June 27, 2019

City of Birmingham
Department of Planning, Engineering & Permits - Architecture Division
710 20th Street North
Birmingham, Alabama 35203

Attention: Mr. Terry Oglesby

Subject: Report of Limited Indoor Air Quality and
Limited Asbestos Sampling
Fire Station No. 27
400 Huffman Road
Birmingham, Alabama
Bhate Proposal No. BRE1900.0058.0001

Dear Mr. Oglesby:

Bhate Environmental Associates, Inc., (Bhate) is pleased to submit the following report of indoor air quality sampling and limited asbestos sampling services for Fire Station #27 located at 400 Huffman Road in Birmingham. Bhate conducted a preliminary reconnaissance on June 4, 2019, to observe the building and formulate a sampling plan for the facility to assess the quality of the air.

It is Bhate's understanding that the occupants of the building are concerned about the quality of the air inside the fire station. Bhate was provided with a memorandum written by Lieutenant (Lt.) Patrick Bugaj that proposes that the condition of the HVAC system and the interior of the building are cause for employee health concerns. Lt. Bugaj's memorandum addresses health risks from carbon dust and diesel exhaust soot, as well as mold and asbestos-containing materials (ACM).

Bhate conducted the following scope of work to quantify the presence of the airborne contaminants stated in Lt. Bugaj's document:

1. Performed an inspection of the structure to identify suspect asbestos-containing materials (SACM) by an Environmental Protection Agency (EPA) accredited inspector.
2. Collected bulk samples, as required, and analyzed for asbestos content by Polarized Light Microscopy (PLM) in accordance with the EPA Methodology (visual inspection). Seventeen asbestos samples were collected from the interior of the structure.
3. Collected air samples over a 24-hour period to be analyzed by Phase Contrast Microscopy (PCM) to quantify fibers, including asbestos, in the air. The result were compared to the Occupational Safety and Health Administration (OSHA) standards. Bhate collected three sets of samples from four locations (three approximate 8-hour samples) over a 24-hour period.

4. Collected air samples over a 24-hour period to be analyzed for total dust. This gravimetric sampling will address all dust in the air, not just the concerns for carbon in the air. Bhate collected three sets of samples from four locations (three approximate 8-hour samples) over a 24-hour period.
5. Evaluated the current mold growth conditions within the structure based on visual inspection.
6. Collected mold spore air samples that provided a "snapshot" of the conditions at the time of sampling. Bhate collected five mold spore samples: one in the day area, one in the kitchen/dining area, one in the dormitory at the rear of the building, one in the upstairs dormitory, and one outside.
7. Collected tape lift samples from near the diffusers and returns to determine if mold spores are present.

General Observations

During the initial scoping visit and during sampling at the site, Bhate observed the following:

- The bay doors were open during the scoping visit. It is believed that these doors are frequently left open during daylight hours when the station is occupied.
- As shown on the diagrams, there are numerous doors that lead from the bay areas directly into the interior of the station. It is expected that this will allow for significant mixing of indoor air with outdoor air, which can allow for higher than normal temperatures, humidity, spore counts, and dust.
- The upstairs dormitory space was not air-conditioned and was open to the bay below.
- It appeared that the station was kept tidy but was in need of a deep cleaning as evidenced by dirt build up on floor surfaces outside of the general traffic patterns, debris build-up on the floor air returns and wall grills, and grease build-up over the cooktop in the kitchen.
- The lower portions of the restroom partitions were rusted and in some areas were no longer resting on the floor due to deterioration. This is likely caused by mopping with a very wet mop and allowing water to sit on the floor surface. It is likely exacerbated by the fact that this restroom opens to one of the bays that is not air conditioned which would increase the humidity in the room.
- One roof leak was noted near the diffuser in the Day Room nearest dispatch. This appeared to be a new leak because staining was not noted on the ceiling tile. It had been reported to Bhate that the roof had been replaced recently.

The following narrative details the sampling efforts at Fire Station 27. It should be noted that the conditions during the sampling event represented near normal conditions. The HVAC was in use; however, the bay doors were closed for a majority of the time other than to allow access to the interior of the building. .

ACM Sampling

A visual inspection was performed at the subject site on June 7, 2019. Suspect materials were sampled by removing a section from the area of concern for analysis. Bulk samples were then placed into individual sample containers for transport to a qualified laboratory for analysis. All samples were individually identified by a sample number. Photographs showing the sampled materials are provided in Attachment A. The SACMs were numbered and correspond to the sample numbers listed in the Results Tables located in Attachment B and the Laboratory Analytical Results located in Attachment C. A diagram showing the sampling locations is included in Attachment D. The inspectors' credentials are included in Attachment E.

All bulk suspect asbestos samples were analyzed by a qualified laboratory using PLM with dispersion staining techniques. PLM and dispersion staining techniques were performed according to the EPA's Bulk Analysis Method, EPA 600/R-93/116, in an attempt to ascertain asbestos content in those samples analyzed. These techniques require that a part of the bulk sample be subjected to an oil of specific refractive index once mounted on a slide. This prepared slide is then subjected to a number of optical tests. Each type of asbestos displays unique characteristics when subjected to these tests. Percentages of asbestos content are then determined by visual estimation.

Any material containing greater than 1% of any type of asbestos that is friable or may become friable by the forces expected to act on the material during certain activities, is classified as Recognized Asbestos Containing Materials (RACM) by the EPA. It should be noted that OSHA defines an ACM to be a material containing any amount of asbestos. According to the EPA, OSHA, United States Department of Transportation (USDOT), and other federal, state, and/or local government agencies, any material classified as ACM must be handled accordingly.

The Asbestos Sampling Results table describes the sample number, sample location, type of material, results, friability, and condition for each of the 17 asbestos samples collected from the interior of Fire Station #27 on June 7, 2019. The Asbestos Sampling Results Table is included in Attachment B of this report. During sample preparation, the laboratory separated multiple layered samples prior to analysis for asbestos. The SACMs were numbered and correspond to the sample numbers listed in the Laboratory Analytical Results included in Attachment C of the report. Photographs showing sampled materials are included as Attachment A.

Parties reviewing this document should use the table in conjunction with the detailed text sample descriptions below. The table must not be the sole reference used in order to identify the materials sampled. The condition of the materials were determined at the time of sampling.

It should be noted that EPA defines RACM as any material having greater than 1% asbestos content that is friable or may become friable by the forces expected to act on the material during certain activities.

Based on the analytical results, four of the twelve homogeneous areas collected from Fire Station 27 were identified as containing asbestos.

The ACMs are described below:

A. Friable ACM
Test procedures detected friable asbestos in one of the homogeneous areas sampled at the subject site. These asbestos-containing homogeneous areas include HVAC duct only.

- **White HVAC tape on HVAC duct above drop ceiling was identified as containing 40% Chrysotile asbestos. The material was observed above the drop ceiling in dormitory #1 and appeared to be in fair condition.**

B. Non-Friable ACM
Test procedures detected non-friable asbestos in three of the homogeneous areas sampled at the subject site. These asbestos-containing homogeneous areas include kitchen, Day Room, Day Room Closet, Dormitory #1, Dormitory #1 Closet, and office #1.

- **All of the floor tile (both 9'' x 9'' and 12'' x 12'') located within the structure was identified as containing 3 to 4% Chrysotile asbestos. These materials appeared to be in fair condition with the exception of the 12'' x 12'' black floor tile in Dormitory #1, which was observed to be in poor condition.**
- **The black adhesive associated with the 12" x 12" floor tile was identified as containing 4 to 6% Chrysotile asbestos. This material appeared to be in fair condition.**
- **Additionally. It should be noted that the leveling compound associated with the floor tile sample collected from the Day Room Closet was identified as containing <1% Chrysotile asbestos. This material appeared to be in fair condition.**

C. Non-ACM
Test procedures did not detect asbestos in the remaining samples obtained from the subject site.

Sampling for Asbestos Fibers in Air

Bhate performed air sampling for asbestos at the subject site over a 24-hour period beginning on June 7, 2019, and concluding on June 8, 2019. The air samples were collected using a volumetric pump with a 25 millimeter air sampling cassette fitted with a 0.8 micrometer mixed cellulose ester (MCE) membrane filter to obtain a sample of the air within a specified area. The pumps ran at approximately two liters of air per minute for approximately 8 hours each at each location. Specific sampling flow rates and collection times are included on the sampling results tables in Attachment B. Samples were sent to EMSL Analytical, Inc. (EMSL), for analysis by Phase Contrast Microscopy (PCM) using NIOSH Method 7400.

The results were compared to the Occupational Safety and Health Administration (OSHA)

established permissible exposure limit (PEL) for asbestos of 0.1 fibers per cubic centimeter (f/cc). Bhate also compared the results to the clearance standards required to be met following an abatement action, which is 0.01 f/cc. Of the 11 samples collected (one sample was eliminated due to equipment failure), the sample volumes were between 658 and 1138 liters of air. All but one sample was determined to be below the detection limit. One of the samples, an exterior baseline sample, was analyzed to contain 0.003 f/cc, which is below the OSHA PEL and the more stringent clearance criteria.

Results tables are included in Attachment B. Analytical results are included in Attachment C. Diagrams showing sampling locations are included in Attachment D.

Tape Lift Sampling

Three tape lift samples were collected in the vicinity of air returns and diffusers where debris was noted. Tape lift sampling involves placing a clean tape (provided by the laboratory for sampling purposes) onto the surface of concern. Any debris or spores adhere to the tape and the tape is then placed on a microscope slide, packaged, and sent to the laboratory for direct read analysis. Two samples were collected in the day room, one from the ceiling air diffuser nearest the kitchen and the other from the floor air return near dispatch. A third sample was collected from a ceiling tile next to a ceiling diffuser in Dormitory #1.

The samples did show evidence of mold spores in all samples collected. The genera observed were similar to what was observed in the air results. It should be noted that the sample collected from the dormitory ceiling tile had high counts of *Cladosporium* and moderate counts of *Stachybotrys* and *Alternaria*. It should be noted that the ceiling tile was water damaged, likely due to condensation. *Stachybotrys* and *Alternaria* are both indicative of water damaged building materials. However, neither *Stachybotrys* nor *Alternaria* were detected in any of the air samples (discussed below).

Fungal Spores in Air Sampling

Bhate performed air sampling for total mold and spore levels at the subject site on June 7, 2019. The mold and spore air samples were collected using a volumetric pump with an Air-O-Cell Bioaerosol Impact Sampler Cassette to obtain a sample of the air within a specified area. The pumps ran at approximately 15 liters of air per minute for 10 minutes at each location. Samples were sent to EMSL Analytical, Inc. (EMSL), for microscopic analysis.

The data collected is representative of the conditions at the site at the specific time of the sampling. The conditions at the site can change and data may be affected by numerous factors including temperature, humidity, general ventilation, engineering controls, and the number of people present.

The table provided in Attachment B shows the total count for each mold and spore constituent identified in the microscopic direct-read analysis of the air samples. It should be noted that other airborne particulates, specifically hyphal fragments (particles of actual fungal growth), insect fragments, and pollen are also included in this laboratory analysis and are presented in the table.

It should be noted that the table is abridged and only list the results for genera that were detected

in a sample. The laboratory data and a full listing of spores analyzed for are included as Attachment C.

The following was noted from the air testing results:

- Overall, the total spore counts in the building ranged from 1,160 (Day Room) to 5,164 (Dormitory #2 – upstairs). The exterior total spore count was 13,861. None of the interior samples exceeded the total spores count observed in the baseline (exterior) sample. Further, the percentages of each genera to the total sample count were fairly consistent between the exterior sample and the interior sample, meaning that the interior samples were similar in makeup to the exterior samples, which is to be expected in a typical building not experiencing fungal amplification.
- *Bipolaris* concentrations exceeded the exterior concentration in the sample collected from the kitchen. The concentrations of this genus was low and is not indicative of fungal amplification in the structure.
- *Aspergillus/Penicillium*, *Cersospora* and *Pestalotia/Pestalotiopsis* were detected in the sample collected from the Dormitory #1. The detected concentrations slightly exceeded the baseline samples. The concentrations of these genera were low and are not indicative of fungal amplification in the structure. It should be noted that is not uncommon for indoor air samples to exceed the exterior baseline for *Aspergillus/Penicillium*.
- None of the samples collected detected *Alternaria, Stachybotrys* or *Chaetomium. Alternaia, Stachybotrys* and *Chaetomium* are typically associated with decaying building materials.

During Bhate's investigation on June 7, 2019, we did not note visual evidence of significant mold growth or abnormal smells. It should be noted that the air return located in the floor of the day room had significant debris on the grate and within the duct. The debris appeared to be primarily dust due to a lack of adequate housekeeping. This was further evidenced by dirt build-up on the floors in areas outside of the traffic pattern

Nuisance Dust Sampling

Bhate performed air sampling for nuisance dust, including carbon, at the subject site over a 24-hour period beginning on June 7, 2019, and concluding on June 8, 2019. The air samples were collected using a volumetric pump with a 5 micron PVC, pre-weighed cassette to obtain a sample of the air within a specified area. The pumps ran at approximately two liters of air per minute for approximately 8 hours each at each location. Specific sampling flow rates and collection times are included on the sampling results tables in Attachment B. Samples were sent to EMSL Analytical, Inc. (EMSL), for analysis for Nuisance Dust by NIOSH Method 0500. Carbon black is a type of dust. OSHA established a PEL of 3.5 milligrams per cubic meter of carbon black over an 8-hour period.

The sample volumes were between 517 and 1125 liters of air. All of the sample concentrations were below the method detection limit.

Conclusions and Recommendations

The subject building is an older structure and some of the building materials contain asbestos. Many of the doors to the station open directly into the bays which readily allows for air exchange between the interior and exterior air. Air sampling for mold and spores, asbestos, and nuisance dust indicated that the indoor air was not significantly affected by the presence of the asbestos-containing building materials or the air exchange between the bays.

Bhate recommends that any damaged ceiling tiles be replaced. Replacement of tiles will help with future identification of fungal amplification and roof leaks. It will also help to arrest any current amplification by removing the source. Bhate also recommends a regular schedule of deep cleaning to remove dust and debris, which serve as food sources for molds.

We appreciate the opportunity to work with you on this project. If you have any questions regarding the information contained in this report or would like further assistance on this matter, please do not hesitate to call.

Respectfully Submitted by,
Bhate Environmental Associates, Inc.

Dana C. Tilton
Project Manager

Stephen Acreman
Program Manager

Attachments:
Attachment A – Photographs
Attachment B – Sampling Results Tables
Attachment C – Laboratory Analytical Results
Attachment D – Sample Location Diagrams
Attachment E – Asbestos Inspector Credentials

Attachment A – Photographs

Photo #1
View of subject site facing southeast

Photo #2
View of subject site facing south

Photo #3
View of subject site facing northwest

Photo #4
View of subject site facing north

Photo #5
Interior View of Bay #1

Photo #6
Interior view of Bay #2

Photographs Taken June 7, 2019
City of Birmingham Fire Station #27
Birmingham, Alabama
Bhate Project BRE1900.0058

Photo #7
Interior view of laundry room

Photo #8
Interior view of HVAC room

Photo #9
Interior view of day room

Photo #10
Interior view of day room

Photo #11
Interior view of kitchen

Photo #12
Interior view of office #1

Photographs Taken June 7, 2019
City of Birmingham Fire Station #27
Birmingham, Alabama
Bhate Project BRE1900.0058

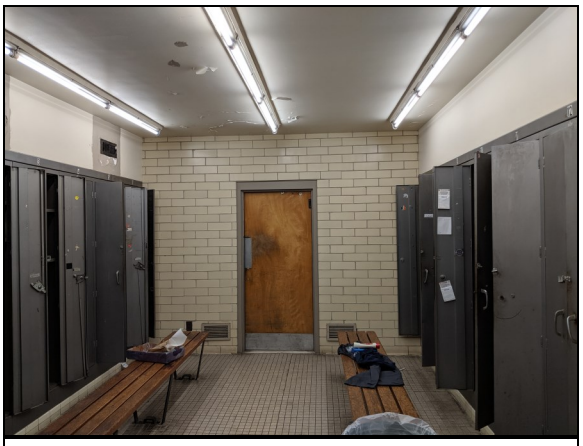


Photo #13
Interior view of locker room #1

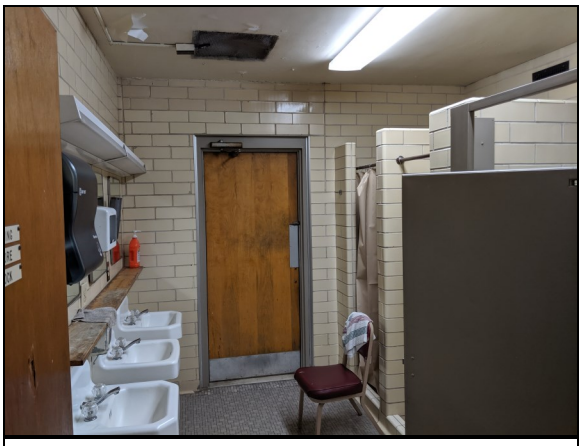


Photo #14
Interior view of bathroom #1

Photo #15
Interior view of dormitory #1

Photo #16
Interior view of dormitory #1

Photo #17
Interior view of bathroom #2

Photo #18
Interior view of locker room #2

Photographs Taken June 7, 2019
City of Birmingham Fire Station #27
Birmingham, Alabama
Bhate Project BRE1900.0058

Photo #19
Interior view of office #2

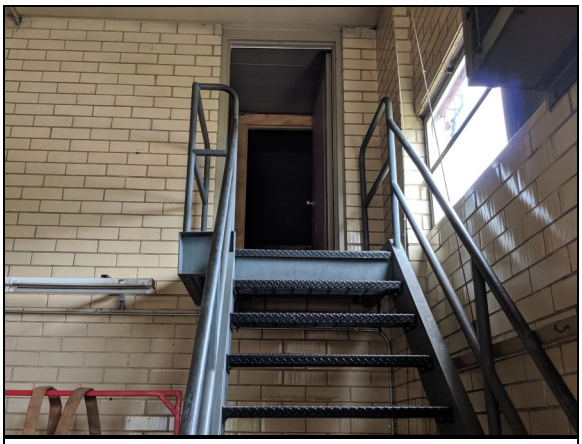


Photo #20
View of entry to dormitory #2

Photo #21
Interior view of dormitory #2

Photo #22
Interior view of second floor storage area

Photo #23
View ACM (12'' x 12'' brown floor tile with white streaks and mastic) in kitchen and day room

Photo #24
View ACM (12'' x 12'' brown floor tile with white streaks and mastic) in dormitory #1

Photographs Taken June 7, 2019
City of Birmingham Fire Station #27
Birmingham, Alabama
Bhate Project BRE1900.0058

Photo #25
View of ACM (9''x 9'' light brown floor tile with pink and white streaks beneath 12'' x 12'' floor tile

Photo #26
View of ACM (9'' x 9'' Light brown floor tile with pink and white streaks) in office #1

Photo #27
View of ACM (9'' x 9'' light brown floor tile with pink and white streaks) in dormitory #1

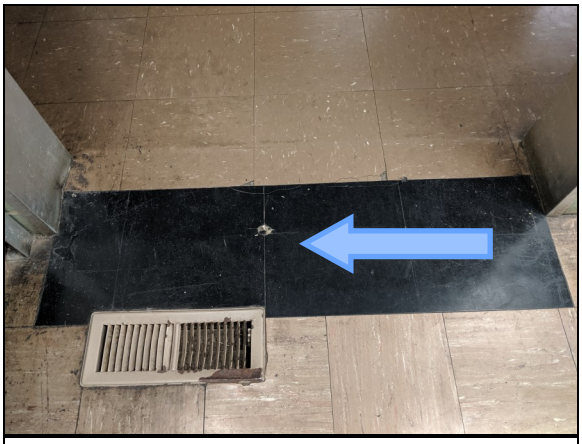


Photo #28
View of non-ACM (12'' x 12'' black floor tile and mastic) in dormitory #1

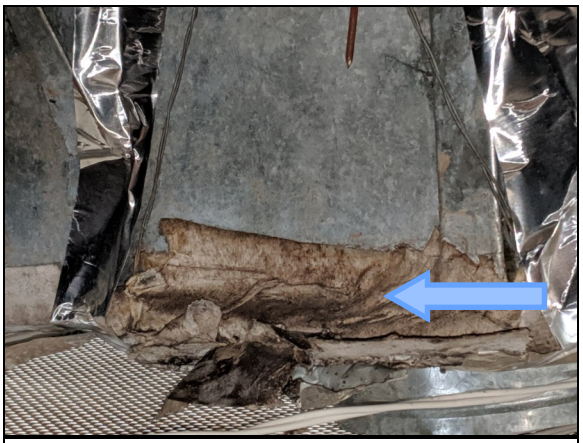


Photo #29
View of ACM (white HVAC tape) above drop ceiling in dormitory #1

Photo #30
View of ACM (white HVAC tape) above drop ceiling in dormitory #1

Photographs Taken June 7, 2019
City of Birmingham Fire Station #27
Birmingham, Alabama
Bhate Project BRE1900.0058

Attachment B – Sampling Results Table

Fire Station #27
Asbestos Bulk Sampling Results
June 7, 2019

Sample ID	Sample Location	Material	Asbestos Content	Friability	Condition
400-1	Day Room	2' x 2' White Ceiling Tile with Small Pinholes	None Detected	Friable	Fair
400-2	Laundry Room	2' x 2' White Ceiling Tile with Small Pinholes	None Detected	Friable	Fair
400-3	Dormitory #1	2' x 2' White Ceiling Tile with Medium Pinholes	None Detected	Friable	Fair
400-4	Dormitory #1	2' x 2' White Ceiling Tile with Medium Pinholes	None Detected	Friable	Fair
400-5	Office #1	2' x 2' White Ceiling Tile with Large Pinholes	None Detected	Friable	Fair
400-6	Dormitory #1	2' x 2' White Ceiling Tile with Large Pinholes	None Detected	Friable	Fair
400-7	Kitchen	Black Cove Base	None Detected	Non-Friable	Fair
		Mastic	None Detected		
400-8	Dormitory #1	Brown Cove Base	None Detected	Non-Friable	Fair
		Mastic	Not Submitted		
400-9	**Day Room - Closet**	**12" x 12" Brown Floor Tile with White Streaks**	**3% Chrysotile**	**Category I**	**Fair**
		Black Mastic	**4% Chrysotile**		
		Leveling Compound	<1% Chrysotile		
		Mastic	Not Submitted		
400-10	**Dormitory #1**	**12" x 12" Brown Floor Tile with White Streaks**	**3% Chrysotile**	**Category I**	**Fair**
		Black Mastic	**4% Chrysotile**		
400-11	**Dormitory #1**	**12" x 12" Black Floor Tile**	**3% Chrysotile**	**Category I**	**Poor**
		Black Mastic	**6% Chrysotile**		
400-12	**Office #1**	**9" x 9" Light Brown Floor Tile with Pink and White Streaks**	**4% Chrysotile**	**Category I**	Fair
		Black Mastic	None Detected		
400-13	**Dormitory #1**	**9" x 9" Light Brown Floor Tile with Pink and White Streaks**	**3% Chrysotile**	**Category I**	Fair
		Black Mastic	None Detected		
400-14	Locker Room #1	White Skim Coat	None Detected	Friable	Poor
		Brown Base Coat	None Detected		
400-15	Bay #2	Yellow Pipe Insulation	None Detected	Friable	Fair
		White/Yellow Metallic Wrapping	None Detected		
400-16	Laundry Room	Yellow Pipe Insulation	None Detected	Friable	Poor
		White Cloth Wrapping	None Detected		
400-17	**Dormitory #1 (on HVAC duct above drop ceiling)**	**White HVAC Tape**	**40% Chrysotile**	**Friable**	Fair

Notes:

[1] Friability was determined according to a material's current condition.

Friable: Materials that can be crumbled, crushed, or pulverized under hand pressure

Non-Friable: Materials that do not meet the definition of friable

Category I Non-Friable: Non-friable ACMs such as gaskets, valve packings, resilient vinyl floor covering (floor tile and linoleum), and asphalt roofing material

Category II Non-Friable: Includes all other non-friable ACMs

[2] It should be noted that the condition of the materials sampled is based on the top layer of the sampled materials only at the time of sampling.

Bold typeface indicates a positive sample layer.

Green highlighting indicates a positive homogeneous area.

Fire Station #27
Asbestos in Air Sampling Results
June 7-8, 2019

Sample Location	Pump Identification	Flow Rate	Sample Identification	Sample Duration (min)	Total Volume of Air (L)	Fibers	Fibers/cc	Comments
Day Room	0826	2.07	A-1-1	500	1035.00	<5.5	<0.003	Pass
			A-1-2	523	1082.61	<5.5	<0.002	Pass
			A-1-3	344	712.08	<5.5	<0.004	Pass
Dormitory #2	41410	1.98	A-2-1	501	991.98	<5.5	<0.003	Pass
			A-2-2	526	1041.48	<5.5	<0.003	Pass
			A-2-3	340	673.20	<5.5	<0.004	Pass
Dormitory #1	901037	1.96	A-3-1	508	995.68	<5.5	<0.003	Pass
			A-3-2	534	1046.64	<5.5	<0.003	Pass
			A-3-3	336	658.56	<5.5	<0.004	Pass
Exterior (Baseline)	2780	2.13	A-4-1	512	1090.56	6.5	0.003	Pass
			A-4-2	534	1137.42	<5.5	<0.002	Pass
			A-4-3	Not submitted				Pump stopped working before sample time had elapsed
Blank	N/A	N/A	A-Blank	N/A	N/A	<5.5	N/A	Field Blank

Fire Station #27
Tape Lift Sampling Results
June 8, 2019

Sample ID	T-1	T-2	T-3
Sample Location	Day Room Air Diffuser	Day Room Floor Return	Dormitory Ceiling Tile
Spore Type			
Alternaria			*Medium*
Ascospores	Rare	Rare	
Basidiospores	Rare	Rare	
Bipolaris	Rare		
Cladosporium		*Rare*	*High*
Curvularia	Rare	Rare	Rare
Eppicoccum	Rare		
Myxomycetes	Rare		
Pithomyces	Rare	Rare	
Stachybotrys/Memnoniella			Medium
Pestalotia/Pestalotiopsis	Rare		

Rare = 1 to 10
Low = 11 to 100
Medium = 101 to 1000
High = >1000
* * = Sample contains fruiting structures and/or hyphae

Fire Station #27
Fungal Spore Sampling Results
June 7, 2019

Sample Number	SP-1	SP-2	SP-3	SP-4	SP-5	Blank
Sample Location	Day Room	Kitchen	Dormitory #2	Dormitory #1	Outside Rear Bay	N/A
Sample Date	6/7/2019	6/7/2019	6/7/2019	6/7/2019	6/7/2019	6/7/2019
Sample Rate (L/min)	14.3	14.78	14.76	15.69	15.01	N/A
Total Sample Time (min)	10	10	10	10	10	N/A
Sample Volume (L)	143	148	148	157	150	N/A
Spore Type	**Spores per cubic meter (#/m^3)**					
Alternaria					20	
Ascospores	200	360	1,900	340	2,230	
Aspergillus/Penicillium	20	20	90		20	
Basidiospores	830	780	2,490	1,400	10,200	
Bipolaris		7				
Cladosporium	90	50	650	360	1,200	
Curvularia	20				20	
Epicoccum					7	
Ganoderma					40	
Myxomycetes			7	6	7	
Rust					20	
Cersospora			20		7	
Pestalotia/Pestalotiopsis			7			
Pyricularia					90	
Total Fungi	**1,160**	**1,217**	**5,164**	**2,106**	**13,861**	
Hyphal Fragments	20	70	100	20	20	
Insect Fragments						
Pollen					20	

Sample Number	SP-1	SP-2	SP-3	SP-4	SP-5	Blank
Sample Location	Day Room	Kitchen	Dormitory #2	Dormitory #1	Outside Rear Bay	N/A
Spore Type	**Percentage of Total Sample**					
Alternaria					0.1	
Ascospores	17.2	29.6	36.8	16.1	16.1	
Aspergillus/Penicillium	1.7	1.6	1.7		0.1	
Basidiospores	71.6	64.1	48.2	66.5	73.6	
Bipolaris		0.6			0.0	
Cladosporium	7.8	4.1	12.6	17.1	8.7	
Curvularia	1.7				0.1	
Epicoccum					0.1	
Ganoderma					0.3	
Myxomycetes			0.1	0.3	0.1	
Rust					0.1	
Cersospora			0.4		0.1	
Pestalotia/Pestalotiopsis			0.1		0.0	
Pyricularia					0.6	
Total Fungi	**100**	**100**	**100**	**100**	**100**	

Fire Station #27
Nuisance Dust Sampling Results
June 7 - 8, 2019

Sample Location	Pump ID	Flow Rate (L/min)	Sample ID	Cassette ID	Sample Duration (min)	Volume (L)	Concentration (mg/m^3)
Day Room	5190	1.49	D-1-1	553598	497	740.53	<0.068
			D-1-2	400253	520	774.80	<0.065
			D-1-3	400271	347	517.03	<0.097
Dormitory #2	5197	2.04	D-2-1	553600	500	1020.00	<0.049
			D-2-2	400279	528	1077.12	<0.046
			D-2-3	400290	335	683.40	<0.073
Dormitory #1	5208	2.13	D-3-1	553626	510	1086.30	<0.046
			D-3-2	400288	528	1124.64	<0.044
			D-3-3	400297	336	715.68	<0.070
Baseline	5193	1.97	D-4-1	553653	512	1008.64	<0.050
			D-4-2	400286	536	1055.92	<0.047
			D-4-3	400299	331	652.07	<0.077
Blank	N/A	N/A	D-Blank	400294	N/A	N/A	N/A

Attachment C – Laboratory Analytical Results

EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order:	041916077
Customer ID:	BHAT62
Customer PO:	3119
Project ID:	

Attention:	Dana Tilton	**Phone:**	(205) 918-4000
	Bhate Environmental Associates, Inc.	**Fax:**	(205) 918-4050
	1608 13th Ave S., Suite 300	**Received Date:**	06/11/2019 9:50 AM
	Birmingham, AL 35205	**Analysis Date:**	06/13/2019
		Collected Date:	

Project: BRE1900.0058.0001 / COB / FS27 / 400 Huffman Road

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**
400-1 *041916077-0001*	Day Room - 2'x2' White Ceiling Tile with Small Pinholes	Tan/White Fibrous Homogeneous	60% Cellulose 20% Min. Wool	20% Non-fibrous (Other)	None Detected
400-2 *041916077-0002*	Laundry - 2'x2' White Ceiling Tile with Small Pinholes	Tan/White Fibrous Homogeneous	60% Cellulose 20% Min. Wool	20% Non-fibrous (Other)	None Detected
400-3 *041916077-0003*	Dormatory #1 - 2'x2' White Ceiling Tile with Medium Pinholes	Tan/White Fibrous Homogeneous	60% Cellulose 20% Min. Wool	20% Non-fibrous (Other)	None Detected
400-4 *041916077-0004*	Dormatory #1 - 2'x2' White Ceiling Tile with Medium Pinholes	Tan/White Fibrous Homogeneous	60% Cellulose 20% Min. Wool	20% Non-fibrous (Other)	None Detected
400-5 *041916077-0005*	Office #1 - 2'x2' White Ceiling Tile with Large Pinholes	Tan/White Fibrous Homogeneous	60% Cellulose 20% Min. Wool	20% Non-fibrous (Other)	None Detected
400-6 *041916077-0006*	Dormatory #1 - 2'x2' White Ceiling Tile with Large Pinholes	Tan/White Fibrous Homogeneous	60% Cellulose 20% Min. Wool	20% Non-fibrous (Other)	None Detected
400-7-Cove Base *041916077-0007*	Kitchen - Black Cove Base	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
400-7-Mastic *041916077-0007A*	Kitchen - Mastic	Tan/Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
400-8-Cove Base *041916077-0008*	Dormatory #1 - Brown Cove Base	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
400-8-Mastic *041916077-0008A*	Dormatory #1 - Mastic				Not Submitted
400-9-Floor Tile *041916077-0009*	Day Room Closet - 12"x12" Brown Floor Tile with White Streaks	Brown Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
400-9-Mastic *041916077-0009A*	Day Room Closet - Mastic	Black Non-Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
400-9-Floor Tile *041916077-0009B*	Day Room Closet - 9"x9" Floor Tile	Brown/Black Non-Fibrous Heterogeneous		100% Non-fibrous (Other)	<1% Chrysotile
Sample is leveler. Result includes a small amount of inseparable attached material.					
400-9-Mastic *041916077-0009C*	Day Room Closet - Mastic				Not Submitted
400-10-Floor Tile *041916077-0010*	Dormatory #1 - 12"x12" Brown Floor Tile with White Streaks	Brown Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile

Initial report from: 06/13/2019 21:38:54

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order:	041916077
Customer ID:	BHAT62
Customer PO:	3119
Project ID:	

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**
400-10-Mastic *041916077-0010A*	Dormatory #1 - Mastic	Black Non-Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
400-11-Floor Tile *041916077-0011*	Dormatory #1 - 12"x12" Black Floor Tile	Black Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
400-11-Mastic *041916077-0011A*	Dormatory #1 - Mastic	Black Non-Fibrous Homogeneous		94% Non-fibrous (Other)	6% Chrysotile
400-12-Floor Tile *041916077-0012*	Office #1 - 9"x9" Light Brown Floor Tile with Pink and White Streaks	Brown Non-Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
400-12-Mastic *041916077-0012A*	Office #1 - Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
400-13-Floor Tile *041916077-0013*	Dormatory #1 - 9"x9" Light Brown Floor Tile with Pink and White Streaks	Brown Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
400-13-Mastic *041916077-0013A*	Dormatory #1 - Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
400-14-Skim Coat *041916077-0014*	Locker Room #1 - Plaster Wall	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
400-14-Base Coat *041916077-0014A*	Locker Room #1 - Plaster Wall	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
400-15-Pipe Insulation *041916077-0015*	Bay #2 - Pipe Insulation	Yellow Fibrous Homogeneous	98% Min. Wool	2% Non-fibrous (Other)	None Detected
400-15-Wrapping *041916077-0015A*	Bay #2 - Metallic Wrapping	White/Yellow Fibrous Homogeneous	60% Cellulose 10% Glass	30% Non-fibrous (Other)	None Detected
400-16-Pipe Insulation *041916077-0016*	Laundry - Pipe Insulation	Yellow Fibrous Homogeneous	98% Min. Wool	2% Non-fibrous (Other)	None Detected
400-16-Wrapping *041916077-0016A*	Laundry - Cloth Wrapping	White Fibrous Homogeneous	99% Cellulose	1% Non-fibrous (Other)	None Detected
400-17 *041916077-0017*	On HVAC Duct above Drop Ceiling in Dormatory #1 - White HVAC Tape	White Fibrous Homogeneous	40% Cellulose	20% Non-fibrous (Other)	40% Chrysotile

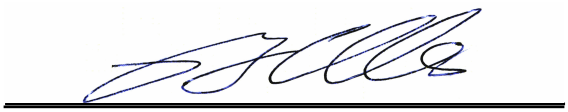
Initial report from: 06/13/2019 21:38:54

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order:	041916077
Customer ID:	BHAT62
Customer PO:	3119
Project ID:	

Analyst(s)

Christian Strey (25)
Natalia Morais Soares (2)



Benjamin Ellis, Laboratory Manager
or Other Approved Signatory

Initial report from: 06/13/2019 21:38:54

bhate
1608 13th Avenue South, Suite 300
Birmingham, Alabama 35205
Phone: 205.918.4000 Fax: 205.918.4050

CHAIN OF CUSTODY ANALYTICAL REQUEST

041916077

SEND REPORT TO:
Bhate Environmental Associates
Attn: Dana Tilton
LAB: EMSL
Job # BRE1900.0058.0001 PO# 3119
Sheet: 1 of 1

CLIENT:	PROJECT:	SITE LOCATION: (Address)	SAMPLER:
COB	FS27	400 Huffman Road	Stephen Acreman

Method of Delivery: FedEx

LAB ID	Field ID	Date / Time Collected	Sample Description and Location (Color, Matrix, Location)	Analysis Requested PLM		Turn Around	Size/ Quantity of Area
	400-1	6/7/2019	2'X2' White Ceiling Tile with Small Pinholes - Day Room	X		48-hr	N/A
	400-2	6/7/2019	2'X2' White Ceiling Tile with Small Pinholes - Laundry	X		48-hr	N/A
	400-3	6/7/2019	2'X2' White Ceiling Tile with Medium Pinholes - Dormatory #1	X		48-hr	N/A
	400-4	6/7/2019	2'X2' White Ceiling Tile with Medium Pinholes - Dormatory #1	X		48-hr	N/A
	400-5	6/7/2019	2'X2' White Ceiling Tile with Large Pinholes - Office #1	X		48-hr	N/A
	400-6	6/7/2019	2'X2' White Ceiling Tile with Large Pinholes - Dormatory #1	X		48-hr	N/A
	400-7	6/7/2019	Black Base Cove & Mastic - Kitchen	X		48-hr	N/A
	400-8	6/7/2019	Brown Base Cove & Mastic - Dormatory #1	X		48-hr	N/A
	400-9	6/7/2019	1st Layer: 12"X12" Brown Floor Tile with White Streaks & Mastic; 2nd Layer: 9"X9" Floor Tile and Mastic - Day Room Closet	X		48-hr	N/A
	400-10	6/7/2019	12"X12" Brown Floor Tile with White Streaks & Mastic - Dormatory #1	X		48-hr	N/A
	400-11	6/7/2019	12"X12" Black Floor Tile & Mastic - Dormatory #1	X		48-hr	N/A
	400-12	6/7/2019	9"X9" Light Brown Floor Tile with Pink and White Streaks & Mastic -Office #1	X		48-hr	N/A
	400-13	6/7/2019	9"X9" Light Brown Floor Tile with Pink and White Streaks & Mastic - Dormatory #1	X		48-hr	N/A
	400-14	6/7/2019	Plaster Wall - Locker Room #1	X		48-hr	N/A
	400-15	6/7/2019	Pipe Insluation with Metallic Wrapping - Bay #2	X		48-hr	N/A
	400-16	6/7/2019	Pipe Insulation with Cloth Wrapping - Laundry	X		48-hr	N/A
	400-17	6/7/2019	White HVAC Tape - on HVAC Duct Above Drop Ceiling in Dormatory #1	X		48-hr	N/A

Relinquished By:
Signed: [signature]
Print: Stephen Acreman
6/10/19
1730

Received in Laboratory By:
Signed: [signature]
Print:
Date: 6/11/19
Time: 9SCA

RECEIVED
2019 JUN 11 A 11:55
EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order: 041916061
Customer ID: BHAT62
Customer PO: 3119
Project ID:

Attention: Dana Tilton
Bhate Environmental Associates, Inc.
1608 13th Ave S., Suite 300
Birmingham, AL 35205

Phone: (205) 918-4000
Fax: (205) 918-4050
Received Date: 06/11/2019 09:50 AM
Analysis Date: 06/13/2019
Collected Date:

Project: FS27 / 400 Huffman Road / BRE 1900.0058.0001

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 3, 4/29/2019

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm²	Fibers/cc	Notes
A-1-1	Day Room		1035	<5.5	100	0.003	<7.01	<0.003	
041916061-0001									
A-1-2	Day Room		1082.61	<5.5	100	0.002	<7.01	<0.002	
041916061-0002									
A-1-3	Day Room		712.08	<5.5	100	0.004	<7.01	<0.004	
041916061-0003									
A-2-1	Upstairs Dormitory		991.98	<5.5	100	0.003	<7.01	<0.003	
041916061-0004									
A-2-2	Upstairs Dormitory		1041.48	<5.5	100	0.003	<7.01	<0.003	
041916061-0005									
A-2-3	Upstairs Dormitory		673.2	<5.5	100	0.004	<7.01	<0.004	
041916061-0006									
A-3-1	Rear Dormitory		995.68	<5.5	100	0.003	<7.01	<0.003	
041916061-0007									
A-3-2	Rear Dormitory		1046.64	<5.5	100	0.003	<7.01	<0.003	
041916061-0008									
A-3-3	Rear Dormitory		658.56	<5.5	100	0.004	<7.01	<0.004	
041916061-0009									
A-4-1	Baseline		1090.56	6.5	100	0.002	8.28	0.003	
041916061-0010									
A-4-2	Baseline		1137.42	<5.5	100	0.002	<7.01	<0.002	
041916061-0011									
A-Blank	Blank			<5.5	100		<7.01		Field Blank
041916061-0012									

The results reported have been blank corrected as applicable.

Analyst(s):
Christina Maiorana PCM 12

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. 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. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC--IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367, LA #04127

Initial report from: 06/13/2019 08:41 AM

041916061

bhate

1608 13th Avenue South, Suite 300
Birmingham, Alabama 35205
Phone: 205.918.4000 Fax: 205.918.4050

CHAIN OF CUSTODY ANALYTICAL REQUEST

SEND REPORT TO:
Bhate Environmental Associates
Attn: Dana Tilton
LAB: EMSL Analytical
Job No. BRE1900.0058.0001 PO # 3119
Sheet: 1 of 1

CLIENT:	PROJECT:	SITE LOCATION: (Address)	SAMPLER:
COB	FS27	400 Huffman Road	Dana Tilton

CLIENT:

Method of Delivery: FedEx

LAB ID	Field ID	Date Sampled	Flow Rate (L/min)	Sample Description and Location (Sample Location, Amount of Time Sampled)	Analysis Requested Type	Analysis Requested Turn Around	Volume of Air Sampled (liters)
	A-1-1	7-Jun	2.07	Day Room - Pump 0826 - 500 min	PCM	48-hour	1035
	A-1-2	7-Jun	2.07	Day Room - Pump 0826 - 523 min	PCM	48-hour	1082.61
	A-1-3	8-Jun	2.07	Day Room - Pump 0826 - 344 min	PCM	48-hour	712.08
	A-2-1	7-Jun	1.98	Upstairs Dormitory - Pump 41410 - 501 min	PCM	48-hour	991.98
	A-2-2	7-Jun	1.98	Upstairs Dormitory - Pump 41410 - 526 min	PCM	48-hour	1041.48
	A-2-3	8-Jun	1.98	Upstairs Dormitory - Pump 41410 - 340 min	PCM	48-hour	673.2
	A-3-1	7-Jun	1.96	Rear Dormitory - Pump 901037 - 508 min	PCM	48-hour	995.68
	A-3-2	7-Jun	1.96	Rear Dormitory - Pump 901037 - 534 min	PCM	48-hour	1046.64
	A-3-3	8-Jun	1.96	Rear Dormitory - Pump 901037 - 336 min	PCM	48-hour	658.56
	A-4-1	7-Jun	2.13	Baseline - Pump 2780 - 512 min	PCM	48-hour	1090.56
	A-4-2	7-Jun	2.13	Baseline - Pump 2780 - 534 min	PCM	48-hour	1137.42
	A-Blank	8-Jun	N/A	Blank	PCM	48-hour	N/A

Relinquished By:		Received in Laboratory By:	
Signed: Dana C Tilton	Date: 6/11/19	Signed: [illegible]	Date: 6-11-19
Print: Dana Tilton	Time: 17:00	Print:	Time: 9:50
Relinquished By:		Received in Laboratory By:	
Signed:	Date:	Signed:	Date:
Print:	Time:	Print:	Time:

RECEIVED JUN 11 A 11:5 CINNAMINSON, NJ

Page 1 Of 1

OrderID: 041916061

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:	371912945
Customer ID:	BHAT62
Customer PO:	3119
Project ID:	

Attn: Dana Tilton
Bhate Environmental Associates, Inc.
1608 13th Ave S., Suite 300
Birmingham, AL 35205

Phone:	(205) 918-4000
Fax:	(205) 918-4050
Collected:	06/08/2019
Received:	06/11/2019
Analyzed:	06/13/2019

Proj: COB / FS27 / 400 Huffman Road / BRE1900.0058.0001

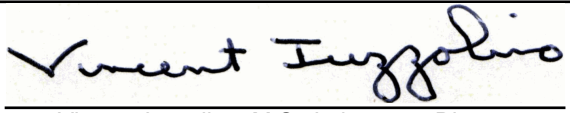
Test Report: Microscopic Examination of Fungal Spores, Fungal Structures, Hyphae, and Other Particulates from Tape Samples (EMSL Method MICRO-SOP-200)

Lab Sample Number:	371912945-0001	371912945-0002	371912945-0003		
Client Sample ID:	T-1	T-2	T-3		
Sample Location:	Day Room Air Vent	Day Room Floor Vent	Dormitory Ceiling Tile		
Spore Types	Category	Category	Category	-	-
Alternaria (Ulocladium)	-	-	*Medium*	-	-
Ascospores	Rare	Rare	-	-	-
Aspergillus/Penicillium	-	-	-	-	-
Basidiospores	Rare	Rare	-	-	-
Bipolaris++	Rare	-	-	-	-
Chaetomium	-	-	-	-	-
Cladosporium	-	*Rare*	*High*	-	-
Curvularia	Rare	Rare	Rare	-	-
Epicoccum	Rare	-	-	-	-
Fusarium	-	-	-	-	-
Ganoderma	-	-	-	-	-
Myxomycetes++	Rare	-	-	-	-
Pithomyces++	Rare	Rare	-	-	-
Rust	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	Medium	-	-
Unidentifiable Spores	-	-	-	-	-
Zygomycetes	-	-	-	-	-
Pestalotia/Pestalotiopsis	Rare	-	-	-	-
Hyphal Fragment	Rare	Rare	-	-	-
Insect Fragment	Rare	-	-	-	-
Pollen	Rare	Rare	Rare	-	-
Fibrous Particulate	Low	High	Rare	-	-

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

- Denotes Not Detected.
++ = Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.
* = Sample contains fruiting structures and/or hyphae associated with the spores.

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



Vincent Iuzzolino, M.S., Laboratory Director
or Other Approved Signatory

Initial report from: 06/13/2019 11:58:17

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

bhate

1608 13th Avenue South, Suite 300
Birmingham, Alabama 35205
Phone: 205.918.4000 Fax: 205.918.4050

CHAIN OF CUSTODY ANALYTICAL REQUEST

371912945

SEND REPORT TO: Bhate Environmental Associates
Attn: Dana Tilton
LAB: EMSL
Job # BRE1900.0058.0001 PO# 3119
Sheet: 1 of 1

CLIENT:	PROJECT:	SITE LOCATION: (Address)	SAMPLER:
COB	FS27	400 Huffman Road	Stephen Acreman

Method of Delivery: FedEx

LAB ID	Field ID	Date / Time Collected	Sample Description and Location (Color, Matrix, Location)	Analysis Requested Tapes		Turn Around	Size/ Quantity of Area
	T-1	6/8/2019	Day Room Air vent	M041		48-hr	N/A
	T-2	6/8/2019	Day Room floor vent	M041		48-hr	N/A
	T-3	6/8/2019	Dormitory Ceiling Tile	M041		48-hr	N/A

RECEIVED EMSL CINNAMINSON, N.J. 2019 JUN 11 A 10:58

Relinquished By: Signed: Print: Dana Tilton — 6/10/19 17:30

Received in Laboratory By: Signed: Print: — Date: 6-11-19 Time: 1035

EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-0262

http://www.EMSL.com / cinnmicrolab@emsl.com

EMSL Order: 371912932
Customer ID: BHAT62
Customer PO: 3119
Project ID:

Attn: Dana Tilton
Bhate Environmental Associates, Inc.
1608 13th Ave S., Suite 300
Birmingham, AL 35205

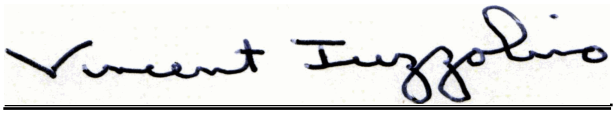
Phone: (205) 918-4000
Fax: (205) 918-4050
Collected: 06/07/2019
Received: 06/11/2019
Analyzed: 06/12/2019

Project: BRE1900.0058.0001 / COB / FS27 / 400 Huffman Road

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

Lab Sample Number:	371912932-0001			371912932-0002			371912932-0003		
Client Sample ID:	SP-1			SP-2			SP-3		
Volume (L):	143			148			148		
Sample Location	Day Room			Kitchen			Upstairs Dorm		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	9	200	17.2	16	360	29.6	84	1900	36.8
Aspergillus/Penicillium	1	20	1.7	1	20	1.6	4	90	1.7
Basidiospores	36	830	71.6	35	780	64.1	111	2490	48.2
Bipolaris++	-	-	-	1*	7*	0.6	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	4	90	7.8	2	50	4.1	29	650	12.6
Curvularia	1	20	1.7	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	1*	7*	0.1
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Cercospora++	-	-	-	-	-	-	1	20	0.4
Pestalotia/Pestalotiopsis	-	-	-	-	-	-	1*	7*	0.1
Pyricularia	-	-	-	-	-	-	-	-	-
Total Fungi	**51**	**1160**	**100**	**55**	**1217**	**100**	**231**	**5164**	**100**
Hyphal Fragment	1	20	-	3	70	-	6	100	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	23	-	-	22	-	-	22	-
Analyt. Sensitivity 300x	-	7*	-	-	7*	-	-	7*	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	1	-	-	2	-	-	3	-

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



Vincent Iuzzolino, M.S., Laboratory Manager
or other approved signatory

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ AIHA-LAP, LLC--EMLAP Lab 100194

Initial report from: 06/13/2019 10:54:05

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
Tel/Fax: (800) 220-3675 / (856) 786-0262
http://www.EMSL.com / cinnmicrolab@emsl.com

EMSL Order: 371912932
Customer ID: BHAT62
Customer PO: 3119
Project ID:

Attn: Dana Tilton
Bhate Environmental Associates, Inc.
1608 13th Ave S., Suite 300
Birmingham, AL 35205

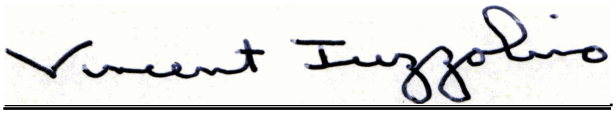
Phone: (205) 918-4000
Fax: (205) 918-4050
Collected: 06/07/2019
Received: 06/11/2019
Analyzed: 06/12/2019

Project: BRE1900.0058.0001 / COB / FS27 / 400 Huffman Road

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

Lab Sample Number:	371912932-0004			371912932-0005			371912932-0006		
Client Sample ID:	SP-4			SP-5			SP-B		
Volume (L):	157			150					
Sample Location	Rear Dorm			Outside Rear Bay			Blank		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria (Ulocladium)	-	-	-	1	20	0.1	-	-	-
Ascospores	16	340	16.1	101	2230	16.1	-	-	-
Aspergillus/Penicillium	-	-	-	1	20	0.1	-	-	-
Basidiospores	65	1400	66.5	462	10200	73.6	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	17	360	17.1	53	1200	8.7	-	-	-
Curvularia	-	-	-	1	20	0.1	-	-	-
Epicoccum	-	-	-	1*	7*	0.1	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	2	40	0.3	-	-	-
Myxomycetes++	1*	6*	0.3	1*	7*	0.1	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	1	20	0.1	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Cercospora++	-	-	-	1*	7*	0.1	-	-	-
Pestalotia/Pestalotiopsis	-	-	-	-	-	-	-	-	-
Pyricularia	-	-	-	4	90	0.6	-	-	-
Total Fungi	**99**	**2106**	**100**	**629**	**13861**	**100**	**-**	**No Trace**	**-**
Hyphal Fragment	1	20	-	1	20	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	-	-	-	1	20	-	-	-	-
Analyt. Sensitivity 600x	-	21	-	-	22	-	-	0	-
Analyt. Sensitivity 300x	-	6*	-	-	7*	-	-	0*	-
Skin Fragments (1-4)	-	2	-	-	1	-	-	-	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	-	-
Background (1-5)	-	1	-	-	1	-	-	-	-

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



Vincent Iuzzolino, M.S., Laboratory Manager
or other approved signatory

Initial report from: 06/13/2019 10:54:05

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

371912932

bhate

1608 13th Avenue South, Suite 300
Birmingham, Alabama 35205
Phone: 205.918.4000 Fax: 205.918.4050

CHAIN OF CUSTODY ANALYTICAL REQUEST

SEND REPORT TO:
Bhate Environmental Associates
Attn: Dana Tilton
LAB: EMSL Analytical
Job No. BRE1900.0058.0001 PO # 3119
Sheet: 1 of 1

CLIENT:	PROJECT:	SITE LOCATION: (Address)	SAMPLER:
COB	FS27	400 Huffman Road	Dana Tilton

Method of Delivery: FedEx

LAB ID	Field ID	Date Sampled	Flow Rate (L/min)	Sample Description and Location (Sample Location, Amount of Time Sampled)	Analysis Requested Type	Analysis Requested Turn Around	Volume of Air Sampled (liters)
	SP-1	7-Jun	14.30	2800 8480 Day Room - 10 min	M-001	48-hour	143
	SP-2	7-Jun	14.78	2800 8971 Kitchen - 10 min	M-001	48-hour	148
	SP-3	7-Jun	14.76	2800 8443 Upstairs Dorm - 10 min	M-001	48-hour	148
	SP-4	7-Jun	15.69	2800 8515 Rear Dorm - 10 min	M-001	48-hour	157
	SP-5	7-Jun	15.01	2800 8416 Outside Rear Bay - 10 min	M-001	48-hour	150
	SP-B	7-Jun	—	2800 8543 Blank	M-001	48-hr	—

Relinquished By:		Received in Laboratory By:	
Signed: Dana Tilton	Date: 6/10/19	Signed:	Date: 6-11-19
Print: Dana Tilton	Time: 17:00	Print:	Time: 1030
Relinquished By:		Received in Laboratory By:	
Signed:	Date:	Signed:	Date:
Print:	Time:	Print:	Time:

11 JUN 2019 10:51 AM
EMSL CINNAMINSON, N.J. RECEIVED

EMSL Analytical - Industrial Hygiene
200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 /
http://www.EMSL.com silicaLab@emsl.com

EMSL Order:	721900532
CustomerID:	BHAT62
CustomerPO:	3119
ProjectID:	

Attn: **Dana Tilton**
Bhate Environmental Associates, Inc.
1608 13th Ave S., Suite 300
Birmingham, AL 35205

Phone:	(205) 918-4000
Fax:	(205) 918-4050
Received:	06/11/19 10:40 AM
Analysis Date:	6/12/2019
Collected:	6/8/2019

Project: **BRE1900.0058.0001 - COB - FS27 - 400 Huffman Road**

Test Report: Total Dust Analysis (Gravimetric) of Air Samples via NIOSH 0500, Issue 2, 8/15/94

Sample	*Location*	*Volume (L)*	*Sample Weight (mg)*	*Concentration (mg/m^3)*	*Reporting Limit (mg/m^3)*	*Notes*
D-1-1 *721900532-0001*	Day Room - 553598	740.53	<0.050	<0.068	0.068	
D-1-2 *721900532-0002*	Day Room - 400253	774.8	<0.050	<0.065	0.065	
D-1-3 *721900532-0003*	Day Room - 400271	517.03	<0.050	<0.097	0.097	
D-2-1 *721900532-0004*	Upstairs Dormitory - 553600	1020	<0.050	<0.049	0.049	
D-2-2 *721900532-0005*	Upstairs Dormitory - 400279	1077.12	<0.050	<0.046	0.046	
D-2-3 *721900532-0006*	Upstairs Dormitory - 400290	683.4	<0.050	<0.073	0.073	
D-3-1 *721900532-0007*	Rear Dormitory - 553626	1086.3	<0.050	<0.046	0.046	
D-3-2 *721900532-0008*	Rear Dormitory - 400288	1124.64	<0.050	<0.044	0.044	
D-3-3 *721900532-0009*	Rear Dormitory - 400297	715.68	<0.050	<0.070	0.070	
D-4-1 *721900532-0010*	Baseline - 553653	1008.64	<0.050	<0.050	0.050	
D-4-2 *721900532-0011*	Baseline - 400286	1055.92	<0.050	<0.047	0.047	
D-4-3 *721900532-0012*	Baseline - 400299	652.07	<0.050	<0.077	0.077	

Analyst(s)

Katelynn Sweeney (13)

Katherine Foster, Laboratory Manager
or other approved signatory

The laboratory is not responsible for data reported in mg/m3, which is dependent on volume collected by non-laboratory personnel. Reporting limits for samples without volumes, such as Field Blanks, are 0.05 mg. This report relates only to the samples reported above. This report may not be reproduced, except in full, without written approval by EMSL. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical - Industrial Hygiene Cinnaminson, NJ AIHA-LAP, LLC-IHLAP Accreditated Lab 100194

Initial report from 06/12/2019 11:51:25

EMSL Analytical - Industrial Hygiene
200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 /
http://www.EMSL.com silicaLab@emsl.com

EMSL Order:	721900532
CustomerID:	BHAT62
CustomerPO:	3119
ProjectID:	

Attn: **Dana Tilton**
Bhate Environmental Associates, Inc.
1608 13th Ave S., Suite 300
Birmingham, AL 35205

Phone:	(205) 918-4000
Fax:	(205) 918-4050
Received:	06/11/19 10:40 AM
Analysis Date:	6/12/2019
Collected:	6/8/2019

Project: **BRE1900.0058.0001 - COB - FS27 - 400 Huffman Road**

Test Report: Total Dust Analysis (Gravimetric) of Air Samples via NIOSH 0500, Issue 2, 8/15/94

Sample	*Location*	*Volume (L)*	*Sample Weight (mg)*	*Concentration (mg/m^3)*	*Reporting Limit (mg/m^3)*	*Notes*
D-B	Blank - 400294		<0.050	N/A	N\A	Field Blank
721900532-0013						

Notes: Discernable field blank submitted with samples.
Results are not field blank corrected.

Analyst(s)

Katelynn Sweeney (13)

Katherine Foster, Laboratory Manager
or other approved signatory

Initial report from 06/12/2019 11:51:25

-721900532

OrderID: 721900532

bhate

1608 13th Avenue South, Suite 300
Birmingham, Alabama 35205
Phone: 205.918.4000 Fax: 205.918.4050

CHAIN OF CUSTODY ANALYTICAL REQUEST

SEND REPORT TO:
Bhate Environmental Associates
Attn: Dana Tilton
LAB: EMSL Analytical
Job No. BRE1900.0058.0001 PO # 3119
Sheet: 1 of 1

CLIENT:	PROJECT:	SITE LOCATION: (Address)	SAMPLER:
COB	FS27	400 Huffman Road	Dana Tilton

CLIENT:

Method of Delivery: FedEx

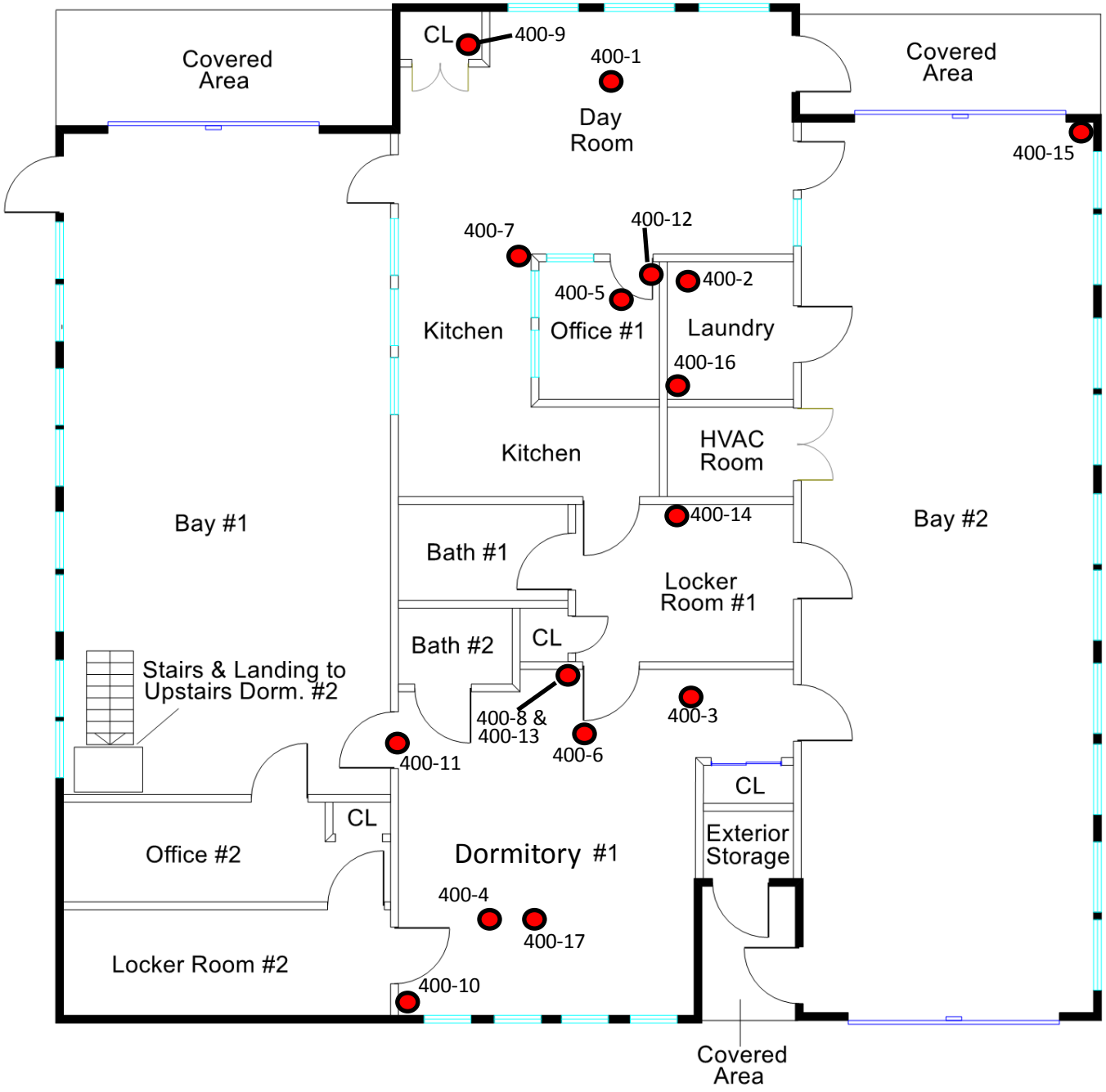
LAB ID	Field ID	Date Sampled	Flow Rate (L/min)	Sample Description and Location (Sample Location, Amount of Time Sampled)	Analysis Requested Type	Analysis Requested Turn Around	Volume of Air Sampled (liters)
	D-1-1	7-Jun	1.49	Day Room - 553598 - Pump 5190 - 497 min	NIOSH 0500	48-hour	740.53
	D-1-2	7-Jun	1.49	Day Room - 400253 - Pump 5190 - 520 min	NIOSH 0500	48-hour	774.8
	D-1-3	8-Jun	1.49	Day Room - 400271 - Pump 5190 - 347 min	NIOSH 0500	48-hour	517.03
	D-2-1	7-Jun	2.04	Upstairs Dormitory - 553600 - Pump 5197 - 500 min	NIOSH 0500	48-hour	1020
	D-2-2	7-Jun	2.04	Upstairs Dormitory - 400279 - Pump 5197 - 528 min	NIOSH 0500	48-hour	1077.12
	D-2-3	8-Jun	2.04	Upstairs Dormitory - 400290 - Pump 5197 - 335 min	NIOSH 0500	48-hour	683.4
	D-3-1	7-Jun	2.13	Rear Dormitory - 553626 - Pump 5208 - 510 min	NIOSH 0500	48-hour	1086.3
	D-3-2	7-Jun	2.13	Rear Dormitory - 553626 - Pump 5208 - 528 min	NIOSH 0500	48-hour	1124.64
	D-3-3	8-Jun	2.13	Rear Dormitory - 553626 - Pump 5208 - 336 min	NIOSH 0500	48-hour	715.68
	D-4-1	7-Jun	1.97	Baseline - 553653 - Pump 5193 - 512 min	NIOSH 0500	48-hour	1008.64
	D-4-2	7-Jun	1.97	Baseline - 400286 - Pump 5193 - 536 min	NIOSH 0500	48-hour	1055.92
	D-4-3	8-Jun	1.97	Baseline - 400299 - Pump 5193 - 331 min	NIOSH 0500	48-hour	652.07
	D-B	8-Jun	N/A	Blank - 400294	NIOSH 0500	48-hour	N/A

RECEIVED 2019 JUN 11 AM 10:11 EMSL CINNAMINSON, N.J.

Relinquished By: Signed: [signature]	Date: 6/10/19	Received in Laboratory By: Signed: [signature]	Date: 6/11/19
Print: Dana Tilton	Time: 1730	Print: EMSL FX	Time: 1040
Relinquished By: Signed:	Date:	Received in Laboratory By: Signed:	Date:
Print:	Time:	Print:	Time:

1307

Attachment D – sample Location Diagrams



bhate
1608 13th Ave South, Suite 300
Birmingham, AL 35205
205.918.4000 | bhate.com

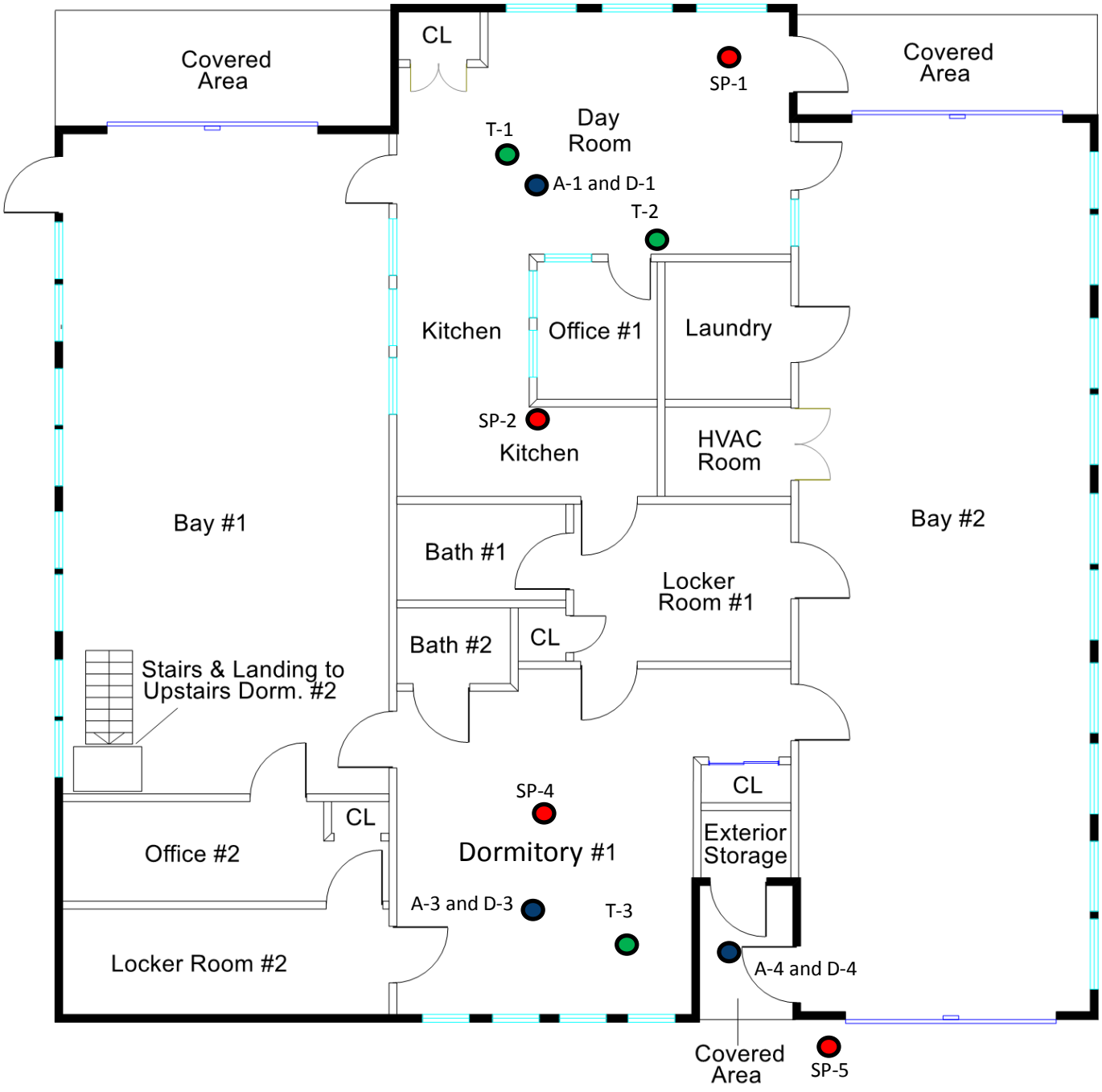
ASBESTOS SAMPLING LOCATIONS

Prepared for: City of Birmingham
Project no.: BRE1900.0058

Drawn by: SA
Date: 6/14/2019

Fire Station #27
400 Huffman Road
Birmingham, Alabama

Figure D-1



bhate
1608 13th Ave South, Suite 300
Birmingham, AL 35205
205.918.4000 | bhate.com

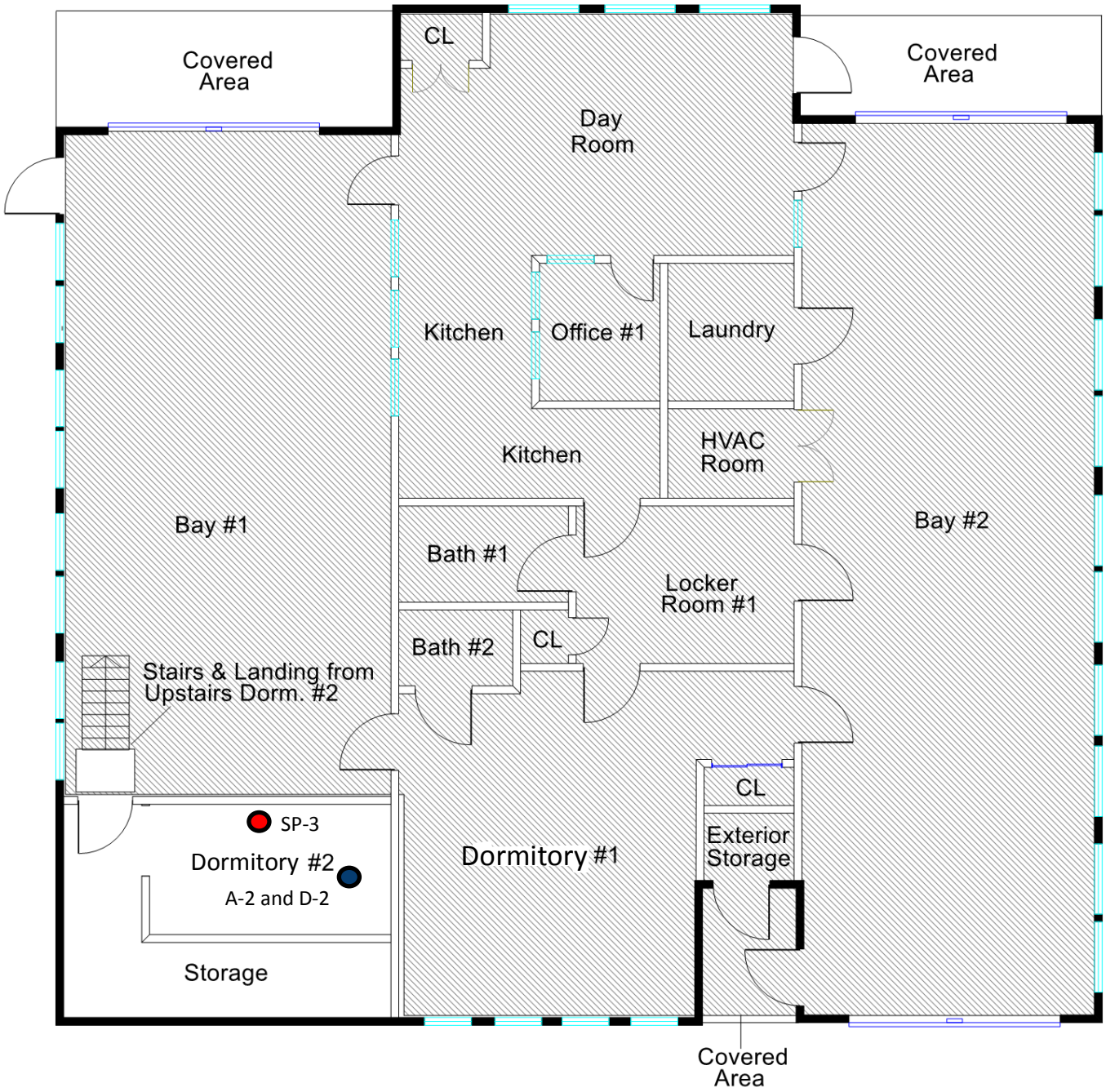
AIR SAMPLING AND TAPE LIFT SAMPLING LOCATIONS
1ST FLOOR

Prepared for: City of Birmingham
Project no.: BRE1900.0058

Drawn by: SA
Date: 6/14/2019

Fire Station #27
400 Huffman Road
Birmingham, Alabama

Figure D-2



bhate

1608 13th Ave South, Suite 300
Birmingham, AL 35205
205.918.4000 | bhate.com

AIR SAMPLING AND TAPE LIFT SAMPLING LOCATIONS
2ND FLOOR

Prepared for: City of Birmingham
Project no.: BRE1900.0058

Drawn by: SA
Date: 6/14/2019

Fire Station #27
400 Huffman Road
Birmingham, Alabama

Figure D-3

Attachment E – Asbestos Inspector Credentials

THE UNIVERSITY OF

ALABAMA

COLLEGE OF CONTINUING STUDIES

Certifies that

Stephen Acreman

545 Lime Creek Cove
Chelsea, AL 35043

has attended and satisfactorily passed an examination for the

AHERA Inspector Update Course

May 2, 2019
in
Tuscaloosa, Alabama

under the AHERA Model Accreditation Plan as required by EPA to obtain this certificate numbered

19-988-01

This certificate of training expires on

May 1, 2021

Principal Instructor

Program Director

Dean, College of Continuing Studies

The University of Alabama, College of Continuing Studies, Division of Environmental & Industrial Programs
Box 870388, Tuscaloosa, AL 35487-0388
Phone: 205-348-3005 or TOLL FREE 1-877-508-7246 FAX: 205-348-3049

THE UNIVERSITY OF ALABAMA®

UA SafeState

has examined the documentation of asbestos training and qualifications of the person named below and confers this

Certificate of Accreditation

For the Asbestos Contractor Discipline

INSPECTOR

Stephen W Acreman

Alabama Accreditation Number
AIN0519651930

Certificate Expiration Date
May 2, 2020

This certificate has been issued pursuant to the authority granted to The University of Alabama SafeState Program by the Alabama Asbestos Contractor Accreditation Act, Alabama Act No. 89-517, May, 1989 and Alabama Act No. 97-626, May, 1997.

Executive Director

Associate Director for Environmental Programs

THE UNIVERSITY OF

ALABAMA

COLLEGE OF CONTINUING STUDIES

Certifies that

Stephen Acreman

545 Lime Creek Cove
Chelsea, AL 35043

has attended and satisfactorily passed an examination for the

AHERA Management Planner Update Course

May 2, 2019
in
Tuscaloosa, Alabama

under the AHERA Model Accreditation Plan as required by EPA to obtain this certificate numbered

19-989-01

This certificate of training expires on

May 1, 2021

THE UNIVERSITY OF ALABAMA 1831

Principal Instructor

Program Director

Dean, College of Continuing Studies

The University of Alabama, College of Continuing Studies, Division of Environmental & Industrial Programs
Box 870388, Tuscaloosa, AL 35487-0388
Phone: 205-348-3005 or TOLL FREE 1-877-508-7246 FAX: 205-348-3049

THE UNIVERSITY OF ALABAMA®

UA SafeState

has examined the documentation of asbestos training and qualifications of the person named below and confers this

Certificate of Accreditation

For the Asbestos Contractor Discipline

MANAGEMENT PLANNER

Stephen W Acreman

Alabama Accreditation Number
APL0519651930

Certificate Expiration Date
May 2, 2020

This certificate has been issued pursuant to the authority granted to The University of Alabama SafeState Program by the Alabama Asbestos Contractor Accreditation Act, Alabama Act No. 89-517, May, 1989 and Alabama Act No. 97-626, May, 1997.

Executive Director

Associate Director for Environmental Programs

THE UNIVERSITY OF ALABAMA®

UA SafeState

has examined the documentation of asbestos training and qualifications of the person named below and confers this

Certificate of Accreditation

For the Asbestos Contractor Discipline

PROJECT DESIGNER

Dana C Tilton

Alabama Accreditation Number
APD0219257387

Certificate Expiration Date
February 6, 2020

This certificate has been issued pursuant to the authority granted to The University of Alabama SafeState Program by the Alabama Asbestos Contractor Accreditation Act, Alabama Act No. 89-517, May, 1989 and Alabama Act No. 97-626, May, 1997.

Executive Director

Associate Director for Environmental Programs

RESOLUTION, INCORPORATED
1101-A DARBYTOWN DRIVE
NASHVILLE, TN. 37207
(615) 865-8813

Certifies That

Certification Number: RI-ASBPDR02190131

DANA TILTON

Has on February 6, 2019, in Nashville, TN, attended and successfully completed the requirements and passed the examination with a score of 70% or better on February 6, 2019, of the course entitled;

ASBESTOS PROJECT DESIGNER REFRESHER

Training was in accordance with 40 CFR Part 763 (AHERA) approved by the States of Alabama, Tennessee and the Commonwealth of Kentucky. The above student received requisite training for asbestos accreditation under Title II of the Toxic Substances Control Act (TSCA).

Conducted At: 1101-A Darbytown Dr.
Nashville, TN 37207

Expiration Date: February 6, 2020

Inspector training_____
(pre-requisite to Management Planner training)

Ron Francis – Training Manager

Ron Francis - Instructor

THE UNIVERSITY OF ALABAMA®

UA SafeState

has examined the documentation of asbestos training and qualifications of the person named below and confers this

Certificate of Accreditation

For the Asbestos Contractor Discipline

INSPECTOR

Dana C Tilton

Alabama Accreditation Number
AIN0119257387

Certificate Expiration Date
January 24, 2020

This certificate has been issued pursuant to the authority granted to The University of Alabama SafeState Program by the Alabama Asbestos Contractor Accreditation Act, Alabama Act No. 89-517, May, 1989 and Alabama Act No. 97-626, May, 1997.

Executive Director

Associate Director for Environmental Programs

M·E·T·A

Mayhew Environmental Training Associates

INCORPORATED

Certificate # ME7AC42A1DFEA2487

Dana Tilton

104 White Cottage Road
Helena AL 35080

has on 1/24/2019, in Birmingham, AL
completed the requirements for asbestos accreditation under Section 206 of TSCA Title II, 15 USC 2646

4-hr. Asbestos Building Inspector Refresher

as approved by AL and the US EPA under 40 CFR 763 (AHERA)
from 1/24/2019 to 1/24/2019 and passed the associated exam on 1/24/2019
with a score of at least 70%

Training Location
1608 13th Avenue South
Birmingham AL 35202

Bob Baer
Instructor

Thomas Mayhew
President

KANSAS MAYHEW EST. 1985 INC. 1987 ENVIRONMENTAL TRAINING ASSOCIATES SAFETY IN GOD ALONE

SSN: XXX-XX-6336
Expiration: 1/24/2020

P.O. Box 786 - Lawrence, KS. 66044 - 800.444.6382
www.metaenvironmental.net