Aerobiology Laboratory Associates, Incorporated
A Pace Analytical® Laboratory

AIHA Potomac Local Section Professional Development Seminar

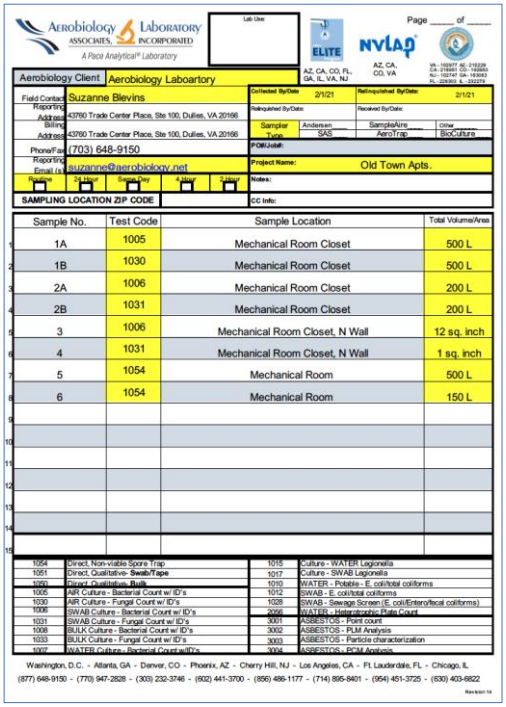
From Results to Report

Suzanne S. Blevins, B.S. SM (ASCP) Laboratory Director, Founder
February 2021

Great Samples = Great Results

Things to Consider:	
	Passive vs. Dynamic
	Air Volume
	Surface Area
	Correct sample bottle or swab
	Collection Date
	Shipping options

Chain of Custody



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Lab Use:

ELITE — AZ, CA, CO, FL, GA, IL, VA, NJ
NVLAP — AZ, CA; CO, VA

Page ____ of ____

Aerobiology Client	Aerobiology Laboartory
Field Contact	Suzanne Blevins
Reporting Address	43760 Trade Center Place, Ste 100, Dulles, VA 20166
Billing Address	43760 Trade Center Place, Ste 100, Dulles, VA 20166
Phone/Fax	(703) 648-9150
Reporting Email (s)	suzanne@aerobiology.net
Collected By/Date	2/1/21
Relinquished By/Date:	
Received By/Date:	
Relinquished By/Date:	2/1/21
Sampler Type	Andersen: SAS; SampleAire: AeroTrap; Other: BioCulture
PO#/Job#:	
Project Name:	Old Town Apts.
Notes:	
CC Info:	

Review | 24 Hour | Same Day | 48Hour | 72Hour

SAMPLING LOCATION ZIP CODE

	Sample No.	Test Code	Sample Location	Total Volume/Area
1	1A	1005	Mechanical Room Closet	500 L
2	1B	1030	Mechanical Room Closet	500 L
3	2A	1006	Mechanical Room Closet	200 L
4	2B	1031	Mechanical Room Closet	200 L
5	3	1006	Mechanical Room Closet, N Wall	12 sq. inch
6	4	1031	Mechanical Room Closet, N Wall	1 sq. inch
7	5	1054	Mechanical Room	500 L
8	6	1054	Mechanical Room	150 L
9				
10				
11				
12				
13				
14				
15				

1054	Direct, Non-viable Spore Trap	1015	Culture - WATER Legionella
1051	Direct, Qualitative- Swab/Tape	1017	Culture - SWAB Legionella
1050	Direct, Qualitative- Bulk	1010	WATER - Potable - E. coli/total coliforms
1005	AIR Culture - Bacterial Count w/ ID's	1012	SWAB - E. coli/total coliforms
1030	AIR Culture - Fungal Count w/ ID's	1028	SWAB - Sewage Screen (E. coli/Entero/fecal coliforms)
1006	SWAB Culture - Bacterial Count w/ ID's	2056	WATER - Heterotrophic Plate Count
1031	SWAB Culture - Fungal Count w/ ID's	3001	ASBESTOS - Point count
1008	BULK Culture - Bacterial Count w/ ID's	3002	ASBESTOS - PLM Analysis
1033	BULK Culture - Fungal Count w/ ID's	3003	ASBESTOS - Particle characterization
1007	WATER Culture - Bacterial Count w/ID's	3004	ASBESTOS - PCM Analysis

Washington, D.C. - Atlanta, GA - Denver, CO - Phoenix, AZ - Cherry Hill, NJ - Los Angeles, CA - Ft. Lauderdale, FL - Chicago, IL
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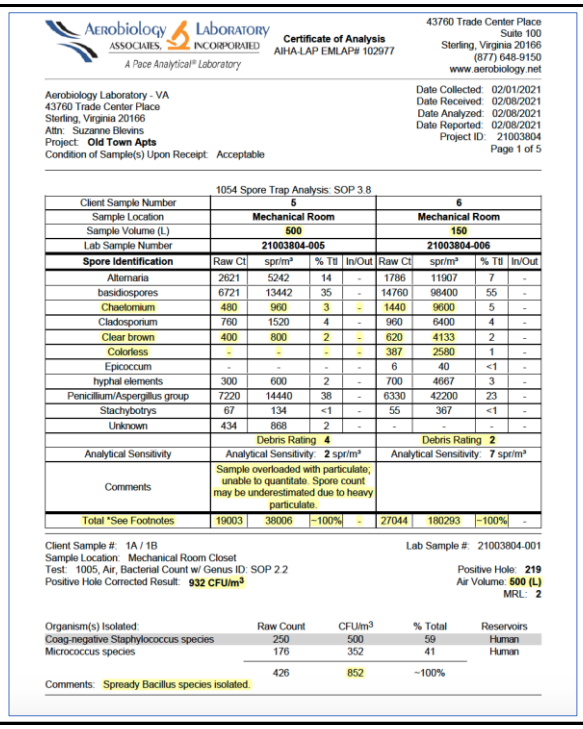
Revision 14

Results



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Certificate of Analysis
AIHA-LAP EMLAP# 102977

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Aerobiology Laboratory - VA
43760 Trade Center Place
Sterling, Virginia 20166
Attn: Suzanne Blevins
Project: **Old Town Apts**
Condition of Sample(s) Upon Receipt: Acceptable

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Date Reported: 02/08/2021
Project ID: 21003804
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1054 Spore Trap Analysis: SOP 3.8

Client Sample Number	5				6			
Sample Location	Mechanical Room				Mechanical Room			
Sample Volume (L)	500				150			
Lab Sample Number	21003804-005				21003804-006			
Spore Identification	Raw Ct	spr/m³	% Ttl	In/Out	Raw Ct	spr/m³	% Ttl	In/Out
Alternaria	2621	5242	14	-	1786	11907	7	-
basidiospores	6721	13442	35	-	14760	98400	55	-
Chaetomium	480	960	3	-	1440	9600	5	-
Cladosporium	760	1520	4	-	960	6400	4	-
Clear brown	400	800	2	-	620	4133	2	-
Colorless	-	-	-	-	387	2580	1	-
Epicoccum	-	-	-	-	6	40	<1	-
hyphal elements	300	600	2	-	700	4667	3	-
Penicillium/Aspergillus group	7220	14440	38	-	6330	42200	23	-
Stachybotrys	67	134	<1	-	55	367	<1	-
Unknown	434	868	2	-	-	-	-	-
	Debris Rating 4				Debris Rating 2			
Analytical Sensitivity	Analytical Sensitivity: 2 spr/m³				Analytical Sensitivity: 7 spr/m³			
Comments	Sample overloaded with particulate; unable to quantitate. Spore count may be underestimated due to heavy particulate.							
Total *See Footnotes	19003	38006	~100%	-	27044	180293	~100%	-

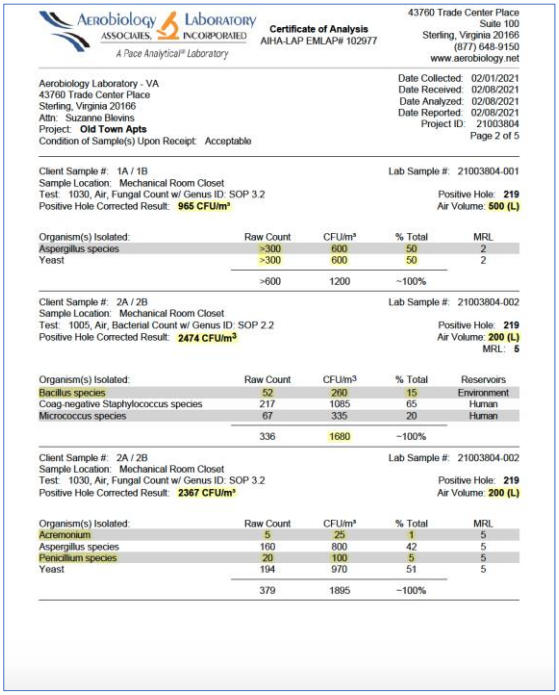
Client Sample #: 1A / 1B
Sample Location: Mechanical Room Closet
Test: 1005, Air, Bacterial Count w/ Genus ID: SOP 2.2
Positive Hole Corrected Result: **932 CFU/m³**

Lab Sample #: 21003804-001
Positive Hole: **219**
Air Volume: **500 (L)**
MRL: **2**

Organism(s) Isolated:	Raw Count	CFU/m³	% Total	Reservoirs
Coag-negative Staphylococcus species	250	500	59	Human
Micrococcus species	176	352	41	Human
	426	852	~100%	

Comments: Spready Bacillus species isolated.

Results



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Client Sample #: 1A / 1B
Sample Location: Mechanical Room Closet
Test: 1030, Air, Fungal Count w/ Genus ID: SOP 3.2
Positive Hole Corrected Result: **965 CFU/m³**

Lab Sample #: 21003804-001
Positive Hole: **219**
Air Volume: **500 (L)**

Organism(s) Isolated:	Raw Count	CFU/m³	% Total	MRL
Aspergillus species	>300	600	50	2
Yeast	>300	600	50	2
	>600	1200	~100%	

Client Sample #: 2A / 2B
Sample Location: Mechanical Room Closet
Test: 1005, Air, Bacterial Count w/ Genus ID: SOP 2.2
Positive Hole Corrected Result: **2474 CFU/m³**

Lab Sample #: 21003804-002
Positive Hole: **219**
Air Volume: **200 (L)**
MRL: **5**

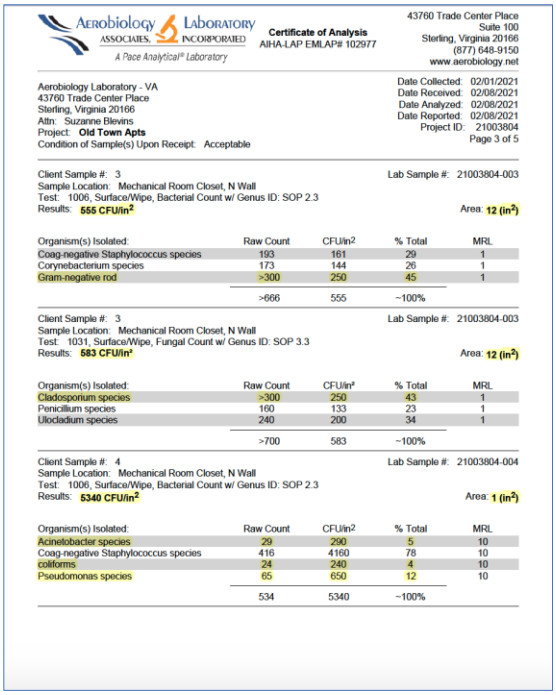
Organism(s) Isolated:	Raw Count	CFU/m³	% Total	Reservoirs
Bacillus species	52	260	15	Environment
Coag-negative Staphylococcus species	217	1085	65	Human
Micrococcus species	67	335	20	Human
	336	1680	~100%	

Client Sample #: 2A / 2B
Sample Location: Mechanical Room Closet
Test: 1030, Air, Fungal Count w/ Genus ID: SOP 3.2
Positive Hole Corrected Result: **2367 CFU/m³**

Lab Sample #: 21003804-002
Positive Hole: **219**
Air Volume: **200 (L)**

Organism(s) Isolated:	Raw Count	CFU/m³	% Total	MRL
Acremonium	5	25	1	5
Aspergillus species	160	800	42	5
Penicillium species	20	100	5	5
Yeast	194	970	51	5
	379	1895	~100%	

Results



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Client Sample #: 3
Sample Location: Mechanical Room Closet, N Wall
Test: 1006, Surface/Wipe, Bacterial Count w/ Genus ID: SOP 2.3
Results: **555 CFU/in²**

Lab Sample #: 21003804-003
Area: **12 (in²)**

Organism(s) Isolated:	Raw Count	CFU/in²	% Total	MRL
Coag-negative Staphylococcus species	193	161	29	1
Corynebacterium species	173	144	26	1
Gram-negative rod	>300	250	45	1
	>666	555	~100%	

Client Sample #: 3
Sample Location: Mechanical Room Closet, N Wall
Test: 1031, Surface/Wipe, Fungal Count w/ Genus ID: SOP 3.3
Results: **583 CFU/in²**

Lab Sample #: 21003804-003
Area: **12 (in²)**

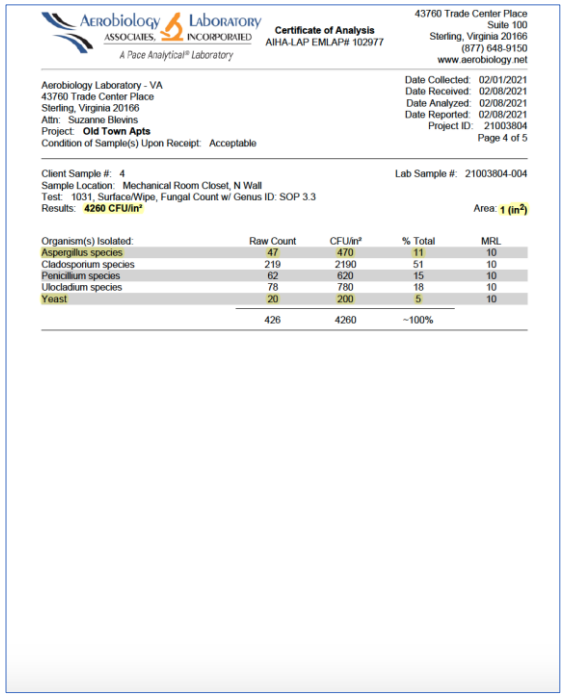
Organism(s) Isolated:	Raw Count	CFU/in²	% Total	MRL
Cladosporium species	>300	250	43	1
Penicillium species	160	133	23	1
Ulocladium species	240	200	34	1
	>700	583	~100%	

Client Sample #: 4
Sample Location: Mechanical Room Closet, N Wall
Test: 1006, Surface/Wipe, Bacterial Count w/ Genus ID: SOP 2.3
Results: **5340 CFU/in²**

Lab Sample #: 21003804-004
Area: **1 (in²)**

Organism(s) Isolated:	Raw Count	CFU/in²	% Total	MRL
Acinetobacter species	29	290	5	10
Coag-negative Staphylococcus species	416	4160	78	10
coliforms	24	240	4	10
Pseudomonas species	65	650	12	10
	534	5340	~100%	

Results



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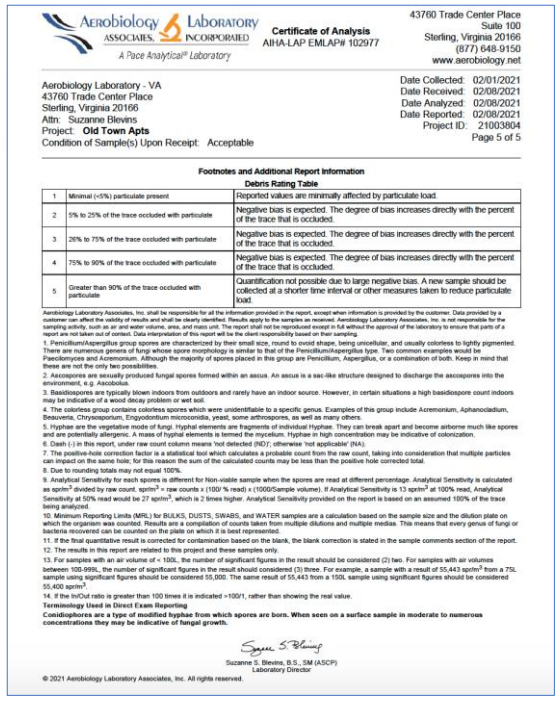
Client Sample #: 4
Lab Sample #: 21003804-004
Sample Location: Mechanical Room Closet, N Wall
Test: 1031, Surface/Wipe, Fungal Count w/ Genus ID: SOP 3.3
Results: **4260 CFU/in²**
Area: **1 (in²)**

Organism(s) Isolated:	Raw Count	CFU/in²	% Total	MRL
Aspergillus species	47	470	11	10
Cladosporium species	219	2190	51	10
Penicillium species	62	620	15	10
Ulocladium species	78	780	18	10
Yeast	20	200	5	10
	426	4260	~100%	

Results



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Footnotes and Additional Report Information

Debris Rating Table

1	Minimal (<5%) particulate present	Reported values are minimally affected by particulate load.
2	5% to 25% of the trace occluded with particulate	Negative bias is expected. The degree of bias increases directly with the percent of the trace that is occluded.
3	26% to 75% of the trace occluded with particulate	Negative bias is expected. The degree of bias increases directly with the percent of the trace that is occluded.
4	75% to 90% of the trace occluded with particulate	Negative bias is expected. The degree of bias increases directly with the percent of the trace that is occluded.
5	Greater than 90% of the trace occluded with particulate	Quantification not possible due to large negative bias. A new sample should be collected at a shorter time interval or other measures taken to reduce particulate load.

Aerobiology Laboratory Associates, Inc. shall be responsible for all the information provided in the report, except when information is provided by the customer. Data provided by a customer can affect the validity of results and shall be clearly identified. Results apply to the samples as received. Aerobiology Laboratory Associates, Inc. is not responsible for the sampling activity, such as air and water volume, area, and mass unit. The report shall not be reproduced except in full without the approval of the laboratory to ensure that parts of a report are not taken out of context. Data interpretation of this report will be the client responsibility based on their sampling.

1. Penicillium/Aspergillus group spores are characterized by their small size, round to ovoid shape, being unicellular, and usually colorless to lightly pigmented. There are numerous genera of fungi whose spore morphology is similar to that of the Penicillium/Aspergillus type. Two common examples would be Paecilomyces and Acremonium. Although the majority of spores placed in this group are Penicillium, Aspergillus, or a combination of both. Keep in mind that these are not the only two possibilities.
2. Ascospores are sexually produced fungal spores formed within an ascus. An ascus is a sac-like structure designed to discharge the ascospores into the environment, e.g. Ascobolus.
3. Basidiospores are typically blown indoors from outdoors and rarely have an indoor source. However, in certain situations a high basidiospore count indoors may be indicative of a wood decay problem or wet soil.
4. The colorless group contains colorless spores which were unidentifiable to a specific genus. Examples of this group include Acremonium, Aphanocladium, Beauveria, Chrysosporium, Engyodontium micrococnidia, yeast, some arthrospores, as well as many others.
5. Hyphae are the vegetative mode of fungi. Hyphal elements are fragments of individual Hyphae. They can break apart and become airborne much like spores and are potentially allergenic. A mass of hyphal elements is termed the mycelium. Hyphae in high concentration may be indicative of colonization.
6. Dash (-) in this report, under raw count column means 'not detected (ND)'; otherwise 'not applicable' (NA).
7. The positive-hole correction factor is a statistical tool which calculates a probable count from the raw count, taking into consideration that multiple particles can impact on the same hole; for this reason the sum of the calculated counts may be less than the positive hole corrected total.
8. Due to rounding totals may not equal 100%.
9. Analytical Sensitivity for each spores is different for Non-viable sample when the spores are read at different percentage. Analytical Sensitivity is calculated as spr/m³ divided by raw count. spr/m³ = raw counts x (100/ % read) x (1000/Sample volume). If Analytical Sensitivity is 13 spr/m³ at 100% read, Analytical Sensitivity at 50% read would be 27 spr/m³, which is 2 times higher. Analytical Sensitivity provided on the report is based on an assumed 100% of the trace being analyzed.
10. Minimum Reporting Limits (MRL) for BULKS, DUSTS, SWABS, and WATER samples are a calculation based on the sample size and the dilution plate on which the organism was counted. Results are a compilation of counts taken from multiple dilutions and multiple medias. This means that every genus of fungi or bacteria recovered can be counted on the plate on which it is best represented.
11. If the final quantitative result is corrected for contamination based on the blank, the blank correction is stated in the sample comments section of the report.
12. The results in this report are related to this project and these samples only.
13. For samples with an air volume of < 100L, the number of significant figures in the result should be considered (2) two. For samples with air volumes between 100-999L, the number of significant figures in the result should considered (3) three. For example, a sample with a result of 55,443 spr/m³ from a 75L sample using significant figures should be considered 55,000. The same result of 55,443 from a 100L sample using significant figures should be considered 55,400 spr/m³.
14. If the In/Out ratio is greater than 100 times it is indicated >100/1, rather than showing the real value.

Terminology Used in Direct Exam Reporting

Conidiophores are a type of modified hyphae from which spores are born. When seen on a surface sample in moderate to numerous concentrations they may be indicative of fungal growth.

Suzanne S. Blevins, B.S., SM (ASCP)
Laboratory Director

Aerobiology Locations

State	Location	Phone Number
Virginia* Headquarters	43760 Trade Center Place, Suite 100, Dulles, Virginia 20166	(703) 648-9150
Arizona	2228 West Northern Avenue, Suite B110, Phoenix, Arizona 85021	(602) 441-3700
Georgia	2400 Herodian Way, Suite 190, Smyrna, Georgia 30080	(866) 620-9313
California	15061 Springdale Street, Suite 111, Huntington Beach, CA 92649	(714) 895-8401
New Jersey	7148 North Park Drive, Pennsauken, New Jersey 08109	(856) 486-1177
Colorado	780 Simms Street, Suite 104, Golden, Colorado 80401	(866) 620-9348
New York	575 Broad Hollow Rd, Melville, NY 11747-5076	(516) 370-6036
Florida	5253B NW 33rd Ave, Fort Lauderdale FL 33309	(954) 451-3725
Chicago	1431 Opus Place, Suite 220 Downers Grove, IL 60515	(630) 403-6822
Fort Worth	2657 Gravel Dr. Ft. Worth, TX 76118	(817) 616-5037

All labs are CDC ELITE Legionella certified and our NJ and NY locations are certified for New York Department of Health ELAP for Legionella ISO method. All locations except for the Melville, NY laboratory are AIHA accredited.