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M E M O R A N D U M

DATE: March 26, 2018

TO: Buell Januzzi, Director, Steward Observatory
Steward Observatory Indoor Air Quality Task Force

FROM: Risk Management Services

SUBJECT: Steward Observatory Sampling Event- (3rd Quarter)

This report summarizes findings from the third of four environmental sampling events scheduled for Building 65, Steward Observatory. The purpose of the year-long assessment is to monitor the indoor air quality of the building during different seasons of the year. This is due to the previous indoor air quality history including water intrusion, mold growth in some areas, and health concerns raised by building occupants.

The third environmental sampling event was conducted on February 21st 2018. The protocol used for sample collection is outlined below.

Air samples will be collected and analyzed using Quantitative Polymerase Chain Reaction (qPCR) methods to identify individual mold species which might be present.
Surface swab samples will be collected concurrently with air samples, and analyzed using qPCR analysis techniques. Surface sample results will only be utilized to compare changing conditions between sampling events, and evaluate any trends over time. Seasonal variations are expected, particularly during periods of monsoon-related moisture and heavy rainfall.
These samples are going to be compared with previous sampling events to be able to monitor and analyze building changes overtime.
On the day of sampling, RMS will contact Steward Observatory Building manager and will do a visual inspection of the building to determine any moisture issue or building concerns.

SAMPLING DESCRIPTION AND LOCATIONS

The quarterly sampling events will include the collection of interior air samples and surface swab samples, both analyzed by quantitative real-time polymerase reaction.

Quantitative real-time polymerase chain reaction (qPCR) analysis can be used to identify mold species collected from swab or air samples. In the qPCR process, DNA is extracted from a sample, combined with a primer and probe mixture, heated and cooled in multiple amplification cycles creating fluorescent signals, which are then counted. Mold species can be identified within a few

days rather than weeks when using the culture-based methods. The Environmental Relative Moldiness Index (ERMI) was developed by the US EPA to identify 36 mold species present in typical mold-affected homes. The ERMI custom qPCR panel will be requested from the analytical laboratory to quantify mold species in samples from Building 65.

For qPCR air sampling, samples will be collected using a high volume air pump calibrated with a primary source calibration unit to draw up to approximately 15 liters of air per minute. The pump(s) will be placed securely on the floor and an approximately 5-foot length of plastic tubing will be attached to the pump and suspended to a 4.5-foot height via a tripod. A 37mm qPCR sample collection cassette will be placed at the end of the tubing. Following qPCR sample collection recommendations, the pump will be run for approximately 240 minutes to collect approximately 3600 liters of air per sample. The relative humidity percent and temperature will be documented for each sample collection location. The sample number and total volumes will be documented onto a chain-of-custody form and transported along with the samples to a NVLAP certified lab for the ERMI custom qPCR panel.

qPCR samples are going to be taken from two (2) interior locations. One of the interior location samples will be taken from the main hallway in the 3rd floor. This area was chosen because it is centrally located area, representative of the building. The other sample is going to be taken in Room N-134 due to previous indoor air quality problems. In addition, one exterior/reference sample will be collected between the new and old building. This sample will be collected at the same time as the interior samples. The sample collection locations will remain consistent throughout the duration of sampling.

Surface swab samples – Concurrent with the day quarterly air sampling is conducted, RMS will collect surface samples in the building, using a 6x6 inch template and moistened filter media, which will be containerized and labelled with a unique sample number for qPCR analysis as well. The sample numbers will be documented onto a chain-of-custody form and transported along with the air samples to a NVLAP certified lab for analysis using the ERMI custom qPCR panel. Surface samples will only be collected from smooth vertical wall surfaces, at least five feet above the walking surface in the designated locations. Surface swab sample locations will include the following: Room N134 (basement laboratory), room 162 (basement office), room 490 (fourth floor office), in the 3rd floor main hallway as a centrally located area representative of the building and an exterior sample between the two buildings. Due to building complaints after the 1st and 2nd quarter sampling process, additional swab sample where taken. These additional samples were taken in Rooms 358, 359 and Room 6-A in the Annex, Rooms 468, 466 and 470. The relative humidity percent, temperature and sampling time will also be documented for each sample collection location.

Written results of all testing will be compiled by RMS for distribution to the Steward Observatory Building Air Quality Task Force and Steward Observatory Management within five working days of receipt by RMS.

SURFACE SWAB RESULTS

The third sampling event took place on February 21, 2018. Risk Management used Forensic Analytical Laboratories to analyze the samples.

We have followed an identical sampling procedure for 3 consecutive occasions, with the purpose of delivering comparative results between these three events. The results are presented to illustrate changes in mold organisms between the first sampling round held on June 28, 2017, the second sampling round held on October 12, 2017 and the third sampling round held on February 21st, 2018. The sampling dates were specifically chosen to compile and compare data from different seasons.

As mentioned in the sampling protocol, the ERMI score is determined by analyzing dust samples by qPCR for 36 species of mold divided into 2 groups. Group 1 is composed of 26 species of molds commonly associated with water damage. Group 2 is composed of 10 species common to indoor environments. The ERMI score is generated by comparing the logarithmic concentration (Log Conc) difference in Group 1 and Group 2 molds. Please see Appendices for details of the mold organism's groups used in the ERMI score.

ERMI scores are assigned to different risk levels which can be used to predict the likelihood of existing mold growth in the building as shown in Table 1:

Table 1: ERMI Score Legend:

ERMI Score	Level or Risk	Likelihood of Mold Problem
-10 to -4	Level 1	Lowest
-4 to 0	Level 2	Lower
0 to 5	Level 3	Moderate
5 to 20	Level 4	High

Table 2 shows a general comparison of organisms between the three Risk Management sampling events conducted to date.

Table 2: Steward Observatory Swab Sampling ERMI Score Comparison between Risk Management Sampling Events

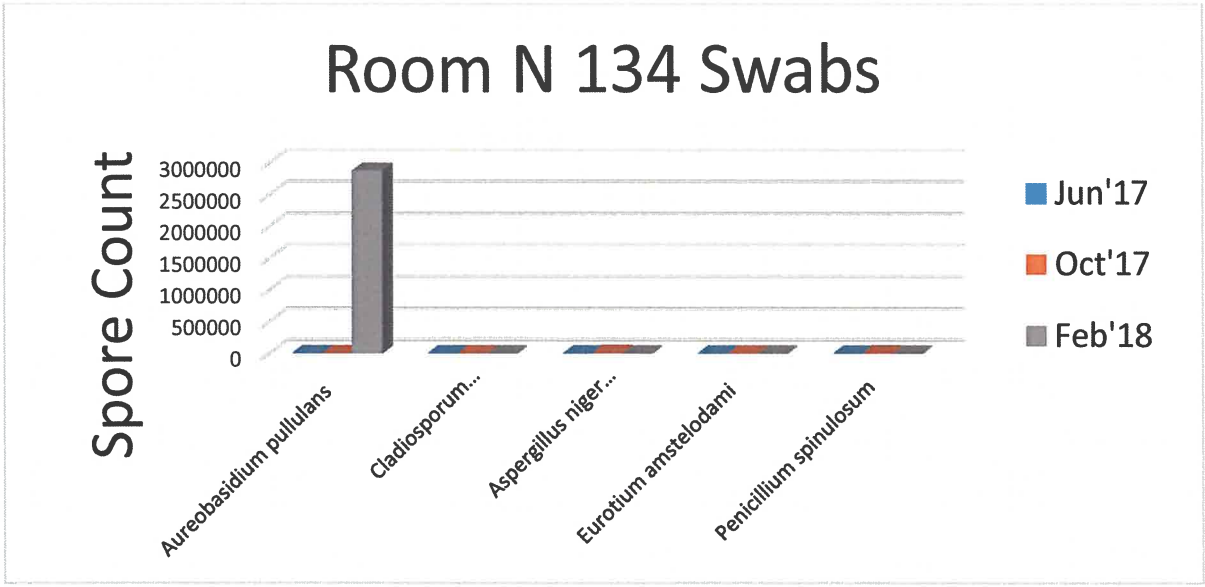
Date	Location	Aureobasidium pullulans	Cladiosporum sphareospermum/Cladosporoides I/II	Aspergillus niger /flavus/ochraceus/	Penicillium spinulosum /chrysogenum	Alternaria Alternata	ERMI SCORE
6/28/2017	3rd Floor	400	140	144	0	0	2.6
10/12/2017		200	516	0	0	0	1.5
02/21/18		0	98	0	0	0	-2.0
6/28/2017	Room N-134	306	217	0	0	0	3.1
10/12/2017		130	1300	14400	5900	0	10.6
02/21/18		2883765	62	0	0	0	4.7
6/28/2017	Room 162	31	74.4	0	0	0	3.4
10/12/2017		144,053	16	36	0	0	4.8
02/21/18		0	0	0	0	0	0
6/28/2017	Room 490	186	31	0	0	0	0.8
10/12/2017		77	35	0	0	0	1.2
02/21/18		0	3365004	0	0	0	-9.7
6/28/2017	Outdoors	7	0	0	0	0	0.8
10/12/2017		198,200	2100	24	0	247300	-3.9
02/21/18		4360	723942	0	0	196504	-7.5
6/28/2017	Room 358	Not tested	Not Tested	Not Tested	Not Tested	Not Tested	Not Tested
10/12/2017		433	0	0	5900	0	12.3
02/21/18		0	2012400	271758	0	0	-0.9
6/28/2017	Room 359	Not Tested	Not Tested	Not Tested	Not Tested	Not Tested	Not Tested
10/12/2017		281	311400	62300	2605	0	-1
02/21/18		0	1673225	3684205	0	0	12.8
6/28/2017	Room 6a Annex	Not Tested	Not Tested	Not Tested	Not Tested	Not Tested	Not Tested
10/12/2017		27	28	1561000	2605	0	6.2
02/21/18		0	358	0	0	568736	-10.3
02/21/18	Room 358 Fallen panel	0	6663343	943759	112829	106725	1.3
02/21/18	Room 468	0	90891	188	0	0	2.3
02/21/18	Room 466	0	912888	0	0	0	-5.1
02/21/18	Room 470	598	48791	0	0	421478	-7.5

During this third swab sampling event, 11 mold organisms from both Group 1 and Group 2 were found at the different sampled locations. The following Group I species were identified: Aureobasidium pollulans, Cladosporum sphareospermum, Aspergillus niger, Aspergillus fumigatus, Aspergillus versicolor and Aspergillus penicilloides. The following Group 2 organisms were identified: Cladosporum cladosporoides I, Cladosporum cladosporoides II, Alternaria Alternata, and Penicillium chrysogenum.

Following, is a discussion per location of the mold organisms found. We also compared and described what was found during this third sampling event with the previous events.

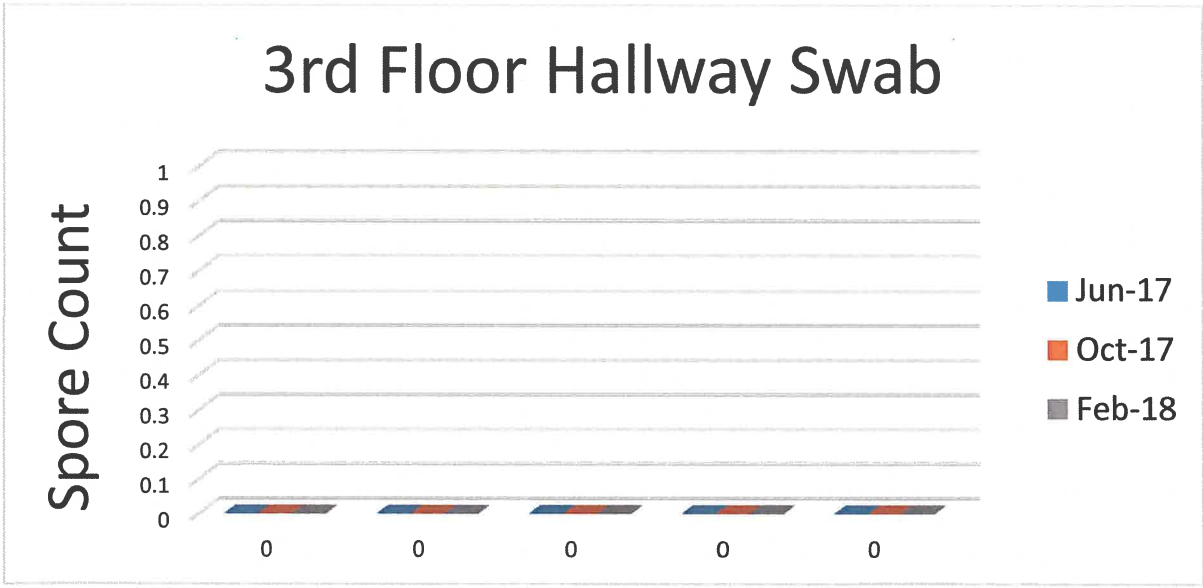
In Room N-134, we found Aureobasidium Pollulans from Group 1 and Cladosporum Cladosporoides I from Group 2. The ERMI Score is 4.7, considered by the lab as a Moderate Level 3 (Likelihood of Mold Problem). There is a decrease in the ERMI Score compared to the second sampling round, from 10.6 to 4.7. There is only one mold organism from Group I which is also found outside the building but in lower amounts. See Figure 1 for visual representation of this swab sampling results:

Figure 1: Room N-134 Swabs



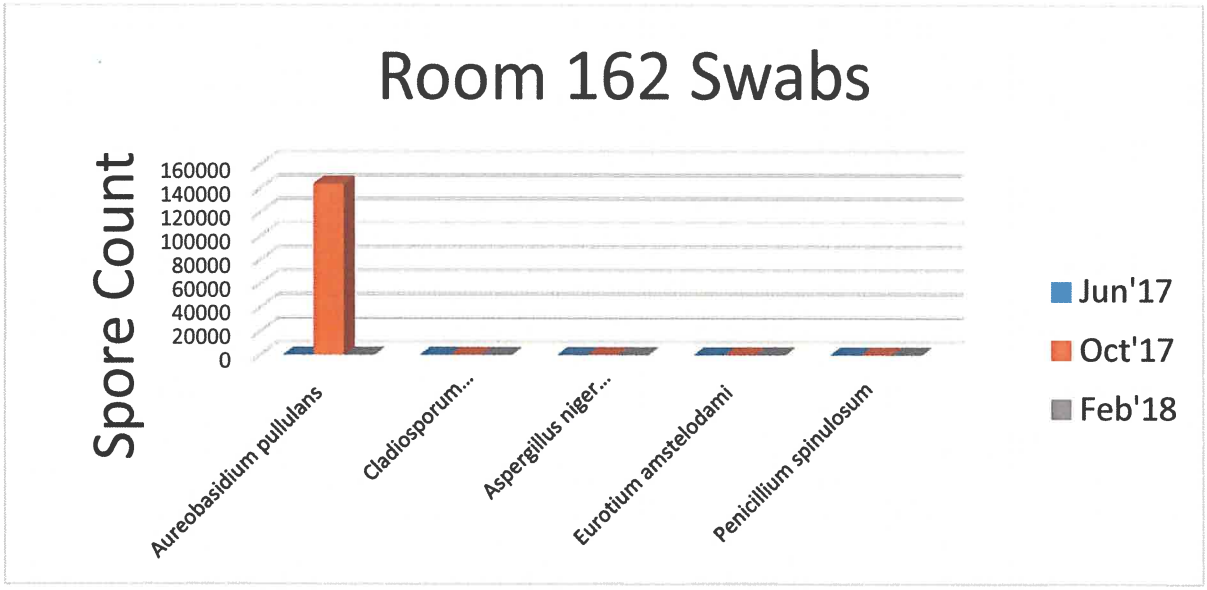
In the 3rd Floor Main Hallway, we found no mold organism from Group I present. We only found 1 organism from Group 2 (not associated with water damage) and that is Cladosporum cladosporoides I in very low quantities. The ERMI Score is -2.0, considered by the lab as a Lower Level 2. This ERMI score is lower than the first and second sampling events. See Figure 2 for visual representation of this swab sampling results:

Figure 2: 3rd Floor Swabs



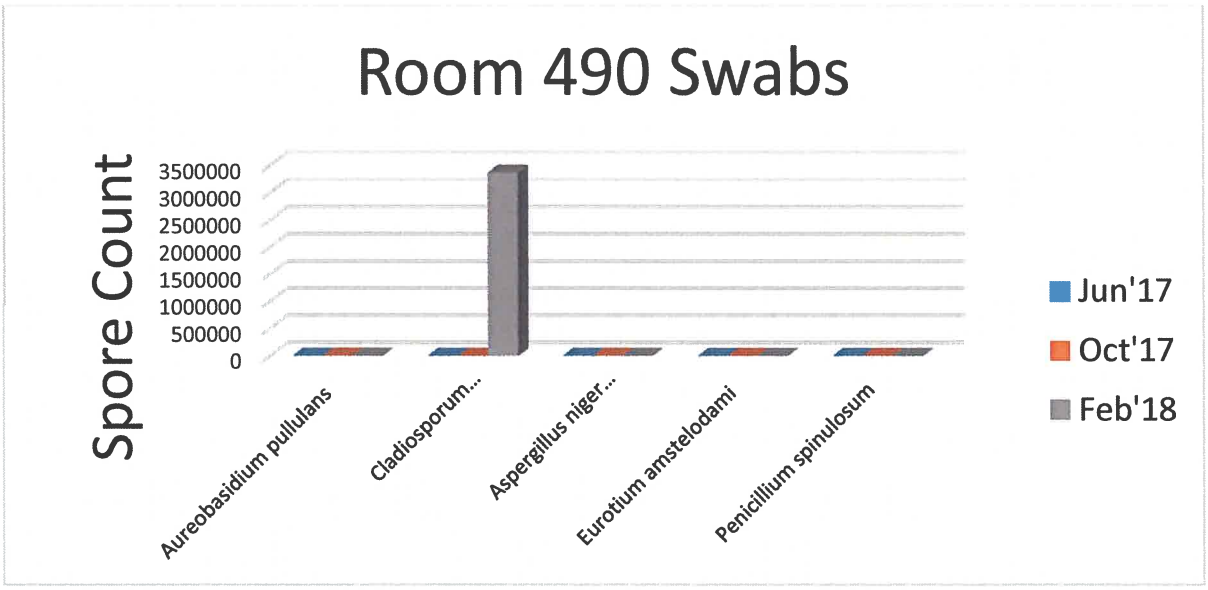
In Room 162, we did not find any mold organisms from either Group I or Group II. Therefore, the ERMI Score is 0, considered by the lab as a Lower Level 2. The score is definitely lower than the first and second sampling round. See Figure 3 for visual representation of this swab sampling results:

Figure 3: Room 162 Swabs



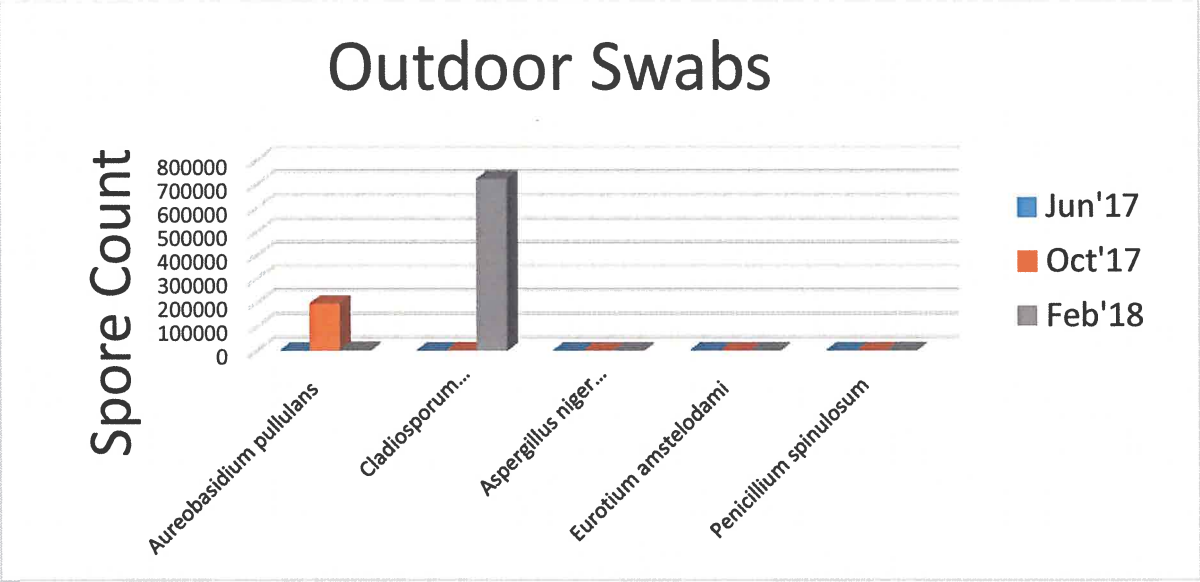
In Room 490, we did not find any mold organisms from Group I. We did find Cladosporum Cladosporoides I and II from Group 2. The ERMI Score is -9.7, considered by the lab as the Lowest Level 1 (Likelihood of Mold Problem). This score is lower than the first and second sampling rounds and the molds encountered belong in Group 2 (molds commonly found inside the building). See Figure 4 for visual representation of this swab sampling results:

Figure 4: Room 490 Swabs



As for the outdoor swab samples, we only found Aureobasidium Pollulans from Group 1. We also found Cladosporum Cladosporoides I, and Alternaria alternata from Group II. The ERMI Score is -7.5, considered by the lab as a Lowest Level 1 (Likelihood of Mold Problem). We can see that this ERMI score is lower than the ERMI score from the 1st sampling event (0.8) and second sampling event (-3.9). See Figure 5 for visual representation of this swab sampling results:

Figure 5: Outdoor Swabs

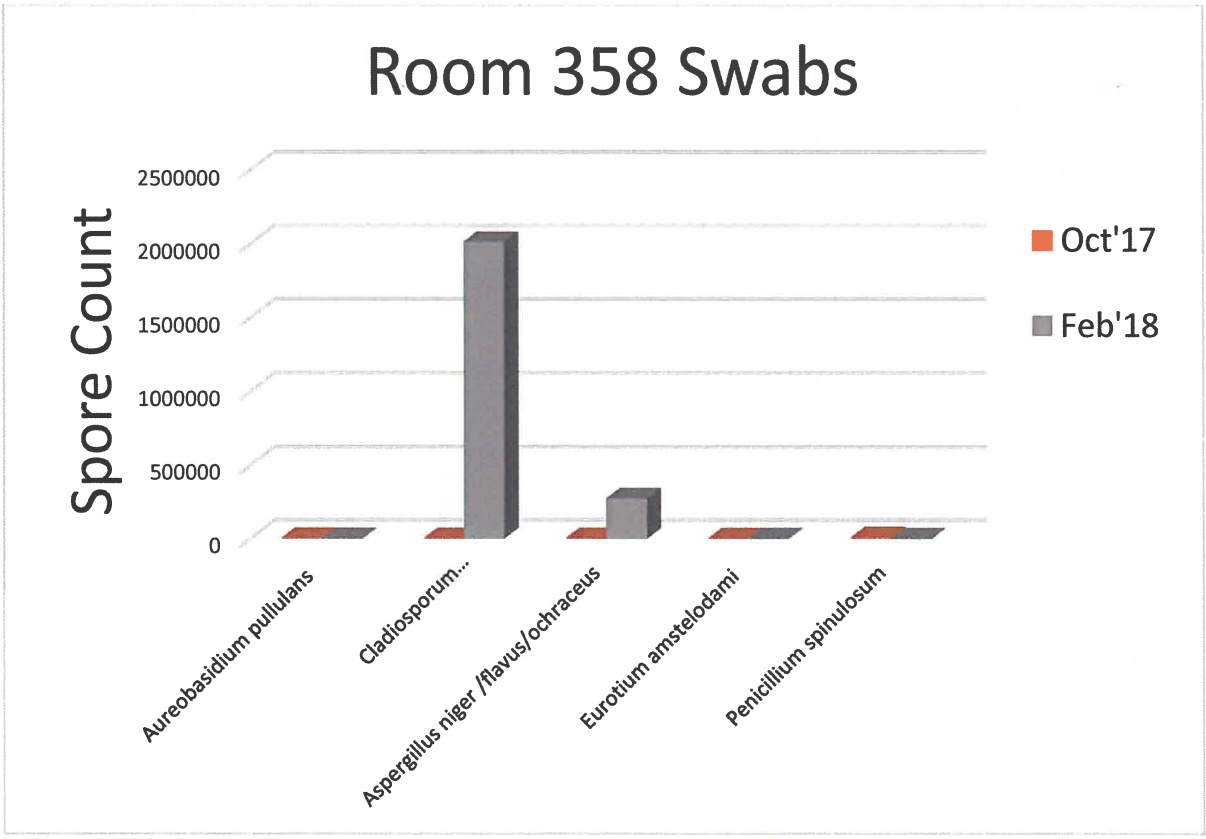


The following additional rooms were sampled in response to newer building occupant's complaints. They will only be compared to the second sampling event since they were not included at the time of the first sampling event. These locations will also be included in the next scheduled sampling event.

In Room 358, we took two swab samples. We took one sample in the same North Wall as the last sampling event, and we took one sample of a fallen ceiling tile we found in the room that had black material above it. In the north wall sample, we found Aspergillus versicolor from Group I. We also found Cladosporium cladosporioides I from Group II. The ERMI score was -0.9, considered by the lab as a Lower Level 2. This score was lower than the last sampling round even though there is a high spore count from both Group I (associated with water damage) and Group II (commonly found in buildings) organisms. The other sample taken from the fallen ceiling tile, was quite different. We found Aspergillus fumigatus, Aspergillus niger and Cladosporium sphaerospermum from Group

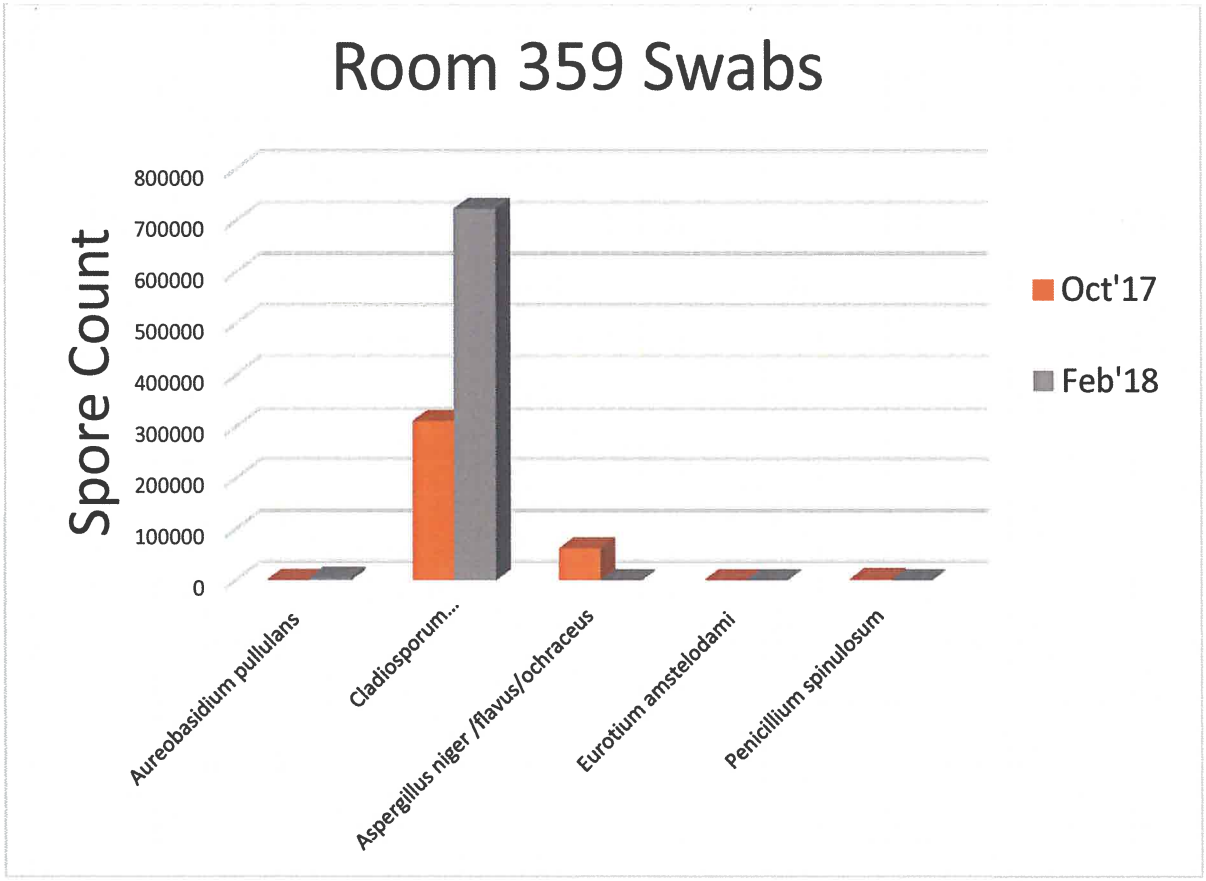
I. We also found Alternaria Alternata, Cladosporum Cladosporoides I, Cladosporum Cladosporoides II, and Penicillium chrysogenum from Group II. The majority of the spore count from both groups was high. The ERMI score for this fallen ceiling tile is 1.3, considered by the lab as a Moderate Level 3. This indicates the possibility of mold growing somewhere above the ceiling tiles which will be addressed in the conclusion. See Figure 6 for visual representation of the swab sampling results:

Figure 6: Room 358 Swabs



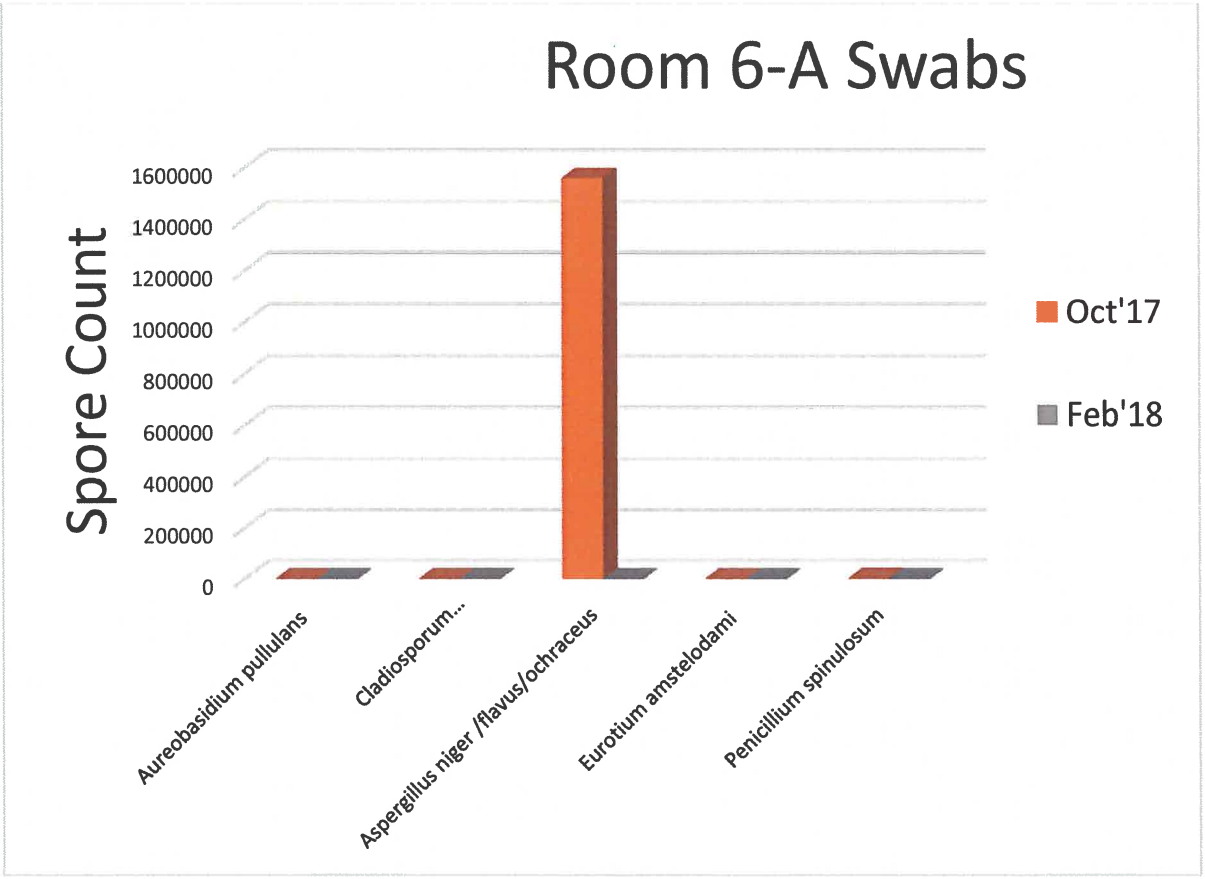
In Room 359, we found Aspergillus niger and Cladosporium sphaerospermum from Group I. We did not find any Group II mold organisms in this room causing the ERMI score to increase. The ERMI score is 12.8, considered by the lab as a High Level 4 (likelihood of mold problem). This score is high compared to the score of the last sampling event (-1.0). This room is very close to room 358 but is not on the same ventilation mixing box. We will address this room and 358 regarding these high results.
See Figure 7 for visual representation of the swab sampling results:

Figure 7: Room 359 Swabs



In Room 6A, we did not find any mold organisms from Group I (associated with water damage). We did find some organisms from Group 2: Alternaria Alternata and Cladosporium cladosporoides II. The ERMI score is -10.3, considered by the lab as Lowest Level 1. This result is lower than the last sampling round, which had an ERMI score of 6.2, considered by the lab as a High Level 4. The spores found in this room are the same found outside the building. See Figure 8 for visual representation of the swab sampling results:

Figure 8: Room 6-A Swabs

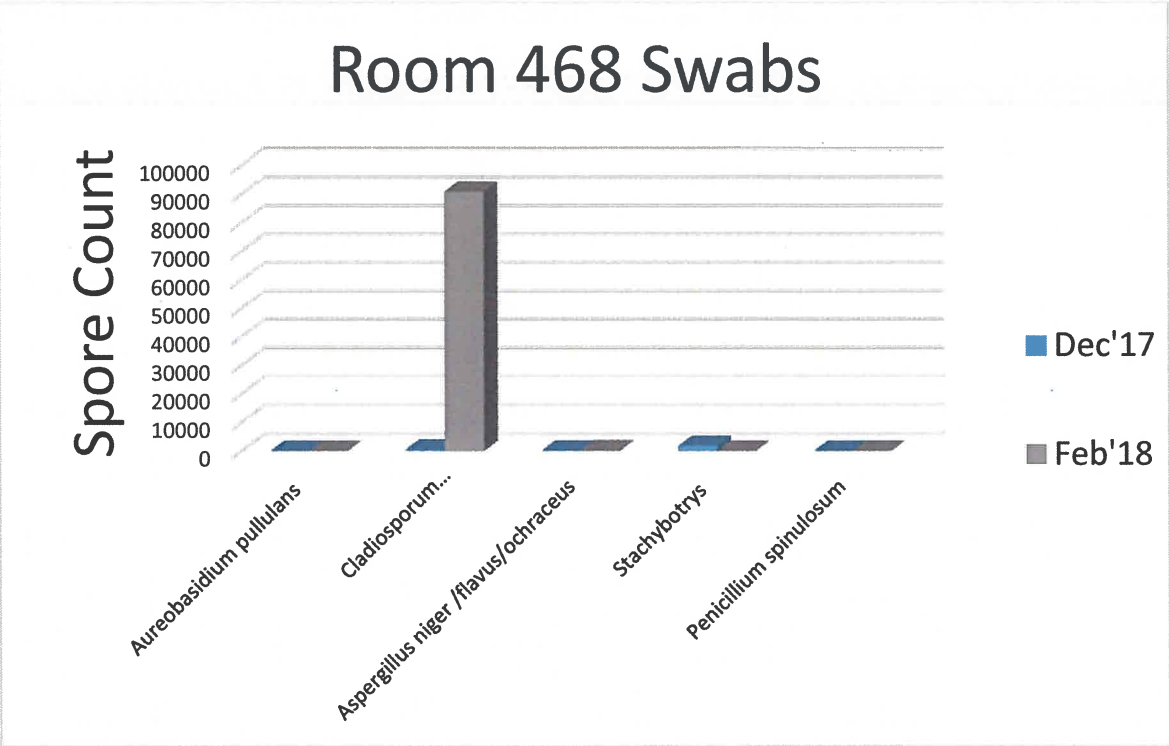


Because of occupants concerns, the following rooms where added for this 3rd sampling round: Room 468 was added to the sampling procedure because occupant reported respiratory problems in this room. Rooms 466 and 470 were added as a concern of occupants sharing walls with Room 468.

We sampled the North and South Wall of Room 468 exactly in some wall stains that had appeared in the office and were a concern for the occupant. This sampling event took place in December 2017. During this event we found that in the South Wall stain Stachybotrys chartarum and Aspergillus fumigatus from Group I were present. The ERMI score for the South Wall was 4.9, considered by the lab as a Moderate Level 3. On the North Wall, we found Cladosporium and Aspergillus fumigatus from Group I. The ERMI score for the North wall was -1.5, considered by the lab as Low Level 2. During this separate sampling event (not part of the quarterly sampling), we had Facilities Management clean the walls and floor thoroughly. We also found that the occupant has installed a carpet on top of the floor tiles, which had not been cleaned in a while and was not cleaned regularly. Risk Management asked custodial to clean the carpet as well. Cleaning the carpet regularly, was part of the recommendations given as well.

During the Third Quarter Sampling Event, after Facilities Management cleaning procedures and 2.5 months later, we sampled Room 468 walls again. We found a very low count of Aspergillus penicilloides from Group I in the North Wall. The ERMI score for this wall is 2.3, considered by the lab as a Moderate Level 3. On the South Wall we found 2 mold organisms from Group II: Cladosporium cladosporoides I and Cladosporium cladosporoides II. The ERMI score for this wall is -7.4, considered by the lab as a Lowest Level 1. We have found that the ERMI score for these walls reduced after the cleaning efforts. See Figure 9 for visual representation of the swab sampling results:

Figure 9: Room 468 Swabs



We also sampled Room 466, even though occupant have not reported any medical concerns. We found Aureobasidium pullulans from Group I. We also found Alternaria Alternata and Cladosporium cladosporioides from Group II. The ERMI score is -7.5, considered by the lab as a Lowest Level 1.

Room 470 was sampled as well, even though occupant have not reported any medical concerns either. We found Cladosporium sphaerospermum from Group I in very low quantities. We also found Cladosporium cladosporoides I and Cladosporium cladosporoides II from Group II. The ERMI score is -5.1, considered by the lab as a Lowest Level 1.

Both results from Room 466 and 470 do not indicate a mold problem in the rooms.

SWAB SAMPLES GENERAL DISCUSSION

The following discussion is focused on the higher spore counts found in specific rooms which are particularly from Group I, molds commonly associated with water damage in a building.

Aureobasidium pullulans was only found in some rooms, compared to the last sampling event, in which we found it in every room and area sampled. Even though it is a Group I mold, commonly associated with water damage in buildings, this mold organism was found outside the building as well. The detection of this species indoors is most likely the result of being carried into the building by occupants, and/or distribution through the HVAC system. A good example is Room N-134.

We found Cladiosporium sphaerospermum in some rooms during this 3rd sampling event as well. This organism was not found outside the building. But we found a high count in Room 359 and 358. Being a Group I mold species, it indicates that there may be residual or new water damage in these rooms.

We found a high spore count of Aspergillus niger in Room 358 and 359 as well. It was not found in the sample taken outside the building either. Being a Group I mold species, it indicates that there may be residual or new water damage in these rooms.

We found Aspergillus versicolor and fumigatus in Room 358, both in a high spore count. The spore count was 271,758 and 943,759. Considered a Group I mold, it indicates that there still may be residual or new water damage related problems in this room. Aspergillus versicolor and fumigatus are typically found in air conditioning ducts and building materials that have been damaged by a flood or water intrusion.

In general, there is a tendency of lower ERMI scores and less mold organisms found during this third swab sampling round than for the first and second swab sampling round conducted by Risk Management. We noticed a decrease in spore counts at the majority of the sampled areas except for samples taken in Room 358 and Room 359. We also noticed new organism spore counts that were not present during the second sampling round in these two rooms. Due to the higher spore counts that did not have a corresponding outdoor finding may be an indicator of residual or new water damage in the building that needs further remediation.

AIR SAMPLE RESULTS

qPCR air sampling was also performed as part of the Risk Management sampling protocol. We took qPCR air samples in two areas inside the building (Room N-134 and in the 3rd Floor Hallway) and one area outside the building. (Refer to results at Appendices).

The air sample results from the lab are not presented in the ERMI Score format. Forensics Analytical Laboratories does not perform an ERMI Score equation for qPCR air samples. Their lab has only designed ERMI scores for swab samples. Their report shows the same quantified 36 species, but without the final ERMI score. Air sample results are more representative of concentrations that may be inhaled by building occupants, but there is not

always a direct correlation between findings from surface swab samples and air samples. Multiple factors may impact whether spores found in surface swabs become airborne, and available for inhalation by building occupants.

We found Penicillium brevicompactum from Group I in the air samples from Room N-134. This organism was not present in the outside air sample. We also found a higher count of Aurebasidium Pollulans in Room N-134 than outside the building.

We found Cladosporium cladosporioides I from Group II present in both Room N-134 and the 3rd Floor Hallway in lower counts, compared to the outside air samples.

We noticed a decrease in Aspergillus spore counts from last sampling events in both areas Room N-134 and 3rd Floor Hallway, but Aspergillus was found on the outside in lower counts as well. We noticed an increase in Aurobasidium pollulans spore counts in all areas but spore counts in the outside were also high compared to past sampling events.

We notice an increase in Cladosporium cladosporioides in the outside compared to the past sampling events. As a results, Cladosporium cladosporioides has a slight increase inside the building in this event compared to the last ones.

We noticed a general decrease in the quantity of organisms found in this event when compared to the past events.

Please see Figure 10,11 and 12 below to see the difference of Risk Management Results between the 1st, 2nd and 3rd Sampling Events:

Figure 10: Room N-134 Air Samples

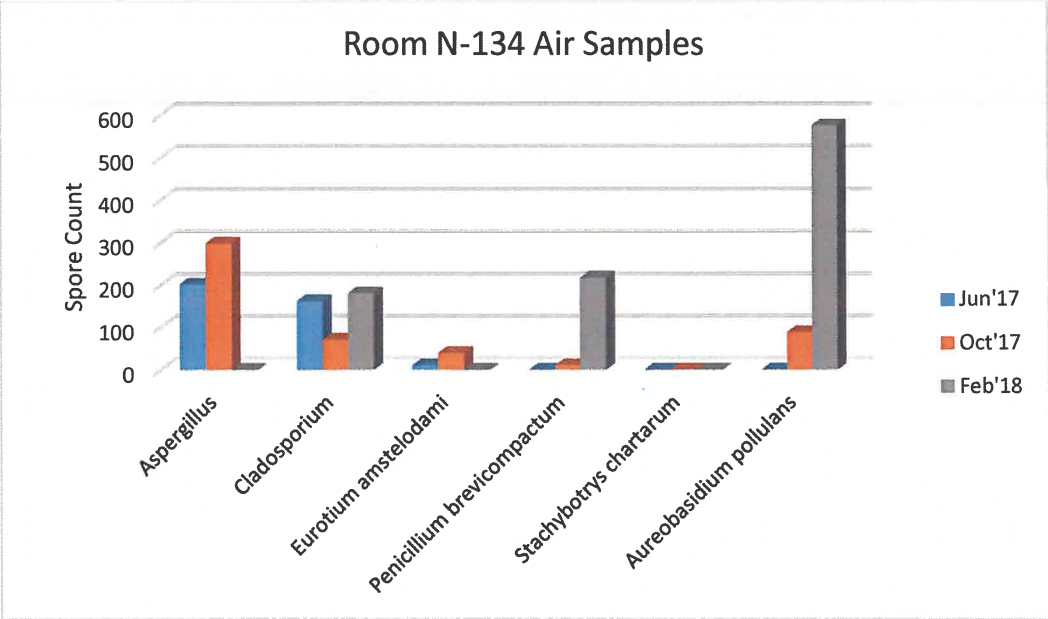


Figure 11: 3rd Floor Hallway Air Samples

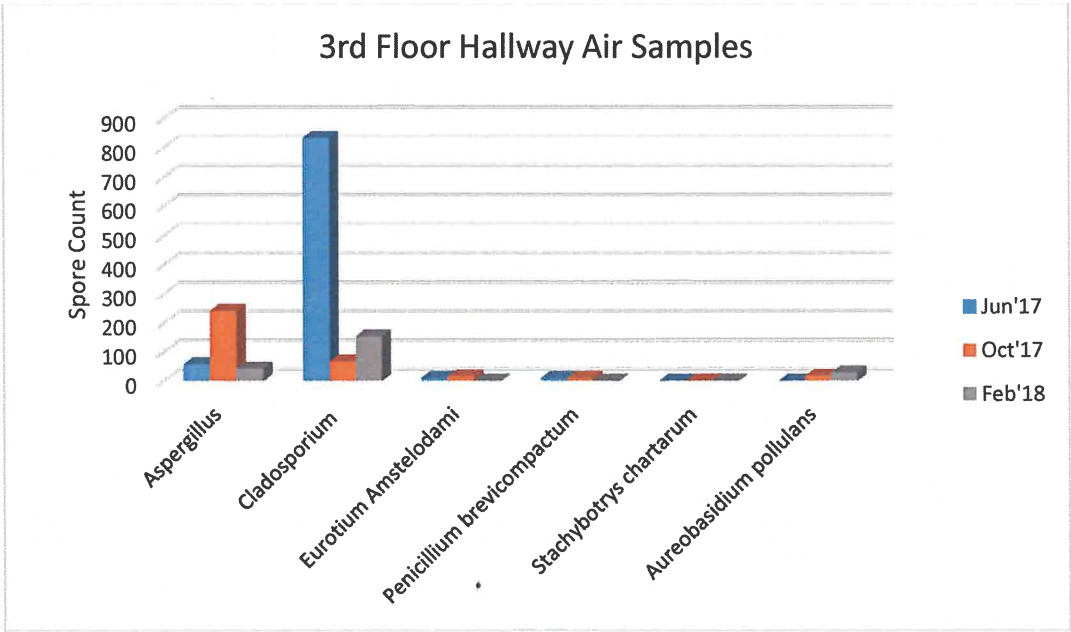
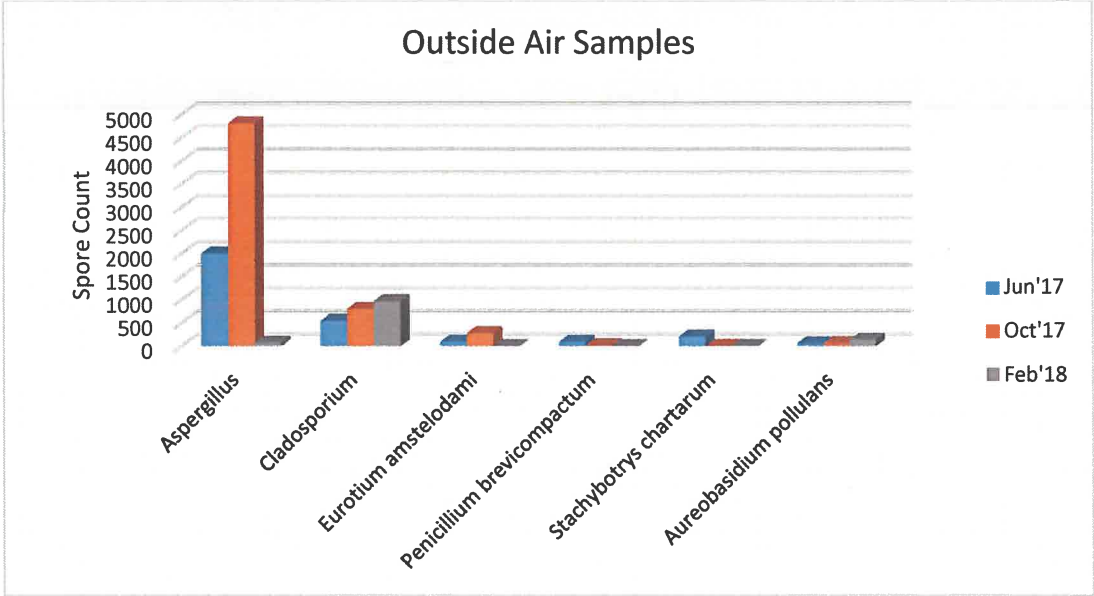


Figure 12: Outside Air Samples



Slight changes may have occurred because of a difference in temperature and humidity, since samples were taken in different seasons. Please see Table 3 for Temperature and Humidity Results from the 1st Sampling Round on 06/28/17. See Table 4 for Temperature and Humidity Results from the 2nd Sampling Round on 10/12/17. See Table 5 for Temperature and Humidity Results from the 3rd Sampling Round on 02/21/18.

Table 3: Temperature and Humidity Sample Areas 06/28/17- Risk Management

Date	Location	Temperature & Relative Humidity before Sampling	Temperature & Relative Humidity after Sampling
06/28/17	Outdoors	84°F/ 37.5%	99.9°F/ 15.5%
06/28/17	Room N-134	74.6°F/ 43%	77.4°F/ 30.8%
06/28/17	3rd Floor Main Hallway	75.3°F/ 39.9%	75°F/ 33.8%
06/28/17	Room -162	75.4°F/ 39.1%	Not Taken (Only Swab)
06/28/17	Room 490	77.7°F/ 40%	Not Taken (Only Swab)

Table 4: Temperature and Humidity Sample Areas 10/12/17- Risk Management

Date	Location	Temperature & Relative Humidity before Sampling	Temperature & Relative Humidity after Sampling
10/12/17	Outdoors	74.2°F/ 36.7%	Not Taken
10/12/17	Room N-134	75.4°F/ 32.7%	Not Taken
10/12/17	3rd Floor Main Hallway	74.5°F/ 37.6%	Not Taken
10/12/17	Room -162	75.6°F/ 33.2%	Not Taken (Only Swab)
10/12/17	Room 490	74.2°F/ 34.2%	Not Taken (Only Swab)
10/12/17	Room 358	74.5°F/ 37.6%	Not Taken Only Swab
10/12/17	Room 359	74.5°F/ 37.6%	Not Taken (Only Swab)
10/12/17	Room 6-A	74.5°F/ 37.6%	Not Taken (Only Swab)

Table 5: Temperature and Humidity Sample Areas 02/21/18- Risk Management

Date	Location	Temperature & Relative Humidity before Sampling	Temperature & Relative Humidity after Sampling
02/21/18	Outdoors	51.2°F/ 28.5%	71.3°F/ 17.8%
02/21/18	Room N-134	62.3°F/ 30.5%	71.2°F/ 23.2%
02/21/18	3rd Floor Main Hallway	68.3°F/ 27%	72°F/ 23.6%
02/21/18	Room -162	68.8°F/ 23.9%	Not Taken (Only Swab)
02/21/18	Room 490	69.6°F/ 24%	Not Taken (Only Swab)
02/21/18	Room 358	68.7°F/ 26.3%	Not Taken Only Swab
02/21/18	Room 359	65.2°F/ 28.3%	Not Taken (Only Swab)
02/21/18	Room 6-A	65.8°F/ 31.2%	Not Taken (Only Swab)
02/21/18	Room 468	70°F/ 24.3%	Not Taken (Only Swab)
02/21/18	Room 466	71°F/ 25%	Not Taken (Only Swab)
02/21/18	Room 470	70.4°F/ 22%	Not Taken (Only Swab)

VISUAL BUILDING INSPECTION

As part of the sampling protocol, a building inspection was conducted with the Steward Observatory Building Manager the same day. The purpose was to look for any new sign of water intrusion or residual water damage in the building. We also went to every room we saw damage during the 2nd Sampling Round to confirm if appropriate repairs had been implemented.

During the inspection, Risk management found that the rooms where we reported water damaged ceiling tiles during the 2nd Round hadn't been replaced since Risk Management reported it during both the 1st and 2nd Round: Rooms 353-A, 362, 366, 579, 580-F, 580G, 580H,581, 360, 353-F, and

outside N-501 have stained ceiling tiles that have not been replaced. No new leaks have been reported in these rooms. All of the stained ceiling tiles were reported to FM for replacement again.

The following rooms did not have any visual water damage issues during the 1st or 2nd Round, but did this time: Room N-122 has a water stain next to the window. Rooms 364 and 360 have water stained ceiling tiles that need to be replaced. A work request has been submitted to FM for this to be done. Room 360 happens to have a possible leak coming from a sprinkler pipe, which Facilities Management is currently investigating this.

Room 353-F still needs to have the air vents cleaned. A work order was submitted for this task but it was not done.

Room N-124, had a water leak the same day of the inspection caused by a ruptured pipe. Water from that room got to the room next to it N-126. FM was working on drying both rooms at the moment but we have to monitor this room to avoid future mold growth.

Room 358 had a fallen ceiling panel with black material all over it. We took a swab sample of it and found high levels of mold organisms in it. Action will be taken to address this problem as a whole.

SUMMARY AND CONCLUSION

Building 65 third sampling event swab sample results indicate lower spore counts and ERMI scores than the first sampling event except for rooms 358 and 359. ERMI scores were only provided for the swab results, ERMI is not applicable to air sampling results.

The air sample results from the third quarter indicate that there is a lower spore count inside the building compared to the outside of the building except for Aurebasidium pollulans spore counts from Room N-134. But Aurebasidium pollulans was found in higher quantities outside the building compared to the last sampling events.

The lab results from this sampling event indicate that mold spores are not present in high quantities in the air. Mold spores are present in a higher quantity on the vertical surfaces of some parts of the building and above the ceiling tiles, specifically in Room 359 and 358. We will focus on a plan to do a full and thorough mold inspection and remediation in these 2 rooms and find the root cause of the problem. Facilities Management is developing a plan to address possible leaks from outside and repair of sprinkler pipe in Room 360. We are also assessing a roof drain from Room 359 to verify if accumulated moisture could have contributed to our results. We are also planning to clean above the ceiling and replace the ductwork in the rooms served by the ductwork in 358.

It is important to note that the 1st and 2nd and 3rd sampling event were held at different seasons of the year. The first sampling event (06/28/17) was before the local monsoon season started. The second sampling event (10/12/17) was after the monsoon season had finished and the third sampling event (02/21/18) was during winter. We expected to see lower spore counts during

this third sampling event season, since we saw lower levels of humidity both inside and outside the building.

Risk Management will continue to sample quarterly to evaluate fluctuations in spore counts during different seasons. We will continue sampling in the additional rooms which were not part of the original sampling plan, so that we can have comparative values next quarterly sampling.

RMS recommends that our office be consulted regarding relocation decisions for staff experiencing any adverse reaction in the building. In the case involving relocation to the Annex, it appears this has not resulted in improved symptoms for the affected employee. RMS can assist with assessment of different areas in the building that may provide a more successful relocation outcome.

Appendices

Forensic Analytical Laboratories

Preliminary Report

Fungal Analysis by PCR

University of Arizona, Risk Management S
Lorrane Santiago
220 W 6th St. Bldg. 300 B 2nd Fl.

Tuscon, AZ 85701

Sample Type: Swab
Analysis: PCR Environmental Relative Moldiness Index Panel
Job ID / Site:

Client ID:	CH1000
Report Number:	F125129
FALI Job ID:	CH1000-5469
Date Received:	02/23/18
Date Analyzed:	03/14/18
Date Printed:	03/14/18
First Reported:	NA

Lab Number	**40176914**
Sample ID	**65-022118-05**
Location	Outside Swab

Total Samples Submitted: 14
Total Samples Analyzed: 14

Sample Date	2/21/2018
Weight/Area	Not Indicated
Media	

Group 1

Organism	Sp Eq	Sp Eq/mg dust	%	Log Conc
Aspergillus flavus	ND	ND	-	-
Aspergillus fumigatus	ND	ND	-	-
Aspergillus niger	ND	ND	-	-
Aspergillus ochraceus	ND	ND	-	-
Aspergillus penicilloides	ND	ND	-	-
Aspergillus restrictus	ND	ND	-	-
Aspergillus sclerotiorum	ND	ND	-	-
Aspergillus sydowii	ND	ND	-	-
Aspergillus unguis	ND	ND	-	-
Aspergillus versicolor	ND	ND	-	-
Aureobasidium pullulans	4360	4,400	0.5	3.63
Chaetomium globosum	ND	ND	-	-
Cladosporium sphaerospermum	ND	ND	-	-
Eurotium amstelodami	ND	ND	-	-
Paecilomyces variotii	ND	ND	-	-
Penicillium brevicompactum	ND	ND	-	-
Penicillium corylophilum	ND	ND	-	-
Penicillium crustosum	ND	ND	-	-
Penicillium purpurogenum	ND	ND	-	-
Penicillium spinulosum	ND	ND	-	-
Penicillium variabile	ND	ND	-	-
Scopulariopsis brevicaulis	ND	ND	-	-
Scopulariopsis chartarum	ND	ND	-	-
Stachybotrys chartarum	ND	ND	-	-
Trichoderma viride	ND	ND	-	-
Wallemia sebi	ND	ND	-	-
Total for Both Groups	**925,000**	**920,000**		
Sum of Logs				**3.63**
LOD				**1**

Group 2

Organism	Sp Eq	Sp Eq/mg dust	%	Log Conc
Acremonium strictum	ND	ND	-	-
Alternaria alternata	196504	200,000	21.2	5.29
Aspergillus ustus	ND	ND	-	-
Cladosporium cladosporioides I	723942	720,000	78.3	5.85
Cladosporium cladosporioides II	ND	ND	-	-
Cladosporium herbarum	ND	ND	-	-
Epicoccum nigrum	ND	ND	-	-
Mucor racemosus	ND	ND	-	-
Penicillium chrysogenum	ND	ND	-	-
Rhizopus stolonifer	ND	ND	-	-
Total for Both Groups	**925,000**	**920,000**		
Sum of Logs				**11.1**
LOD				**1**

ERMI™ Score	
GROUP 1	3.63
GROUP 2	11.1
ERMI™ SCORE †	-7.5
LEVEL	Level 1

Ulocladium chartarum - - - -

† ERMI™ Score = Group 1 - Group 2

Comments	

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Forensic Analytical Laboratories

Preliminary Report

Fungal Analysis by PCR

University of Arizona, Risk Management S
Lorrane Santiago
220 W 6th St. Bldg. 300 B 2nd Fl.

Tuscon, AZ 85701

Client ID: CH1000
Report Number: F125129
FALI Job ID: CH1000-5469
Date Received: 02/23/18
Date Analyzed: 03/14/18
Date Printed: 03/14/18
First Reported: NA

Sample Type: Swab
Analysis: PCR Environmental Relative Moldiness Index Panel
Job ID / Site:

Lab Number	40176915
Sample ID	65-022118-06
Location	Room 490 Swab

Total Samples Submitted: 14
Total Samples Analyzed: 14

Sample Date	2/21/2018
Weight/Area	Not Indicated
Media	

Group 1

Organism	Sp Eq	Sp Eq/mg dust	%	Log Conc
Aspergillus flavus	ND	ND	-	-
Aspergillus fumigatus	ND	ND	-	-
Aspergillus niger	ND	ND	-	-
Aspergillus ochraceus	ND	ND	-	-
Aspergillus penicilloides	ND	ND	-	-
Aspergillus restrictus	ND	ND	-	-
Aspergillus sclerotiorum	ND	ND	-	-
Aspergillus sydowii	ND	ND	-	-
Aspergillus unguis	ND	ND	-	-
Aspergillus versicolor	ND	ND	-	-
Aureobasidium pullulans	ND	ND	-	-
Chaetomium globosum	ND	ND	-	-
Cladosporium sphaerospermum	ND	ND	-	-
Eurotium amstelodami	ND	ND	-	-
Paecilomyces variotii	ND	ND	-	-
Penicillium brevicompactum	ND	ND	-	-
Penicillium corylophilum	ND	ND	-	-
Penicillium crustosum	ND	ND	-	-
Penicillium purpurogenum	ND	ND	-	-
Penicillium spinulosum	ND	ND	-	-
Penicillium variabile	ND	ND	-	-
Scopulariopsis brevicaulis	ND	ND	-	-
Scopulariopsis chartarum	ND	ND	-	-
Stachybotrys chartarum	ND	ND	-	-
Trichoderma viride	ND	ND	-	-
Wallemia sebi	ND	ND	-	-
Total for Both Groups	**3,370,000**	**3,400,000**		
Sum of Logs				**3.63**
LOD				**1**

Group 2

Organism	Sp Eq	Sp Eq/mg dust	%	Log Conc
Acremonium strictum	ND	ND	-	-
Alternaria alternata	ND	ND	-	-
Aspergillus ustus	ND	ND	-	-
Cladosporium cladosporioides I	3365004	3,400,000	100	6.52
Cladosporium cladosporioides II	1354	1,400	-	3.13
Cladosporium herbarum	ND	ND	-	-
Epicoccum nigrum	ND	ND	-	-
Mucor racemosus	ND	ND	-	-
Penicillium chrysogenum	ND	ND	-	-
Rhizopus stolonifer	ND	ND	-	-
Total for Both Groups	**3,370,000**	**3,400,000**		
Sum of Logs				**9.65**
LOD				**1**

ERMI™ Score

GROUP 1	3.63
GROUP 2	9.65
ERMI™ SCORE †	-9.7
LEVEL	Level 1

Ulocladium chartarum - - - -

† ERMI™ Score = Group 1 - Group 2

Comments	

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Fungal Analysis by PCR

University of Arizona, Risk Management S
Lorrane Santiago
220 W 6th St. Bldg. 300 B 2nd Fl.

Tuscon, AZ 85701

Client ID: CH1000
Report Number: F125129
FALI Job ID: CH1000-5469
Date Received: 02/23/18
Date Analyzed: 03/14/18
Date Printed: 03/14/18
First Reported: NA

Sample Type: Swab
Analysis: PCR Environmental Relative Moldiness Index Panel
Job ID / Site:

Lab Number	40176916
Sample ID	65-022118-07
Location	Room N-134 Swab

Total Samples Submitted: 14
Total Samples Analyzed: 14

Sample Date	2/21/2018
Weight/Area	Not Indicated
Media	

Group 1

Organism	Sp Eq	Sp Eq/mg dust	%	Log Conc
Aspergillus flavus	ND	ND	-	-
Aspergillus fumigatus	ND	ND	-	-
Aspergillus niger	ND	ND	-	-
Aspergillus ochraceus	ND	ND	-	-
Aspergillus penicilloides	ND	ND	-	-
Aspergillus restrictus	ND	ND	-	-
Aspergillus sclerotiorum	ND	ND	-	-
Aspergillus sydowii	ND	ND	-	-
Aspergillus unguis	ND	ND	-	-
Aspergillus versicolor	ND	ND	-	-
Aureobasidium pullulans	2883765	2,900,000	100	6.45
Chaetomium globosum	ND	ND	-	-
Cladosporium sphaerospermum	ND	ND	-	-
Eurotium amstelodami	ND	ND	-	-
Paecilomyces variotii	ND	ND	-	-
Penicillium brevicompactum	ND	ND	-	-
Penicillium corylophilum	ND	ND	-	-
Penicillium crustosum	ND	ND	-	-
Penicillium purpurogenum	ND	ND	-	-
Penicillium spinulosum	ND	ND	-	-
Penicillium variabile	ND	ND	-	-
Scopulariopsis brevicaulis	ND	ND	-	-
Scopulariopsis chartarum	ND	ND	-	-
Stachybotrys chartarum	ND	ND	-	-
Trichoderma viride	ND	ND	-	-
Wallemia sebi	ND	ND	-	-
Total for Both Groups	**2,880,000**	**2,900,000**		
Sum of Logs				**6.45**
LOD				**1**

Group 2

Organism	Sp Eq	Sp Eq/mg dust	%	Log Conc
Acremonium strictum	ND	ND	-	-
Alternaria alternata	ND	ND	-	-
Aspergillus ustus	ND	ND	-	-
Cladosporium cladosporioides I	62	62	-	1.79
Cladosporium cladosporioides II	ND	ND	-	-
Cladosporium herbarum	ND	ND	-	-
Epicoccum nigrum	ND	ND	-	-
Mucor racemosus	ND	ND	-	-
Penicillium chrysogenum	ND	ND	-	-
Rhizopus stolonifer	ND	ND	-	-
Total for Both Groups	**2,880,000**	**2,900,000**		
Sum of Logs				**1.79**
LOD				**1**

ERMI™ Score	
GROUP 1	6.45
GROUP 2	1.79
ERMI™ SCORE †	4.7
LEVEL	Level 3

Ulocladium chartarum - - - -

† ERMI™ Score = Group 1 - Group 2

Comments	

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Forensic Analytical Laboratories

Preliminary Report

Fungal Analysis by PCR

University of Arizona, Risk Management S
Lorrane Santiago
220 W 6th St. Bldg. 300 B 2nd Fl.

Tuscon, AZ 85701

Sample Type: Swab
Analysis: PCR Environmental Relative Moldiness Index Panel
Job ID / Site:

Client ID:	CH1000
Report Number:	F125129
FALI Job ID:	CH1000-5469
Date Received:	02/23/18
Date Analyzed:	03/14/18
Date Printed:	03/14/18
First Reported:	NA

Lab Number	**40176917**
Sample ID	**65-022118-08**
Location	3rd Fl Hallway

Total Samples Submitted: 14
Total Samples Analyzed: 14

Sample Date	2/21/2018
Weight/Area	Not Indicated
Media	

Group 1

Organism	Sp Eq	Sp Eq/mg dust	%	Log Conc
Aspergillus flavus	ND	ND	-	-
Aspergillus fumigatus	ND	ND	-	-
Aspergillus niger	ND	ND	-	-
Aspergillus ochraceus	ND	ND	-	-
Aspergillus penicilloides	ND	ND	-	-
Aspergillus restrictus	ND	ND	-	-
Aspergillus sclerotiorum	ND	ND	-	-
Aspergillus sydowii	ND	ND	-	-
Aspergillus unguis	ND	ND	-	-
Aspergillus versicolor	ND	ND	-	-
Aureobasidium pullulans	ND	ND	-	-
Chaetomium globosum	ND	ND	-	-
Cladosporium sphaerospermum	ND	ND	-	-
Eurotium amstelodami	ND	ND	-	-
Paecilomyces variotii	ND	ND	-	-
Penicillium brevicompactum	ND	ND	-	-
Penicillium corylophilum	ND	ND	-	-
Penicillium crustosum	ND	ND	-	-
Penicillium purpurogenum	ND	ND	-	-
Penicillium spinulosum	ND	ND	-	-
Penicillium variabile	ND	ND	-	-
Scopulariopsis brevicaulis	ND	ND	-	-
Scopulariopsis chartarum	ND	ND	-	-
Stachybotrys chartarum	ND	ND	-	-
Trichoderma viride	ND	ND	-	-
Wallemia sebi	ND	ND	-	-
Total for Both Groups	**98**	**98**		
Sum of Logs				**6.45**
LOD				**1**

Group 2

Organism	Sp Eq	Sp Eq/mg dust	%	Log Conc
Acremonium strictum	ND	ND	-	-
Alternaria alternata	ND	ND	-	-
Aspergillus ustus	ND	ND	-	-
Cladosporium cladosporioides I	98	98	100	1.99
Cladosporium cladosporioides II	ND	ND	-	-
Cladosporium herbarum	ND	ND	-	-
Epicoccum nigrum	ND	ND	-	-
Mucor racemosus	ND	ND	-	-
Penicillium chrysogenum	ND	ND	-	-
Rhizopus stolonifer	ND	ND	-	-
Total for Both Groups	**98**	**98**		
Sum of Logs				**1.99**
LOD				**1**

ERMI™ Score	
GROUP 1	6.45
GROUP 2	1.99
ERMI™ SCORE †	-2.0
LEVEL	Level 2

Ulocladium chartarum - - - -

† ERMI™ Score = Group 1 - Group 2

Comments	

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Forensic Analytical Laboratories

Preliminary Report

Fungal Analysis by PCR

University of Arizona, Risk Management S
Lorrane Santiago
220 W 6th St. Bldg. 300 B 2nd Fl.

Tuscon, AZ 85701

Sample Type: Swab
Analysis: PCR Environmental Relative Moldiness Index Panel
Job ID / Site:

Client ID:	CH1000
Report Number:	F125129
FALI Job ID:	CH1000-5469
Date Received:	02/23/18
Date Analyzed:	03/14/18
Date Printed:	03/14/18
First Reported:	NA

Lab Number	**40176918**
Sample ID	**65-022118-09**
Location	Room 359

Total Samples Submitted: 14
Total Samples Analyzed: 14

Sample Date	2/21/2018
Weight/Area	Not Indicated
Media	

Group 1

Organism	Sp Eq	Sp Eq/mg dust	%	Log Conc
Aspergillus flavus	ND	ND	-	-
Aspergillus fumigatus	ND	ND	-	-
Aspergillus niger	3684205	3,700,000	68.8	6.56
Aspergillus ochraceus	ND	ND	-	-
Aspergillus penicilloides	ND	ND	-	-
Aspergillus restrictus	ND	ND	-	-
Aspergillus sclerotiorum	ND	ND	-	-
Aspergillus sydowii	ND	ND	-	-
Aspergillus unguis	ND	ND	-	-
Aspergillus versicolor	ND	ND	-	-
Aureobasidium pullulans	ND	ND	-	-
Chaetomium globosum	ND	ND	-	-
Cladosporium sphaerospermum	1673225	1,700,000	31.2	6.22
Eurotium amstelodami	ND	ND	-	-
Paecilomyces variotii	ND	ND	-	-
Penicillium brevicompactum	ND	ND	-	-
Penicillium corylophilum	ND	ND	-	-
Penicillium crustosum	ND	ND	-	-
Penicillium purpurogenum	ND	ND	-	-
Penicillium spinulosum	ND	ND	-	-
Penicillium variabile	ND	ND	-	-
Scopulariopsis brevicaulis	ND	ND	-	-
Scopulariopsis chartarum	ND	ND	-	-
Stachybotrys chartarum	ND	ND	-	-
Trichoderma viride	ND	ND	-	-
Wallemia sebi	ND	ND	-	-
Total for Both Groups	**5,360,000**	**5,400,000**		
Sum of Logs				**12.8**
LOD				**1**

Group 2

Organism	Sp Eq	Sp Eq/mg dust	%	Log Conc
Acremonium strictum	ND	ND	-	-
Alternaria alternata	ND	ND	-	-
Aspergillus ustus	ND	ND	-	-
Cladosporium cladosporioides I	ND	ND	-	-
Cladosporium cladosporioides II	ND	ND	-	-
Cladosporium herbarum	ND	ND	-	-
Epicoccum nigrum	ND	ND	-	-
Mucor racemosus	ND	ND	-	-
Penicillium chrysogenum	ND	ND	-	-
Rhizopus stolonifer	ND	ND	-	-
Total for Both Groups	**5,360,000**	**5,400,000**		
Sum of Logs				**1.99**
LOD				**1**

ERMI™ Score

GROUP 1	**12.8**
GROUP 2	**1.99**
ERMI™ SCORE †	**12.8**
LEVEL	**Level 4**

Ulocladium chartarum - - - -

† ERMI™ Score = Group 1 - Group 2

Comments	

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Forensic Analytical Laboratories

Preliminary Report

Fungal Analysis by PCR

University of Arizona, Risk Management S
Lorrane Santiago
220 W 6th St. Bldg. 300 B 2nd Fl.

Tuscon, AZ 85701

Client ID: CH1000
Report Number: F125129
FALI Job ID: CH1000-5469
Date Received: 02/23/18
Date Analyzed: 03/14/18
Date Printed: 03/14/18
First Reported: NA

Sample Type: Swab
Analysis: PCR Environmental Relative Moldiness Index Panel
Job ID / Site:

Lab Number	**40176919**
Sample ID	**65-022118-10**
Location	Room 358

Total Samples Submitted: 14
Total Samples Analyzed: 14

Sample Date	2/21/2018
Weight/Area	Not Indicated
Media	

Group 1

Organism	Sp Eq	Sp Eq/mg dust	%	Log Conc
Aspergillus flavus	ND	ND	-	-
Aspergillus fumigatus	ND	ND	-	-
Aspergillus niger	ND	ND	-	-
Aspergillus ochraceus	ND	ND	-	-
Aspergillus penicilloides	ND	ND	-	-
Aspergillus restrictus	ND	ND	-	-
Aspergillus sclerotiorum	ND	ND	-	-
Aspergillus sydowii	ND	ND	-	-
Aspergillus unguis	ND	ND	-	-
Aspergillus versicolor	271758	270,000	11.9	5.43
Aureobasidium pullulans	ND	ND	-	-
Chaetomium globosum	ND	ND	-	-
Cladosporium sphaerospermum	ND	ND	-	-
Eurotium amstelodami	ND	ND	-	-
Paecilomyces variotii	ND	ND	-	-
Penicillium brevicompactum	ND	ND	-	-
Penicillium corylophilum	ND	ND	-	-
Penicillium crustosum	ND	ND	-	-
Penicillium purpurogenum	ND	ND	-	-
Penicillium spinulosum	ND	ND	-	-
Penicillium variabile	ND	ND	-	-
Scopulariopsis brevicaulis	ND	ND	-	-
Scopulariopsis chartarum	ND	ND	-	-
Stachybotrys chartarum	ND	ND	-	-
Trichoderma viride	ND	ND	-	-
Wallemia sebi	ND	ND	-	-
Total for Both Groups	**2,280,000**	**2,300,000**		
Sum of Logs				**5.43**
LOD				**1**

Group 2

Organism	Sp Eq	Sp Eq/mg dust	%	Log Conc
Acremonium strictum	ND	ND	-	-
Alternaria alternata	ND	ND	-	-
Aspergillus ustus	ND	ND	-	-
Cladosporium cladosporioides I	2012400	2,000,000	88.1	6.3
Cladosporium cladosporioides II	ND	ND	-	-
Cladosporium herbarum	ND	ND	-	-
Epicoccum nigrum	ND	ND	-	-
Mucor racemosus	ND	ND	-	-
Penicillium chrysogenum	ND	ND	-	-
Rhizopus stolonifer	ND	ND	-	-
Total for Both Groups	**2,280,000**	**2,300,000**		
Sum of Logs				**6.3**
LOD				**1**

ERMI™ Score

GROUP 1	**5.43**
GROUP 2	**6.3**
ERMI™ SCORE †	**-0.9**
LEVEL	**Level 2**

Ulocladium chartarum - - - -

† ERMI™ Score = Group 1 - Group 2

Comments	

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Forensic Analytical Laboratories

Preliminary Report

Fungal Analysis by PCR

University of Arizona, Risk Management S
Lorrane Santiago
220 W 6th St. Bldg. 300 B 2nd Fl.

Tuscon, AZ 85701

Sample Type: Swab
Analysis: PCR Environmental Relative Moldiness Index Panel
Job ID / Site:

Client ID:	CH1000
Report Number:	F125129
FALI Job ID:	CH1000-5469
Date Received:	02/23/18
Date Analyzed:	03/14/18
Date Printed:	03/14/18
First Reported:	NA

Lab Number	**40176920**
Sample ID	**65-022118-11**
Location	Room 6-A Annex

Total Samples Submitted: 14
Total Samples Analyzed: 14

Sample Date	2/21/2018
Weight/Area	Not Indicated
Media	

Group 1

Organism	Sp Eq	Sp Eq/mg dust	%	Log Conc
Aspergillus flavus	ND	ND	-	-
Aspergillus fumigatus	ND	ND	-	-
Aspergillus niger	ND	ND	-	-
Aspergillus ochraceus	ND	ND	-	-
Aspergillus penicilloides	ND	ND	-	-
Aspergillus restrictus	ND	ND	-	-
Aspergillus sclerotiorum	ND	ND	-	-
Aspergillus sydowii	ND	ND	-	-
Aspergillus unguis	ND	ND	-	-
Aspergillus versicolor	ND	ND	-	-
Aureobasidium pullulans	ND	ND	-	-
Chaetomium globosum	ND	ND	-	-
Cladosporium sphaerospermum	ND	ND	-	-
Eurotium amstelodami	ND	ND	-	-
Paecilomyces variotii	ND	ND	-	-
Penicillium brevicompactum	ND	ND	-	-
Penicillium corylophilum	ND	ND	-	-
Penicillium crustosum	ND	ND	-	-
Penicillium purpurogenum	ND	ND	-	-
Penicillium spinulosum	ND	ND	-	-
Penicillium variabile	ND	ND	-	-
Scopulariopsis brevicaulis	ND	ND	-	-
Scopulariopsis chartarum	ND	ND	-	-
Stachybotrys chartarum	ND	ND	-	-
Trichoderma viride	ND	ND	-	-
Wallemia sebi	ND	ND	-	-
Total for Both Groups	**569,000**	**570,000**		
Sum of Logs				**5.43**
LOD				**1**

Group 2

Organism	Sp Eq	Sp Eq/mg dust	%	Log Conc
Acremonium strictum	ND	ND	-	-
Alternaria alternata	568736	570,000	99.9	5.75
Aspergillus ustus	ND	ND	-	-
Cladosporium cladosporioides I	91	91	-	1.95
Cladosporium cladosporioides II	358	360	0.1	2.55
Cladosporium herbarum	ND	ND	-	-
Epicoccum nigrum	ND	ND	-	-
Mucor racemosus	ND	ND	-	-
Penicillium chrysogenum	ND	ND	-	-
Rhizopus stolonifer	ND	ND	-	-
Total for Both Groups	**569,000**	**570,000**		
Sum of Logs				**10.3**
LOD				**1**

ERMI™ Score

GROUP 1	**5.43**
GROUP 2	**10.3**
ERMI™ SCORE †	**-10.3**
LEVEL	**Level 1**

Ulocladium chartarum - - - -

† ERMI™ Score = Group 1 - Group 2

Comments	

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Forensic Analytical Laboratories

Preliminary Report

Fungal Analysis by PCR

University of Arizona, Risk Management S
Lorrane Santiago
220 W 6th St. Bldg. 300 B 2nd Fl.

Tuscon, AZ 85701

Sample Type: Swab
Analysis: PCR Environmental Relative Moldiness Index Panel
Job ID / Site:

Client ID:	CH1000
Report Number:	F125129
FALI Job ID:	CH1000-5469
Date Received:	02/23/18
Date Analyzed:	03/14/18
Date Printed:	03/14/18
First Reported:	NA

Lab Number	**40176921**
Sample ID	**65-022118-12**
Location	Room 358 fallen panel swab

Total Samples Submitted: 14
Total Samples Analyzed: 14

Sample Date	2/21/2018
Weight/Area	Not Indicated
Media	

Group 1

Organism	Sp Eq	Sp Eq/mg dust	%	Log Conc
Aspergillus flavus	ND	ND	-	-
Aspergillus fumigatus	41446	41,000	0.5	4.61
Aspergillus niger	943759	940,000	11.5	5.97
Aspergillus ochraceus	2014	2,000	-	3.3
Aspergillus penicilloides	ND	ND	-	-
Aspergillus restrictus	ND	ND	-	-
Aspergillus sclerotiorum	ND	ND	-	-
Aspergillus sydowii	ND	ND	-	-
Aspergillus unguis	ND	ND	-	-
Aspergillus versicolor	ND	ND	-	-
Aureobasidium pullulans	ND	ND	-	-
Chaetomium globosum	ND	ND	-	-
Cladosporium sphaerospermum	311768	310,000	3.8	5.49
Eurotium amstelodami	ND	ND	-	-
Paecilomyces variotii	ND	ND	-	-
Penicillium brevicompactum	ND	ND	-	-
Penicillium corylophilum	ND	ND	-	-
Penicillium crustosum	397	400	-	2.59
Penicillium purpurogenum	ND	ND	-	-
Penicillium spinulosum	ND	ND	-	-
Penicillium variabile	ND	ND	-	-
Scopulariopsis brevicaulis	ND	ND	-	-
Scopulariopsis chartarum	ND	ND	-	-
Stachybotrys chartarum	ND	ND	-	-
Trichoderma viride	ND	ND	-	-
Wallemia sebi	ND	ND	-	-
Total for Both Groups	**8,190,000**	**8,200,000**		
Sum of Logs				**22.0**
LOD				**1**

Group 2

Organism	Sp Eq	Sp Eq/mg dust	%	Log Conc
Acremonium strictum	ND	ND	-	-
Alternaria alternata	106725	110,000	1.3	5.02
Aspergillus ustus	ND	ND	-	-
Cladosporium cladosporioides I	6663343	6,700,000	81.4	6.82
Cladosporium cladosporioides II	6102	6,100	0.1	3.78
Cladosporium herbarum	ND	ND	-	-
Epicoccum nigrum	ND	ND	-	-
Mucor racemosus	ND	ND	-	-
Penicillium chrysogenum	112829	110,000	1.4	5.05
Rhizopus stolonifer	ND	ND	-	-
Total for Both Groups	**8,190,000**	**8,200,000**		
Sum of Logs				**20.7**
LOD				**1**

ERMI™ Score	
GROUP 1	22.0
GROUP 2	20.7
ERMI™ SCORE †	1.3
LEVEL	Level 3

Ulocladium chartarum - - - -

† ERMI™ Score = Group 1 - Group 2

Comments	

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Fungal Analysis by PCR

University of Arizona, Risk Management S
Lorrane Santiago
220 W 6th St. Bldg. 300 B 2nd Fl.

Tuscon, AZ 85701

Client ID: CH1000
Report Number: F125129
FALI Job ID: CH1000-5469
Date Received: 02/23/18
Date Analyzed: 03/14/18
Date Printed: 03/14/18
First Reported: NA

Sample Type: Swab
Analysis: PCR Environmental Relative Moldiness Index Panel
Job ID / Site:

Lab Number	**40176922**
Sample ID	**65-022118-13**
Location	Room 468 North Wall

Total Samples Submitted: 14
Total Samples Analyzed: 14

Sample Date	2/21/2018
Weight/Area	Not Indicated
Media	

Group 1

Organism	Sp Eq	Sp Eq/mg dust	%	Log Conc
Aspergillus flavus	ND	ND	-	-
Aspergillus fumigatus	ND	ND	-	-
Aspergillus niger	ND	ND	-	-
Aspergillus ochraceus	ND	ND	-	-
Aspergillus penicilloides	188	190	100	2.27
Aspergillus restrictus	ND	ND	-	-
Aspergillus sclerotiorum	ND	ND	-	-
Aspergillus sydowii	ND	ND	-	-
Aspergillus unguis	ND	ND	-	-
Aspergillus versicolor	ND	ND	-	-
Aureobasidium pullulans	ND	ND	-	-
Chaetomium globosum	ND	ND	-	-
Cladosporium sphaerospermum	ND	ND	-	-
Eurotium amstelodami	ND	ND	-	-
Paecilomyces variotii	ND	ND	-	-
Penicillium brevicompactum	ND	ND	-	-
Penicillium corylophilum	ND	ND	-	-
Penicillium crustosum	ND	ND	-	-
Penicillium purpurogenum	ND	ND	-	-
Penicillium spinulosum	ND	ND	-	-
Penicillium variabile	ND	ND	-	-
Scopulariopsis brevicaulis	ND	ND	-	-
Scopulariopsis chartarum	ND	ND	-	-
Stachybotrys chartarum	ND	ND	-	-
Trichoderma viride	ND	ND	-	-
Wallemia sebi	ND	ND	-	-
Total for Both Groups	**188**	**190**		
Sum of Logs				**2.27**
LOD				**1**

Group 2

Organism	Sp Eq	Sp Eq/mg dust	%	Log Conc
Acremonium strictum	ND	ND	-	-
Alternaria alternata	ND	ND	-	-
Aspergillus ustus	ND	ND	-	-
Cladosporium cladosporioides I	ND	ND	-	-
Cladosporium cladosporioides II	ND	ND	-	-
Cladosporium herbarum	ND	ND	-	-
Epicoccum nigrum	ND	ND	-	-
Mucor racemosus	ND	ND	-	-
Penicillium chrysogenum	ND	ND	-	-
Rhizopus stolonifer	ND	ND	-	-
Total for Both Groups	**188**	**190**		
Sum of Logs				**20.7**
LOD				**1**

ERMI™ Score

GROUP 1	**2.27**
GROUP 2	**20.7**
ERMI™ SCORE †	**2.3**
LEVEL	**Level 3**

Ulocladium chartarum - - - -

† ERMI™ Score = Group 1 - Group 2

Comments	

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Forensic Analytical Laboratories

Preliminary Report

Fungal Analysis by PCR

University of Arizona, Risk Management S
Lorrane Santiago
220 W 6th St. Bldg. 300 B 2nd Fl.

Tuscon, AZ 85701

Sample Type: Swab
Analysis: PCR Environmental Relative Moldiness Index Panel
Job ID / Site:

Client ID:	CH1000
Report Number:	F125129
FALI Job ID:	CH1000-5469
Date Received:	02/23/18
Date Analyzed:	03/14/18
Date Printed:	03/14/18
First Reported:	NA

Lab Number	**40176923**
Sample ID	**65-022118-14**
Location	Room 468 South Wall #2 sample

Total Samples Submitted: 14
Total Samples Analyzed: 14

Sample Date	2/21/2018
Weight/Area	Not Indicated
Media	

Group 1

Organism	Sp Eq	Sp Eq/mg dust	%	Log Conc
Aspergillus flavus	ND	ND	-	-
Aspergillus fumigatus	ND	ND	-	-
Aspergillus niger	ND	ND	-	-
Aspergillus ochraceus	ND	ND	-	-
Aspergillus penicilloides	ND	ND	-	-
Aspergillus restrictus	ND	ND	-	-
Aspergillus sclerotiorum	ND	ND	-	-
Aspergillus sydowii	ND	ND	-	-
Aspergillus unguis	ND	ND	-	-
Aspergillus versicolor	ND	ND	-	-
Aureobasidium pullulans	ND	ND	-	-
Chaetomium globosum	ND	ND	-	-
Cladosporium sphaerospermum	ND	ND	-	-
Eurotium amstelodami	ND	ND	-	-
Paecilomyces variotii	ND	ND	-	-
Penicillium brevicompactum	ND	ND	-	-
Penicillium corylophilum	ND	ND	-	-
Penicillium crustosum	ND	ND	-	-
Penicillium purpurogenum	ND	ND	-	-
Penicillium spinulosum	ND	ND	-	-
Penicillium variabile	ND	ND	-	-
Scopulariopsis brevicaulis	ND	ND	-	-
Scopulariopsis chartarum	ND	ND	-	-
Stachybotrys chartarum	ND	ND	-	-
Trichoderma viride	ND	ND	-	-
Wallemia sebi	ND	ND	-	-
Total for Both Groups	**91,200**	**91,000**		
Sum of Logs				**2.27**
LOD				**1**

Group 2

Organism	Sp Eq	Sp Eq/mg dust	%	Log Conc
Acremonium strictum	ND	ND	-	-
Alternaria alternata	ND	ND	-	-
Aspergillus ustus	ND	ND	-	-
Cladosporium cladosporioides I	284	280	0.3	2.45
Cladosporium cladosporioides II	90891	91,000	99.7	4.95
Cladosporium herbarum	ND	ND	-	-
Epicoccum nigrum	ND	ND	-	-
Mucor racemosus	ND	ND	-	-
Penicillium chrysogenum	ND	ND	-	-
Rhizopus stolonifer	ND	ND	-	-
Total for Both Groups	**91,200**	**91,000**		
Sum of Logs				**7.4**
LOD				**1**

ERMI™ Score	
GROUP 1	**2.27**
GROUP 2	**7.4**
ERMI™ SCORE †	**-7.4**
LEVEL	**Level 1**

Ulocladium chartarum ND ND - -

† ERMI™ Score = Group 1 - Group 2

Comments	

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Fungal Analysis by PCR

University of Arizona, Risk Management S
Lorrane Santiago
220 W 6th St. Bldg. 300 B 2nd Fl.

Tuscon, AZ 85701

Client ID: CH1000
Report Number: F125129
FALI Job ID: CH1000-5469
Date Received: 02/23/18
Date Analyzed: 03/14/18
Date Printed: 03/14/18
First Reported: NA

Sample Type: Swab
Analysis: PCR Environmental Relative Moldiness Index Panel
Job ID / Site:

Lab Number	**40176924**
Sample ID	**65-022118-15**
Location	Room 468 South Wall Sample #1 (fell)

Total Samples Submitted: 14
Total Samples Analyzed: 14

Sample Date	2/21/2018
Weight/Area	Not Indicated
Media	

Group 1

Organism	Sp Eq	Sp Eq/mg dust	%	Log Conc
Aspergillus flavus	ND	ND	-	-
Aspergillus fumigatus	ND	ND	-	-
Aspergillus niger	ND	ND	-	-
Aspergillus ochraceus	ND	ND	-	-
Aspergillus penicilloides	ND	ND	-	-
Aspergillus restrictus	ND	ND	-	-
Aspergillus sclerotiorum	ND	ND	-	-
Aspergillus sydowii	ND	ND	-	-
Aspergillus unguis	ND	ND	-	-
Aspergillus versicolor	ND	ND	-	-
Aureobasidium pullulans	333	330	-	2.52
Chaetomium globosum	ND	ND	-	-
Cladosporium sphaerospermum	ND	ND	-	-
Eurotium amstelodami	ND	ND	-	-
Paecilomyces variotii	ND	ND	-	-
Penicillium brevicompactum	ND	ND	-	-
Penicillium corylophilum	ND	ND	-	-
Penicillium crustosum	ND	ND	-	-
Penicillium purpurogenum	ND	ND	-	-
Penicillium spinulosum	ND	ND	-	-
Penicillium variabile	ND	ND	-	-
Scopulariopsis brevicaulis	ND	ND	-	-
Scopulariopsis chartarum	ND	ND	-	-
Stachybotrys chartarum	ND	ND	-	-
Trichoderma viride	ND	ND	-	-
Wallemia sebi	ND	ND	-	-
Total for Both Groups	**1,050,000**	**1,000,000**		
Sum of Logs				**2.52**
LOD				**1**

Group 2

Organism	Sp Eq	Sp Eq/mg dust	%	Log Conc
Acremonium strictum	ND	ND	-	-
Alternaria alternata	ND	ND	-	-
Aspergillus ustus	ND	ND	-	-
Cladosporium cladosporioides I	ND	ND	-	-
Cladosporium cladosporioides II	ND	ND	-	-
Cladosporium herbarum	1047129	1,000,000	100	6.01
Epicoccum nigrum	ND	ND	-	-
Mucor racemosus	ND	ND	-	-
Penicillium chrysogenum	ND	ND	-	-
Rhizopus stolonifer	ND	ND	-	-
Total for Both Groups	**1,050,000**	**1,000,000**		
Sum of Logs				**6.01**
LOD				**1**

ERMI™ Score

GROUP 1	**2.52**
GROUP 2	**6.01**
ERMI™ SCORE †	**-3.5**
LEVEL	**Level 2**

Ulocladium chartarum - - - -

† ERMI™ Score = Group 1 - Group 2

Comments	

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Forensic Analytical Laboratories

Preliminary Report

Fungal Analysis by PCR

University of Arizona, Risk Management S
Lorrane Santiago
220 W 6th St. Bldg. 300 B 2nd Fl.

Tuscon, AZ 85701

Sample Type: Swab
Analysis: PCR Environmental Relative Moldiness Index Panel
Job ID / Site:

Client ID:	CH1000
Report Number:	F125129
FALI Job ID:	CH1000-5469
Date Received:	02/23/18
Date Analyzed:	03/14/18
Date Printed:	03/14/18
First Reported:	NA

Lab Number	**40176925**
Sample ID	**65-022118-16**
Location	Room 470

Total Samples Submitted: 14
Total Samples Analyzed: 14

Sample Date	2/21/2018
Weight/Area	Not Indicated
Media	

Group 1

Organism	Sp Eq	Sp Eq/mg dust	%	Log Conc
Aspergillus flavus	ND	ND	-	-
Aspergillus fumigatus	ND	ND	-	-
Aspergillus niger	ND	ND	-	-
Aspergillus ochraceus	ND	ND	-	-
Aspergillus penicilloides	ND	ND	-	-
Aspergillus restrictus	ND	ND	-	-
Aspergillus sclerotiorum	ND	ND	-	-
Aspergillus sydowii	ND	ND	-	-
Aspergillus unguis	ND	ND	-	-
Aspergillus versicolor	ND	ND	-	-
Aureobasidium pullulans	598	600	0.1	2.77
Chaetomium globosum	ND	ND	-	-
Cladosporium sphaerospermum	ND	ND	-	-
Eurotium amstelodami	ND	ND	-	-
Paecilomyces variotii	ND	ND	-	-
Penicillium brevicompactum	ND	ND	-	-
Penicillium corylophilum	ND	ND	-	-
Penicillium crustosum	ND	ND	-	-
Penicillium purpurogenum	ND	ND	-	-
Penicillium spinulosum	ND	ND	-	-
Penicillium variabile	ND	ND	-	-
Scopulariopsis brevicaulis	ND	ND	-	-
Scopulariopsis chartarum	ND	ND	-	-
Stachybotrys chartarum	ND	ND	-	-
Trichoderma viride	ND	ND	-	-
Wallemia sebi	ND	ND	-	-
Total for Both Groups	**471,000**	**470,000**		
Sum of Logs				**2.77**
LOD				**1**

Group 2

Organism	Sp Eq	Sp Eq/mg dust	%	Log Conc
Acremonium strictum	ND	ND	-	-
Alternaria alternata	421478	420,000	89.5	5.62
Aspergillus ustus	ND	ND	-	-
Cladosporium cladosporioides I	48791	49,000	10.4	4.68
Cladosporium cladosporioides II	ND	ND	-	-
Cladosporium herbarum	ND	ND	-	-
Epicoccum nigrum	ND	ND	-	-
Mucor racemosus	ND	ND	-	-
Penicillium chrysogenum	ND	ND	-	-
Rhizopus stolonifer	ND	ND	-	-
Total for Both Groups	**471,000**	**470,000**		
Sum of Logs				**10.3**
LOD				**1**

ERMI™ Score	
GROUP 1	2.77
GROUP 2	10.3
ERMI™ SCORE †	-7.5
LEVEL	Level 1

Ulocladium chartarum - - - -

† ERMI™ Score = Group 1 - Group 2

Comments	

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Forensic Analytical Laboratories

Preliminary Report

Fungal Analysis by PCR

University of Arizona, Risk Management S
Lorrane Santiago
220 W 6th St. Bldg. 300 B 2nd Fl.

Tuscon, AZ 85701

Client ID: CH1000
Report Number: F125129
FALI Job ID: CH1000-5469
Date Received: 02/23/18
Date Analyzed: 03/14/18
Date Printed: 03/14/18
First Reported: NA

Sample Type: Swab
Analysis: PCR Environmental Relative Moldiness Index Panel
Job ID / Site:

Lab Number	**40176926**
Sample ID	**65-022118-17**
Location	Room 466

Total Samples Submitted: 14
Total Samples Analyzed: 14

Sample Date	2/21/2018
Weight/Area	Not Indicated
Media	

Group 1

Organism	Sp Eq	Sp Eq/mg dust	%	Log Conc
Aspergillus flavus	ND	ND	-	-
Aspergillus fumigatus	ND	ND	-	-
Aspergillus niger	ND	ND	-	-
Aspergillus ochraceus	ND	ND	-	-
Aspergillus penicilloides	133	130	-	2.12
Aspergillus restrictus	ND	ND	-	-
Aspergillus sclerotiorum	ND	ND	-	-
Aspergillus sydowii	ND	ND	-	-
Aspergillus unguis	ND	ND	-	-
Aspergillus versicolor	ND	ND	-	-
Aureobasidium pullulans	ND	ND	-	-
Chaetomium globosum	ND	ND	-	-
Cladosporium sphaerospermum	593	590	0.1	2.77
Eurotium amstelodami	ND	ND	-	-
Paecilomyces variotii	ND	ND	-	-
Penicillium brevicompactum	ND	ND	-	-
Penicillium corylophilum	ND	ND	-	-
Penicillium crustosum	ND	ND	-	-
Penicillium purpurogenum	ND	ND	-	-
Penicillium spinulosum	ND	ND	-	-
Penicillium variabile	ND	ND	-	-
Scopulariopsis brevicaulis	ND	ND	-	-
Scopulariopsis chartarum	ND	ND	-	-
Stachybotrys chartarum	ND	ND	-	-
Trichoderma viride	ND	ND	-	-
Wallemia sebi	ND	ND	-	-
Total for Both Groups	**924,000**	**920,000**		
Sum of Logs				**4.89**
LOD				**1**

Group 2

Organism	Sp Eq	Sp Eq/mg dust	%	Log Conc
Acremonium strictum	ND	ND	-	-
Alternaria alternata	ND	ND	-	-
Aspergillus ustus	ND	ND	-	-
Cladosporium cladosporioides I	912888	910,000	98.8	5.96
Cladosporium cladosporioides II	10355	10,000	1.1	4.01
Cladosporium herbarum	ND	ND	-	-
Epicoccum nigrum	ND	ND	-	-
Mucor racemosus	ND	ND	-	-
Penicillium chrysogenum	ND	ND	-	-
Rhizopus stolonifer	ND	ND	-	-
Total for Both Groups	**924,000**	**920,000**		
Sum of Logs				**9.97**
LOD				**1**

ERMI[SM] Score

GROUP 1	**4.89**
GROUP 2	**9.97**
ERMI[SM] SCORE †	**-5.1**
LEVEL	**Level 1**

Ulocladium chartarum - - - -

† ERMI[SM] Score = Group 1 - Group 2

Comments	

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Fungal Analysis by PCR

University of Arizona, Risk Management S
Lorrane Santiago
220 W 6th St. Bldg. 300 B 2nd Fl.

Tuscon, AZ 85701

Client ID: CH1000
Report Number: F125129
FALI Job ID: CH1000-5469
Date Received: 02/23/18
Date Analyzed: 03/14/18
Date Printed: 03/14/18
First Reported: NA

Sample Type: Swab
Analysis: PCR Environmental Relative Moldiness Index Panel
Job ID / Site:

Lab Number	**40176927**
Sample ID	**65-022118-18**
Location	Room 162

Total Samples Submitted: 14
Total Samples Analyzed: 14

Sample Date	2/21/2018
Weight/Area	Not Indicated
Media	

Group 1

Organism	Sp Eq	Sp Eq/mg dust	%	Log Conc
Aspergillus flavus	ND	ND	-	-
Aspergillus fumigatus	ND	ND	-	-
Aspergillus niger	ND	ND	-	-
Aspergillus ochraceus	ND	ND	-	-
Aspergillus penicilloides	ND	ND	-	-
Aspergillus restrictus	ND	ND	-	-
Aspergillus sclerotiorum	ND	ND	-	-
Aspergillus sydowii	ND	ND	-	-
Aspergillus unguis	ND	ND	-	-
Aspergillus versicolor	ND	ND	-	-
Aureobasidium pullulans	ND	ND	-	-
Chaetomium globosum	ND	ND	-	-
Cladosporium sphaerospermum	ND	ND	-	-
Eurotium amstelodami	ND	ND	-	-
Paecilomyces variotii	ND	ND	-	-
Penicillium brevicompactum	ND	ND	-	-
Penicillium corylophilum	ND	ND	-	-
Penicillium crustosum	ND	ND	-	-
Penicillium purpurogenum	ND	ND	-	-
Penicillium spinulosum	ND	ND	-	-
Penicillium variabile	ND	ND	-	-
Scopulariopsis brevicaulis	ND	ND	-	-
Scopulariopsis chartarum	ND	ND	-	-
Stachybotrys chartarum	ND	ND	-	-
Trichoderma viride	ND	ND	-	-
Wallemia sebi	ND	ND	-	-
Total for Both Groups	**ND**	**ND**		
Sum of Logs				**4.89**
LOD				**1**

Group 2

Organism	Sp Eq	Sp Eq/mg dust	%	Log Conc
Acremonium strictum	ND	ND	-	-
Alternaria alternata	ND	ND	-	-
Aspergillus ustus	ND	ND	-	-
Cladosporium cladosporioides I	ND	ND	-	-
Cladosporium cladosporioides II	ND	ND	-	-
Cladosporium herbarum	ND	ND	-	-
Epicoccum nigrum	ND	ND	-	-
Mucor racemosus	ND	ND	-	-
Penicillium chrysogenum	ND	ND	-	-
Rhizopus stolonifer	ND	ND	-	-
Total for Both Groups	**ND**	**ND**		
Sum of Logs				**9.97**
LOD				**1**

ERMI™ Score

GROUP 1	**4.89**
GROUP 2	**9.97**
ERMI™ SCORE †	**0**
LEVEL	**Level 3**

Ulocladium chartarum - - - -

† ERMI™ Score = Group 1 - Group 2

Comments	

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Fungal Analysis by PCR

University of Arizona, Risk Management S
Lorrane Santiago
220 W 6th St. Bldg. 300 B 2nd Fl.

Tuscon, AZ 85701

Client ID: CH1000
Report Number: F125129
FALI Job ID: CH1000-5469
Date Received: 02/23/18
Date Analyzed: 03/14/18
Date Printed: 03/14/18
First Reported: NA

Sample Type: Swab
Analysis: PCR Environmental Relative Moldiness Index Panel
Job ID / Site:

Total Samples Submitted: 14
Total Samples Analyzed: 14

Explanations:

ND	None Detected
-	Not Applicable

Notes:
This test is performed pursuant to licensing arrangements with Roche Molecular Systems, Inc. and Applied Biosystems.
Spore Equivalents (Sp Eq) represent all cells pertaining to the identified species which contain DNA, including hyphal fragments.

The Environmental Relative Moldiness Index (ERMI^{SM}) is a screening tool developed by the USEPA to assist in predicting the relative "mold burden" on a given home. The ERMI^{SM} was developed by screening dust samples from 1096 homes across the United States as part of the 2006 HUD American Healthy Home Survey, and ranking these homes in a RMI (Relative Moldiness Index). The ERMI^{SM} score is determined by analyzing dust samples by quantitative PCR for 36 species of mold divided into two groups. Group I is composed of 26 species of molds commonly associated with water damage. Group II is composed of 10 species common to indoor environments. By comparing the difference in Group I and Group II molds, an ERMI^{SM} score is generated which can then be compared to the nationwide RMI.

ERMI^{SM} Score	Level or Risk	Likelihood of Mold Problem in Home
-10 to -4	Level 1	Lowest
-4 to 0	Level 2	Lower
0 to 5	Level 3	Moderate
5 to 20	Level 4	High

Guidelines For Interpretation:
No accepted quantitative regulatory standards currently exist by which to assess the health risks related to mold exposure. Molds have been associated with a variety of health effects and sensitivity varies from person to person.

Several organizations, including: the American Conference of Governmental Industrial Hygienists (ACGIH); the American Industrial Hygiene Association (AIHA); the Indoor Air Quality Association (IAQA); the United States Environmental Protection Agency (USEPA); the Centers for Disease Control (CDC), as well as the California Department of Health Services (CADHS), have all published guidelines for assessment and interpretation of mold resulting from water intrusion in buildings.

FALI reports solely the organisms observed on the sample(s). The limit of detection is based on observing one spore/colony per area analyzed. This is not an inclusive list of the fungal types identified in the microbiology laboratory.

The data presented in this report has not been subject to final review and is therefore subject to change.
The recipient assumes full responsibility for the use and interpretation of this preliminary data.

Dr. Sharon Harney, Microbiology Laboratory Supervisor, Hayward Laboratory

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Forensic Analytical Laboratories

Fungal Analysis by PCR

University of Arizona, Risk Management S
Lorrane Santiago
220 W 6th St. Bldg. 300 B 2nd Fl.

Tuscon, AZ 85701

Sample Type: Polycarbonate Filter
Analysis: PCR ERMI Panel Modified
Job ID / Site:

Client ID: CH1000
Report Number: F125374
FALI Job ID: CH1000-5469
Date Received: 02/23/18
Date Analyzed: 03/14/18
Date Printed: 03/14/18
First Reported: NA

Total Samples Submitted: 4
Total Samples Analyzed: 4

Lab Number	40177295				40177296				40177297			
Sample ID	65-022118-01				65-022118-02				65-022118-03			
Location	Room N-134				3rd Fl Hallway				Outside			
Sample Date	02/21/18				02/21/18				02/21/18			
Volume	3687.0 L				3630.0 L				3705.0 L			
Organism	Sp Eq	%	LOD	Sp Eq/m^3	Sp Eq	%	LOD	Sp Eq/m^3	Sp Eq	%	LOD	Sp Eq/m^3
Acremonium strictum	ND	-	0.27	ND	ND	-	0.28	ND	ND	-	0.27	ND
Alternaria alternata	ND	-	0.27	ND	ND	-	0.28	ND	ND	-	0.27	ND
Aspergillus flavus	ND	-	0.27	ND	ND	-	0.28	ND	ND	-	0.27	ND
Aspergillus fumigatus	ND	-	0.27	ND	ND	-	0.28	ND	ND	-	0.27	ND
Aspergillus niger	ND	-	0.27	ND	ND	-	0.28	ND	ND	-	0.27	ND
Aspergillus ochraceus	ND	-	0.27	ND	ND	-	0.28	ND	ND	-	0.27	ND
Aspergillus penicilloides	ND	-	0.27	ND	43	15.6	0.28	12	74	4.2	0.27	20
Aspergillus restrictus	ND	-	0.27	ND	ND	-	0.28	ND	ND	-	0.27	ND
Aspergillus sclerotiorum	ND	-	0.27	ND	ND	-	0.28	ND	ND	-	0.27	ND
Aspergillus sydowii	ND	-	0.27	ND	ND	-	0.28	ND	ND	-	0.27	ND
Aspergillus unguis	ND	-	0.27	ND	ND	-	0.28	ND	ND	-	0.27	ND
Aspergillus ustus	ND	-	0.27	ND	50	18.1	0.28	14	ND	-	0.27	ND
Aspergillus versicolor	ND	-	0.27	ND	ND	-	0.28	ND	ND	-	0.27	ND
Aureobasidium pullulans	575	58.6	0.27	160	27	9.8	0.28	7	134	7.6	0.27	36
Chaetomium globosum	ND	-	0.27	ND	ND	-	0.28	ND	ND	-	0.27	ND
Cladosporium cladosporioides I	181	18.5	0.27	49	154	55.8	0.28	42	964	54.1	0.27	260
Cladosporium cladosporioides II	ND	-	0.27	ND	ND	-	0.28	ND	49	2.8	0.27	13
Cladosporium herbarum	<10	0.8	0.27	<2.7	ND	-	0.28	ND	<10	0.2	0.27	<2.7
Cladosporium sphaerospermum	ND	-	0.27	ND	ND	-	0.28	ND	ND	-	0.27	ND
Epicoccum nigrum	ND	-	0.27	ND	ND	-	0.28	ND	487	27.5	0.27	130
Eurotium amstelodami	ND	-	0.27	ND	ND	-	0.28	ND	ND	-	0.27	ND
Mucor racemosus	ND	-	0.27	ND	<10	0.7	0.28	<2.8	ND	-	0.27	ND
Paecilomyces variotii	ND	-	0.27	ND	ND	-	0.28	ND	ND	-	0.27	ND
Penicillium brevicompactum	217	22.1	0.27	59	ND	-	0.28	ND	ND	-	0.27	ND

Continue on next page

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Fungal Analysis by PCR

University of Arizona, Risk Management S
Lorrane Santiago
220 W 6th St. Bldg. 300 B 2nd Fl.

Tuscon, AZ 85701

Sample Type: Polycarbonate Filter
Analysis: PCR ERMI Panel Modified
Job ID / Site:

Client ID: CH1000
Report Number: F125374
FALI Job ID: CH1000-5469
Date Received: 02/23/18
Date Analyzed: 03/14/18
Date Printed: 03/14/18
First Reported: NA

Total Samples Submitted: 4
Total Samples Analyzed: 4

Lab Number	40177295				40177296				40177297			
Sample ID	65-022118-01				65-022118-02				65-022118-03			
Location	Room N-134				3rd Fl Hallway				Outside			
Sample Date	02/21/18				02/21/18				02/21/18			
Volume	3687.0 L				3630.0 L				3705.0 L			
Organism	**Sp Eq**	**%**	**LOD**	**Sp Eq/m³**	**Sp Eq**	**%**	**LOD**	**Sp Eq/m³**	**Sp Eq**	**%**	**LOD**	**Sp Eq/m³**
Penicillium chrysogenum	ND	-	0.27	ND	ND	-	0.28	ND	ND	-	0.27	ND
Penicillium corylophilum	ND	-	0.27	ND	ND	-	0.28	ND	18	1	0.27	5
Penicillium crustosum	ND	-	0.27	ND	ND	-	0.28	ND	ND	-	0.27	ND
Penicillium purpurogenum	ND	-	0.27	ND	ND	-	0.28	ND	ND	-	0.27	ND
Penicillium spinulosum	ND	-	0.27	ND	ND	-	0.28	ND	ND	-	0.27	ND
Penicillium variabile	ND	-	0.27	ND	ND	-	0.28	ND	ND	-	0.27	ND
Rhizopus stolonifer	ND	-	0.27	ND	ND	-	0.28	ND	<10	0.1	0.27	<2.7
Scopulariopsis brevicaulis	ND	-	0.27	ND	ND	-	0.28	ND	ND	-	0.27	ND
Scopulariopsis chartarum	ND	-	0.27	ND	ND	-	0.28	ND	ND	-	0.27	ND
Stachybotrys chartarum	ND	-	0.27	ND	ND	-	0.28	ND	ND	-	0.27	ND
Trichoderma viride	ND	-	0.27	ND	ND	-	0.28	ND	33	1.9	0.27	9
Wallemia sebi	ND	-	0.27	ND	ND	-	0.28	ND	10	0.6	0.27	3
Total	981			270	276			76	1,774			480
Comments												

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Tuscon, AZ 85701

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Analysis: PCR ERMI Panel Modified
Job ID / Site:

Client ID: CH1000
Report Number: F125374
FALI Job ID: CH1000-5469
Date Received: 02/23/18
Date Analyzed: 03/14/18
Date Printed: 03/14/18
First Reported: NA

Total Samples Submitted: 4
Total Samples Analyzed: 4

Lab Number	40177298											
Sample ID	65-022118-04											
Location	Blank											
Sample Date	02/21/18											
Volume	0.0 L											
Organism	**Sp Eq**	**%**	**LOD**	**Sp Eq/S**	**Sp Eq**	**%**	**LOD**	**Sp Eq/S**	**Sp Eq**	**%**	**LOD**	**Sp Eq/S**
Acremonium strictum	ND	-	1	ND								
Alternaria alternata	ND	-	1	ND								
Aspergillus flavus	ND	-	1	ND								
Aspergillus fumigatus	ND	-	1	ND								
Aspergillus niger	ND	-	1	ND								
Aspergillus ochraceus	ND	-	1	ND								
Aspergillus penicilloides	ND	-	1	ND								
Aspergillus restrictus	ND	-	1	ND								
Aspergillus sclerotiorum	ND	-	1	ND								
Aspergillus sydowii	ND	-	1	ND								
Aspergillus unguis	ND	-	1	ND								
Aspergillus ustus	ND	-	1	ND								
Aspergillus versicolor	ND	-	1	ND								
Aureobasidium pullulans	ND	-	1	ND								
Chaetomium globosum	ND	-	1	ND								
Cladosporium cladosporioides I	ND	-	1	ND								
Cladosporium cladosporioides II	ND	-	1	ND								
Cladosporium herbarum	ND	-	1	ND								
Cladosporium sphaerospermum	ND	-	1	ND								
Epicoccum nigrum	ND	-	1	ND								
Eurotium amstelodami	ND	-	1	ND								
Mucor racemosus	ND	-	1	ND								
Paecilomyces variotii	ND	-	1	ND								
Penicillium brevicompactum	ND	-	1	ND								

Continue on next page

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Tuscon, AZ 85701

Sample Type: Polycarbonate Filter
Analysis: PCR ERMI Panel Modified
Job ID / Site:

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Lab Number	40177298											
Sample ID	65-022118-04											
Location	Blank											
Sample Date	02/21/18											
Volume	0.0 L											
Organism	**Sp Eq**	**%**	**LOD**	**Sp Eq/S**	**Sp Eq**	**%**	**LOD**	**Sp Eq/S**	**Sp Eq**	**%**	**LOD**	**Sp Eq/S**
Penicillium chrysogenum	ND	-	1	ND								
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Penicillium crustosum	ND	-	1	ND								
Penicillium purpurogenum	ND	-	1	ND								
Penicillium spinulosum	ND	-	1	ND								
Penicillium variabile	ND	-	1	ND								
Rhizopus stolonifer	ND	-	1	ND								
Scopulariopsis brevicaulis	ND	-	1	ND								
Scopulariopsis chartarum	ND	-	1	ND								
Stachybotrys chartarum	ND	-	1	ND								
Trichoderma viride	ND	-	1	ND								
Wallemia sebi	ND	-	1	ND								
Total	ND			ND								
Comments												

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Sample Type: Polycarbonate Filter
Analysis: PCR ERMI Panel Modified
Job ID / Site:

Total Samples Submitted: 4
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Explanations:

%	Percent of Total
LOD	Limit of Detection (Units are the same as result units)
Sp Eq/m^3	Spore equivalents per cubic meter of air sampled
ND	None Detected
Sp Eq	Total number of spore equivalents detected in the sample; 'Spore Equivalents' represent all cells pertaining
-	Not Applicable
	to the identified species which contain DNA, including hyphal fragments.

Notes:
This test is performed pursuant to licensing arrangements with Roche Molecular Systems, Inc. and Applied Biosystems.

Guidelines For Interpretation:
No accepted quantitative regulatory standards currently exist by which to assess the health risks related to mold exposure. Molds have been associated with a variety of health effects and sensitivity varies from person to person.

Several organizations, including: the American Conference of Governmental Industrial Hygienists (ACGIH); the American Industrial Hygiene Association (AIHA); the Indoor Air Quality Association (IAQA); the United States Environmental Protection Agency (USEPA); the Centers for Disease Control (CDC), as well as the California Department of Health Services (CADHS), have all published guidelines for assessment and interpretation of mold resulting from water intrusion in buildings.

FALI reports solely the organisms observed on the sample(s). The limit of detection is based on observing one spore/colony per area analyzed. This is not an inclusive list of the fungal types identified in the microbiology laboratory.

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