LIMITED INDOOR AIR ASSESSMENT REPORT

FORT MOORE
Buildings 2446, 2760, and 3585
FORT MOORE, GEORGIA 31905

AND

THE BRADLEY CENTER
2000 16th AVENUE
COLUMBUS, GEORGIA 31901

Prepared For:

VentorLux, LLC
1210 43rd Street
Phenix City, Alabama 36867

Prepared by:

ERRM, LLC
7972 Hampton Cove Drive
Ooltewah, Tennessee 37363

August 22, 2024

TABLE OF CONTENTS

SECTION 1.0 – LIMITED INDOOR AIR ASSESSMENT

1.1 INTRODUCTION

VentorLux LLC contracted ERRM, LLC to collect indoor samples to determine the efficacy of its **Soulis** air sanitizer. This device uses proprietary UV technology for whisper operation to kill bacteria, virus-causing agents, airborne pathogens, and mold. The scope of this Indoor Air Assessment (IAA) was limited to four physical locations as mutually agreed upon by VentorLux company leadership and Fort Moore, GA Garrison Command Department of Public Works as well as the Bradley Center which was agreed upon by VentorLux and Saint Francis Hospital.

The test consisted of an Anderson Impinger Microbial Air Sampler directing air flow over a petri dish (Malt Extract Agar (MEA) plate) and/or a Tryptic Soy Agar with blood (TSAB) plate), airborne fungi are then trapped on the dish to be cultured (grown under controlled laboratory conditions) at EMSL, Inc Laboratory facilities. This media allows for the isolation of viable (live) pathogenic fungi (from a wide variety) that can be later identified at the EMSL laboratory and reported to ERRM, LLC."

1.2 FIELD ACTIVITIES

Building No. 2760 – Men's Shower

Located on Fort Moore, Building No. 1711 at 911 Lenahan Street (identified by guide on as Building No. 2760 at 7511 Sightseeing Road) is a three-story cinder block housing construction (barracks) for soldiers built in the 1970's. It contains approximately 15,000 square feet of conditioned space. The building had been vacant with no human presence for several months at the time of testing. This building was suggested by the military installation's Department of Public Works facilities maintenance manager due to its history of complaints related to mold.

November 23rd, 2023, ERRM, LLC conducted the Sampling Procedure with one (1) rotary vane pump field calibrated on November 23, 2023, to 28.3 liters per minute (LPM) for MEA Agar plates. Technicians collected five (5) separate five-minute samples over a four (4) hour period in the centrally located third floor bathroom. Shower activity was simulated by turning on three (3) showers before starting the testing and then partway through the data collection at the three-hour mark in order to replicate human activity due to the extended vacancy of the facility.

1. Before evaluating the Soulis air sanitizer device technicians collected a five-minute sample using the Anderson Impinger to collect the requisite air volume to establish a baseline reading of the MEA Agar plates' airborne pathogenic fungi.
2. With the baseline sample completed, the Soulis air sanitizer was then engaged for the following four hours. Subsequently, samples were collected with the Anderson Impinger (each sample was a five-minute collection period) that occurred at the 30-, 60, 180, and 240-minute times following the Soulis startup. Just prior to the 180-minute mark

sample, three (3) showers were turned on for 5 minutes with hot water to replicate typical shower activity in the bathroom and stir up any latent mold and airborne pathogens present.

Building No. 2446 – Conference Room (N200 area)

Located on Fort Moore, Building No. 2446 at 6148 Indianhead Road is a two-story metal and cinder block hangar building construction built in the 1950's. It contains approximately 4000 square feet of conditioned space. The conference room is on the second-floor west side of the building that also contains several offices. The rooms exhibited a musty/moldy odor upon arrival. Due to the buildings age there could be sources that were not visible.

June 24, 2024, July 2, 2024, and July 23, 2024, ERRM, LLC conducted the Sampling Procedure with two (2) rotary vane pumps field calibrated on each of these sampling days just prior to sample collection to 28.3 liters per minute (LPM) for MEA and TSAB Agar plates.

1. Before evaluating the Soulis air sanitizer device technicians collected a five-minute sample using the Anderson Impinger to collect the requisite air volume to establish a baseline reading of the MEA and TSAB Agar plates' airborne pathogenic fungi and bacteria.
2. With the baseline sample completed, the Soulis air sanitizer was then engaged, and remains engaged as of this writing. Subsequently, samples were collected with the Anderson Impinger (each sample was a five-minute collection period) that occurred at the 1, 192-, and 696-hour times following the Soulis startup.

Building No. 3585 Room 244 (55 Soldier Barracks)

Located on Fort Moore, Building No. 3585 at 9877 2nd Armored Division Road is a two-story cinder block barracks building construction built in the early 2000's. It contains approximately 7200 square feet of conditioned space. The barracks room number 244 is on the secondfloor west side of the building that also contains showers that adjoin the open sleeping quarters.

July 30th, 2024, ERRM, LLC conducted the Sampling Procedure with two (2) rotary vane pumps field calibrated on July 30th, 2024, to 28.3 liters per minute (LPM) for MEA and TSAB Agar plates.

Note: The soldiers were not present during the testing timeframe. The barracks, by nature, have a strong odor due to the intense soldier workouts. This odor was eliminated within approximately 30 minutes after the Soulis unit was turned on.

1. Before evaluating the Soulis air sanitizer device technicians collected a five-minute sample using the Anderson Impinger to collect the requisite air volume to establish a baseline reading of the MEA and TSAB Agar plates' airborne pathogenic fungi and bacteria.
2. With the baseline sample completed, the Soulis air sanitizer was then engaged, and remains engaged as of this writing. Subsequently, samples were collected with the Anderson Impinger (each sample was a five-minute collection period) that occurred 1.5 hours following the Soulis startup.

Bradely Center 2000 16th Avenue Columbus, Georgia 31901

Located on the Saint Francis campus at 2000 16th Avenue. 2760 is a one-story cinder block commercial office and patient treatment center built in the 1980's. It contains approximately 2000 square feet of conditioned space. The building had been vacant following the abatement of mold damage. This building was suggested by Saint Francis due to the mold damage that was caused by a roof leak. The mold odor remained after the abatement, and the Soulis unit was placed to show its effect of cleaning a mold damaged building.

March 29th, 2023, ERRM, LLC conducted the Sampling Procedure with one (1) rotary vane pump field calibrated on March 29th, 2023, to 28.3 liters per minute (LPM) for MEA Agar plates. Technicians collected five (5) separate five-minute samples over a six (6) hour period in the remediated room.

Note: The remediation contractor exposed the space to outdoor air in some soffit areas. The maintenance department had been running an exhaust fan to try and remove the mold odor. The fan was turned off but the openings were not repaired.

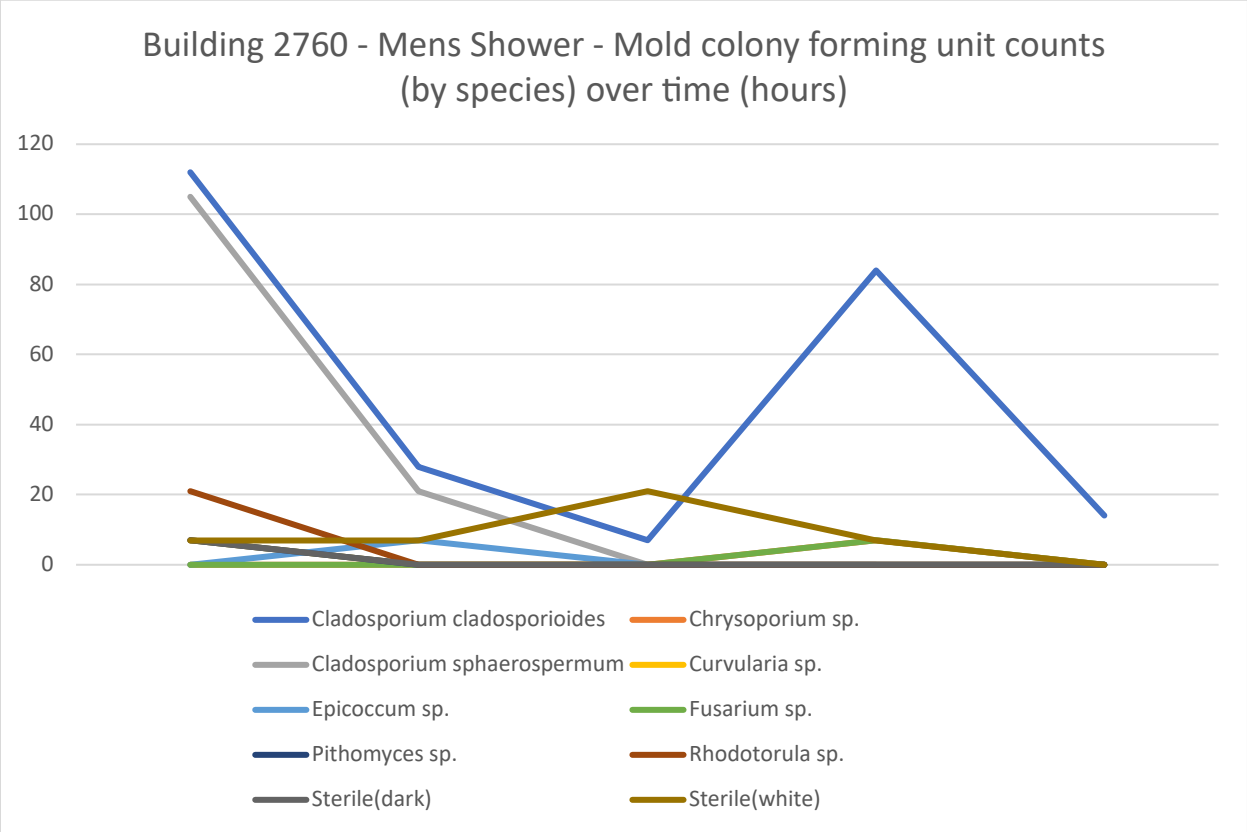
1. Before evaluating the Soulis air sanitizer device technicians collected a five-minute sample using the Anderson Impinger to collect the requisite air volume to establish a baseline reading of the MEA Agar plates' airborne pathogenic fungi.
2. With the baseline sample completed, the Soulis air sanitizer was then engaged, and remains engaged as of this writing. Subsequently, samples were collected with the Anderson Impinger (each sample was a five-minute collection period) that occurred at the 30-, 60, 180, and 240-minute times following the Soulis startup. Just prior to the 180-minute mark sample, three (3) showers were turned on for 5 minutes with hot water to replicate typical shower activity in the bathroom and stir up any latent mold and airborne pathogens present.

2.0 RESULTS

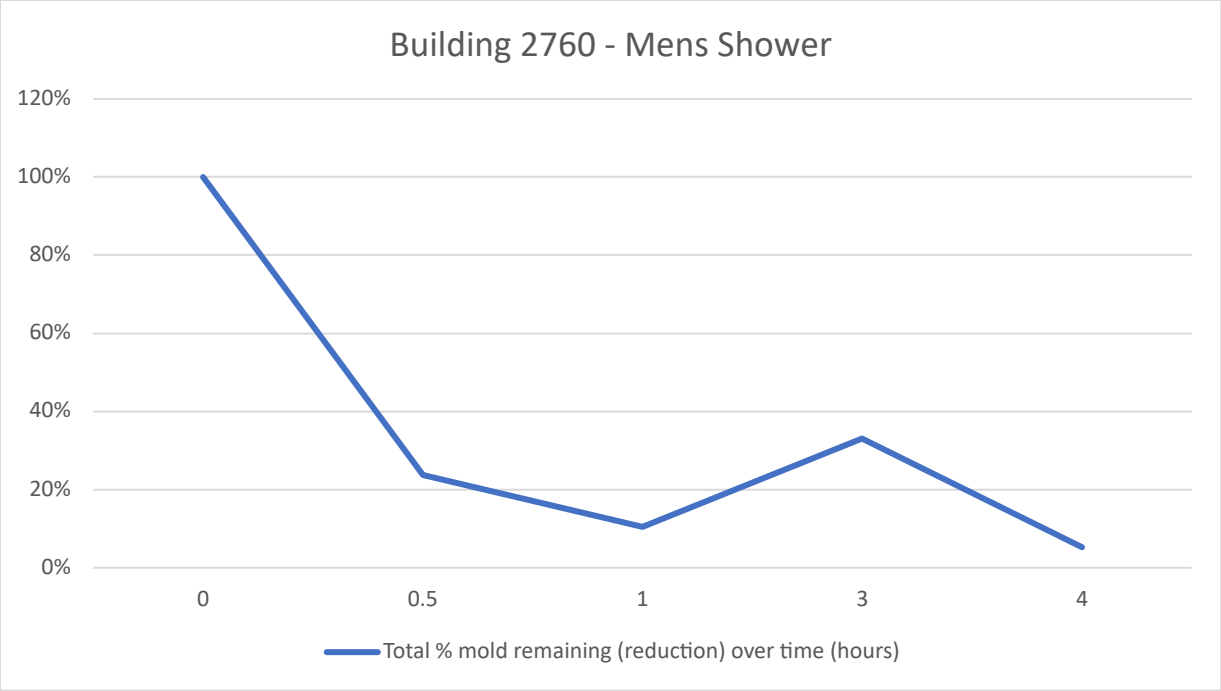
Building No. 2760 – Men's Shower

The Soulis air sanitizer proved effective at cleaning the air in and around the shower facility of the barracks; it eliminated nine of ten viable fungi as found in the Agar plate. Of note, the single fungus not removed during the assessment, *Cladosporium cladosporioides*, was reduced from 112 (unit of measure) to 7 (unit of measure) in 60 minutes – 93.75 efficacy; after the showers were turned on at the 180-minute mark *C. cladosporioides* was reduced from 84 (unit of measure) to 14 (unit of measure) – 83.3 efficacy in 60 minutes. Neither shower activity nor personnel movement (2-6 staff present at any given time) negatively impacted the device's effectiveness during the four-hour assessment period. These results reveal that the Soulis creates and maintains a safe environment well below regulatory recommendations for a safe living environment. Note: sterile white fungi are fungi that do not produce spores. Their presence is noted but their specie cannot be identified since they cannot be cultivated or grown.

FIGURE. Soulis Performance Charts Against Various Culturable Air Fungi, November 23rd, 2023, Fort Moore, GA follows:



***Blue line spikes represent several showers being turned on at once during the onset of sampling (time 0) and again between sampling 60 and 180.**



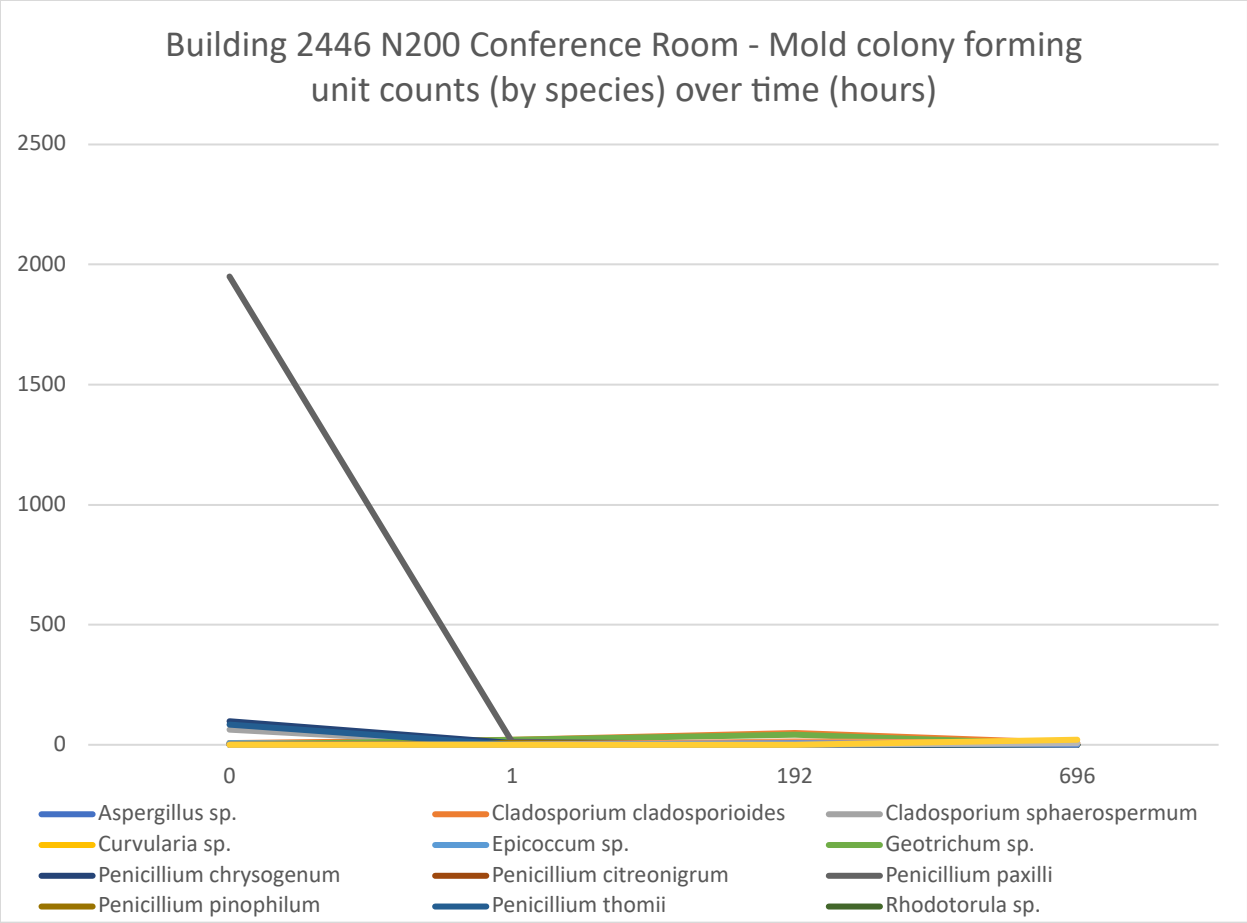
Building No. 2446 – Conference Room (N200 area)

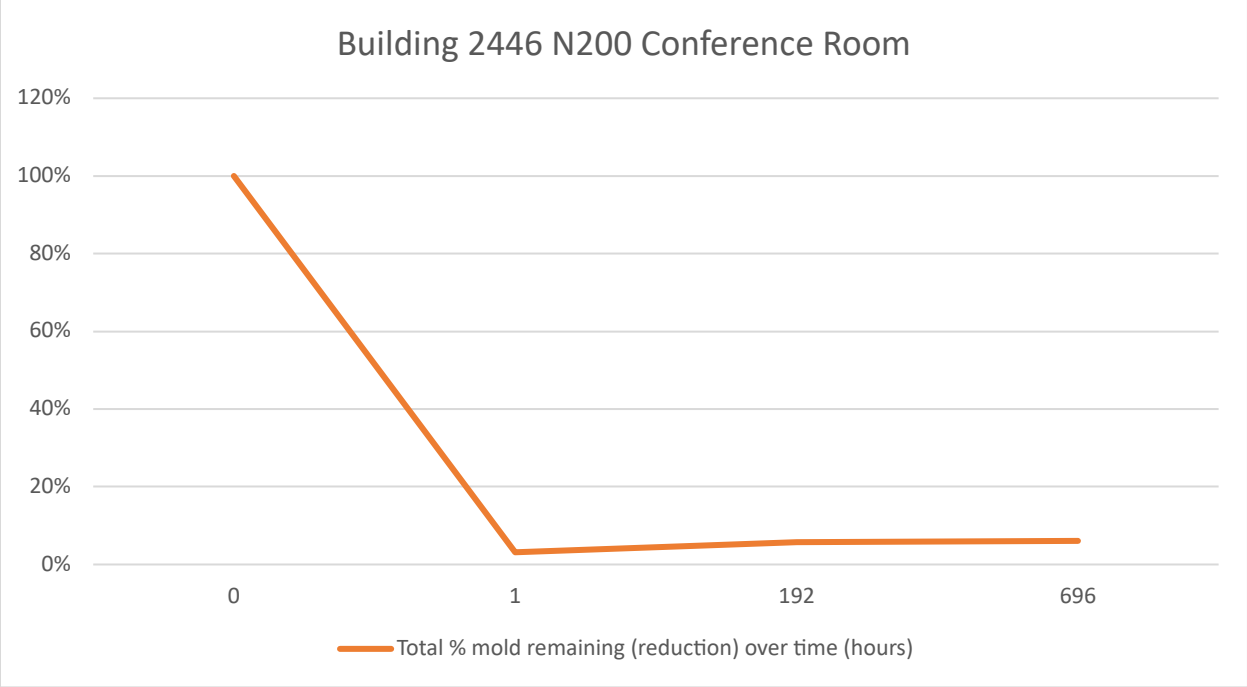
As mentioned previously, this area exhibited a musty/moldy odor upon arrival. Due to the buildings age there could be sources that were not visible. The Soulis air sanitizer proved effective at cleaning the air in and around the conference room; it eliminated five of fourteen viable fungi as found in the Agar plate within 1 hour with a 97% reduction. Of note, two fungi not removed during the assessment, *Cladosporium cladosporioides and* Geotrichum sp., that were reduced and/or eliminated initially may be related to water intrusion as a rainstorm occurred on the first day of sampling and may have introduced large counts of these two species since the sample at hour 192 has larger sterile counts that could be associated with the Soulis units effect on the spores. It is interesting to find Penicillium citreonigrum as this species has been historically found on rice grains in Thailand and would easily have been killed by the Soulis unit, but source prior to sampling was not known of to allow time for further testing.

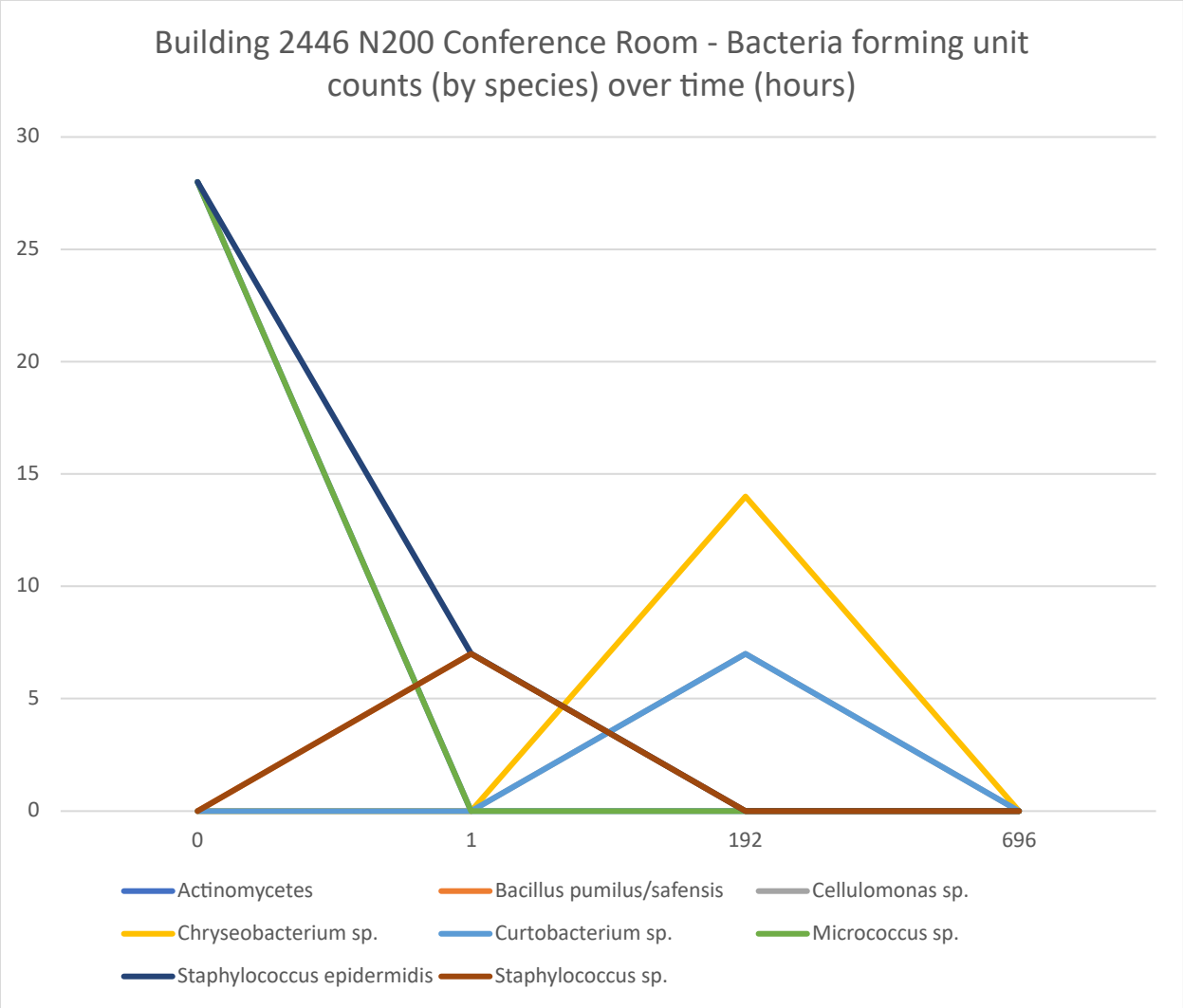
Bacteria results were identified and reduced by 75% within the first three hours and then jumped up at the hour 192 sample and the species found in the first sampling were 92% irradicated and not present at all in the hour 192 sampling. This could indicate that personnel were present having a meeting and food (due to fungal finds discussed above) may have been present. Additionally, the three species were new and not present in previous samplings. The final sampling at hour 696 did not identify any bacteria.

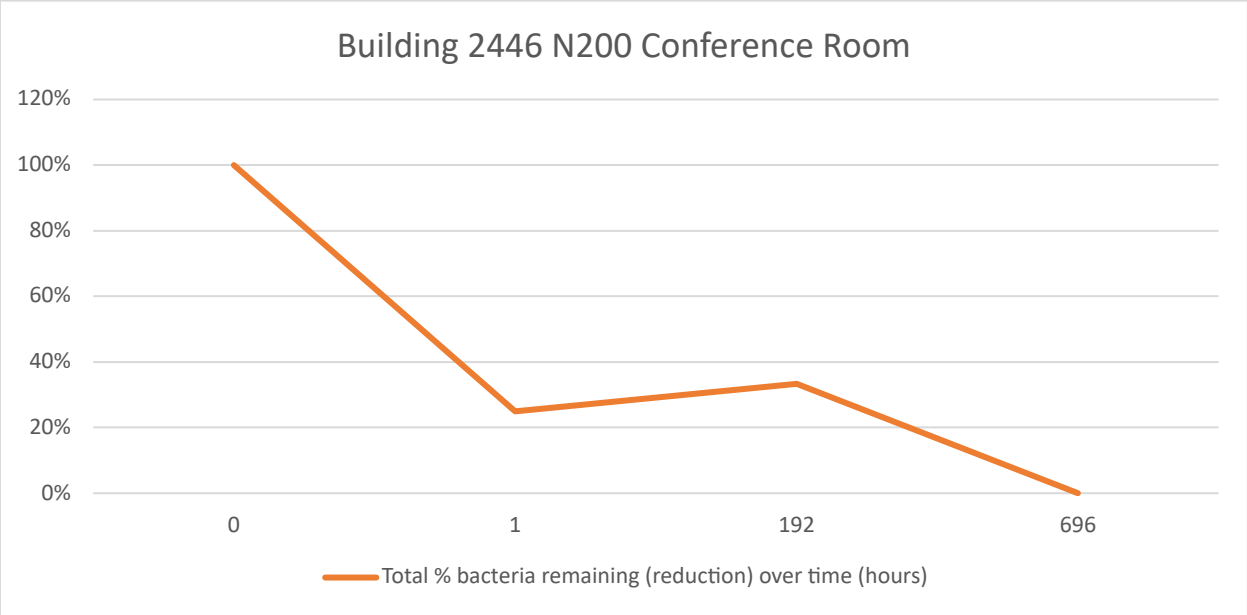
Note: The sterile fungi are fungi that do not produce spores. Their presence is noted but their species cannot be identified since they cannot be cultivated or grown.

FIGURE. Soulis Performance Chart Against Various Culturable Air Fungi and Bacteria, June through July 2024, Fort Moore, GA. Follows on the next page:


Building 2446 N200 Conference Room - Mold colony forming unit counts (by species) over time (hours)
2500
2000
1500
1000
500
0
0
1
192
696
Aspergillus sp.
Cladosporium cladosporioides
Cladosporium sphaerospermum
Curvularia sp.
Epicoccum sp.
Geotrichum sp.
Penicillium chrysogenum
Penicillium citreonigrum
Penicillium paxilli
Penicillium pinophilum
Penicillium thomii
Rhodotorula sp.


Building 2446 N200 Conference Room
120%
100%
80%
60%
40%
20%
0%
0
1
192
696
Total % mold remaining (reduction) over time (hours)


Building 2446 N200 Conference Room - Bacteria forming unit counts (by species) over time (hours)
30
25
20
15
10
5
0
0
1
192
696
Actinomycetes
Bacillus pumilus/safensis
Cellulomonas sp.
Chryseobacterium sp.
Curtobacterium sp.
Micrococcus sp.
Staphylococcus epidermidis
Staphylococcus sp.

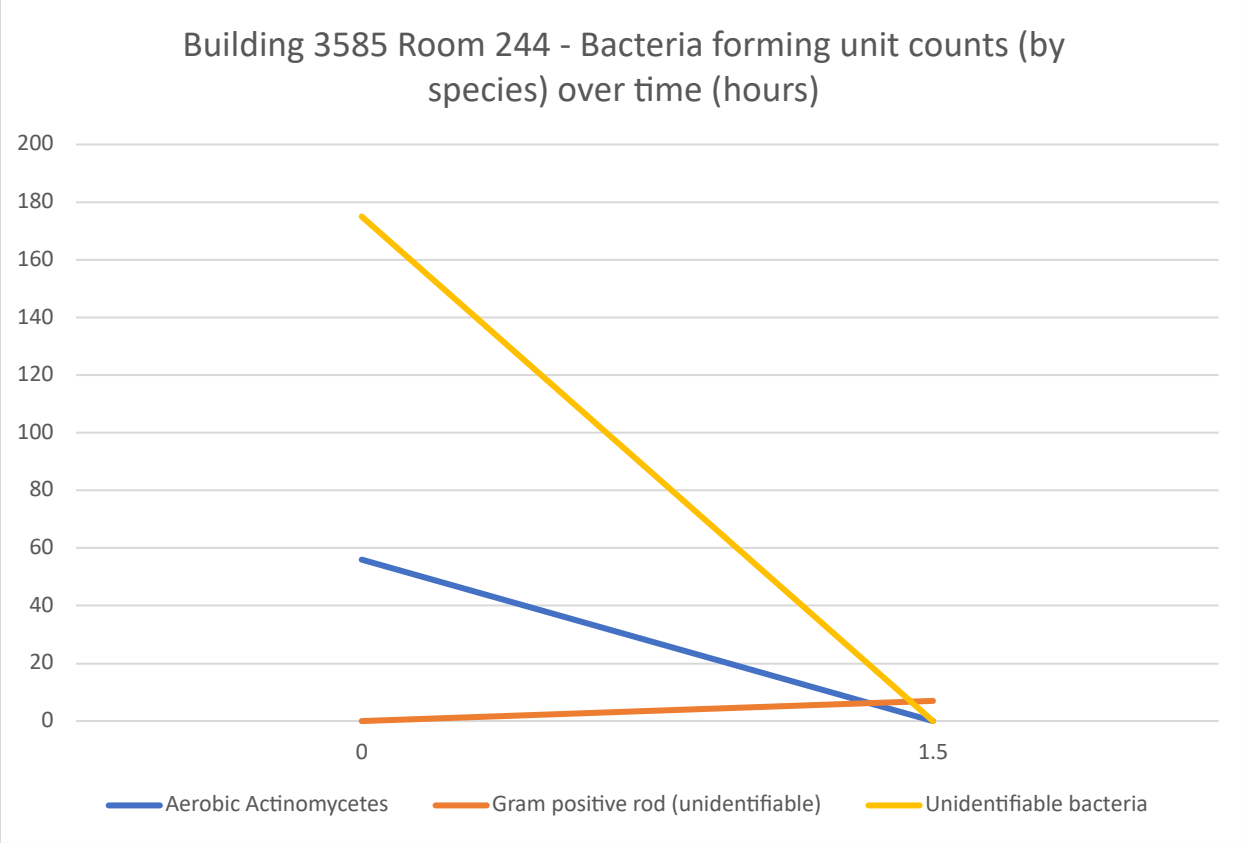

Building 2446 N200 Conference Room
120%
100%
80%
60%
40%
20%
0%
0
1
192
696
Total % bacteria remaining (reduction) over time (hours)

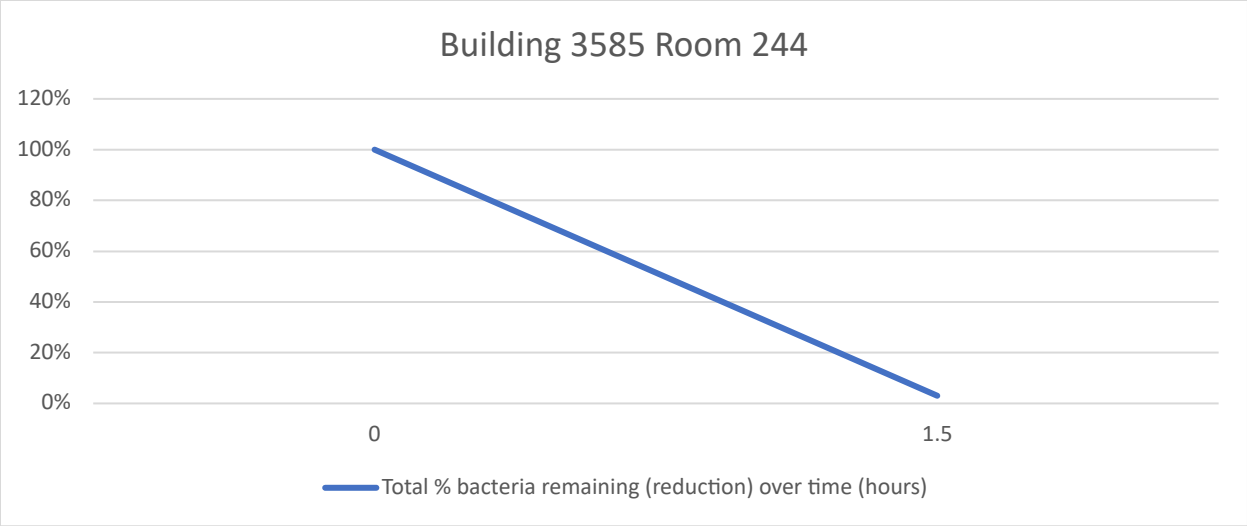
Building No. 3585 Room 244 (55 Soldier Barracks)

As mentioned previously, this area exhibited obvious odor upon arrival and the odor was removed within approximately 30 minutes. Testing for mold was conducted, results are not available from the laboratory at the time of this writing.

Bacteria results were identified and reduced by 97% within the first one and a half hours. The laboratory indicate this may have been 100% as the 1.5 hour sample only identified one specie, that being a gram positive rod that may or may not be associated with either of the two other species that were irradiated fully.

FIGURE. Soulis Performance Chart Against Various Culturable Air Fungi and Bacteria, June through July 2024, Fort Moore, GA. Follows:

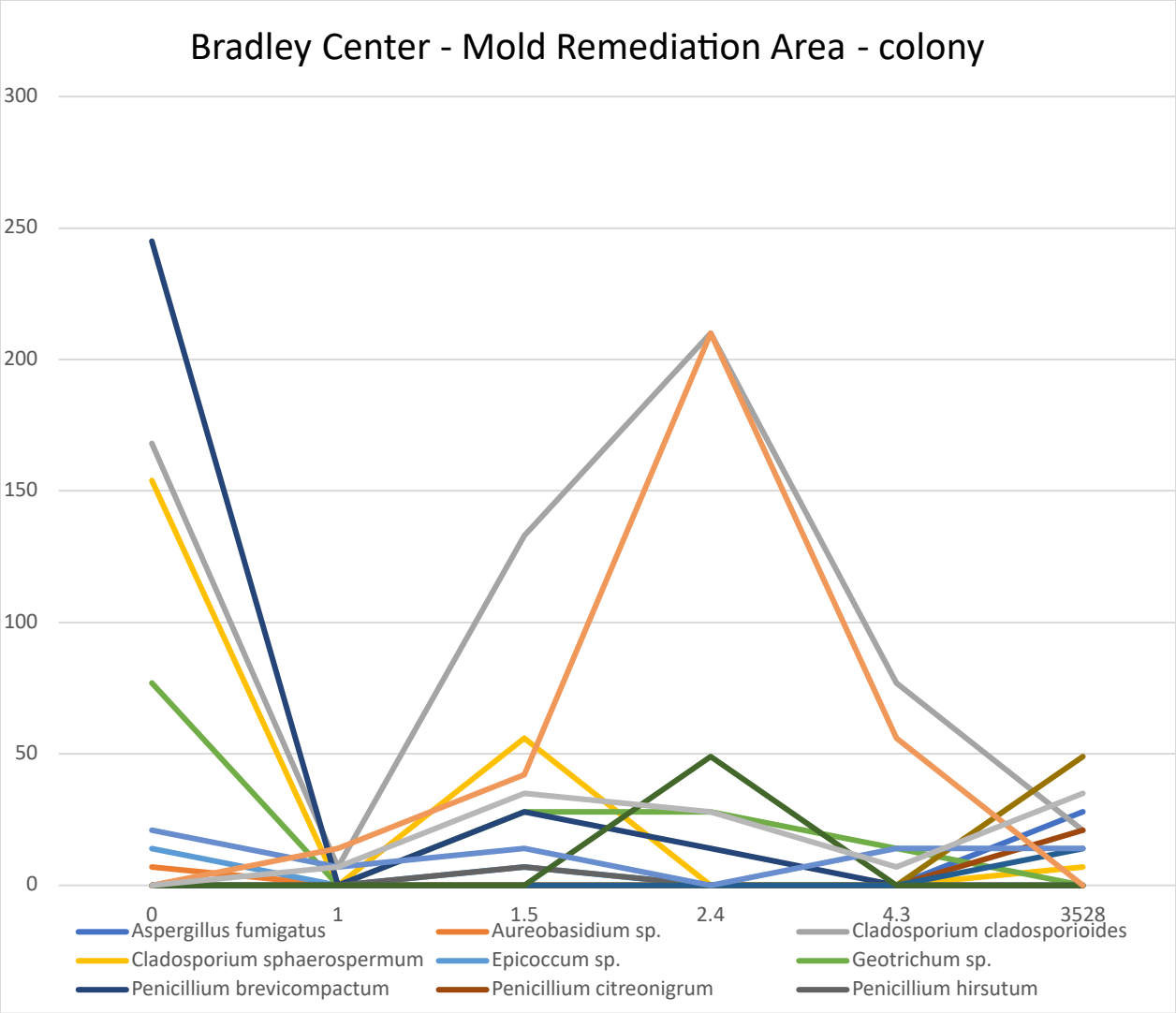


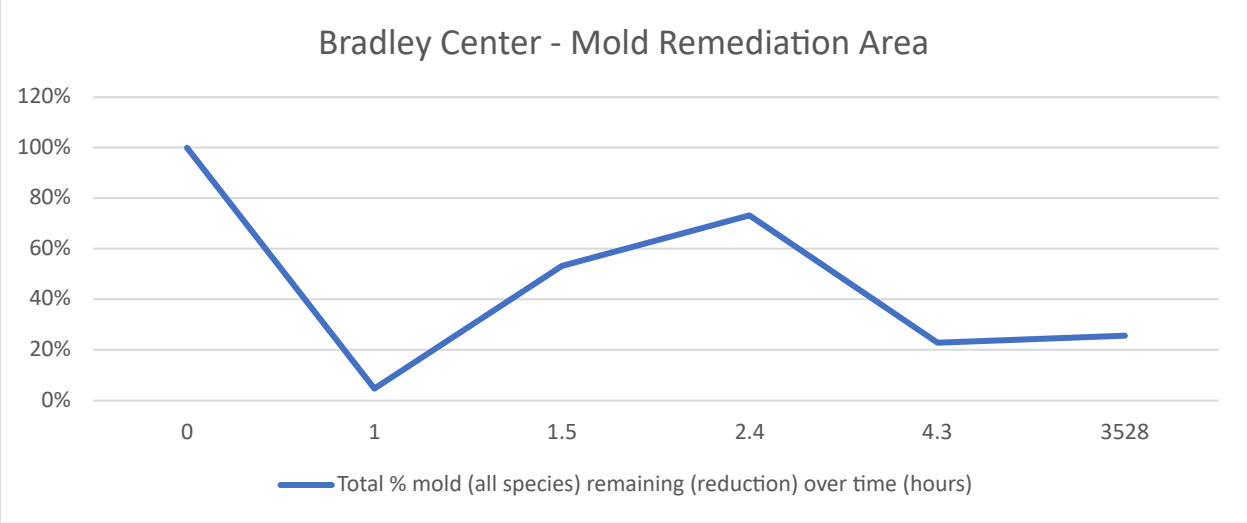


Bradely Center 2000 16th Avenue Columbus, Georgia 31901

The Soulis air sanitizer proved effective at cleaning the air in and around the administrative offices of the Bradley Center where remediation had occurred; it eliminated six of sixteen viable fungi as found in the Agar plate with a total reduction of 95% 25 minutes. The area exhaust fans were on prior to the collection of the first sample. The doors were opened and on again prior to the 1,5 and 2.4 hour samples that indicate the exhaust fan was drawing in spores from the outside. The unit was turned off turned off and the hour 4.3 and hour 3528 resulted in a 75% reduction even with the outside air exchanging within the building and the openings were not repaired at any time during this assessment period.

FIGURE. Soulis Performance Charts Against Various Culturable Air Fungi, November 23rd, 2023, Fort Moore, GA follows on the next page.





NOTE: The first spike in the above two charts represent the operation of the area exhaust fan that drew in outside air and the two at hours 1.5 and 2.4 were times when personnel entered and exited the room.

3.0 CONCLUSIONS

The data collected shows that in varying environments, presented above, the Soulis unit is highly effective in killing mold and bacteria. Eradication is commonly found, even with the facilities in operation and uncontrolled conditions.

With the Soulis results against the various Culturable Air fungi and bacteria, it would be logical to conclude this air sanitizing device would be highly effective against active mold growth and the spread of bacteria and diseases in similar structures that included newer and aging infrastructure with mold present due to broken or sub-optimal air handling systems, oftentimes due to deferred maintenance. It would also be reasonable to conclude that this device would be effective in a remediation role, responding to inadequate or deteriorated utility systems. Finally, as effective as the device has been shown, it could significantly (if not completely) reduce mold and bacteria in barracks and other facilities, providing a time-sensitive solution to short-term budget challenges and relieving Soldiers and Barracks Managers of the time and effort required to physically remove mold and supervise maintenance work orders.

The bacterial killing aspect of the Soulis unit is beyond words as the implication of soldier safety from unknown bacterial diseases and infections, human transmission, etc. could be nearly eradicated if the units are deployed systematically.

APPENDIX A

LABORATORY

DATA

EMSL Analytical, Inc.
2500 Gateway Centre Blvd., Suite 600, Morrisville, NC 27560
Phone/Fax: (919) 465-3900 / (919) 465-3950
http://www.EMSL.com raleighlab@emsl.com

EMSL Order:
CustomerID:
CustomerPO:
ProjectID:

Attn: **Michael Kendall, P.G.**
Environmental Risk & Resource Management
7972 Hampton Cove Dr Received: **Ooltewah, TN 37363**

Phone: (615) 428-1316
Fax:
Analysis Date:
Collected:

292309227
ERRM75
231247

12/1/2023 09:43 AM
12/14/2023
11/30/2023

Project: **Fort Moore/231247/911 Lenahan St.**

Test Report: Viable Fungi Identification and Enumeration from Impactors (Including Speciation of Penicillium, Aspergillus, Cladosporium and Stachybotrys (EMSL Method MICRO-SOP-202)

Sample Description	Location	Volume (L)	Media	Incubation Temp (C)	Sensitivity (CFU/m³)	Fungal Identification	Colony Count	CFU/m³
AS-1 T0	Men's Shower 3rd Floor	141.5	MEA	25	7	*Cladosporium cladosporioides*	16	112
						Cladosporium sphaerospermum	15	105
292309227-0001						*Curvularia sp.*	1	7
Bacteria present.						*Pithomyces sp.*	1	7
						Rhodotorula sp.	3	21
						Sterile(dark)	1	7
						Sterile(white)	1	7
						Total	**38**	**266**
AS-1 T30	Men's Shower 3rd Floor	141.5	MEA	25	7	*Cladosporium cladosporioides*	4	28
						Cladosporium sphaerospermum	3	21
292309227-0002						*Epicoccum sp.*	1	7
						Sterile(white)	1	7
						Total	**9**	**63**
AS-1 T60	Men's Shower 3rd Floor	141.5	MEA	25	7	*Cladosporium cladosporioides*	1	7
						Sterile(white)	3	21
292309227-0003						**Total**	**4**	**28**
AS-1 T180	Men's Shower 3rd Floor	141.5	MEA	25	7	*Chrysoporium sp.*	1	7
						Cladosporium cladosporioides	12	84
292309227-0004						*Fusarium sp.*	1	7
						Sterile(white)	1	7
						Total	**15**	**105**
AS-1 T240	Men's Shower 3rd Floor	141.5	MEA	25	7	*Cladosporium cladosporioides*	2	14
						Total	**2**	**14**
292309227-0005								

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EMSL Order:
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Attn: **Michael Kendall, P.G.**
Environmental Risk & Resource Management
7972 Hampton Cove Dr Received: **Ooltewah, TN 37363**

Phone: (615) 428-1316
Fax:
Analysis Date:
Collected:

Virginia Causey (5)
Analyst(s)

Billy Barnes, Laboratory Manager
or other approved signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. 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. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted.
Positive hole correction factors have not been applied to the reported data. The detection limit is equal to 1 colony forming unit (CFU) per agar plate.
Samples analyzed by EMSL Analytical, Inc. Morrisville, NC AIHA LAP, LLC-EMLAP Accredited #173741

Initial report from 12/14/2023 12:35:19

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

292309227
ERRM75
231247

12/1/2023 09:43 AM
12/14/2023
11/30/2023

Project: **Fort Moore/231247/911 Lenahan St.**

Test Report: Viable Fungi Identification and Enumeration from Impactors (Including Speciation of Penicillium, Aspergillus, Cladosporium and Stachybotrys (EMSL Method MICRO-SOP-202)

Sample Description	Location	Volume (L)	Media	Incubation Temp (C)	Sensitivity (CFU/m³)	Fungal Identification	Colony Count	CFU/m³

No discernable blank was submitted with this group of samples.

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Attn: **Michael Kendall, P.G.**
Environmental Risk & Resource Management
7972 Hampton Cove Dr Received: **Ooltewah, TN 37363**

Phone: (615) 428-1316
Fax:
Analysis Date:
Collected:

Analyst(s)

Virginia Causey (5)

Billy Barnes, Laboratory Manager
or other approved signatory

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Positive hole correction factors have not been applied to the reported data. The detection limit is equal to 1 colony forming unit (CFU) per agar plate.
Samples analyzed by EMSL Analytical, Inc. Morrisville, NC AIHA LAP, LLC-EMLAP Accredited #173741

Initial report from 12/14/2023 12:35:19

EMSL Analytical, Inc.
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http://www.EMSL.com raleighlab@emsl.com

EMSL Order:
CustomerID:
CustomerPO:
ProjectID:

Attn: **Michael Kendall, P.G.**
Environmental Risk & Resource Management
7972 Hampton Cove Dr Received: **Ooltewah, TN 37363**

Phone: (615) 428-1316
Fax:
Analysis Date:
Collected:

292405611
ERRM75
231247

7/31/2024 10:00 AM
8/8/2024
7/30/2024

Project: **Fort Moore/231247**

Test Report: Identification and Enumeration of Culturable Bacteria by Air (Gram Stain (EMSL Method MICRO-SOP-132))

Sample Description	Location	Volume (L)	Media	Incubation Temp (C)	Sensitivity (CFU/m³)	Bacteria Identification	Colony Count	CFU/m³
Blank *292405611-0007* Blank	Blank TSAB	0	TSAB	35		**None Detected**		

Analyst(s)

Rebecca Stewart (1)

Billy Barnes, Laboratory Manager
or other approved signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. 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. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted.
Positive hole correction factors have not been applied to the reported data. The detection limit is equal to 1 colony forming unit (CFU) per agar plate.
Samples analyzed by EMSL Analytical, Inc. Morrisville, NC AIHA LAP, LLC-EMLAP Accredited #173741

Initial report from 08/12/2024 14:30:15

For information on the bacteria lisited in this report please visit the Resources section at www.emsl.com

ERRM75
231247

EMSL Analytical, Inc.
2500 Gateway Centre Blvd., Suite 600, Morrisville, NC 27560
Phone/Fax: (919) 465-3900 / (919) 465-3950
http://www.EMSL.com raleighlab@emsl.com

EMSL Order:	292405414
CustomerID:	ERRM75
CustomerPO:	231247
ProjectID:	

Attn: **Michael Kendall, P.G.**
Environmental Risk & Resource Management
7972 Hampton Cove Dr Received: 7/24/2024 09:30 AM **Ooltewah, TN 37363**

Phone: (615) 428-1316
Fax:

Analysis Date:
Collected:

7/31/2024 10:00 AM
8/8/2024
7/30/2024

Project: **Fort Moore/231247**

Test Report: Identification and Enumeration of Culturable Bacteria by Air (Three Most Prominent Types (EMSL Method MICRO-SOP-132))

Sample Description	Location	Volume (L)	Media	Incubation Temp (C)	Sensitivity (CFU/m³)	Bacteria Identification	Colony Count	CFU/m³
Bldg 3585 Room 244	Barracks Sleeping Qtrs	141.5	TSAB	35	7	*Aerobic Actinomycetes*	8	56
						Unidentifiable bacteria	25	175
292405611-0005						**Total**	**33**	**231**
Fungi present.								
Bldg 3585 Room 244	Barracks Sleeping Qtrs	141.5	TSAB	35	7	*Gram positive rod (unidentifiable)*	1	7
						Total	**1**	**7**
292405611-0006								
Fungi present.								

No discernable blank was submitted with this group of samples.

Analyst(s)

Rebecca Stewart (2)

Billy Barnes, Laboratory Manager
or other approved signatory

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Attn: **Michael Kendall, P.G.**
Environmental Risk & Resource Management
7972 Hampton Cove Dr Received: **Ooltewah, TN 37363**

Phone: (615) 428-1316
Fax:
Analysis Date:
Collected:

Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted.
Positive hole correction factors have not been applied to the reported data. The detection limit is equal to 1 colony forming unit (CFU) per agar plate.
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Initial report from 08/12/2024 14:30:15

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8/2/2024
7/23/2024

Project: **Fort Moore/231247**

Test Report: Identification and Enumeration of Culturable Bacteria by Air (Gram Stain (EMSL Method MICRO-SOP-132))

Sample Description	Location	Volume (L)	Media	Incubation Temp (C)	Sensitivity (CFU/m³)	Bacteria Identification	Colony Count	CFU/m³
Room N200 *292405414-0004* Fungi present.	Building 2446 Conf.	141.5	TSAB	35	7	**None Detected**		

No discernable blank was submitted with this group of samples.

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EMSL Order:	292405414
CustomerID:	ERRM75
CustomerPO:	231247
ProjectID:	

Attn: **Michael Kendall, P.G.**
Environmental Risk & Resource Management
7972 Hampton Cove Dr Received: 7/24/2024 09:30 AM **Ooltewah, TN 37363**

Phone: (615) 428-1316
Fax:
Analysis Date:
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Analyst(s)

Rebecca Stewart (1)

Billy Barnes, Laboratory Manager
or other approved signatory

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Initial report from 08/02/2024 16:38:38

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Phone: (615) 428-1316
Fax:
Analysis Date: 8/2/2024
Collected: 7/23/2024

Project: **Fort Moore/231247**

Test Report: Identification and Enumeration of Culturable Bacteria by Air (Three Most Prominent Types (EMSL Method MICRO-SOP-132))

Sample Description	Location	Volume (L)	Media	Incubation Temp (C)	Sensitivity (CFU/m³)	Bacteria Identification	Colony Count	CFU/m³
Room 130	Building 1540 Kitchen	141.5	TSAB	25	7	*Acinetobacter sp.*	6	42
						Gram positive rod (unidentifiable)	59	413
292405414-0003						*Rhodococcus sp.* **Total**	164	1150
Fungi present.							**229**	**1600**

No discernable blank was submitted with this group of samples.

Analyst(s)

Rebecca Stewart (1)

Billy Barnes, Laboratory Manager
or other approved signatory

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Phone: (615) 428-1316
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Analysis Date: 8/16/2024
Collected: 7/23/2024

Project: **Fort Moore/231247**

Initial report from 08/02/2024 16:38:38

Test Report: Viable Fungi Identification and Enumeration from Impactors (Including Speciation of Penicillium, Aspergillus, Cladosporium and Stachybotrys (EMSL Method MICRO-SOP-202)

Sample Description	Location	Volume (L)	Media	Incubation Temp (C)	Sensitivity (CFU/m³)	Fungal Identification	Colony Count	CFU/m³
Room 130	Building 1540 Kitchen	141.5	MEA	25	7	*Aspergillus japonicus*	2	14
292405414-0001						*Cladosporium cladosporioides*	1	7
						Sterile(dark)	3	21
						Sterile(white)	2	14
						Total	**8**	**56**
Room N200	Building 2446 Conf.	141.5	MEA	25	7	*Cladosporium cladosporioides*	1	7
292405414-0002						*Fusarium sp.*	1	7
Unidentifiable locat	fungied under large colony.					*Sterile(dark)*	1	7
						Unidentifiable fungi	3	21
						Total	**6**	**42**

No discernable blank was submitted with this group of samples.

Analyst(s)

Virginia Causey (2)

Billy Barnes, Laboratory Manager
or other approved signatory

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7972 Hampton Cove Dr Received: 7/24/2024 09:30 AM **Ooltewah, TN 37363**

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Project: **Fort Moore/231247**

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Initial report from 08/22/2024 14:03:51

Test Report: Identification and Enumeration of Culturable Bacteria by Air (Gram Stain (EMSL Method MICRO-SOP-132))

Sample Description	Location	Volume (L)	Media	Incubation Temp (C)	Sensitivity (CFU/m³)	Bacteria Identification	Colony Count	CFU/m³
Room N200 *292405414-0004* Fungi present.	Building 2446 Conf.	141.5	TSAB	35	7	**None Detected**		

No discernable blank was submitted with this group of samples.

Rebecca Stewart (1) Analyst(s)

Billy Barnes, Laboratory Manager
or other approved signatory

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7972 Hampton Cove Dr Received: 7/24/2024 09:30 AM **Ooltewah, TN 37363**

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Initial report from 08/02/2024 16:38:38

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Test Report: Identification and Enumeration of Culturable Bacteria by Air (Three Most Prominent Types (EMSL Method MICRO-SOP-132))

Sample Description	Location	Volume (L)	Media	Incubation Temp (C)	Sensitivity (CFU/m³)	Bacteria Identification	Colony Count	CFU/m³
Room 130	Building 1540 Kitchen	141.5	TSAB	25	7	*Acinetobacter sp.*	6	42
						Gram positive rod (unidentifiable)	59	413
292405414-0003						*Rhodococcus sp.* **Total**	164	1150
Fungi present.							**229**	**1600**

No discernable blank was submitted with this group of samples.

Analyst(s)

Rebecca Stewart (1)

Billy Barnes, Laboratory Manager

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292404921
ERRM75
231247

7/3/2024 10:15 AM
7/17/2024
7/2/2024

Project: **Fort Moore/231247**

Test Report: Viable Fungi Identification and Enumeration from Impactors (Including Speciation of Penicillium, Aspergillus, Cladosporium and Stachybotrys (EMSL Method MICRO-SOP-202)

Sample Description	Location	Volume (L)	Media	Incubation Temp (C)	Sensitivity (CFU/m³)	Fungal Identification	Colony Count	CFU/m³
T1WK Room N200	Building 2446 Conf.	141.5	MEA	25	7	*Cladosporium cladosporioides*	7	49
292404921-0001						*Geotrichum sp.*	6	42
						Penicillium citrinum	1	7
						Rhodotorula sp.	1	7
						Sterile(dark)	2	14
						Yeast	1	7
						Total	**18**	**126**
T1WK Room 130	Building 1540 Kitchen	141.5	MEA	25	7	*Cladosporium cladosporioides*	11	77
292404921-0002						*Geotrichum sp.*	3	21
						Penicillium decumbens	1	7
						Total	**15**	**105**
TO Hallway	Building 5130 Hallway	141.5	MEA	25	7	*Cladosporium cladosporioides*	2	14
292404921-0003						*Geotrichum sp.*	1	7
						Penicillium paxilli	1	7
						Penicillium raistrickii	1	7
						Penicillium waxsmanii	1	7
						Sterile(dark)	6	42
						Sterile(white)	2	14
						Total	**14**	**98**

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EMSL Order:	292404689
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Attn: **Michael Kendall, P.G.**
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7972 Hampton Cove Dr Received: 6/26/2024 10:00 AM **Ooltewah, TN 37363**

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Analysis Date:
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Analyst(s)

Kyle McGowan (3)

Billy Barnes, Laboratory Manager
or other approved signatory

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Initial report from 07/17/2024 14:07:27

Test Report ViableFungi-7.26.0 Printed: 7/17/2024 2:07:27 PM **THIS IS THE LAST PAGE OF THE REPORT.** 1 292404921
ERRM75
231247

7/3/2024 10:15 AM
7/12/2024
7/2/2024

Project: **Fort Moore/231247**

Test Report: Identification and Enumeration of Culturable Bacteria by Air (Three Most Prominent Types (EMSL Method MICRO-SOP-132))

Sample Description	Location	Volume (L)	Media	Incubation Temp (C)	Sensitivity (CFU/m³)	Bacteria Identification	Colony Count	CFU/m³
T1WK Room N200	Building 2446 Conf.	141.5	TSAB	35	7	*Cellulomonas sp.*	1	7
292404921-0004						*Chryseobacterium sp.*	2	14
						Curtobacterium sp.	1	7
						Total	**4**	**28**
T1WK Room 130	Building 1540 Kitchen	141.5	TSAB	35	7	*Chryseobacterium sp.*	2	14
292404921-0005						*Pseudomonas aeruginosa*	1	7
Fungi present.						*Sphingomonas sp.* **Total**	2	14
							5	**35**
TO Hallway	Building 5130 Hallway	141.5	TSAB	35	7	*Micrococcus luteus*	12	84
292404921-0006						*Micrococcus sp.*	8	56
Fungi present.						*Staphylococcus sp.*	10	70
						Total	**30**	**210**

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7972 Hampton Cove Dr Received: **Ooltewah, TN 37363**

Phone: (615) 428-1316
Fax:
Analysis Date:
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Rebecca Stewart (3)
Analyst(s)

Billy Barnes, Laboratory Manager
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7/10/2024
6/24/2024

Project: **Fort Moore/231247**

Test Report: Viable Fungi Identification and Enumeration from Impactors (Including Speciation of Penicillium, Aspergillus, Cladosporium and Stachybotrys (EMSL Method MICRO-SOP-202)

Sample Description	Location	Volume (L)	Media	Incubation Temp (C)	Sensitivity (CFU/m³)	Fungal Identification	Colony Count	CFU/m³
T0 Room 130	Building 1540 Kitchen	141.5	MEA	25	7	*Acremonium sp.*	1	7
						Cladosporium cladosporioides	3	21
292404689-0001						*Cladosporium sphaerospermum*	8	56
Bacteria present						*Curvularia sp.*	5	35
						Penicillium chrysogenum	6	42
						Penicillium citreonigrum	5	35
						Penicillium sclerotiorum	9	63
						Penicillium thomii	1	7
						Sporothrix sp.	2	14
						Sterile(dark)	1	7
						Sterile(white)	5	35
						Total	**46**	**322**
T0 Room N200	Building 2446 Conf.	141.5	MEA	25	7	*Aspergillus sp.*	1	7
292404689-0002						*Cladosporium cladosporioides*	1	7
						Cladosporium sphaerospermum	9	63

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						Curvularia sp.	1	7
						Epicoccum sp.	1	7
						Penicillium chrysogenum	14	98
						Penicillium paxilli	278	1950
						Penicillium thomii	12	84
						Total	**317**	**2220**
T150 Room 130	Building 1540 Kitchen	141.5	MEA	25	7	*Cladosporium cladosporioides*	12	84
						Geotrichum sp.	6	42
292404689-0003						*Penicillium pinophilum*	7	49
						Penicillium sclerotiorum	6	42
						Total	**31**	**217**

Analyst(s)

Kyle McGowan (4)

Billy Barnes, Laboratory Manager
or other approved signatory

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Initial report from 07/11/2024 09:19:59

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Phone: (615) 428-1316
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Analysis Date: 7/10/2024
Collected: 6/24/2024

Project: **Fort Moore/231247**

Test Report: Viable Fungi Identification and Enumeration from Impactors (Including Speciation of Penicillium, Aspergillus, Cladosporium and Stachybotrys (EMSL Method MICRO-SOP-202)

Sample Description	Location	Volume (L)	Media	Incubation Temp (C)	Sensitivity (CFU/m³)	Fungal Identification	Colony Count	CFU/m³
T60 Room N200	Building 2446 Conf.	141.5	MEA	25	7	*Cladosporium cladosporioides*	3	21
292404689-0004						*Geotrichum sp.*	3	21
						Penicillium chrysogenum	1	7
						Penicillium paxilli	2	14
						Penicillium pinophilum	1	7
						Total	**10**	**70**

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Analyst(s)

Kyle McGowan (4)

Billy Barnes, Laboratory Manager
or other approved signatory

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7972 Hampton Cove Dr Received: 6/26/2024 10:00 AM **Ooltewah, TN 37363**

Phone: (615) 428-1316
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Analysis Date: 7/5/2024
Collected: 6/24/2024

Project: **Fort Moore/231247**

Initial report from 07/11/2024 09:19:59

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Test Report: Identification and Enumeration of Culturable Bacteria by Air (Three Most Prominent Types (EMSL Method MICRO-SOP-132))

Sample Description	Location	Volume (L)	Media	Incubation Temp (C)	Sensitivity (CFU/m³)	Bacteria Identification	Colony Count	CFU/m³
T0 Room 130	Building 1540 Kitchen	141.5	TSAB	35	7	*Acinetobacter sp.*	>300	>2100
292404689-0001						*Pseudomonas aeruginosa*	>300	>2100
						Pseudomonas sp.	17	119
						Total	**>617**	**>4320**
T0 Room N200	Building 2446 Conf.	141.5	TSAB	35	7	*Actinomycetes*	4	28
292404689-0002						*Micrococcus sp.*	4	28
Fungi present.						*Staphylococcus epidermidis*	4	28
						Total	**12**	**84**
T150 Room 130	Building 1540 Kitchen	141.5	TSAB	35	7	*Acinetobacter sp.*	13	91
292404689-0003						*Elizabethkingia miricola*	131	917
						Stenotrophomonas maltophilia	28	196
						Total	**172**	**1200**
T60 Room N200	Building 2446 Conf.	141.5	TSAB	35	7	*Bacillus pumilus/safensis*	1	7
292404689-0004						*Staphylococcus epidermidis*	1	7
						Staphylococcus sp.	1	7
						Total	**3**	**21**

No discernable blank was submitted with this group of samples.

Analyst(s)

Rebecca Stewart (4)

Billy Barnes, Laboratory Manager
or other approved signatory

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EMSL Order:	292205550
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7972 Hampton Cove Dr Received: **Ooltewah, TN 37363**

Phone: (615) 428-1316
Fax:
Analysis Date: 7/1/2022 10:00 AM 7/14/2022
Collected: 6/23/2022

Project: **221163**

Initial report from 07/05/2024 14:52:48

Test Report: Viable Fungi Identification and Enumeration from Impactors (Including Speciation of Penicillium, Aspergillus, Cladosporium and Stachybotrys (EMSL Method MICRO-SOP-202)

Sample Description	Location	Volume (L)	Media	Incubation Temp (C)	Sensitivity (CFU/m³)	Fungal Identification	Colony Count	CFU/m³
AS-1	Outside Entrance	424	MEA	25	2	*Alternaria sp.*	2	4
292205550-0001						*Cladosporium cladosporioides*	3	6
Background						*Cladosporium sphaerospermum*	1	2
						Penicillium decumbens	1	2
						Sterile(dark)	2	4
						Sterile(white)	1	2
						Yeast	8	16
						Total	**18**	**36**
AS-2	Admin Hallway - Pre	424	MEA	25	2	*Alternaria sp.*	1	2
292205550-0002						*Sterile(dark)*	1	2
						Yeast	163	326
						Total	**165**	**330**
AS-3	Office Rm 1030	424	MEA	25	2	*Cladosporium cladosporioides*	13	26
292205550-0003						*Cladosporium sphaerospermum*	5	10
Bacteria present.						*Penicillium chrysogenum*	5	10
						Penicillium corylophilum	10	20
						Sterile(dark)	3	6
						Sterile(white)	1	2
						Yeast	116	232
						Total	**153**	**306**

Analyst(s)

Virginia Causey (4)

Billy Barnes, Laboratory Manager
or other approved signatory

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Positive hole correction factors have not been applied to the reported data. The detection limit is equal to 1 colony forming unit (CFU) per agar plate.
Samples analyzed by EMSL Analytical, Inc. Morrisville, NC AIHA-LAP, LLC--EMLAP Accredited #173741

EMSL Analytical, Inc.
2500 Gateway Centre Blvd., Suite 600, Morrisville, NC 27560
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http://www.EMSL.com raleighlab@emsl.com

EMSL Order:	292404689
CustomerID:	ERRM75
CustomerPO:	231247
ProjectID:	

Attn: **Michael Kendall, P.G.**
Environmental Risk & Resource Management
7972 Hampton Cove Dr **Ooltewah, TN 37363**

Phone: (615) 428-1316
Fax:

Received: 6/26/2024 10:00 AM

Analysis Date:

Collected:

Initial report from 07/15/2022 14:39:51

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

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EMSL Order:	292205550
CustomerID:	ERRM75
CustomerPO:	221163
ProjectID:	

Attn: **Michael Kendall, P.G.**
Environmental Risk & Resource Management
7972 Hampton Cove Dr Received: **Ooltewah, TN 37363**

Phone: (615) 428-1316
Fax:
Analysis Date: 7/1/2022 10:00 AM 7/14/2022
Collected: 6/23/2022

Project: **221163**

Test Report: Viable Fungi Identification and Enumeration from Impactors (Including Speciation of Penicillium, Aspergillus, Cladosporium and Stachybotrys (EMSL Method MICRO-SOP-202)

Sample Description	Location	Volume (L)	Media	Incubation Temp (C)	Sensitivity (CFU/m³)	Fungal Identification	Colony Count	CFU/m³
AS-4	Admin Hallway - Post	424	MEA	25		*Aureobasidium sp.*	2	
292205550-0004						*Cladosporium cladosporioides*	3	
						Cladosporium herbarum	1	
						Cladosporium sphaerospermum	5	
						Epicoccum sp.	2	
						Mucor sp.	1	
						Penicillium chrysogenum	2	
						Penicillium corylophilum	5	
						Rhodotorula sp.	154	
						Sterile(white)	5	
						Yeast	3	
						Total	**183**	

No discernable blank was submitted with this group of samples.

Analyst(s)

Virginia Causey (4)

Billy Barnes, Laboratory Manager
or other approved signatory

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Positive hole correction factors have not been applied to the reported data. The detection limit is equal to 1 colony forming unit (CFU) per agar plate.

Initial report from 07/15/2022 14:39:51

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EMSL Analytical, Inc.
10801 Southern Loop Blvd Pineville, NC 28134
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http://www.EMSL.com / charlottelab@emsl.com

EMSL Order: 412206325
Customer ID: ERRM75
Customer PO: 221163
Project ID:

Attention: Michael Kendall, P.G.
Environmental Risk & Resource Management
7972 Hampton Cove Dr
Ooltewah, TN 37363

Phone: (615) 428-1316
Fax:
Collected Date: 06/23/2022
Received Date: 06/30/2022 09:20 AM
Analyzed Date: 06/30/2022

Project: 221163

Test Report:Air-O-Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number:	412206325-0001			412206325-0002			412206325-0003		
Client Sample ID:	AS-1			AS-2			AS-3		
Volume (L):	150			150			150		
Sample Location:	Outside Entrance			Admin Hallway - Pre			Office Rm 1030		
Spore Types	**Raw Count**	**Count/M³**	**% of Total**	**Raw Count**	**Count/M³**	**% of Total**	**Raw Count**	**Count/M³**	**% of Total**
Alternaria (Ulocladium)	1	20	0.7	1*	7*	6.1	-	-	-
Ascospores	13	270	9.6	-	-	-	1*	7*	7.4
Aspergillus/Penicillium	1	20	0.7	1	20	17.5	-	-	-
Basidiospores	49	1000	35.4	1	20	17.5	2	40	42.6
Bipolaris++	1*	7*	0.2	-	-	-	-	-	-
Chaetomium++	-	-	-	-	-	-	-	-	-
Cladosporium	61	1300	46	3	60	52.6	1	20	21.3
Curvularia	-	-	-	-	-	-	1*	7*	7.4
Epicoccum	2	40	1.4	-	-	-	-	-	-
Fusarium++	1	20	0.7	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	2	40	1.4	1*	7*	6.1	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	1	20	21.3
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Cercospora++	1	20	0.7	-	-	-	-	-	-
Oidium++	2	40	1.4	-	-	-	-	-	-
Sporidesmium++	1*	7*	0.2	-	-	-	-	-	-
Torula++	2	40	1.4	-	-	-	-	-	-
Total Fungi	**137**	**2824**	**100**	**7**	**114**	**100**	**6**	**94**	**100**
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	-	-	-	1*	7*	-	1	20	-
Pollen	1	20	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	21	-	-	21	-	-	21	-
Analyt. Sensitivity 300x	-	7*	-	-	7*	-	-	7*	-
Skin Fragments (1-4)	-	1	-	-	1	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	2	-	-	1	-

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.

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

Lee Plumley, Laboratory Manager

or other Approved Signatory

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Initial report from: 06/30/2022 03:55 PM

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

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EMSL Order: 412206325
Customer ID: ERRM75
Customer PO: 221163
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Attention: Michael Kendall, P.G.
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Phone: (615) 428-1316
Fax:
Collected Date: 06/23/2022
Received Date: 06/30/2022 09:20 AM
Analyzed Date: 06/30/2022

Project: 221163

Test Report:Air-O-Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number:	**412206325-0004**		
Client Sample ID:	**AS-4**		
Volume (L):	**150**		
Sample Location:	**Admin Hallway - Post**		
Spore Types	**Raw Count**	**Count/M³**	**% of Total**
Alternaria (Ulocladium)	1	20	6.8
Ascospores	2	40	13.6
Aspergillus/Penicillium	-	-	-
Basidiospores	5	100	34
Bipolaris++	1	20	6.8
Chaetomium++	-	-	-
Cladosporium	4	80	27.2
Curvularia	1	20	6.8
Epicoccum	1*	7*	2.4
Fusarium++	-	-	-
Ganoderma	-	-	-
Myxomycetes++	1*	7*	2.4
Pithomyces++	-	-	-
Rust	-	-	-
Scopulariopsis/Microascus	-	-	-
Stachybotrys/Memnoniella	-	-	-
Unidentifiable Spores	-	-	-
Cercospora++	-	-	-
Oidium++	-	-	-
Sporidesmium++	-	-	-
Torula++	-	-	-
Total Fungi	**16**	**294**	**100**
Hyphal Fragment	-	-	-
Insect Fragment	-	-	-
Pollen	-	-	-
Analyt. Sensitivity 600x	-	21	-
Analyt. Sensitivity 300x	-	7*	-
Skin Fragments (1-4)	-	3	-
Fibrous Particulate (1-4)	-	1	-
Background (1-5)	-	2	-

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.

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

Lee Plumley, Laboratory Manager

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