

Scientific Air Solutions



airPHX Companies
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McLean, VA 22101

August 3, 2018

Pre and In-Treatment Air and Surface Report – Yoga [REDACTED]

A. Summary – Air Samples

Pre and in-treatment air samples results given below.

Sample Date	Treatment	Number of samples	Location	Average (cfu/m ³)	Range	Standard Deviation	Percent Decrease
06/12/18	Pre	4	Sun	758	533/1,100	213.9	-
07/12/18	In			75	67/100	14.4	90.1
06/12/18	Pre	4	Moon	1,217	1,033/1,400	134.4	-
07/12/18	In			83	33/133	37.3	93.2
06/12/18	Pre	2	Lobby	867	733/1,000	133.3	-
07/12/18	In			50	33/67	16.7	94.2
06/12/18	Pre	2	Men/Women's	683	633/733	50.0	-
07/12/18	In			100	67/133	33.3	85.4
06/12/18	Pre	3	Exterior	2,622	2,367/2,900	218.3	-
07/12/18	In			2,744	2,667/2,867	16.7	+ 4.4

Background

All air samples were taken via the MB-2 air sampler, 30 liters per sample throughout the various locations given above with results normalized to colony forming units per cubic meter of air (CFU/m³).

Given below are the airborne organisms found in the locations for this **pre-treatment** sampling, excluding the outside samples.

Species	Raw Count	Species	Raw Count
<i>Penicillium, aspergillus types</i>	2,990	<i>Absidia, spp</i>	875
<i>Penicillium purpurogenum</i>	2,350	<i>Mortierella, spp</i>	710
<i>Penicillium brevicompactum</i>	1,720	<i>Cladosporium sphaerospermum</i>	690
<i>Aspergillus fumigatus</i>	1,075	<i>Basidiospores spp</i>	595

Below are the airborne organisms found in the locations for the **in-treatment** sampling, excluding the outside samples.

Species	Raw Count	Species	Raw Count
<i>Penicillium, aspergillus types</i>	355	<i>Absidia, spp</i>	< 10
<i>Penicillium purpurogenum</i>	293	<i>Mortierella, spp</i>	< 10
<i>Penicillium brevicompactum</i>	200	<i>Cladosporium sphaerospermum</i>	< 10
<i>Aspergillus fumigatus</i>	185	<i>Basidiospores spp</i>	< 10

07/12/18 - In-treatment bioburden in the above rooms are < 100 cfu/m³, which is considered **clean and acceptable**. The percent decrease ranged from **85.4%** to **94.2%** from the pre-treatment samples.

06/12/18 - Pre-treatment bioburden in the above rooms are > 300 cfu/m³, which is not acceptable and needs corrective action.

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Observations

Outside air samples ranged from **2,667** to **2,867 cfu/m³**, which is **4.5% higher** than the pre-treatment samples and continues to show that a significant amount of the bioburden is coming from the outside air.

Target Air Quality

Air quality scale for workplaces, public buildings, schools, and homes are as follows:

- < 100 cfu/m³ is considered **clean and acceptable**.
- 100 to 300 cfu/m³ is **marginal**.
- > 300 cfu/m³ is **not acceptable** and needs corrective action.

In most cases, air quality < 100 cfu/m³ has shown a decrease in the overall bioburden and odors.

B. Summary – Surface Contact Swabs

Pre and In-treatment surface (swab) samples results given below.

Sample Date	Treatment	Number of samples	Location	Average (cfu/cm ²)	Range	Standard Deviation	Percent Decrease
06/12/18	Pre	2	Sun	97	88/105	8.5	-
07/12/18	In			0.9	0.8/1.0	0.13	99.1
06/12/18	Pre	2	Moon	87	77/98	10.5	-
07/12/18	In			0.7	0.7/0.8	0.06	99.2
06/12/18	Pre	1	Lobby	125	125/125	-	-
07/12/18	In			1.2	1.2/1.2	-	99.0
06/12/18	Pre	1	Negative Control	0	0/0	-	-
07/12/18	In			0	0/0	-	-

07/12/18 - In-treatment contact swab result [REDACTED] various locations are now < 5 cfu/cm² is considered **clean and acceptable**. The Lobby, Sun and Moon rooms saw a **99.0, 99.1** and **99.2%** decrease respectively from the pre-treatment samples.

06/12/18 - Pre-treatment contact swab results in all the various locations are > 10 cfu/cm², which is not acceptable and needs corrective action.

Target Contact Surface Quality

Contact surface quality scale for workplaces, public buildings, schools, and homes are as follows:

- < 45 cfu total or < 1.67-log, or < 5 cfu/cm² is considered **clean and acceptable**.
- 140 to 260 cfu total or 2.15 to 2.41-log, or 5 to 10 cfu/cm² is considered **marginal**.
- > 260 cfu total or > 2.41-log, or > 10 cfu/cm² is considered **not acceptable** and needs corrective action.

In most cases, air quality < 5 cfu/cm² has shown a decrease in the overall bioburden and odors.

Please contact me if there are questions or if further information is needed.

Respectfully submitted,


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Senior Principal Scientist

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Table #1
Yoga [REDACTED]
07/12/18 In-treatment Air Sample Results - CFU/m³

Yoga [REDACTED] In-treatment 07/12/18						
Plate Lot No.	Air Sample Location	Air Sample Location	Liters of Air	Raw Count	Corrected Count	CFU/m ³
183	Ctrl	Unopened	0	0	0	0
182	Sun	1	30	2	2	67
181	Sun	2	30	3	3	100
180	Sun	3	30	3	3	100
178	Sun	4	30	2	2	67
177	Moon	1	30	3	3	100
175	Moon	2	30	4	4	133
174	Moon	3	30	2	2	67
173	Moon	4	30	1	1	33
172	Lobby	1	30	3	3	100
159	Lobby	2	30	2	2	67
157	Mens	1	30	4	4	133
156	Womens	2	30	2	2	67
156	Pre	EXT	30	71	86	2,867
153	Pre	EXT	30	68	81	2,700
152	Pre	EXT	30	67	80	2,667

Avg 83 High 100
Low 67 SD 16.7

Avg 83 High 133
Low 33 SD 37.3

Avg 83 High 100
Low 67 SD 16.7

Avg 100 High 133
Low 67 SD 33.3

Avg 2,744 High 2,867
Low 2,667 SD 87.5

Total Adjusted Raw Count 31
Total CFU/m³ 1,033

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Table #1
Yoga [REDACTED]
06/12/18 Pre-treatment Air Sample Results - CFU/m³

Yoga [REDACTED] Pre-treatment 06/12/18						
Plate Lot No.	Air Sample Location	Air Sample Location	Liters of Air	Raw Count	Corrected Count	CFU/m ³
2817	Ctrl	Unopened	0	0	0	0
2816	Sun	1	30	15	16	533
2815	Sun	2	30	18	19	633
2814	Sun	3	30	31	33	1,100
2813	Sun	4	30	22	23	767
2812	Moon	1	30	32	35	1,167
2811	Moon	2	30	29	31	1,033
2810	Moon	3	30	38	42	1,400
2809	Moon	4	30	35	38	1,267
2808	Lobby	1	30	21	22	733
2767	Lobby	2	30	28	30	1,000
2766	Mens	1	30	18	19	633
2765	Womens	2	30	21	22	733
2764	Pre	EXT	30	61	71	2,367
2763	Pre	EXT	30	72	87	2,900
2762	Pre	EXT	30	66	78	2,600
<div> <div>Total Adjusted Raw Count</div> <div>330</div> </div> <div> <div>Total CFU/m³</div> <div>11,000</div> </div>						

Avg 758 High 1,100
Low 533 SD 213.9

Avg 1,217 High 1,400
Low 1,033 SD 134.4

Avg 867 High 1,000
Low 733 SD 133.3

Avg 683 High 733
Low 633 SD 50.0

Avg 2,622 High 2,900
Low 2,367 SD 218.3

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Table #2
Yoga [REDACTED]
07/12/18 Pre-treatment Surface Sample Results – CFU/cm²

Yoga [REDACTED] In-treatment 07/12/18									
Room	Swab Number	Surface Swab Sample Location	10x10x10 cm	Raw Count	CFU/cm2				
N/A	CTRL	Control swab	0	0	0				
N/A	1	Sun	10x10x10	100	1.0	Avg	0.9	Max	1.0
N/A	2	Sun	10x10x10	75	0.8	Min	0.8	SD	0.13
N/A	3	Moon	10x10x10	80	0.8	Avg	0.7	Max	0.8
N/A	4	Moon	10x10x10	68	0.7	Min	0.7	SD	0.06
N/A	5	Lobby	10x10x10	120	1.2				

Total Adjusted Raw Count 443
Total CFU/cm2 3

Table #2
Yoga [REDACTED]
06/12/18 Pre-treatment Surface Sample Results – CFU/cm²

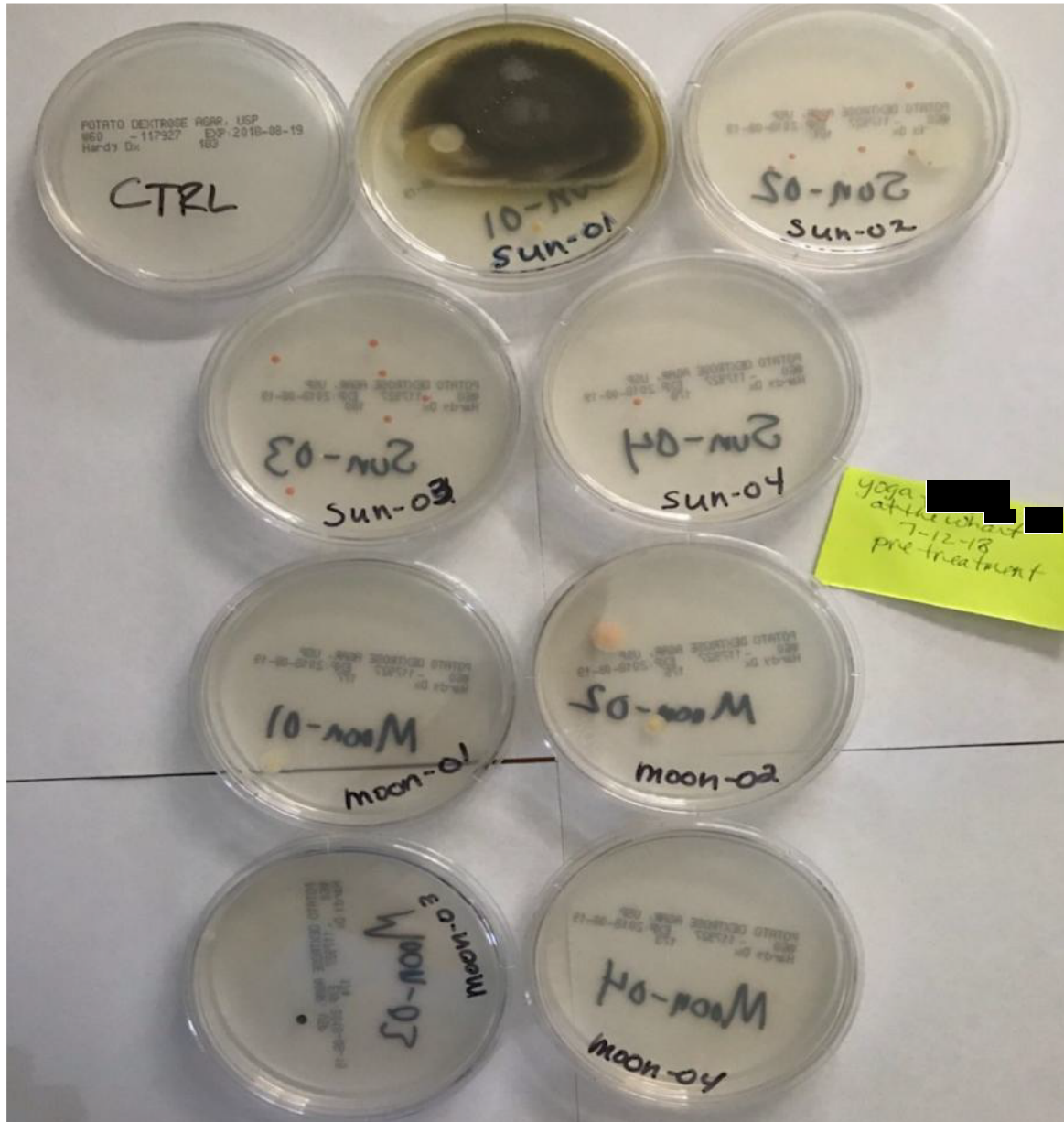
Yoga [REDACTED] Pre-treatment 06/12/18									
Room	Swab Number	Surface Swab Sample Location	10x10x10 cm	Raw Count	CFU/cm2				
N/A	CTRL	Control swab	0	0	0				
N/A	1	Sun	10x10x10	10,500	105	Avg	97	Max	105
N/A	2	Sun	10x10x10	8,800	88	Min	88	SD	8.5
N/A	3	Moon	10x10x10	7,650	77	Avg	87	Max	98
N/A	4	Moon	10x10x10	9,750	98	Min	77	SD	10.5
N/A	5	Lobby	10x10x10	12,500	125				

Total Adjusted Raw Count 49,200
Total CFU/cm2 387



Table #3
Yoga [REDACTED]
Air Sample Pictures

07/12/18 In-treatment





07/12/18 In-treatment





Table #3
Yoga [REDACTED]
Air Sample Pictures

06/12/18 Pre-treatment





Table #3
Yoga [REDACTED]
Air Sample Pictures

06/12/18 Pre-treatment, continued

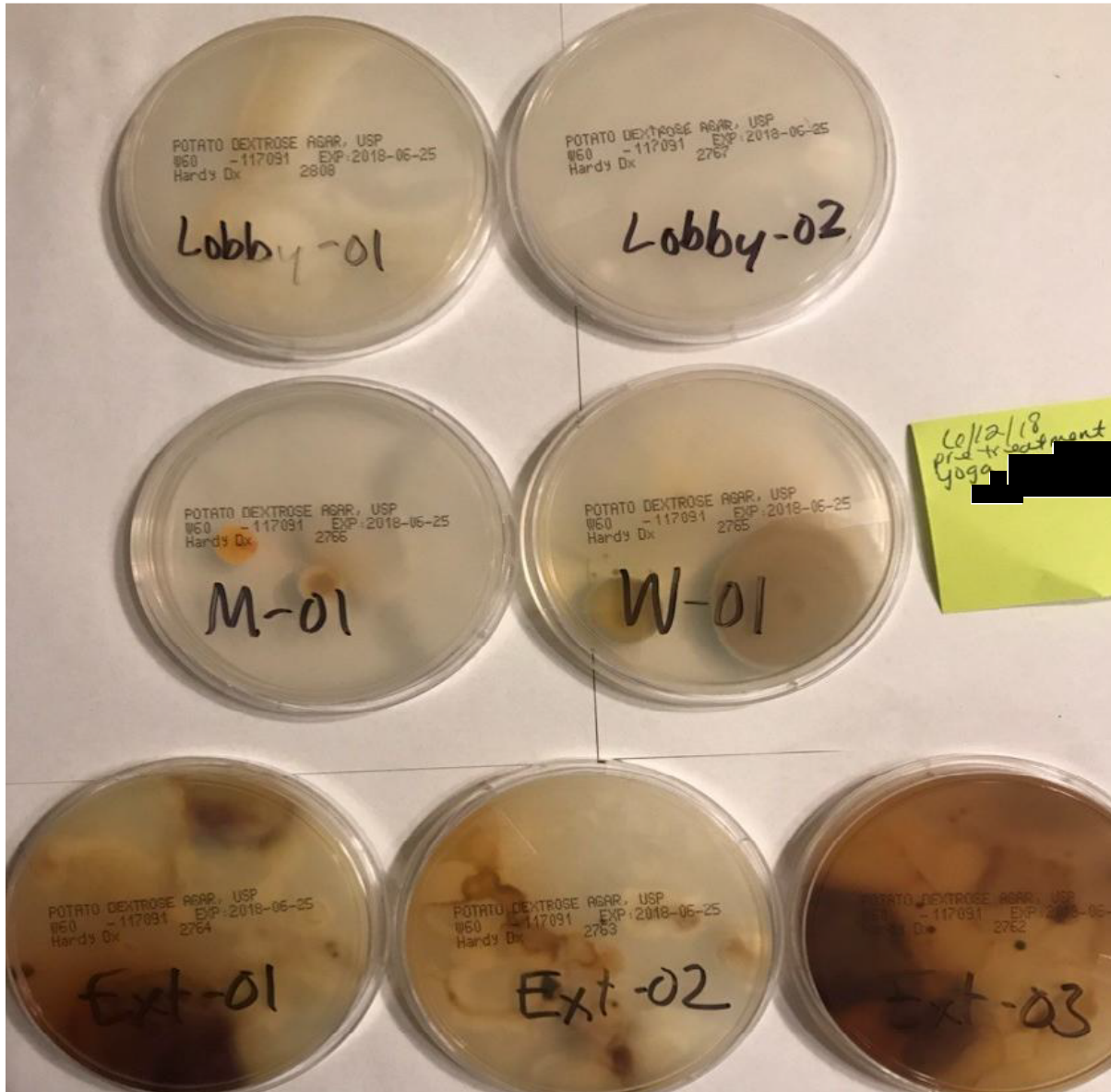




Table #4
Yoga [redacted]
Sample Location Map

