ceiling Joist/Deck	Wood	>5,>5,>5
Hallway, Bath, Kitch	C,A,A/Tan	Baseboard	Wood	>5,>5,4.41

mg/cm^2 = milligrams per square centimeter LR= Living Room, Kitch= Kitchen, DR= Dining Room, FL= Floor, A/B/C/D= room orientation ID, Maryland defines a LBP as greater than 0.7 mg/cm^2

Mold- Tenant House (building 6)

Building	Location	Observation
6-Tenant House	Ground level	Significant mold growth on ceiling/walls

Structural damage including ceiling and wall collapse was observed in the interior in the room west of the kitchen, measuring approximately 10'x10'. This has caused obvious moisture intrusion and mold colonization. Mold swabs indicated high levels of *cladosporium*.

If the building is to be utilized in the future, ECS recommends repairs are made. Subsequently a mold remediation of select building materials to include impacted drywall, plaster, lathe, and carpeting should be performed.

Hazardous Material Removal Cost and Prioritization

Item	Priority	Abatement Estimate
Mold	High	$15,000
Asbestos Containing Material	Low	$5,000
Lead-based Paint	Low	$0*

*Disturbance of lead paint recommendations included on page 15.

Tenant House-Building 7

Asbestos Containing Material (ACM): ACM was not identified for this building.

Lead Based Paint-Tenant House (building 7) - Detections above the MD Standard

Location	Wall/Color	Component	Substrate	Lead Content mg/cm^2
Exterior Windows	A,B,C/White	Window Trim	Wood	>5,>5,>5
Exterior Doors	A,A,A/White	Door, Door Frame, Door Jamb	Wood	>5,>5,>5
Exterior Windows	A,B,C/White	Clapboard Siding	Wood	>5,>5,>5
Room 1, Room 2, Room 3	A,B,C/White	Baseboard	Wood	ND,0.07,>5
Room 1, Room 2, Room 3	D,A,B/White	Door Trim	Wood	0.98,1.1,1.6
Room 1, Room 2, Room 3	A,D,C/White	Window Frame	Wood	0.85,0.14,0.18
Room 1, Room 2, Room 3	A,D,C/White	Wall	Plaster	>0.7,0.01,>0.7
Room 1, Room 2, Room 3	-- /White	Ceiling	Plaster	>0.7, ND,0.01
Room 1, Room 2, Room 3	-- / Gray	Ceiling Joist/Deck	Wood	>5,>5,>5
Room 1, Room 2, Room 3	C,A,A/Tan	Baseboard	Wood	>5,>5,4.41

mg/cm^2 = milligrams per square centimeter LR= Living Room, Kitch= Kitchen, DR= Dining Room, FL= Floor, A/B/C/D= room orientation ID, Maryland defines a LBP as greater than 0.7 mg/cm^2

Mold- Tenant House (building 7)

Building	Location	Observation
7-Tenant House	Front office	Moisture intrusion under window

Rare to low counts of various mold spores were detected in the mold swab. Spore trap sampling revealed indoor spore level less then outdoor levels.

Hazardous Material Removal Cost and Prioritization

Item	Priority	Abatement Estimate
Mold	Low	$0
Asbestos Containing Material	N/A	$0
Lead-based Paint	Low	$0*

*Disturbance of lead paint recommendations included on page 15.

RECOMMENDATIONS

Asbestos-containing materials

Prior to any future reconstruction/remodeling that would affect the identified ACM, proper abatement would be required. The asbestos abatement should be performed by a licensed abatement contractor in accordance with both EPA and OSHA requirements. With regard to the actual abatement process, ECS recommends that the abatement be monitored by a qualified industrial hygiene professional to ensure that the abatement procedure and specifications are adhered to throughout the removal/disposal process. These services should include final certification/documentation that all necessary ACM has been removed and properly disposed of prior to initiation of any future reconstruction/remodeling process and/or building re-occupancy.

In their current condition, the identified ACMs would not be considered to represent a significant environmental concern to building occupants. However, if the materials will not be disturbed we recommend the preparation/implementation of an Operations and Maintenance Plan (O&M Plan). The purpose of the O&M Plan is to provide the occupants with specific procedures to reduce their exposure to asbestos and to provide measures to maintain those materials in their current condition.

Lead Based Paint

In their current condition, most of the painted surfaces were intact. Some paints were peeling or damaged (i.e., rear entrance steps to the house); these damaged painted surfaces should be repaired or removed to reduce the potential for lead exposure. ECS also recommends that an Operations and Maintenance (O&M) Plan for LBP be developed and implemented for the facility. The purpose of the O&M Plan is to provide the occupants with specific procedures to reduce their exposure to LBP and to provide measures to maintain those materials in their current condition.

It is understood that renovations may be planned for the buildings. ECS recommends that contractors who will be removing the LBP components have, at a minimum; Environmental Protection Agency (EPA) approved training for handling lead paint. ECS also recommends that representative samples of the demolition/renovation waste stream be collected and analyzed using the EPA Toxicity Characteristic Leaching Procedure (TCLP) analysis prior to disposal of waste stream debris from the site. A TCLP test can be expected to cost $1,000. The purpose of the laboratory testing is to verify and document that the waste stream contains lead concentrations of less than five (5) parts per million (ppm). If the property will be utilized for residential purposes that may be child occupied, ECS recommends resampling prior to occupancy.

For the purposes of compliance with the OSHA Lead in Construction Standard under 29 CFR 1926.62, all painted surfaces within the building should be considered to potentially contain lead, as OSHA regulates all surfaces with detectable quantities of lead regardless of the reported amount detected as compared to the state or federal action levels.

Positive and negative results are based on HUD, EPA, and Maryland regulations. It is important to note that even if a component is negative based on HUD, EPA, and Maryland regulations, it may still contain concentrations of lead in the paint, which when disturbed, may generate lead dust greater than the Permissible Exposure Limit (PEL) or Action level (AL)) as an 8-hour Time Weighted Average (TWA) established by the OSHA "Lead Exposure in Construction Rule (29 CFR 1926.62)."

The OSHA standard gives no guidance on acceptable levels of lead in paint at which no exposure to airborne lead (above the action level) would be expected. Rather, OSHA defines airborne concentrations, and references specific types of work practices and operations from which a lead hazard may be generated (reference 29 CFR 1926.62, section d). Environmental and personnel monitoring should be conducted during any removal/demolition process (as appropriate) to verify that actual personal exposures are below the Permissible Exposure Limit (PEL). Under OSHA requirements, the contractor performing the work will be required to conduct this monitoring and follow all of the other requirements found under 29 CFR 1926.62.

Mold

The swab sample collected from the wood paneling in the basement of the house (building 1) contained high counts (greater then 1000 spores) of *diplococcium and medium counts (101-1000) of Stachybotrys (black mold) in the upstairs bedroom of the Garage (building 2)*. High counts of *Cladosporium* were detected in Tenant House (building 6). Spore trap sampling identified counts of *Aspergillum/Penicillium* in the basement of the house (building 1) higher than those identified exterior of the house. In addition, the spore trap sample collected from the Dairy Barn (building 3), contained counts of *Ascospores* higher than those identified exterior of the buildings. If these buildings are to be occupied, ECS recommends the mold impacted areas be remediated by a licensed mold remediation contractor.

Hazardous Material Removal Cost Estimate and Summary

At the request of the client, ECS is preparing this list prioritizing the removal of hazardous materials identified. It should be noted that the list is based on current risks and could change depending on future disturbance activities, proposed renovations and plans in the areas of the materials identified. The cost estimates provided herein are based solely on our experience with similar projects.

1.) Tenant House (building 6): Structural damage including ceiling and wall collapse was observed in the interior in the room west of the kitchen, measuring approximately 10'x10'. This has caused obvious moisture intrusion and mold colonization. If the building is to be utilized in the future, ECS recommends a structural assessment be performed and repairs be made. Subsequently a mold remediation of select building materials to include impacted drywall, plaster, lathe, and carpeting should be performed. The costs below are for mold remediation only. Although ACM and LBP were also identified in this structure, they do not appear to represent a risk under current conditions. If future plans include disturbance of ACM and LBP, they would need abated accordingly. As noted below, an O&M plan is recommended should they be left in place.

Mold Abatement: $15,000 (3 days at $5,000 per day. Includes contractor time, materials and consultant monitoring).

Asbestos Abatement: $5,000 (1 day at $5,000/day. Includes contractor time, materials and consultant monitoring).

Lead-Based Paint Abatement: O&M

2.) Garage (building 2): Structural damage including ceiling and wall collapse was observed in the interior of this building. This has caused obvious moisture intrusion and mold colonization.

If the building is to be utilized in the future, ECS recommends a structural assessment be performed and repairs be made. Subsequently mold remediation of select building materials to include impacted drywall, plaster, lathe, and carpeting should be performed. The costs below are for mold remediation only. Although ACM and LBP were also identified in this structure, they do not appear to represent a risk under current conditions. If future plans include disturbance of ACM and LBP, they would need abated accordingly. As noted below, an O&M plan is recommended should they be left in place.

Mold Abatement: $10,000 (2 days at $5,000 per day Includes contractor time, materials and consultant monitoring)

Asbestos Abatement: $5,000 (1 day at $5,000/day. Includes contractor time, materials and consultant monitoring).

3.) House (building 1): Moisture intrusion is apparent in the basement and mold colonization is evident along the wood paneling of the northern room, which is approximately 15' x20'. ECS recommends a mold abatement contractor remove select building materials. Subsequent to the mold abatement, outside drainage issues need to be corrected to prevent future moisture intrusion. In addition, the sub-wall should not be re-paneled or otherwise covered with material that can support mold growth.

Mold Abatement: $5,000 (1 day @ $5,000 per day. Includes contractor time, materials and consultant monitoring).

Asbestos Abatement: Friable ACM was identified, as previously noted, including remnant pipe elbow mud in the basement (40-50 EA) and furnace flue mud (2 SF) in the basement. ECS recommends proper abatement of the identified friable ACMs in accordance with state and federal regulations.

Asbestos Abatement: $10,000 (2 days at $5,000 per day).

Lead-Based Paint Abatement: O&M

4.) Buildings 3 and 4 (Dairy barns, connectors and milk-house):

Transite ceiling tiles were observed in the main dairy barn.

Asbestos Abatement: $5,000 (1 day at $5,000/day. Includes contractor time, materials and consultant monitoring).

Mold Abatement: No significant mold identified.

4.) Tenant House (building 7): Minor moisture intrusion was observed under the front office window, but no significant mold colonization was noted.

Asbestos Abatement: No ACM identified.

Lead-Based Paint Abatement: O&M

6.) Hay Barn (Building 5):

Lead-Based Paint Abatement: O&M

Mold Abatement: No significant mold identified.

Asbestos Abatement: No ACM identified.

Other Considerations:

***Asbestos and Lead O&M Plan:** If the identified ACMs and LBPs are to remain in place they should be managed under an O&M plan. The cost below is for development of the written O&M Plan.

- ACM and LBP O&M Plan (7 buildings) $2,200
- LBP and ACM Abatement Specifications (7 buildings): $3,500
- TCLP Test for waste characterization: $1,000
- Lead-dust wipes (post renovation/ pre-occupancy):
  ($15/wipe @ estimated 15 wipes per building (7 buildings): $735
  (wipe collection and reporting): $1,500

It should be noted that care should be taken to address the identified hazardous materials prior to disturbance activities including renovation and/or demolition. ECS was not provided with proposed site plans and therefore prioritized items based on the current state and condition observed at the time of the site visit. The cost estimates are based on similar projects and may vary depending on the contractor and final scope.

LIMITATIONS

The conclusions and recommendations presented within this report are based upon a reasonable level of assessment within normal bounds and standards of professional practice for a site in this particular geographic setting. ECS is not responsible or liable for the discovery and elimination of hazards that may potentially cause damage, accidents, or injuries.

The observations, conclusions, and recommendations pertaining to environmental conditions at the subject site are necessarily limited to conditions observed, and/or materials reviewed at the time this study was undertaken. No warranty, expressed or implied, is made with regard to the conclusions and recommendations presented within this report. This report is provided for the exclusive use of the City of Rockville. This report is not intended to be used or relied upon in connection with other projects or by other unidentified third parties without the written consent of ECS and the City of Rockville.

It is understood that this was a non-invasive survey and additional materials may be present concealed behind solid walls or above solid ceilings. Discovery of any concealed or inaccessible materials is out of the scope of this study and additional sampling will be required to evaluate any newly discovered asbestos.

During this study, suspect asbestos samples were submitted for analysis at an NVLAP-accredited laboratory via polarized light microscopy. LBP samples were measured using an

XRF. As with any similar survey of this nature, actual conditions exist only at the precise locations from which the samples were collected. Certain inferences are based on the results of this sampling and related testing to form a professional opinion of conditions in areas beyond those from which the samples were collected. No other warranty, expressed or implied, is made.

Our recommendations are in part based on federal and local regulations and guidelines. ECS does not assume the responsibility of the person(s) in charge of the site, or otherwise undertake responsibility for reporting to any local, state, or federal public agencies any conditions at the site that may present a potential danger to public health, safety, or the environment. Under this scope of services, ECS assumes no responsibility regarding any response actions initiated as a result of these findings. General compliance with regulations and response actions are the sole responsibility of the Client and should be conducted in accordance with local, state, and/or federal requirements.

The client agrees to notify the appropriate local, state, or federal public agencies as required by law, or otherwise to disclose, in a timely manner, information that may be necessary to prevent any danger to public health, safety, or the environment.

If we can be of further assistance, please do not hesitate to contact us at (301) 668-4303.

Respectfully,
ECS Mid-Atlantic, LLC

Erik J. Schaberl
Environmental Scientist
MD Asbestos Inspector # 127202

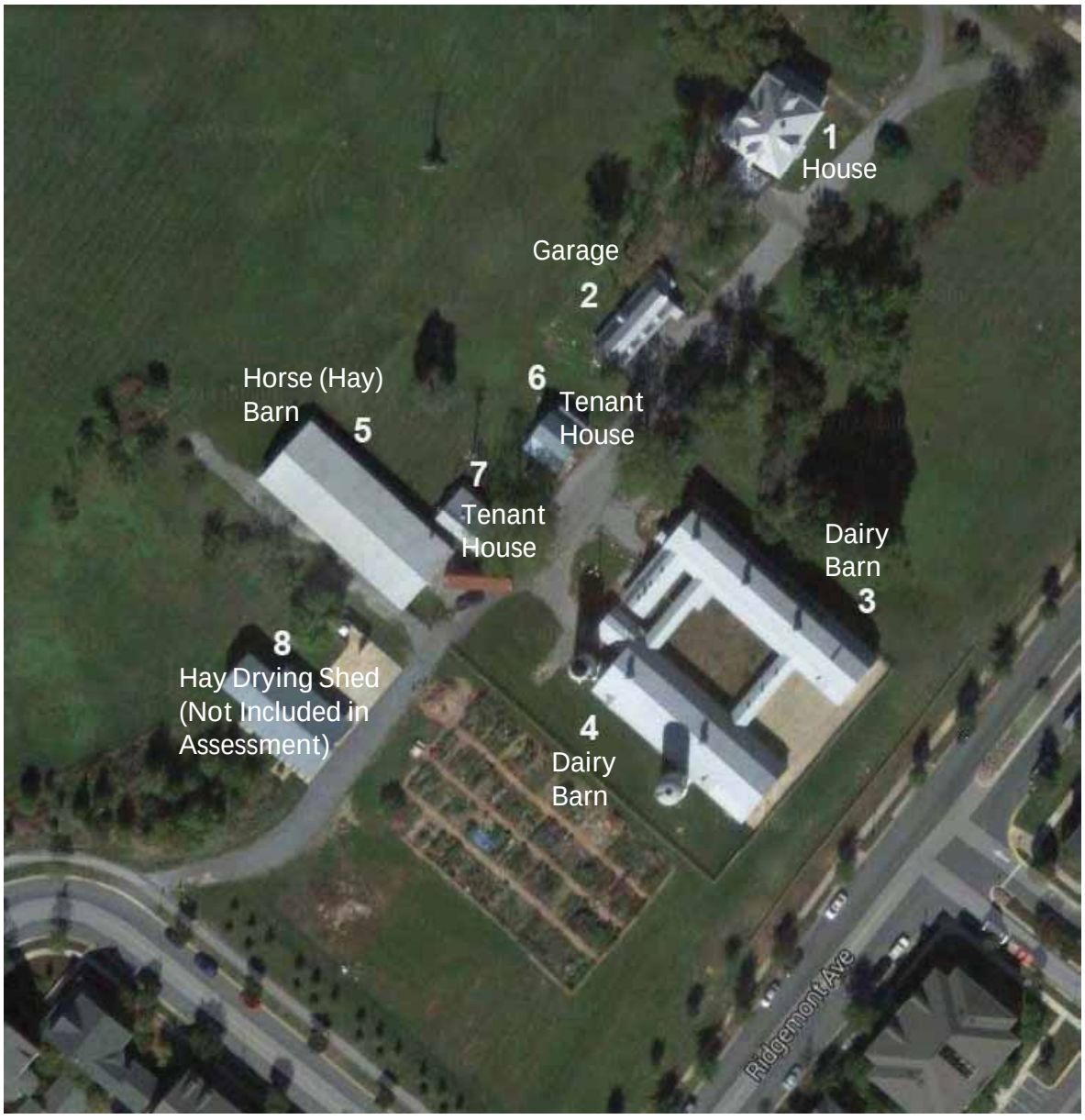
Michael K. Smith
Environmental Project Manager
MD Asbestos Inspector # 128245
MD Lead Inspector Technician # 11869

Attachments:
Building Layout Figure 1 (WGM layout)
Photolog
Laboratory Results (mold, asbestos)
XRF Sampling Data
Gale Assoc. Inc., Roofing Inspection report
Glossary of molds

King Farm – Building Number Map

6.96 Acres

Estimated total building square footage: 27,544



PHOTOGRAPHS

Photograph No. 1
Mold growth on wood paneling in the basement of the House (building 1)

Photograph No. 2
Asbestos containing material in the furnace flue of the house (1)

PHOTOGRAPHS

Photograph No. 3
Chemical containers in the garage (building 2)

Photograph No. 4
Asbestos containing floor tiles in the garage (2)

PHOTOGRAPHS

Photograph No. 5
A view within the tenant house (building 6)

Photograph No. 6
Building 6, ACM vinyl under carpet (background)

PHOTOGRAPHS

Photograph No. 7
Transite (ACM) ceiling in Dairy barns 3 and 4.

Photograph No. 8
Residiual pipe mud on elbows and joints in the basement (1)

EMSL Analytical, Inc.
10768 Baltimore Avenue, Beltsville, MD 20705
Phone/Fax: (301) 937-5700 / (301) 937-5701
http://www.EMSL.com beltsvillelab@emsl.com

EMSL Order:	191410161
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CustomerPO:	
ProjectID:	

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ECS Mid-Atlantic, LLC (MD)
5112 Pegasus Court
Suite S
Frederick, MD 21704

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Project: **13-6529 KING FARM**

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos				Asbestos	
Sample	**Description**	**Appearance**	**%**	**Fibrous**	**%**	**Non-Fibrous**	**%**	**Type**
1 *191410161-0001*	LEVELING COMPOUND HOUSEE 1 SUN RM	Gray/Tan Fibrous Heterogeneous			82%	Non-fibrous (other)	**18%**	**Chrysotile**
			This sample appears to be a Floor Tile (which contains an Asbestos layer), as opposed to a Leveler.					
1A *191410161-0002*	LEVELING COMPOUND HOUSEE 1 SUN RM						**Stop Positive (Not Analyzed)**	
1B *191410161-0003*	LEVELING COMPOUND HOUSEE 1 SUN RM						**Stop Positive (Not Analyzed)**	
2 *191410161-0004*	DRYWALL HOUSE 1 KITCHEN WALL	Brown/Tan/White Fibrous Homogeneous	15%	Cellulose	60% 25%	Gypsum Non-fibrous (other)	**None Detected**	
2A *191410161-0005*	DRYWALL HOUSE 1 KITCHEN WALL	Brown/White Fibrous Homogeneous	20% 10%	Cellulose Glass	70%	Non-fibrous (other)	**None Detected**	
2B *191410161-0006*	DRYWALL HOUSE 1 KITCHEN WALL	Brown/Gray Fibrous Homogeneous	15% 10%	Cellulose Glass	75%	Non-fibrous (other)	**None Detected**	
3 *191410161-0007*	SKIM COAT HOUSE 1 BASEMENT STAIR WALL	White Non-Fibrous Homogeneous			100%	Non-fibrous (other)	**None Detected**	

Analyst(s)

Luba Stockert (120)

Joe Centifonti, Laboratory Manager
or other approved signatory

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Phone/Fax: (301) 937-5700 / (301) 937-5701
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			Non-Asbestos				Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**		**% Non-Fibrous**		**% Type**
3A *191410161-0008*	SKIM COAT HOUSE 1 BASEMENT STAIR WALL	White Non-Fibrous Homogeneous			100%	Non-fibrous (other)	**None Detected**
3B *191410161-0009*	SKIM COAT HOUSE 1 BASEMENT STAIR WALL	White Non-Fibrous Homogeneous			100%	Non-fibrous (other)	**None Detected**
3C *191410161-0010*	SKIM COAT HOUSE 1 2ND FL BR CLOSET	White Non-Fibrous Homogeneous			100%	Non-fibrous (other)	**None Detected**
3D *191410161-0011*	SKIM COAT HOUSE 1 2ND FL BR CLOSET	White Non-Fibrous Homogeneous			100%	Non-fibrous (other)	**None Detected**
3E *191410161-0012*	SKIM COAT HOUSE 1 2ND FL BR CLOSET	White Non-Fibrous Homogeneous			100%	Non-fibrous (other)	**None Detected**
4 *191410161-0013*	H. HAIR PLASTER HOUSE 1 BSMT STAIR WALL	Gray/Tan Fibrous Homogeneous	5%	Hair	40% 55%	Quartz Non-fibrous (other)	**None Detected**
4A *191410161-0014*	H. HAIR PLASTER HOUSE 1 BSMT STAIR WALL	Gray/Tan Fibrous Homogeneous	8%	Hair	45% 47%	Quartz Non-fibrous (other)	**None Detected**
4B *191410161-0015*	H. HAIR PLASTER HOUSE 1 BSMT STAIR WALL	Gray/Tan Fibrous Homogeneous	5%	Hair	40% 55%	Quartz Non-fibrous (other)	**None Detected**

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			Non-Asbestos				Asbestos
Sample	**Description**	**Appearance**	**%**	**Fibrous**	**%**	**Non-Fibrous**	**% Type**
4C *191410161-0016*	H. HAIR PLASTER HOUSE 1 2ND FL BR. CLOSET	Gray/Tan Non-Fibrous Homogeneous	5%	Hair	45% 50%	Quartz Non-fibrous (other)	**None Detected**
4D *191410161-0017*	H. HAIR PLASTER HOUSE 1 2ND FL BR. CLOSET	Gray/Tan Fibrous Homogeneous	8%	Hair	45% 47%	Quartz Non-fibrous (other)	**None Detected**
4E *191410161-0018*	H. HAIR PLASTER HOUSE 1 2ND FL BR. CLOSET	Gray/Tan Non-Fibrous Homogeneous	6%	Hair	40% 54%	Quartz Non-fibrous (other)	**None Detected**
3F *191410161-0019*	SKIM COAT HOUSE 1 ATTIC STAIR WALL	White Fibrous Homogeneous			100%	Non-fibrous (other)	**None Detected**
4F *191410161-0020*	H. HAR PLASTER HOUSE 1 ATTIC STAIR WALL	Gray/Tan Fibrous Homogeneous	5%	Hair	25% 70%	Quartz Non-fibrous (other)	**None Detected**
5 *191410161-0021*	VINYL W/MASTIC HOUSE 1 KITCHEN FL	Tan/White Fibrous Homogeneous	45% 10%	Cellulose Glass	45%	Non-fibrous (other)	**None Detected**
5A *191410161-0022*	VINYL W/MASTIC HOUSE 1 KITCHEN FL	Tan/White Fibrous Homogeneous	40% 5%	Cellulose Glass	55%	Non-fibrous (other)	**None Detected**

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			Non-Asbestos				Asbestos	
Sample	**Description**	**Appearance**	**%**	**Fibrous**	**%**	**Non-Fibrous**	**%**	**Type**
6 *191410161-0023*	FIRE BRK. HOUSE 1 1ST FLR FIRE BRICK	Brown/Tan Non-Fibrous Homogeneous			35% 65%	Quartz Non-fibrous (other)		**None Detected**
6A *191410161-0024*	FIRE BRK. HOUSE 1 1ST FLR FIRE BRICK	Gray/White Fibrous Homogeneous			35% 65%	Quartz Non-fibrous (other)		**None Detected**
7 *191410161-0025*	REM. PIPE MUD ELBOWS HOUSE 1 BSMT	Gray/White Fibrous Homogeneous			55%	Non-fibrous (other)	**45%**	**Chrysotile**
7A *191410161-0026*	REM. PIPE MUD ELBOWS HOUSE 1 BSMT							**Stop Positive (Not Analyzed)**
7B *191410161-0026A*	REM. PIPE MUD ELBOWS HOUSE 1 BSMT							**Stop Positive (Not Analyzed)**
8 *191410161-0027*	FURNACE FLUE MUD HOUSE 1 BSMT	White Fibrous Homogeneous			60%	Non-fibrous (other)	**40%**	**Chrysotile**
8A *191410161-0028*	FURNACE FLUE MUD HOUSE 1 BSMT							**Stop Positive (Not Analyzed)**
9 *191410161-0029*	FURNACE COIL MUD HOUSE 1 BSMT	Gray Fibrous Homogeneous	20%	Wollastonite	80%	Non-fibrous (other)		**None Detected**
9A *191410161-0030*	FURNACE COIL MUD HOUSE 1 BSMT	Gray Fibrous Homogeneous	20%	Wollastonite	80%	Non-fibrous (other)		**None Detected**

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			Non-Asbestos			Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**		**% Non-Fibrous**	**% Type**
10 *191410161-0031*	SINK/TUB CAULK HOSUE 1 1ST FL BATH	White Non-Fibrous Homogeneous			3% Mica 97% Non-fibrous (other)	**None Detected**
10A *191410161-0032*	SINK/TUB CAULK HOSUE 1 1ST FL BATH	White Non-Fibrous Homogeneous			5% Mica 95% Non-fibrous (other)	**None Detected**
11 *191410161-0033*	DUCT INS. PAPER HOUSE 1 ATTIC	Brown/Silver Fibrous Homogeneous	20% Glass 25% Cellulose		55% Non-fibrous (other)	**None Detected**
11A *191410161-0034*	DUCT INS. PAPER HOUSE 1 ATTIC	Brown/Silver Fibrous Homogeneous	20% Glass 25% Cellulose		55% Non-fibrous (other)	**None Detected**
12 *191410161-0035*	CHIMNEY CEMENT ATTIC	Gray/White Non-Fibrous Homogeneous	3% Cellulose		20% Quartz 77% Non-fibrous (other)	**None Detected**
12A *191410161-0036*	CHIMNEY CEMENT ATTIC	Gray/White Non-Fibrous Homogeneous	5% Cellulose		25% Quartz 70% Non-fibrous (other)	**None Detected**
13 *191410161-0037*	CAULK HOUSE 1 SW WINDOW	Tan/White Non-Fibrous Homogeneous			100% Non-fibrous (other)	**None Detected**
13A *191410161-0038*	CAULK HOUSE 1 SW WINDOW	Tan/White Non-Fibrous Homogeneous			100% Non-fibrous (other)	**None Detected**

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			Non-Asbestos				Asbestos	
Sample	**Description**	**Appearance**	**%**	**Fibrous**	**%**	**Non-Fibrous**	**%**	**Type**
14 *191410161-0039*	GLAZING HOUSE 1 SW WINDOW	White Non-Fibrous Homogeneous			100%	Non-fibrous (other)		**None Detected**
14A *191410161-0040*	GLAZING HOUSE 1 SW WINDOW	White Non-Fibrous Homogeneous			100%	Non-fibrous (other)		**None Detected**
15 *191410161-0041*	WATERPROOFING HOUSE 1 SW EXT. WALL	Black/Green Non-Fibrous Homogeneous	2%	Cellulose	98%	Non-fibrous (other)		**None Detected**
15A *191410161-0042*	WATERPROOFING HOUSE 1 SW EXT. WALL	Black/Green Non-Fibrous Homogeneous	3%	Cellulose	97%	Non-fibrous (other)		**None Detected**
16 *191410161-0043*	FOUNDATION PAINT HOUSE 1 E EXT. WALL	Green Non-Fibrous Homogeneous			6% 94%	Quartz Non-fibrous (other)		**None Detected**
16A *191410161-0044*	FOUNDATION PAINT HOUSE 1 E EXT. WALL	Green Non-Fibrous Homogeneous			5% 95%	Quartz Non-fibrous (other)		**None Detected**
17-Floor Tile *191410161-0045*	WH/GR 9X9 TILE W/MASTIC GARAGE 2 UPSTAIR HALL	Green Non-Fibrous Homogeneous			90%	Non-fibrous (other)	**10%**	**Chrysotile**
17-Mastic *191410161-0045A*	WH/GR 9X9 TILE W/MASTIC GARAGE 2 UPSTAIR HALL	Brown/Black Non-Fibrous Homogeneous	5%	Cellulose	95%	Non-fibrous (other)	**<1%**	**Chrysotile**

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Sample	Description	Appearance	Non-Asbestos %	Fibrous	Non-Asbestos %	Non-Fibrous	Asbestos %	Type
17A-Floor Tile *191410161-0046*	WH/GR 9X9 TILE W/MASTIC GARAGE 2 UPSTAIR HALL						**Stop Positive (Not Analyzed)**	
17A-Mastic *191410161-0046A*	WH/GR 9X9 TILE W/MASTIC GARAGE 2 UPSTAIR HALL	Black Non-Fibrous Homogeneous	3%	Cellulose	97%	Non-fibrous (other)	**<1%**	**Chrysotile**
18-Floor Tile *191410161-0047*	BLK. 9X9 TILE W/MASTIC GARAGE 2 UPSTAIRS HALL	Black Non-Fibrous Homogeneous			84%	Non-fibrous (other)	**16%**	**Chrysotile**
18-Leveler *191410161-0047A*	BLK. 9X9 TILE W/MASTIC GARAGE 2 UPSTAIRS HALL	White Non-Fibrous Homogeneous	5%	Cellulose	95%	Non-fibrous (other)	**None Detected**	
18-Mastic *191410161-0047B*	BLK. 9X9 TILE W/MASTIC GARAGE 2 UPSTAIRS HALL	Black Non-Fibrous Homogeneous	8%	Cellulose	92%	Non-fibrous (other)	**None Detected**	
18A-Floor Tile *191410161-0048*	BLK. 9X9 TILE W/MASTIC GARAGE 2 UPSTAIRS HALL						**Stop Positive (Not Analyzed)**	
18A-Leveler *191410161-0048A*	BLK. 9X9 TILE W/MASTIC GARAGE 2 UPSTAIRS HALL	White Non-Fibrous Homogeneous	5%	Cellulose	95%	Non-fibrous (other)	**None Detected**	

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Project: **13-6529 KING FARM**

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos				Asbestos
Sample	**Description**	**Appearance**	**%**	**Fibrous**	**%**	**Non-Fibrous**	**% Type**
18A-Mastic *191410161-0048B*	BLK. 9X9 TILE W/MASTIC GARAGE 2 UPSTAIRS HALL	Black Non-Fibrous Homogeneous	10%	Cellulose	90%	Non-fibrous (other)	**None Detected**
19-Floor Tile *191410161-0049*	BRN.. 9X9 TILE W/MASTIC GARAGE 2 UPSTAIRS HALL	Brown/Beige Non-Fibrous Homogeneous			60% 40%	Ca Carbonate Non-fibrous (other)	**None Detected**
19-Mastic *191410161-0049A*	BRN.. 9X9 TILE W/MASTIC GARAGE 2 UPSTAIRS HALL	Brown/Black Non-Fibrous Homogeneous	3%	Cellulose	97%	Non-fibrous (other)	**None Detected**
19A-Floor Tile *191410161-0050*	BRN.. 9X9 TILE W/MASTIC GARAGE 2 UPSTAIRS HALL	Brown/Beige Non-Fibrous Homogeneous			60% 40%	Ca Carbonate Non-fibrous (other)	**None Detected**
19A-Mastic *191410161-0050A*	BRN.. 9X9 TILE W/MASTIC GARAGE 2 UPSTAIRS HALL	Brown/Black Non-Fibrous Homogeneous	3%	Cellulose	97%	Non-fibrous (other)	**None Detected**
20 *191410161-0051*	PLASTER ROUGH GARAGE 2 BR	Tan Non-Fibrous Homogeneous	2%	Cellulose	45% 53%	Quartz Non-fibrous (other)	**None Detected**
20A *191410161-0052*	PLASTER ROUGH GARAGE 2 BR	Tan Non-Fibrous Homogeneous	3%	Cellulose	40% 57%	Quartz Non-fibrous (other)	**None Detected**
20B *191410161-0053*	PLASTER ROUGH GARAGE 2 BR	Tan Non-Fibrous Homogeneous	3%	Cellulose	45% 52%	Quartz Non-fibrous (other)	**None Detected**

Analyst(s)

Luba Stockert (120)

Joe Centifonti, Laboratory Manager
or other approved signatory

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EMSL Analytical, Inc.
10768 Baltimore Avenue, Beltsville, MD 20705
Phone/Fax: (301) 937-5700 / (301) 937-5701
http://www.EMSL.com beltsvillelab@emsl.com

EMSL Order:	191410161
CustomerID:	ENGI59
CustomerPO:	
ProjectID:	

Attn: **Erik Schaberl**
ECS Mid-Atlantic, LLC (MD)
5112 Pegasus Court
Suite S
Frederick, MD 21704

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Project: **13-6529 KING FARM**

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos				Asbestos
Sample	**Description**	**Appearance**	**%**	**Fibrous**	**%**	**Non-Fibrous**	**% Type**
21 *191410161-0054*	SKIM COAT GARAGE 2 BR	White Non-Fibrous Homogeneous			10% 90%	Quartz Non-fibrous (other)	**None Detected**
21A *191410161-0054A*	SKIM COAT GARAGE 2 BR	White Non-Fibrous Homogeneous			8% 92%	Quartz Non-fibrous (other)	**None Detected**
21B *191410161-0054B*	SKIM COAT GARAGE 2 BR	White Non-Fibrous Homogeneous			15% 85%	Quartz Non-fibrous (other)	**None Detected**
22 *191410161-0055*	FELT PAPER UNDER 9X9 TILE GARAGE 2 HALL	Brown/Black Fibrous Homogeneous	75%	Cellulose	25%	Non-fibrous (other)	**None Detected**
22A *191410161-0056*	FELT PAPER UNDER 9X9 TILE GARAGE 2 HALL	Brown/Black Fibrous Homogeneous	80%	Cellulose	20%	Non-fibrous (other)	**None Detected**
23-Vinyl Sheet Flooring *191410161-0057*	VINYL FLOOR W/MASTIC GARAGE 2 BATH	Tan Non-Fibrous Homogeneous	25% 10%	Cellulose Glass	65%	Non-fibrous (other)	**None Detected**
23-Mastic *191410161-0057A*	VINYL FLOOR W/MASTIC GARAGE 2 BATH	Yellow Non-Fibrous Homogeneous	5%	Cellulose	95%	Non-fibrous (other)	**None Detected**
23A-Vinyl Sheet Flooring *191410161-0058*	VINYL FLOOR W/MASTIC GARAGE 2 BATH	Tan Fibrous Homogeneous	10% 20%	Glass Cellulose	70%	Non-fibrous (other)	**None Detected**

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			Non-Asbestos				Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**		**% Non-Fibrous**		**% Type**
23A-Mastic *191410161-0058A*	VINYL FLOOR W/MASTIC GARAGE 2 BATH	Yellow Non-Fibrous Homogeneous	5%	Cellulose	95%	Non-fibrous (other)	**None Detected**
24 *191410161-0059*	WINDOW GLAZING GARAGE 2 BR NE	White Non-Fibrous Homogeneous			3% 97%	Mica Non-fibrous (other)	**None Detected**
24A *191410161-0060*	WINDOW GLAZING GARAGE 2 BR NE	White Non-Fibrous Homogeneous			5% 95%	Mica Non-fibrous (other)	**None Detected**
25 *191410161-0061*	DRYWALL GARAGE 2 WALL	Brown/Gray Fibrous Heterogeneous	15%	Cellulose	65% 20%	Gypsum Non-fibrous (other)	**None Detected**
25A *191410161-0062*	DRYWALL GARAGE 2 WALL	Brown/Gray Fibrous Heterogeneous	15%	Cellulose	65% 20%	Gypsum Non-fibrous (other)	**None Detected**
26 *191410161-0063*	FELT PAPER GARAGE 2 SMOKE RM	Brown/Black Fibrous Homogeneous	75%	Cellulose	25%	Non-fibrous (other)	**None Detected**
26A *191410161-0064*	FELT PAPER GARAGE 2 SMOKE RM	Brown/Black Fibrous Homogeneous	80%	Cellulose	20%	Non-fibrous (other)	**None Detected**
27 *191410161-0065*	CEMENT GARAGE 2 SMOKE HOUSE EXT. WALL	Gray Non-Fibrous Homogeneous			45% 55%	Quartz Non-fibrous (other)	**None Detected**

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Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos			Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**		**% Non-Fibrous**	**% Type**
27A *191410161-0066*	CEMENT GARAGE 2 SMOKE HOUSE EXT. WALL	Gray Non-Fibrous Homogeneous			45% Quartz 55% Non-fibrous (other)	**None Detected**
28-Floor Tile *191410161-0067*	12X12 TILE T. HOUSE 6 KITCHEN FL	White Non-Fibrous Homogeneous			15% Quartz 55% Ca Carbonate 30% Non-fibrous (other)	**None Detected**
28-Mastic *191410161-0067A*	12X12 TILE T. HOUSE 6 KITCHEN FL	White Non-Fibrous Homogeneous	3%	Cellulose	97% Non-fibrous (other)	**None Detected**
28A-Floor Tile *191410161-0068*	12X12 TILE T. HOUSE 6 KITCHEN FL	White Non-Fibrous Homogeneous			15% Quartz 60% Ca Carbonate 25% Non-fibrous (other)	**None Detected**
28A-Mastic *191410161-0068A*	12X12 TILE T. HOUSE 6 KITCHEN FL	White Non-Fibrous Homogeneous	3%	Cellulose	97% Non-fibrous (other)	**None Detected**
29-Floor Tile *191410161-0069*	TILE UNDER 12X12'S T. HOUSE 6 KITCHEN FL	White Non-Fibrous Homogeneous			60% Ca Carbonate 40% Non-fibrous (other)	**None Detected**
29-Mastic *191410161-0069A*	TILE UNDER 12X12'S T. HOUSE 6 KITCHEN FL	Yellow Non-Fibrous Homogeneous	3%	Cellulose	97% Non-fibrous (other)	**None Detected**

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Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos			Asbestos	
Sample	**Description**	**Appearance**	**%**	**Fibrous**	**% Non-Fibrous**	**%**	**Type**
29A-Floor Tile *191410161-0070*	TILE UNDER 12X12'S T. HOUSE 6 KITCHEN FL	White Non-Fibrous Homogeneous			15% Quartz 55% Ca Carbonate 30% Non-fibrous (other)		**None Detected**
29A-Mastic *191410161-0070A*	TILE UNDER 12X12'S T. HOUSE 6 KITCHEN FL	Yellow Non-Fibrous Homogeneous	5%	Cellulose	95% Non-fibrous (other)		**None Detected**
30 *191410161-0071*	VINYL FLOOR UNDER CARPET T. HOUSE NW RM	Tan Fibrous Homogeneous			65% Non-fibrous (other)	**35%**	**Chrysotile**
			Composite with Mastic				
30A *191410161-0072*	VINYL FLOOR UNDER CARPET T. HOUSE NW RM						**Stop Positive (Not Analyzed)**
31 *191410161-0073*	CEILING DRYWALL T. HOUSE 6 NW RM	Brown/Gray Fibrous Homogeneous	15%	Cellulose	65% Gypsum 20% Non-fibrous (other)		**None Detected**
31A *191410161-0074*	CEILING DRYWALL T. HOUSE 6 NW RM	Brown/Gray Fibrous Homogeneous	15%	Cellulose	60% Gypsum 25% Non-fibrous (other)		**None Detected**
32 *191410161-0075*	CEILING JOINT COMPOUND T. HOUSE 6 NW RM	White Non-Fibrous Homogeneous			15% Mica 85% Non-fibrous (other)		**None Detected**

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			Non-Asbestos				Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**		**% Non-Fibrous**		**% Type**
32A *191410161-0076*	CEILING JOINT COMPOUND T. HOUSE 6 NW RM	White Non-Fibrous Homogeneous			15% 85%	Mica Non-fibrous (other)	**None Detected**
33 *191410161-0077*	SKIM COAT T HOUSE 6 NW RM WALL	White Non-Fibrous Homogeneous			100%	Non-fibrous (other)	**None Detected**
33A *191410161-0078*	SKIM COAT T HOUSE 6 NW RM WALL	White Non-Fibrous Homogeneous			100%	Non-fibrous (other)	**None Detected**
33B *191410161-0079*	SKIM COAT T HOUSE 6 NW RM WALL	White Non-Fibrous Homogeneous			100%	Non-fibrous (other)	**None Detected**
34 *191410161-0080*	PLASTER T. HOUSE 6 NW RM WALL	Tan Fibrous Homogeneous	3%	Cellulose	45% 52%	Quartz Non-fibrous (other)	**None Detected**
34A *191410161-0081*	PLASTER T. HOUSE 6 NW RM WALL	Tan Fibrous Homogeneous	5%	Cellulose	45% 50%	Quartz Non-fibrous (other)	**None Detected**
34B *191410161-0082*	PLASTER T. HOUSE 6 NW RM WALL	Tan Non-Fibrous Homogeneous	3%	Cellulose	25% 72%	Quartz Non-fibrous (other)	**None Detected**
35 *191410161-0083*	CEILING SURFACING T. HOUSE EAST RM	White Non-Fibrous Homogeneous			10% 90%	Mica Non-fibrous (other)	**None Detected**

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Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
35A *191410161-0084*	CEILING SURFACING T. HOUSE EAST RM	White Non-Fibrous Homogeneous		10% Mica 90% Non-fibrous (other)	**None Detected**
35B *191410161-0085*	CEILING SURFACING T. HOUSE EAST RM	White Non-Fibrous Homogeneous		10% Mica 90% Non-fibrous (other)	**None Detected**
36 *191410161-0086*	12X12 GRY FT T. HOUSE 7 NE RM	Green Non-Fibrous Homogeneous		60% Ca Carbonate 40% Non-fibrous (other)	**None Detected**
			No Mastic		
36A *191410161-0087*	12X12 GRY FT T. HOUSE 7 NE RM	Green Non-Fibrous Homogeneous		60% Ca Carbonate 40% Non-fibrous (other)	**None Detected**
			No Mastic		
37 *191410161-0088*	12X12 AQUA FLOOR TILE T. HOUSE 7 W RM	Blue/Green Non-Fibrous Homogeneous		60% Ca Carbonate 40% Non-fibrous (other)	**None Detected**
37A *191410161-0089*	12X12 AQUA FLOOR TILE T. HOUSE 7 W RM	Blue/Green Non-Fibrous Homogeneous		60% Ca Carbonate 40% Non-fibrous (other)	**None Detected**
38 *191410161-0090*	12X12 WHT. FLOOR TILE T. HOUSE 7 S. RM	White Non-Fibrous Homogeneous		60% Ca Carbonate 40% Non-fibrous (other)	**None Detected**
			Tile only		
38A *191410161-0091*	12X12 WHT. FLOOR TILE T. HOUSE 7 S. RM	White Non-Fibrous Homogeneous		60% Ca Carbonate 40% Non-fibrous (other)	**None Detected**
			Tile only		

Analyst(s)

Luba Stockert (120)

Joe Centifonti, Laboratory Manager
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. Beltsville, MD NVLAP Lab Code 200293-0

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Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos				Asbestos	
Sample	**Description**	**Appearance**	**%**	**Fibrous**	**%**	**Non-Fibrous**	**%**	**Type**
39 *191410161-0092*	CEILING SKIM COAT T. HOUSE 7 S. RM	White Non-Fibrous Homogeneous	2%	Cellulose	98%	Non-fibrous (other)		**None Detected**
39A *191410161-0093*	CEILING SKIM COAT T. HOUSE 7 S. RM	White Non-Fibrous Homogeneous	2%	Cellulose	98%	Non-fibrous (other)		**None Detected**
39B *191410161-0094*	CEILING SKIM COAT T. HOUSE 7 S. RM	White Non-Fibrous Homogeneous	3%	Cellulose	97%	Non-fibrous (other)		**None Detected**
40 *191410161-0095*	WINDOW GLAZING T. HOUSE 7 S	White Non-Fibrous Homogeneous			5% 95%	Mica Non-fibrous (other)		**None Detected**
40A *191410161-0096*	WINDOW GLAZING T. HOUSE 7 S	White Non-Fibrous Homogeneous			5% 95%	Mica Non-fibrous (other)		**None Detected**
41 *191410161-0097*	WINDOW CAULK T. HOUSE 7 N	White Non-Fibrous Homogeneous			100%	Non-fibrous (other)		**None Detected**
41A *191410161-0098*	WINDOW CAULK T. HOUSE 7 N	White Non-Fibrous Homogeneous			100%	Non-fibrous (other)		**None Detected**
42 *191410161-0099*	TRANSITE CEILING DAIRY BARN 3	Gray Fibrous Homogeneous			65%	Non-fibrous (other)	**35%**	**Chrysotile**
42A *191410161-0100*	TRANSITE CEILING DAIRY BARN 3							**Stop Positive (Not Analyzed)**

Analyst(s)

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Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
43-Skim Coat *191410161-0101*	PLASTER SKIM/ROUGH DAIRY BARN 3 WALLS	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	**None Detected**
43-Rough Coat *191410161-0101A*	PLASTER SKIM/ROUGH DAIRY BARN 3 WALLS	Brown/Gray Non-Fibrous Homogeneous		40% Quartz 3% Mica 57% Non-fibrous (other)	**None Detected**
43A-Skim Coat *191410161-0102*	PLASTER SKIM/ROUGH DAIRY BARN 3 WALLS	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	**None Detected**
43A-Rough Coat *191410161-0102A*	PLASTER SKIM/ROUGH DAIRY BARN 3 WALLS	Brown/Gray Non-Fibrous Homogeneous		45% Quartz 2% Mica 53% Non-fibrous (other)	**None Detected**
43B-Skim Coat *191410161-0103*	PLASTER SKIM/ROUGH DAIRY BARN 3 WALLS	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	**None Detected**
43B-Rough Coat *191410161-0103A*	PLASTER SKIM/ROUGH DAIRY BARN 3 WALLS	Brown/Gray Non-Fibrous Homogeneous		45% Quartz 3% Mica 52% Non-fibrous (other)	**None Detected**
43C *191410161-0104*	PLASTER SKIM/ROUGH DAIRY BARN 3 WALLS	Gray Non-Fibrous Homogeneous		40% Quartz 2% Mica 58% Non-fibrous (other)	**None Detected**

Rough Coat only.

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			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
43D *191410161-0105*	PLASTER SKIM/ROUGH DAIRY BARN 3 WALLS	Brown/Gray Non-Fibrous Homogeneous		45% Quartz 2% Mica 53% Non-fibrous (other)	**None Detected**
			Rough Coat only.		
44 *191410161-0106*	WINDOW GLAZING DAIRY BARN 4	Tan/White Non-Fibrous Homogeneous		5% Mica 95% Non-fibrous (other)	**None Detected**
44A *191410161-0107*	WINDOW GLAZING DAIRY BARN 4	Tan/White Non-Fibrous Homogeneous		5% Mica 95% Non-fibrous (other)	**None Detected**
45 *191410161-0108*	SILO CAULK DAIRY BARN 4	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	**None Detected**
45A *191410161-0109*	SILO CAULK DAIRY BARN 4	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	**None Detected**

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EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 / (856) 786-0262
http://www.EMSL.com / cinnmicrolab@emsl.com

Order ID:	371416326
Customer ID:	ENGI59
Customer PO:	13-6529
Project ID:	

Attn: Erik Schaberl
ECS Mid-Atlantic, LLC (MD)
5112 Pegasus Court
Suite S
Frederick, MD 21704

Proj: 13-6529 King Farm

Phone:	(301) 668-4303
Fax:	(301) 668-3519
Collected:	09/29/2014
Received:	10/07/2014
Analyzed:	10/10/2014

Test Report: Microscopic Examination of Fungal Spores, Fungal Structures, Hyphae, and Other Particulates from Swab Samples (EMSL Method: M041)

Lab Sample Number:	371416326-0001				
Client Sample ID:	M-3				
Sample Location:	T. House (#6) NW Room				
Spore Types	Category				
Agrocybe/Coprinus	-				
Alternaria	-				
Ascospores	Rare				
Aspergillus/Penicillium	Low				
Basidiospores	-				
Bipolaris++	-				
Chaetomium	*Medium*				
Cladosporium	*High*				
Curvularia	-				
Epicoccum	-				
Fusarium	-				
Ganoderma	-				
Myxomycetes++	Rare				
Paecilomyces	-				
Rust	-				
Scopulariopsis	-				
Stachybotrys	*Low*				
Torula	-				
Ulocladium	*Low*				
Unidentifiable Spores	Rare				
Zygomycetes	-				
Papulaspora	Rare				
Pithomyces	Rare				
Polyschema	Rare				
Sporidesmium	Rare				
Triadelphia	Low				
Fibrous Particulate	Rare				
Hyphal Fragment	-				
Insect Fragment	Low				
Pollen	Rare				

Category: Count/per area analyzed
Rare: 1 to 10 Low: 11 to 100 Medium: 101 to 1000 High: >1000

Bipolaris++ = Bipolaris/Dreschlera/Exserohilum Myxomycetes++ = Myxomycetes/Periconia/Smut
* = Sample contains fruiting structures and/or hyphae associated with the spores.

No discernable field blank was submitted with this group of samples.

Farbod Nekouei, M.S., Laboratory Manager
or Other Approved Signatory

Initial report from: 10/10/2014 13:29:48

For Information on the fungi listed in this report please visit the Resources section at www.emsl.com

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 / (856) 786-0262
http://www.EMSL.com / cinnmicrolab@emsl.com

Order ID: 371416073
Customer ID: ENGI59
Customer PO: 13-6529
Project ID:

Attn: Erik Schaberl
ECS Mid-Atlantic, LLC (MD)
5112 Pegasus Court
Suite S
Frederick, MD 21704

Phone: (301) 668-4303
Fax: (301) 668-3519
Collected: 09/29/2014
Received: 10/01/2014
Analyzed: 10/04/2014

Proj: 13-6529 King Farm

Test Report: Microscopic Examination of Fungal Spores, Fungal Structures, Hyphae, and Other Particulates from Swab Samples (EMSL Method: M041)

Lab Sample Number:	371416073-0001	371416073-0002	371416073-0003	371416073-0004	371416073-0005
Client Sample ID:	M-1	M-2	M-4	M-5	M-6
Sample Location:	House (#1) Basement	Garage (#2) NE Bedroom	T. House (#7) SE Room	H. Barn (#5) SE	D. Barn (#4) N
Spore Types	Category	Category	Category	Category	Category
Agrocybe/Coprinus	-	-	-	-	-
Alternaria	-	-	-	-	Rare
Ascospores	-	-	Rare	-	-
Aspergillus/Penicillium	-	-	-	-	-
Basidiospores	-	Low	-	-	Rare
Bipolaris++	-	-	-	-	-
Chaetomium	-	*Low*	-	-	Rare
Cladosporium	-	-	-	-	*Low*
Curvularia	-	-	-	-	Rare
Epicoccum	-	-	-	-	Rare
Fusarium	-	-	-	-	-
Ganoderma	-	-	-	-	-
Myxomycetes++	-	-	-	-	Rare
Paecilomyces	-	-	-	-	-
Rust	-	-	-	-	-
Scopulariopsis	-	-	-	-	-
Stachybotrys	-	*Medium*	-	-	-
Torula	-	-	-	-	-
Ulocladium	-	-	-	-	-
Unidentifiable Spores	-	-	Rare	-	-
Zygomycetes	-	-	-	-	-
Bispora	-	-	*Low*	-	-
Diplococcium	*High*	-	-	-	-
Stemonitis	-	-	*Low*	-	-
Fibrous Particulate	-	-	-	-	Rare
Hyphal Fragment	-	-	-	Rare	-
Insect Fragment	-	-	-	-	Rare
Pollen	-	-	-	-	-

Category: Count/per area analyzed
Rare: 1 to 10 Low: 11 to 100 Medium: 101 to 1000 High: >1000

Bipolaris++ = Bipolaris/Dreschlera/Exserohilum Myxomycetes++ = Myxomycetes/Periconia/Smut
* = Sample contains fruiting structures and/or hyphae associated with the spores.

Preliminary Report
Actual final results may differ.

No discernable field blank was submitted with this group of samples.

Initial report from: 10/04/2014 14:23:28

For Information on the fungi listed in this report please visit the Resources section at www.emsl.com

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
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http://www.EMSL.com / cinnmicrolab@emsl.com

Order ID:	371416073
Customer ID:	ENGI59
Customer PO:	13-6529
Project ID:	

Attn: Erik Schaberl
ECS Mid-Atlantic, LLC (MD)
5112 Pegasus Court
Suite S
Frederick, MD 21704

Proj: 13-6529 King Farm

Phone:	(301) 668-4303
Fax:	(301) 668-3519
Collected:	09/29/2014
Received:	10/01/2014
Analyzed:	10/04/2014

Test Report: Microscopic Examination of Fungal Spores, Fungal Structures, Hyphae, and Other Particulates from Swab Samples (EMSL Method: M041)

Lab Sample Number:	**371416073-0006**				
Client Sample ID:	**M-7**				
Sample Location:	**D. Barn (#3) N**				
Spore Types	Category				
Agrocybe/Coprinus	-				
Alternaria	-				
Ascospores	-				
Aspergillus/Penicillium	-				
Basidiospores	-				
Bipolaris++	-				
Chaetomium	-				
Cladosporium	-				
Curvularia	-				
Epicoccum	-				
Fusarium	-				
Ganoderma	-				
Myxomycetes++	-				
Paecilomyces	-				
Rust	-				
Scopulariopsis	-				
Stachybotrys	-				
Torula	Rare				
Ulocladium	-				
Unidentifiable Spores	-				
Zygomycetes	-				
Bispora	-				
Diplococcium	-				
Stemonitis	-				
Fibrous Particulate	-				
Hyphal Fragment	-				
Insect Fragment	-				
Pollen	-				

Category: Count/per area analyzed
Rare: 1 to 10 Low: 11 to 100 Medium: 101 to 1000 High: >1000

Bipolaris++ = Bipolaris/Dreschlera/Exserohilum Myxomycetes++ = Myxomycetes/Periconia/Smut
* = Sample contains fruiting structures and/or hyphae associated with the spores.

Preliminary Report

Actual final results may differ.

No discernable field blank was submitted with this group of samples.

Initial report from: 10/04/2014 14:23:28

For Information on the fungi listed in this report please visit the Resources section at www.emsl.com

OrderID: 371416073

Microbiology Chain of Custody

EMSL Order Number *(Lab Use Only)*: 371416073

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX:(856) 786-0262

Company: ECS Mid-Atlantic LLC	**EMSL-Bill to:** ☒ Same ☐ Different If Bill to is Different note instructions in Comments**
Street: 5117 Pegasus Ct. Suite S	*Third Party Billing requires written authorization from third party*
City: Frederick **State/Province:** MD	**Zip/Postal Code:** 21704 **Country:** USA
Report To (Name): Erik Schaberl	**Telephone #:** 3016684303
Email Address: eschaberl@ecslimited.com	**Fax #:** **Purchase Order:** 13-6529
Project Name/Number: 13-6529 King Farm	**Please Provide Results:** ☐ Fax ☒ Email ☐ Fax
U.S. State Samples Taken: MD	**Connecticut Samples:** ☐ Commercial ☐ Residential

Turnaround Time (TAT) Options* - Please Check

☐ 3 Hour | ☐ 6 Hour | ☐ 24 Hour | ☐ 48 Hour | ☒ 72 Hour | ☐ 96 Hour | ☐ 1 Week | ☐ 2 Week

**Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide. TATs are subject to methodology requirements*

Non Culturable Air Samples (Spore Traps) – Test Codes

• **M001** Air-O-Cell	• **M173** Allegro M2	• **M004** Allergenco	• **M032** Allergenco-D	• **M172** Versa Trap
• **M049** BioSIS	• **M003** Burkard	• **M043** Cyclex	• **M002** Cyclex-d	
• **M030** Micro 5	• **M174** MoldSnap	• **M176** Relle Smart	• **M130** Via-Cell	

Other Microbiology Test Codes

• **M041** Fungal Direct Examination	• **M014** Endotoxin Analysis	• **M029** *Enterococci*
• **M005** Viable Fungi ID and Count	• **M015** Heterotrophic Plate Count	• **M019** Fecal Coliform
• **M006** Viable Fungi ID and Count (Speciation)	• **M180** Real Time Q-PCR-ERMI 36	• **M133** MRSA Analysis
• **M007** Culturable Fungi	• Panel	• **M028** *Cryptococcus neoformans* Detection
• **M008** Culturable Fungi (Speciation)	• **M018** Total Coliform (Membrane Filtration)	• **M120** *Histoplasma capsulatum* Detection
• **M009** Gram Stain Culturable Bacteria	• **M020** Fecal *Streptococcus* (Membrane Filtration)	• **M033-39** Allergen Testing
• **M010** Bacterial Count and ID – 3 Most Prominent	• **M210-215** *Legionella* Detection	• **M044** Group Allergen (Cat, Dog, Cockroach, Dustmites)
• **M011** Bacterial Count and ID – 5 Most Prominent	• **M026** Recreational Water Screen	• **Other** See Analytical Price Guide
• **M013** Sewage Contamination in Buildings	• **M027** Mycotoxin Analysis	

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Preservation Method (Water):

Name of Sampler: Erik Schaberl **Signature of Sampler:** Erik Schaberl

Sample #	Sample Location	Sample Type	Test Code	Volume/Area	Date/Time Collected
Example: A1	Kitchen	Air	M001	75L	1/1/12 4:00 PM
M-1	House(#1)-Basement	Swab	M041	—	9/29/14 14:26
M-2	Garage(#2) NE Bedroom	↓	↓	↓	14:37
M-3	T. House(#6) NW Room				14:44
M-4	T. House(#7) SE Room				14:50
M-5	H. Barn(#5) SE				9/30/14 11:00
M-6	D. Barn(#4) N				9/30/14 11:10
M-7	D. Barn(#3) N	↓	↓	↓	9/30/14 11:20

Client Sample # (s): **Total # of Samples:** 7

Relinquished (Client): Erik Schaberl **Date:** 9/30/14 **Time:** 16:00

Received (Client): [illegible] **Date:** 10-1-14 **Time:** 925A

Comments:

(6) Missing -3

EMSL Analytical, Inc.
1056 Stelton Road Piscataway, NJ 08854
Phone/Fax: (732) 981-0550 / (732) 981-0551
http://www.EMSL.com / piscatawaylab@emsl.com

Order ID: 051404568
Customer ID: ENGI59
Customer PO: 13-6529
Project ID:

Attn: Erik Schaberl
ECS Mid-Atlantic, LLC (MD)
5112 Pegasus Court
Suite S
Frederick, MD 21704

Phone: (301) 668-4303
Fax: (301) 668-3519
Collected: 09/30/2014
Received: 10/01/2014
Analyzed: 10/03/2014

Proj: 13-6529 King Farm

Test Report: Allergenco-D(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number:	051404568-0001			051404568-0002			051404568-0003		
Client Sample ID:	KF-1			KF-2			KF-3		
Volume (L):	75			75			75		
Sample Location:	House (#1) Basement			Outside House (#1) SW			Garage (#2) NE Bedroom		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria	-	-	-	-	-	-	-	-	-
Ascospores	48	2100	10.2	60	2700	2.7	21	930	39.2
Aspergillus/Penicillium	300	13300	64.8	-	-	-	-	-	-
Basidiospores	87	3900	19	2180	96900	96.2	21	930	39.2
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	1	40	0.2	-	-	-	-	-	-
Cladosporium	21	930	4.5	21	930	0.9	9	400	16.9
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	4*	50*	0.2	2	90	0.1	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	3*	40*	0	-	-	-
Myxomycetes++	-	-	-	1	40	0	3	100	4.2
Pithomyces	4	200	1	-	-	-	1*	10*	0.4
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-	-	-	-
Torula	-	-	-	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-	-	-	-
Cercospora	-	-	-	-	-	-	-	-	-
Deightoniella	-	-	-	-	-	-	-	-	-
Nigrospora	1*	10*	0	-	-	-	-	-	-
Zygophiala	-	-	-	-	-	-	-	-	-
Total Fungi	**466**	**20530**	**100**	**2267**	**100700**	**100**	**55**	**2370**	**100**
Hyphal Fragment	3	100	0.5	-	-	-	-	-	-
Insect Fragment	1	40	0.2	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	3	-	-	3	-	-	3	-

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

No discernable field blank was submitted with this group of samples.

Asma Ali, M.Sc., Microbiology Manager
or Other Approved Signatory

Samples analyzed by EMSL Analytical, Inc. Piscataway, NJ

Initial report from: 10/03/2014 15:17:49

For Information on the fungi listed in this report please visit the Resources section at www.emsl.com

EMSL Analytical, Inc.
1056 Stelton Road Piscataway, NJ 08854
Phone/Fax: (732) 981-0550 / (732) 981-0551
http://www.EMSL.com / piscatawaylab@emsl.com

Order ID: 051404568
Customer ID: ENGI59
Customer PO: 13-6529
Project ID:

Attn: Erik Schaberl
ECS Mid-Atlantic, LLC (MD)
5112 Pegasus Court
Suite S
Frederick, MD 21704

Phone: (301) 668-4303
Fax: (301) 668-3519
Collected: 09/30/2014
Received: 10/01/2014
Analyzed: 10/03/2014

Proj: 13-6529 King Farm

Test Report: Allergenco-D(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number:	051404568-0004			051404568-0005			051404568-0006		
Client Sample ID:	KF-4			KF-5			KF-6		
Volume (L):	75			75			75		
Sample Location:	T. House (#6) NW Room			T. House (#7) SE Room			Horse Barm (#5) SE		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria	-	-	-	-	-	-	-	-	-
Ascospores	6	300	7.4	37	1600	55.4	11	490	21.4
Aspergillus/Penicillium	-	-	-	26	1200	41.5	7	300	13.1
Basidiospores	5	200	5	1	40	1.4	4	200	8.7
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	73	3200	79.2	-	-	-	29	1300	56.8
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	2	90	2.2	-	-	-	-	-	-
Myxomycetes++	4	200	5	1	40	1.4	-	-	-
Pithomyces	1*	10*	0.2	-	-	-	-	-	-
Rust	-	-	-	1*	10*	0.3	-	-	-
Scopulariopsis	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-	-	-	-
Torula	-	-	-	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-	-	-	-
Cercospora	1	40	1	-	-	-	-	-	-
Deightoniella	-	-	-	-	-	-	-	-	-
Nigrospora	-	-	-	-	-	-	-	-	-
Zygophiala	-	-	-	-	-	-	-	-	-
Total Fungi	**92**	**4040**	**100**	**66**	**2890**	**100**	**51**	**2290**	**100**
Hyphal Fragment	-	-	-	-	-	-	5*	70*	3.1
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	3	-	-	2	-	-	3	-

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

No discernable field blank was submitted with this group of samples.

Asma Ali, M.Sc., Microbiology Manager
or Other Approved Signatory

Samples analyzed by EMSL Analytical, Inc. Piscataway, NJ

Initial report from: 10/03/2014 15:17:49

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Fax: (301) 668-3519
Collected: 09/30/2014
Received: 10/01/2014
Analyzed: 10/03/2014

Proj: 13-6529 King Farm

Test Report: Allergenco-D(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number:	051404568-0007			051404568-0008			051404568-0009		
Client Sample ID:	KF-7			KF-8			KF-9		
Volume (L):	75			75			75		
Sample Location:	Dairy Barn (#4) N			Dairy Barn (#3) N			Outside #3 NE Silo		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria	1*	10*	0.2	-	-	-	3*	40*	0
Ascospores	58	2600	46.6	109	4840	88	66	2900	2.1
Aspergillus/Penicillium	-	-	-	-	-	-	-	-	-
Basidiospores	4	200	3.6	5	200	3.6	10	440	0.3
Bipolaris++	-	-	-	-	-	-	3*	40*	0
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	56	2500	44.8	4	200	3.6	2950	131000	97.2
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	1*	10*	0.2	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	2	90	1.6	-	-	-	-	-	-
Myxomycetes++	3	100	1.8	5	200	3.6	7	300	0.2
Pithomyces	1	40	0.7	4*	50*	0.9	5*	70*	0.1
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-	-	-	-
Torula	-	-	-	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-	-	-	-
Cercospora	-	-	-	-	-	-	-	-	-
Deightoniella	-	-	-	-	-	-	1*	10*	0
Nigrospora	-	-	-	-	-	-	1*	10*	0
Zygophiala	1	40	0.7	-	-	-	-	-	-
Total Fungi	**126**	**5580**	**100**	**128**	**5500**	**100**	**3046**	**134810**	**100**
Hyphal Fragment	-	-	-	5	200	3.6	6*	80*	0.1
Insect Fragment	3	100	1.8	-	-	-	-	-	-
Pollen	-	-	-	7	300	5.5	3*	40*	0
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	1	-	-	2	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	2	-	-	3	-	-	2	-

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

No discernable field blank was submitted with this group of samples.

Asma Ali, M.Sc., Microbiology Manager
or Other Approved Signatory

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.

Samples analyzed by EMSL Analytical, Inc. Piscataway, NJ

Initial report from: 10/03/2014 15:17:49

For Information on the fungi listed in this report please visit the Resources section at www.emsl.com

OrderID: 371416326

OrderID: 371416073

371416326

Microbiology Chain of Custody

EMSL Order Number *(Lab Use Only)*: 371416073

EMSL ANALYTICAL, INC.
LABORATORY · PRODUCTS · TRAINING

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX:(856) 786-0262

Company: ECS Mid-Atlantic LLC	**EMSL-Bill to:** ☒ Same ☐ Different If Bill to is Different note instructions in Comments** *Third Party Billing requires written authorization from third party*
Street: 5117 Peguese Ct. Suite S	
City: Frederick **State/Province:** MD	**Zip/Postal Code:** 21704 **Country:** USA
Report To (Name): Erik Schaberl	**Telephone #:** 3016684303
Email Address: eschabert@ecslimited.com	**Fax #:** **Purchase Order:** 13-6529
Project Name/Number: 13-6529 King Farm	**Please Provide Results:** ☐ Fax ☒ Email ☐ Fax
U.S. State Samples Taken: MD	**Connecticut Samples:** ☐ Commercial ☐ Residential

Turnaround Time (TAT) Options* - Please Check

☐ 3 Hour | ☐ 6 Hour | ☐ 24 Hour | ☐ 48 Hour | ☒ 72 Hour | ☐ 96 Hour | ☐ 1 Week | ☐ 2 Week

**Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide. TATs are subject to methodology requirements*

Non Culturable Air Samples (Spore Traps) – Test Codes

• **M001** Air-O-Cell • **M049** BioSIS • **M030** Micro 5	• **M173** Allegro M2 • **M003** Burkard • **M174** MoldSnap	• **M004** Allergenco • **M043** Cyclex • **M176** Relle Smart	• **M032** Allergenco-D • **M002** Cyclex-d • **M130** Via-Cell	• **M172** Versa Trap

Other Microbiology Test Codes

• **M041** Fungal Direct Examination • **M005** Viable Fungi ID and Count • **M006** Viable Fungi ID and Count (Speciation) • **M007** Culturable Fungi • **M008** Culturable Fungi (Speciation) • **M009** Gram Stain Culturable Bacteria • **M010** Bacterial Count and ID – 3 Most Prominent • **M011** Bacterial Count and ID – 5 Most Prominent • **M013** Sewage Contamination in Buildings	• **M014** Endotoxin Analysis • **M015** Heterotrophic Plate Count • **M180** Real Time Q-PCR-ERMI 36 Panel • **M018** Total Coliform (Membrane Filtration) • **M020** Fecal *Streptococcus* (Membrane Filtration) • **M210-215** *Legionella* Detection • **M026** Recreational Water Screen • **M027** Mycotoxin Analysis	• **M029** *Enterococci* • **M019** Fecal Coliform • **M133** MRSA Analysis • **M028** *Cryptococcus neoformans* Detection • **M120** *Histoplasma capsulatum* Detection • **M033-39** Allergen Testing • **M044** Group Allergen (Cat, Dog, Cockroach, Dustmites) • **Other** See Analytical Price Guide

Preservation Method (Water):

Name of Sampler: Erik Schaberl **Signature of Sampler:** Erik Schaberl

Sample #	Sample Location	Sample Type	Test Code	Volume/Area	Date/Time Collected
Example: A1	Kitchen	Air	M001	75L	1/1/12 4:00 PM
M-1	House (#1) - Basement	Swab	M041	—	9/29/14 14:26
M-2	Garage (#2) NE Bedroom	↓	↓	↓	14:37
M-3	T. House (#6) NW Room				14:44
M-4	T. House (#7) SE Room				14:50
M-5	H. Barn (#5) SE				9/30/14 11:00
M-6	D. Barn (#4) N				9/30/14 11:10
M-7	D. Barn (#3) N	↓	↓	↓	9/30/14 11:20

Client Sample # (s): **Total # of Samples:** 7

Relinquished (Client): Erik Schaberl **Date:** 9/30/14 **Time:** 16:00

Received (Client): [illegible] **Date:** 10-1-14 **Time:** 925A

Comments:

(1) DP QRM Fx 10-7-14 10:30

(6) missing -3 included 10/6/14

bf = Cal 1.00
1.02
1.03

1

XRF SURVEY LOG

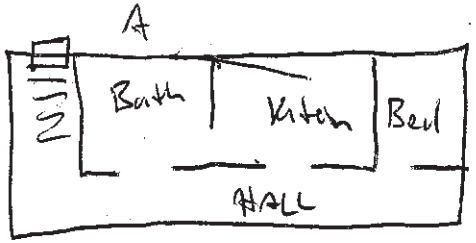
Project Number: _____

Project Location: Kings Farm

Lead Technician: MKS

Ext Rear door White 75

Component (1)	Wall	Color	Location	Substrate	Lead Content
House Ext Carport deck	—	White	House Carport Roof deck/pitch	Wood	ND ND ND
"	—	"	Beam	Wood	ND ND ND
Basemt Door	C	"	door, Casing, Frame	"	ND ND ND
Kitchen Window	C	"	Window Frame	"	197, 75, 75
Kitchen Storm door	"	"	@ Screen door, Door Jamb, main door	"	.05, 1.49, ND
Shutters	C, C, B	Green	Window Shutters Kitch, dining	"	75, 75, 75
Foundation	C, B, A	Gray	Found, Found, Brick Cushion	Concrete/Brick	75, 2.95, 7
Steps	A, A, C	Gray	Porch Steps, Porch Fl, Rear Steps	Wood	ND, .01, ND
Siding	C, D, A	White	Clapped board Siding	Wood	>5, 75, 75
Front Porch	A, A, A	"	Column, Porch Roof, Porch Railing	"	2.07, ND, ND
Bead board	A, C, D	"			.41, .1, ND
~~Rear Porch~~ Stairs	C, C, C	Gray	Stair Tread & Riser @ Rear ext	Wood	75, 75, 75 *
Window Sill	D, A, B, C	White	Kitchen, DR, LR, SIR	"	ND 1.06, 14, .04
Window trim	D, A, B	White	" " "	"	ND, 1.2, ~~ND 1.06~~, .49
Window Frm	D, A, B	"	" " "	"	ND, .04, ND
Door	B, A, C	"	Kitch, Main, Rear	"	.17, .43, .41
Wall	C, D	"	Kitch, DR, LR	Plaster	1.35, .46, .35
Cabinets	A, B, C	White	Kitchen, ~~Dining Rm~~	Wood	.18, .16, .20
Radiator	C, D, B	"	Kitchen, Dining Rm, LR	Metal	.35, .54, .50
Base Board	A, B, A		DR, LR, Foyer	Wood	.88, .56, .44
Wood Flr	—	Varnish	DR, LR, Foyer	Wood	.01, ND, 1
Mantle	D, D, D	White	LR	Wood	, ,
Ceramic tile	A, B, C	Pink	PR	~~Plaster~~	.39, .68, .43
				Ceramic	75, 75, 75



2

XRF SURVEY LOG

Project Number: _____

Project Location: Kings Farm

Lead Technician: MCS

Component	Wall	Color	Location	Substrate	Lead Content
Stair Stgr	B B B	White	Finger Post, Stringer, Rail	Wood	.01, .41, .06
Ceiling	—	White	Stairwell LR Kitch	Plaster	ND, .01, ND
Window Sill	C B D	White	Bed 5, Bed 3, Bed 1	Wood	.14, .07, .38
Window Trim	C B D	"	" "	"	.29, .46, .31
Window Frame	C B D	"	" "	"	.04, .02, .09
Door	A D B	"	" "	"	>5, .45, .26
Base Board	B B D	"	" "	"	7.7, .45, .22
Flooring	—	Clear Vinyl	Bed 5, Bed 3, Bed 1	"	ND ND ND
Radiator	C B D	White	" "	Metal	.51, .47, .29
WALL	C B D	"	" "	DW	7.7, ND, .12
Ceiling	—	"	" "	~~Door~~ Plaster	ND, ND, ND
Ceramic Tile	C B C	Green	Bed 1 West Room	Ceramic	1.55, 2.10 2.54
~~Door~~ Ceramic	A, B C	~~White~~ White	~~2nd FL, Smoke Detector~~ Bath	~~Wood~~ Ceramic	3.10 2.98 5.06
Garage door	A A A	White		Wood	>5, >5 >5
Siding	A B C	"	Ext	"	>5, >5, >5
Door Frame	A, A, D	"	Garage, 2nd FL Smoke det	"	.04, .55, .12
Door	A A D	"	2nd FL Smoke det Smoke det	"	>5, >5, >5
Door	A, C C		~~Ext~~ Ext door inside Kitch, Bed	"	>5, >5, 4.3
Stairs			Stringer Hand Rail Step	"	ND, .44 ND
"	~~A~~ A -	Brown	Tread Riser Tread	Wood	.02, .86, .01
Wall	C, A, A	~~White~~ TAN	HALL, Bath, Kitch	Plaster	.08, .12, > .12
Window Frame	C A A	TAN	" "	Wood	>5, >5, >5
Window Trim	C A A	"	" "	"	>5, >5, >5
Window Sill	C A A	"	" "	"	>5, >5, >5
Base Board	C A A	"	" "	"	>5, >5, >5 >5, 4.41 Base
Ceiling	—	"	" "	Plaster	ND, .08 .01
Radiator	B	"	Bath Kitch	Metal	.06, .12, .20

GARAGE

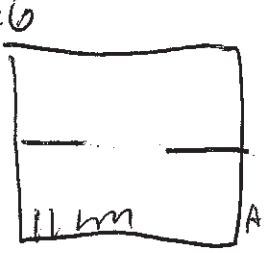
Ext

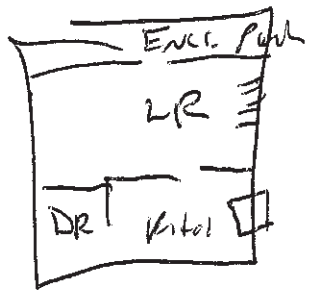
Int

#7

OVER

#6





A

3

ECS LLC MID-ATLANTIC

XRF SURVEY LOG

Project Number: _____

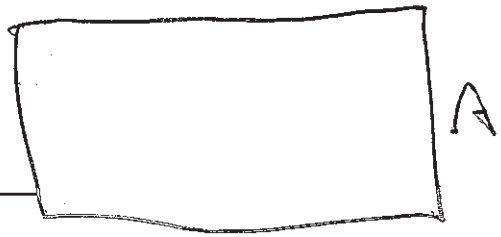
Project Location: Kings Farm

Lead Technician: Mks

Component	Wall	Color	Location	Substrate	Lead Content
Bldg 6 Tenant House					
Siding	A B C	White		Wood	1.55, .02, 2.07
Window Trim	A B C	"		"	1.31, .09, .06
Shutter	A B C	"	A Shutter Rest Just Board Comp unit	Wood	.52, .15, ND
Foundation	A	gray		Block	.07, .02, .01
Door	A D	White	D- Just Wood Comp C Just wood	Wood	.02, ND, ND
Steps	D D D	~~Red~~ gray		Concrete	.16, .15, .01
door	A D C	White	Kitch LR 2nd FL	Wood	.06, ND, .05
Window Trim	A D C	White	" "	"	1.05, 1.45, 4.40
" Sill	"	"	"	"	.98, 1.1, 1.6
" Frame	"	"	" "	"	.85, .14, .18
Wall	A D C	White		Plaster	.7, .01, .7
Ceiling	—	White		"	.7, ND, .1
Cabinets	B B D	Green/blue		Wood	.03, ND, ND
Stairs			Riser Stringer Tread Rail	wood	ND, .11, ND,
Bldg 7 Tenant House					
Ceiling Beams/deck	—	gray	Enclosed Porch	wood	>5, >5, >5
Window		White		Wood	.37, .02, .12
Window ~~Trim~~ Trim	A B C	"		"	>5, >5, >5, >5
Door	A	"	Door Door Frame Door Jm	"	>5, >5, >5
Exterior Stairs/Porch	—	Gray	Stairs / Porch / Rail	"	.02, ND, ND
Siding	A B C	White		"	>5, >5, >5
Steps	—	wht	Side door	Concrete	ND ND ND
Interior					

BARN

4



XRF SURVEY LOG

Project Number: _____

Project Location: _____

Lead Technician: _____

Component	Wall	Color	Location	Substrate	Lead Content
Walls	A B C	White	RM 1, RM 2, RM 3	Plastr	.05, .03, ND
Ceiling	—		"	Plastr	.19, ND, ND
Bas Bld	A B C		"	Wood	ND, .07, >5
Door	D A B A		" RM 2 Ext door		.04, .1, .12
Door Trim	D A B		"		.04, .03, >5
Windows	B C D		"	↓	.13, .05
Window trim	B C D	↓	"		.05, .07
Siding	A B C	White		Wood	4.5, 4.77, 4.87
Foundation	A B C	"		CMU	ND, .12, .02
Interior	A C B	"	Electrical Panel, A, C, B	Wood 1.34	1.29, 1.41, 1.49
Blocks	A A D C	White	Ext Block		ND, ND, ND
Siding	A A B C		Ext Siding		1.34, >5, 2.34
Window Frame	A A C		Ext Window Frm		.53, 1.23, .12
Sills	A B C				ND ND ND
Windows	A B C				ND ND ND
Doors	A C C				.389, >5, 1.68
Ceilings					.03, .09, .01
Walls(IR)	A B C				ND ND ND
Window Frm	A B B D				>5 >5 >5
Blocks	A D C				.16, .03 ND
Siding	A D C				.42, 1.28 >5
Window Frame	A D C	↓			ND >5 .12
Doors	A C C				ND, .52, .15

Bldg 7 int

Bldg 5 Hay Barn

Bldg 4 int

1

0

Post cal
1.03
1.01
1.05

ECS LLC MID-ATLANTIC

XRF SURVEY LOG

Project Number: _____

Project Location: King Farm

Lead Technician: MK

Component	Wall	Color	Location	Substrate	Lead Content
Wall	A B C	White		Plaster	ND ND ND
Ceiling	—	↓		Wood	.06, .12, .21
Door	A B C	↓		↓	ND > 5, 2.53
Window	B C D	↓		.04	.78, 2.86
Window Trim	B C D	↓		↓	75, 75, 75

Gale Associates, Inc. INVENTORY CONTROL NUMBER: 35

ROOF INSPECTION SUMMARY REPORT FORM

FACILITY NAME: Vacant House #1/ Garage- King Farm	GALE JN: 655263
ADDRESS: 16100 Frederick Ave. Rockville,Md.	
CLIENT: City of Rockville	INSPECTION DATE: 06/07/10

OVERALL SYSTEM RATINGS

BUILT-UP:
EPDM:
PVC / TPO:
SLATE:
METAL: 4
SHINGLE:

NOTE:
Rating system is based on a 10 point system.
1 indicates a failed roof system,
10 indicates a newly installed roof.

Roof Conditions

Roof System type:	% of total roof Area	Component Rating
Built-up		
EPDM		
PVC / TPO		
Metal	100	4
Slate		
Shingle		

Perim Conditions:	% of total roof Area	System Rating
Parapet		
Edge	100	4

Flashings:	% of total roof Area	Component Rating
Built-up		
EPDM		
PVC / TPO		
Metal	100	5

Drains:	% of total roof Area	System Rating
Interior		
Scuppers		
Gutters	100	3
other		

Rising Walls:	% of total roof Area	Component Rating
BRICK		
METAL		
WOOD	100	6

Ponding : N/A

Built-up	
EPDM	
PVC / TPO	

Leaks **None** / Every Rain / During Severe Events / Occasionally

General Condition Notes:

Roof is face fastened with minor surface rust
Dormer ridge caps open at ends
Plant growth in gutters
North dormer window trim at sash deteriorated/ missing
Extensive step cracking on chimney and displaced cap

Recommendations:

Scrape,prime and paint rusty panels
Clean gutters
Repair dormer ridge caps
Replace wood on dormer
Repoint chimney and resecure cap

Repair Costs: $4500-$5000

SUBMITTED BY: EDE

PHOTOGRAPHIC DOCUMENTATION

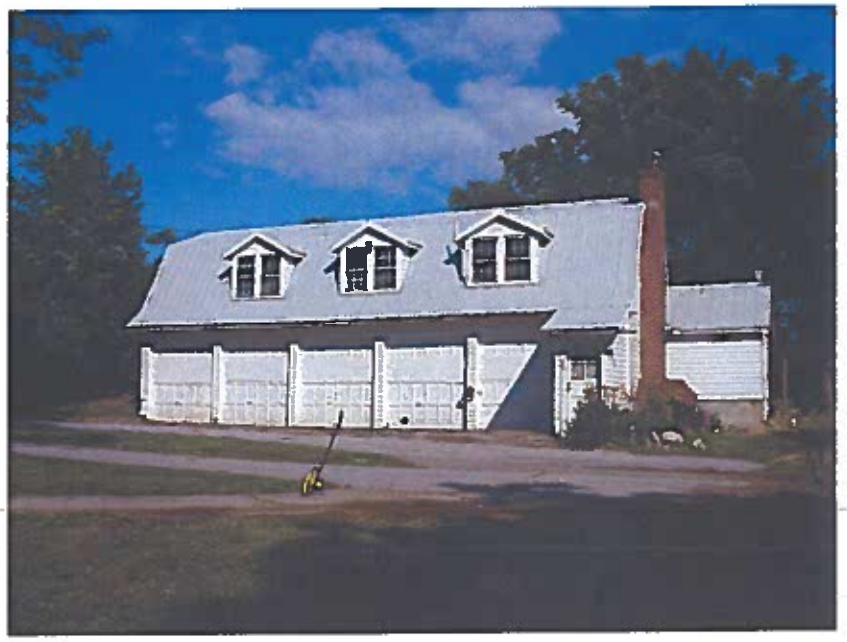


Photo 1: Overall view of building.

Photo 2: Close up view of roof. Note plant growth in gutter.

Gale Associates, Inc. INVENTORY CONTROL NUMBER: 36

ROOF INSPECTION SUMMARY REPORT FORM

FACILITY NAME: Vacant House #2- King Farm | GALE JN: 655263

ADDRESS: 16100 Frederick Ave. Rockville,Md.

CLIENT: City of Rockville | INSPECTION DATE: 06/07/10

OVERALL SYSTEM RATINGS

BUILT-UP: 1
EPDM:
PVC / TPO:
SLATE:
METAL: 3
SHINGLE:

NOTE:
Rating system is based on a 10 point system.
1 indicates a failed roof system,
10 indicates a newly installed roof.

Roof Conditions

	% of total roof Area	Component Rating
Roof System type:		
Built-up	4	1
EPDM		
PVC / TPO		
Metal	96	3
Slate		
Shingle		
Flashings: N/A		
Built-up		
EPDM		
PVC / TPO		
Metal		
Rising Walls:		
BRICK		
METAL	100	2
WOOD		

	% of total roof Area	System Rating
Perim Conditions:		
Parapet		
Edge	100	2
Drains: N/A		
Interior		
Scuppers		
Gutters		
other		
Ponding : N/A		
Built-up		
EPDM		
PVC / TPO		

Leaks None / **Every Rain** / During Severe Events / Occasionally

General Condition Notes:

Extensive Surface rust on metal roof
Isolated patches on roof are in poor condition
Isolated holes in roof
Metal counterflashing on west el. Rising wall is deteriorated
Fascia board is deteriorated/ missing
Built-up roof on NW corner is deteriorated

Recommendations:

Recommend replacement of the roof system and associated wood trim

Repair Costs: $14000-$15000

SUBMITTED BY: EDE

PHOTOGRAPHIC DOCUMENTATION

Photo 1: Overall view of building.

Photo 2: Close up view of roof. Note poor condition of BUR.

Gale Associates, Inc. INVENTORY CONTROL NUMBER: 37

ROOF INSPECTION SUMMARY REPORT FORM

FACILITY NAME: Vacant House #3- King Farm | GALE JN: 655263

ADDRESS: 16100 Frederick Ave. Rockville,Md.

CLIENT: City of Rockville | INSPECTION DATE: 06/07/10

OVERALL SYSTEM RATINGS

BUILT-UP:
EPDM:
PVC / TPO:
SLATE:
METAL: 5
SHINGLE: 5

NOTE:
Rating system is based on a 10 point system.
1 indicates a failed roof system,
10 indicates a newly installed roof.

Roof Conditions

	% of total roof Area	Component Rating
Roof System type:		
Built-up		
EPDM		
PVC / TPO		
Metal	99	5
Slate		
Shingle	1	5
Flashings:		
Built-up		
EPDM		
PVC / TPO		
Metal	100	4
Rising Walls: N/A		
BRICK		
METAL		
WOOD		

	% of total roof Area	System Rating
Perim Conditions:		
Parapet		
Edge	100	5
Drains: N/A		
Interior		
Scuppers		
Gutters		
other		
Ponding : N/A		
Built-up		
EPDM		
PVC / TPO		

Leaks None / Every Rain / During Severe Events / **Occasionally**

General Condition Notes:

Minor surface rust on metal roof
Loose metal panel west elevation
Ridge cap joint open
Metal counterflashing on west elevation rising wall is deteriorated
Chimney is in poor condition and covered with EPDM material

Recommendations:

Scrape, prime and paint roof
Resecure loose panel
Repair ridge cap
Rebuild chimney

Repair Costs: $2700-$3000

SUBMITTED BY: EDE

PHOTOGRAPHIC DOCUMENTATION

Photo 1: Overall view of building.

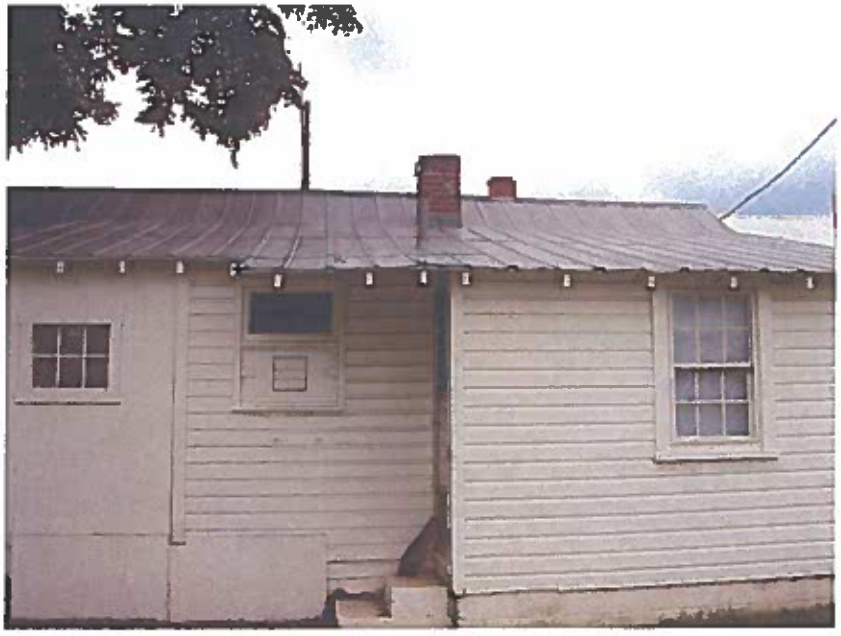


Photo 2: Close up view of roof. Note covered chimney and general condition of roof coating.

Gale Associates, Inc. **INVENTORY CONTROL NUMBER:** 38

ROOF INSPECTION SUMMARY REPORT FORM

FACILITY NAME: King Farm Barn B	GALE JN: 655263
ADDRESS: 1600 Frederick Road	
CLIENT: City of Rockville	INSPECTION DATE: 06/07/10

OVERALL SYSTEM RATINGS

BUILT-UP:
EPDM:
PVC / TPO:
SLATE:
METAL: 5
SHINGLE:

NOTE:
Rating system is based on a 10 point system.
1 indicates a failed roof system,
10 indicates a newly installed roof.

Roof Conditions

Roof System type:

	% of total roof Area	Component Rating
Built-Up:		
EPDM		
PVC / TPO		
Metal	100	5
Slate		
Shingle	100	5

Perim Conditions:

	% of total roof Area	System Rating
Parapet		
Edge	100	4

Flashings:

Built-up		
EPDM		
PVC / TPO		
Metal	100	5

Drains: N/A

Interior		
Scuppers		
Gutters		
other		

Rising Walls:

BRICK		
METAL		
WOOD SIDING (DORMER)	100	4

Ponding : N/A

Built-up	
EPDM	
PVC / TPO	

Leaks None / Every Rain / During Severe Events / Occasionally / Unknown

General Condition Notes:

Ridge cap damaged on north side
Roof is lapped and face fastened
Numerous metal roof panels loose at panel transitions and end conditions due to fastener pullout
Holes in roof on east side
Holes in roof on north west storage area
Chimney is in poor condition

Recommendations:

Repair ridge cap
Refasten loose roof panels. Consider total removal and replacement of nails with screws with EPDM washers

SUBMITTED BY: EDE

Gale Associates, Inc. INVENTORY CONTROL NUMBER: 38

ROOF INSPECTION SUMMARY REPORT FORM: CONTINUATION

FACILITY NAME: King Farm Barn B	GALE JN: 655263
ADDRESS: 1600 Frederick Road	
CLIENT: City of Rockville	INSPECTION DATE: 06/07/10

Recommendations (cont.):

Repair holes in roof

Rebuild chimney

Repair Costs: $4500-$5000

SUBMITTED BY: EDE

PHOTOGRAPHIC DOCUMENTATION

Photo 1: View of roof. Note unattached roof panels

Photo 2: View of hole in roof.

Gale Associates, Inc. **INVENTORY CONTROL NUMBER:** 39

ROOF INSPECTION SUMMARY REPORT FORM

FACILITY NAME:	King Farm Barn C	GALE JN:	655263
ADDRESS:	16100 Frederick Road		
CLIENT:	City of Rockville	INSPECTION DATE:	06/07/10

OVERALL SYSTEM RATINGS

BUILT-UP:	
EPDM:	
PVC / TPO:	
SLATE:	
METAL:	5
SHINGLE:	

NOTE:
Rating system is based on a 10 point system.
1 indicates a failed roof system,
10 indicates a newly installed roof.

Roof Conditions

	% of total roof Area	Component Rating
Roof System type:		
Built-Up:		
EPDM		
PVC / TPO		
Metal	100	5
Slate		
Shingle		

	% of total roof Area	System Rating
Perim Conditions:		
Parapet		
Edge	100	3

	% of total roof Area	Component Rating
Flashings:		
Built-up		
EPDM		
PVC / TPO		
Metal	100	5

	% of total roof Area	System Rating
Drains: N/A		
Interior		
Scuppers		
Gutters		
other		

	% of total roof Area	Component Rating
Rising Walls:		
BRICK		
METAL		
WOOD SIDING	100	3

	% of total roof Area
Ponding : N/A	
Built-up	
EPDM	
PVC / TPO	

Leaks None / **Every Rain** / During Severe Events / Occasionally / Unknown

General Condition Notes:

Roof is lapped and race fastened panel
Numerous roof panels are loose at transitions and end conditions due to fastener pullout
Panels are generally rusty at eave edge
Isolated damaged panels on silos

Recommendations:

Reattach loose roof panels. Cnsider installing new fasteners throughout
Replace missing panels on silos
Prime and paint rusty panels

Repair Costs:$4000-$4500

SUBMITTED BY: EDE

PHOTOGRAPHIC DOCUMENTATION

Photo 1: View of roof. Note bent roof panels

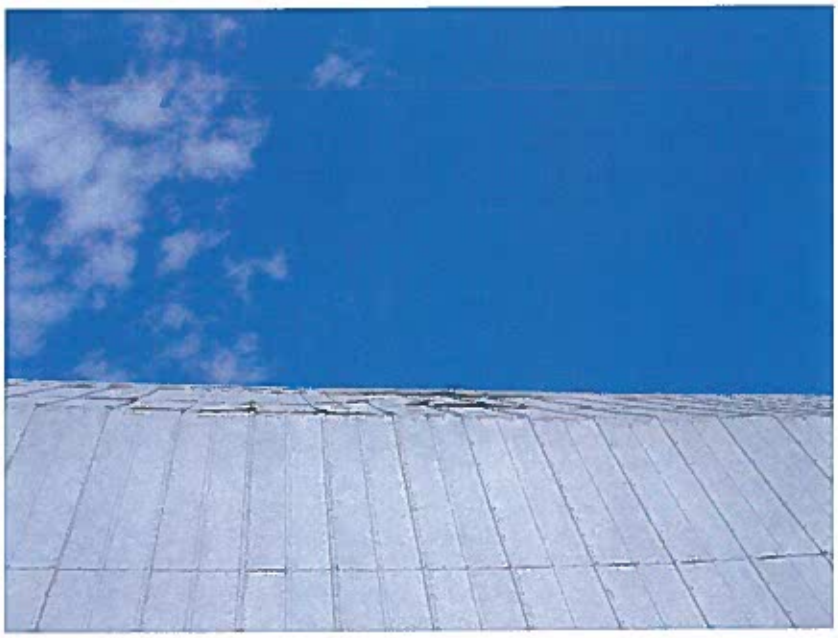


Photo 2: View of roof. Note loose roof panels.

Gale Associates, Inc. **INVENTORY CONTROL NUMBER:** 40

ROOF INSPECTION SUMMARY REPORT FORM

FACILITY NAME: Homestead Building- King Farm | GALE JN: 655263

ADDRESS: 16100 Frederick Avenue Rockville, Md.

CLIENT: City of Rockville | INSPECTION DATE: 06/07/10

OVERALL SYSTEM RATINGS

BUILT-UP:
EPDM:
PVC / TPO:
SLATE:
METAL: 7
SHINGLE:

NOTE:
Rating system is based on a 10 point system.
1 indicates a failed roof system,
10 indicates a newly installed roof.

Roof Conditions

Roof System type:	% of total roof Area	Component Rating
Built-up		
EPDM		
PVC / TPO		
Metal	100	7
Slate		
Shingle		

Perim Conditions:	% of total roof Area	System Rating
Parapet		
Edge	100	6

Flashings:	% of total roof Area	Component Rating
Built-up		
EPDM		
PVC / TPO		
Metal	100	7

Drains:	% of total roof Area	System Rating
Interior	1	6
Scuppers		
Gutters	99	6
other		

Rising Walls:	% of total roof Area	Component Rating
CMU		
METAL	100	7
EIFS		

Ponding : N/A

Built-up	
EPDM	
PVC / TPO	

Leaks None / Every Rain / During Severe Events / Occasionally

General Condition Notes:

METAL ROOF-MAIN
Loose metal shingle SE corner of main roof at hip
Debris in gutters
Gutter loose/ sagging NW corner main roof
METAL ROOF-CARPORT
Tree limbs and debris on roof
Edge metal damaged east side of roof

Recommendations:

Resecure loose shingle
Clean gutters
Resecure and/or replace damaged section of gutter on main roof
Trim tree limbs and remove debris from carport roof
Repair damaged edge metal on carport

Repair Costs: $800-$900

SUBMITTED BY: EDE

PHOTOGRAPHIC DOCUMENTATION

Photo 1: Overall view of building.

Photo 2: Close up view of roof. Note loose gutter.

Gale Associates, Inc. **INVENTORY CONTROL NUMBER: 41**

ROOF INSPECTION SUMMARY REPORT FORM

FACILITY NAME: King Farm Pole Barn	GALE JN: 655263
ADDRESS: 16100 Frederick Road	
CLIENT: City of Rockville	INSPECTION DATE: 06/07/10

OVERALL SYSTEM RATINGS

BUILT-UP:
EPDM:
PVC / TPO:
SLATE:
METAL: 9
SHINGLE:

NOTE:
Rating system is based on a 10 point system.
1 indicates a failed roof system,
10 indicates a newly installed roof.

Roof Conditions

Roof System type:

	% of total roof Area	Component Rating
Built-Up:		
EPDM		
PVC / TPO		
Face Fastened Metal Lapped:	100	9
Slate		
Shingle		

Perim Conditions:

	% of total roof Area	System Rating
Parapet		
Edge	100	9

Flashings: N/A

Built-up		
EPDM		
PVC / TPO		
Metal		

Drains: N/A

Interior		
Scuppers		
Gutters		
other		

Rising Walls: N/A

BRICK		
METAL		
WD Siding		

Ponding : N/A

Built-up	
EPDM	
PVC / TPO	

Leaks **None (open sides)** / Every Rain / During Severe Events / Occasionally / Unknown

General Condition Notes:

Roof is in good condition
Estimated age is approximately 2 years

Recommendations:

No repairs required

Repair Costs: $0

SUBMITTED BY: EDE

PHOTOGRAPHIC DOCUMENTATION

Photo 1: Overall view of building.

Photo 2: Overall view of building.

Gale Associates, Inc. **INVENTORY CONTROL NUMBER:** 42

ROOF INSPECTION SUMMARY REPORT FORM

FACILITY NAME:	King Farm Horse Barn	GALE JN:	655263
ADDRESS:	16100 Frederick Road		
CLIENT:	City of Rockville	INSPECTION DATE:	06/07/10

OVERALL SYSTEM RATINGS

BUILT-UP:
EPDM:
PVC / TPO:
SLATE:
METAL: 3 to 4
SHINGLE:

NOTE:
Rating system is based on a 10 point system.
1 indicates a failed roof system,
10 indicates a newly installed roof.

Roof Conditions

	% of total roof Area	Component Rating
Roof System type:		
Built-Up:		
EPDM		
PVC / TPO		
METAL:	100	3 to 4
Slate		
Shingle		
Flashings: N/A		
Built-up		
EPDM		
PVC / TPO		
Metal		
Rising Walls: N/A		
BRICK		
METAL		
WD Siding		

	% of total roof Area	System Rating
Perim Conditions:		
Parapet		
Edge	100	
Drains: N/A		
Interior		
Scuppers		
Gutters		
other		
Ponding : N/A		
Built-up		
EPDM		
PVC / TPO		

Leaks None / **Every Rain** / During Severe Events / Occasionally / Unknown

General Condition Notes:

Structural damage on south west side of roof -- 4 support beams damaged (broken)
Surface rust on metal roof (face fastened)
Face fasteners backed out on roof throughout
Isolated holes in roof
Chimney cap is in poor condition
Fascia board loose/missing in several locations

Recommendations:

Repair structural damage
Scrape, prime, and paint roof panels

SUBMITTED BY: EDE

Gale Associates, Inc. INVENTORY CONTROL NUMBER: 42

ROOF INSPECTION SUMMARY REPORT FORM: CONTINUATION

FACILITY NAME: King Farm Horse Barn	GALE JN: 655263
ADDRESS: 16100 Frederick Road	
CLIENT: City of Rockville	INSPECTION DATE: 06/07/10

Recommendations (cont.):

Repair holes in roof

Repair chimney cap

Replace/fasten fascia board

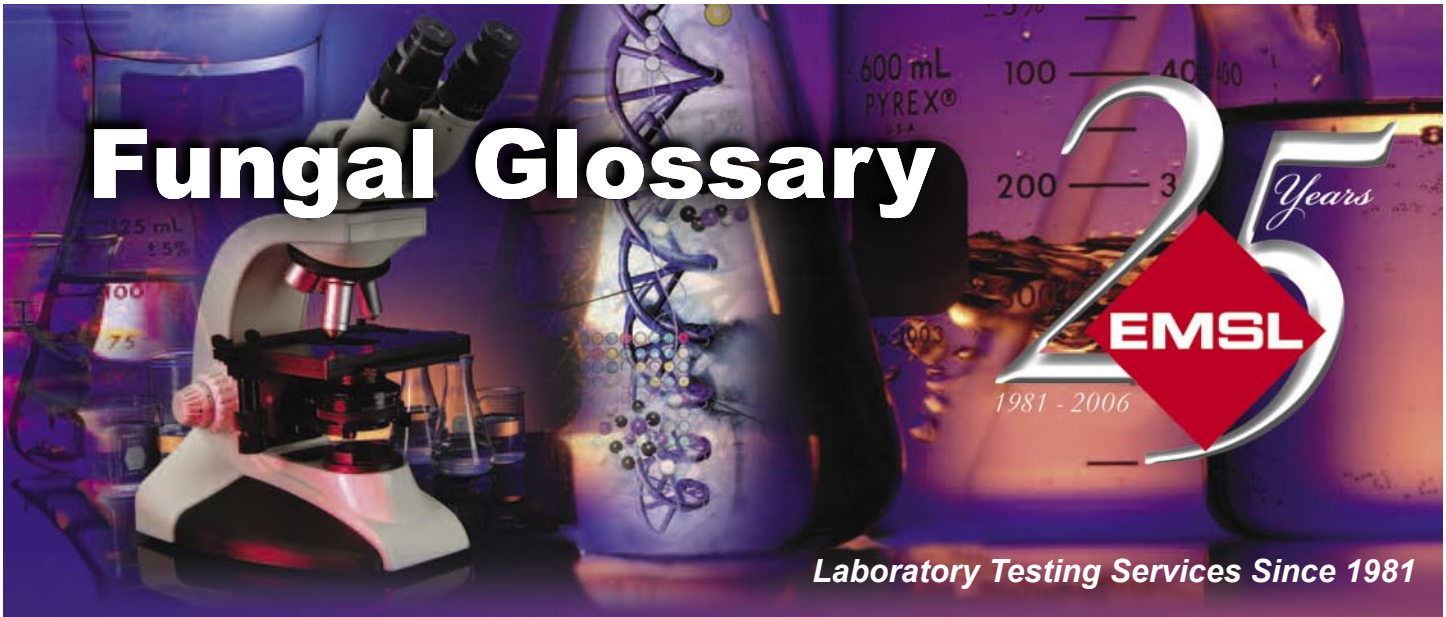
Repair Costs: $12000-$15000

SUBMITTED BY: EDE

PHOTOGRAPHIC DOCUMENTATION

Photo 1: View of roof. Note loose roof panels and belly in roof.

Photo 2: Interior of building. Note broken structural supports

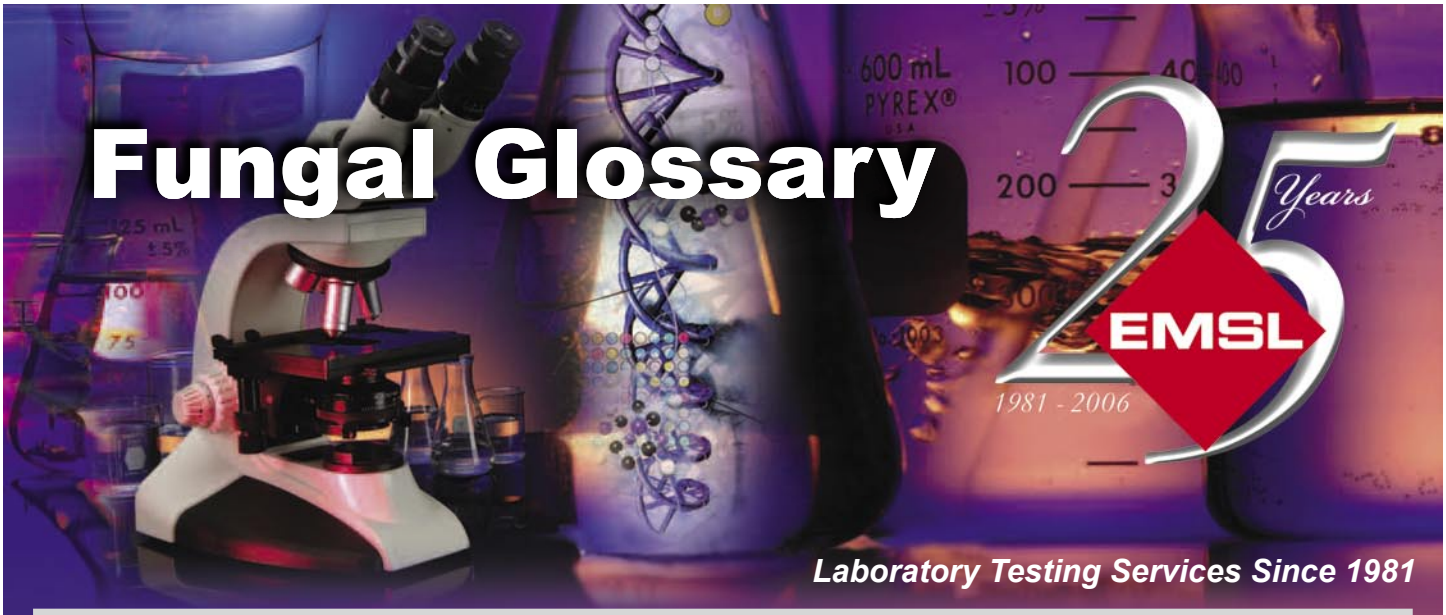


Fungal Glossary

Laboratory Testing Services Since 1981

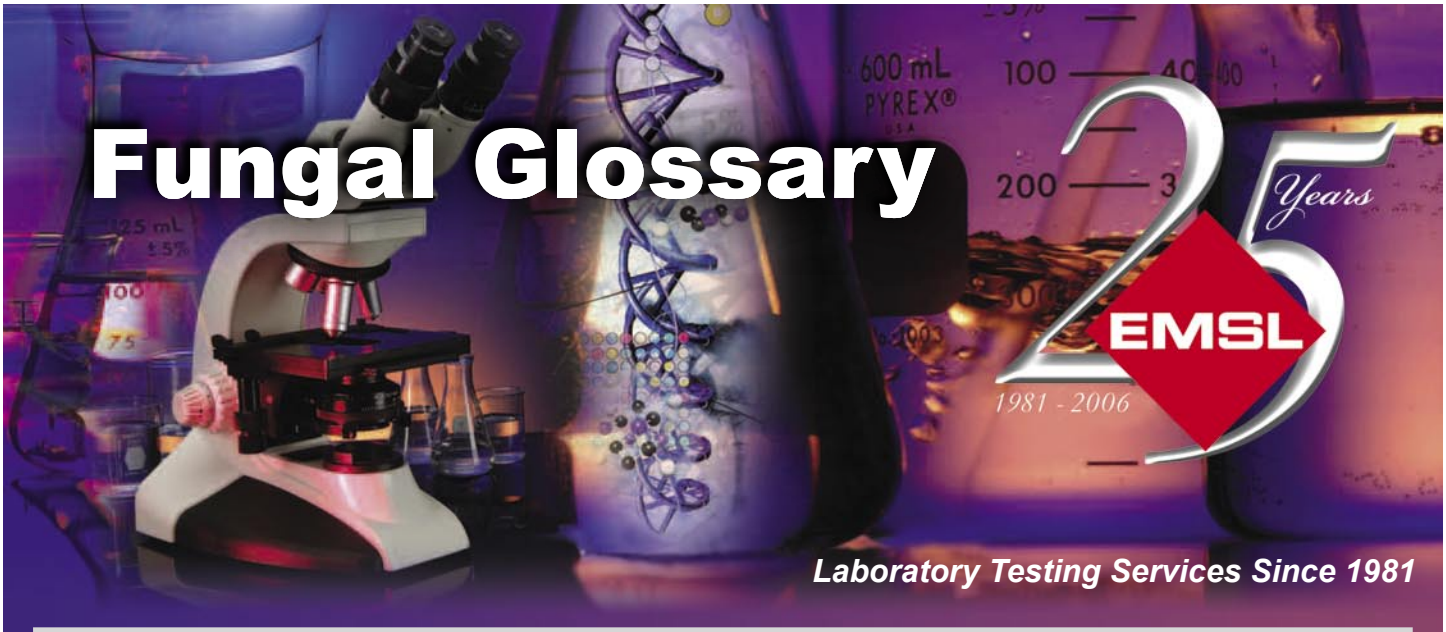
Ascospores

Natural Habitat	◆ Everywhere in nature
Suitable Substrates in the Indoor Environment	◆ Depends on genus and species
Water Activity	◆ Depends on genus and species
Mode of Dissemination	◆ Forcible ejection or passive release and dissemination by wind or insects
Allergenic Potential	◆ Depends on genus and species
Potential Opportunist or Pathogen	◆ Depends on genus and species
Industrial Uses	◆ Depends on genus and species
Potential Toxins Produced	◆ Depends on genus and species
Other Comments	◆ Ascospores are the result of sexual reproduction and produced in a saclike structure called an ascus. All ascospores belong to members of the Phylum Ascomycota, which encompasses a plethora of genera worldwide.



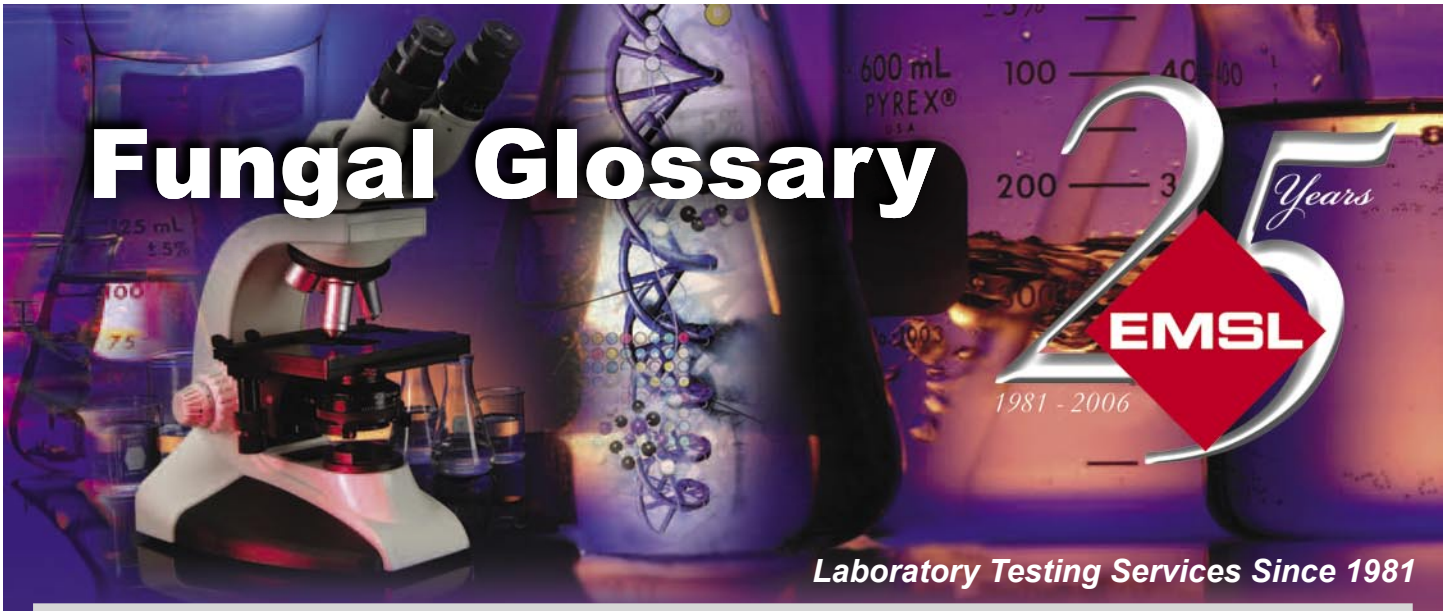
Aspergillus

Natural Habitat	◆ Soil ◆ Plant debris
Suitable Substrates in the Indoor Environment	◆ Grows on a wide range of substrates indoors ◆ Prevalent in water damaged buildings
Water Activity	◆ Aw=0.75-0.94
Mode of Dissemination	◆ Wind
Allergenic Potential	◆ Allergic bronchopulmonary aspergillosis (ABPA) which is common in asthmatic and cystic fibrosis patients ◆ Aspergillus sinusitis ◆ Invasive aspergillosis in immunocompromised patients
Potential Opportunist or Pathogen	◆ Aspergilloma and chronic pulmonary aspergillosis in people with lung disease
Industrial Uses	◆ *A. sojae* is used for fermented food and beverages in Asia ◆ *A. oryzae* is used in soy sauce production ◆ *A. terreus* produces mevinolin which is able reduce blood cholesterol ◆ *A. niger* produces enzymes used to make some breads and beers and is also used in plastic decomposition ◆ *A. niger* and *A. ochraceus* are used in cortisone production
Potential Toxins Produced	◆ 3-Nitropropionic acid, *5-metoxystermatocystin*, Aflatoxin B1, B2, Aflatoxin G1, G2, Aflatoxin M1, M2, Aflatoxin P1, Aflatoxin Q1, *Aflatoxins*, Aflatrem (alkaloid), Aflatrem (indole alkaloid), *Aflavinin*, Ascalidol, Aspergillic acid, Aspergillomarasmin, Aspertoxin, Asteltoxin, Austamid, Austdiol, Austins, Austocystins, Avenaciolide, Brevianamide A, Candidulin, Citreoviridin,, Citrinin, Clavatol, Cyclopiazonic acid, Cyclopiazonic acid, Cytochalasin E, Emodin, Fumagillin, Fumigaclavine A, Fumigatin, Fumitremorgens, Fumitremorgin A, Gliotoxin, Griseofulvin, Helvolic acid, Kojic acid, Kotanin, Malformins, Naphtopyrones, Neoaspergillic acid, Nidulin, Nidulotoxin, Nigragillin, Ochratoxin A, Ochratoxin B, Ochratoxin C, Ochratoxins ß, Ochratoxins a, *Ochratoxins (A,B,C.a, ß.)*, Orlandin, Oryzacidin, Paspaline, Patulin, Penicillic acid, Phthioic acid, Secalonic acid A, B, D and F, Sphingofungins, Spinulosin, Sterigmatocystin, Terphenyllin, Terredional, Terreic acid, Terrein, Terretonin, Terretonin, Territrem A, Tryptoquivalines, Verruculogen, Versicolorin A, Viomellein, Viriditoxin, Xanthocillin, Xanthomegnin, ß-nitropropionic acid
Other Comments	◆ It is the second most common opportunistic pathogen following *Candida*



Cladosporium

Natural Habitat	◆ Dead plant matter ◆ Straw ◆ Soil ◆ Woody Plants
Suitable Substrates in the Indoor Environment	◆ Fiberglass duct liner ◆ Paint ◆ Textiles ◆ Found in high concentration in water-damaged building materials
Water Activity	◆ Aw 0.84-0.88
Mode of Dissemination	◆ Air
Allergenic Potential	◆ Type I (asthma and hay fever)
Potential Opportunist or Pathogen	◆ Edema ◆ keratitis ◆ onychomycosis ◆ pulmonary infections ◆ sinusitis
Industrial Uses	◆ Produces 10 antigens
Potential Toxins Produced	◆ Cladosporin ◆ Emodin



Fungal Glossary

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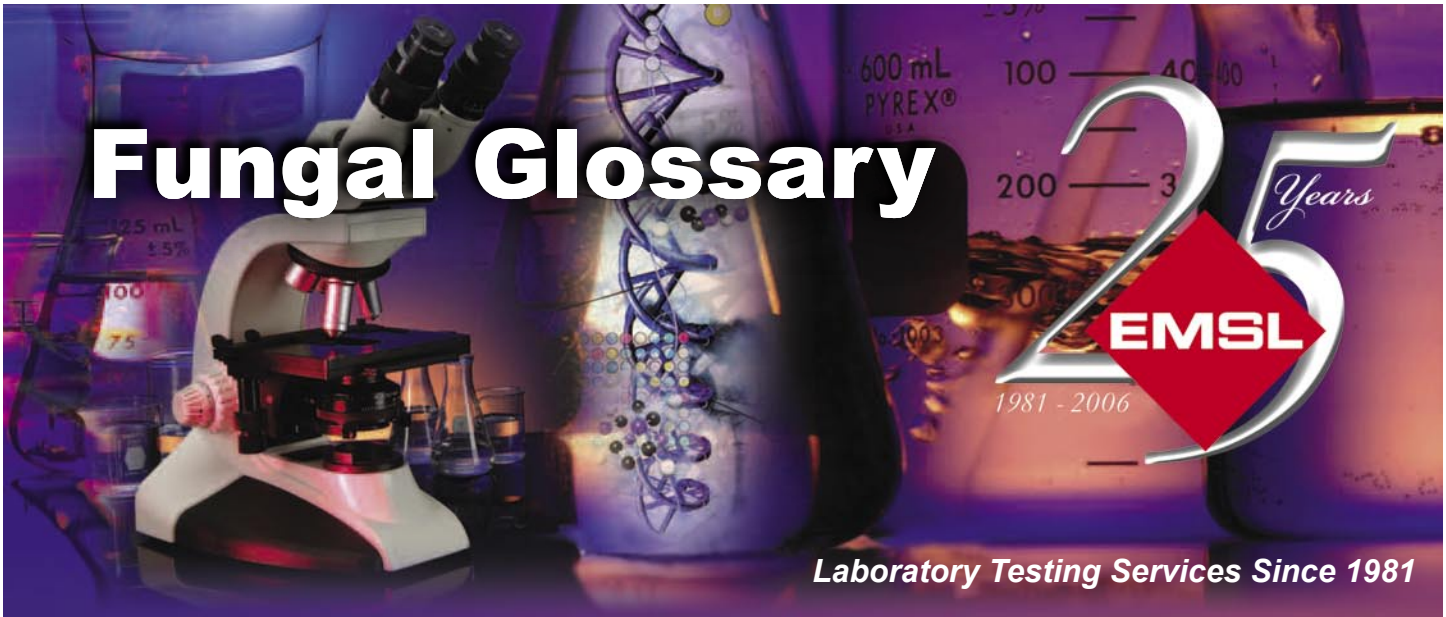
Penicillium

Natural Habitat	◆ Soil ◆ Seed ◆ Cereal crops	
Suitable Substrates in the Indoor Environment	◆ Foods (blue mold on cereals, fruits, vegetables, dried foods) ◆ House dust ◆ Fabrics	◆ Leather ◆ Wallpaper ◆ Wallpaper glue
Water Activity	◆ Aw=0.78-0.86	
Mode of Dissemination	◆ Wind ◆ Insects	
Allergenic Potential	◆ Type I (hay fever, asthma) ◆ Type III (hypersensitivity)	
Potential Opportunist or Pathogen	◆ Penicilliosis	
Industrial Uses	◆ *P. chrysogenum* for the antibiotic penicillin ◆ *P. griseofulvum* for the antibiotic griseofulvin a ◆ *P. roquefortii* for Roquefort cheese ◆ *P. camemberti* for Camembert cheese ◆ Brie, Gorgonzola, and Danish Blue cheese are also the products of *Penicillium* ◆ Used to cure ham and salami ◆ Production of organic acids such as fumaric, oxalic, gluconic, and gallic	
Potential Toxins Produced	◆ Citrinin ◆ Citreoviridin ◆ Cyclopiazonic acid ◆ Fumitremorgen B ◆ Grisiofulvin ◆ Janthitrems	◆ Mycophenolic acid ◆ Paxilline ◆ Penitrem A ◆ Penicillic acid ◆ Ochratoxins ◆ Roquefortine C	◆ Secalonic acid D ◆ Verruculogen ◆ Verrucosidin ◆ Viomellein ◆ Viridicatumtoxin ◆ Xanthomegnin
Other Comments	◆ *Penicillium* is one of the most common genera of fungi	
References	◆ Alexopoulos, C.J., Mims, C.W., Blackwell, M. 1996. John Wiley and Sons	



Fungal Glossary

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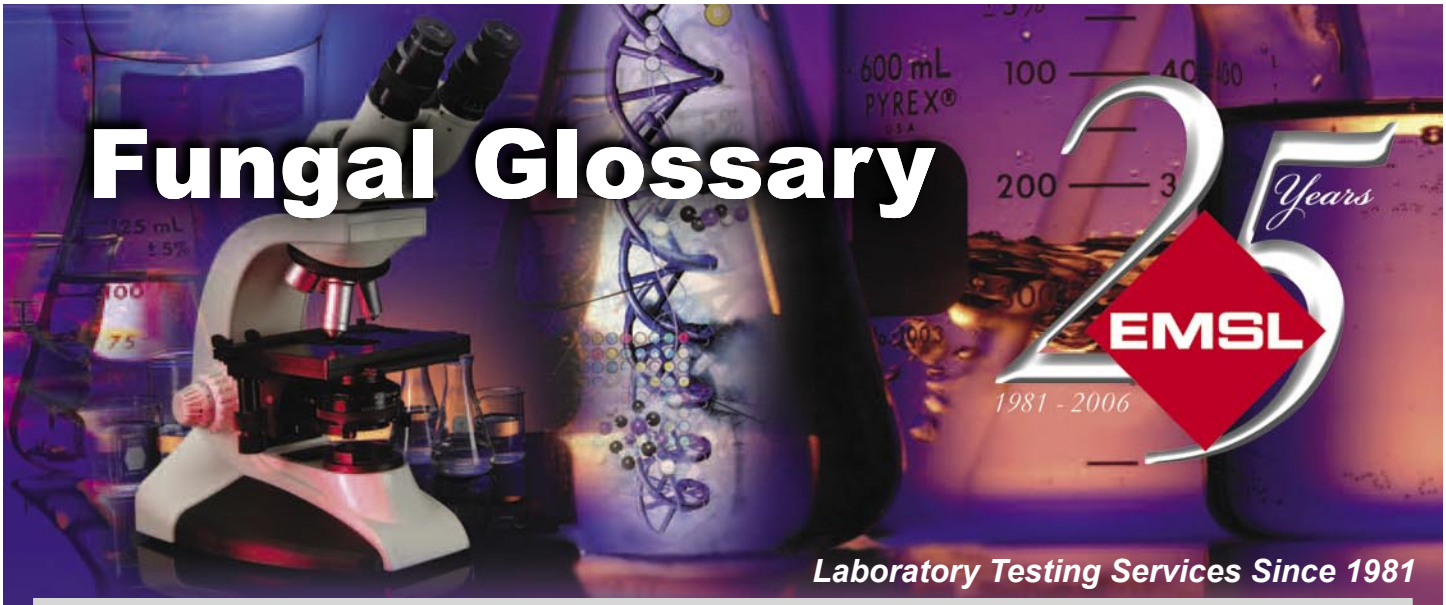
Pithomyces

Natural Habitat	◆ Leaf litter ◆ Soils ◆ Tree bark
Suitable Substrates in the Indoor Environment	◆ Paper
Water Activity	◆ Requires high moisture level for spore germination
Mode of Dissemination	◆ Wind
Allergenic Potential	◆ Unknown
Potential Opportunist or Pathogen	◆ Etiologic agent in immunocompromised patients
Industrial Uses	◆ Unknown
Potential Toxins Produced	◆ Cyclodepsipeptides ◆ Sporidesmin ◆ Sporidesmolides



Stachybotrys

Natural Habitat	◆ Decaying plant materials ◆ Soil
Suitable Substrates in the Indoor Environment	◆ Water damaged building materials such as: ceiling tiles, gypsum board, insulation backing, sheet rock, and wall paper ◆ Paper ◆ Textiles
Water Activity	◆ Aw=0.94
Mode of Dissemination	◆ Insects ◆ Water ◆ Wind
Allergenic Potential	◆ Type I (hay fever, asthma)
Potential Opportunist or Pathogen	◆ Unknown
Industrial Uses	◆ Unknown
Potential Toxins Produced	◆ Cyclosporins ◆ Macrocyclic trichothecenes: roridin E, satratoxin F, G & H, sporidesmin G, trichoverrol, verrucarin J ◆ Stachybotryolactone
Other Comments	◆ *Stachybotrys* may play a role in the development of sick building syndrome. The presence of this fungus can be significant due to its ability to produce mycotoxins. Exposure to the toxins can occur through inhalation, ingestion, or skin exposure